Rio Puerco

Resource Management Draft Plan & Environmental Impact Statement

August 2012

Volumes I , II, III

BLM

Albuquerque District, Rio Puerco Field Office · New Mexico

The Bureau of Land Management sustains the health,
diversity, and productivity of the public lands
for the use and enjoyment of present and future generations.

BLM/NM/PL-12-10-1610

Rio Puerco

Resource Management Draft Plan &
Environmental Impact Statement

Volume I

August 2012

United States Department of the Interior
Bureau of Land Management
Albuquerque District
Rio Puerco Field Office

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
New Mexico State Office
301 Dinosaur Trail
P.O. Box 27115
Santa Fe, New Mexico 87502-0115

In Reply Refer To:
1610 (A0100)

August 2012

Dear Reader:

For your review and comment, the Draft Resource Management Plan/Draft Environmental Impact Statement (Draft RMP/EIS) is available for the public lands managed by the Bureau of Land Management (BLM) Rio Puerco Field Office. When finalized and approved, this RMP will replace the 1986 RMP and subsequent amendments, and guide public land management by the Rio Puerco Field Office into the future. The Draft RMP/EIS and supporting information are available on the project website at: www.blm.gov/nm/riopuerco

The Rio Puerco Planning Area consists of about 9.5 million acres of land within Bernalillo, Cibola, McKinley, Sandoval, Torrance, and Valencia Counties in central New Mexico. The administrative boundaries of this area encompass land owned by entities other than the BLM for whom the agency cannot plan. However, BLM public surface acres within the planning area, total about 800,000, with over 3 million subsurface (mineral) acres managed by the Rio Puerco Field Office. These acreages are addressed in the Draft RMP/EIS.

The BLM has 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.

As a member of the public, your timely, substantive comments on the Draft RMP/EIS will help agency managers and staff to formulate the Proposed RMP/Final EIS. In developing this later document, which is the next phase of the planning process, the decision maker may select various actions from each of the alternatives analyzed in the Draft RMP/EIS to create a management strategy. This strategy will be designed to best meet the needs of the resources and values of the Field Office under the BLM's mandates of multiple use and sustained yield.

We are particularly interested in feedback concerning the adequacy and accuracy of the proposed alternatives, the analysis of the potential environmental impacts of implementing the alternatives' management decisions, and any new information that would aid in the analysis. Comments are most useful when they address one or more of the following:

- Errors in the analysis;
- New information that would have a bearing on the analysis;
- Misinformation that could affect the outcome of the analysis; and/or
- Requests for clarification.

Where possible, refer to the pages and paragraphs on which you are commenting. 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. We will accept your comments for 90 calendar days following the Environmental Protection Agency's (EPA's) publication of its Notice of Availability in the *Federal Register*. The BLM can best use comments and resource information received within this 90-day period.

Comments may be submitted electronically at: BLM_NM_RPFO_Comments@blm.gov, or may be sent by mail to the Rio Puerco Field Office address below, directed to the attention of Angel Martinez, Jr. To facilitate analysis of your comments and additional information, we encourage you to submit them in electronic format if possible. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that the entire comment, including personal identifying information, may be made publicly available at any time. While you can request in the comment that we withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

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. These meetings are planned for Albuquerque, Bernalillo, Cuba, Gallup, Grants, Los Lunas, and Moriarty. Copies of the Draft RMP/EIS have been sent to affected Federal, tribal, state and local government agencies. They are also available for public inspection at the following BLM locations:

Rio Puerco Field Office
435 Montaño Road NE
Albuquerque, NM

New Mexico State Office
301 Dinosaur Trail
Santa Fe, NM

Thank you for your continued interest in the Rio Puerco Draft RMP/EIS and our management of the public lands. For additional information or clarification regarding this document or the planning process, please contact Angel Martinez Jr., Rio Puerco Planning Coordinator.

Sincerely,

Jesse J. Juen
State Director

Rio Puerco Field Office
Draft Resource Management Plan and Environmental Impact Statement

Lead Agency: U.S. Department of the Interior, Bureau of Land Management

Type of Action: Administrative

Jurisdiction: Bernalillo, Cibola, McKinley, Sandoval, Torrance, and Valencia County in Central New Mexico.

Abstract: This Draft Resource Management Plan (DRMP) and Environmental Impact Statement (EIS) describes and analyzes alternatives for the planning and management of public lands and resources administered by the Bureau of Land Management (BLM), Rio Puerco Field Office (RPFO). The RPFO planning area is located in central New Mexico and includes approximately 757,100 acres of surface estate and 3.6 million acres of subsurface mineral estate.

The BLM is revising the RMP to address the availability of new data and policies, emerging issues, and changing circumstances that have occurred during the 25 years since the Record of Decision for the existing plan was signed. As part of the RMP revision process, the BLM conducted a scoping period to solicit input from the public and interested agencies on the nature and extent of issues and impacts to be addressed in the Draft EIS. Planning issues identified for this RMP revision focus on energy and mineral development; vegetation and habitat management; land ownership adjustments; motorized access to public lands; grazing; and special designations.

To assist the agency decision maker, cooperating agencies, and the public in focusing on appropriate solutions to planning issues, four alternative management plans are considered in the Draft EIS. **Alternative A** is a continuation of current management (No Action Alternative). Under this alternative, use of public lands and resources continue to be managed under the 1986 RPFO RMP, as amended. **Alternative B** emphasizes conservation of physical, biological, and heritage resources, while providing for the smallest level of development. **Alternative C** is the BLM's Preferred Alternative at this stage in the process (the Draft RMP/EIS). It is not a final agency decision; it is an indication of the agency's preliminary preference because it reflects the best combination of decisions to achieve BLM goals and policies, meets the purpose and need, addresses the key planning issues, and considers the recommendations of cooperating entities and BLM specialists. **Alternative D** emphasizes resource development, while providing for the smallest level of conservation of physical, biological, and heritage resources.

When completed, the RMP revision will provide a set of comprehensive, long-range decisions for: (1) managing resources throughout the planning area and (2) identifying allowable uses on the surface and federal mineral estates administered by the BLM. Comments are accepted for 90 days following the date the U.S. Environmental Protection Agency publishes the Notice of Availability for this Draft EIS in the *Federal Register*. Comments should be submitted via the RMP email at BLM_NM_RPFO _RMP_Comments @blm.gov.

Alternatively, comments can be faxed to (505) 761-8911 or mailed to:

Bureau of Land Management, Rio Puerco Field Office
Attn: Angel Martinez Jr.
435 Montano NE
Albuquerque, NM 87107
Rio Puerco Draft RMP/EIS

Sincerely,

Jesse J. Juen
State Director

Thomas E. Gow
Field Manager

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ACRONYMS AND ABBREVIATIONS LIST

Acronym	Meaning
ACEC	Area of Critical Environmental Concern
AML	Abandoned Mine Lands
APD	Application for Permit to Drill
ATV	all-terrain vehicle
AUM	animal unit month
BLM	Bureau of Land Management
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CSU	controlled surface use
CWA	Clean Water Act
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act
FLPMA	Federal Land Policy Management Act
FRCC	Fire Regime Condition Class
GPS	global positioning system
HSP	Habitat Stamp Program
IMP	Interim Management Policy
IMPLAN	Impact Analysis for Planning
LN	lease notice
m	Meter
MFP	Management Framework Plan
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
New Mexico Standards and Guidelines	New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management
NHPA	National Historic Preservation Act
NM	state-wide stipulations (for surface protection)
NMDGF	New Mexico Department of Game and Fish
NO_x	nitrogen oxide
NRHP	National Register of Historic Places
NSO	no surface occupancy
NWSRS	National Wild and Scenic Rivers System
OHV	off-highway vehicle
PFC	Proper Functioning Condition
PFYC	Potential Fossil Yield Classification
$PM_{2.5}$	particulate matter 2.5 microns in diameter or smaller
POD	Plan of Development
PSD	prevention of significant deterioration
RAMP	Recreation Area Management Plan
RMP/EIS	Resource Management Plan/Environmental Impact Statement
RMZ	recreation management zones
ROD	Record of Decision
RP	Rio Puerco Field Office only stipulations (for surface protection)
RPFO	Rio Puerco Field Office
SMA	Special Management Area

Acronym	Meaning
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
SWFL	southwestern willow flycatcher
TCP	Traditional Cultural Property
TL	timing limitations
TLS	timing limit stipulations (for surface protection)
TMP	Travel Management Plan
USC	United States Code
USDA	U.S. Department of Agriculture
USDA-NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
VRM	visual resource management
WO	Washington Office stipulations (for surface protection)
WSA	Wilderness Study Area
WSR	Wild and Scenic River
WUI	Wildland Urban Interface

1 PURPOSE OF AND NEED FOR ACTION

1.1 Introduction and Background

Under the Federal Land Policy and Management Act of 1976 (FLPMA), the Bureau of Land Management (BLM) develops and periodically revises its land-use plans. These plans are commonly referred to as "Resource Management Plans" (RMPs), which guide management of BLM-administered public lands.

The BLM Rio Puerco Field Office (RPFO) is revising its existing RMP, originally approved in 1986. This revised plan, now called the "Rio Puerco Resource Management Plan Revision" (RMP Revision) is being prepared along with an associated Environmental Impact Statement (EIS), in compliance with the National Environmental Policy Act of 1969 (NEPA). The RMPR/EIS provides future management direction for public lands within the boundaries of the Rio Puerco Planning Area (Planning Area).

The Planning Area consists of approximately 744,387 acres of BLM-managed public surface land and approximately 3,617,510 acres of federal mineral estate in Bernalillo, Cibola, Torrance and Valencia counties, most of Sandoval County, and portions of McKinley County in central and west-central New Mexico (refer to Map 1). In this RMP Revision, the BLM addresses mineral decisions on 1,894,672 acres of the mineral estate associated with BLM-managed public land and private surface ownership. The lands where private surface is associated with the federal mineral estate are referred to as "split-estate lands," which total about 1,214,457 acres.

In this Draft RMP Revision/Draft EIS, BLM staff members on an Interdisciplinary (ID) Team have described and analyzed alternative ways of managing public lands, resources, and uses administered by the RPFO in the future. The Rio Puerco RMP Revision applies to all BLM-managed public lands within the Planning Area boundaries, except for the portion of the Field Office administrative area already addressed in the *Proposed El Malpais Plan and Final Environmental Impact Statement* (USDI, BLM 2000) and the *Kasha-Katuwe Tent Rocks National Monument Proposed Resource Management Plan and Final Environmental Impact Statement* (USDI, BLM 2006 – these are amendments to the 1986 RMP that are called "stand-alone" plans). Also excluded are lands identified as being under BLM administration that have, under Public Land Order 2198, been assigned to Bureau of Indian Affairs to be administered for Indian use.

1.1.1 Historical Overview

In 1946, the BLM was formed by a Congressional merger of the Grazing Service with the General Land Office. The foundation of the BLM dates back to the Land Ordinance of 1785, which established the public domain and led to the creation of the General Land Office. The Northwest Ordinance of 1787 instituted the survey and settlement of lands ceded from the 13 colonies to the federal government and lands later acquired by the government from other countries. During the nation's westward land base expansion, the settlement of western lands was encouraged through the enactment of a variety of laws, including the Homestead Acts and the Mining Law of 1872.

Over time, encouraging pioneers to settle the west became less necessary and the commercial value of these lands increased. A variety of statutes enacted to manage mineral, timber, or livestock foraging activities on public lands followed. For example, the Mineral Leasing Act of 1920 allowed leasing, exploration, and production of selected commodities such as coal, oil, gas, and sodium on public lands. The Taylor Grazing Act of 1934 provided for management of the public lands for livestock grazing. Since the passage of FLPMA, BLM-administered lands have been managed under the principles of multiple use and sustained yield. The agency manages for multiple uses and a balance between increasing and competing demands for resources on public lands.

1.1.2 Description of the Planning Area

The Planning Area extends from the eastern boundary of Torrance County west through Torrance, Bernalillo, Valencia, Cibola, and McKinley counties to the New Mexico-Arizona boundary, and from the Valencia County southern boundary north through Valencia, Bernalillo, and Sandoval counties to the Sandoval-Rio Arriba County boundary. Interstate 40 (I-40) crosses the Planning Area east-west, while Interstate 25 (I-25) runs north-south. These interstate highways intersect each other in Albuquerque. Other cities and towns from east to west on I-40 include Moriarty, Grants, Milan and Gallup. The I-25 cities and towns from south to north are Belen, Los Lunas, and Bernalillo; the highway leaves the Planning Area as it exits Sandoval County. These highways also cross American Indian Pueblo and Tribal lands as they pass through the Planning Area.

Approximately 13 percent of New Mexico's lands make up the Planning Area and are home to approximately 45 percent of New Mexico's population. Sandoval County public lands exist in noncontiguous blocks of ownership (known as a "checkerboard pattern"), creating some access and management concerns.

1.1.3 Ecoregions of the Planning Area

The public land acres in the Planning Area make up portions of four of the Environmental Protection Agency's (EPA's) Level III ecoregions. Level III mapping describes smaller ecological areas nested within Level II regions. At Level III, the continent currently contains 182 ecological regions. These smaller divisions enhance regional environmental monitoring, assessment, and reporting, as well as decision-making. Because Level III regions are smaller, they allow locally defining characteristics to be identified, and more specifically oriented management strategies to be formulated.

Over 85 percent of the public lands in the Planning Area are in the Arizona/New Mexico Plateau ecoregion, with the rest being in the other three ecoregions, the Arizona/New Mexico Mountains, the Southern Rockies, and the Southwestern Tablelands (refer to Map 2 and Table 1.1, which follows Maps 1 and 2). The Arizona/New Mexico Plateau represents a large transitional region between the semiarid grasslands and low-relief areas of the Southwestern Tablelands. The Arizona/New Mexico Mountains are distinguished from neighboring mountainous ecoregions by their lower elevations and associated vegetation indicative of drier, warmer environments, due in part to the region's more southerly location. The Southern Rockies are composed of steep,

rugged mountains with high elevations. Although coniferous forests cover much of the region, as characteristic of most of the mountainous regions in the western United States, the ecoregion's vegetation, soil and land use follow a pattern of elevational banding. The Southwestern Tablelands flank the High Plains with red-hued canyons, mesas, badlands, and dissected river breaks. (Source: Primary Distinguishing Characteristics of Level III Ecoregions of the Continental United States, July, 2010--Level III and IV Ecoregions of the Continental United States.)

Map 001: RMP Location Map (11x17)

Map-002: Rio Puerco Planning Area (full color, size 11”x17”)

Table 1.1: Acres of Level III EPA Ecoregions within the Rio Puerco Planning Area

Ownership/Management	Ecoregion Acreage[a]				
	ANMM	ANMP	SR	ST	Total
BLM-Managed Surface [b]	1,561,425	5,418,600	591,767	1,935,298	9,507,090

Notes: [a] ANMM—Arizona/New Mexico Mountains; ANMP—Arizona/New Mexico Plateau; SR—Southern Rockies; ST—Southwestern Tablelands.
[b] The acreages calculated with the BLM's Geographic Information System are used because they allow for production of maps and easier analyses based on computerized data.

1.1.4 Land Ownership in the Planning Area

As defined by FLPMA, "…'public lands' means 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…" The U.S. Department of the Interior (USDI), BLM Rio Puerco Field Office is responsible for managing public lands. State, tribal and county governments have land-use planning responsibility for other lands under their jurisdiction. Tables 1-2 and 1-3 break down the surface and mineral acreage in the Planning Area by ownership.

Table 1.2: Acreage of Surface Land Ownership in the Rio Puerco Planning Area

Owner/Manager	Total Acreage
BLM(included in this plan)	744,387
BLM (not included in this plan)	259,393
Dept. of Defense	54,947
U.S. Forest Service	1,023,739
Indian/Tribal	2,497,534
National Park Service	143,886
Private	4,032,645
State of New Mexico	652,811
State Dept. of Game & Fish	3,464
State Park	7,136
Valles Caldera National Preserve	86,235
Total	9,506,176

1.2 Purpose of and Need for the Resource Management Plan Revision

Council on Environmental Quality (CEQ) regulations [at Title 40, Code of Federal Regulations (CFR), Part 1502.13 and Part 1600] require the purpose and need of an EIS to "briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." This section of this EIS provides a context and framework for establishing and evaluating the reasonable range of alternatives described in Chapter 2.

Table 1.3: Acreage of Mineral Ownership in the Rio Puerco Planning Area

Mineral Ownership	Acreage [a]
BLM--All Minerals	2,936,258

Mineral Ownership	Acreage [a]
BLM--Coal only	53,161
BLM--Oil & gas only	20,939
BLM--Oil, gas & coal only	7,532
BLM--Other minerals	599,620
Total BLM mineral acres	3,617,510
No BLM minerals	5,834,348
Grand Total	**9,451,859**

Notes: [a] By GIS calculation, the difference between mineral ownership & surface ownership for the Planning Area is 160 acres. The acreages calculated with the BLM's GIS system are being refined, & are used because they allow for production of maps & easier multiple analyses based on computerized data.

1.2.1 Purpose of the RMP Revision

Section 102 of FLPMA establishes the policy for periodically projecting the present and future use of public lands and their resources using the land-use planning process. Sections 201 and 202 establish the BLM's land-use planning requirements. BLM Handbook H-1601-1, *Land Use Planning Handbook*, provides guidance for implementing the BLM land-use planning requirements established by Sections 201 and 202 of FLPMA and the regulations at 43 CFR 1600.

The purpose, or goal, of the land-use plan is to ensure that BLM-administered lands are managed in accordance with FLPMA and the principles of multiple use and sustained yield. In general, the purpose of this RMP Revision is to provide a comprehensive framework for the BLM's management of public lands within the Planning Area, along with the allocation of resources under the multiple use and sustained yield mandates of FLPMA. In addition, the purposes of the plan revision are as follows:

- Consolidate the existing RMP and its amendments.
- Reevaluate, with public involvement, existing conditions, resources, and uses.
- Reconsider the mix of resource allocations and management decisions designed to balance uses, and the protection of resources under FLPMA and other applicable laws.
- Resolve multiple-use conflicts or issues between resource values and resource uses.
- Establish consolidated guidance and updated goals, objectives, and management actions for the public lands in the Decision Area. (Note: The Decision Area is that portion of the larger Planning Area made up only of BLM-managed public lands.) The RMP is comprehensive in nature and addresses issues that have been identified through agency, interagency, and public scoping efforts.
- Under the requirements of the National Environmental Policy Act (NEPA), its implementing regulations, and other applicable laws, disclose and assess the direct, indirect, and cumulative impacts of the reasonably foreseeable future actions resulting from the potential implementation of each proposed alternative.

1.2.2 Need for Revising the Existing Plan

The BLM has identified the need to revise the existing plan through a formal internal evaluation, the results of an internal Analysis of the Management Situation (AMS), and examination of issues identified during the public scoping process and through collaboration with cooperating agencies. In the 25 years since the Record of Decision (ROD) was signed in January 1986 for the existing plan, new data have become available, new policies have been established, and old policies have been revised.

The expanding population of the Planning Area over the last 25 years has resulted in competition for public land resources, as was evident during the internal and external scoping process. This competition, along with emerging issues and changing circumstances, resulted in the need to revise the existing plan.

In addition, the existing plan's decisions no longer serve as a useful guide for resource management in the Planning Area. For example, the development of the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* (USDI, BLM 2000) and the emphasis on recreation and visitor services have resulted in different priorities than were unforeseen when the existing plan was approved in 1986. Renewable energy has become an emerging issue.

Additionally, BLM guidelines for specially designated areas have changed, so previously designated areas must be reevaluated to comply with these new requirements. Tribal concerns about land tenure, mineral use, access issues, and urban expansion reflect changes since the signing of the existing plan. These identified changes, along with the issues and resource conflicts identified in both internal and external scoping, frame the need for a plan revision.

1.3 Decision Framework

As identified both internally and externally, the planning issues drive the need for this RMP Revision. Together with these issues, the planning criteria provide the framework in which RMP decisions are made. "RMP decisions" are those decisions established or determined in the Approved RMP. For example, the BLM received several nominations for Areas of Critical Environmental Concern (ACECs) during the scoping process for this RMP Revision. These issues fall within one of the planning criteria (refer to the "Planning Criteria," Section 1.3.2 below), which is the need to identify and analyze areas potentially suitable for ACEC designation. In the Approved RMP Revision, BLM managers and staff will determine whether any ACECs will be designated within the Planning Area. In this example, the land-use planning decision is referred to as a "special designation."

The BLM's Interdisciplinary (ID) Team has developed management strategies that provide viable options for addressing the planning issues. These strategies provide the building blocks from which general management scenarios and eventually, the more detailed resource management alternatives are developed. The resource management alternatives reflect a reasonable range of management options that fall within limits set by the planning criteria. The planning issues and planning criteria used to revise the existing plan are described in the following sections.

1.3.1 Planning Issues

Planning issues express opportunities, conflicts, and problems associated with the management of public lands. Issues also reflect new data, new or revised policies, and changes in resource uses that affect the Planning Area.

Public input was generated through a formal public scoping period, which began with the publication of a notice in the *Federal Register* on February 29, 2008. The BLM held seven public meetings during the scoping period. The formal scoping period was scheduled to end May 31, 2008, but at public request was extended through September 30, 2008.

For a discussion of the planning issues identified during scoping, please refer to the RPFO *Final Scoping Report* (BLM). This report is available on the Rio Puerco RMP Revision website at Rio Puerco (Albuquerque) Resource Management Plan Revision and Environmental Impact Statement. Other resource and use issues are identified in the *BLM Planning Handbook (H-1601-1)* and *BLM Manual 1610*.

1.3.1.1 Issues Considered in this RMP Revision

Those planning issues determined to be within the scope of the RMP Revision/EIS were used to develop one or more of the alternatives, or are addressed in other parts of the document. For example, as planning issues were refined, the BLM collaborated with cooperating agencies to develop a reasonable range of alternatives designed to address and/or resolve key planning issues, such as what areas are suitable for energy and mineral resource development. A reasonable range of alternatives provides various scenarios for how the BLM and cooperating agencies can address this and other key planning issues, including the management of resources and resource uses in the Planning Area. In other words, key planning issues serve as a guide for the development of management alternatives. The key planning issues identified for use in developing the alternatives addressed in this EIS are listed below.

1.3.1.1.1 Land Tenure Adjustment

- What land tenure adjustments are needed to improve access to and management of public lands?

1.3.1.1.2 Mineral and Energy Development

- What areas are suitable or unsuitable for energy and mineral resource development?
- What level of development should be allowed in areas suitable for energy and mineral development?

1.3.1.1.3 Recreation and Visitor Services

- What areas should be managed as Special Recreation Management Areas (SRMAs) or Extensive Recreation Management Areas (ERMAs)?
- What facilities should be provided?
- What services should be provided?

1.3.1.1.4 Visual Resources Management (VRM)

- What visual resources should be considered for management?

- What classes should be assigned for visual resource management?

1.3.1.1.5 Special Designations

- What areas, if any, contain unique or sensitive resources requiring special management?
- Do these areas meet importance and relevance criteria? Why not consider them as ACECs?

1.3.1.1.6 Travel and Trails Management

- Where are trails needed for access (of any type—motorized, hiking, or equestrian) to certain resources or their protection?
- Where are roads needed?
- Where is there a need to close roads?
- Which closed roads should be rehabilitated?

1.3.1.1.7 Public Land-Urban Interface

- What areas need management to improve health and safety in this interface?
- What areas need management to reduce user conflict in this interface?

1.3.1.1.8 Off-Highway Vehicle (OHV) Use

- What areas are attractive for OHV use?
- What areas have resources tolerant of or compatible with OHV use?
- How can consistency with all resource program goals and objectives be achieved?
- Who are the primary travelers?
- What are the objectives for allowing travel in the area?
- Which characteristics of the setting are to be maintained (including VRM settings)?
- What are the primary means of travel to be allowed to accomplish program objectives and maintain the setting characteristics?

1.3.1.2 Issues Not Addressed in this RMP Revision

1.3.1.2.1 Policy or Administrative Actions

These include actions implemented by the BLM because they are standard operating procedures, federal law requires them, or they are required under BLM policy. They are therefore eliminated from detailed analysis in this planning effort. Administrative actions do not require a planning decision for implementation.

1.3.1.2.2 Issues Beyond the Scope of the RMP Planning Process and Eliminated from Detailed Analysis

These include decisions that are not under the jurisdiction of the BLM, particularly those that are within the jurisdiction of other governmental agencies (e.g., tribal entities, state, county, or local jurisdictions),or those beyond the capability of the BLM to resolve as part of the planning process. Issues identified in this category include the following.

- New proposals for wilderness or Wilderness Study Area designation.

- Activities and uses beyond the jurisdiction of the BLM, including changes in existing laws, policies, and regulations.
- Availability of funding and personnel for managing resource and use programs.
- Consideration of alternative energy sources as substitutes for activities related to mineral development.
- The State of New Mexico and the counties addressed in this RMP/EIS may hold valid existing rights-of-way in the Planning Area under Revised Statute (R.S.) 2477 (Act of July 28, 1866; Chapter 262262, 8, 14, Stat. 252, 253 codified at 43 U.S.C. 932). On October 21, 1976, the Congress repealed R.S. 2477 by passing FLPMA. This RMP does not adjudicate, analyze, or otherwise determine the validity of claimed rights-of-ways. Additionally, nothing in the RMP extinguishes any valid right-of-way, or alters in any way the legal right the state and counties have to assert and protect R.S. 2477 rights, or to challenge in federal court or other appropriate means any use restrictions imposed by the RMP that they believe are inconsistent with their rights.

Additional reasons why some issues have been categorized as being beyond the scope of the planning process are discussed in Chapter 2 (Section 2.3) of this document.

1.3.1.3 Management Concerns

Management concerns are topics or points of dispute that involve a resource management activity or land use. While some of these concerns may overlap the issues, a management concern is generally more important to an individual or group, whereas a planning issue has the potential to be a more widespread source of conflict or opportunity. The management concerns that have received consideration in the planning process are as follows.

1.3.1.3.1 Air Quality

The document identifies (1) all potentially affected Class I areas; (2) actions that could be taken to protect these areas; and (3) area-wide criteria or restrictions that will be applied to any activity authorized by the Rio Puerco Field Office to ensure compliance with all local, state, federal or tribal air quality standards and implementation plans.

1.3.1.3.2 Cave Resources

As a part of this planning effort, BLM staff will determine whether or not caves located on Rio Puerco Field Office public lands meet the criteria for significance as set forth at 43 CFR 37.11(c). As they meet the criteria, the RPFO will describe management objectives and prescriptions for those areas. Cave-specific wildlife may also be addressed under wildlife resources, and caves may be managed as wildlife habitat.

1.3.1.3.3 Resources and Traditional Cultural Values

Through the planning process, BLM staff members have done the following: (1) described the cultural resource values located within the Planning Area; (2) established goals for their management, including protection by preservation of significant cultural resources, reduction of imminent threats, and the resolution of potential conflicts from natural or human-caused deterioration or from other resource uses; and (3) addressed the allocation of recorded sites to use categories as identified in *BLM Manual 8110*. In addition to assigning use categories to

known cultural resources, BLM staff are also carrying out the following: (1) developing a strategy for how those cultural resources assigned to use categories may realize their use potential; and (2) specifying that all authorizations for land and resource use will comply with Section 106 of the National Historic Preservation Act.

1.3.1.3.4 Engineering

The RMP Revision provides guidance for building and maintaining resource improvements for watershed, wildlife, recreation and livestock grazing. This guidance is consistent with resource management objectives for livestock grazing on allotments and use areas (*BLM Manual 9101*).

1.3.1.3.5 Environmental Justice

BLM staff have determined if actions proposed in the RMP Revision would adversely and disproportionately impact minority populations, low-income communities, and local American Indian tribes, nations, and pueblos (under Executive Order No. 12989, Environmental Justice). While the analysis of environmental justice is specifically concerned with disproportionate effects on these populations, the social and economic analysis produced under NEPA has identified all potential social and economic effects, positive and negative, on any distinct group.

1.3.1.3.6 Lands and Realty

In the RMP Revision, BLM staff have identified land use authorizations under 43 CFR 2800, 2880, and 2920, including but not limited to: transportation and utility needs, land acquisitions adjacent to the EL Malpais NCA, and needs under the Recreation and Public Purposes Act.

1.3.1.3.7 Paleontological Resources

Through the RMP Revision, BLM staff have developed measures for managing paleontological resources. These measures are in accordance with the management classes established in the *BLM 8270 Handbook* and current policy guidance found in various Washington Office Instruction Memoranda.

1.3.1.3.8 Recreation and Visitor Services

In developing the RMP Revision, agency staff have identified how many Extensive Recreation Management Area (ERMAs) and Special Recreation Areas (SRMAs) will be identified within the Planning Area. For each ERMA or SRMA, the following aspects of recreation management are addressed: management of resources, visitors, and facilities; marketing (outreach, interpretation, environmental education and other visitor services); monitoring (social and environmental); and administration (regulatory; permits and fees, concessions).

1.3.1.3.9 Social and Economic Concerns

The Rio Puerco Field Office manages land within six counties, near larger cities such as Albuquerque, Rio Rancho, and Gallup, but also near smaller towns or communities such as Belen, Bernalillo, Bosque Farms, Corrales, Cuba, Edgewood, Estancia, Grants, Jemez Springs, Los Lunas, Los Ranchos de Albuquerque, Milan, Moriarty, Mountainair, Placitas, San Ysidro, Tijeras, and Willard. The concerns among residents about potential public land management decisions vary in the Planning Area, and are being considered during the RMP Revision process. The BLM held two Economic Strategy Workshops in 2008 to: (1) develop with rural community residents a common understanding of regional economic changes; and (2) give those citizens an opportunity to discuss challenges and opportunities with resource specialists.

1.3.1.3.10 Soil Resources

Soil resources will be managed to maintain or improve soil health and productivity, and to minimize adverse impacts to these resources through management activities. Best Management Practices (BMPs) and mitigation measures will be implemented at the site-specific activity/project level to prevent or reduce soil erosion and compaction, especially for soils with severe erosion susceptibility.

1.3.1.3.11 Vegetative Communities

BMPs and mitigation measures will be implemented at the site-specific activity/project level to address invasive species and noxious weeds. Brush management will be used where species such as big sagebrush, piñon and juniper trees are invasive. Saltcedar is a special-category, listed noxious weed that infests the riparian areas of the Rio Puerco and is targeted for eradication from Field Office management areas. Cheatgrass is also a new special-category, listed noxious weed that infests the Upper Rio Puerco and will be targeted for large-scale treatment.

1.3.1.3.12 Visual Resources Management (VRM)

Based on an assessment of changing conditions, agency staff have updated the existing (1979) VRM inventory for the Decision Area. The intent is to balance the need for development with protecting scenic values. Staff members have identified (1)areas in which maintaining the landscape is deemed more important than landscape development (e.g., with energy development, fuels reduction, utility corridors, road and trail development, or recreational facility development), and (2) other areas in which such development activities may be allowed. In assigning management classes, fragmented ownership has been an important consideration so as to avoid managing scenic values on small land parcels where BLM ownership is too limited to affect the overall landscape.

1.3.1.3.13 Water Quality

BLM staff have worked closely with the New Mexico Environment Department (NMED) regarding water quality planning and management. Data examined have included (but were not limited to) that pertaining to the NMED's identified impaired streams [in category (303(d)], riparian condition, land jurisdiction, water quality, and water quantity. BMPs to protect or improve water quality have been developed, including those required (1) for watersheds, as the result of the 303(d)/Total Maximum Daily Load (TMDL) process, (2) under the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* (USDI, BLM 2000), and (3) under existing Memoranda of Understanding (MOUs) with the State of New Mexico.

1.3.1.3.14 Wildfire and Prescribed Fire Management

The fire management portion of the RMP Revision will be monitored through local Fire Management Plan (FMP) evaluation and accomplishments. As prescribed by requirements of the Healthy Forests Restoration Act of 2003 [Public Law (P.L.) 108-148], BLM staff have also addressed emergency stabilization and rehabilitation activities on landscapes and in communities affected by wildland fire through the use of Community Wildfire Protection Plans. Additionally, the RMP Revision is consistent and in compliance with applicable New Mexico State smoke management requirements.

1.3.2 Planning Criteria

Planning criteria are constraints or ground rules that guide and direct the development of the plan. They ensure that the plan is tailored to the identified issues, while unnecessary data collection and analyses are avoided. The criteria may be adjusted during RMP development based on management concerns and the results of the overall public scoping process. The RMP Revision/EIS has been developed in compliance with FLPMA, NEPA, and all other applicable laws, regulations, and policies. The criteria listed below also help to guide final plan selection and are used as a basis for evaluating the responsiveness of the planning options.

- Land use decisions in the RMP Revision will apply to the surface and subsurface estate managed by the BLM.
- For program-specific guidance for decisions at the land-use planning level, the process is following the BLM's policies in the *Land Use Planning Handbook, H-1601*.
- Broad-based public participation and collaboration are an integral part of the planning process.
- BLM staff have endeavored to make decisions in the plan that are compatible with the existing plans and policies of adjacent local, state, and federal agencies and local American Indian tribes/nation/pueblos, as long as the decisions are consistent with the purposes, policies, and programs of federal law and regulations applicable to public lands.
- In the RMP Revision, the BLM recognizes the state's responsibility and authority to manage wildlife. The BLM continues to consult with the New Mexico Department of Game and Fish.
- The RMP Revision recognizes valid existing rights.
- The RMP Revision/EIS incorporates, where applicable, management decisions brought forward from existing planning documents.
- BLM staff are working collaboratively with cooperating agencies and all other interested groups, agencies, tribal entities, and individuals.
- The BLM and cooperating agencies have jointly developed alternatives for resolution of resource management issues and management concerns.
- Each area with special or unique resource values has been evaluated for a potential administrative designation, including Area of Critical Environmental Concern, Wild and Scenic River, or other appropriate designation.
- Any free-flowing river and its associated land corridor found to be eligible for inclusion in the Wild and Scenic River System have been addressed in the RMP Revision/EIS by developing alternatives for protective management.
- Wilderness Study Areas will continue to be managed under the BLM's *Interim Management Policy for Lands under Wilderness Review* (IMP) until the Congress either designates all or portions of the WSAs as wilderness, or releases the lands from further wilderness consideration. The BLM no longer designates additional WSAs through the RMP Revision process, nor manages any lands other than existing WSAs in accordance with the Wilderness IMP. Areas outside of WSAs found to have wilderness characteristics, however, are considered in the RMP Revision as described in Appendix C of the *Land Use Planning Handbook* and in accordance with Instruction Memorandum (IM) 2011-154 ("Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider

Lands with Wilderness Characteristics in Land Use Plans"). Any recently acquired lands have been evaluated for wilderness characteristics.

- Forest management strategies are consistent with the Healthy Forests Restoration Act of 2003.
- Fire management strategies are consistent with the current Decision Record and Resource Management Plan Amendment for Fire and Fuels Management on Public Land in New Mexico and Texas (USDI, BLM 2004).
- In the RMP Revision, BLM staff have considered public welfare and safety when addressing hazardous materials and fire management.
- Geographic Information System (GIS) data and metadata meet Federal Geographic Data Committee (FGDC) standards, as required by Executive Order 12906. All other applicable BLM data standards also have been followed.
- The planning process has incorporated ongoing consultation with American Indian tribal, national, and pueblo governments, and the RMP Revision includes strategies for protecting recognized traditional uses.
- Planning and management direction have focused on the relative values of resources, not the combination of uses that would give the greatest economic return or economic output.
- In the plan, the BLM has considered the quantity and quality of non-commodity resource values.
- Where practicable and timely for the planning effort, the best available scientific information, research, and new technologies have been used.
- Actions proposed in the plan comply with all applicable regulations, are reasonable and achievable, and allow for flexibility while supporting adaptive management principles.
- The Economic Profile System (EPS) has been used as one source of demographic and economic data for the planning process. This system has provided baseline data and contributed to estimates of existing and projected social and economic conditions.
- Planning decisions have been made with consideration of the impacts of climate change on resources, as well as the potential contributions to climate change as the result of greenhouse gases.

1.3.3 Relevant Statutes, Limitations, and Guidelines

Numerous federal and state laws and applicable regulations, policies, and actions have influenced the development of the alternatives analyzed in this EIS. FLPMA is the primary authority for the BLM's management of public lands. This law provides the overarching policy by which public lands are managed and establishes provisions for land use planning, land acquisition, administration, range management, rights-of-way (ROWs), designated management areas, and the repeal of certain laws and statutes. FLPMA also requires the BLM to provide food and habitat for fish, wildlife, and domestic species. In addition, the BLM is integrating the results of the Energy Policy and Conservation Act Reauthorization of 1998 (P.L. 105-388) and the Energy Act of 2000 (P.L. 106-469 , discussed in Chapter 2) into all RMPs. NEPA provides for public input regarding issue identification and consideration of the environmental impacts of major federal actions on the quality of the human environment.

1.3.4 Other Related Plans

BLM planning policies require that the agency review approved or adopted resource plans of other federal, state, local, and tribal governments and, where practicable, be consistent with those plans. Plans related to the management of land and resources such as this RMP Revision are coordinated with the New Mexico Department of Game and Fish. Specifically, coordination addresses potential impacts to crucial wildlife habitats. The following are related plans and environmental analyses that BLM staff members have reviewed for consistency.

- Socorro Resource Management Plan Revision and Environmental Impact Statement (USDI, BLM 2010d)
- Final Resource Management Plan Amendments/Record of Decision (ROD, Designation of Energy Corridors on Federal Land in 11 Western States (USDI, BLM & USDOE, 2008)
- Final Programmatic Environmental Impact Statement on Wind Energy Development on Bureau of Land Management-Administered Lands in the Western United States (USDI, BLM 2008)
- Final Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States (USDA, FS & USDI, BLM 2008)
- Final Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (USDOE & USDI, BLM, 2011)
- *Draft Environmental Impact Statement for Travel Management on the Santa Fe National Forest* (USDA, FS)—available at Travel Management: DEIS Information
- *Black-Footed Ferret Recovery Plan* (USDI, FWS)—available at *Black-footed Ferret Recovery Plan*
- *Final Recovery Plan for the Southwest Willow Flycatcher*, (USDI, FWS)—available at Final Recovery Plan for the Southwestern Willow Flycatcher
- Sandoval County Comprehensive Plan (2001)
- Valencia County Comprehensive Land Use Plan (2005)
- Placitas Open Space Master Plan (Sites Southwest, LLC 2002)

1.4 The Planning Process

Revision of an existing land use plan is a major federal action for the BLM. NEPA requires federal agencies to prepare an EIS for major federal actions; thus, an EIS accompanies this revision of the existing plan. In Chapter 4 of this document, analysis of the impacts of four alternative RMPs for the Planning Area is contained, including the No Action Alternative. The No Action Alternative reflects current management (the existing plan, as amended). NEPA requires analysis of a No Action Alternative.

1.4.1 Steps in the Process

The list below shows the required planning steps for EIS-level planning efforts, as does Figure 1.1 (which follows the list).

Prepare to plan.

The Preparation Plan was written by a full BLM Interdisciplinary (ID) Team. This document provides the foundation for the entire planning process by identifying the preliminary issues to be addressed and the skills needed to address them. It also outlines a preliminary budget, preliminary planning criteria, data and metadata available and needed.

Issue a Notice of Intent (NOI) to prepare the RMP/EIS and conduct scoping.

Scoping is a requirement of both the NEPA regulations and the BLM planning regulations. Before scoping begins, the BLM must publish an NOI in the Federal Register to announce its decision to prepare an EIS (and associated planning document). The Rio Puerco Field Office published an NOI in the Federal Register on February 29, 2008, distributed scoping notices simultaneously to the public, mailed cooperating agency invitations (refer to Chapter 5 of this document), and held eight scoping meetings (refer to Table 5-1 in Chapter 5).The scoping period was scheduled to end on May 31, 2008, but at public request, was extended through September 30, 2008. The agency published a Public Scoping Summary Report in September of 2008 with the results of the input.

Analyze the management situation.

The Rio Puerco RMPR ID Team analyzed the available inventory data and other information to characterize the Resource Area profile, portray the existing management situation, and outline management opportunities to respond to identified issues. The Analysis of the Management Situation was completed in December 2009 and is on file at the Field Office.

Formulate alternatives.

In compliance with 40 CFR 1502.14, the ID Team considered a reasonable range of alternatives. These alternatives outline various ways of addressing the planning issues, management of the resources and uses in the Planning Area.

Analyze the impacts of the alternatives.

The ID Team estimated and described the physical, biological, economic and social impacts of implementing each alternative. The alternatives have been considered in detail, including the No Action alternative (43 CFR 1610.4-6).

Select a Preferred Alternative.

By evaluating the alternatives in the EIS, the BLM ID Team has determined which combination of potential planning decisions contained in the alternatives best meets the mandates of multiple use and sustained yield contained at Section 103(c) of FLPMA [43 U.S.C. 1702(c)].

Prepare a Draft RMP and Draft EIS.

The draft document describes the purpose and need for the plan, the affected environment, the alternatives for managing the public lands within the Rio Puerco Planning Area (including the Preferred Alternative), the environmental impacts of implementing those alternatives, and the consultation and coordination in which the BLM engaged during plan development.

Publish a Notice of Availability (NOA) and provide a public comment period.

Following publication of the NOA in the Federal Register by the Environmental Protection Agency, the BLM will provide 90 days for the public to comment on the Draft RMP/EIS. The Rio Puerco Field Office will also announce the start of the comment period (and the dates, times, and locations of public meetings) through other means, such as direct mailings, e-mailings, and Internet postings.

Prepare a Proposed RMP and Final EIS.

The Proposed RMP/Final EIS builds on the Draft RMP/EIS, including appropriate responses to public comments received on the Draft, as well as a description of the comments received. It also corrects errors in the Draft RMP/EIS identified through the public comment process and internal BLM review. The Proposed RMP /Final EIS may contain modification of the alternatives and the accompanying impact analysis contained in the Draft RMP/EIS.

Publish a Notice of Availability (NOA), provide a protest period, and resolve protests.

The issuance of the Proposed RMP/Final EIS officially occurs with the EPA's publication of a NOA for the document in the Federal Register. The BLM publishes a NOA as well, which contains information about the project, protest period and filing instructions, contact information, and other supplemental information not contained in the EPA's NOA. Individuals and entities have 30 days from the publication of EPA's NOA for the document to file a protest with the BLM Director. BLM staff then will review and respond to valid protests by publishing a Protest Resolution Report. Protests may lead to changes in the Record of Decision (ROD) and Approved RMP.

Provide a Governor's consistency review period.

In addition to a 30-day protest period, the BLM must also provide a 60-day review period for the Governor of New Mexico to examine consistency with state and local plans, policies, and programs.

Prepare a Record of Decision (ROD) and Approved RMP.

The Rio Puerco RMP is officially approved when the State Director signs a ROD. The Approved RMP outlines the goals, objectives and management actions chosen by the State Director from the Proposed RMP/Final EIS. The ROD provides rationale for these decisions. The Record of Decision/Approved RMP serves as a concise and useful tool for land managers and stakeholders.

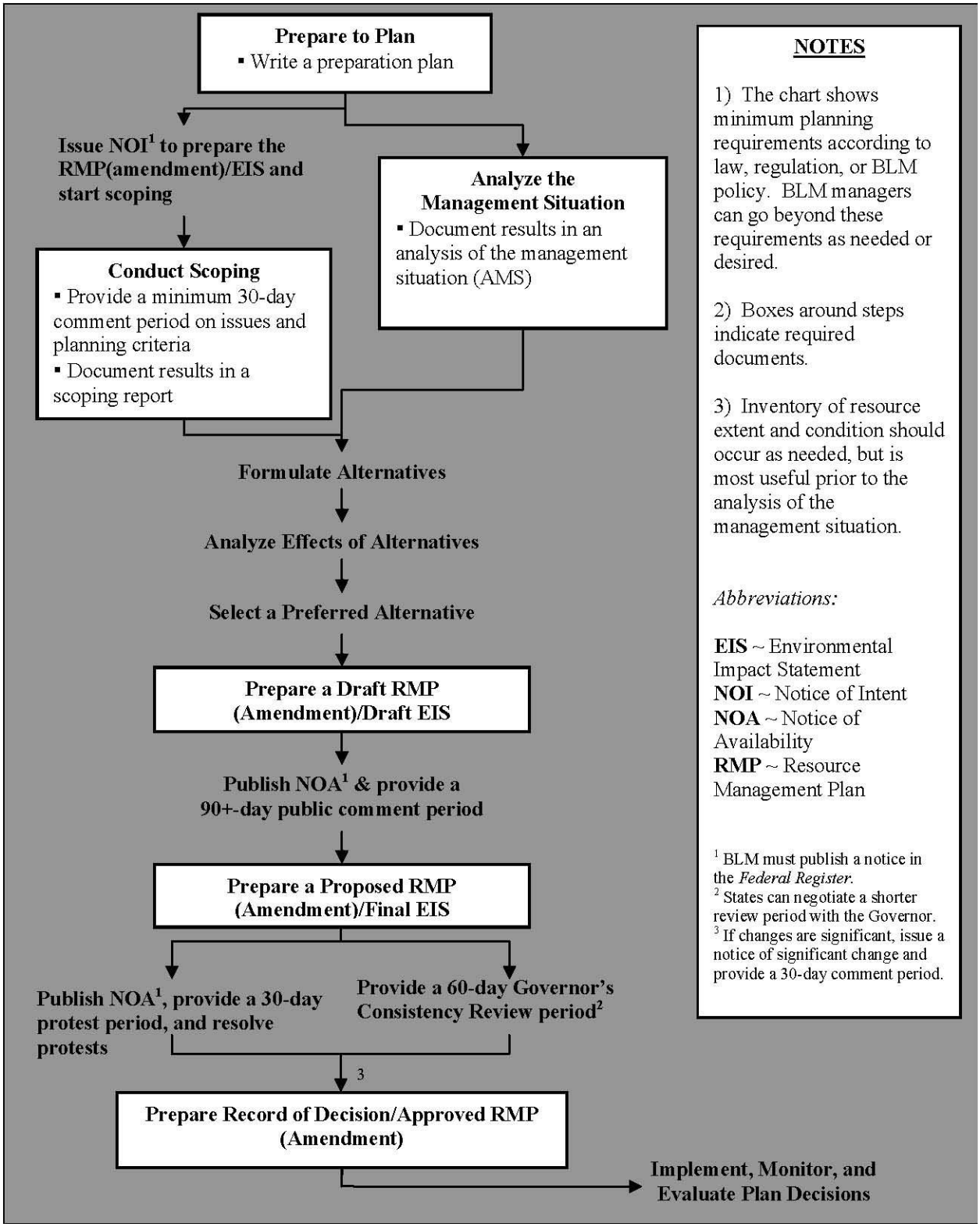
1.4.2 Resource Management Plan Implementation

After issuing the Approved Plan and ROD, BLM staff will develop an Implementation Strategy . This strategy will include budget and workload priorities, and will be developed in cooperation with other agencies and interest groups. Planning and decision-making for managing BLM-administered lands is a tiered, ongoing process. Documents produced during each successive tier are progressively more focused in scope, and thus are more detailed in identifying specific measures to be undertaken and impacts that may occur. The four tiers are described briefly below.

- The RMP provides an overall vision of the future (goals and objectives) and includes measurable steps, anticipated management actions, and allowable uses to achieve that vision.
- Upon approval of the RMP, subsequent implementation decisions are carried out by developing activity-level or project-specific plans.
- If an activity-level plan is developed, it usually describes multiple projects for a single resource program (e.g., wildlife habitat management) or multiple projects for multiple resource programs.
- If a project-specific plan is developed, it usually describes a single project or several related projects.

In general, a planning-level EIS is prepared at the RMP tier and a more detailed Environmental Assessment is prepared at the implementation tier. The activity- or project-level plans reflect the management direction and vision articulated in the RMP. In most cases, these subsequent plans include additional public review and environmental compliance.

Figure 1.1: EIS-level Planning Process – Required Steps for New Plans, Revisions, and Amendments



The RMP provides basic program direction with the establishment of goals, objectives, and allowable uses. It focuses on what resource conditions, uses, and visitor experiences should be achieved and maintained over time. Because this involves considering natural processes with long-term timeframes, the RMP must incorporate a long-term view.

This RMP Revision represents only the first of these tiers. As a result, activity- and project-level plans are not considered further in this document.

2 PROPOSED ALTERNATIVES

This chapter presents the proposed alternatives for the Rio Puerco Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS). The Bureau of Land Management (BLM) Rio Puerco Field Office (RPFO) has formulated these proposed alternatives for managing public lands and resources within the Planning Area. These alternatives address issues and concerns raised during the scoping period (see Chapter 1), planning criteria, and the guidance applicable to resource uses. The proposed alternatives consist of a range of management actions anticipated to achieve the goals and objectives. Some management actions are constant across all alternatives, whereas others vary by alternative. In the description of proposed alternatives (Section 2.2), management actions that apply to all alternatives are listed for each resource topic immediately following the goals and objectives for each resource topic. Management actions that vary across alternatives highlight different priorities for resource use and protection while meeting the purpose and need of the RMP. This Draft RMP/EIS analyzes each alternative in Chapter 4 to examine the potential impacts of the proposed decisions.

To the extent possible, the proposed alternatives (Alternatives A, B, C, and D) are crafted using input from public scoping comments and cooperating agencies. Other alternatives have been considered for detailed analysis but do not meet the purpose and need for this plan revision or are not technically feasible or economically practical to carry forward. These alternatives are eliminated from detailed consideration and are briefly discussed at the end of this chapter (Section 2.4).

Chapter 2 has been organized in the following manner:

- Section 2.1 provides a brief summary of the major components of each proposed alternative.
- Section 2.2 provides the detailed alternative management strategies proposed under all four alternatives, including management common to all alternatives. Resources and resource uses are described in alphabetical order.
- Section 2.3 provides a comparative summary of the environmental impacts associated with each alternative.
- Section 2.4 outlines those alternatives the BLM initially considered, but later eliminated, and the justifications for their dismissal from further evaluation.

Evaluation of a reasonable range of alternatives is required by the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1502.14), as well as BLM planning regulations. As is also required in the CEQ regulations, one alternative consists of “No Action,” which is the same as the continuation of existing management under the current RPFO RMP (BLM 1986) and subsequent plan amendments. The range of alternatives has been developed to:

- Meet the purpose and need;
- Satisfy statutory requirements; and
- Address key planning issues identified both internally and externally.

2.1 Description of Alternatives

The alternatives were developed to consider a range of allowable uses and management actions that would achieve, with varying emphases, the BLM's goals and objectives. The BLM identified goals and objectives through reconciliation of national laws, regulations, and policies, and public scoping. Goals and objectives provide overarching direction for BLM actions in meeting the agency's legal, regulatory, policy, and strategic requirements. Goals are broad statements of desired outcome (e.g., maintain ecosystem health and productivity, promote community stability, ensure sustainable development) that usually are not quantifiable. Objectives identify specific desired outcomes for resources. Objectives are usually quantifiable and measurable and may have established timeframes for achievement as appropriate.

The alternatives were developed in response to the issues and management concerns identified during internal and external scoping. The alternatives were used to explore the different methods of meeting the BLM's goals and objectives while addressing unresolved conflicts associated with the alternative uses of available resources and meeting the purpose and need. Also taken into account in the development of alternatives were the planning criteria, federal laws and regulations, and BLM policies.

Management decisions are proactive measures or limitations intended to guide BLM activities on BLM-administered lands or subsurface mineral estate in the Planning Area. Two types of management decisions are included in the following sections of Chapter 2: management common to all alternatives, and management by alternative.

The first type of management decision, management common to all alternatives, includes the goals, objectives, and continuing management guidance that apply regardless of which alternative is selected. Land use plans must identify the actions anticipated to achieve desired outcomes, including actions to maintain, restore, or improve land health (allowable uses). These actions include proactive measures (e.g., measures that will be taken to enhance watershed function and condition), as well as measures or criteria that will be applied to guide day-to-day activities occurring on public land. Land use plans also establish administrative designations such as ACECs, recommend proposed withdrawals, land tenure zones, and recommend or make findings of suitability for congressional designations (such as components of the National Wild and Scenic River System).

The land use plan must set the stage for identifying site-specific resource use levels. Site-specific use levels are normally identified during the subsequent implementation planning or the permit authorization process. At the land use plan level, it is important to identify reasonable development scenarios for allowable uses such as mineral leasing, locatable mineral development, recreation, timber harvest, utility corridors, and livestock grazing to enable the orderly implementation of future actions. These scenarios provide a contest for the land use plan's decisions and an analytical base for the NEPA analysis. The BLM may also establish criteria in the land use plan to guide the identification of site-specific use levels for activities during plan implementation.

The second type of management decision, management by alternatives, represents the range of options considered across alternatives. An example of this type of management decision is to designate a specific area with cultural values as an Area of Environmental Concern (ACEC). The

management decisions associated with designating the ACEC varies across alternatives; for example, the acreage of the ACEC may change under different alternatives, or one alternative may include the option of not designating the area as an ACEC.

Allowable uses identify the types of uses and where they would be allowed, restricted, or prohibited on all BLM-administered surface and federal mineral estate in the Planning Area. Alternatives may include specific land use restrictions to meet goals and objectives, and may exclude certain land uses to protect resource values. Because the alternatives identify whether particular land uses are allowed, restricted, or prohibited, the alternatives discussed in this chapter often include a spatial (map) component.

The alternatives in this chapter meet the RMP's purpose and need, as well as goals and objectives. They also establish the framework for evaluating the potential impacts of the proposed management decisions in Chapter 4. The four alternatives presented in detail in Section 2.2 of this chapter are as follows:

- Alternative A is the No Action Alternative, and is often referred to as the "existing management situation." It is required by NEPA to serve as a baseline for comparison against the other alternatives. It retains the current management under the current RPFO RMP (BLM 1986), as amended, as well as current BLM policy and guidance. Resource uses and values would receive emphasis at present levels, and current management strategies would continue to be applied. Decisions from the 1986 RMP that have been implemented would continue, and those that have not been implemented would be carried forward in the future.
- Alternative B maximizes efforts to protect, maintain, restore, or improve components of the ecosystem using natural processes. This would be achieved primarily through increased management emphasis on the use of special designations to address unique or critical resource concerns while allowing for resource uses in areas without special designations. In some areas, commodity production or resource uses would be excluded to protect sensitive resources. For example, under Alternative B, livestock grazing would be prohibited in all proposed special designations.
- Alternative C is the Preferred Alternative for the RPFO. As defined by the BLM Land Use Planning Handbook (BLM 2005a), the Preferred Alternative meets statutory requirements, represents that best combination of decisions to achieve the goals and polices of the BLM as reflected through the U.S. Department of the Interior's (USDI's) Strategic Plan and State Director guidance, best responds to the purpose and need, and best resolves the issues pertinent to the planning effort. Management under this alternative would balance the protection, restoration, and enhancement of natural and cultural values with resource use and development. This balance would be achieved within the limits of ecosystem sustainability and within the constraints of applicable laws and regulations. Measures to protect sensitive resources would be implemented, but they would be less restrictive than proposed management decisions under Alternative B. For example, under Alternative C, prescribed livestock grazing would be applied on BLM lands in the Planning Area, including special designations where protected resource values would be compatible with livestock grazing.
- Alternative D emphasizes resource uses and commodity production with the least constraints, while still complying with applicable laws, regulations, and BLM policies. For example, under Alternative D, the RPFO would maximize livestock grazing on BLM lands within the

Planning Area by reinstating suspended animal unit months (AUMs) where applicable, and using year-long and seasonal grazing to maximize flexibility in management. In addition, the RPFO would reduce ACEC acreage and increase areas open to fuelwood harvesting.

Some of the decisions in this RMP/EIS are carried forward from the existing RPFO RMP (BLM 1986) because the decisions are still valid and do not need to change. These decisions are common to all alternatives; thus, a range of alternative decisions is not necessary for these resources or uses. These documents can be found on the New Mexico Planning site, http://www.blm.gov/nm/st/en/prog/planning.1.html. This RMP/EIS also incorporates management decisions from the following RMP Amendments and Programmatic EISs:

- Final Environmental Impact Statement for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000)
- Record of Decision for New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing (BLM 2001)
- Decision Record and Resource Management Plan Amendment for Fire and Fuels Management on Public Land in New Mexico and Texas (Fire and Fuels RMP Amendment) (BLM 2004)
- Final Wind Energy Programmatic EIS (BLM 2005b)
- Record of Decision and Resource Management Plan Amendments for Geothermal Leasing in the Western United States (USDI and U.S. Department of Agriculture [USDA] 2008)
- Record of Decision for the Final Vegetation Treatments Using Herbicides Programmatic EIS (BLM 2007a)
- Oil and Gas Leasing and Development RMP Amendment and EIS (BLM 1991a)
- Continental Divide National Scenic Trail Decision Notice and Finding of No Significant Impact (U.S. Forest Service 1993)
- Decision Record for Vehicle Use in the Ignacio Chavez Special Management Area (BLM 1996)
- Approved Resource Management Plan Amendments/Record of Decision for Designation of Energy Corridors on Bureau of Land Management Administered Lands in the 11 Western States (BLM 2009).

2.1.1 Brief Summary and Highlights of the Proposed Alternatives

The major resources and resource uses where issues were identified during scoping are travel management, recreation and visitor services, mineral resources, special designations, visual resource management (VRM), and lands and realty. These resources and resource uses, among others, are displayed under a range of management alternatives that set forth different priorities and measures to achieve specific goals or objectives outlined in detail in Section 2.2. The proposed alternatives consist of a range of management actions anticipated to achieve the BLM's goals and objectives. Below is a brief summary of the range of alternatives for those major resources and resource uses brought forward during scoping. More detail for each of these resources and uses, among others, and their proposed management is provided in Section 2.2.

2.1.2 Travel Management

Specific to travel and trails management, the public scoping comments reflect the most interest and concern in off-highway vehicle (OHV) use. All public lands are required to have OHV area designations and must be classified as either "open" (areas where off-road vehicles may engage in cross country travel), "limited" (areas where travel restrictions may apply and travel is limited to primitive roads, roads, and trails), or "closed" (travel not allowed without authorized use) to motorized travel (see 43 CFR 8342.1). The RPFO is deferring the development of a Travel Management Plan (TMP) and designation of routes until after the RMP/EIS is complete. The BLM staff is in the process of completing TMP route inventories, and will then conduct public scoping leading to the selection or formal designation of a transportation network of roads, primitive roads, and trails. For this RMP/EIS, OHV designation areas, or categories, are listed by alternative in Table 2.1 (see Maps 89-92). The range of alternatives reflect a shift in BLM policy from historically allowing more open travel to the current policy of designating specific routes for travel on BLM lands. Within the "limited" category, motorized travel would be limited to existing roads, primitive roads, and trails, and subsequent travel planning decisions would transition to "limited to designated routes."

Table 2.1: OHV Area Designations (acres), by Alternative

Category	Alternative A No Action	Alternative B	Alternative C Preferred	Alternative D
Open	303,580	4,551	18,269	19,456
Limited	420,491	562,596	602,043	624,808
Closed	20,316	177,240	124,075	100,123
Total	744,387	744,387	744,387	744,387

2.1.3 Recreation and Visitor Services

The two areas of the Recreation and Visitor Services program that require land use planning decisions are special recreation permits (SRPs) and designation of Recreation Management Areas. Both items are discussed in detail in Section 2.2.12.

Recreation Management Areas (RMAs) are land units where Recreation and Visitor Services objectives are recognized as a primary resource management consideration and specific management is required to protect the recreation opportunities. RMAs are classified as either special recreation management areas (SRMAs) or extensive recreation management areas (ERMAs). 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 as compared to other areas used for recreation. This RMP/EIS classifies the Continental Divide National Scenic Trail as a SRMA (10,996 acres). Although SRMAs may be subdivided into Recreation Management Zones (RMZs), the CDNST SRMA is not subdivided into RMZs.

ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or recreation and visitor services program investments. ERMAs differ from SRMAs in that ERMAs need not provide unique, important, or distinctive recreation opportunities (see BLM Instruction Memorandum 2011-004). This RMP/EIS classifies six areas

ERMAs, covering 317,565 acres. Within each ERMA, management decisions may apply to the entire ERMA or only to a subset of the ERMA.

The variation among the proposed SRMA and ERMA management decisions are mainly related to travel designations within the zones, as well as management of the zones that are also proposed as ACECs under different alternatives. Other proposed recreation management decisions related to Special Recreation Permits (SRPs) are also addressed in Section 2.2.

Table 2.2: Proposed SRMA and ERMAs (acres), by Alternative

RMA Type	Name	Alternative A No Action	Alternative B	Alternative C Preferred	Alternative D
SRMA	Continental Divide National Scenic Trail	0	10,996	10,996	10,996
ERMA	San Juan Basin Badlands	0	71,114	71,114	71,114
	Petaca Pinta	0	69,119	69,119	69,119
	Boca del Oso	0	50,432	50,432	50,432
	San Ysidro	0	11,212	11,212	11,212
	Hererra	0	18,456	18,456	18,456
	Crest of Montezuma	0	917	917	917
Total		0	**232,246**	**232,246**	**232,246**

2.1.4 Mineral Resources

The Public Scoping Report (BLM 2008) has identified that special attention is needed to address mineral development within the Planning Area (i.e., leasable, salable, and locatable minerals) in consideration of other land and resource uses and values. The alternatives provide a range of options for managing all mineral opportunities, itemized by category.

Leasable fluid minerals include oil, gas, coalbed methane, geothermal, carbon dioxide and helium, oil shale, native asphalt, and oil-impregnated sands (BLM 2010a). Leasable solid minerals include coal, potash, phosphate, sulfur, and sodium (BLM 2010a). The potential for, and current activity in, leasable minerals, is show in maps 30-31.

For leasable fluid minerals, one of the major decisions in an RMP is to determine which areas should be: 1) open to leasing with standard terms and conditions; 2) open to leasing subject to moderate constraints such as timing limitations (TL) or controlled surface use (CSU) restrictions; 3) open to leasing subject to major constraints such as no surface occupancy (NSO) stipulations; or 4) unavailable to leasing.

Table 2.3 shows how leasable fluid minerals would be managed under each alternative (see Maps 35-38). For coal, a leasable solid mineral, the RPFO would make decisions based on the coal unsuitability criteria. While acreages closed to mineral leasing are relatively similar across the action alternatives, constraints vary widely, most often in special designations, where restrictions reflect the need to protect important natural values.

Table 2.3: Leasable Fluid Mineral Restrictions (acres), by Alternative

Designation	Alternative A No Action	Alternative B	Alternative C Preferred	Alternative D
Open with standard lease terms and conditions	1,327,910	1,131,076	1,136,604	1,145,147
Open with moderate constraints (CSU)	18,668	150,967	170,116	203,236
Open with major constraints (NSO)	6,660	32,211	27,350	7,629
Closed	59,470	98,454	78,638	56,696
Total	**1,412,708**	**1,412,708**	**1,412,708**	**1,412,708**

Salable minerals include common variety sand, stone, gravel, pumice, pumicite, basalt, clay, rock, petrified wood, and travertine, under certain conditions (BLM 2010a). For salable minerals, one of the major decisions in an RMP is to determine which areas should be: 1) closed to salable mineral extraction; 2) avoided or open to salable extraction with stipulations; or 3) open to salable mineral development. Table 2.4 depicts how salable minerals would be managed under each alternative (see Maps 43-46).

Table 2.4: Salable Mineral Extraction Restrictions (acres), by Alternative

Category	Alternative A No Action	Alternative B	Alternative C Preferred	Alternative D
Open	1,711,415	1,646,554	1,659,585	1,707,930
Open with moderate constraints (Avoid)	13,683	478	36,311	15,376
Closed	105,654	183,720	134,856	107,446
Total	**1,830,752**	**1,830,752**	**1,830,752**	**1,830,752**

Locatable minerals consist of metallic and non-metallic minerals. The metallic minerals include gold, silver, nickel, copper, lead, zinc, iron, uranium, lithium, vanadium, molybdenum, manganese, cobalt, beryllium, and tungsten. The non-metallic minerals include zeolites, silica, perlite, mica, block pumice, limestone of chemical or metallurgical grade, gypsum, barite, fluorspar, and gem minerals (BLM 2010a). For locatable minerals, one of the major decisions in an RMP is to determine which areas should be open to or recommended for withdrawal from locatable mineral entry. Table 2.5 depicts how locatable minerals would be managed under each alternative (see Maps 39-42).

Table 2.5: Locatable Mineral Entry Restrictions (acres) by Alternative

Category	Alternative A No Action	Alternative B	Alternative C Preferred	Alternative D
Open to mineral entry	1,814,168	1,538,295	1,553,004	1,803,131
Recommended for withdrawal	16,584	292,457	277,748	27,621
Total	**1,830,752**	**1,830,752**	**1,830,752**	**1,830,752**

Federal mineral estate is classified as either open to locatable mineral entry or recommended for withdrawal from locatable mineral entry.

2.1.5 Special Designations

The BLM's Land Use Planning Handbook (H-1601-1) (BLM 2005a) requires considering the application of special designations, such as ACECs and Wild and Scenic Rivers (WSRs), when developing RMPs.

The RPFO currently manages 23 areas that were designated as Special Management Areas (SMAs) in the 1986 RMP (BLM 1986). Under current BLM guidance, SMAs are not recognized as valid area designations. The BLM has, through analysis and evaluation, determined a proposed designation for each listed SMA and other prospective special areas based on established criteria specific to the above administrative designations. Following evaluation, some SMAs were not carried forward for designation in any of the action alternatives if they did not meet the criteria for another designation. (See Map 68).

2.1.6 Proposed ACECs

The RPFO currently manages 10 ACECs that were designated in the current RPFO RMP (BLM 1986). Eight additional areas have been considered for ACEC designation. In order to be considered and carried forward into the range of alternatives for planning, an ACEC must meet the relevance and importance criteria in 43 CFR 1610.7-2(a) and must require special management. The relevance and importance criteria for these ACECs encompass scenery, sensitive and rare plant species, cultural and historic resources, wildlife, fish, natural systems, and natural hazards. Detailed analysis of the relevance and importance criteria that was used to evaluate each proposed ACEC can be found in the RMP Administrative Record.

Table 2.6 shows that 18 ACECs are proposed in Alternatives B and C, while 11 ACECs are proposed under Alternative D (see Maps 69-88). The existing designated ACECs in the Planning Area are presented under Alternative A (see Map 68).

Table 2.6.: Potential ACECs (quantity and acres), by Alternative

Proposed ACEC	Alternative A No Action	Alternative B	Alternative C Preferred	Alternative D
Bluewater Canyon	97	941	941	941
Bony Canyon	0	1,150	1,150	1,150
Cabezon Peak	5,765	17,150	17,150	6,984
Canon Jarido	1,794(SMA)	6,536	6,536	1,794
Canon Tapia	990	990	990	0
Cerro Verde	0	5,292	5,292	0
Elk Springs	10,334	10,324	10,324	10,324
Espinosa Ridge (formerly Ball Ranch)	1,478	10,295	7,687	1,478
Guadalupe Ruin and Community	478 (SMA)	478	478	478
Ignacio Chavez Grant	43,026 (SMA)	43,026	43,026	0

Proposed ACEC	Alternative A No Action	Alternative B	Alternative C Preferred	Alternative D
Jones Canyon	639	959	639	639
Legacy Uranium Mines	0	50	50	50
Ojito	16,310	16,310	6,454	0
Petaca Pinta	13,723 (SMA)	13,723	13,723	13,723
Pronoun Cave Complex	1,181	1,342	1,181	0
San Luis Mesa Raptor Area	10,483	10,483	10,483	0
San Miguel Dome	0	4,437	4,437	0
Torreon Fossil Fauna	6,488	6,488	6,488	6,488
Total ACECs				
Total Acres	112,786	149,974	137,029	44,049

2.1.7 Visual Resource Management

The designations or assignment of VRM Class objectives (I–IV) is ultimately based on the management decisions made in the RMP. However, visual values must be considered throughout the RMP process.

The first step in evaluating the visual values for an RMP is to inventory the visual resources present in the planning area. This involves identifying the visual resources of an area and assigning them to inventory classes using BLM's visual resource inventory process. The process involves rating the visual appeal of a tract of land, measuring public concern for scenic quality, and determining whether the tract of land is visible from travel routes or observation points. The process is described in detail in BLM Handbook H-8410-1, Visual Resource Inventory. The results of the visual resource inventory become an important component of the BLM's RMP for the area. The RMP establishes how the public lands will be used and allocated for different purposes, and it is developed through public participation and collaboration. Visual values are considered throughout the RMP process, and the area's visual resources are then assigned to management classes with established objectives:

- **Class I Objective:** To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention
- **Class II Objective:** To retain the existing character of the landscape. The level of change to the characteristic landscape should be low
- **Class III Objective:** To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- **Class IV Objective:** To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

Actions proposed following the RMP process that would result in surface disturbance must consider the importance of the visual values and the impacts the project may have on those values, and management decisions in the RMP must reflect the value of visual resources. It is

BLM policy to designate all Wilderness and Wilderness Study Areas (WSAs) as VRM Class I. Table 2.7 outlines the VRM classes proposed under each alternative (see Maps 95-98).

Table 2.7: VRM Management Classes (acres), by Alternative

VRM Class	Alternative A No Action	Alternative B	Alternative C Preferred	Alternative D
VRM I	97,645	97,296	97,474	97,516
VRM II	84,449	318,931	68,511	21,549
VRM III	61,789	27,529	80,931	83,050
VRM IV	153,250	300,631	497,471	542,272
Total	**397,133**	**744,387**	**744,387**	**744,387**

*The number of acres proposed for visual resource management under Alternative A is less that Alternatives B, C, and D because the 1986 RMP, as amended, did not provide visual resource management classes for all BLM lands within the Planning Area.

2.1.8 Lands and Realty

Resolving fragmented land management and resource conflicts drives the BLM's decisions regarding land tenure adjustment, including disposal, acquisition, and retention of public lands. For example, the checkerboard ownership patterns of the Planning Area create difficulties with access and resource management. The RPFO has considered the particular resource values of each parcel of public land and the most effective land ownership and management strategies for those parcels. No specific parcels have been identified for acquisition by the RPFO. Table 2.8 lists the parcels identified for disposal and retention under each alternative (see Maps 11-14).

Table 2.8.: Parcels Identified For Disposal and Retention (Acres) by Alternative

Status	Alternative A No Action	Alternative B	Alternative C Preferred	Alternative D
Disposal	97,645	97,296	97,474	97,516
Retention	84,449	318,931	68,511	21,549
Total	61,789	27,529	80,931	83,050

Other management decisions related to lands and realty are the proposed avoidance and exclusion areas for rights-of-way, including transmission lines, roads, pipelines, and sites (such as communication tower sites). The proposed avoidance and exclusion areas for rights-of-way are provided under the Lands and Realty section (2.2.7).

For the RMP/EIS, renewable energy management decisions are separate from the Lands and Realty section. Please see the Renewable Energy section (2.2.13) for avoidance and exclusion areas related to solar, wind, and geothermal projects on BLM lands within the Planning Area.

2.2 Proposed Alternatives

2.2.1 Air Resources

2.2.1.1 Goals

- Minimize the impact of management actions in the planning area on air quality by complying with all applicable air quality laws, rules, and regulations including the Clean Air Act and the Federal Land Policy and Management Act.
- Work cooperatively with interested parties (such as other government entities, scientific organizations, and industry) to incorporate measures to reduce or prevent emissions of air pollutants and greenhouse gases associated with BLM-authorized activities in the planning area.
- Avoid or reduce negative impacts on air quality due to wildland fire management.
- Consider the impacts of BLM-authorized activities on greenhouse gas emissions in the Planning Area.

2.2.1.2 Objectives

- Evaluate the impact of management actions on the attainment of applicable state and federal Ambient Air Quality Standards (AAQS) for criteria pollutant concentration levels and National Emission Standards for Hazardous Air Pollutants (NESHAP), when applicable.
- Meet prevention of significant deterioration (PSD) pollutant concentration standards associated with management actions in compliance with the applicable increment (Class I or II).
- Comply with Albuquerque-Bernalillo County Air Quality Regulations when planning activities within the county boundaries.
- Use quantitative air quality analysis methods to analyze impacts of proposed actions on air quality when appropriate, as determined by the BLM.
- Develop and incorporate air resource mitigation measures into BLM planning documents and authorizations
- Prescribed burns will be carried out in compliance with NMED Smoke Management Plan Guidance.
- Estimate the contribution of BLM-authorized activities on the emission of greenhouse gasses in the planning area and evaluate them in the context of national and global emissions.
- When appropriate, include an analysis of the contribution of BLM-authorized activities to greenhouse gas emissions in NEPA documents.

2.2.1.3 Management Common to All Alternatives

- The BLM would manage all BLM-authorized activities to maintain air quality within State of New Mexico and National Ambient Air Quality Standards (NAAQS), meet prevention of significant deterioration (PSD) Class II standards, and protect the air quality values in Class I

Wilderness and protect air and atmospheric values consistent with FLPMA's "multiple use" mission.

- The BLM would use Best Management Practices (BMPs) and site-specific mitigation measures (such as nitrogen oxide [NO_x] emissions limits for compressor engines used in leasable fluid minerals development) to reduce emissions, when appropriate, based on site-specific conditions.
- Project-specific analysis would consider use of quantitative air quality analysis methods (i.e., modeling), when appropriate as determined by the BLM consistent with BLM and applicable DOI policies and guidance.

2.2.2 Cave and Karst Resources

2.2.2.1 Goals

- Manage cave and karst resources to preserve and protect for appropriate uses for present and future generations, according to current laws and regulations.

2.2.2.2 Objectives

- Establish inventory programs for high potential cave and karst areas within the RMP planning area.
- Promote stewardship, conservation, and appreciation of cave and karst resources.
- Maintain and enhance programs that provide opportunities for scientific research of cave and karst resources.

2.2.2.3 Management Common to All Alternatives

- The BLM would inventory and manage any new caves identified by the RPFO consistent with the Federal Cave Resource Protection Act.
- The BLM would manage the Pronoun Cave Complex as described in the Special Designations Section.

Map 003-Geology (11x17)

Map 004-Cave/Karst potential (11x17)

2.2.3 Cultural Resources

2.2.3.1 Goals

- Identify, preserve, and protect significant cultural resources and ensure that they are available for appropriate use by present and future generations.
- Reduce imminent threats and resolve potential conflicts from natural or human-caused deterioration or potential conflict with other resource uses by ensuring that all authorizations for land use and resource use would comply with Section 106 of the National Historic Preservation Act (NHPA).
- Increase stewardship, conservation, and appreciation of cultural resources.
- Establish and maintain working relationship with Native American Tribes.
- Protect and interpret National Historic Trail routes and historic settings, remnants, and artifacts for public use and enjoyment.

2.2.3.2 Objectives

- Develop project plans or protective measures for special areas or cultural resources in areas of high risk for development or at high risk for adverse impacts
- Increase proactive cultural resource management as funding and staffing become available, which could include, but is not limited to, detailed documentation of sites, nominating outstanding cultural sites for listing in the NRHP, inventories, and ethnographic studies.
- Establish cultural resource inventory priority areas in the RMP implementation strategy document.
- Use BMPs and site-specific mitigation measures, when appropriate, based on site-specific conditions to avoid and/or minimize impacts to cultural resources.
- Maintain and enhance programs that provide opportunities for scientific research involving cultural resources.
- Maintain and improve educational opportunities and public outreach programs focused on cultural resources.
- Develop and maintain interpretation of cultural resources in areas of high public interest and access.
- Consult with Native American tribal governments on proposed land uses having the potential to impact cultural resources identified as having tribal interests or concerns, or that could affect traditional uses.
- Maximize opportunities for cooperation with tribal governments for managing cultural resources and public education.
- Identify Historic trail routes within the Planning Area and identify physical remains within the decision area.
- Preserve the associated high-potential historic sites and route segments, physical remnants, and contributing features.
- Interpret the historic aspects of the trails for the protection of the resource.

- Enhance understanding and enjoyment of these trails in cooperation with trail-administering agencies and non-profit partners.

2.2.3.3 Management Common to All Alternatives

- The BLM would comply with all pertinent statutes, regulations, formal agreements, Executive Orders, and policies as they apply to cultural resource management for all actions resulting from decisions in this RMP/EIS (Federal Land Policy and Management Act [FLPMA], Section 103(c), 201(a), and (c); NHPA, Sections 106, Section 110(a); and Archaeological Resources Protection Act, Section 14(a)).
- The BLM would manage Native American burial sites, associated funerary items, and sacred objects in accordance with the Native American Graves Protection and Repatriation Act and the Archaeological Resources Protection Act.
- The BLM would consider Native American requests to practice traditional activities on public lands on a case-by-case basis and would be allowed where practical and appropriate. The BLM would allow reasonable access to specific sacred sites under the American Indian Religious Freedom Act.
- The BLM would honor trust responsibilities as they apply to public lands within the Planning Area.
- The BLM would allocate known and yet-to-be discovered sites and segments of historic trails (including those listed in Chapter 3) to cultural resource use categories following BLM Manual Section 8130 and the relevant management documents developed for individual Historic Trails. The BLM would comply with NHPA Section 106 for any projects that may occur within the Mount Taylor Traditional Cultural Property (TCP) or other National Register of Historic Places (NRHP)-eligible TCPs.

2.2.3.4 Alternatives

Table 2.9: Cultural Resources Management Decisions by Alternative

Item	Alternative A: No Action	Alternative B	Alternative C: Preferred	Alternative D
Site Surveillance	Conducted by BLM staff only.	Conducted by BLM staff, Site Watch, and other BLM volunteer programs.	Same as Alternative B.	Site surveillance would no longer be conducted.
NRHP	No similar action.	Prioritize detailed documentation and nomination of local, state, and nationally significant sites for listing on the NRHP as funding and staffing allow.	The BLM would prioritize detailed documentation and nomination of state and nationally significant sites as funding and staffing allow.	The BLM would conduct no detailed documentation and nomination of significant sites
Inventory	No similar action.	The BLM would prioritize proactive inventory of geographic areas of increasing public visitation that have been determined to impact cultural resources.	The BLM would prioritize proactive inventory of geographic areas with little existing inventory and high public use as funding and staffing allow.	The BLM would not conduct proactive inventory.
Site Protection, Stabilization, or Restoration	No similar action.	The BLM would prioritize proactive site protection/ stabilization/restoration projects on local, state, and nationally significant sites as funding and staffing allow.	The BLM would prioritize proactive site protection/ stabilization/restoration projects on state and nationally significant sites as funding and staffing allow.	The BLM would not carry out proactive site protection, stabilization, or restoration projects.
Ojo Pueblo and Fort Site	• Ojo Pueblo: 0 Acres • Fort Site: 0 Acres • There is currently no special designation for the Ojo Pueblo and Fort Site areas.	• Ojo Pueblo: 478 acres • Fort Site: 652 acres • Leasable fluid minerals: NSO (780 acres) • Salable minerals: Closed (60 acres);	• Ojo Pueblo: 478 acre • Fort Site: 652 acres • Leasable fluid minerals: CSU (780 acres) • Salable minerals: Closed (60 acres);	• Ojo Pueblo: 0 acres • Fort Site: 0 acres • No special designation. • Motorized vehicle travel: limited to designated primitive roads and trails.

Item	Alternative A: No Action	Alternative B	Alternative C: Preferred	Alternative D
		• Avoid (720 acres) • Locatable minerals: • Recommend Withdrawal (60 acres) • Open (720 acres) • Motorized vehicle travel: limited to designated primitive roads and trails.	• Avoid (720 acres) • Locatable minerals: • Recommend Withdrawal (60 acres) • Open (720 acres) • Motorized vehicle travel: limited to designated primitive roads and trails.	
Azabache Station (80 acres)*	• 81 total acres • 1986 RMP designated Azabache Station as an SMA. • Develop an activity plan. • Leasable fluid minerals: NSO • Salable and Locatable Minerals: Recommend withdrawal • Motorized vehicle travel: Closed	• 81 total acres • The Azabache Station SMA designation (80 acres) would be removed. • Activity plan would not be developed. • Nominate site to the NRHP. • Leasable fluid minerals: NSO • Salable minerals: Closed • Locatable minerals: Recommend withdrawal • Motorized vehicle travel: Limited to existing primitive roads	• Same as Alternative B.	• 81 total acres • The Azabache Station SMA designation (80 acres) would be removed. • The area would be managed with standard terms and conditions for all resources and resource uses. • Leasable Minerals: Open • Salable and Locatable Minerals: Withdrawal would be allowed to expire. • Motorized vehicle travel: Limited to existing primitive roads and trails.

Item	Alternative A: No Action	Alternative B	Alternative C: Preferred	Alternative D
		and trails.		
Big Bead Mesa (320 acres)*	• 340 total acres • Develop an activity plan. • Leasable fluid minerals: NSO • Salable and Locatable Minerals: Recommend withdrawal • Motorized vehicle travel: Limited to existing primitive roads and trails.	• 340 total acres • No overnight camping allowed. • Hiking access to the mesa top allowed by permit only. • Work with the Pueblo of Laguna to acquire access. • Monitor the site bi-annually. • Leasable fluid minerals: NSO • Salable minerals: Closed • Locatable minerals: Recommend withdrawal • Motorized vehicle travel: Limited to existing primitive roads and trails.	• 340 total acres • No overnight camping allowed. • Hiking access to the mesa top allowed by permit only. • Work with the Pueblo of Laguna to acquire access. • Monitor the site annually. • Leasable fluid minerals: NSO • Salable minerals: Closed • Locatable minerals: Recommend withdrawal • Motorized vehicle travel: Limited to existing primitive roads and trails.	• 340 total acres • No overnight camping allowed. • Work with the Pueblo of Laguna to acquire access. • Monitor the site quarterly. • Leasable fluid minerals: NSO • Salable minerals: Closed • Locatable minerals: Recommend withdrawal • Motorized vehicle travel: Access to the mesa top allowed. •

Item	Alternative A: No Action	Alternative B	Alternative C: Preferred	Alternative D
Headcut Prehistoric Community*	• 2,278 total acres • Designated as an SMA in the 1986 RMP. • Allow further approved scientific study. • Maintain existing conditions until completion of a comprehensive management plan. The planned actions include: • Acquire non-public lands. • Develop an activity plan • Motorized vehicle travel: Limited to existing primitive roads and trails.	• 2,601 total acres • Acquire non-public lands from willing sellers. • Leasable fluid minerals: CSU within the original SMA boundary and one half-section to the south. • Salable minerals: Closed • Motorized vehicle travel: Limited to existing primitive roads and trails.	• 2,601 total acres • Acquire non-public lands from willing sellers. • Leasable fluid minerals: CSU within the original SMA boundary and one half-section to the south. • Salable minerals: Avoid • Motorized vehicle travel: Limited to existing primitive roads and trails.	Same as Alternative C, except: • 2,279 total acres • The BLM would retain the original SMA boundary. • Leasable fluid minerals: Open under standard terms and conditions.
Mesa Portales*	• 0 total acres There is currently no special designation for Mesa Portales.	• 4.743 total acres The BLM would manage Mesa Portales as described under Cañon Jarido ACEC in the Special Designations section.	Same as Alternative B.	• 4.743 total acres • Special management would include: • Motorized vehicle travel: Limited to existing routes. The area would be a priority

Item	Alternative A: No Action	Alternative B	Alternative C: Preferred	Alternative D
				area for route designation and closure of redundant routes that impact cultural sites. • Leasable fluid minerals: CSU

2.2.4 Fire Management

Fire management goals and objectives are in priority order according to IAW policy.

2.2.4.1 Goals

- Manage wildland fire and fuels for the protection of firefighter and public health, safety, property, and resource values.
- Manage vegetation communities to maintain areas in Fire Regime Condition Class (FRCC) 1. Those vegetation communities in FRCC 2 and 3 would be managed to restore such communities toward FRCC 1. (See Map 6.)
- Manage hazardous fuels in areas of urban and industrial interface to reduce potential of loss due to catastrophic fire.
- Work collaboratively with Communities-at-Risk within the Wildland Urban Interface (WUI) to develop plans for risk reduction.
- Implement emergency stabilization, rehabilitation, and restoration efforts to protect and sustain resources, public health and safety, and community infrastructure.

2.2.4.2 Objectives

- Prevent the loss of life or improved property from wildland fire.
- Manage wildfire with minimal damage to other resources.
- Utilize the full range of fire and fuels management strategies to reduce hazardous fuels.
- Establish fire management strategies for each fire management unit throughout the planning area.
- When possible, allow for wildland fire for resource benefit or limited suppression tactics, enabling fire to act in its natural role as a disturbance.
- Maintain a landscape of diverse plant communities and successional stages similar to those created by historic fire regimes.
- Implement wildfire rehabilitation efforts to protect and sustain ecosystems, protect public health and safety, and help communities protect infrastructure.
- Cooperate with adjacent landowners (Federal, State, tribal, and private) in fire management activities across jurisdictional boundaries

2.2.4.3 Management Common to All Alternatives

- National Fire Suppression Guidelines and the current Fire Management Plan for the Rio Puerco Field Office will guide fire suppression on public lands.
- Guidance for Implementation of Federal Wildland Fire Management Policy (National Interagency Fire Center, 2001).
- The most current guidance for the implementation of Federal Wildland Fire Management Policy and direction and guidance approved by the Fire and Fuels RMP Amendment would be carried forward under all alternatives and incorporated by reference into this RMP/EIS.

- Wildland fire is authorized, when appropriate, to allow naturally ignited wildland fire to accomplish specific resource management objectives.
- The RPFO would follow the BMPs outlined in Table 2.7 in Chapter 2 of the Fire and Fuels RMP Amendment (BLM 2004).
- To reduce hazards and restore ecosystems, authorized fuels management actions include wildland fire for resource benefit, prescribed fire, and mechanical, manual, chemical, biological, and seeding treatments.
- According to the 2004 Fire and Fuels RMP Amendment, approximately 23,171 acres of vegetation would be treated on lands in the RPFO on an annual basis:
- 5,122 acres treated mechanically
- 16,621 acres treated by prescribed burn
- 1,428 acres treated chemically
- The BLM would update and amend the RPFO Fire Management Plan (FMP) (BLM 2010b), as necessary, to meet the direction and objectives of the RPFO RMP/EIS. The FMP establishes fire suppression objectives with minimum and maximum suppression targets for each Fire Management Unit (see Map 5) within the RPFO.
- The RPFO would continue to participate in the Cibola, Santa Fe, and Gila/Las Cruces Zone Operating Plans established under the "Joint Powers Agreement" between the State of New Mexico, the USDA, and the USDI. This agreement provides for reciprocal fire protection services among participating agencies with wildland fire protection responsibilities.
- The BLM would retain and/or create snags in areas that have less than one to two snags per acre in ponderosa and/or piñon-juniper forest types.
- The BLM would utilize wildland fire to protect, maintain, and enhance resources and, when possible, would be allowed to function in its natural ecological role.
- The BLM would use hazardous fuels reduction treatments to restore ecosystems; protect human, natural, and cultural resources; and reduce the threat of wildfire to communities.
- Fire suppression would prioritize firefighter and public safety as well as benefits and values to be protected that are consistent with resource objectives.

Table 2.10: Summary of Approved 2004 Fire and Fuels RMP Amendment and Additional Proposed Fuels Management Treatments by FMU and FRCC

Fire Management Unit	FRCC I Acres	FRCC 2 Acres	FRCC 3 Acres	Not Inventoried	Total
C1. North Malpais	4,109	77,619	39,404	1,390	122,522
C3. Wilderness and WSAs	2,870	32,883	1,448	2,661	39,862
C5. Mesa Chivato	3,122	37,707	17,124	421	58,374
B6. Sandia	1,460	7,512	2,971	981	12,924
C7. Scattered Grass/Shrub	70,195	357,322	43,500	38,441	509,458
B8. Candy Kitchen	572	5,869	6,378	9	12,828
Total	83,328	518,912	110,825	43,903	755,968

Fire Management Unit	FRCC I Acres	FRCC 2 Acres	FRCC 3 Acres	Not Inventoried	Total
Total Acres Needing Treatment		518,912	110,825		629,737

In the simplest definition, a fire regime describes the basic "personality" of fire for a given vegetation type. Although fire frequency and severity are the most commonly used descriptors, many other aspects have been studied, such as fire spread patterns, fire seasonality, and post-fire patch dynamics.

2.2.5 Forests and Woodlands

2.2.5.1 Goals

- Manage forests and woodlands for ecosystem health, including but not limited to wildlife habitat, watershed process, and riparian restoration and enhancement.
- Restore forests and woodlands to the pre-fire suppression range of historic variability for species composition, age, size, and density classes.
- Keep forested areas in close proximity to economically disadvantaged communities available for fuelwood harvesting.

2.2.5.2 Objectives

- Use forest management activities including silvicultural treatments and forest restoration treatments to re-establish the appropriate spatial patterns of forest vegetation.
- Provide forest products to meet public needs consistent with maintaining ecosystem health and other resource management objectives.
- Identify, maintain, and restore forests with late-succession (old-growth) characteristics under direction provided by the Healthy Forest Restoration Act of 2003 or the most current applicable legislation.
- Reduce the incidence and impacts of timber trespass and tree theft. This includes, but is not limited to, collaborating with other agencies, increasing collection areas, and increasing the presence of law enforcement.
- Prevent unnecessary hardship with management decisions on individuals and families who use fuelwood as the primary source for cooking food and heating their homes.

2.2.5.3 Management Common to All Alternatives

2.2.5.3.1 Forest Restoration and Management Activities Common to All Alternatives

- All forest management activities would comply with the New Mexico Standards and Guidelines (BLM 2001) and all applicable BMPs.
- Forest management activities would consider the New Mexico Principles of Forest Restoration (NMBETF 2006) and the New Mexico Forest and Watershed Health Plan (NMSF 2004).
- Silvicultural treatments may include but are not limited the following activities:

  - Mechanical treatments such as mastication, mowing, chopping, chipping/grinding (brush cutter), or cutting.
  - Manual treatments such as hand-cutting (chainsaw or handsaw) and hand-piling of slash.
  - Prescribed fire including broadcast, underburn, and hand-pile burn.
  - Chemical application or biological treatments such as insects or goats/sheep.
  - Biomass removal from forest restoration and fuels treatment projects.
  - Seeding including aerial or ground application (manual or mechanical).
  - Wildland fire for resource benefit.
- Identified areas may be treated in phases over a period of several years and may involve multiple and varied silvicultural treatments that emphasize forest stand diversity and large tree retention.
- Treatments would implement, when possible, other resource management objectives such as erosion control and wildlife habitat improvement.
- Identified areas may be treated in phases over a period of several years and may involve multiple and varied treatments.
- No ponderosa pine would be removed during leasable fluid minerals development.

2.2.5.3.2 Fuelwood Management Activities Common to All Alternatives

- The BLM would continue to sell permits for harvest of woodland products to the public, consistent with the availability of woodland products and the protection of sensitive resource values including seasonal restrictions for fuelwood collection for resource protection.
- Permitted activities would be consistent the most current CFR.
- The BLM would locate fuelwood areas, including greenwood and dead and downed woody material, where harvesting would maintain and improve long-term sustainability of resource values and uses, and would not conflict with other permitted activities.
- The BLM would continue to make downed woody material available for recreational purposes (i.e., campfires) without a permit in accordance with BLM regulations.
- Fuelwood area development would minimize the deterioration of existing roads, while discouraging the proliferation of new roads, and fuelwood would not be made available where soil damage or accelerated erosion would result.
- The BLM would allow no driving off of existing or designated roads for collection of forest products unless permitted by the Authorized Officer.
- The BLM would allow Native American non-commercial traditional use of forest and woodland products for the collection of herbs, medicines, traditional use items, or items necessary for traditional, religious, or ceremonial purposes through permits.
- The BLM would enact seasonal fuelwood area closures as necessary to ensure long-term resource protection and/or sustainability.

2.2.5.4 Alternatives

Table 2.11: Forest and Woodland Management Decisions by Alternative

Alternative A: No Action	Alternative B	Alternative C: Preferred	Alternative D
All forestry practices currently being implemented are in conformance with the 1981 Timber Management Plan, covering the BLM RPFO and Socorro Field Office.	The BLM would not treat woodland encroachment in grassland, sagebrush, and other vegetative communities.	The BLM would treat woodland encroachment in grassland, sagebrush, and other vegetative communities where it is determined that the New Mexico Standards and Guidelines (BLM 2001) for rangeland health are not being met for the site.	Same as Alternative C
	The BLM would retain and/or create snags in areas determined to be snag deficient.	The BLM would retain and/or create snags in areas determined to be snag deficient.	The BLM would implement no specific snag management activities.
	The BLM would prioritize treatments through concentrating forest management activities in areas of FRCC 1 (maintenance emphasis).	The BLM would prioritize treatments through concentrating forest management activities in areas of FRCC 2 and 3 (restoration emphasis).	Same as Alternative C
	The BLM would create vegetation mosaics in forests and woodlands only through the use of prescribed fire without prior silvicultural treatments.	The BLM would create vegetation mosaics in forests and woodlands through silvicultural treatments to provide diversity of species composition and spatial distributions and as a way to prepare forests for the reintroduction of fire.	Same as Alternative C
Fuelwood would be available to the public through home use sales from approximately 12,186 acres of piñon-juniper woodland of public land. Small amounts of fuelwood would be made available to the public as	The BLM would allow forest product harvest (including but not limited to green and dead and down fuelwood/firewood, vigas, latillas, wood pellets, fuelwood, biomass, posts, nuts, berries, piñon nuts, and wildings) area-	The BLM would permit forest product harvest (including but not limited to green and dead and down fuelwood/firewood, vigas, latillas, wood pellets, fuelwood, biomass, posts, nuts, berries, piñon nuts, and wildings) area-wide with the following	The BLM would permit forest product harvest (including but not limited to green and dead and down fuelwood/firewood, vigas, latillas, wood pellets, fuelwood, biomass, posts, nuts berries, piñon nuts, and wildings) area-wide with

Alternative A: No Action	Alternative B	Alternative C: Preferred	Alternative D
a result of wildlife habitat improvement projects, ponderosa pine stand maintenance projects, right-of-way clearings, and as dead and down wood.	wide with the following exceptions: • Forest product harvest would be prohibited in all special designation areas, including riparian areas, ACECs, Wilderness Areas, WSAs, VRM Class I areas, SRMAs, and lands with wilderness characteristics. • Forest product harvest would be prohibited where soil erosion hazard rating is severe or very severe for roads, trails, or off-road routes.	exceptions: • Forest product harvest would be prohibited in riparian areas, ACECs, Wilderness Areas, WSAs, and lands with wilderness characteristics managed to protect wilderness characteristics. (See Maps 7-10) • On lands with wilderness characteristics managed to minimize impacts to wilderness characteristics, access for forest product removal would be limited to existing routes. • - Small amounts of fuelwood would be made available to the public as a result of wildlife habitat improvement projects, ponderosa pine stand maintenance projects, right-of-way clearings, and as dead and down wood.	following exceptions: • Forest products would be prohibited in Wilderness Areas and lands with wilderness characteristics managed to protect wilderness characteristics.
	The BLM would periodically identify and designate specific fuelwood areas in approximately 119,435 acres of BLM lands in the Planning Area (see Maps 7-10).	The BLM would identify and designate specific fuelwood areas in approximately 560,321 acres of BLM land in the Planning Area (see Maps 7-10).	The BLM would identify and designate specific fuelwood areas in approximately 644,132 acres of BLM land in the Planning Area (see Maps 7-10)

2.2.6 Health and Safety

2.2.6.1 Goal

- Protect public health and safety and environmental resources through complying with federal and state hazardous materials laws and regulations; maintaining the health of ecosystems through assessment, cleanup, and restoration of contaminated sites; and integrating environment protection and compliance into all BLM activities.

2.2.6.2 Objectives

- Ensure compliance with the Safe Drinking Water Act where applicable.
- Prioritize wildland fire management to protect human health and safety.
- Ensure compliance with the Clean Air Act where applicable.

2.2.6.3 Management Common to All Alternatives

- The BLM would comply with applicable Abandoned Mine Lands (AML) policies, including discouraging recreational activity within and near AML sites.
- The BLM would enforce no surface occupancy (NSO) for leasable fluid minerals, close to extraction of salable minerals, install no range improvements, and allow no motorized vehicle use on tailings piles, spoil piles, or reclaimed uranium mines.
- The BLM would enforce limitations to OHV use in extraction of salable minerals areas, as necessary, to preserve public health and safety.
- The BLM would inspect and monitor dams meeting dam safety criteria per BLM Manual 9177.
- The BLM would work with the New Mexico Oil Conservation Division and industry to plug orphan wells.
- The BLM would identify and clean up unauthorized dumping sites and hazardous materials spills in the RPFO Planning Area in compliance with applicable state, local, and federal regulations.
- The BLM would coordinate with local and tribal entities to establish transfer stations or solid waste disposal areas, where needed.
- The BLM would monitor leasable fluid minerals operations for compliance according to the annual Air Force Mission Support System Inspection and Enforcement Matrix.
- The BLM would implement emergency stabilization, rehabilitation, and restoration efforts to protect and sustain resources, public health and safety, and community infrastructure. Temporary closure or restrictions on public land use (e.g., camping, gathering firewood) would be enacted at the discretion of the RPFO Manager as necessary to resolve management conflicts and protect persons, property, and public lands and resources. A closure or restriction order would be considered only after other management strategies and alternatives have been explored. Appropriate NEPA analysis would be conducted before the BLM closes public lands to certain uses or restricts specific uses under 43 CFR 3864.1, 3851.2-1, and 6302.19.

2.2.7 Lands and Realty

2.2.7.1 Goals

- Manage the acquisition, disposal, and use of public lands to meet the needs of internal and external customers and to preserve important resource values.
- Retain and acquire lands within the BLM administration to accomplish resource goals and objectives.
- Manage the disposal of public lands to preserve important resource values.
- Lands disposals would be planned to ensure no net loss of wetland values.
- Manage Land Use Authorizations to benefit public use and preserve resource values.

2.2.7.2 Objectives

- Implement land tenure adjustments to improve administration of public lands by disposing of isolated, unmanageable parcels and acquiring inholdings within large blocks of federal land.
- Acquire and maintain access to public lands where needed to improve management efficiency and facilitate multiple use.
- Public lands would be retained if they provide access to large blocks of other federal lands, unless access rights for public use can be reserved in the patent.
- Land acquisitions would be a priority if they are within or adjacent to federally designated areas such as WSAs, ACECs, SRMAs, Wilderness Areas, lands with wilderness characteristics, etc.
- The BLM would acquire land only from owners willing to dispose of them and if adverse effects can be mitigated.
- The BLM would retain lands that would otherwise be disposed of if adverse impacts to NRHP-eligible properties cannot be avoided, minimized, or mitigated at a reasonable cost.
- Acquired lands or interest in lands would take on the management of the surrounding or adjacent public lands.
- Valuable wildlife habitat and cultural resources on public land that is otherwise suitable for disposal would be considered for exchange only with state or local agencies or non-profit private organizations with wildlife management responsibilities.
- WSAs and Wilderness Areas would be exclusion areas for any rights-of-way. (FLPMA, section 501(a)).
- New ROW applicants would be encouraged to stay within already established corridors.
- Recognize existing authorized easements, permits, leases, rights-of-way, and withdrawals as valid existing rights and carry forward.
- All right-of-way applications would continue to receive environmental review on a case-by-case basis and would be coordinated, to the fullest extent possible with all potentially affected interest groups and agencies.

2.2.7.3 Management Common to All Alternatives

2.2.7.3.1 Land Tenure

The RPFO would use the following criteria for considering disposal or acquisition of lands:

- Existing parcels identified for disposal in the Rio Puerco RMP 1986 will be brought forward into this plan.
- Public lands would not be disposed of if NRHP-eligible properties cannot be avoided, minimized, or mitigated at a reasonable cost.
- Lands within WSAs would not be disposed of unless released from WSA status and disposal would meet the other management objectives within the RMP/EIS.
- Land disposals would be planned to ensure no net loss of wetland values.
- Section 15 (Taylor Grazing Act) livestock grazing allotments under 100 acres would be considered for disposal.
- Isolated parcels that are small in size and considered "unmanageable" lands by the RPFO would be considered for disposal.
- Under the Recreation and Public Purposes Act, state, county, municipal, and qualified non-profit organizations would have the opportunity to obtain public lands identified for disposal.
- Where possible, public lands identified for disposal would be exchanged for non-federal or tribal lands that have been identified for acquisition to enhance BLM resource management programs.
- Lands identified for disposal would be disposed of at or above fair market value (excluding those lands disposed of under the Recreation and Public Purposes Act).
- Lands identified for disposal that have no legal public access and only one adjacent landowner would be offered in non-competitive sales at fair market value.
- Valuable wildlife habitat and cultural resources on public land that is otherwise suitable for disposal would be considered for exchange only with state or local agencies or non-profit private organizations with wildlife management responsibilities.
- Public lands would not be disposed of if they provide access to large blocks of other federal lands, unless access rights for public use can be reserved in the patent.
- Exchange of lands between the BLM and the State of New Mexico would occur when the exchange improves the management potential of state and federal land.
- Public lands not identified for disposal would be considered for exchange and Recreation and Public Purposes Act disposals on a case-by-case basis after consultation and coordination with federal, state, county, and local governments and agencies, and after public and environmental review.
- Public lands that are congressionally designated Wilderness would be retained in public ownership.
- Lands identified for disposal under Sections 203, 206, and 209 of FLPMA and identified as such in this plan are hereby classified for disposal under Section 7 of the Taylor Grazing Act of 1934, as amended (43 United States Code [USC] 315f).
- Lands and/or interest in lands (such as minerals and conservation easements) acquired through future land tenure adjustments would take on the management of the surrounding public lands.

- The BLM would acquire land only from owners willing to dispose of them.
- Land acquisitions would be prioritized if they are within or adjacent to federally designated areas such as WSAs, ACECs, SRMAs, Wilderness Areas, National Conservation Areas, National Monuments, National Historic and Scenic Trails, Research Natural Areas, or in areas of high recreational or paleontological values, with sensitive cultural resources, and along historic trails that would benefit BLM resources management programs.
- Exchanges are developed on a case-by-case basis. As such, no quantification of disposal and acquisition acreages can be made before the specific exchange proposal is developed.

2.2.7.3.2 Land Use Authorizations

- Existing authorized easements, permits, leases, rights-of-way, and withdrawals would be recognized as valid existing rights and carried forward.
- WSAs and Wilderness Areas would be exclusion areas for any rights-of-way (FLPMA, Section 501(a)).
- Rights-of-way for extraction leasable fluid minerals and other surface-disturbing activities would comply with stipulations identified in the RMP/EIS.
- The BLM would complete all environmental compliance surveys, including the appropriate level of effort to identify historic properties under NHPA Section 106, prior to land disposal, acquisition, transfer, exchange, lease, permit, or grant.
- All right-of-way applications would continue to receive environmental review on a case-by-case basis and would be coordinated, to the fullest extent possible, with all potentially affected interest groups and agencies.
- The BLM would consider agency requests for withdrawals on a case-by-case basis. In addition, the BLM would consider agency requests for withdrawal extensions or modifications on a case-by-case basis. All withdrawals have been or would be reviewed according to the requirements of laws and existing guidance. Withdrawn areas returned to BLM administration would be managed consistently with land use plan decisions for the surrounding area, as appropriate.
- Designated corridors determined in the Final Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States (BLM 2008) records the decision of the ASLM to amend relevant BLM land use plans (identified in Appendix E of this document) and to incorporate Section 368 corridors therein. This decision to amend the land use plans is supported by the information and findings in the PEIS (DOE/EIS-0386). The PEIS identified potential Section 368 corridors; evaluated effects of potential future development within designated corridors; identified mitigation measures for such effects; and developed IOPs applicable to planning, construction, operation, and decommissioning of future projects within the corridors.

2.2.7.4 Alternatives

All areas not excluded or avoided are considered open. The table below describes actions the RPFO would take when siting pipelines, roads, sites, or transmission lines on BLM lands within the Planning Area. Resource areas, such as Wilderness Areas, critical habitat, floodplains, etc., are identified. Each alternative explains how a pipeline, road, site, or transmission line would be treated within a particular area. The term “exclude” means that the project would not be

approved for construction within the resource area. “Avoid” indicates that the RPFO would attempt to site the project outside the particular resource area; however, the project could be considered within the resource area if no other viable alternative is available.

Table 2.12: Rights-of-Way Management Decisions by Alternative

Area	Alternative A*	Alternative B	Alternative C (Preferred)	Alternative D
100-year floodplains	No specific management decisions	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative B	Same as Alternative B
ACECs**	Depends on the ACEC; some avoid, others exclude ROWs	Pipeline: Exclude Road: Exclude Sites: Exclude Trans: Exclude	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative C
Active floodplains	No specific management decisions	Pipeline: Avoid Road: Avoid Sites: Exclude Trans: Avoid	Same as Alternative B	Same as Alternative B
Cave/Karst areas	No specific management decisions	Pipeline: Exclude Road: Exclude Sites: Exclude Trans: Exclude	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative C
Critical habitat for federal threatened and endangered species (designated and proposed)	No specific management decisions	Pipeline: Exclude Road: Exclude Sites: Exclude Trans: Exclude	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative C
Cultural sites (eligible for the NRHP)	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative A	Same as Alternative A	Same as Alternative A
Eligible WSRs	No specific management decisions	Pipeline: Exclude Road: Exclude Sites: Exclude Trans: Exclude	Same as Alternative B	Same as Alternative B
Habitat for BLM sensitive plant and animal species (includes rare plants)	No specific management decisions	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative B	Same as Alternative B
Habitat for Federal candidate	No specific	Pipeline: Avoid	Same as Alternative B	Same as Alternative B

Area	Alternative A*	Alternative B	Alternative C (Preferred)	Alternative D
species	management decisions	Road: Avoid Sites: Avoid Trans: Avoid		
Habitat for federal listed/proposed threatened and endangered species for which critical habitat has not been designated	No specific management decisions	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative B	Same as Alternative B
Habitat State-listed as crucial/sensitive	No specific management decisions	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative B	Same as Alternative B
Lands with Wilderness Characteristics managed to protect wilderness characteristics	No specific management decisions	Pipeline: Exclude Road: Exclude Sites: Exclude Trans: Exclude	Same as Alternative B	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid
National Scenic and Historic Trails (as delineated by SRMA, ACEC, or VRM areas)	No specific management decisions	Pipeline: Avoid Road: Avoid Sites: Exclude Trans: Avoid	Same as Alternative B	Same as Alternative B
Soils, highly erodible (per sensitive soils definition) and all slopes >15% (see Maps 66-67)	No specific management decisions	Pipeline: Avoid Road: Avoid Sites: Exclude Trans: Avoid	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative C
TCPs	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative A	Same as Alternative A	Same as Alternative A
VRM Class I	Pipeline: Exclude Road: Exclude Sites: Exclude Trans: Exclude	Same as Alternative A	Same as Alternative A	Same as Alternative A
VRM Class II	Pipeline: Avoid Road: Avoid	Same as Alternative A	Same as Alternative A	Same as Alternative A

Area	Alternative A*	Alternative B	Alternative C (Preferred)	Alternative D
	Sites: Avoid Trans: Avoid			
Wetlands and riparian areas	No specific management decisions	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative B	Same as Alternative B
Wilderness Areas	Pipeline: Exclude Road: Exclude Sites: Exclude Trans: Exclude	Same as Alternative A	Same as Alternative A	Same as Alternative A
WSAs	Pipeline: Exclude Road: Exclude Sites: Exclude Trans: Exclude	Same as Alternative A	Same as Alternative A	Same as Alternative A
Withdrawn lands	No specific management decisions	Pipeline: Avoid Road: Avoid Sites: Avoid Trans: Avoid	Same as Alternative B	Same as Alternative B
Total Acres – Open		PTR[1]: 6,346 Sites: 6,346	PTR: 24,088 Sites: 24,088	PTR: 32.105 Sites: 32,105
Total Acres – Avoid		PTR: 400,345 Sites: 77,685	PTR: 596,025 Sites: 468,969	PTR: 611,844 Sites: 486,788
Total Acres – Exclude		PTR: 337,696 Sites: 660,356	PTR: 124,274 Sites: 251,330	PTR: 100,438 Sites: 225,494
Total Acres	**744,387**	**PTR: 744,387** **Sites: 744,387**	**PTR: 744,387** **Sites: 744,387**	**PTR: 744,387** **Sites: 744,387**

[1] PTR = pipelines, transmission lines, and roads

Table 2.13: Land Tenure Adjustment Decisions by Alternative

Alternative A (No Action)	Alternative B	Alternative C – Preferred	Alternative D
Approximately 55,384 acres of scattered and isolated public land were identified as potentially available for disposal.	Parcels identified for disposal total 57,472 acres and are shown on Maps 11-14. These lands meet the referenced criteria.	Parcels identified for disposal total 58,910 acres and are shown on Maps 11-14. These lands meet the referenced criteria.	Parcels identified for disposal total 62,051acres and are shown on Maps 11-14 These lands meet the referenced criteria.
Approximately 689,003 acres were identified for retention.	Approximately 686,915 acres would be retained in BLM ownership.	Approximately 685,477 acres would be retained in BLM ownership.	Approximately 682,336 acres would be retained in BLM ownership.
Consider direct transfer of land in Torrance County to the National Park Service or other such agency if the transfer would provide for the protection of cultural and paleontological resources of national, state, regional or local significance; the protection of valuable wildlife habitat; and the protection of other natural resources	<u>Proposed Priority Areas for Land Ownership Adjustment*</u> • Golden Area in Unit 5 – cultural resources are located on the properties that have to be protected or mitigated prior to disposal. • Crest of Montezuma – may consider transferring management jurisdiction to another public land management agency.	<u>Proposed Priority Areas for Land Ownership Adjustment*</u> • All BLM land in Torrance County. • Lands within the Baca-Prewitt Chapter of Navajo Nation – acquire land (through exchange) to expand Bluewater Canyon ACEC. • Checkerboard areas (for consolidation). • Placitas – isolated 200-acre parcel and the Wessley property. • Golden Area in Unit 5 – cultural resources are located on the properties that have to be protected or mitigated prior to disposal. • Crest of Montezuma – may consider transferring management jurisdiction to another public land management agency. • 11-acre parcel near the intersection of Rio Puerco and Interstate 40.	<u>Proposed Priority Areas for Land Ownership Adjustment*</u> • Parcels listed under Alternative C and entire public land holdings in Placitas.

*Note: This list does not include all BLM lands eligible for disposal within the Planning Area.

2.2.8 Lands with Wilderness Characteristics

The BLM has identified lands with wilderness characteristics (LWCs) for management consideration in this planning effort. Wilderness characteristics include the combination of size (the area has at least 5,000 acres or is of sufficient size to be managed as Wilderness), naturalness (the area generally appears to have been affected primarily by the forces of nature, with the imprint of human work substantially unnoticeable), and outstanding opportunities for solitude or primitive and unconfined recreation.

2.2.8.1 Goal

- Protect wilderness characteristics on those lands with wilderness characteristics (as defined in section 3.2.11) that are identified for protection through this RMP.

2.2.8.2 Objectives

- Minimize surface disturbing activities such that the natural quality of the area is maintained.
- Maintain opportunities for solitude and primitive recreation where they occur in these areas.

2.2.8.3 Management Common to All Alternatives

- Land areas identified as having wilderness characteristics that would be protected or impacted minimally would be a priority for acquisition.

2.2.8.4 Alternatives

For the seven areas identified as lands with wilderness characteristics, the BLM selected one of three sets of management decisions for each area under each alternative: protect wilderness characteristics, minimize impacts to wilderness characteristics, or no protection of wilderness characteristics. Descriptions of each set of management decisions are described below.

2.2.8.4.1 Protect Wilderness Characteristics

Lands with wilderness characteristics that would be managed to protect wilderness characteristics by applying the following prescriptions:

- Close to extraction of leasable minerals.
- Close to mineral sales.
- Withdraw from mineral location.
- Retain public lands in federal ownership.
- Prohibit forest product removal.
- Close to travel, except for authorized use.
- Allow no new rights-of-way.
- Allow no new wildlife developments.
- Allow no new recreational developments.

- Allow surface disturbance activities on a case-by-case basis when necessary for reclamation, emergencies, or valid existing rights. Include mitigation to minimize impacts to wilderness characteristics.
- Manage lands as VRM II.

2.2.8.4.2 Minimize Impacts to Wilderness Characteristics

Lands with wilderness characteristics that would be managed to minimize impacts to wilderness characteristics by applying the following prescriptions:

- Close to extraction of leasable minerals.
- Evaluate surface disturbance activities, including extraction of saleable minerals, on a case-by-case basis. Include mitigation to minimize impacts to wilderness characteristics.
- Retain public lands in federal ownership.
- Manage forest product removal consistent with wilderness characteristics by assuring new routes are not established and that harvested areas are followed by prescribed fire to eliminate evidence of stumps.
- Manage vehicle use as limited to designated routes as of the approval date of the RMP. In areas with overlapping designations, the more restrictive travel designation will prevail.
- Allow current authorized livestock grazing in lands with wilderness characteristics.
- Allow construction of new range improvements that are consistent with maintenance of wilderness characteristics.
- Manage lands as VRM II.

2.2.8.4.3 Not Managed to Protect Wilderness Characteristics

Lands with wilderness characteristics that would not be managed to protect wilderness characteristics would have the following prescriptions applied:

- Evaluate surface disturbance activities, including extraction of salable and leasable minerals, on a case-by-case basis. Include mitigation to minimize impacts to wilderness characteristics, when possible.
- Retain public lands in federal ownership.
- Open to forest product removal.
- Cimarron Mesa Only: Open to vehicle use as of the approval date of the RMP. Vehicle use management in this area will be further refined during Travel Management Planning.
- Petaca Pinta A and Volcano Hill: Manage vehicle use as limited to designated routes as of the approval date of the RMP. In areas with overlapping designations, the more restrictive travel designation will prevail.

Table 2.14: Summary of Management Decisions for LWCs by Alternative

Unit	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Chamisa E (2,239 acres)	Lands with wilderness characteristics	Protect	Protect	Protect
Ignacio Chavez A		Protect	Minimize Impacts	Not Protected

Unit	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
(2,462 acres)	were not addressed in the 1986 RMP, as amended.			
Ignacio Chavez B (1,541 acres)		Protect	Minimize Impacts	Not Protected
Ignacio Chavez C (72 acres)		Protect	Minimize Impacts	Not Protected
Petaca Pinta A (38 acres)		Protect	Protect	Not Protected
Volcano Hill (23,833 acres)		Protect	Protect	Not Protected
Cimarron Mesa (7,329 acres)		Protect	Not Protected	Not Protected
Total acres Protected		**37,514**	**26,110**	**2,239**
Total acres Minimize Impacts		**0**	**4,075**	**0**
Total acres Not Protected		**0**	**7,329**	**35,275**

2.2.9 Livestock Grazing

2.2.9.1 Goals

- Manage to achieve the New Mexico Standards for Public Land Health (BLM 2001) and other desired resource conditions through the implementation of the Guidelines for Livestock Grazing Management (BLM 2001).
- Achieve healthy, sustainable rangeland ecosystems that support the livestock industry while providing for other multiple resource values such as wildlife habitat, recreational opportunities, clean water, and functional watersheds.

2.2.9.2 Objectives

- Integrate livestock grazing management planning (Allotment Management Plans/Coordinated Resource Management Plans) and actions with other resource program objectives.
- Determine if existing livestock management practices are meeting land use planning and resource objectives through the collection of monitoring data.
- Develop grazing prescriptions throughout the Planning Area to be consistent with the New Mexico Standards and Guidelines (BLM 2001), which include meeting required forage and cover requirements for species of wildlife that could occur within an allotment based on the quality and quantity of habitat present. Areas to prioritize such action include those with high wildlife value (i.e., riparian areas, threatened and endangered species habitat, and special designation areas for wildlife).
- Define Selective Management Categorization (M, I, and C) for allotments through administrative procedures based on monitoring and land health data.

2.2.9.3 Management Common to All Alternatives

- The BLM would reimburse holders of range improvement permits and cooperative range improvement agreements covered by the land improvement section (43 CFR 4100) of the Taylor Grazing Act for financial investments they have made in rangeland improvements on public land if the BLM disposes of the land.
- The BLM would follow the current New Mexico Standards and Guidelines (BLM 2001) for all future livestock grazing activities.
- The RPFO would comply with the Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic EIS (BLM 2007a).
- On all allotments, the BLM would allow allotment boundary adjustments, joining and splitting, and modification of livestock grazing season subject to appropriate NEPA review and analysis (Maps 27-28, Appendix E).
- The BLM would address unauthorized livestock grazing and trespass using 43 CFR 4100.
- 164,776 acres and 19,342 AUMs within BLM grazing allotments currently managed by the Farmington Field Office, but located in the RPFO, would continue to be managed by the Farmington Field Office.
- Permittees and interested members of the public would be notified by letter of any changes in Selective Management Categorization.
- Livestock grazing would not be allowed in exclosures constructed within riparian areas using Habitat Stamp Program (HSP) dollars unless grazing the area would meet the management objectives of the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000), an appropriate NEPA analysis is conducted, and the NMDGF is in agreement.
- Range improvements would be proposed and implemented as necessary to meet the goals and objectives of this RMP/EIS.
- NEPA analysis would be prepared for all vegetation treatments, new permits, and permit renewals that would address New Mexico Standards and Guidelines (BLM 2001).

2.2.9.3.1 Relinquishment of Preference

- Voluntary relinquishments of livestock grazing permits and preference, in whole or in part, submitted by a permittee in writing to the BLM, would be handled on a case-by-case basis.
- Relinquished permits and the associated preference would remain available for application by qualified applicants after the BLM considers if such action would meet rangeland health standards and is compatible with achieving land use plan goals and objectives.

2.2.9.4 Alternatives

Table 2.15: Livestock Grazing Management Decisions Across Alternatives

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Currently 22 allotments are in non-use status (classified as vacant with no permit issued to graze livestock). The 22 allotments total 16,833 acres providing a total of 1,907 AUMs of available forage.	The RPFO would convert 22 vacant allotments totaling 16,833 acres to other resource benefit areas by reassigning 1,907 AUMs for other resource benefits and would be designated as unavailable for livestock grazing and devoted to a public purpose that precludes livestock grazing.	Same as Alternative A; this alternative would allow for forage reserve on all 22 vacant allotments when conditions would warrant authorization of livestock grazing, making 1,907 additional AUMs and 16,833 acres available for livestock grazing on a case-by-case basis.	Same as Alternative C.
In the southeast portion of Sandoval County there are currently eight allotments with permitted grazing. The allotments total 12,553 acres and provide 1,581 AUMs of available forage.	Eight active allotments totaling 12,553 acres in the southeast portion of Sandoval County would be designated as unavailable for livestock grazing .All 1,581 AUMs would be available for other resource benefits. The allotments would be designated as unavailable for livestock grazing and devoted to a public purpose that precludes livestock grazing.	The eight allotments in the southeast portion of Sandoval County, totaling 12,553 acres and 1,559 AUMs, would remain permitted for prescribed livestock grazing use. Two allotments (00120-Tejon, 00924-Wessely Lease) making up the remaining 64 acres and 22 AUMs would continue to be authorized under Section 15 of the Taylor Grazing Act until such time these lands are disposed.	All eight allotments within the southeast portion of Sandoval County would remain active and all 12,553 acres and 1,581 AUMs would be available for forage.

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Of the total 195 allotments included in this plan, 18 are classified as Section 15 lands, each having total acreage less than 100 acres. The 18 allotments total 1,024 acres and 285 AUMs of available forage.	Eighteen Section 15 allotments with acreages less than 100 total acres would be designated as unavailable for livestock grazing. Therefore, 1,024 acres would be designated as unavailable for livestock grazing and devoted to a public purpose that precludes livestock grazing and 285 AUMs for other resource benefits.	Eighteen Section 15 allotments with acreages less than 100 acres total would not be permitted for prescribed livestock grazing in cases where they could not be lumped into larger BLM allotment tracts. Livestock grazing would continue to be authorized under Section 15 of the Taylor Grazing Act until such time these lands are disposed. (1,024 acres)	Eighteen Section 15 allotments with acreages less than 100 acres would remain available for livestock grazing, would possibly be offered in exchange to the adjacent producer for private lands in an attempt to block BLM lands or would possibly be sold to the producer. This alternative would maintain the 1,024 acres and 285 AUMs for permitted livestock grazing.
The BLM would maintain 1,180 AUMs in suspension until monitoring data determines the forage is available on a long-term sustainable basis.	The BLM would permanently suspend 1,180 AUMs, which would make them available for other resource benefits.	The BLM would reauthorize 1,180 AUMs in suspension for livestock grazing under prescribed grazing management on allotments meeting the New Mexico Standards and Guidelines (BLM 2001) and supporting monitoring data.	The BLM would reauthorize 1,180 AUMs in suspension for livestock grazing on allotments meeting the New Mexico Standards and Guidelines (BLM 2001) and supporting monitoring data..
Within the Planning Area, there are 149 allotments with permitted yearlong livestock grazing systems.	The BLM would convert 149 allotments with yearlong systems to seasonal grazing systems. AUMs and acres grazed would remain as permitted.	The BLM would implement seasonal use, as necessary, to make significant progress towards meeting the goals and objectives for livestock grazing. AUMs and grazed acres would remain as permitted.	The BLM would convert allotments to yearlong or seasonal grazing systems in an attempt to provide flexibility in livestock management. Total AUMs would stay the same as the No Action Alternative; only season of use would differ.

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Current management is in compliance with the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000).	All riparian areas would be unavailable to livestock grazing on 1,582 acres.	The BLM would allow prescribed livestock grazing in riparian areas that meet the Riparian Sites Standards of the New Mexico Standards and Guidelines (BLM 2001). Prescribed livestock grazing in riparian areas (approximately 1,582 acres) would follow the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000).	Same as Alternative C.
Currently there are approximately 697,405 acres (BLM only) and 87,176 AUMs (BLM only) classified as areas of special designations (WSA, ACEC, SMA, Research Natural Areas) scattered throughout the Planning Area within active grazing allotment boundaries.	The BLM would exclude livestock grazing in all areas with existing and proposed special designations. This would remove 771,308 acres and 96,414 AUMs from livestock grazing within special designations. This includes all allotments (BLM, state, private). Please refer to the Special Designation section for more detail.	The BLM would allow prescribed grazing in all areas with special designations where grazing would not conflict with resources protected by the special designation.	Same as Alternative C.

2.2.10 Mineral Resources

2.2.10.1 All Mineral Types

2.2.10.1.1 Goals

- Provide opportunities for environmentally responsible exploration and development of mineral and energy resources subject to appropriate BLM policies, laws, and regulations.

2.2.10.1.2 Objectives

- Mineral operations permits would identify requirements and BMP's necessary to avoid or minimize adverse effects on natural resources.
- Mineral activity would be managed to meet, or move toward meeting, Land Health Standards.
- Where no alternative to road construction exists, road (including roads in riparian areas) would be kept to the minimum necessary for the approved mineral activity.

2.2.10.1.3 Management Common to All Alternatives

The RPFO would manage mineral and energy development on split-estate lands in the following ways:

- Private surface owners must allow for cultural resources surveys, surveys for threatened and endangered species, and other work, including excavation, when determined necessary by the BLM.
- Private surface owners have the right to determine how cultural resources are used after completion of the federal action.
- In consultation with the private landowner, the BLM can suggest mitigation and reclamation measures to the operator. The BLM can enforce those measures that are included in leasing stipulations or applications for permits to drill on split estate lands.
- The BLM must fulfill the requirements of NEPA, the NHPA, the Endangered Species Act (ESA), the Clean Water Act (CWA), and other applicable laws regarding surface resources.
- The private surface owner is entitled to the same level of resource protection provided on federally owned surface during permit review.
- During surface reclamation, the private surface owner may provide views on reclamation to the BLM for careful consideration and may concur that final reclamation is satisfactory or may recommend additional actions.
- On split-estate lands (private surface/federal minerals) and lands administered by other federal agencies, the surface owner or surface management agency is responsible for imposing surface restrictions. The BLM administers the operational aspects of mineral leases.
- WSAs and designated Wilderness (344,901 total acres in the Planning Area) would be designated as unavailable to mineral leasing and development. WSAs are open to locatable mineral entry subject to Wilderness non-impairment standards. While not expressly prohibited by law or regulation, sale and free use of mineral materials in WSAs would not be allowed in most instances because it would not be compatible with the non-impairment criteria. The non-impairment criteria require the BLM to manage lands under Wilderness review in such a manner so as not to impair the suitability of such areas for preservation as Wilderness.

- Where public lands are sold or exchanged under 43 USC 682(B) (Small Tracts Act), 43 USC 869 (Recreation and Public Purposes Act), 43 USC 1718 (Sales), or 43 USC 1716 (Exchanges), the BLM would not allow remove the minerals from the operation of the mining laws unless a subsequent land use planning decision expressly recommends withdrawal from mineral entry.
- Areas closed to mineral development under this RMP/EIS would not apply to valid, existing rights.
- Minerals decisions for ACECs and SRMAs are included where the management decisions for specific ACECs and SRMAs are discussed.
- For additional information, see the following maps:
    - Map 29: Mineral Ownership,
    - Map 30: Fluid Mineral Potential,
    - Map 31: Fluid Minerals Leased Areas,
    - Map 32: Solid Mineral Potential Locatables,
    - Map 33: Solid Mineral Potential Saleable,
    - Map 34: Locatable and Saleable Activities, respectively) and
    - Maps 38-46: (Alternatives for Surface Restrictions, Leasables, Locatables, and Saleables, respectively).

2.2.10.1.4 Alternatives

The range of alternatives for minerals largely focuses on the resource conflicts associated with wildlife, special designations, and soil. The open, closed, and limited areas were based on creating a range over how these conflicts are addressed. For example, in one alternative sensitive soils are closed to minerals but in others CSU stipulations are used to address the conflict and potential impacts. Finally, there is more range within the limited areas as the stipulations vary throughout the alternatives.

Management decisions related to salable mineral development are described under the benefitting resource section. Some of the benefitting resources include Cultural Resources, Recreation and Visitor Services, Special Designations, Wildlife and Fisheries, and Special Status Species.

2.2.10.2 Salable Minerals

2.2.10.2.1 Goal

- Manage salable mineral permitting and development on BLM-administered lands within the planning area while minimizing impacts to other resource values.

2.2.10.2.2 Objectives

- Facilitate the evaluation of public lands for salable mineral potential.
- Facilitate reclamation of lands disturbed for mineral exploration and development to maintain health and diversity of public lands.

2.2.10.2.3 Management Common to All Alternatives

- Disposals of salable minerals are discretionary actions; therefore, disposal would be considered on a case-by-case basis. Stipulations to protect important resource values would be based on interdisciplinary review of individual proposals. Extraction of salable mineral operations on BLM-administered lands would be conducted in compliance with BLM mineral materials disposal regulations (43 CFR 3600).
- Riparian areas would be closed to salable mineral extraction and disposal.
- All actions pertaining to salable minerals are discretionary and subject to the NEPA decision-making process.

2.2.10.2.4 Alternatives

Alternative A (No Action):

- Disposal of salable minerals would not be authorized in the following SMAs: Pelon Watershed, 858 acres; San Luis Mesa Raptor Area,640 acres; Azabache Station, 80 acres; Big Bead Mesa, 311 acres; Guadalupe Ruin and Community, 485 acres; Elk Springs, 40 acres; Ojito (Querencia Watershed, 640 acres; Ball Ranch 1,278 acres.
- In the following SMAs, salable mineral contracts would be allowed only under exceptional circumstances: Torreon Fossil Fauna, 2,981 acres; Historic Homesteads, 16 acres; Canon Jarido, 1,803 acres; Jones Canyon, 649 acres; Headcut Prehistoric Community, 2,274 acres; San Luis Mesa Raptor area, 8,369 acres; Cabezon Peak, 5,053 acres; Ignacio Chavez, 43,134 acres; Canon Tapia, 906 acres; Elk Springs, 9,682 acres; Ojito, 11,590 acres; Pronoun Cave Complex, 938 acres; Continental Divide Trail, 715 acres; 1870s Wagon Trail, 630 acres; Petaca Pinta, 5,363 acres; Bluewater Canyon, 89 acres.

Alternatives B, C (Preferred), and D:

- Management decisions related to salable mineral development are described under the benefitting resource section.

Table 2.16: Salable Mineral Management Decisions (Acres) by Alternative

Management Decision	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Open	1,711,415	1,646,554	1,659,585	1,707,930
Avoid	13,683	478	36,311	15,376
Closed	105,654	183,720	134,856	107,446
Total	1,830,752	1,830,752	1,830,752	1,830,752

2.2.10.3 Locatable Minerals

2.2.10.3.1 Goal

- Manage mining claim location, prospecting, and mining operations in a manner that will not cause unnecessary or undue degradation of public lands.

2.2.10.3.2 Objectives

- Facilitate the evaluation of public lands for locatable mineral potential.
- Facilitate reclamation of lands disturbed by mineral exploration and development to maintain health and diversity of public lands.

2.2.10.3.3 Management Common to All Alternatives

- Riparian areas would be recommended for withdrawal from locatable mineral entry.
- Existing operations would continue to be subject to the stipulations developed for the notice or the plan of operations. The BLM would evaluate all operations authorized by the mining laws in the context of its requirement to prevent unnecessary and undue degradation of federal lands and resources. Consistent with the rights afforded claimants under the mining laws, operations conducted after this RMP/EIS would be required to conform to the surface-disturbing stipulations developed in this RMP/EIS and as required by current regulations and guidance.
- Operations on BLM-administered lands open to mineral entry must be conducted in compliance with the BLM's surface management regulations (43 CFR 3715, 3802, 3809, and 3814). BLM surface management regulations do not apply to operations on other federal lands but do apply to split-estate lands.

2.2.10.3.4 Alternatives

Alternative A (No Action)

- Lands in the following SMAs would be recommend for withdrawal from mineral entry: Pelon Watershed, 858 acres; Jones Canyon, 649 acres; San Luis Mesa Raptor Area, 640 acres; Azabache Station, 80 acres; Big Bead Mesa, 311 acres; Guadalupe Ruin and Community, 485 acres; Elk Springs, 40 acres; Ojito, 7,480 acres; Ball Ranch, 1,278 acres.

Alternatives B, C (Preferred), and D

- Management decisions related to salable mineral development are described under the benefitting resource section.

Table 2.17: Locatable Mineral Management Decisions (Acres) by Alternative

Management Decision	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Open	16,584	292,457	277,748	27,621
Recommended (or previously recommended) for withdrawal	1,814,168	1,538,295	1,553,004	1,803,131
Total	**1,830,752**	**1,830,752**	**1,830,752**	**1,830,752**

2.2.10.4 Leasable Minerals

2.2.10.4.1 Goals

- Manage leasable mineral development, while minimizing impacts to other resource values.

- Support the domestic need for energy resources.

2.2.10.4.2 Objectives

- Make coal available for leasing, and respond to coal leasing and exploration applications in a timely manner.
- Make other solid leasable minerals available for leasing, and respond to applications in a timely manner.
- Facilitate the evaluation of public lands for fluid mineral potential by processing geophysical exploration permits and other exploratory permits.
- Facilitate oil and gas development by making federal mineral estate available to oil and gas leasing with appropriate special leasing stipulations to protect other resources, and by monitoring the effectiveness of leasing stipulations in meeting resource objectives.
- Facilitate oil and gas development by responding to applications for permits to drill in a timely manner.
- Promote environmentally responsible development of fluid minerals by requiring the incorporation of fluid mineral Best Management Practices into proposed development actions, and carrying out inspection and enforcement activities to monitor the effectives of such measures.
- Facilitate the reclamation of lands disturbed for leasable mineral exploration and development by working closely with proponents to design projects that can achieve final reclamation objectives through appropriate site location, design, construction, maintenance, and final reclamation procedures.
- Maintain opportunities to explore and develop federal oil and gas resources and other leasable minerals.
- Maintain opportunities for the collection of subsurface geological (geophysical) data to aid in the exploration of oil and gas resources.
- Maintain opportunities to explore and develop coal resources within the planning area.

2.2.10.4.3 Management Common to All Alternatives

The RPFO is open to leasable mineral development unless specifically identified as closed by statute or administratively unavailable for the life of the plan for mineral leasing. The BLM would manage these open areas on a case-by-case basis. An appropriate NEPA review will be conducted before lease is offered for sale. Leasing is discretionary even if an area is open to development. Stipulations are added at the leasing stage depending on inventory and analysis and are non-discretionary based on presence of the resource or impacts identified.

- The BLM would require on-site inspections, including surveys for threatened or endangered species, waters of the U.S., and cultural resources when the RPFO receives an Application for Permit to Drill (APD).
- The RPFO would apply the same lease stipulations on split-estate lands as on BLM lands with similar resource conditions.
- Those lands currently open to oil and gas leasing would continue to be open to geophysical operations. Those lands open to oil and gas leasing, but subject to an NSO restriction, may be open to geophysical operations should site-specific NEPA analysis disclose a finding of no

significant impact. No geophysical exploration notice of intent would be approved in areas closed to oil and gas leasing.

- Interim reclamation would be required for oil and gas wells.
- Undesirable events, which include oil spills and explosions occurring in production facilities, would be required to be promptly reported to the BLM.
- All actions pertaining to leasable fluid minerals are discretionary and subject to the NEPA decision-making process.
- In total, 8,020 acres in the area of maximum development potential would be available for further consideration for coal leasing. This area contains approximately 100 million tons of coals recoverable by surface mining methods, nearly all of which are federally owned.

2.2.10.4.4 Alternatives

Alternative A (No Action)

- Leasable minerals would be recommended for withdrawal in these SMAs: Pelon Watershed, 858 acres; San Luis Mesa Raptor Area (Arroyo Empedrado Watershed), 640 acres; Guadalupe Ruin Community, 485 acres; Elk Springs (Juana Lopez Research Natural Area), 40 acres; Ojito (Querencia Watershed), 640 acres; Ball Ranch, 1,278 acres.
- The right-of-way corridors and windows would not be open to leasing. This leaves 8,020 acres in the area of maximum development potential available for consideration for coal leasing. This area contains approximately 100 million tons of coal recoverable by surface mining methods, nearly all of which are federally owned.

Alternative B

- Placitas would be NSO for extraction of leasable fluid minerals, closed to extraction of salable minerals, and recommend for withdrawal from locatable mineral entry. Minerals decisions for ACECs and SRMAs are included where the management decisions for specific ACECs and SRMAs are discussed.

Alternative C (Preferred)

- Placitas would be managed as controlled surface use (CSU) for extraction of leasable fluid minerals, open to extraction of salable minerals and locatable mineral entry in Section 13, Township 13 North, Range 4 East and Section 18, Township 13 North, Range 5 East.

Alternative D

- Placitas would be managed as CSU for extraction of leasable fluid minerals, open to extraction of salable minerals, and open to locatable mineral entry.

Table 2.18: Leasable Mineral Management Decisions (Acres) by Alternative

Management Decision	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Open with standard terms and conditions	1,327,910	1,131,076	1,136,604	1,145,147
Open with moderate constraints (CSU)	18,668	150,967	170,116	203,236
Open with major constraints	6,660	32,211	27,350	7,629

Management Decision	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
(NSO)				
Closed	59,470	98,454	78,638	56,696
Total	**1,412,708**	**1,412,708**	**1,412,708**	**1,412,708**

2.2.10.5 Leasable Fluid Mineral Special Leasing Stipulations

The items below are proposed changes to the RPFO fluid mineral leasing stipulations. The purpose of fluid mineral lease stipulations is to provide adequate protection for other resources beyond the standard leasing terms and conditions. The standard lease terms state that the BLM may request the operator to move a well bore location 200 meters (m) (656 feet) in any direction or delay drilling by up to 60 days (43 CFR 3101.1-2). When a parcel is nominated for leasing, RPFO resource specialists would review the location of the parcels and choose appropriate stipulations to provide adequate protection for other resources within the parcel. The lease stipulations are legally binding to the lessee once they are issued the lease and remain in place for the life of the lease. Site-specific measures can be addressed when drilling is proposed via Conditions of Approval. Reclamation activities would attempt to reclaim the resources to the conditions associated with the goals and objectives in the planning area.

Table 2.19: Fluid mineral leasing stipulation abbreviations

Abbreviation	Meaning
CSU	Controlled surface use; the BLM may require additional measures for extraction of leasable fluid minerals beyond standard lease terms and conditions.
LN	Lease notice; provides important information to the lessee.
NM	BLM New Mexico stipulations; apply statewide
NSO	No surface occupancy; leasable fluid minerals may be accessed via directional drilling from adjacent areas where surface occupancy is allowed.
RP	BLM RPFO stipulations; apply within Rio Puerco Field Office
TLS	Timing limit stipulations; seasonal restriction.
WO	BLM Washington Office stipulations; apply nationwide.

2.2.10.5.1 Management Common to All Alternatives

The stipulations below, common to all alternatives, were created by the BLM Washington Office or the New Mexico State Office and are available to be applied to parcels as resource specialists deem appropriate. These stipulations are listed here because they provide the protection of resources that the RPFO manages.

- ***Bureau of Reclamation – Section 7 Consultation (WO-BOR-7)***: No surface-disturbing activities would be allowed on lands administered by the U.S. Bureau of Reclamation that contain riparian and aquatic habitat that may be suitable for special-status species until a Biological Evaluation has been completed that meets requirements of the U.S. Fish and Wildlife Service (USFWS).
- ***Cultural Resource and Tribal Consultation Stipulation***: Notification to lessee that BLM may not allow activities that could impact cultural resources and cannot be avoided, minimized, or mitigated.

- ***Endangered Species Act*** – Section 7 Consultation (WO-ESA-7): All development activities proposed under the authority of the lease are subject to compliance with Section 7 of the ESA. Ground-disturbing activity would not be approved that may affect any threatened and endangered species or critical habitat until requirements such as conferences or consultations have been completed. Compliance could also require modification or disapproval of proposals.
- ***Lease Notice – Cultural Resources (NM-11-LN)***: All development activities proposed under the authority of this lease are subject to compliance with Section 106 of the NHPA and Executive Order 13007. Compliance could require intensive cultural resource inventories, Native American consultation, and mitigation measures to avoid adverse effects.
- ***Lease Notice – Coal Protection (NM-8-LN)***: Federal coal resources exist on this lease. Operations authorized by this lease may be altered or modified by the authorized officer in order to conserve and protect the mineral resources and provide for simultaneous operations.
- ***Lease Notice – Drainage (NM-10-LN)***: When all or part of the lands within a lease are subject to drainage by wells on adjacent leases, the lessee would be required within six months of lease issuance to submit to the Authorized Officer plans for protecting the lease from drainage.
- ***Lease Notice – Split Estate***: APDs or project Plans of Development (PODs) on split-estate lands would not be approved unless the operator a) certifies that a surface owner agreement has been reached or b) certifies in a statement that an agreement could not be reached. The operator must obtain a bond sufficient to cover the anticipated damages to the surface owners' crops or surface improvements 43 CFR 3814.
- ***Controlled Surface Use – Highway Material Site Right-of-Way (NM-4-CSU)***: For leases containing a highway material site right-of-way, the lessee must operate the lease following specific requirements that ensure the state highway department would have access to the site.
- ***No Surface Occupancy – Continental Divide Trail (NM-6-NSO)***: No occupancy or other surface disturbance would be allowed within 305 m (1,000 feet) of the Continental Divide National Scenic Trail.
- ***No Surface Occupancy – Occupied Structures & Dwellings (NM-12-NSO)***: All or a portion of the lease contain occupied dwellings or structures. Surface occupancy of these lands would not be allowed. These lands can be accessed remotely by directionally drilling outside the NSO zone.
- ***No Surface Occupancy – Pooling Purposes Only (NM-9-NSO)***: No surface occupancy or use is allowed on the lease. The purpose of this lease is solely for participation in a unit or for pooling purposes.

2.2.10.5.2 Alternatives

Table 2.20: Summary of General Fluid Mineral Leasing Stipulations by Alternative

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Cultural and Paleontological Resources			
CSU: National Register of Historic Places (RP-6-CSU)	CSU: National Register of Historic Places (RP-6-CSU)	Same as Alternative B.	Same as Alternative B.
CSU: Torreon Fossil ACEC –	CSU: Paleontological	Same as	Same as

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Paleontological Resources (RP-11-CSU)	Resources	Alternative B.	Alternative B.
NSO: Churches & Cemeteries (RP-10-NSO)	NSO: Churches & Cemeteries (RP-10-NSO)	Same as Alternative B.	Same as Alternative B.
Geology and Mineral Resources			
None	NSO: Cave & Karst	CSU: Cave & Karst	None
None	CSU: Plan Of Development	Same as Alternative B.	
None	CSU: Orphan wells	Same as Alternative B.	
Soil, Water, and Riparian Resources			
None	CSU: Steep Slopes, 15%–30%	Same as Alternative B.	None
None	NSO: Steep Slopes, Over 30%	Same as Alternative B.	Same as Alternative B.
None	CSU: Low Reclamation Opportunity	Same as Alternative B.	None
None	NSO: Streams, Riparian & Wetland Areas	CSU: Streams, Riparian & Wetland Areas	None.
Vegetation			
None	CSU: Lease Reclamation (current SENM-47)	Same as Alternative B.	
None	NSO: Ponderosa Pine	Same as Alternative B.	
No Surface Occupancy: Cultural Resources & Aviation Facilities (RP-3-NSO)	NSO: Aviation Facilities (RP-3-NSO)	Same as Alternative B.	Same as Alternative B.
Wildlife and Special Status Species			
	CSU: Designated Sensitive Species Measures	CSU: Same as Alternative B.	CSU: Same as Alternative B.
	CSU: Prairie Dog Towns, 0.5 mile	CSU: Prairie Dog Towns, 0.25 mile	CSU: Prairie Dog Towns
TLS: Important Seasonal Wildlife Habitat, Feb. 1 to July 1 (RP-8-TLS)	TLS: Raptor Nests, 1 mile, March 1 to June 30	TLS: Raptor Nests, 0.5 mile, March 1-June 30	TLS: Raptor Nests, 0.25 mile, March 1-June 30
TLS: Important Seasonal Wildlife Habitat, July 2 to Jan. 31 (RP-1-TLS)	TLS: Big Game Winter Range, Nov. 15 to April 30 –	Same as Alternative B.	None
TLS: Important Seasonal Wildlife Habitat, May 15 to Nov. 15 (RP-2-TLS)	TLS: Big Game Fawning/ Calving Range, Mule Deer May 1 – Aug 31; Elk May 1 – Jun 30; Pronghorn May 1 – Jul	Same as Alternative B.	None

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
	15		
None	CSU: Wildlife Habitat Projects	CSU: Same as Alternative B.	None
Impacts to the Public			
CSU: Canon Jarido – Recreation (RP-9-CSU)	NSO: Recreation	Same as Alternative B	None.
None	CSU: Residential Interface.	None	None

Below is a table showing the fluid mineral stipulations that would be applied in special designations and other areas as appropriate to meet resource objectives. More specifically, the stipulations in Table 2.21 would be applied to protect the relevance and importance criteria of each ACEC. For instance, the Pronoun Caves ACEC would be managed for paleontological and wildlife values. If a parcel of land were leased in the Pronoun Caves ACEC, stipulations regarding Paleontological Resource Values and Wildlife Resource Values would be attached to the lease. Whether the stipulation would be CSU or NSO, or not attached at all, depends on which alternative is selected.

Table 2.21: Summary of Acres of Fluid Mineral Stipulations within Special Designations Managed for Resource Objectives

Resource	Alternative A (No Action)		Alternative B		Alternative C (Preferred)		Alternative D	
	CSU	NSO	CSU	NSO	CSU	NSO	CSU	NSO
Cultural Resources	15,451	1,630	16,310	68,672	64,686	17,798	17,343	0
Paleontological Resources	20,145	0	17,455	2	27,750	6,490	15,558	2
Geologic Resources	6,148	0	17,651	37,222	20,607	31,930	36,154	0
Biological Soil Crusts	0	0	0	4,437	0	4,437	4,437	0
Wildlife Resources	11,350	1,794	1,341	60,985	50,743	11,423	2,975	941
Rare Plants	20,145	0	16,310	17,159	14,134	23,647	20,243	0
Health & Safety	0	0	0	50	0	50	0	50

2.2.11 Paleontological Resources

2.2.11.1 Goals

- Protect paleontological resources from natural or human-caused deterioration, or potential conflict with other resource uses and resource development.
- Promote stewardship, conservation, and appreciation of paleontological resources.

2.2.11.2 Objectives

- Refine and keep current the Potential Fossil Yield Classification (PFYC) system with locality data as it becomes available.
- Develop project or site-specific treatment plans or other protective measures for high potential areas where development and risk of adverse impacts are present.
- Maintain and enhance programs that provide opportunities for scientific research of paleontological resources.
- Develop and maintain interpretation of paleontological resources in areas of high public interest and access.
- Maintain and enhance educational opportunities and public outreach programs through assistance agreements and other partnerships.

2.2.11.3 Management Common to All Alternatives

- The BLM would complete/require assessment and mitigation for paleontological resources for proposed actions, including but not limited to: land disposal actions, surface-disturbing activities, and OHV open areas. Actions may include inventories, monitoring, or data recovery.
- The BLM would apply regulations implementing Public Law 111-11, the Omnibus Public Lands Act – Paleontological Resource Preservation Act, to all alternatives.
- The BLM would use the PFYC system to identify criteria or use restrictions to ensure that areas containing, or that areas likely to contain, vertebrate or noteworthy occurrences of invertebrate of plant fossils are identified and evaluated prior to authorizing surface-disturbing activities.
- Vertebrate fossils may be collected only by qualified individuals under a permit issued by the BLM New Mexico State Office. Vertebrate fossils include bones, teeth, eggs, and other body parts of animals with backbones such as dinosaurs, fish, turtles, and mammals. Vertebrate fossils also include but are not limited to: trace fossils, such as footprints, burrows, gizzard stones, and dung.
- Fossils collected under a permit would remain the property of the federal government and must be placed in an approved repository (such as a museum or university) identified at the time of permit issuance.
- The BLM would require permits for excavation activities.

2.2.11.4 Alternatives

In addition to those goals, objectives, and management actions located in this section, there are also management actions associated with special designations and mineral leasing that provide additional range to the alternatives. These are located this chapter's Mineral Resources – Surface Protection Stipulations (2.2.10.5, Table 2.20 and Table 2.21) and Special Designations (2.2.16.3).

2.2.12 Recreation and Visitor Services

2.2.12.1 General

2.2.12.1.1 Goals

- Provide for multiple recreation uses of the public lands.
- Sustain a wide-range of recreation opportunities and potential experiences for visitors and residents.
- Support local economic stability and sustain the recreation resource base while protecting sensitive resource values.
- Develop and maintain cooperative relationships with national, state, and local recreation providers, tourism entities, and local recreational groups.
- Develop and maintain appropriate recreational facilities, balancing public demand, protection of the public resources, and fiscal responsibility.

2.2.12.1.2 Objectives

- Support and collaborate with local governments, recreational and public groups, and service providers to provide recreational opportunities for visitors to achieve quality-of-life benefits from the public lands.
- Emphasize and support collaborative public outreach, awareness events, and programs that promote public service and stewardship.
- Encourage sustainable travel and tourism development with gateway communities and provide community-based conservation support for visitor services.
- The RPFO would build and maintain additional recreation facilities consistent with the planning process. In the absence of a Recreation Area Management Plan (RAMP), facilities may be considered through the NEPA process where they support the objectives of the various management areas.
- The RFPO may construct campground facilities; however, they would be located to avoid wetland, riparian, cultural resources, floodplains, and special-status plant and animal species habitats. If avoidance were not possible, mitigation would be implemented.
- The RPFO would continue to manage and maintain for recreation use in all existing developed recreation sites.
- The RPFO would continue to allow existing rights-of-way within all recreational facilities.

2.2.12.1.3 Management Common to All Alternatives

- The BLM would allow recreational casual collection of a reasonable amount of common invertebrate and plant fossils without a permit. Surface disturbance must be negligible, and collectors may only use non-powered hand tools. Wilderness and WSAs are closed to collecting of any kind.
- Geocaching is a recognized sport in the RPFO Planning Area. If monitoring shows that placement of a geocache is causing resource damage by evidence of social trails or vandalism to cultural sites, the BLM would work with the geocachers to either relocate or remove the geocache.

- The BLM would not require a permit for dead and down firewood collected on public land to be used for camping on public land, consistent with restriction identified in the Forests and Woodlands section.
- Where damage to the long-term sustainability of natural or cultural resources by recreational use is anticipated or observed, the BLM would seek to limit or control recreational use by managing the nature and extent of the recreational use or by providing site improvements that make the activity more sustainable or by a combination of management controls and facility development. Such management actions would seek to reduce or eliminate the adverse impact while maintaining the economic benefits associated with a wide range of recreation uses.
- In providing recreation opportunities and managing recreation use and visitor services, the BLM would consider the need to protect riparian resources, special-status species, and wildlife habitats. Management methods may include limitation of visitor numbers, camping and travel controls, implementation of fees, alteration of when use takes place, and other similar actions to be approved through normal BLM procedures.
- The BLM would work with agency and government officials and permit holders to develop procedures, protocols, permits, or other types of authorization, as appropriate.
- The BLM would restrict camping and campfires in areas that have a threat of high fire danger.
- No dispersed camping would be allowed within 46 m (150 feet) of riparian areas. When planning and/or establishing designated campgrounds near riparian areas, sensitive wildlife habitat needs would be incorporated into all planned construction and design.
- Temporary closure or restrictions on the use of public lands (e.g., camping) can be enacted at the discretion of the RPFO Manager to resolve management conflicts and protect persons, property, and public lands and resources. A closure or restriction order should be considered only after other management strategies and alternatives have been explored. NEPA analysis is required prior to the BLM closing the public lands to certain uses or restricting specific uses of public lands under the authorities of 43 CFR 8364.1, 8351.2-1, and 6302.19. Most closures and restrictions implemented by the BLM fall into these categories.
- The RPFO would provide visitor information and outreach programs that emphasize the value of public land resources and low impact recreation techniques while also providing information about recreation activities, experiences, and benefits.
- The RPFO would not allow fireworks use on public lands.
- The RPFO would provide public information concerning the prevention of the spread of invasive and exotic weeds, as well as wildlife species and their habitat especially in riparian areas.
- The RPFO would manage developed sites as necessary under the authority of 43 CFR 8360, inclusive of published closures, restrictions, and supplemental rules developed for the public lands within the Planning Area to protect visitor health and safety, reduce visitor conflicts, and provide for the protection of government property and resources.

2.2.12.2 Special Recreation Permits

2.2.12.2.1 Goal

- Issue Special Recreation Permits in an equitable manner for specific recreational uses of public lands and related waters as a means to minimize user conflicts, control visitor use, protect recreation resources, and provide for private and commercial recreation use.

2.2.12.2.2 Objective

- Complete processing requirements for requested Special Recreation permits.

2.2.12.2.3 Management Common to All Alternatives

- The BLM would issue SRPs as a discretionary action as a means to help meet management objectives, provide opportunities for economic activity, facilitate recreational use of the public lands, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. The BLM would apply cost recovery procedures for issuing SRPs where appropriate.
- All SRPs would contain stipulations appropriate for the type of activity and may include additional stipulations necessary to protect lands or resources, reduce user conflicts, or minimize health and safety concerns.
- The BLM would allow no competitive mechanized or motorized events in WSAs.
- The BLM would limit permitted competitive events, such as the Oh-My-God 100, to existing primitive roads and trails. The BLM would modify existing roads and trails as needed under SRPs and would be preceded by required environmental compliance activities.
- The BLM would determine requirements for solid and human waste disposal on a case-by-case basis.

2.2.12.2.4 Alternatives

Table 2.22: Special Recreation Permit (SRP) Guidance by Alternative

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Continue to issue and manage SRPs (e.g., four-wheel drive vehicle tours, horseback trips, bear hunting camps, survival school) to enhance outdoor recreational opportunities and provide business opportunities for private enterprise. Continue to permit	A SRP Group Permit would be required if: • The group consists of four or more vehicles and/or 20 or more people staying two or more consecutive nights in the same public land location. • The group consists of 15 or more vehicles and/or 30 or more people using public land as day-use. • SRP fees may be	Same as Alternative B.	A SRP Group Permit would be required if: • The group consists of 20 or more vehicles and/or 50 or more people for day use. • The group consists of 10 or more vehicles and/or 25 or more people staying overnight for two or more nights in the same public land location.

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
competitive and noncompetitive OHV events. Continue to permit large non-commercial overnight groups.	waived only for research and/or scientific, therapeutic, or administrative use directly related to management of the permit area, or if the event or activity is co-sponsored by BLM.		

2.2.12.3 Special Recreation Management Areas

The only Special Recreation Management Area under consideration for this revision is the Continental Divide National Scenic Trail.

2.2.12.3.1 Goals

- Manage the SRMA with a commitment to emphasize their unique value, importance, and /or distinctive recreation opportunities on a sustained or enhanced long-term basis.

2.2.12.3.2 Objective

- Provide a valued hiking and travel experience within the SRMA while protecting its historic and cultural significance.

2.2.12.3.3 Recreational Setting Characteristics (RSC)

- Activities: Hiking, horseback riding, mountain biking.
- Experiences: Remoteness, solitude and enjoying a wide-open natural setting.
- Benefits: Social, Individual Experience, Physical Fitness, Environmental and Historic edification.
- Physical Components: Historic, Cultural, Remoteness, Naturalness.
- Social Components: Community involvement in promoting and maintaining the area through social awareness projects and fund raising opportunities.
- Operational Components: Create partnerships with other agencies to include Tribal Nations to enhance visitor services.

2.2.12.3.4 Management Common to All Alternatives

- The BLM would manage all public lands within SRMAs for retention in federal ownership consistent with the land tenure decisions identified in the RMP/EIS.
- If use and conditions warrant, camping may be restricted to designated sites through Supplementary Rule-making (see 43 CFR, 8365.1-6).
- The BLM would manage all SRMAs according to VRM class for each respective alternative to protect scenic values and settings important to recreation.

- Recreation management areas with complex implementation issues may require a subsequent implementation-level Recreation Area Management Plan (RAMP).

2.2.12.3.5 Alternatives

Table 2.23: Management Prescriptions for the Continental Divide NST SRMA by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Corridor size	Management prescriptions would apply to a 2,000 foot-wide corridor around the CDNST (11,474 acres)	Management prescriptions would apply to a half-mile-wide corridor around the CDNST (38,808 acres)	Management prescriptions would apply to a half-mile-wide corridor around the CDNST where routes have not yet been determined, and to a 2,000 foot-wide corridor for the remainder of the trail (23,607 acres)	Management prescriptions would apply to a 2,000 foot-wide corridor around the CDNST (11,474 acres)
Leasable Fluid Minerals	Fluid minerals would be leased with a NSO stipulation.	Fluid minerals would be leased with a NSO stipulation.	Fluid minerals would be leased with a NSO stipulation.	Fluid minerals would be leased with a NSO stipulation.
Salable Minerals	Open to extraction of salable minerals.	Closed to extraction of salable minerals.	Extraction of salable minerals would be avoided.	Open to extraction of salable minerals.
Locatable Minerals	Open to locatable mineral entry.	Open to locatable mineral entry.	Open to locatable mineral entry.	Open to locatable mineral entry.
Forest Products	Open to forest product removal.	Closed to forest product removal.	Forest product removal would be avoided.	Open to forest product removal.
Motorized Vehicle Use	Open to motorized vehicles.	Closed to motorized vehicles.	Motorized vehicle use would be limited to existing roads and trails.	Motorized vehicle use would be limited to existing roads and trails.
VRM	Corridor would be managed as prevailing VRM class.	Corridor would be managed as VRM II.	Corridor would be managed as prevailing VRM class.	Corridor would be managed as prevailing VRM class.

2.2.12.4 Extensive Recreation Management Areas

2.2.12.4.1 Goal

- Manage ERMAs with recreation as planned actively on an interdisciplinary basis in concert with other resources/resource programs.

2.2.12.4.2 Objective

- Strive to achieve the objectives for the identified ERMAs.

2.2.12.4.3 Management Common to All Alternatives

- The BLM limits recreation management actions within an ERMA to only those of a custodial nature.
- The BLM may designate ERMA lands as SRMAs in the future based on intensity of use and would be analyzed through the plan amendment process.
- The BLM may construct minimal facilities in the ERMA as needed to ensure visitor health and safety, reduce user conflict, and protect resources.
- The BLM would monitor recreation activity in the RPFO ERMA to maintain recreation opportunities and protect resource values.
- The BLM would manage ACECs with recreational values as described under the ACEC section.

2.2.12.4.4 Alternatives

ERMAs are administrative units that require specific management considerations in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments where a commitment has been made to emphasize recreation by managing for specific recreation opportunities and setting on a sustained or enhanced long-term basis. (See Map 55.)

2.2.12.4.4.1 San Juan Basin Badlands ERMA Objective Statement, R&VS, Implementation Decision

The San Juan Basin Badland ERMA is located in the northwest corner of the RPFO in an area with mesas and scenic badlands. The ERMA would consist of four zones: Torreon Fossil Fauna East and West zones, Oh-My-God 100 (A-C) zones, Ceja Pelon zone, and Chijuilla zone. The Torreon Fossil Fauna East and West zones correspond to the Torreon Fossil Fauna ACEC. Management decisions for the ACEC are described in the special designations section.

- **Objective Statement:** By 2015, the San Juan Basin Badlands ERMA will offer dispersed recreational opportunities, including hiking, wildlife viewing, paleontological interpretation, off-highway vehicle use, and other activities.
- **Acres**: 71,155
- **R&VS:** OHV restrictions and stipulations on types of modes of travel designations.
- **Other Programs:** Stipulations on mineral development.
- **Implementation Decision:** Designate motorized travel areas and address specific sites and conditions for mineral development.

Table 2.24: San Juan Basin Badlands ERMA Management Decisions by Alternative

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Torreon Fossil Fauna East and West Zones (ACEC)	• 0 acres See "Special Designations – ACECs" section.	• 5,921 acres These zones would be closed to motorized travel except for authorized use and managed as described in the ACEC section. No petrified wood collection would be allowed.	• 5,921 acres The BLM would allow motorized travel on the access route only. The BLM would manage the zones as described in the ACEC section.	Same as Alternative C.
Oh-My-God 100 Race (A-C) Zones	• 0 acres Races would continue to be a permitted activity per regulations in 43 CFR, Part 2930; courses would be rotated on a three-year basis.	• 17,408 acres Same as Alternative A, except no new trails would be considered.	• 17,408 acres Same as Alternative A, except new trails would be considered on a case-by-case basis.	Same as Alternative C.
Ceja Pelon Zone	• 0 acres Motorized travel would be limited to existing primitive roads and trails.	• 5,713 acres The zone would be closed to motorized travel except for authorized use. No petrified wood collection would be allowed.	• 5,713 acres Motorized travel would be allowed on the access route only.	• 5,713 acres Motorized travel would be allowed on the access route only. New roads would be considered on a case-by-case basis.
Chijuilla Zone	• 0 acres Motorized travel would be limited to existing primitive roads and trails.	• 42,070 acres Motorized travel would be limited to existing primitive roads and trails.	• 42,070 acres Motorized travel would be limited to existing primitive roads and trails. Construction of new roads would be considered on case-by-case basis for permitted special event activities.	Same as Alternative C.

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Historic Homesteads	The BLM would continue to manage the Historic Homesteads for maximization of the interpretive and educational potential of the sites, while protecting their inherent cultural values.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Leasable Fluid Minerals	Pelon Watershed Study Area would be closed to fluid mineral leasing; Historic Homesteads SMA would be leased with a CSU stipulation; remainder would be leased with standard terms and conditions.	Fluid minerals would be leased with a CSU stipulation.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	Open to extraction of salable minerals, except closed in Pelon Watershed Study Area and avoided in Historic Homesteads SMA.	Open to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Locatable Minerals	Open to locatable mineral entry, except for Pelon Watershed Study Area.	Recommend for withdrawal from locatable mineral entry.	Same as Alternative B.	Open to locatable mineral entry.

Note: Management decisions for Alternative A (No Action Alternative) are not listed because ERMAs were not identified in the 1986 Rio Puerco RMP, as amended. See the special designations section for management decisions for the Torreon Fossil Fauna ACEC zone.

2.2.12.4.4.2 Petaca Pinta ERMA, Objective Statement, R&VS, Implementation Decision.

The Petaca Pinta ERMA is located in a remote area southwest of Los Lunas and Belen, NM. There are five zones within the ERMA: Pronoun Cave ACEC zone, Cerro Verde ACEC zone, Volcano Hill zone, Cimarron Mesa zone, and Sandy Wash zone. The Volcano Hill and Cimarron Mesa zones roughly correspond to the areas of the same name identified as lands with wilderness characteristics. The Petaca Pinta WSA is adjacent to this ERMA. Management of the Petaca Pinta ERMA would focus on dispersed recreational activities including hiking, wildlife viewing, and off-highway vehicle use.

- **Objective Statement:** By 2015 the Rio Puerco Field Office will promote the dispersed recreational activities in the Petaca Pinta ERMA to include hiking, wildlife viewing, and off-highway vehicle use in non-restricted areas.

- **Acres**: 69,118
- **R&VS:** OHV restrictions, and stipulations on types of modes of travel.
- **Implementation Decision:** Designated OHV areas and address specific sites and conditions of mineral development.

Table 2.25: Petaca Pinta ERMA Management Decisions by Alternative

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Pronoun Cave ACEC Zone	• 0 acres See "Special Designations—ACECs" section.	• 1,100 acres The cave complex would be closed to recreational use. The BLM would manage the zone as described in the ACEC section.	• 1,100 acres Motorized vehicle use would be limited to existing primitive roads and trails. The BLM would manage the zone as described in the ACEC section.	Same as Alternative C.
Cerro Verde ACEC Zone	• 0 acres See "Special Designations—ACECs" section.	• 4,618 acres Travel would be limited to non-motorized use, unless authorized by permit.	• 4,618 acres Motorized travel would be limited to existing primitive roads and trails. The BLM would manage the zone as described in the ACEC section.	Same as Alternative C.
Volcano Hill Zone	• 0 acres Open to motorized vehicle use.	• 26,657 acres Travel would be limited to non-motorized use, unless authorized by permit.	Same as Alternative B.	Same as Alternative B.
Cimarron Mesa Zone	• 0 acres Open to motorized vehicle use.	• 18,269 acres Motorized travel would be limited to existing primitive roads and trails.	• 18,269 acres The BLM would manage this zone as an open OHV area.	Same as Alternative C.
Sandy Wash Zone	• 0 acres Open to motorized vehicle use.	• 18,474 acres Motorized travel would be limited to existing primitive roads and trails.	Same as Alternative B.	Same as Alternative B.

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Leasable Fluid Minerals	Fluid minerals would be leased with standard terms and conditions, except CSU in Pronoun Caves ACEC.	Fluid minerals would be leased with a CSU stipulation.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	Open to salable mineral extraction, except avoided within Pronoun Caves ACEC.	Open to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Locatable Minerals	Open to locatable mineral entry.	Recommend for withdrawal from locatable mineral entry	Same as Alternative B.	Open to locatable mineral entry.

Note: Management decisions for Alternative A (No Action Alternative) are not listed because ERMAs were not identified in the 1986 Rio Puerco RMP, as amended. See the special designations section for management decisions for the Pronoun Caves ACEC and Cerro Verde ACEC zones.

2.2.12.4.4.3 Boca del Oso ERMA, Objective Statement, R&VS, and Implementation Decision.

The Boca del Oso ERMA (134,474 acres) is located in southwestern Sandoval County and southeastern McKinley County in an area of the field office with numerous WSAs. There are eleven zones within the Boca del Oso ERMA: Ignacio Chavez ACEC zone, Cabezon Peak ACEC zone, San Luis Mesa ACEC zone, San Miguel Dome ACEC zone, Azabache zone, Ancestral Way zone, the Cerro zone, and the Continental Divide Trail zone. In addition to ACECs, these zones contain other areas with special management prescriptions, including special cultural resource areas and lands with wilderness characteristics.

- **Objective Statement**: The Boca del Oso ERMA would focus and promote by 2018 the protection of wilderness values and dispersed recreational activities, including hiking, hunting, horseback riding, wildlife viewing, cross-country skiing, and other activities. Promote interpretation through advance technologies.
- **Acres**: 50,431
- **R&SV:** OHV restrictions, and stipulations on types of modes of travel.
- **Other Programs:** Provide guidance for public awareness on weed free feed for livestock and pack animals utilized in the Boca del Osa ERMA.
- **Implementation Decisions:** Designated motorized access areas and address specific sites and conditions of mineral development. By 2020 RPFO will develop downloadable narrative and Bar Code Technology Access for interpretive guides.

Table 2.26: Boca del Oso ERMA Management Decisions by Alternative

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Chamisa WSA Zone	See "Special Designations – Wilderness and Wilderness Study Areas" section.	Travel would be limited to non-motorized travel only.	Toro, Ned, and Medio stock tank access roads would remain closed; motorized access would be allowed by permit only. Motorized use on BLM Road 1103 would have a seasonal closure of November 30 through April 15.	Motorized travel would be limited to existing primitive roads and trails.
Ignacio Chavez ACEC Zone	See "Special Designations—ACECs" section.	The BLM would manage this zone as described in the ACEC section.	Same as Alternative B, except: - Seco, Heifer, and Los Indios stock tank access roads would remain closed; motorized access would be allowed by permit only. Motorized use BLM Road 1103 would have a seasonal closure of November 30 through April 15. BLM Road 1103 would be open year-round when maintenance is completed.	Same as Alternative B.

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Cabezon Peak ACEC Zone	See "Special Designations—ACECs" section.	The cherry-stem route would be closed that provides access to the Cabezon Peak trailhead. No maintenance would be allowed on this route. Limit motorized travel to authorized use. The ACEC portion of this zone would be managed as described in the ACEC section.	The cherry-stem route that provides access to the trailhead would be open to motorized vehicles and regular maintenance by the county would be requested. The ACEC portion of this zone would be managed as described in the ACEC section.	The trailhead would be open to motorized travel. The remaining zone would be limited to motorized travel by authorized use. The ACEC portion of this zone would be managed as described in the ACEC section.
San Luis Mesa ACEC Zone	See "Special Designations—ACECs" section.	• 12,237 acres Motorized travel would be limited to existing roads, primitive roads, and trails. The ACEC portion of this zone would be managed as described in the ACEC section.	Same as Alternative B.	Same as Alternative B, except new primitive roads for special events would be considered on a case-by-case basis.
San Miguel Dome ACEC Zone	See "Special Designations—ACECs" section.	• 6,961 acres Motorized travel would be allowed with permit only. The ACEC portion of this zone would be managed as described in the ACEC section.	• 6,961 acres Motorized travel would be limited to existing primitive roads and trails. The ACEC portion of this zone would be managed as described in the ACEC section.	• 6,961 acres Motorized travel would be limited to existing primitive roads and trails. The zone would be managed as described in the ACEC section.
Ancestral Way Zone	See management of Big Bead Mesa, Guadalupe Ruin, and Canon Tapia in the "Cultural Resources" section.	• 5,898 acres Travel would be open to motorized use on existing roads/trails with seasonal closures	• 5,898 acres Motorized travel would be limited to existing primitive roads/trails with no seasonal closures.	Same as Alternative C.

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Azabache Zone	See "Cultural Resources" section.	• 12,889 acres The Azabache Station SMA that lies in this zone would be closed to motorized travel except for authorized use; motorized existing primitive roads and trails would be allowed on remainder of zone. Azabache Station would be allocated to cultural resource scientific use, then to public use after adequate study and site "hardening" activities.	Same as Alternative B.	• 12,889 acres Motorized travel would be limited to existing primitive roads and trails. Azabache Station would be allocated to cultural resource scientific use, then to public use after adequate study and site "hardening" activities. The BLM would develop a non-collection permit system for metal detection studies by members of the public.
Cerro Zone	Motorized travel would be limited to existing primitive roads and trails.	• 12,436 acres Motorized travel would be limited to existing primitive roads and trails.	Same as Alternative B.	Same as Alternative B except existing roads in the SRMA would be maintained and additional roads would be developed on a case-by-case basis in conformance with existing laws and regulations.
Leasable Fluid Minerals	See notes for individual zones.	Fluid minerals would be leased with a CSU stipulation.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	See notes for individual zones.	Open to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Locatable Minerals	See notes for individual zones.	Recommend for withdrawal from locatable mineral entry.	Same as Alternative B.	Open to locatable mineral entry.

Note: Management decisions for Alternative A (No Action Alternative) are not listed because ERMAs were not identified in the 1986 Rio Puerco RMP, as amended. See the special designations section for management decisions for the Ignacio Chavez, Cabezon Peak, San Miguel Dome, and San Luis Mesa and Canon Tapia ACEC zones. Where mineral resource management

decisions listed for the ERMA do not match the management decisions listed for ACEC zones of the ERMA, the more restrictive management decision would prevail.

2.2.12.4.4.4 San Ysidro ERMA, Objective Statement, R&VS, and Implementation Decision

The San Ysidro ERMA (11,839 acres) is located in Sandoval County north and west of the Village of San Ysidro. The area, located near the Rio Salado and Highway 550, is characterized by gypsum-rich soils, unique geologic features, and springs. There are four zones within the San Ysidro ERMA: Ojito ACEC zone, Las Milpas zone, White Mesa Bike Trails zone, and San Ysidro Trials Area zone.

- **Objective Statement**: San Ysidro ERMA will have a balance use of dispersed recreation activities, including areas managed for motorized travel, mechanized travel, hiking, horseback riding, and other activities.
- **Acres**: 11,212
- **R&SV:** OHV restrictions, and stipulations on types of modes of travel and associated restrictions.
- **Implementation Decisions:** Identify and designate authorized travel routes for mechanized and motorized travel. By 2020 RPFO will create access from nearby highway to the hiking trail system and develop downloadable narrative and Bar Code technology access for interpretive guides.

Table 2.27: San Ysidro ERMA Management Decisions by Alternative

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Ojito ACEC Zone	See "Special Designations—ACECs" section.	This zone would be closed to motorized travel except for authorized use and managed as described in the ACEC section.	Same as Alternative B.	Same as Alternative B.
Las Milpas Zone	Access would be limited to authorized users. Fluid minerals would be leased with a CSU stipulation.	• 2,523 acres Motorized travel would be limited to existing roads, primitive roads, and trails. The BLM would designate a defined area (about 700 acres) of the old Las Milpas Gas Storage Facility as a BLM administrative site closed to general public entry unless authorized by the activity plan.	Same as Alternative B.	• 2,523 acres This zone would be open to public entry. Motorized travel would be limited to existing primitive roads and trails.

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
White Mesa Bike Trails Zone	White Mesa Bike Trails allow authorized use of bike trails and limited use of trails for equestrian use (semi-primitive, non-motorized).	• 3,546 acres Motorized travel would be limited to existing roads, primitive roads, and trails, as posted.	Same as Alternative B.	Same as Alternative B.
San Ysidro Trials Area Zone	The San Ysidro Trials motor bike area would continue to meet both competitive and play needs. This area would be closed to motorized travel, unless permitted.	• 5,143 acres This zone would be closed to motorized travel except for authorized use. Gates would remain locked, but non-motorized and mechanized travel would be allowed.	• 5,143 acres Motorized travel would be limited only to the access road, except for the continued authorized use of both play area and events for New Mexico Trials Association would be allowed on authorized trails. Mechanized travel would be allowed on existing roads and trails. The existing gates into the area would remain locked, key available at the BLM RPFO for checkout. One petroglyph site at San Ysidro would be allocated to public use for interpretation after site “hardening” activities. The BLM would add the site to the list of sites monitored by Site Stewards volunteers.	Same as Alternative C.
Leasable Fluid Minerals	Open to fluid mineral leasing (except as noted for Ojito ACEC and Las Milpas zones).	Fluid minerals would be leased with a CSU stipulation.	Same as Alternative B.	Same as Alternative B.

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Salable Minerals	Open to extraction of salable minerals (except as noted for Ojito ACEC zones).	Open to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Locatable Minerals	Open to locatable mineral entry (except as noted for Ojito ACEC zone above).	Recommend for withdrawal from locatable mineral entry.	Same as Alternative B.	Open to locatable mineral entry

Note: Management decisions for Alternative A (No Action Alternative) are not listed because ERMAs were not identified in the 1986 Rio Puerco RMP, as amended. See the special designations section for management decisions for the Ojito ACEC zone. Where mineral resource management decisions listed for the ERMA do not match the management decisions listed for ACEC zone of the ERMA, the more restrictive management decision would prevail.

2.2.12.4.4.5 Herrera ERMA, Objective Statement, R&VS, Implementation Actions

The Herrera ERMA (18,457 acres) is located west of Albuquerque and north of Interstate 40. There are three zones within the Herrera ERMA: Bony Canyon ACEC zone, Prospect zone, and La Mesita zone.

- **Objective Statement:** Management of the Herrera ERMA would focus on off-highway vehicle (dune buggy) use, and paleontological interpretation and study. By 2018 OHV competitive events permitting process will be analyzed and updated to meet any changes related to completive OHV events.
- **Acres**: 18.456
- **R&VS:** Stipulate permitting requirements for dune buggy events.
- **Implementation Actions:** Designate dune buggy events and motorized vehicle areas. Provide public outreach to educate motorized users of restrictions and permitting requirements for competitive events.

Table 2.28: Herrera ERMA Management Decision by Alternative

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Bony Canyon ACEC Zone	Motorized vehicle use would be limited to existing roads and trails.	• 1,314 acres This zone would be managed as non-motorized, except for authorized or permitted motorized use, and as described in the ACEC section.	Same as Alternative B.	• 1,314 acres Motorized use would be limited to existing primitive roads and trails.

Zone Name/ Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Prospect Zone	Motorized vehicle use would be limited to existing roads and trails.	• 11,443 acres The BLM would limit motorized vehicles to existing routes and would work towards maintaining existing routes and consider developing additional routes for motorized use in the future through the travel planning proves.	Same as Alternative B.	Same as Alternative B.
La Mesita Zone	Motorized vehicle use would be limited to existing roads and trails.	• 5,699 acres The BLM would limit motorized vehicles to existing routes and would work towards maintaining existing routes and consider developing additional routes for motorized use in the future through the travel planning process.	Same as Alternative B.	Same as Alternative B.
Leasable Minerals	Fluid minerals would be leased with standard terms and conditions.	Fluid minerals would be leased with a CSU stipulation.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	Open to extraction of salable minerals	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Locatable Minerals	Open to locatable mineral entry.	Recommend withdrawal from locatable mineral entry	Same as Alternative B.	Open to locatable mineral entry.

Note: Management decisions for Alternative A (No Action Alternative) are not listed because ERMAs were not identified in the 1986 Rio Puerco RMP, as amended. See the special designations section for management decisions for the Bony Canyon ACEC zone. Where mineral resource management decisions listed for the ERMA do not match the management decisions listed for ACEC zone of the ERMA, the more restrictive management decision would prevail.

2.2.12.4.4.6 Crest of Montezuma ERMA, Objective Statement, R&VS, Implementation Actions

The Crest of Montezuma ERMA is located in southeastern Sandoval County north of the Sandia Ranger District of the Cibola National Forest and east of the San Antonio de las Huertas Land Grant and the Village of Placitas.

- **Objective Statement:** By 2020 assess the recreational potential and coordinate effort with surrounding high-density communities and applicable agencies.
- **Acres**: 917
- **R&SV:** The management of the Crest of Montezuma would focus on primitive and semi-primitive non-motorized travel, especially hiking and mountain biking.
- **Implementation Decision:** Designated motorized access areas and address specific sites and conditions of mineral development.

Table 2.29: Crest of Montezuma ERMA Management Decisions by Alternative

Resource	Alternative B	Alternative C (Preferred)	Alternative D
Travel	Closed to motorized travel except for authorized use. Open to primitive non-motorized travel.	Motorized travel would be limited to existing roads and trails for permitted use. Open to primitive non-motorized travel.	Same as Alternative C.
Leasable Minerals	Fluid minerals would be leased with a CSU stipulation.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	Closed to extraction salable minerals.	Same as Alternative B.	Open to extraction of salable minerals.
Locatable Minerals	Recommend for withdrawal from locatable mineral entry.	Same as Alternative B.	Open to locatable mineral entry.

Note: Management decisions for Alternative A (No Action Alternative) are not listed because no similar management decisions were identified in the 1986 Rio Puerco RMP, as amended.

2.2.13 Renewable Energy

2.2.13.1 Goal

- Promote renewable energy on public lands where compatible with land management goals.

2.2.13.2 Objectives

- Authorization of any rights-of-way for wind or solar energy development would incorporate BMPs, including the USFWS's "Guidelines for Wind Power" and provisions contained in the Final Programmatic EIS on Wind Energy Development (BLM 2005b).
- The RPFO would follow the decisions made under the Final Programmatic EIS, Geothermal Leasing in the Western United States (BLM and U.S. Forest Service 2008) and the Final Programmatic EISs on Wind Energy and Solar Development Program (USDI 2005).

- Renewable Energy projects will be pursued if the area has been identified as having medium to high potential in a previous study.

2.2.13.3 Management Common to All Alternatives

- Proposals for renewable energy projects on public land would undergo site-specific environmental analysis as part of the right-of-way process.
- Energy corridors located in the Planning Area and designated in the Record of Decision and Final Programmatic EIS Designation of Energy Corridors on Federal Land in the 11 Western States (BLM 2009) would be incorporated into the RMP/EIS

2.2.13.4 Alternatives

The table below describes actions the RPFO would take when siting wind, solar, and geothermal projects on BLM lands within the Planning Area. Resource areas, such as Wilderness Areas, critical habitat, floodplains, etc., are identified. Each alternative explains how a wind, solar, or geothermal project would be treated within a particular area. The term "exclude" means that the renewable energy project would not be approved for construction within the resource area. The term "avoid" indicates that the RPFO would attempt to site the project outside the particular resource area; however, the project could be constructed within the resource area if no other viable alternative is available.

Table 2.30: Renewable Energy Management Decisions by Alternative

Resource/Area	(No Action) Alternative A*	Alternative B	(Preferred) Alternative C	Alternative D
100-year floodplains	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Avoid	Wind: Avoid Solar: Exclude Geo: Avoid	Same as Alternative C
ACECs	Depends on the ACEC; some avoid, others exclude ROWs	Wind: Avoid Solar: Exclude Geo: Exclude	Wind: Avoid Solar: Exclude Geo: Avoid	Same as Alternative C
Active floodplains	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Avoid	Same as Alternative B	Same as Alternative B
Cave/Karst areas	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Wind: Avoid Solar: Exclude Geo: Exclude	Wind: Avoid Solar: Avoid Geo: Avoid
Critical habitat for federal threatened and endangered species (designated and proposed)	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Wind: Avoid Solar: Exclude Geo: Avoid	Same as Alternative C
Cultural sites (eligible for the NRHP)	Wind: Avoid Solar: Avoid Geo: Avoid	Same as Alternative A	Same as Alternative A	Same as Alternative A

Resource/Area	(No Action) Alternative A*	Alternative B	(Preferred) Alternative C	Alternative D
Eligible WSRs	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Same as Alternative B	Same as Alternative B
Habitat for BLM sensitive plant and animal species (includes rare plants)	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Wind: Avoid Solar: Exclude Geo: Avoid	Wind: Avoid Solar: Avoid Geo: Avoid
Habitat for Federal candidate species	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Wind: Avoid Solar: Exclude Geo: Avoid	Wind: Avoid Solar: Avoid Geo: Avoid
Habitat for federal listed/ proposed threatened and endangered species for which critical habitat has not been designated	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Wind: Avoid Solar: Exclude Geo: Avoid	Wind: Avoid Solar: Avoid Geo: Avoid
Habitat State-listed as crucial/sensitive	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Wind: Avoid Solar: Exclude Geo: Avoid	Wind: Avoid Solar: Avoid Geo: Avoid
Lands with wilderness characteristics managed to protect wilderness characteristics	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Wind: Avoid Solar: Avoid Geo: Avoid	Same as Alternative C
National Scenic and Historic Trails (as delineated by SRMA, ACEC, or VRM areas)	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Same as Alternative B	Same as Alternative B
Soils, highly erodible (per sensitive soils definition) and all slopes >15%	No specific management decisions	Wind: Avoid Solar: Avoid Geo: Avoid	Same as Alternative B	Same as Alternative B
TCPs	Wind: Avoid Solar: Avoid Geo: Avoid	Same as Alternative A	Same as Alternative A	Same as Alternative A
VRM Class I	Wind: Exclude Solar: Exclude Geo: Exclude	Wind: Exclude Solar: Exclude Geo: Exclude	Same as Alternative B	Same as Alternative B

Resource/Area	(No Action) Alternative A*	Alternative B	(Preferred) Alternative C	Alternative D
VRM Class II	Wind: Avoid Solar: Avoid Geo: Avoid	Wind: Exclude Solar: Exclude Geo: Avoid	Wind: Avoid Solar: Avoid Geo: Avoid	Same as Alternative C
Wetlands and riparian areas	No specific management decisions	Wind: Exclude Solar: Exclude Geo: Exclude	Same as Alternative B	Same as Alternative B
Wilderness Areas	Wind: Exclude Solar: Exclude Geo: Exclude	Same as Alternative A	Same as Alternative A	Same as Alternative A
WSAs	Wind: Exclude Solar: Exclude Geo: Exclude	Same as Alternative A	Same as Alternative A	Same as Alternative A
Withdrawn lands	No specific management decisions	Wind: Avoid Solar: Avoid Geo: Avoid	Same as Alternative B	Same as Alternative B
Total Acres – Open		Geo: 6,346 Solar: 6,346 Wind: 6,346	Geo: 24,088 Solar: 24,088 Wind: 24,088	Geo: 32,105 Solar: 32,105 Wind: 32.105
Total Acres – Avoid		Geo: 373,047 Solar: 215,085 Wind: 219,890	Geo: 428,538 Solar: 293,140 Wind: 468,061	Geo: 603,728 Solar: 460,117 Wind: 485,789
Total Acres – Exclude		Geo: 364,994 Solar: 522,956 Wind: 518,151	Geo: 291,761 Wind: 252,238 Solar: 427,159	Geo: 108,554 Solar: 252,165 Wind: 226,493
Total Acres	**744,387**	**744,387**	**744,387**	**744,387**

2.2.14 Riparian Resources

2.2.14.1 Goal

- Protect and restore riparian/wetland areas, and avoid or minimize the disturbance, loss, or degradation of riparian, wetland, and associated floodplains; preserve and enhance natural and beneficial values; and provide for fish, wildlife, and special-status species habitats.

2.2.14.2 Objectives

- Implement management strategies that restore degraded riparian communities; protect natural flow requirements; protect water quality; manage for stable, non-eroding banks; and manage for year-round flows where applicable.
- Manage riparian areas for Proper Functioning Condition (PFC) and toward an advanced ecological status, and ensure stream channel morphology and functions are appropriate for local soil type, climate, and landform. All riparian areas must meet the Riparian Sites Standard outlined in the New Mexico Standards and Guidelines (BLM 2001). PFC is an element of the Fundamentals of Rangeland Health and required by the Riparian Sites Standards and regulations in 43 CFR 4180.

- Implement riparian/wetland restoration projects with objectives of maintaining species diversity (wildlife and vegetation) and protecting or recovering special status species that heavily depend on these habitats. Emphasize projects aimed at increasing riparian/wetland areas for the benefit of these species.

2.2.14.3 Management Common to All Alternatives

- The BLM would carry forward adaptive management strategies and permit conditions developed in accordance with the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000), except for the two management decisions varied in the proposed range of alternatives below related to surface disturbance restrictions for riparian areas and potential closing riparian areas to livestock grazing under Alternative B.
- The BLM would continue to manage southwestern willow flycatcher (SWFL) habitat in the RPFO Planning Area, inventory new habitat, and update existing habitat in accordance with the SWFL Management Plan (BLM 1998) and the SWFL Recovery Plan (USFWS 2002). The BLM would also seek out guidance from USFWS specialists and new scientific literature that pertains to arising issues involving SWFL management not covered in these documents.
- The BLM would maintain all properly functioning springs and associated riparian/wetland habitats at the PFC level. The BLM would assess and reassess PFC for all riparian areas in the RPFO Planning Area. Those features in the Nonfunctional and Functional At-Risk categories would be managed to improve them to PFC. The RPFO would use exclosures or implement grazing management practices to maintain and/or improve to PFC. Other activities would be limited as necessary to achieve or maintain PFC (BLM IM 2010-101).
- The BLM would prioritize restoration activities in riparian systems that contain SWFL habitat, are Functioning at-Risk, or are Nonfunctioning. Saltcedar is now considered suitable SWFL nesting habitat; therefore, projects involving treatment of saltcedar in known SWFL habitat would require consultation with the USFWS.
- The BLM would address riparian habitat values for all surface and vegetation disturbing actions within or close to riparian areas.
- Any management actions for riparian areas would include appropriate tribal consultation regarding potential TCPs.
- Mitigation to reduce impacts to floodplains and riparian areas may include but are not limited to:
  1. Where feasible and consistent with user safety, developed travel routes would be located or relocated away from sensitive riparian and wetland areas.
  2. Dispersed camping would be prohibited within 46 m (150 feet) of riparian areas. Designated campgrounds established in proximity to riparian areas would be designed or placed to ensure adequate spatial and visual restrictions that would allow sensitive wildlife to exist undisturbed.
  3. Stream crossings would be limited in number dictated by the topography, geology (see Map 3), and soil type. Any necessary stream crossings would be designed to minimize sedimentation, soil erosion, and compaction (to minimize longitudinal routes along stream banks, crossings would be designed perpendicular to the stream).
  4. Where necessary, recreational use would be controlled by changing location or kind of activity, season, intensity, distribution, and/or duration.

5. Livestock grazing actions would be implemented to meet riparian objectives, including vegetation use limits, fencing, herding, and change of livestock class, temporary closures, season, and/or alternate development or relocation of water sources.
6. Any water diversions from riparian areas by the BLM or non-BLM entities would be designed and constructed to protect ecological processes and functions.
7. Weed management stipulations and education would be implemented to reduce spread of noxious weeds within riparian corridors.
8. Riparian areas would be closed to motorized travel.

- The BLM would continue to apply integrated species management to accomplish riparian restoration through chemical, mechanical, and manual methods (e.g., saltcedar control, willow plantings).
- The BLM would acquire riparian lands and water resources (from willing sellers), and work with cooperating adjacent landowners to preserve and maintain multi-jurisdictional riparian areas for increased habitat quality and instream flow.
- The BLM would plan land disposals to ensure no net loss of wetland values.
- The BLM would prohibit woodland harvest, except where permitted for restoration to benefit riparian values.
- The BLM would manage riparian areas to ensure a multi-aged, multi-layered structure, allowing for retention of snags and diseased trees.
- The BLM would close riparian areas to extraction of salable minerals and recommend for withdrawing them from locatable mineral entry.
- The BLM would avoid aerial application of retardant or foam within 91 m (300 feet) of waterways and any ground application of wildland fire chemicals into waterways. Waterways include any body of water including lakes, rivers, stream, springs, and ponds regardless if they contain aquatic life. This includes all wildland fire chemicals, including water enhancers.
- Livestock grazing would not be allowed in exclosures constructed within riparian areas using Habitat Stamp Program (HSP) dollars unless grazing the area would meet the management objectives of the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office BLM 2000, an appropriate NEPA analysis is conducted, and the NMDGF is in agreement.

2.2.14.4 Alternatives

Table 2.31: Riparian Resource Management by Alternative

Resource Use	Alternative A (No Action)	Alternative B	Alternative C	Alternative D
Surface Disturbing Activities	Current management would follow the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000).	Surface-disturbing activities would be prohibited within 200 m (656 feet) of the channels of ephemeral, intermittent, and perennial streams, or within 200 m (656 feet) of the outer margins of riparian and wetland areas.	Surface-disturbing activities would be subject to restrictions within 200 m (656 feet) of the channels of ephemeral, intermittent, and perennial streams, or within 200 m (656 feet) of the outer margins of riparian and wetland areas.	None.
Livestock Grazing	Current management would follow the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000).	The BLM would prohibit livestock grazing in riparian areas by removing 1,582 acres from livestock grazing.	The BLM would allow prescribed livestock grazing in riparian areas that meet the Riparian Sites Standards of the New Mexico Standards and Guidelines (BLM 2001). Prescribed livestock grazing in riparian areas (approximately 1,582 acres) would follow the adaptive management strategies and permit conditions developed in accordance with the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000).	Same as Alternative C.

2.2.15 Soil and Water Resources

2.2.15.1 Goals

- Protect and improve surface water and groundwater quality and overall watershed condition by initiating watershed improvement projects and efforts within the BLM's Soil, Water and Air Program, and through collaboration and support to other BLM programs and land use activities.
- Protect and improve soil stability and soil productivity through the reduction of and prevention of accelerated erosion and sedimentation.

2.2.15.2 Objectives

- The BLM would develop and implement watershed projects for the protection, maintenance, restoration, or enhancement of watershed resources in the Planning Area. Types of projects include, but are not limited to: upland and channel erosion control projects, vegetation treatments, dam maintenance and construction, restoration/reclamation of abandoned project sites, headcut and gully treatments, and roadwork.
- The BLM would work with partners including academic, federal, state, and local entities to implement BMPs for areas affecting water bodies on current versions of the impaired waters list (NMED, 2010) and/or Total Maximum Daily Load lists.
- The BLM would implement BMPs to prevent erosion and reduce point and non-point source pollution from authorized land use activities or treatments. BMPs include but are not limited to those identified in the most current version of the New Mexico Nonpoint Source Management Program (NMED, 2009); BMPs are also listed in other BLM planning documents, such as statewide fire planning (USDI BLM, 2004) and other management decisions (e.g., mitigation measures under the Riparian section).
- Transportation planning would include BMPs for eliminating and restoring unneeded roads, relocating poorly situated roads, and implementing proper road location and design. The BLM would identify roads that have a significant impact to watershed stability, investigate road closures, and establish criteria for closing roads based on erosion concerns.
- The BLM would avoid surface disturbance in areas identified as having "sensitive soils" unless impacts are mitigated.
- The BLM would apply environmental BMPs to all extraction of leasable fluid minerals authorizations in accordance to Washington Office Instruction Memorandum 2007-021 and the most current version of the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (commonly referred to as the Gold Book) (USDI BLM and USDA FS 2007).
- The BLM would implement BMPs from Technical Reference 1730-2 on Biological Soil Crusts (USDI, 2001) to protect or restore the functions of biological soil crusts.

2.2.15.3 Management Common to All Alternatives

- The BLM would comply with all applicable federal, state, and local laws and regulations, Executive Orders, and management policies of the BLM for managing watershed resources.

- The BLM would use the most current published soil survey information on soil properties and interpretations for decision-making in the Planning Area. The RPFO would work with the USDA-NRCS to update soil surveys and Ecological Site Descriptions.
- The BLM would inventory, monitor, and evaluate soil and water resources to determine existing conditions, make cause/effect determinations of resource activities on watershed resources, and recommend appropriate actions.
- The BLM would work with partners including academic, federal, state, and local entities to collect watershed resources data and manage watershed resources within the legal authorities of the BLM.
- The BLM would open the portions of Empedrado, Pelon, and Querencia watersheds that are not within Wilderness Areas or WSAs to locatable mineral entry.
- The BLM would not make fuelwood available where soil erosion would be accelerated by the activity (i.e., activities that have the potential to increase amounts of unauthorized off-road vehicle use).

2.2.15.4 Alternatives

Table 2.32: Soil Management Decisions by Alternative

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
No similar action.	The BLM would designate the San Miguel Dome area as an ACEC and the area would be managed as prescribed in the ACEC section below.	Same as Alternative B.	The BLM would not designate the San Miguel Dome area as an ACEC. This area would be managed as the San Miguel Dome zone in the Boca del Oso SRMA.

2.2.16 Special Designations

2.2.16.1 Wilderness Areas and Wilderness Study Areas

2.2.16.1.1 Goal

- Manage WSAs to protect Wilderness characteristics until designated or released from further consideration by Congress.

2.2.16.1.2 Objectives

- The BLM would monitor Wilderness Areas and WSAs to identify and/or prevent unauthorized uses.

2.2.16.1.3 Management Common to All Alternatives

- The BLM would manage WSAs under the IMP for Lands Under Wilderness Review (BLM 1995) and for the continued preservation of each WSA's Wilderness character.
- For WSAs, no surface disturbance, permanent new development, or rights-of-way are allowed, and the lands are closed to extraction of leasable fluid minerals. WSAs are open to locatable mineral entry subject to Wilderness non-impairment standards. While not expressly prohibited by law or regulation, sale and free use of mineral materials in WSAs would not be

allowed because it would not be compatible with the non-impairment criteria. The non-impairment criteria require the BLM to manage lands under Wilderness review in such a manner so as not to impair the suitability of such areas for preservation as Wilderness.

- The BLM manages designated Wilderness Areas with a separate Wilderness management plan tiered to the RMP. The Ojito Wilderness Management Plan will be drafted upon completion of this RMP/EIS. For the RMP/EIS, the Ojito Wilderness Area (11,183 acres) would be managed consistent with the Wilderness Act. As required by the enabling legislation, lands in Wilderness are closed to extraction of leasable fluid minerals and recommend for withdrawal from locatable mineral entry.
- Only Congress can release a WSA from Wilderness consideration. Should any WSA, in part or in whole, be released from Wilderness consideration, those lands would be managed according to the underlying or adjacent (non-Wilderness) land prescriptions of the RMP.
- The BLM would designate WSAs and Wilderness Areas as VRM Class I.
- The BLM would monitor Wilderness Areas and WSAs to identify and/or prevent unauthorized uses.

2.2.16.2 Congressionally Designated Trails

2.2.16.2.1 Goals

- Manage trails for long-term recreational values and to enhance the public experience.
- Reduce imminent threats from natural or human-caused deterioration or potential conflicts with other resource uses.

2.2.16.2.2 Objectives

- Sites associated with trails will be interpreted and developed as needed.
- Maintain setting for trail segments as an aspect of integrity by utilizing view-shed management tools.
- Maintain activity plans for trails segments and associated sites identified as high risk for adverse impacts.
- Maximize partnership and cooperative management opportunities (e.g., cooperate with private landowners to install trail markers, provide public access, etc.).

2.2.16.2.3 Management Common to All Alternatives

Management of the Continental Divide Trail would follow objectives established by the Continental Divide National Scenic Trail Comprehensive Plan (USDA FS, 2009). Continental Divide National Scenic Trail (CDNST) Comprehensive Plan requires the BLM to develop land and resource management plans that are designed to integrate all resource management activities that may occur within a land use unit into a coordinated system that reflects the interaction of management activities in achieving long-range objectives and goals for public land management. See sections III and IV in the Continental Divide National Scenic Trail Comprehensive Plan.

2.2.16.2.4 Alternatives

Management decisions associated with the CDNST are listed in Table 2.33, below. The width of the CDNST corridor varies across alternatives and depends on whether the corridor is for an area where the trail route has been identified. See Maps 49-52 for the locations of existing and

potential CDNST routes. For some resource uses, management decisions do not vary across alternatives, but the size of the area in which the management decisions apply varies.

Table 2.33: CDNST Management Decisions by Alternative

Item	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	11,474	38,808	23,607	11,474
Corridor Width – Existing Route	1,000 feet from trail	½ mile from trail	1,000 feet from trail	1,000 feet from trail
Corridor Width – Areas without identified route	No corridor width specified	½ mile from trail	½ mile from trail	No corridor width specified
Forest Product Removal	The trail corridor would be open to forest product removal.	The trail corridor would be closed to forest product removal.	Forest product removal would be avoided within the trail corridor.	The trail corridor would be open to forest product removal.
Leasable Minerals	Fluid minerals within the trail corridor would be leased with a NSO stipulation.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Locatable Minerals	The trail would be open to locatable mineral entry.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Recreation	Continue making improvements to sites and areas as necessary and supported by activity and project level planning to balance demand for recreation opportunities and protection of the recreation resource base.	SRPs would not be granted for CDNST activities.	Special events requiring a permit would be considered per regulations and policy under BLM's Special Recreation Permit program (see 43 CFR, Part 2930).	Special events requiring a permit would be considered per regulations and policy under BLM's Special Recreation Permit program (see 43 CFR, Part 2930).
Renewable Energy	No comparable CDNST management decision.	Renewable energy projects would be excluded within the corridor.	Same as Alternative B.	Same as Alternative B.
ROWs: Pipelines, Roads, Transmission Lines	No comparable CDNST management decision.	Siting of linear ROWs would be avoided within the corridor.	Same as Alternative B.	Same as Alternative B.

Item	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
ROWs: Sites	No comparable CDNST management decision.	ROW sites would be excluded within the corridor.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	The trail corridor would be open to extraction of salable minerals.	The trail would be closed to extraction of salable minerals.	Extraction of salable minerals within the trail corridor would be avoided.	The trail corridor would be open to extraction of salable minerals.
Travel	Open to motorized and mechanized travel.	Closed to motorized and mechanized travel.	Motorized and mechanized travel limited to existing roads and trails.	Same as Alternative C
VRM Class	Corridor would be managed as the prevailing VRM Class.	Corridor would be managed as VRM II.	Corridor would be managed as the prevailing VRM Class.	Same as Alternative C

2.2.16.3 Areas of Critical Environmental Concern

The term "Area of Critical Environmental Concern" means an area within the public lands where special management attention is required (when such areas are developed or used or where no development is required) 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 and safety from natural hazards (FLPMA, 43 USC 1702(a)).

If the alternative chosen designates the ACECs listed below, the following goals, objectives and management actions would be common to all designated ACECs.

2.2.16.3.1 Goal – General

- Manage areas as ACECs where special management attention is required 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 and safety from natural hazards.

2.2.16.3.2 Management Common to All Alternatives – General

- The BLM would remove the SMA designations implemented in the 1986 RMP, as amended.
- In those areas where ACECs overlap with WSAs, the WSA management prescriptions would take precedence.
- The BLM would exclude solar energy sites from ACEC areas.
- Unless specified below, ACECs would be avoidance areas for all rights-of-way, including wind energy and communication sites.
- The BLM would designate ACECs managed for scenic values as VRM Class II.

- If the RMP alternative selected removes ACEC designation and the area falls within an SRMA, the BLM would manage the area as an SRMA.

2.2.16.3.3 Bluewater Canyon ACEC

2.2.16.3.3.1 Goals

- Wildlife and Riparian Resources
- Manage the ACEC for riparian restoration and enhancement for the benefit of wildlife species.
- Scenic Resources
- Manage Bluewater Canyon ACEC (941 acres) as a VRM Class II Area.

2.2.16.3.3.2 Objectives

- Wildlife and Riparian Resources
    - Maintain Bluewater Canyon riparian area at proper functioning condition level and strive to meet an advanced ecological status as defined in BLM Manual 1737.
    - Where possible, enhance riparian conditions consistent with the Southwest Willow Flycatcher Recovery Plan.
    - Emphasize frequent noxious weed monitoring and control measures to preserve native plant community.
    - Continue monitoring activities for breeding birds and special status species.
    - Continue to prohibit motorized vehicle use and exclude livestock grazing within the ACEC.
- Scenic Resources
    - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
    - Management activities may be seen, but should not attract the attention of the casual observer.
    - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

2.2.16.3.3.3 Alternatives

Items listed under Alternative A are described in more detail in the Bluewater Canyon Final ACEC Plan Element (BLM 1983). Under Alternatives B, C, and D, the ACEC would be expanded to include all of Section 6, the BLM land in Section 5, and all lands between Bluewater Lake and the canyon.

Table 2.34: Bluewater Canyon ACEC Management Decisions by Alternative

Item/Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	97	941	941	941

Item/Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Cultural Resources	Survey for possible archaeological sites. Restore and interpret, to the degree feasible, any archaeological sites for unique cultural values. Protect sites from future deterioration by proper maintenance and regular patrolling of the area, if deemed necessary.	No comparable management decisions.	No comparable management decisions.	No comparable management decisions.
Fire Management	Do not permit any large mechanized firefighting equipment in the ACEC. Chemical drops are to be prohibited except with permission of the Area Manager.	Mechanized firefighting equipment and chemical, forestry management, and fire hazard reduction would be allowed.	Same as Alternative B.	Same as Alternative B.
Forest Product Removal	No intensive forestry management is to be practiced in the area, nor is fire hazard reduction. The area would be closed to forest and vegetative product removal and permit sales.	Permits for the removal of vegetative or forest products would be prohibited.	Same as Alternative B.	Forest product removal would be allowed outside riparian areas.
Land Tenure Adjustment	Acquire non-public lands.	Any new land acquisitions adjacent to Bluewater Canyon would be managed as an ACEC.	Same as Alternative B.	Same as Alternative B.
Leasable Minerals	Fluid minerals in the canyon would be leased with a NSO stipulation.	Fluid minerals within the ACEC would be leased with a NSO stipulation.	Same as Alternative B.	Same as Alternative B.

Item/Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Livestock Grazing	Prohibit livestock grazing within the canyon, though livestock grazing may occur on the upper rims. Both ends of the canyon would be fenced and the canyon would have a pass made to allow people to continue down the trail (Volton S. Tietjen Allotment #0194).	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed within the ACEC. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The ACEC would be open to locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative B.	Same as Alternative B.
Recreation	Installation of a parking lot with picnic tables on the rim where a trail would start leading to the canyon bottom. Recreation developments would be made contingent on BLM's ability to fund and supervise them.	Camping would be prohibited within 46 m (150 feet) of the riparian zone.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	The Bluewater Canyon area would be closed to extraction of salable minerals.	The ACEC would be closed to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Travel	Designate the public land in the canyon as "closed to off road vehicles Designate the remaining portion of the ACEC (above 2,134-m [7,000-foot contour]) as "limited to existing roads, primitive roads, and trails."	Non-motorized travel would be allowed in the ACEC; the ACEC would be closed to motorized travel except for authorized use.	Non-motorized travel would be allowed in the canyon; motorized travel would be limited to existing primitive roads and trails outside the canyon.	Same as Alternative C.

Item/Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
VRM	Discourage activities that would take place near enough to the rim to cause aesthetic impacts, which would be noticeable from the canyon interior.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Same as Alternative B.
Wildlife & Riparian	Manage the area to prevent degradation of any wildlife habitat. Trout fishing may be improved by increasing the pool to riffle ratio and increased vegetation along the stream edges to create shade.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

2.2.16.3.4 Bony Canyon ACEC

2.2.16.3.4.1 Goals

- Protect paleontological resources in the Bony Canyon area from human-caused deterioration, or potential conflict with other resources uses and resource development. These include significant Jurassic vertebrate fossils.
- Facilitate the scientific study and documentation of paleontological resources in Bony Canyon.

2.2.16.3.4.2 Objectives

- Manage as a proprietary area to prevent unauthorized removal of paleontological resources.
- Monitor the area to ensure that unauthorized activities are not degrading the resources.
- Develop a site-specific maintenance plan or other protective measures for this area.
- Limit surface and sub-surface disturbance due to mineral development, motorized vehicle access, and livestock grazing.
- Maintain and enhance programs that provide opportunities for scientific research of paleontological resources.
- Maintain and enhance educational opportunities and public outreach programs.

2.2.16.3.4.3 Alternatives

Table 2.35: Bony Canyon Management Decisions by Alternative

Item/Resource	Alternative B	Alternative C (Preferred)	Alternative D
Acres	1,150	1,150	1,150
Leasable Minerals	Fluid minerals within the quarry area (2 acres) would be leased with a NSO stipulation. The remainder of the ACEC (1,145 acres) would be leased with a CSU stipulation.	Same as Alternative B.	Same as Alternative B.
Livestock Grazing	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed within the ACEC. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative B.	Same as Alternative B.
Paleontology	The ACEC would include a Research Natural Area to allow excavation for vertebrate fossils to continue.	Same as Alternative B.	The Research Natural Area would allow excavation for vertebrate fossils to continue.
Salable Minerals	The ACEC would be closed to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Travel	Travel in the ACEC would be limited to authorized use only.	Same as Alternative B.	Motorized use would be limited to existing primitive roads and trails.

Note: Alternative A (No Action) is not included in the table because there is currently no special designation for Bony Canyon in the Rio Puerco RMP, as amended.

2.2.16.3.5 Cabezon Peak ACEC

2.2.16.3.5.1 Goals

- Wildlife and Special Status Species
  - Manage the ACEC for protection of raptor nesting sites, raptor prey base, and rare plants.
- Geologic Resources
  - Protect the geologic resources within Cabezon Peak ACEC, which include a unique concentration of volcanic necks, from human-caused deterioration, or potential conflict with other resource uses and resource development.
  - Promote awareness of geologic resource values.

- Scenic Values
  - Manage Cabezon Peak ACEC as a VRM Class II Area.
- Traditional Cultural Values
  - Promote sensitivity to the traditional cultural significance of Cabezon Peak

2.2.16.3.5.2 Objectives

- Wildlife and Special Status Species
  - Protect raptor prey base (specifically prairie dog colonies) by discouraging shooting and poisoning efforts through internal bureau directives, coordination with livestock grazing permittees and public education.
  - Protect rare plant species populations through prescriptive livestock grazing practice. Conduct rare plant surveys, and follow up by coordinating with livestock grazing permittees on strategic placement of livestock waters, pipelines, mineral supplements and other range improvement projects.
  - Apply species-specific spatial and temporal raptor nesting protection measures to projects causing noise disturbance within close proximity of active raptor nests.
  - Collaborate with the Seeds of Success program to conserve rare plant populations.
- Geologic Resources
  - Limit surface and subsurface disturbance due to mineral development, motorized vehicles, and livestock grazing.
  - Maintain or expand interpretation signs along trails.
  - Maintain interpretational materials for public information, including brochures, web pages, and other information.
- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Traditional Cultural Values
  - Maximize opportunities for cooperation with tribal governments and culturally affiliated Native American tribes for managing cultural resources and public education, and regarding implementation of decisions from this plan and existing or revised site-specific plans.

2.2.16.3.5.3 Alternatives

Table 2.36: Cabezon Peak ACEC Management Decisions by Alternative

Item/Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	5,765	17,150	17,150	6,984
Geographic Description	The ACEC is 5,765 acres, of which 5,112 acres are managed by the BLM.	The BLM would maintain the ACEC designation and expand it to include Cerro Guadalupe, Cerro Chato, Cerro Santa Clara, and Cerro Quate to include prairie dog reintroduction area and geologic features.	Same as Alternative B.	The BLM would expand the ACEC to include Cerro Guadalupe.
Leasable Minerals	The ACEC would be closed to fluid mineral leasing.	Fluid minerals would be leased with an NSO stipulation.	Same as Alternative B.	Fluid minerals would be leased with a CSU stipulation.
Livestock Grazing	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed within the ACEC. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The ACEC would be open to locatable mineral entry.	The BLM would recommend for withdrawal the ACEC from locatable mineral entry.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	Extraction of salable minerals would be avoided.	The ACEC would be closed to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Scenic Resources & VRM	Protect visual values.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Same as Alternative B.

Item/Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Travel	Control visitor use. Manage semi-primitive non-motorized, semi-primitive motorized, and roaded natural recreational opportunities. Prevent motorized vehicle use in semi-primitive non-motorized portion.	The BLM would close the cherry-stem route that provides access to the Cabezon Peak trailhead. No maintenance would be allowed on this route. Motorized travel would be limited to authorized use.	Same as Alternative B, except the trailhead would be open to motorized travel but limited to authorized use.	Same as Alternative B, except the trailhead would be open to motorized travel. Motorized travel would be limited to authorized use.
Wildlife & Special Status Species	Protect raptor habitat and rare cactus species. Prevent surface disturbance.	The BLM would implement prairie dog stipulation as described in the Special Status Species section. The BLM would protect raptor habitat and rare cactus species.	Same as Alternative B.	Same as Alternative B.

Note: Alternative A management decisions are described in more detail in the Cabezon Peak ACEC Protection Plan (BLM 1987a).

2.2.16.3.6 Canon Jarido ACEC: Manage for scenic, wildlife, and cultural values

2.2.16.3.6.1 Goals

- Wildlife and Riparian
  - Manage ACEC for deer/elk winter range habitat, riparian area restoration and enhancement
- Cultural Resources
  - Promote stewardship, conservation, scientific research, protection and appreciation of traditionally and scientifically significant Ancestral Pueblo and Navajo archaeological sites.
- Scenic Values
  - Manage Cabezon Peak ACEC as a VRM Class II Area.

2.2.16.3.6.2 Objectives

- Wildlife and Riparian
  - Conduct habitat improvement projects for the protection and enhancement of crucial wintering habitat for deer/elk winter range such as forest treatments and rainfall water

catchments. Prevent establishment of new roads and decommission roads where possible.
  - Maintain Canon Jarido and Kinaird Arroyo riparian areas at the proper functioning condition level and strive to meet an advanced ecological status as defined in BLM Manual 1737.
- Cultural Resources
  - Maintain and enhance programs that provide opportunities for appropriate scientific research involving cultural resources
  - Maintain and improve educational opportunities and public outreach programs
  - Coordinate with affiliated Tribes regarding implementation of decisions from this plan and existing or revised site-specific plans.
- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

2.2.16.3.6.3 Alternatives

Table 2.37: Canon Jarido ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	1,794 (SMA)	6,536	6,536	1,794
Geographic Description	1986 RMP designated the Canon Jarido area as an SMA.	The BLM would designate the Canon Jarido SMA as an ACEC and would expand the ACEC to include Mesa Portales.	Same as Alternative B.	The BLM would designate the Canon Jarido SMA as an ACEC. See Table 2.9 for management of Mesa Portales under Alternative D.
Leasable Minerals	Fluid minerals would be leased with timing limitations and control surface use stipulations. Time constraint runs from February 1 to July 1.	Fluid minerals would be leased with a NSO stipulation.	Fluid minerals would be leased with a CSU stipulation.	Same as Alternative C.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Livestock Grazing	Livestock grazing would be allowed.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed within the ACEC. Any suspended AUMs would be reinstated to active use.
Salable Minerals	Extraction of salable minerals would be avoided.	The ACEC would be closed to extraction of salable minerals.	Extraction of salable minerals would be avoided.	Same as Alternative C.
Scenic and VRM	Prevailing VRM class.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Same as Alternative B.
Travel	Motorized vehicle use would be limited to existing roads and trails, and no surface disturbance would be allowed.	Motorized vehicle use would be limited to existing primitive roads and trails. The BLM would prioritize areas for travel management to designate routes to minimize conflict with sites, with no motorized travel in riparian areas.	Same as Alternative B.	Same as Alternative B.

2.2.16.3.7 Canon Tapia ACEC

2.2.16.3.7.1 Goal

- Promote stewardship, conservation, protection and appreciation of traditionally and scientifically significant cultural resources

2.2.16.3.7.2 Objectives

- Improve access and management through consolidation of public ownership.
- Maintain and improve educational opportunities and public outreach programs.
- Maximize opportunities for cooperation with tribal governments for managing cultural resources and public education, and regarding implementation of decisions from this plan and existing or revised site-specific plans.
- Maintain and enhance programs that provide opportunities for appropriate scientific research involving cultural resources.

2.2.16.3.7.3 Alternatives

Table 2.38: Canon Tapia ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)
Acres	990	990	990
Cultural Resources	Complete cultural resource inventory and evaluation. Promote public awareness.	The BLM would promote public awareness of cultural values.	Same as Alternative B.
Geographic Description	The ACEC contains both public and private lands (BLM 1987b).	The BLM would maintain Canon Tapia as an ACEC (990 acres).	Same as Alternative B.
Land Tenure	Consolidate federal ownership and public access.	The BLM would consolidate federal ownership and public access.	Same as Alternative B.
Leasable Minerals	Fluid minerals would be leased with a NSO stipulation.	Same as Alternative A.	Fluid minerals would be leased with a CSU stipulation.
Livestock Grazing	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.
Locatable Minerals	The ACEC would be open to locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative B.
Salable Minerals	Extraction of salable minerals would be avoided in the ACEC.	The ACEC would be closed to extraction of salable minerals.	Same as Alternative B.
Travel	Manage according to semi-primitive, non-motorized recreation objectives. Control visitor use.	Motorized travel would be limited to existing primitive roads and trails.	Same as Alternative B.

Note: Under Alternative D, the BLM would remove the ACEC designation and would manage Canon Tapia as part of the Ancestral Way zone within the Boca del Oso ERMA. For this reason, there is no column for Alternative D in the table.

2.2.16.3.8 Cerro Verde ACEC

2.2.16.3.8.1 Goals

- Geologic Resources
  - Protect geologic resources (including a unique shield volcano with associated basalt flows) from human-caused deterioration, or potential conflict with other resource uses and resource development.
- Scenic Values
  - Manage Cerro Verde ACEC as a VRM Class II Area.

- Wildlife
  - Manage ACEC for the protection of pronghorn antelope population.

2.2.16.3.8.2 Objectives

- Geologic Resources
  - Limit surface and subsurface disturbance due to mineral development, motorized vehicles, and livestock grazing.
- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Wildlife
  - Conduct habitat improvement projects for the protection and enhancement of antelope habitat.
  - Continue to maintain existing rainfall catchments designed for wildlife.
  - Modify fences for antelope passage (smooth bottom wire 18 inches above ground level).
  - Prevent establishment of new roads and decommission roads where possible.

2.2.16.3.8.3 Alternatives

Table 2.39: Cerro Verde ACEC Management Decisions by Alternative

Resource	Alternative B	Alternative C (Preferred)	Alternative D
Acres	5,292	5,292	0
Geographic Description	The Cerro Verde area, within the Petaca Pinta ERMA, between the Volcano Hill and Cimarron Mesa lands with wilderness characteristics would be designated as an ACEC.	Same as Alternative B.	The BLM would not designate Cerro Verde as an ACEC. This area would be managed as the Cerro Verde zone in the Petaca Pinta ERMA.
Leasable Minerals	Fluid minerals would be leased with a NSO stipulation.	Fluid minerals would be leased with a CSU stipulation.	Same as Alternative C.
Livestock Grazing	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed. Any suspended AUMs would be reinstated to active use.

Resource	Alternative B	Alternative C (Preferred)	Alternative D
Locatable Minerals	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative B.	The area would be open to locatable mineral entry.
Salable Minerals	The ACEC would be closed to extraction of salable minerals.	Extraction of salable minerals would be avoided.	The area would be open to extraction of salable minerals.
Scenic Resources & VRM	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Prevailing VRM class.
Travel	Motorized travel would be limited to authorized use.	Same as Alternative B.	Motorized travel would be limited to existing primitive roads and trails.

Note: Alternative A (No Action) is not included in the table because there are currently no management decisions associated with special designation of the Cerro Verde area.

2.2.16.3.9 Elk Springs ACEC

2.2.16.3.9.1 Goals

- Geologic Resources
  - Protect geologic resources, especially the Juana Lopez Member of the Mancos Shale stratigraphic reference section locality, from human-caused deterioration, or potential conflict with other resource uses and resource development.
- Scenic Values
  - Manage Elk Springs ACEC as a VRM Class II Area.
- Wildlife
  - Provide quality winter range for the Jemez elk and deer herds by providing optimal cover and forage, thus alleviating big game depredations on adjacent private lands.

2.2.16.3.9.2 Objectives

- Geologic Resources
  - Limit surface and subsurface disturbance due to mineral development, motorized vehicles, and livestock grazing.
- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Wildlife
  - Improve vegetation condition ratings for composition, density and vigor utilizing prescribed fire, herbicides and erosion control measures.

- Assess habitat for and treat noxious weeds.
- Coordinate with adjacent private landowners on habitat improvements.
- Continue maintenance of existing and development of new rain catchment wildlife drinkers.

2.2.16.3.9.3 Alternatives

Table 2.40: Elk Springs ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	10,334	10,324	10,324	10,324
Geographic Description	The ACEC is 9,485 acres, of which 6,148 acres are managed by the BLM.	The ACEC would be expanded to include acquisitions of previously non-public lands within the original SMA boundary.	Same as Alternative B.	Same as Alternative B.
Geologic Resources	Manage the Juana Lopez Member Reference section as a Research Natural Area.	The BLM would maintain the Juana Lopez Research Natural Area.	Same as Alternative B.	Same as Alternative B.
Land Tenure	The BLM would consolidate federal ownership of lands located within ACEC.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Leasable Minerals	Fluid minerals in the Juana Lopez RNA would be leased with a NSO stipulation. Fluid minerals in the remainder of the ACEC would be leased with a timing limit stipulation between December and May.	The ACEC would be closed to fluid mineral leasing.	Same as Alternative B.	Fluid minerals in the ACEC would be leased with a CSU stipulation.
Livestock Grazing	Implement existing Allotment Management Plans on the Los Pinos Arroyo and Coal Creek Allotments.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	- The BLM would include the Juana Lopez Research Natural Area into the adjacent livestock grazing allotment. - Livestock grazing would be allowed within the ACEC. Any suspended AUMs would be

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
				reinstated to active use.
Locatable Minerals	The ACEC would be open to locatable mineral entry, except for the Juana Lopez RNA, which would be recommended for withdrawal.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative B.	Same as Alternative A.
Salable Minerals	The ACEC would be closed to extraction of salable minerals.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Scenic Resources & VRM	The BLM would manage the ACEC as VRM II.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Same as Alternative B.
Travel	Limit motorized vehicle use to existing primitive roads and trails. Close ACEC to motorized vehicle use from approximately December to May depending on weather and wildlife conditions.	Motorized vehicle use would be limited to existing primitive roads and trails. The BLM would close the ACEC to motorized vehicle use from approximately December to May depending on weather and wildlife conditions.	Same as Alternative B.	Same as Alternative B.
Wildlife, Vegetation & Riparian Resources	- Allow no surface disturbance from November 16 to May 14 (fluid minerals and all other activities) to protect and reduce stress to wintering big game. - Ensure adequate forage allocation for wildlife on all adjacent BLM lands and coordinate population needs with the U.S. Forest Service. - Develop an area specific Habitat Management Plan or	The BLM would designate the ACEC as crucial winter range for elk and mule deer and provide quality winter range for the Jemez elk and deer herds by providing optimal coverage and forage.	Same as Alternative B.	Same as Alternative B.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
	include an area specific subsection in the Upper Rio Puerco Habitat Management Plan. - Work in cooperation with the New Mexico Department of Game and Fish (NMDGF) in planning management activities for the area. - Maintain existing wildlife water developments and develop new water sources in critical areas. - Increase quality and quantity of key forage species through maintenance of existing seeding and chaining projects and through burning, cutting, thinning, and herbicide treatments of sagebrush and piñon-juniper trees in new areas. - Determine areas where erosion control structures can be placed to control loss of habitat due to gully and sheet erosion. - Develop a watershed protection plan for the area.			

Note: Management decisions under Alternative A (No Action) are described in more detail in the Elk Springs ACEC Protection Plan (BLM 1991b).

2.2.16.3.10 Espinosa Ridge ACEC (formerly known as Ball Ranch ACEC

2.2.16.3.10.1 Goals

- Special Status Species and Riparian Resources
  - Manage the ACEC for riparian restoration and enhancement, and for the protection of rare plant populations.
- Geologic & Paleontological Resources
  - Facilitate the scientific study and documentation of paleontological resources in the Espinosa Ridge ACEC
  - Protect geologic and paleontological resources from human-caused deterioration, or potential conflict with other resource uses and resource development.
- Scenic Values
  - Manage Espinosa Ridge ACEC as a VRM Class II Area
- Cultural Resources
  - Promote stewardship, conservation, protection and appreciation of cultural resources consistent with the Galisteo Basin Archaeological Site Protection Act.

2.2.16.3.10.2 Objectives

- Special Status Species and Riparian Resources
  - Conduct riparian functional assessment, and determine appropriate management prescriptions for managing to PFC, and strive toward meeting an advanced ecological status for the benefit of wildlife species.
  - Conduct rare plant surveys, and manage livestock grazing to protect rare plant species.
  - Collaborate with the Seeds of Success program to conserve rare plant populations.
- Geologic & Paleontological Resources
  - Maintain and enhance programs that provide opportunities for scientific research of paleontological resources.
  - Maintain and enhance educational opportunities and public outreach programs.
  - Limit surface and subsurface disturbance due to mineral development, motorized vehicles, and livestock grazing.
  - Protect paleontological resources by closing the area to casual collection of paleontological resources.
- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Cultural Resources
  - Improve management through consolidation of public ownership
  - Maintain and improve educational opportunities and public outreach programs

- Maximize opportunities for cooperation with tribal governments for managing cultural resources and public education, and regarding implementation of decisions from this plan and existing or revised site-specific plans. Maintain and enhance programs that provide opportunities for appropriate scientific research involving cultural resources

2.2.16.3.10.3 Alternatives

Table 2.41: Espinosa Ridge ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	1,478	10,295	7,687	1,478
Geographic Description	The ACEC is approximately 1,520 acres, all of which is BLM administered.	The BLM would expand the Espinosa Ridge ACEC to include 16 sections and would include cultural values in the designation (10,295 acres). This expansion would include the Camino Real National Historic Trail.	The BLM would expand the Espinosa Ridge ACEC to include 12 sections and would include cultural values in the designation (7,687 acres).	The BLM would not expand the Espinosa Ridge ACEC (1,478 acres).
Leasable Minerals	The ACEC would be closed to fluid mineral leasing.	The ACEC would be closed to fluid mineral leasing.	Fluid minerals would be leased with a CSU stipulation, except for the Espinosa Ridge Pueblo and the Camino Real, which would be leased with a NSO stipulation.	Fluid minerals would be leased with a CSU stipulation throughout the ACEC.
Livestock Grazing	Control livestock grazing.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC, except grazing would be excluded from Espinosa Ridge Pueblo, if acquired.	Livestock grazing would be allowed within the ACEC. Any suspended AUMs would be reinstated to active use.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Locatable Minerals	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	The BLM would maintain existing withdrawal. The Espinosa Ridge Pueblo and the Camino Real would be recommended for withdrawal from locatable mineral entry, if acquired. The BLM would open the rest of the ACEC to locatable mineral entry in certain locations.	The BLM would open the entire ACEC to locatable mineral entry.
Salable Minerals	The ACEC would be closed to extraction of salable minerals.	The ACEC would be closed to extraction of salable minerals.	The ACEC would be open to extraction of salable minerals, except for the Espinosa Ridge Pueblo and the Camino Real, which would be closed.	The ACEC would be open to extraction of salable minerals.
Scenic Resources & VRM	The BLM would manage the ACEC as VRM II.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Same as Alternative B
Travel	Control visitor use of the ACEC.	Motorized ravel would be limited to existing primitive roads and trails. The BLM would maintain controlled access.	Same as Alternative B.	Same as Alternative B.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Wildlife, Special Status Species & Riparian Resources	Establish monitoring studies for rare and endemic plants in the ACEC.	- The BLM would prioritize rare plant survey and monitoring, and work with agency partners to implement population augmentation projects, if appropriate. - The BLM would modify authorized surface disturbing activities to minimize or eliminate impacts to known locations of special-status plants.	- The BLM would prioritize rare plant survey and monitoring, and work with agency partners to implement population augmentation projects, if appropriate. - The BLM would modify grazing prescriptions and surface disturbing activities to minimize or eliminate impacts to known locations of special-status plants. - The BLM would design placement of water developments and salt and mineral supplements for livestock at least 152 m (500 feet) away from known locations of special-status plants.	- The BLM would prioritize rare plant survey and monitoring. - The BLM would design placement of water developments and salt and mineral supplements for livestock at least 91 m (300 feet) away from known locations of special-status plants. The BLM would consider the concentration of browsing/grazing animals on known locations of special-status plants.

Note: Espinosa Ridge ACEC was formerly known as Ball Ranch ACEC. Additional description of the management decisions under Alternative A (No Action) are described in the Ball Ranch ACEC Protection Plan (BLM 1987c).

2.2.16.3.11 Guadalupe Ruin and Community ACEC

The 1986 RMP designated the Guadalupe Ruin as an SMA. The BLM would designate the Guadalupe Ruin and Community SMA (478 acres) as an ACEC. The BLM would manage the ACEC under the cultural resource scientific and cultural goal category.

2.2.16.3.11.1 Goals

- Cultural Resources
  - Promote stewardship, conservation, protection and appreciation of significant Chacoan and other Ancestral Pueblo archaeological sites.
- Scenic Values

- Manage Espinosa Ridge ACEC as a VRM Class II Area.

2.2.16.3.11.2 Objectives

- Cultural Resources
  - Maintain and enhance programs that provide opportunities for appropriate scientific research involving cultural resources
  - Maintain and improve educational opportunities and public outreach programs
  - Maintain and improve opportunities for public interpretation of appropriate sites
  - Maximize opportunities for cooperation with tribal governments for managing cultural resources and public education, and regarding implementation of decisions from this plan and existing or revised site-specific plans.
- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

2.2.16.3.11.3 Alternatives

Table 2.42: Guadalupe Ruin and Community ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	478 (SMA)	478	478	478
Cultural Resources	Management of this SMA would incorporate the existing Cultural Resource Management Plan for the main ruin and extend cultural resource conservation and scientific goals category management considerations to the surrounding community. This would allow maintenance of present conditions while providing public visitation and a more	The BLM would allocate only Guadalupe Ruin for interpretation and public visitation. (Any additional sites would not be allocated or developed for public use and interpretation.)	The BLM would allocate three additional sites for interpretation and public visitation. Sites selected for public visitation would meet the following criteria: (1) Low resource vulnerability to effects from heritage tourism. (2) Potential for site protection through physical, administrative, or other means of mitigation or "site hardening." (3) Community or public support and	The BLM would allocate six additional sites for interpretation and public visitation. Sites selected for public visitation would meet the following criteria: (1) Community or public support and interest. (2) Partnership opportunities.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
	comprehensive management approach to a high value, high density cultural area.		interest. (4) Partnership opportunities.	
Geographic Description	The 1986 RMP designated the Guadalupe Ruin as an SMA.	The BLM would designate the Guadalupe Ruin and Community SMA as an ACEC.	Same as Alternative B.	Same as Alternative B.
Leasable Minerals	The SMA would be closed to fluid mineral leasing.	The ACEC would be closed to fluid mineral leasing.	Same as Alternative B.	Same as Alternative B.
Livestock Grazing	Prescribed livestock grazing would be allowed within the area.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed within the ACEC. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The BLM would recommend the SMA for withdrawal from locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	The SMA would be closed to extraction of salable minerals.	The ACEC would be closed to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Scenic Resources & VRM	The area would be managed as VRM II.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Same as Alternative B.
Travel	The 40-acre fenced area would be closed to motorized vehicle use. Motorized vehicle use would be limited to existing primitive roads and trails in the remainder of the area.	The BLM would close the 40-acre fenced area to motored vehicle use except for authorized use. Motorized vehicle use would be limited to existing primitive roads and trails in the remainder of the	Same as Alternative B.	Same as Alternative B.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
		area.		

2.2.16.3.12 Ignacio Chavez ACEC

The Ignacio Chavez area was designated as an SMA (43,182 acres) and WSA (33,182 acres) in the Rio Puerco RMP (BLM, 1986). The Ignacio Chavez ACEC would be managed for wildlife and scenic values. The BLM would designate the ACEC boundary to correspond to the SMA boundary (43,026 acres).

2.2.16.3.12.1 Goals

- Wildlife and Special Status Species
  - Manage the ACEC for the protection of multiple wildlife and special status species values.
- Scenic Values
  - Manage Ignacio Chavez ACEC as a VRM Class II Area.

2.2.16.3.12.2 Objectives

- Wildlife and Special Status Species
  - Conduct special status species surveys/monitoring for ten sensitive animal species and four sensitive plant species.
  - Continue to conduct habitat improvement projects including wildlife water development, a limiting factor in the Ignacio Chavez ACEC.
  - Due to resource conflicts between livestock grazing and wildlife habitat management, assessments of rangeland health should be conducted to determine the efficiency of livestock grazing operations and the possible need for changes to grazing prescriptions.
- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

2.2.16.3.12.3 Alternatives

Table 2.43: Ignacio Chavez ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	43,026 (SMA)	43,026	43,026	0

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Geographic Description	The Ignacio Chavez area is designated as an SMA (43,182 acres) and WSA (33,182 acres)	The BLM would designate the ACEC boundary to correspond to the SMA boundary (43,026 acres).	Same as Alternative B.	The BLM would not designate Ignacio Chaves as an ACEC. This area would be managed as the Ignacio Chavez Grant zone in the Boca del Oso SRMA.
Leasable Minerals	Standard fluid mineral leasing stipulations would be determined during activity-level planning.	Fluid minerals would be leased with a NSO stipulation.	Fluid minerals would be leased with a CSU stipulation.	Extraction of leasable fluid minerals would be managed with special lease stipulations.
Livestock Grazing	Prescribed livestock grazing would be allowed within the area.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The area would be open to locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative B.	The area would be open to locatable mineral entry.
Salable Minerals	Salable mineral extraction would be avoided in the ACEC.	The ACEC would be closed to extraction of salable minerals.	Same as Alternative B.	The area would be closed to extraction of salable minerals.
Scenic Resources & VRM	The BLM would manage the area as VRM II.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	The BLM would manage the area as VRM II.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Travel	Travel would be limited to existing primitive roads and trails, with motorized seasonal closures of BLM Road 1103. Management would be the same as amended in the Ignacio Chavez Special Management Area Plan Amendment (BLM 1996) for vehicle use.	Travel would be limited to existing primitive roads and trails, with motorized seasonal closures of BLM Road 1103: July 1 to September 15 and November 30 to April 15. Motorized travel would be limited to authorized use during closed periods. The BLM would allow mechanical use on all existing primitive roads within the ACEC year-round.	Travel would be limited to existing primitive roads and trails, with motorized seasonal closures on BLM Road 1103: November 30 to April 15. Motorized travel would be limited to authorized use during closed periods. When BLM 1103 road maintenance is complete, the road would be open year-round. The BLM would allow mechanized travel on existing primitive roads year-round.	Motorized vehicle use would be allowed on BLM Road 1103 and access roads to Seco, Ned, Medio, Toro, and Heifer tanks. The BLM would allow mechanized travel on existing roads year-round.

2.2.16.3.13 Jones Canyon ACEC

As described in the Jones Canyon ACEC Protection Plan (BLM 1989), the ACEC is 640 acres in size with 240 private surface acres. The area was designated as an ACEC based on cultural resources, scenic values, riparian habitat, and recreational use. The following are components of the Proposed Action as described in the Environmental Assessment for the Protection Plan

2.2.16.3.13.1 Goals

- Cultural Resources
  - Promote stewardship, conservation, protection and appreciation of traditionally and scientifically significant Ancestral Pueblo and historic cultural resources.
- Scenic Values
  - Manage Jones Canyon ACEC as a VRM Class II Area.

2.2.16.3.13.2 Objectives

- Cultural Resources
  - Improve access and management through consolidation of public ownership
  - Maintain and improve educational opportunities and public outreach programs
  - Maximize opportunities for cooperation with tribal governments for managing cultural resources and public education, and regarding implementation of decisions from this plan and existing or revised site-specific plans.

  - Maintain and enhance programs that provide opportunities for appropriate scientific research involving cultural resources
- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape

2.2.16.3.13.3 Alternatives

Table 2.44: Jones Canyon ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	639	959	639	639
Geographic Description	The ACEC is 640 acres with 240 private surface acres.	The BLM would maintain the ACEC designation and expand the boundary ½ mile to the north.	The BLM would maintain the size of the ACEC designation at 639 acres.	Same as Alternative C.
Scenic Resources & VRM	The BLM would manage the ACEC as VRM II.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Same as Alternative B.
Cultural Resources	Complete cultural resource inventory and evaluation. Promote public awareness.	The BLM would promote public awareness.	Same as Alternative B.	Same as Alternative B.
Land Tenure	Consolidate federal ownership and public access.	The BLM would consolidate federal ownership and public access.	Same as Alternative B.	Same as Alternative B.
Travel	Manage according to semi-primitive, non-motorized recreation objectives. Control visitor use.	Travel would be limited to existing primitive roads and trails.	Same as Alternative B.	Same as Alternative B.
Livestock Grazing	Livestock grazing would be allowed.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed. Any suspended AUMs would be reinstated to active use.
Leasable Minerals	Fluid minerals would be leased with a NSO stipulation.	Same as Alternative A.	Same as Alternative A.	Fluid minerals would be leased with a CSU stipulation.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Salable Minerals	Salable mineral extraction would be avoided in the ACEC.	The ACEC would be closed to extraction of salable minerals.	Extraction of salable minerals would be avoided.	Same as Alternative C.
Locatable Minerals	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative A.	Same as Alternative A.	The BLM would allow the locatable mineral entry withdrawal to expire.

Note: Management decisions for Alternative A (No Action) are described in more detail in the Jones Canyon ACEC Protection Plan (BLM 1989).

2.2.16.3.14 Legacy Uranium Mines ACEC

2.2.16.3.14.1 Goals

- Promote public health and safety by preventing disturbance of reclaimed Legacy Uranium Mines.

2.2.16.3.14.2 Objectives

- Limit surface and subsurface disturbance due to mineral development and placement of rights-of-way.
- Monitor the integrity of remedial actions.

2.2.16.3.14.3 Alternatives

Table 2.44: Legacy Uranium Mines ACEC management decisions by Alternative

Resource	Alternative B	Alternative C (Preferred)	Alternative D
Acres	50	50	50
Leasable Minerals	Fluid minerals would be leased with a NSO stipulation.	Same as Alternative B.	Same as Alternative B.
Livestock Grazing	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed within the ACEC. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The ACEC would be open to locatable mineral entry.	Same as Alternative B.	Same as Alternative B.
Rights-of-Way	Rights-of-way would be avoided.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	The ACEC would be closed to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.

Resource	Alternative B	Alternative C (Preferred)	Alternative D
Scenic Resources & VRM	VRM would be managed to VRM of surrounding land.	Same as Alternative B.	Same as Alternative B.
Travel	Motorized travel would be limited to authorized use.	Same as Alternative B.	Same as Alternative B.

Note: Management decisions for Alternative A (No Action) are not listed because there is currently no special designation for these areas.

2.2.16.3.15 Ojito ACEC

The ACEC is 13,657 acres, of which 11,697 acres are managed by the BLM (BLM 1987d). Because a portion of the Ojito WSA, which is within the Ojito ACEC, was designated as the Ojito Wilderness in 2005, the alternatives below include reducing the acreage of the Ojito ACEC to exclude the wilderness area.

2.2.16.3.15.1 Goals

- Geologic & Paleontological Resources
  - Protect the unique geologic and paleontological resources, including the Tierra Amarilla Anticline and sandstone tinajas, from human-caused deterioration, or potential conflict with other resource uses and resource development.
  - Promote awareness of geologic and paleontological resource values.
- Scenic Values
  - Manage Ojito ACEC as a VRM Class II Area.
- Wildlife and Special Status Species
  - Manage the ACEC for the protection of raptor nesting habitat, antelope, other wildlife and special status plant species.
- Cultural Resources
  - Promote stewardship of Ancestral Pueblo and historic cultural resources.

2.2.16.3.15.2 Objectives

- Geologic & Paleontological Resources
  - Limit surface and subsurface disturbance due to mineral development, motorized vehicles, and livestock grazing.
  - Expand interpretation signs along trails.
  - Develop updated interpretational materials for public information, including brochures, web pages, and other information.
  - Promote educational visits to the area.
- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.

  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Wildlife and Special Status Species
  - Conduct rare plant surveys and monitoring, and manage livestock grazing to protect rare plant species.
  - Survey and monitor bluffs and mesa edges for nesting raptors, and protect and enhance suitable nesting habitat.
  - Manage suitable habitat for antelope, and use interdisciplinary planning to incorporate antelope habitat objectives into livestock grazing prescriptions for joint management.
  - Collaborate with the Seeds of Success program to conserve rare plant populations.
- Cultural Resources
  - Maintain and improve educational opportunities and public outreach programs
  - Coordinate with affiliated Tribes regarding implementation of decisions from this plan and existing or revised site-specific plans.
  - Maintain and enhance programs that provide opportunities for appropriate scientific research involving cultural resources.

2.2.16.3.15.3 Alternatives

Table 2.45: Ojito ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
ACEC Acres	16,310	16,310	6,454	0
Geographic Description	The ACEC is 13,657 acres, of which 11,697 acres are managed by the BLM.	The BLM would maintain the ACEC (16,310 acres) designation.	The BLM would change the ACEC boundary to exclude the Ojito Wilderness Area.	The BLM would remove the ACEC designation. This area would be managed as the Ojito Wilderness zone in the San Ysidro SRMA.
Leasable Minerals	The Tierra Amarilla Anticline and Querencia Watershed Study Area would be closed to mineral leasing.	Fluid minerals in the ACEC would be leased with a CSU stipulation, except for the Tierra Amarilla Anticline, which would be closed to fluid mineral leasing.	Fluid minerals in the ACEC would be leased with a CSU stipulation.	Fluid minerals in the ACEC would be leased with a CSU stipulation.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Livestock Grazing	Implement existing Allotment Management Plans.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The Tierra Amarilla Anticline and Querencia Watershed Study Area would be recommended for withdrawal from locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	The ACEC would be open to locatable mineral entry.	The area would be open to locatable mineral entry.
Salable Minerals	The Tierra Amarilla Anticline and Querencia Watershed Study Area would be closed to extraction of salable minerals.	The ACEC would be closed to extraction of salable minerals.	Extraction of salable minerals would be avoided.	The area would be open to extraction of salable minerals.
Scenic Resources & VRM	The BLM would manage the ACEC as VRM II.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Same as Alternative B.
Travel	Control visitor use. Close the Querencia Watershed Study Area and the Las Milpas pipeline and well areas to all but authorized users.	Motorized travel would be limited to authorized use.	Same as Alternative B.	Motorized travel would be limited to existing primitive roads and trails.
Wildlife, Special Status Species, Vegetation & Riparian Resources	Protect rare cactus species. Implement the Upper Rio Puerco Habitat Management Plan.	The BLM would implement raptor stipulations, prioritize rare plant surveys, and follow the Protection Plan for Ojito (BLM 1987) to manage wildlife and special status species.	The BLM would implement raptor stipulations, prioritize rare plant surveys, and follow the Protection Plan for Ojito (BLM 1987) to manage wildlife and special status species.	The BLM would implement raptor stipulations, prioritize rare plant surveys, and follow the Protection Plan for Ojito (BLM 1987) to manage wildlife and special status species.

Note: Alternative A (No Action) management decisions are described in more detail in the Protection Plan for Ojito, an Area of Critical Environmental Concern (BLM 1987d).

2.2.16.3.16 Petaca Pinta ACEC

The 1986 Rio Puerco RMP designated the Petaca Pinta as a SMA (13,789 acres) and WSA (11,668 acres). Under Alternatives B, C, and D, the BLM would designate the ACEC boundary to correspond with SMA boundary (13,723 acres) and manage the ACEC for wildlife and scenic values.

2.2.16.3.16.1 Goals

- Scenic Values
  - Manage Petaca Pinta ACEC as a VRM Class II Area.
- Wildlife Resource Values
  - Manage the ACEC for wildlife resources values.
  - Manage piñon-juniper and sagebrush habitats for breeding birds.

2.2.16.3.16.2 Objectives

- Scenic Values
  - Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
  - Management activities may be seen, but should not attract the attention of the casual observer.
  - Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Wildlife Resource Values
  - Establish wildlife water catchments for game and non-game species habitat enhancement.
  - Develop an activity plan for management of the ACEC.
  - Conduct surveys and monitoring of migratory bird species to determine the current level of use in Petaca Pinta ACEC habitats.
  - Carry out vegetation management treatments outside of the breeding season of birds occupying habitat within Petaca Pinta ACEC.
  - Conduct surveys and monitoring before and after vegetation treatments and other management activities to determine the impact of such activities on bird and wildlife populations.
  - Use adaptive management principles to adjust management techniques to meet the resource objectives of the ACEC.

2.2.16.3.16.3 Alternatives

Table 2.46: Petaca Pinta ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	13,723 (SMA)	13,723	13,723	13,723
Geographic Description	The Petaca Pinta area is designated as an SMA (13,789	The BLM would designate the ACEC boundary to	Same as Alternative B.	Same as Alternative B.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
	acres) and WSA (11,668 acres).	correspond with SMA boundary.		
Leasable Minerals	Fluid minerals would be leased with a CSU stipulation.	The ACEC would be closed to fluid mineral leasing.	Same as Alternative B.	Same as Alternative B.
Livestock Grazing	Livestock grazing would be allowed within the ACEC.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed within the ACEC. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The ACEC would be open to locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	Extraction of salable minerals in the ACEC would be avoided.	The ACEC would be closed to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Scenic Resources & VRM	Develop an activity plan.	The BLM would manage the ACEC as VRM II.	Same as Alternative B.	Same as Alternative B.
Travel	Motorized travel would be limited to existing primitive roads and trails.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

2.2.16.3.17 Pronoun Cave Complex ACEC

2.2.16.3.17.1 Goals

- Geologic & Paleontological Resources
    - Protect geologic and paleontological resources from human-caused deterioration, or potential conflict with other resource uses and resource development.
    - Promote stewardship, conservation, and appreciation of cave resources.
    - Promote stewardship, conservation, and appreciation of paleontological resources.
- Wildlife Resources
    - (PC-4): Manage the cave complex for the protection of hibernating or roosting bat species.

2.2.16.3.17.2 Objectives

- Geologic & Paleontological Resources
  - Limit surface and subsurface disturbance due to mineral development, motorized vehicles, and livestock grazing.
  - Foster partnership with local universities for geologic and cave studies.
  - Develop partnerships with local spelunking groups.
  - Identify management prescriptions for specific caves.
  - Maintain partnership with New Mexico Museum of Natural History and Science for research and curation of specimens.
  - Identify management prescriptions for specific caves.
- Wildlife Resources
  - Survey for hibernating and roosting bats, and control access by recreational cavers and researchers to prevent human assisted spread of the fungal agent causing white-nose syndrome. Caves should be restricted or re-opened based on recommendations by the USFWS.

2.2.16.3.17.3 Alternatives

Table 2.47: Pronoun Cave Complex ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	1,181	1,342	1,181	0
Geographic Description	Designated as SMA and ACEC in the 1986 RMP.	The BLM would expand the ACEC to include updated inventory of cave resources.	The BLM would maintain the ACEC designation with no expansion.	The BLM would remove the ACEC designation. This area would be managed as the Pronoun Cave zone in the Petaca Pinta SRMA.
Leasable Minerals	Fluid minerals would be leased with a CSU stipulation.	Fluid minerals in the ACEC would be leased with a CSU stipulation.	Same as Alternative B.	Same as Alternative B.
Livestock Grazing	Livestock grazing would be allowed.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The ACEC would be open to locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	The area would be open to locatable mineral entry.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Salable Minerals	Extraction of salable minerals would be avoided.	The ACEC would be closed to extraction of salable minerals.	Extraction of salable minerals would be avoided.	The area would be open to extraction of salable minerals.
Travel	Motorized vehicle use would be limited to existing roads and trails.	The ACEC would be closed to all travel except for authorized use.	Motorized travel would be limited to existing primitive roads and trails.	Same as Alternative C.
Wildlife & Geologic Resources	There are currently no restrictions to cave access.	Caves would be closed to recreation for protection of bat species.	Caves would be closed to recreation during winter hibernation period (October 1–April 30) for protection of bat species.	Caves with confirmed bat hibernacula would be closed to recreation during winter hibernation period (October 1–April 30) for protection of bat species.

2.2.16.3.18 San Luis Mesa Raptor Area ACEC

Currently, the ACEC is 9,556 acres, of which 8,121 acres are managed by the BLM, 149 acres are private, and 1,286 acres are managed by the State of New Mexico (BLM 1987e). Alternatives B and C would maintain the ACEC designation (10,482 acres) and manage the ACEC for wildlife and geologic values.

2.2.16.3.18.1 Goals

- Geologic Resources
  - Protect geologic resources, including the exemplary exposure of Mancos Shale and Point Lookout Sandstone outcrops, from human-caused deterioration, or potential conflict with other resource uses and resource development.
- Wildlife Resources
  - Manage San Luis Mesa and surrounding prairie for raptor nesting and prey base habitat.

2.2.16.3.18.2 Objectives

- Geologic Resources
  - Limit surface and subsurface disturbance due to mineral development, motorized vehicles, and livestock grazing.
- Wildlife Resources
  - Conduct regular nesting raptor surveys.
  - Apply spatial and temporal mitigation measures to projects involving noise and surface disturbing impacts.
  - Protect raptor prey base populations within the ACEC and surrounding habitat (specifically prairie dog habitat).

- Implement and coordinate with private land owners public education and outreach efforts to discourage prey base shooting and poisoning efforts in the area.
- Adopt recommendations outlined in the book "Suggested Practices for Raptor Protection on Power Lines" when issuing right-of-way permits for power lines within the ACEC.

2.2.16.3.18.3 Alternatives

Table 2.48: San Luis Mesa Raptor Area ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	10,483	10,483	10,483	0
Geographic Description	The ACEC is 9,556 acres, of which 8,121 acres are managed by the BLM, 149 acres are private, and 1,286 acres are managed by the State of New Mexico (BLM 1987e).	The BLM would maintain the ACEC designation.	Same as Alternative B.	The BLM would remove the ACEC designation. This area would be managed as the San Luis Mesa zone in the Boca del Osa SRMA.
Leasable Minerals	Allow no surface disturbance in the Empedrado Watershed Study Area and no surface occupancy from February 1 to July 1.	Fluid minerals in the ACEC would be leased with a NSO stipulation.	Same as Alternative B.	Fluid minerals in the ACEC would be leased with a CSU stipulation.
Livestock Grazing	Implement livestock grazing systems through existing Allotment Management Plans.	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	Recommend the Empedrado Watershed Study Area for withdrawal from future mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	The ACEC would be open to locatable mineral entry.	The area would be open to locatable mineral entry.
Salable Minerals	Allow no surface disturbance in the Empedrado Watershed Study Area.	The ACEC would be closed to extraction of salable minerals.	The area would avoid extraction of salable minerals.	The area would be open to extraction of salable minerals.
Travel	Limit motorized vehicle use to existing primitive roads and trails.	Motorized travel would be limited to existing primitive roads and trails.	Same as Alternative B.	Motorized travel would be limited to existing primitive roads and trails.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Wildlife Resources	- Coordinate annually with the NMDGF to inventory, monitor, and document nest site locations and reproductive success. - Coordinate with the NMDGF and power industry biologists to inventory all power lines in the ACEC. - Provide non-game and waterfowl habitat for raptor prey around existing and future water impoundments. - Restrict human activities and surface disturbances around nest sites from February 1 to July 15. - Protect nests from harassment, vandalism, photographers, or illegal take. - Discourage land use practices and development that adversely alter or eliminate the character of hunting habitat or prey base.	The BLM would implement prairie dog and raptor stipulations.	Same as Alternative B.	- Provide non-game and waterfowl habitat for raptor prey in areas surrounding nest sites. - Restrict human activities and surface disturbances around nest sites from February 1 to July 15. - Protect nests from harassment, vandalism, photographers, or illegal take. - Discourage land use practices and development that adversely alter or eliminate the character of hunting habitat or prey base.

2.2.16.3.19 San Miguel Dome ACEC

There is currently no special designation for the San Miguel Dome area. Under Alternatives B and C, the BLM would designate the San Miguel Dome area as an ACEC (4,437 acres) managed for geologic values and biologic soil crusts. Under Alternative D, the BLM would not designate the San Miguel Dome area as an ACEC, and would manage the area instead as part of the Boca del Oso SRMA.

2.2.16.3.19.1 Goals

- Geologic Resources
  - Protect the unique geologic resources of the San Miguel Dome, which include Cretaceous formations of the Mesa Verde Group representing a retreating ocean, from human-caused deterioration, or potential conflict with other resource uses and resource development.
- Biological Soil Crusts

- Manage the ACEC for the protection of significant biological soil crust populations in accordance with BLM Technical Reference 1730-2 Biological Soil Crusts: Ecology and Management.

2.2.16.3.19.2 Objectives

- Geologic Resources
  - Limit surface and subsurface disturbance due to mineral development, motorized vehicles, and livestock grazing.
- Biological Soil Crusts
  - Discourage livestock use of the area by strategically placing water sources and mineral supplements away from San Miguel Dome.

2.2.16.3.19.3 Alternatives

Table 2.49: San Miguel Dome ACEC Management Decisions by Alternative

Resource	Alternative B	Alternative C (Preferred)	Alternative D
Acres	4,437	4,437	0
Geographic Description	The BLM would designate the San Miguel Dome area as an ACEC.	Same as Alternative B.	The BLM would not designate the San Miguel Dome area as an ACEC. This area would be managed as the San Miguel Dome zone in the Boca del Oso SRMA.
Leasable Minerals	Fluid minerals in the ACEC would be leased with a NSO stipulation.	Same as Alternative B.	Fluid minerals in the ACEC would be leased with a CSU stipulation.
Livestock Grazing	Livestock grazing would be designated as unavailable within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Livestock grazing would be allowed. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	The ACEC would be open to locatable mineral entry.	The area would be open to locatable mineral entry.
Salable Minerals	The ACEC would be closed to extraction of salable minerals.	Extraction of salable minerals would be avoided.	The area would be open to salable mineral extraction.
Travel	- Motorized travel would be limited to existing primitive roads and trails. - Pedestrian access would be allowed only on designated hiking trails.	Same as Alternative B.	- Motorized travel would be limited to existing primitive roads and trails. - Pedestrian access would not be limited to designated hiking trails.

Note: Alternative A is not included in the table below because there is currently no special designation for the San Miguel Dome area.

2.2.16.3.20 Torreon Fossil Fauna ACEC

The 1986 Rio Puerco RMP designated this area as a SMA and ACEC (6,488 acres) in order to protect the Torreon Fauna Type Locality for scientific study. Alternatives B, C, and D would maintain the ACEC designation and manage the area for paleontological resource values.

2.2.16.3.20.1 Goals and

- Paleontological Resources
  - (TF-1): Protect the unique paleontological resources of the Torreon Fossil Fauna ACEC, from human-caused deterioration, or potential conflict with other resource uses and resource development. These paleontological resources include an exposed Paleocene Nacimiento formation bearing the type reference faunas for the Puercan and Torreonian land-mammal ages, and this is the largest intact area of this resource in North America.

2.2.16.3.20.2 Objectives

- Paleontological Resources
  - (TF-1): Limit surface and subsurface disturbance due to mineral development, motorized vehicles, and livestock grazing.
  - Maintain and enhance opportunities for scientific research on paleontological resources.

2.2.16.3.20.3 Alternatives

Table 2.50: Torreon Fossil Fauna ACEC Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	6,488	6,488	6,488	6,488
Leasable Minerals	Fluid minerals would be leased with a CSU stipulation.	The ACEC would be closed to fluid mineral leasing.	Fluid minerals would be leased with a NSO stipulation.	Fluid minerals would be leased with a CSU stipulation.
Livestock Grazing	Livestock grazing would be allowed.	Livestock grazing would be prohibited in the ACEC.	Prescribed livestock grazing would be allowed within the ACEC.	Prescribed livestock grazing would be allowed within the ACEC, and any suspended AUMs would be reinstated.
Locatable Minerals	The ACEC would be open to locatable mineral entry.	The BLM would recommend the ACEC for withdrawal from locatable mineral entry.	Same as Alternative B.	The ACEC would be open to locatable mineral entry.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Paleontological Resources	The ACEC would be managed to protect the area for scientific study of the Torreon Fauna Type Locality.	No invertebrate fossil or petrified wood collection would be allowed.	Same as Alternative B.	Invertebrate fossil and petrified wood collections would be allowed.
Salable Minerals	Extraction of salable minerals in the ACEC would be avoided.	The ACEC would be closed to extraction of salable minerals.	Same as Alternative B.	Salable mineral extraction in the ACEC would be avoided.
Travel	Travel would be limited to existing primitive roads and trails.	The ACEC would be closed to motorized travel except for authorized use.	Travel would be limited to the single access route only.	Same as Alternative C.

2.2.17 Special Status Species

Special-status species are collectively, federally listed or proposed and Bureau sensitive species, which include both Federal candidate species and delisted species within five years of delisting. 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. See Appendix J for specific list information.

2.2.17.1 Goals

- Conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species.
- Conserve and enhance habitats of Bureau Sensitive plant and animal species to prevent the listing of these species under the Endangered Species Act.

2.2.17.2 Objectives

- Implement projects to maintain, protect, and enhance special status species habitats, including but not limited to designated critical habitat of federally listed species.
- Prescribe mitigation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood of and need for listing of these species under the ESA.
- Allow, initiate, or participate in scientific research of federally threatened, endangered, candidate, proposed, and BLM sensitive species and their habitats. Goals for research should be aimed at determining population trends, habitat condition and suitability, and should follow objectives and guidance provided by USFWS, recovery plans, and relevant scientific literature.

- Where existing data on listed species is limited or unavailable for RPFO managed lands, conduct surveys and inventory known or potential habitat for species occupation, consult with USFWS when new information on listed species is discovered on RPFO managed land, and proceed with management as directed by USFWS, species recovery plans, and BLM guidance and directives.
- Regularly monitor Bureau sensitive plant and animal species to determine population trends, and develop, where necessary and appropriate, projects to restore, enhance, or create habitat for these species.
- Where existing data on Bureau sensitive species is limited or unavailable for RPFO managed lands, conduct surveys and inventory known or potential habitat for species occupation. When new information on Bureau sensitive species is discovered on RPFO managed land, proceed with management as directed by BLM SSS management guidance and other applicable land or species management policies and best management practices.
- Allow, initiate, or participate in research of Bureau sensitive species and their habitats.
- Avoid or mitigate actions that have potential to degrade Bureau sensitive species populations or habitat, or that would result in a significant decline of the species or its potential to occur in suitable habitat.
- The BLM would mitigate habitat losses for special-status species as required by policy and law.

2.2.17.3 Management Common to All Alternatives

- The BLM would support and implement current and future special-status species recovery and conservation plans, strategies, and agreements in coordination/consultation with the USFWS, the NMDGF, the New Mexico State Forestry Division, and other interested entities. The BLM would be an active participant in recovery implementation teams.
- The BLM would consider the protection of habitat for listed and BLM sensitive plant and animal species prior to authorizing any actions that could alter or disturb such habitat.
- The BLM would permit no management action on public lands that would jeopardize the continued existence of plant or animal species that are listed or candidate species or are proposed for listing as threatened or endangered under the ESA.
- The BLM would require surveys for listed, candidate, and proposed species prior to taking any action that could affect these species' habitat or potential habitat. Population and/or habitat monitoring should be ongoing for all special-status species and should utilize established and, where possible, USFWS-recommended protocols. Any special-status species survey must be conducted by BLM-approved biologists, botanists, or ecologists.
- The BLM would avoid/exclude disturbance of special-status species dependent on species rareness or habitat requirements. The BLM would evaluate surface-disturbing activities on a case-by-case basis.
- When possible, The BLM would actively pursue cooperative agreements with other agencies or entities to inventory and/or monitor existing or potential habitat for special-status species.
- The BLM would prioritize planning and implementation assessment and monitoring plans for federally listed threatened, endangered, and candidate species.

- The BLM would allow translocations and population augmentation of special-status species to aid in conservation and recovery efforts. Implement necessary habitat manipulations and monitoring to ensure successful translocation efforts.
- The BLM would coordinate with the USFWS in all black-footed ferret and Gunnison's prairie dog recovery decisions/actions.

2.2.17.4 Migratory Birds

- The BLM would implement Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," during all activities to protect habitat for migratory birds. Management would emphasize birds listed on the current USFWS "Birds of Conservation Concern" and Partners-in-Flight priority species (as updated). The BLM would adhere to BLM MOU WO-230-2010-04: Memorandum of Understanding between the U.S. Department of the Interior Bureau of Land Management and the U.S. Fish and Wildlife Service to Promote the Conservation of Migratory Birds.
- As specific habitat needs and population distribution to "Birds of Conservation Concern" and Partners-in-Flight priority species are identified, the BLM would use adaptive management strategies to further conserve habitat and avoid impacts to these species. Adaptive Management is defined as, " a system of management practices based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes, and, if not, facilitating management changes that will best ensure that outcomes are met or to re-evaluate the outcomes," in the H-1601-1 Land Use Planning Handbook.
- The BLM would prioritize the maintenance and/or improvement of lowland riparian, wetlands, and low and high desert scrub communities, which are the four most important and used habitat types by migratory birds in the RPFO Planning Area.
- The BLM would minimize the spread of invasive and non-native plants, especially cheatgrass, saltcedar, and Russian olive, and would strive for a dense understory of native species in riparian areas with a reduction in saltcedar and improvement of cottonwood and willow regeneration.
- During the nesting season for migratory birds (May 1–July 31), the BLM would conduct NEPA analysis including breeding bird surveys prior to implementing surface-disturbing activities, vegetative-altering projects, and broad-scale use of pesticides.
- The BLM would implement BMPs for raptor protection, including requiring all new power lines to be built to "electrocution-proof" specifications. To avoid collisions with migrating birds, the mitigating measures identified by the Avian Power Line Interaction Committee (2006) would be incorporated into all new power lines. Existing lines that are identified as causing electrocution and/or collision problems may also be modified where feasible.
- Refer to http://www.fws.gov/migratorybirds/ for a current list of the migratory birds that are protected under the Migratory Bird Treaty Act.

2.2.17.5 Gunnison Prairie Dog (Cynomys gunnisoni)

2.2.17.5.1 Management Common to All Alternatives

The following management actions are in conformance with Gunnison's Prairie Dog Conservation Strategy [NMDGF]:

- The BLM would design and implement a plague management plan to increase survivorship and build population strength, numbers, and acreage suitable for black-footed ferret reintroduction.
- The BLM would designate suitable habitat for prairie dog translocation and also identify focal areas to allow for habitat connectivity.
- The BLM would monitor to assess population trends of the species and the effectiveness of translocations.
- The BLM would complete NHPA Section 106 consultation prior to prairie dog reintroductions.

2.2.17.5.2 Alternatives

Table 2.51: Gunnison Prairie Dog Management Decisions by Alternative

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
No similar action.	The RPFO would protect prairie dogs on BLM land by restricting shooting in identified augmented prairie dog areas year-round.	The RPFO would protect prairie dogs on BLM land, during the breeding season (Mar 15–June 15) by restricting shooting in identified augmented prairie dog areas.	The BLM would enforce no restrictions on prairie dog shooting.
No similar action.	Surface-disturbing and disruptive activities would be strictly controlled within 0.5 mile of prairie dog towns if an activity would adversely impact prairie dogs and/or associated species.	Surface-disturbing and disruptive activities would be strictly controlled within 0.25 mile of prairie dog towns if an activity would adversely impact prairie dogs and/or associated species.	Surface-disturbing and disruptive activities would be strictly controlled within prairie dog towns if an activity would adversely impact prairie dogs and/or associated species.

2.2.17.6 Southwestern Willow Flycatcher (Empidonax traillii extimus)

All agencies of the U.S. government are authorized and obligated to proactively promote conservation and recovery of the endangered SWFL (Section 2 of the ESA). Policies protecting the SWFL include the Migratory Bird Treaty Act, FLPMA National Forest Management Act, CWA, and New Mexico Wildlife Conservation Act.

2.2.17.6.1 Management Common to All Alternatives

The BLM would follow the Southwestern Willow Flycatcher Recovery Plan (USFWS 2002). Recovery actions include but are not limited to:

- Increasing and improving occupied, suitable, and potential breeding habitat
- Increasing metapopulation stability
- Improving demographic parameters
- Minimizing threats to wintering and migration habitat
- Surveying and monitoring

- Conducting research
- Providing public education and outreach
- Assuring implementation of laws, policies, and agreements that benefit the SWFL
- Tracking recovery progress
- The BLM would monitor SWFL habitat for presence or absence annually during the breeding season (May 15–July 17)
- The BLM would continue PFC assessments in riparian areas and initiate riparian restoration projects in areas deemed Functional At-Risk or Nonfunctional. Monitoring should be ongoing and include continual use of the PFC assessment. If an area is rated as Functional, habitat enhancement projects should be conducted on a case-by-case basis.
- The BLM would consult with the USFWS regarding invasive species treatments within potential SWFL habitat.
- The BLM would follow the guidance for managing SWFL when managing for the yellow-billed cuckoo.

2.2.17.7 Black-footed Ferret (Mustela nigripes)

All agencies of the U.S. government are authorized and obligated to proactively promote conservation and recovery of the endangered black-footed ferret (Section 2 of the ESA). Policies protecting the black-footed ferret include the FLPMA, National Forest Management Act, and New Mexico Wildlife Conservation Act.

2.2.17.7.1 Management Common to All Alternatives

- The BLM would follow the Black-Footed Ferret Recovery Plan (USFWS 1998) and consult with the USFWS on prairie dog management and reintroduction efforts.
- The BLM would identify recovery areas based on prairie dog inventory data and known historical range. The BLM would continue to inventory prairie dog habitat and monitor population levels to determine possible reintroduction sites.
- In cooperation with USFWS and other cooperators, the BLM would implement a plague management plan utilizing the most current scientific information and techniques prior to and/or at the time of reintroduction of the black-footed ferret.

2.2.17.8 Plant species

Table 2.52: Special Status Plant Species Management Decisions by Alternative

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
No similar action.	The BLM would design placement of water developments and salt and mineral supplements for livestock at least 0.25 mile away from known locations of special-status plants. The BLM would consider the concentration of browsing/grazing animals on known locations of special-status plants.	The BLM would design placement of water developments and salt and mineral supplements for livestock at least 152 m (500 feet) away from known locations of special-status plants. The BLM would consider the concentration of browsing/grazing animals on known locations of special-status plants.	The BLM would design placement of water developments and salt and mineral supplements for livestock at least 91 m (300 feet) away from known locations of special-status plants. The BLM would consider the concentration of browsing/grazing animals on known locations of special-status plants.
No similar action.	Habitat areas for special status plant species that are designated by the USDA-NRCS as having “low” or “not rated” reclamation opportunity would be closed to oil and gas leasing.	None.	None.

2.2.18 Travel Management

2.2.18.1 Goal

- Provide for a range of motorized and non-motorized recreation opportunities and administrative access across public lands while protecting resources, promoting use safety, and minimizing user conflicts.

2.2.18.2 Objectives

- Establish a comprehensive approach to travel planning and management.
- Implement comprehensive travel management planning utilizing strategies for motorized, mechanized, and other non-motorized recreation.
- Work collaboratively with the public, including tribal, state and local governments, user groups, and individuals to develop an appropriate transportation system on BLM-administered public lands, including motorized and non-motorized recreational trails.

2.2.18.3 Management Common to All Alternatives

The following management prescriptions would be in place as interim management until the Travel Management Plan (TMP) is complete:

- A preliminary inventory of the existing road, primitive road, and trail network is shown in Maps 73 - 76. These routes were inventoried, ground verified, and mapped using aerial photographs and global positioning system (GPS) devices. This map does not include an inventory of existing single-track routes. A road is 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. A primitive road is 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. An existing road is one that appears on the road inventory.
- Unless otherwise restricted by management actions identified by specific resource or special designation, all public lands would be open to non-motorized modes of travel (horseback, bicycle, foot, etc). Any non-emergency closure of public lands to non-motorized use would occur through the process of supplementary rulemaking (see 43 CFR 8365 1–6).
- All areas within the RPFO would be designated as either limited, open, or closed to motorized travel.
- Unless otherwise restricted by management actions identified by specific resource or special designation, motorized travel in OHV areas designated as “limited” would be restricted to existing roads, primitive roads, and trails (note that the combination of roads, primitive roads, and trails are referred to as “routes”).
- The BLM would not restrict OHV use related to mining claim operations, except by regulations and requirements found in 43 CFR 3809, as amended.
- The BLM would not restrict OHV use performed in conformance with existing leases, permits, right-of-way stipulations, or other land use authorizations.
- Where OHVs are causing or would cause considerable adverse effects on soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, Wilderness suitability, other authorized uses, or other resources, the BLM would immediately close the affected areas to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence.
- Designation for OHV use would consider the long-term sustainability of resources such as wildlife habitat, cultural resource values, Wilderness values, watersheds, visual quality, recreational values, and other resource uses.
- Motorized vehicle travel on existing primitive roads and trails would be allowed where the existing route is as wide as or wider than the vehicle. Motorized vehicle travel along single-track routes would be limited to two-wheeled vehicles that would not promote the expansion of those routes into two-track routes.
- The BLM would consider existing routes open to vehicle travel unless indicated as closed on the ground by signs, barricades, or other physical structures or topography those appropriately direct users.
- “Closed or “limited” designations would not affect the use of military, fire, emergency, or law enforcement vehicles for emergency purposes; vehicles whose use is expressly authorized by

the RPFO Manager or otherwise officially approved; vehicles in official use; and combat or combat support vehicles when used in times of national defense emergencies.

2.2.18.3.1 Travel Management Planning

- Travel management planning would be completed within five years and could redefine the existing route network currently available for travel on BLM lands within the Planning Area. Travel management planning would use a collaborative approach; public involvement and coordination with tribes, other agencies, and local governments would be encouraged. The OHV area designation of "limited to existing" routes is an interim designation and would change to "limited to designated" routes as future activity level travel management plans are completed
- In the development of future TMPs, baseline road and trail network(s) would be identified using existing inventories, the 2009 National Agriculture Imagery Program digital aerial photograph layer and comparable (in time) digital ortho quads and U.S. Geological Survey topographic maps.
- At the implementation phase of future TMPs, the RPFO would: 1) establish a process to identify and sign routes available for travel; 2) produce a map or maps for all travel modes; 3) identify limitations for specific roads and trails; 4) develop criteria to select or reject specific roads and trails for travel; and 5) develop guidelines for monitoring and maintenance of the route network.
- The BLM would prioritize selection of future activity-level travel planning areas based on: 1) the degree of conflicts with other resources/uses; 2) the proximity of areas to population centers and residential areas; 3) special management areas and special designations; and 4) areas and associated boundaries where private and other federal lands are contiguous to public lands.
- Future activity-level travel planning would consider specific route-by-route designations based on types of desired use (i.e., motorized, mechanized, non-motorized, and non-mechanized) and motorized vehicle type and size limitations (e.g., >50-inch wheel base for full-size vehicles, <50-inch wheel base for all-terrain vehicles [ATVs]).
- Transportation planning would include BMPs for eliminating and restoring unneeded roads, relocating poorly situated roads, and implementing proper road location and design. The BLM would identify roads that have a significant impact on watershed stability and would investigate road closures and establish criteria for closing roads based on erosion concerns.
- At a minimum, future travel planning criteria would include and/or consider the following: need for administrative access, recreation demand (motor and non-motorized), public safety, noise, potential for community/residential development; ability to properly maintain roads; and resource concerns such as protection of cultural resources, historic sites/areas, sacred and traditional areas, visual resources, special status species habitat, water quality, wildlife habitat, weed invasion, retention of wilderness characteristics, and wetland and riparian habitat.
- The authorized officer shall designate all public lands as open, limited, or closed to off-road vehicles. All designations shall be based on the protection of the resources of the public lands, the promotion of the safety of all the users of the public lands, and the minimization of conflicts among various uses of the public lands; and in accordance with the following criteria:

- (a) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability.
- (b) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.
- (c) Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.
- (d) Areas and trails shall not be located in officially designated wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the authorized officer determines that off-road vehicle use in such locations will not adversely affect their natural, esthetic, scenic, or other values for which such areas are established (see 43 CFR 8342.1 Designation criteria).

2.2.18.4 Alternatives

Table 2.53: Travel Management Decisions by Alternative

Management	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Open	Open: 303,580 acres.	Open: 4,551 acres.	Open: 18,269 acres. Areas designated as open were selected based on minimal conflicts with resource and resource use. Additionally, opportunities for OHV use and efficient management of designated areas were considered.	Open: 19,456 acres. Areas designated as open were selected based on minimal conflicts with resource and resource use. Additionally, opportunities for OHV use and efficient management of designated areas were considered.
Limited	Limited to existing routes: 420,491 acres.	Limited to existing primitive roads and trails: 562,596 acres.	Limited to existing primitive roads and trails: 602,043 acres.	Limited to existing primitive roads and trails: 624,808 acres

Management	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Closed	Closed: 20,316 acres	Closed: 177,240 acres.	Closed: 124,075 acres.	Closed: 100,123 acres.
BLM Road 1103	Travel would be limited to existing primitive roads and trails, with motorized seasonal closures of BLM Road 1103. Management would be the same as amended in the Ignacio Chavez Special Management Area Plan Amendment (BLM 1996) for vehicle use.	Motorized seasonal closures of BLM Road 1103: July 1 to September 15 and November 30 to April 15. Limit motorized travel to authorized use during closed periods.	Motorized seasonal closures of BLM Road 1103: November 30 to April 15. BLM Road 1103 would open year-round when maintenance is completed. Limit motorized travel to authorized use during closed periods.	Motorized vehicle use allowed on BLM Road 1103 and access roads to Seco, Ned, Medio, Toro, and Heifer tanks.

Note: Total acres **744,387**

2.2.19 Vegetative Communities

2.2.19.1 Goals

- Manage vegetation resources for ecological diversity, stability, and sustainability, including the desired mix of vegetation types, structural stages, and landscape/riparian function. Provide for livestock grazing and for native plant, fish, and wildlife (see Map 99) habitat requirements.
- Manage for vegetation restoration, including control of undesirable and invasive plant infestations (native and non-native species) to achieve healthy, sustainable rangeland ecosystems that support resource values such as, but not limited to, wildlife habitat, and functional watersheds.

2.2.19.2 Objectives

- Restore and maintain vegetative communities within the RPFO Planning Area to desired states within reference and conditions as noted in USDA-NRCS Ecological Site Descriptions (2010).
- Maintain, protect, and enhance special-status plant and animal habitats in such a manner that the potential need to consider any of these species for listing as threatened or endangered under the ESA does not arise.
- Riparian habitat would be restored to desired future conditions as prescribed by the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000).
- Provide opportunities for seed gathering of various vegetation types while protecting other resources.
- Emphasize vegetative treatments within areas identified as not meeting New Mexico Standards and Guidelines (BLM 2001).
- Control noxious, invasive and non-native plant species and prevent the introduction of new invasive species by implementing a comprehensive weed program (per national guidance and local weed management plans in cooperation with state, federal, and affected counties), including coordination with partners, prevention and early detection/rapid response, education, inventory and monitoring, and principles of integrated pest management.
- Conduct a full inventory of saltcedar/Russian olive infested areas and reduce where appropriate using allowable vegetation treatments.
- The BLM would continue to work with partners under cooperative agreements, assistance agreements, and memoranda of agreement to treat noxious and invasive plant species on lands within the Planning Area.

2.2.19.3 Management Common to All Alternatives

- The BLM would utilize adaptive management prescriptions for all resource uses during times of extended drought. Adaptive Management is defined as, " a system of management practices based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes, and, if not, facilitating management changes that will best ensure that outcomes are met or to re-evaluate the outcomes," in the H-1601-1 Land Use Planning Handbook.
- The BLM would follow the current Field Office Drought Action Plan (BLM 2002).
- The BLM would complete NEPA analysis for future vegetation treatments and treatments of noxious/invasive plant species.
- The BLM would prioritize vegetative treatments in areas not meeting management goals and objectives.
- Restoration and rehabilitation would use native seed mixes wherever possible. Non-native species may be used as necessary for emergency stabilization or to prevent infestation invasive non-native weed species.
- Where appropriate, the BLM would replant riparian vegetation subsequent to wildland fire or other disturbance in riparian areas.

- The BLM would use integrated pest management tools to manage vegetative communities. These tools are outlined in BLM Handbook H-1740-2. The RPFO would not use chaining as a management tool.
- All vegetation treatments would comply with guidance identified in the Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic EIS (BLM 2007a).
- The BLM would comply with NHPA Section 106 for any projects that may occur within the Mount Taylor TCP or other NRHP-eligible TCPs.
- The BLM would apply environmental BMPs to all extraction of leasable fluid minerals authorizations in accordance to Washington Office Instruction Memorandum 2007-021 and the most current version of the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (commonly referred to as the Gold Book) (BLM 2007b).
- Livestock grazing would not be allowed, unless otherwise stated, in the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000), in exclosures constructed within riparian areas or uplands using HSP dollars.

2.2.19.4 Alternatives

The BLM vegetation alternatives rely heavily on the management outlined in the fire and fuels amendment. Additionally, the BLM Rio Puerco Field Office intends to develop a Vegetation EIS that will follow the goals and objectives in this land use plan and will identify a range of implementation activities to meet these goals. Many of the vegetation resources goals, objectives, and management actions are intertwined with other resources such as range, wildlife and fire. Also, additional support for the vegetation range of alternatives can be found in the Riparian, Wildlife and Fisheries, Fire Management, Forest and Woodlands, Livestock grazing and Mineral sections.

Table 2.54: Vegetative Community Management Decisions by Alternative

Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
No similar action.	The BLM would not plan or implement vegetation treatments, allowing for natural vegetative processes to occur with no restrictions and or limitations to vegetative progression through all vegetative stages of succession.	The RPFO would plan and implement vegetation treatments that would enhance or benefit areas not meeting the New Mexico Standards and Guidelines (BLM 2001).	The RPFO would plan and implement vegetation treatments that would increase overall harvest to all available vegetative products.

2.2.20 Visual Resource Management

2.2.20.1 Goals

- Manage public lands in a manner that protects the quality of scenic values.
- Recognize and manage visual resources for overall multiple use.

2.2.20.2 Management Common to All Alternatives

- The BLM would designate ACECs managed for scenic values as VRM Class II.
- The BLM would manage WSAs and designated Wilderness Areas as wild as VRM Class I.
- The BLM would incorporate visual design considerations into surface-disturbing projects regardless of size of potential impact or VRM class.
- The BLM would exclude lands with Class I VRM classifications from all rights-of-way (including renewable energy), which means no projects would be approved for construction.
- The BLM would avoid lands with Class II VRM classifications for all rights-of-way (including renewable energy), which means the RPFO would attempt to site the project outside the particular area; however, the project could be constructed within the area if no other viable alternative is available.
- The BLM would avoid lands with Class II VRM classifications for all rights-of-way (including renewable energy), which means the RPFO would attempt to site the project outside the particular area; however, the project could be constructed within the area if no other viable alternative is available.

2.2.20.3 Alternatives

Table 2.55: VRM Management Decisions by Alternative (acres)

VRM Class	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Class I	97,645	97,296	97,474	97,516
Class II	84,449	318,931	68,511	21,549
Class III	61,789	27,529	80,931	83,050
Class IV	153,250	300,631	497,471	542,272

Note: The location of the VRM classes is shown on the following maps: Alternative A, Map 95; Alternative B, Map 96; Alternative C, Map 97; Alternative D, Map 98.

2.2.21 Wild and Scenic Rivers

2.2.21.1 Goals

- Develop interim management restrictions to protect the quality of wild, scenic, and recreational values of waterways eligible for consideration as Wild and Scenic Rivers.

2.2.21.2 Objectives

- Maintain the existing condition of the river.

- Provide a basis for the Congress to determine whether the eligible waterway should be added to the National Wild and Scenic Rivers System.

2.2.21.3 Management Common to All Alternatives

- VRM Class II designation would be applied.
- Grazing would be excluded from the designated eligible area.
- Exclude new rights-of-ways for utilities or road usage within designated area.
- Exclude OHV use with the exception of vehicles and equipment necessary for fire suppression and management.
- Acquire selected private, state and tribal lands, if landowners are willing to dispose to those lands.
- Manage all woodland and forestry resources to enhance wildlife habitat.

2.2.21.4 Alternatives

Table 2.56: Wild & Scenic River Management Decisions by Alternative (Bluewater Creek)

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Acres	97	409	409	409
Cultural Resources	Survey for possible archaeological sites. Restore and interpret, to the degree feasible, any archaeological sites for unique cultural values. Protect sites from future deterioration by proper maintenance and regular patrolling of the area, if deemed necessary.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Fire Management	Do not permit any large mechanized firefighting equipment in the designated wild or scenic river area. Chemical drops are to be prohibited except with permission of the Area Manager.	Mechanized firefighting equipment and chemical, forestry management, and fire hazard reduction would be allowed.	Same as Alternative B.	Same as Alternative B.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Forest Product Removal	No intensive forestry management is to be practiced in the area, nor is fire hazard reduction. The area would be closed to forest and vegetative product removal and permit sales.	Permits for the removal of vegetative or forest products would be prohibited.	Same as Alternative B.	Forest product removal would be allowed outside riparian areas.
Land Tenure Adjustment	Acquire non-public lands.	Any new land acquisitions adjacent to Bluewater Creek would be managed as wild or scenic river designations.	Same as Alternative B.	Same as Alternative B.
Leasable Minerals	Fluid minerals in the creek would be leased with a NSO stipulation.	Fluid minerals within the wild or scenic area would be leased with a NSO stipulation.	Same as Alternative B.	Same as Alternative B.
Livestock Grazing	Prohibit livestock grazing within the canyon, though livestock grazing may occur on the upper rims. Both ends of the canyon would be fenced and the canyon would have a pass made to allow people to continue down the trail (Volton S. Tietjen Allotment #0194).	Livestock grazing would be designated as unavailable within the designated wild or scenic river area.	Same as alternative B.	Livestock grazing would be allowed within the designated wild or scenic river area. Any suspended AUMs would be reinstated to active use.
Locatable Minerals	The Bluewater Creek area would be open to locatable mineral entry.	The BLM would recommend the designated wild or scenic river area for withdrawal from locatable mineral entry.	Same as Alternative B.	Same as Alternative B.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Recreation	Installation of a parking lot with picnic tables on the rim where a trail would start leading to the canyon bottom. Recreation developments would be made contingent on BLM's ability to fund and supervise them.	Camping would be prohibited within 46 m (150 feet) of the riparian zone.	Same as Alternative B.	Same as Alternative B.
Salable Minerals	The Bluewater Creek area would be closed to extraction of salable minerals.	The designated area would be closed to extraction of salable minerals.	Same as Alternative B.	Same as Alternative B.
Travel	Designate the public land in the canyon as "closed to off road vehicles Designate the remaining portion of the designated wild or scenic river area (above 2,134-m [7,000-foot contour]) as "limited to existing roads, primitive roads, and trails."	Non-motorized travel would be allowed in the designated wild or scenic river area; the area would be closed to motorized travel except for authorized use.	Same as Alternative B.	Non-motorized travel would be allowed in the canyon; motorized travel would be limited to existing primitive roads and trails outside the designated wild or scenic river area.
VRM	Discourage activities that would take place near enough to the rim to cause aesthetic impacts, which would be noticeable from the canyon interior.	The BLM would manage the designated wild or scenic area as VRM II.	Same as Alternative B.	Same as Alternative B.
Wildlife & Riparian	Manage the area to prevent degradation of any wildlife habitat. Trout fishing may be improved by increasing the pool to riffle ratio and increased vegetation along the stream edges to create shade.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

2.2.22 Wildlife and Fisheries Resources

2.2.22.1 Goals

- Manage for the biological integrity of terrestrial and aquatic ecosystems to sustain vegetation, fish, wildlife, and special-status species with emphasis on ecosystem health and species biodiversity.
- Manage all BLM actions or authorized activities to sustain plant, fish, and wildlife populations and their habitats to avoid contributing to the listing of or jeopardizing the continued existence or recovery of special-status species and their habitats.

2.2.22.2 Objectives

- Maintain a diversity and distribution of plant species, habitats, seral stages, and types (e.g., age, structure, cover, classes, density), including forests and woodlands, grasslands, mountain shrublands, sagebrush, riparian/wetland areas, and desert shrublands.
- Maintain forest stands at optimal health (using Forest Health Indicators in Land Health Standards for Forested Public Land) by maintaining properly functioning communities.
- Gather and maintain internal (BLM) and external support for managing invasive and noxious pest species using an integrated pest management approach for the detection, control, or eradication of new infestations. Coordinate detection and control activities across jurisdictional and political boundaries and include provisions for noxious and invasive species management for all BLM-funded or authorized actions.
- Maintain or improve the continuity and productivity of wildlife habitats to support NMDGF wildlife population objectives.
- Maintain and improve seasonal habitats of fish, wildlife and special-status species on a landscape scale through interdisciplinary planning and use of the most current scientific literature on landscape restoration treatments.
- Manage crucial, high-value, and non-fragmented habitats as management priorities for protection and/or restoration. Emphasis should be placed on areas specially designated for protection due to rare biological values (e.g., critical elk winter range).
- Minimize adverse impacts and mitigate unavoidable impacts to plants, fish, wildlife, and special-status species and their habitats from BLM actions and authorized activities (under NEPA and other applicable land use and species management policy).
- Cooperate and coordinate with external entities including other federal agencies, state agencies, and non-governmental organizations on project that benefit and protect wildlife and/or contribute to the scientific community.

2.2.22.3 Management Common to All Alternatives

- The BLM would prioritize land disposal or exchanges of wildlife habitat on public lands with agencies that have wildlife management responsibilities.
- The BLM would design all range and watershed improvements to achieve range, watershed, and wildlife objectives for maintaining, improving, or enhancing habitats.

- Fences would be built to BLM specifications and would accommodate wildlife movement, which includes constructing wire fences to accommodate migration of big game species and modifying any existing fences that demonstrate specific impediment to wildlife movement.
- The BLM would install wildlife escape ramps in all new and existing water tanks or troughs. RPFO resource specialists would work collaboratively with BLM range program specialists and grazing permittees to retrofit existing tanks and troughs with escape ramps. Rangeland improvement project development would be coordinated with the interdisciplinary team.
- The BLM would require all new power lines to be built to "electrocution-proof" specifications for protection of migratory birds and their habitat. Mitigation measures identified by the Avian Power Line Interaction Committee (2006) would be incorporated into the planning and construction of all new power lines.
- The BLM would follow the Black-footed Ferret Recovery Plan (USFWS 1988) for guidance on reintroduction of the ferret into suitable established reintroduction habitat. Prairie dog augmentation and related subsequent black-footed ferret reintroduction activities would be coordinated with the USFWS.
- The BLM would coordinate with the NMDGF and other partners to help accomplish the population and habitat goals and objectives of big game herd management that are consistent with and meet the goals and objectives of the BLM's wildlife habitat management.
- The BLM would coordinate predator management with Animal and Plant Health Inspection Service-Wildlife Services and the NMDGF.
- The BLM would continue to coordinate with, and provide support to, the NMDGF for introduction/reintroduction of native or naturalized fish or wildlife species into historic or suitable habitats as determined appropriate.
- The BLM would manage raptors under the auspices of BMPs, which would include implementation of spatial and seasonal buffers. These BMPs implement the Guidelines for Raptor Protection from Human and Land-use Disturbances (USFWS 1999), with modifications allowed as long as protection of nests is ensured. The RPFO would support and implement current and future animal species conservation plans, strategies, and agreements. The BLM would coordinate actions with the NMDGF and other involved entities, along with supporting population and habitat monitoring.
- The BLM would continue involvement with the HSP, as authorized by the Sikes Act.
- The BLM would implement guidelines from Technical Reference 1730-2, to protect or restore the functions of biological soil crusts.
- The BLM would prevent excessive use and degradation of riparian areas from livestock grazing using behavioral management, wildlife-friendly fencing, and/or upland water developments.
- The BLM would construct and maintain rainfall catchments to provide water for wildlife where needed. The BLM would evaluate the effectiveness of old water catchments and remove, replace, or relocate those that are defunct or obsolete.
- The BLM would identify and manage crucial big game fawning/calving habitat and develop objectives to meet vegetation height requirements for improved fawning/calving success.
- The BLM would not allow mineral development activities to occur during seasonal closure periods for big game crucial wintering and fawning habitat.

- General project disturbance mitigation measures for project-related disturbance (i.e., surface, noise) would be applied at the project level on a case-by-case basis. These mitigation measures are being analyzed in the wildlife alternatives (below) and would pertain to surface/noise disturbing activities other than oil and gas leasing.

2.2.22.4 Alternatives

Table 2.57: Wildlife and Fisheries Management Decisions by Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Big game winter range & wildlife projects	No similar action.	Big game winter range and wildlife project areas that are also designated by the USDA-NRCS as having "low" or "not rated" reclamation opportunity would be closed to oil and gas leasing.	None.	None.
Big Game Winter Range		***General Project Disturbance Mitigation – Big Game Winter Range, Nov. 15 to April 30*** – Surface-disturbing and disruptive activities would be prohibited from November 15 to April 30 within winter range for mule deer, elk, and antelope. Travel on identified designated roads may include these timing restrictions or limited site visits.	***General Project Disturbance Mitigation – Big Game Winter Range, Nov. 15 to April 30*** – Surface-disturbing and disruptive activities would be prohibited from November 15 to April 30 within winter range for mule deer, elk, and antelope. Travel on identified designated roads may include these timing restrictions or limited site visits.	Same as Alternative C.
Big Game Fawning or Calving Range		***General Project Disturbance Mitigation – Big Game Fawning or Calving Range, Mule Deer May 1 – Aug 31; Elk May 1 – Jun 30; Pronghorn May 1 – Jul 15*** – Surface-disturbing	***General Project Disturbance Mitigation – Big Game Fawning or Calving Range, Mule Deer May 1 – Aug 31; Elk May 1 – Jun 30; Pronghorn May 1 – Jul 15*** – Surface-disturbing	Same as Alternative C.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
		and disruptive activities would be prohibited in each species-dependent time frame within fawning/calving habitat for mule deer, elk, and antelope. Travel on identified designated roads may include these timing restrictions or limited site visits.	and disruptive activities would be prohibited in each species-dependent time frame within fawning/calving habitat for mule deer, elk, and antelope. Travel on identified designated roads may include these timing restrictions or limited site visits.	
Livestock grazing and mule deer habitat	Design and implement livestock grazing systems to protect mule deer habitat by scheduling non-use or rest during critical periods in essential winter ranges and fawning areas.	The BLM would remove livestock grazing entirely from fawning areas to promote growth of adequate neonatal hiding cover and nutritious native forbs for maternal consumption during gestation and lactation periods.	Livestock grazing should be deferred 1) in fawning areas during the fawning period where spatial overlap among livestock and deer is expected, and 2) in crucial winter range winter, late summer, and fall to avoid excessive use of desirable shrubs.	Livestock grazing should be deferred 1) in fawning areas during the fawning period where spatial overlap among livestock and deer is expected, and 2) in crucial winter range winter, late summer, and fall to avoid excessive use of desirable shrubs.
Livestock Grazing & Winter Range			In cooperation with the Range Program, the BLM would develop livestock grazing systems in crucial big game winter range and fawning areas that promote adequate forage and cover requirements for mule deer, elk, and pronghorn. The BLM would avoid passive, season-long livestock grazing and consider spatial and temporal effects of livestock grazing on wildlife habitat.	Same as alternative C.
Noxious	No similar action.	The BLM would	The BLM would	Same as Alternative

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
Weeds		treat noxious weeds in crucial winter range areas to prevent replacement of nutritious native forbs and browse with non-native species of lower nutritional value using mechanical methods or prescribed fire only. No chemical applications would occur in crucial big game winter range or fawning/calving habitat.	treat noxious weeds in crucial big game winter range areas to prevent replacement of nutritious native forbs and browse with non-native species of lower nutritional value using mechanical methods or prescribed fire first and chemical application only when mechanical treatment or prescribed fire is not appropriate.	C.
Prairie Dog Towns		***General Project Disturbance Mitigation – Prairie Dog Towns, 0.5 mile*** – Surface-disturbing and disruptive activities would be strictly controlled within 0.5 mile of prairie dog towns if an activity would adversely impact prairie dogs and/or associated species.	***General Project Disturbance Mitigation – Prairie Dog Towns, 0.25 mile*** – Surface-disturbing and disruptive activities would be strictly controlled within 0.25 mile of prairie dog towns if an activity would adversely impact prairie dogs and/or associated species.	***General Project Disturbance Mitigation – Prairie Dog Towns*** – Surface-disturbing and disruptive activities would be strictly controlled within prairie dog towns if an activity would adversely impact prairie dogs and/or associated species.
Raptor Nests	No similar action.	***General Project Disturbance Mitigation – Raptor Nests, March 1 to June 30*** – No surface disturbance would be allowed within 1.0 mile of any occupied or unoccupied raptor nest.	***General Project Disturbance Mitigation – Raptor Nests, March 1 to June 30*** – No surface disturbance would be allowed within 0.5 mile of any occupied or unoccupied raptor nest.	***General Project Disturbance Mitigation – Raptor Nests, March 1 to June 30*** – No surface disturbance would be allowed within 0.25 mile of any occupied or unoccupied raptor nest.
Wildlife Habitat Projects		***General Project Disturbance Mitigation – Wildlife Habitat Projects*** –	***General Project Disturbance Mitigation – Wildlife Habitat Projects*** –	Same as Alternative C.

Resource	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D
		Surface disturbance would not be allowed within up to 200 m (656 feet) of existing or planned wildlife habitat improvement projects. Large-scale vegetation manipulation projects such as prescribed burns would be expected.	Surface disturbance would not be allowed within up to 200 m (656 feet) of existing or planned wildlife habitat improvement projects. Large-scale vegetation manipulation projects such as prescribed burns would be expected.	

Note: Alternative A (No Action) management decisions are not listed because there are no comparable management decisions.

2.3 Summary of Impacts

Table 2.58 provides a brief comparative summary of the environmental impacts associated with the proposed alternatives fully described in Chapter 4. The purpose of Chapter 4 is to analyze the impacts of proposed resource management decisions on other relevant resources. Table 2.58 is presented in the same order as above. Each resource described could be impacted by other proposed resource management decisions. Table 2.58 is organized by the impacted resource in the grey horizontal header. Those resources that provide either adverse or beneficial impacts are listed in the left column under the impacted resource header with a brief comparison of the impacts analysis read from left to right. For example, the first impacted resource in the table is air quality. Three sets of resources management decisions, fire management, mineral resources, and recreation and visitor services, provide either beneficial or adverse impacts to air quality. The brief comparison of the impacts, by alternative, is listed in rows below the air quality header. For the detailed impacts analysis for each resource, please refer to Chapter 4. Section citations are listed for easy reference to Chapter 4.

Table 2.58: Impacts Summary Table

Management Action	Alternative A No Action	Alternative B	Alternative C Preferred Alternative	Alternative D
Air Quality (Section 4.2.1)				
Fire Management (Section 4.2.1.4.1)	Fire management decisions would have both adverse and beneficial impacts to air quality. Fuel treatments are proposed for up to 32,000 acres per year in the Planning Area. Short-term impacts include increase in particulate matter 2.5 microns in diameter or smaller ($PM_{2.5}$), carbon dioxide, and ozone during prescribed fires. Long-term impacts include reduction of wildfire threat, healthier vegetation, and carbon sequestration.			
Mineral Resources (Section 4.2.1.4.2)	Increased emissions from oil and gas development would have an adverse impact to air quality. The impact is expected to be minimal due to the low level of reasonably foreseeable development in the Planning Area. Those areas closed to leasable fluid minerals would have beneficial impacts to air quality. 59,470 acres would be closed to leasable fluid minerals.	Same as Alternative A, except 98,454 acres would be closed to leasable fluid minerals.	Same as Alternative A, except 78,638 acres would be closed to leasable fluid minerals.	Same as Alternative A, except 56,696 acres would be closed to leasable fluid minerals.
Travel Management (Section 4.2.1.4.3)	Increased recreation activity would adversely impact air quality through increased vehicle emissions where motorized travel is: • open: 303,580 acres • limited to existing roads and trails: 420,491 acres • closed: 20,316 acres	There would be beneficial impacts to air quality through reduced vehicle emissions where motorized travel would be closed (177,240). No areas would be fully open to motorized travel. There would be some adverse impacts to air quality due to vehicle emissions where motorized travel would be limited to existing roads, primitive roads, and trails on 562,596 acres. 4,551acres would remain open.	Same as Alternative A, except motorized travel would be open on 18,269 acres and limited to existing roads, primitive roads, and trails on 602,043 acres. 124,075 acres would be closed.	Same as Alternative C, except motorized travel would be open on 19,456 acres and limited to existing roads, primitive roads, and trails on 624,808 acres. 100,123 acres would be closed.
Cave and Karst Resources (Section 4.2.2)				

Management Action	Alternative A No Action	Alternative B	Alternative C Preferred Alternative	Alternative D
Cultural Resources (Section 4.2.2.1.4)	Management restrictions associated with cultural resources would provide an indirect benefit to caves and karst features because less surface disturbance is generally allowed to take place near cultural resource sites.			
Lands and Realty (Section 4.2.2.1.1)	Karst areas and other unidentified caves may be located on parcels identified for disposal, which would result in an adverse impact to cave and karst resources. 55,384 acres have been identified for disposal.	Same as Alternative A, expect 57,472 acres have been identified for disposal.	Same as Alternative A, expect 58,910 acres have been identified for disposal.	Same as Alternative A, expect 62,051 acres have been identified for disposal.
Mineral Resources (Section 4.2.2.1.2)	Mineral resources management decisions would adversely impact cave and karst resources where proposed mineral extraction activities would take place in or near cave or karst features. 566,462 acres of cave and karst features are open with standard leasing terms and conditions. The RPFO would be able to move the location of oil and gas wells up to 200 m (656 feet) for mitigation purposes.	Same as Alternative A, except that all known cave entrances, passages or aspects of significant caves, or significant karst features would be managed as NSO within 200 m (656 feet) of known features.	Same as Alternative A, except that all known cave entrances, passages or aspects of significant caves, or significant karst features would be managed as CSU within 200 m (656 feet) of known features.	Same as Alternative A.
Recreation and Visitor Services (Section 4.2.2.1.3)	Recreation and visitor services management decisions would have both adverse and beneficial impacts to cave and karst resources. Increased visitation could result in degradation of unique features. Areas closed to OHV travel could have beneficial impacts to cave and karst resources. SRMAs are not proposed under this alternative.	Same as Alternative A except 41,072 acres of cave/karst features would be located within proposed SMRAs and ERMAs.	Same as Alternative B.	Same as Alternative B.

Management Action	Alternative A No Action	Alternative B	Alternative C Preferred Alternative	Alternative D
Special Designations (Section 4.2.2.1.5)	Special designations would have a beneficial impact to cave and karst resources when they impose restrictions on surface-disturbing activities within the boundaries of the particular designation. 137,720 acres of ACEC designations are proposed.	Same as Alternative A, except 185,625 acres are proposed for ACEC designation.	Same as Alternative B, except 178,000 acres are proposed for ACEC designation.	Same as Alternative A, except 126,392 acres are proposed for ACEC designation and 34,804 acres for WSA.
Soil and Water (Section 4.2.2.1.6)	Soil and water decisions would have a beneficial indirect impact to cave and karst resources because those policies, laws, and proposed actions to protect soil and water would also protect cave and karst resources.			
Paleontological Resources (Section 4.2.2.1.7)	Paleontological resources decisions would provide an indirect benefit to caves and karst features because less surface disturbance is generally allowed to take place near paleontological resource sites.			
Special-status Species (Section 4.2.2.1.8)	Special-status species decisions would provide an indirect benefit to cave and karst features because less surface disturbance is generally allowed to take place near special-status species habitat.			
Cultural Resources (Section 4.2.3)				
Cultural Resources (Section 4.2.3.2.6)	Cultural resource management decisions would have beneficial impacts to cultural resources because Azabache Station, Big Bend Mesa, and the Headcut Prehistoric Community would be managed to protect the cultural resources from surface-disturbing activities.	Same as Alternative A, except Fort Site and Ojo Pueblo would also be managed to restrict surface-disturbing activities from occurring within the 60-acre parcel where the sites occur.	Same as Alternative B.	Same as Alternative A, except Azabache Station would be managed to protect the cultural resources from surface-disturbing activities.
Fire Management (Section 4.2.3.2.2)	Proposed fuels treatments would both adversely and beneficially impact cultural resources. Adverse impacts include potential burning of artifacts. Beneficial impacts include improved herbaceous cover and the reduction of catastrophic wildfire risk to sites. Fuels treatments would take place on 12,967acres with high site probability and 238,822 acres with medium site probability.			

Management Action	Alternative A No Action	Alternative B	Alternative C Preferred Alternative	Alternative D
Forests and Woodlands (Section 4.2.3.2.8)	Forest and woodland management decisions would have beneficial impacts to cultural resources because no lands with high site probability would be proposed for forest product harvest areas.	Forest and woodland management decisions could have adverse and beneficial impacts to cultural resources. 3,381 acres with high site probability would be proposed for forest product harvest areas.	Same as Alternative B, except 9,791 acres with high site probability would be proposed for forest product harvest areas.	Same as Alternative B, except 12,011 acres with high site would be proposed for forest product harvest areas.
Lands and Realty (Section 4.2.3.2.3)	Proposed land disposals would have adverse impacts to cultural resources when cultural resource sites are located on the proposed disposal parcels. 1,071 acres with high site probability for cultural resources would be proposed for disposal.	Same as Alternative A, except no lands (0 acres) with high site probability for cultural resources would be proposed for disposal.	Same as Alternative A, except 1,266 acres with high site probability for cultural resources would be proposed for disposal.	Same as Alternative A, except 4,407 acres with high site probability for cultural resources would be proposed for disposal.
Livestock Grazing (Section 4.2.3.2.7)	Livestock grazing management decisions would adversely impact cultural resources when livestock trample cultural resource sites. Grazing allotments make up approximately 95% of BLM lands in the Planning Area, of which there are 15,056 acres of high site probability for cultural resources.	Same as Alternative A, and livestock grazing management decisions would beneficially impact cultural resources because grazing would be prohibited within all special designations (149,990 acres) and riparian areas (1,582 acres).	Same as Alternative B, except livestock grazing would only occur where grazing does not conflict with resources protected by the special designation and riparian areas.	Same as Alternative C.

Management Action	Alternative A No Action	Alternative B	Alternative C Preferred Alternative	Alternative D
Mineral Resources (Section 4.2.3.2.1)	Cultural resources could be adversely impacted by mineral resources management decisions. However, because of the low predicted mineral development over the next 20 years (1.1% of BLM lands in the Planning Area), NHPA Section 106, and the leasing stipulations that would be applied to specific mineral development activities, impacts are predicted to be negligible.			
Recreation and Visitor Services (Section 4.2.3.2.5)	Management decisions for recreation and visitor services could have adverse impacts to cultural resources from increased visitation. Recreation would continue to occur in the Planning Area as currently managed. 15,056 acres within BLM lands have a high site probability. No SRMAs are proposed under Alternative A.	Management decisions for recreation and visitor services would have both beneficial and adverse impacts to cultural resources. 232,246 acres would be managed as SRMAs, which would provide protection from mineral resource development activities. The SRMAS would be managed as CSU for leasable fluid minerals, open to salable mineral extraction, and recommend for withdrawal from locatable mineral entry.	Same as Alternative B.	Same as Alternative B, except that SMRAs would be open to locatable mineral entry.
Special Designations (Section 4.2.3.2.3)	Special designations would provide long-term benefits due to reduced surface disturbance within 137,720 acres managed as special designations.	Same as Alternative A, except 185,625 acres would be managed as special designations.	Same as Alternative A, except 178,000 acres would be managed as special designations.	Same as Alternative A, except 126,392 acres would be managed as special designations.

Management Action	Alternative A No Action	Alternative B	Alternative C Preferred Alternative	Alternative D
Travel Management (Section 4.2.3.2.9)	Travel management decisions that decrease motorized access would have beneficial impacts to cultural resources, while those decisions to open areas to motorized travel would have adverse impacts to cultural resources. 10,711 acres of high cultural resource site densities would be managed as limited to existing roads, primitive roads, and trails. 52 acres of high cultural resource site densities would be closed to motorized travel. 4,291 acres of high cultural resource site densities would be open to motorized travel.	Same as Alternative A, except 8,456 acres of high cultural resource site densities would be managed as limited to existing roads, primitive roads, and trails. 3,095 acres of high cultural resource site densities would be closed to motorized travel. 3,504	0 acres would be open. 11,959 acres would be limited. 3,095 acres would be closed.	Same as Alternative A, except 11,959 acres of high cultural resource site densities would be managed as limited to existing roads, primitive roads, and trails. 3,095 acres of high cultural resource site densities would be closed to motorized travel. 0 acres would be open.
Fire Management (Section 4.2.4)				
Cultural Resources (Section 4.2.4.1.1)	Cultural resources decisions may have adverse impacts to fire management because of restrictions on potential treatment areas. Restrictions would be applied on a case-by-case basis and site-specific NEPA analyses would be applied for prescribed burn activities.			
Forests and Woodlands (Section 4.2.4.1.2)	Forest and woodland management decisions would have short-term adverse impacts because of the increased fuel load for thinned trees on the ground. Long-term beneficial impacts because the fuelwood harvest would reduce fuel load once firewood is removed. Accordingly, there would be 12,186 total acres of designated forest product harvest areas within the RPFO Fire Management Units.	Same as Alternative A, except there would be 119,435 total acres of designated forest product harvest areas within the RPFO Fire Management Units.	Same as Alternative A, except there would be 560,321 total acres of designated forest product harvest areas within the RPFO Fire Management Units.	Same as Alternative A, except there would be 644,132 total acres of designated forest product harvest areas within RPFO Fire Management Units.

Management Action	Alternative A No Action	Alternative B	Alternative C Preferred Alternative	Alternative D
Fire Management (Section 4.2.4.1.3)	Fire management decisions would have beneficial impacts on fire management because they would improve FRCC levels within the Planning Area. Approximately 32,000 acres of land rated FRCC 2 or 3 would be treated annually on BLM lands within the Planning Area depending on budgetary and time constraints.			
Lands and Realty (Section 4.2.4.1.4)	Lands and realty decisions could have adverse impacts to fire management because the disposal of land could lead to an increased development of infrastructure adjacent to public lands. There would be 50,646 total acres of proposed disposal in FRCC 2 and 3.	Same as Alternative A, except there would be 52,466 total acres of proposed disposal in FRCC 2 and 3.	Same as Alternative A, except there would be 53,459 total acres of proposed disposal in FRCC 2 and 3.	Same as Alternative A, except there would be 55,660 total acres of proposed disposal in FRCC 2 and 3.
Livestock Grazing (Section 4.2.4.1.5)	Livestock grazing would have both adverse and beneficial impacts to fire management. Adverse impacts from grazing would result in alterations to FRCC within the Planning Area. Beneficial impacts could occur from reducing the understory vegetation fuel load and an increased availability of water for fire suppression. There would be 613,768 acres of proposed livestock grazing within RPFO Fire Management Units.	Same as Alternative A, except there would be 231,921 acres of proposed livestock grazing within RPFO Fire Management Units.	Same as Alternative A, except there would be 392,048 acres of proposed livestock grazing within RPFO Fire Management Units.	Same as Alternative C.
Travel Management (Section 4.2.4.1.6)	Travel management decisions would have a beneficial impact to fire management in those areas that are identified for closure to travel in the RMP/EIS. 20,316 acres would be closed to travel.	Same as Alternative A, except 177,240 acres would be closed to travel.	Same as Alternative A, except 124,075 acres would be closed to travel.	Same as Alternative A, except 100,123 acres would be closed to travel.
Vegetative Communities (Section 4.2.4.1.7)	Vegetation treatment would have beneficial impacts on fire management because it would result in the long-term reduction of fire threats. Because vegetation treatments within the Planning Area are not identified in the RMP/EIS, site-specific NEPA analysis would need to occur prior to the implementation of said treatments.			

Management Action	Alternative A No Action	Alternative B	Alternative C Preferred Alternative	Alternative D
Wildlife and Fisheries (Section 4.2.4.1.8)	No adverse impacts to fire management are expected.	Proposed surface restrictions to protect wildlife could require the modification of fire management activities during specific time periods and thus result in adverse impacts to fire management decisions. 242,563 acres of surface protection would be proposed to protect wildlife within the Planning Area.	Same as Alternative B, except 195,144 acres of surface protection would be proposed to protect wildlife within the Planning Area.	Same as Alternative B, except 12,219 acres of surface protection would be proposed to protect wildlife within the Planning Area.
Forests and Woodlands (Section 4.2.5)				
Fire Management (Section 4.2.5.2.1)	Approximately 32,000 acres of land rated FRCC 2 or 3 would be treated annually on BLM lands within the Planning Area. Fire management decisions would provide long-term beneficial impact to forests and woodlands because fuels treatments would lead to improved forest conditions. Short-term adverse impacts would include the removal of vegetative cover resulting from fuels treatments.			
Forests and Woodlands (Section 4.2.5.2.2)	Forest and woodland management decisions would have a beneficial impact to forest health because the RPFO would use the New Mexico Forest Restoration Principles and the New Mexico Forest and Watershed Health Plan.			
Mineral Resources (Section 4.2.5.2.3)	Mineral resources management decisions could adversely impact forests and woodlands if proposed mineral extraction activities take place in forest product harvest areas. Beneficial impacts would occur where forests and woodlands are NSO, CSU, or closed to fluid mineral leasing (84,798 acres), closed to salable mineral extraction (105,654 acres), and recommended for withdrawal from locatable mineral entry (16,584 acres).	Same as Alternative A, except 281,632 acres would be managed as NSO, CSU, or closed to fluid mineral leasing; 183,720 acres would be closed to salable mineral extraction; and 292,457 acres would be recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 276,104 acres would be managed as NSO, CSU, or closed to fluid mineral leasing; 134,856 acres would be closed to salable mineral extraction; and 277,748 acres would be recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 267,561 acres would be managed as NSO, CSU, or closed to fluid mineral leasing; 107,446 acres would be closed to salable mineral extraction; and 27,621 acres would be recommended for withdrawal from locatable mineral entry.

Management Action	Alternative A No Action	Alternative B	Alternative C Preferred Alternative	Alternative D
Travel Management (Section 4.2.5.2.4)	Travel management decisions would have both beneficial and adverse impacts to forests and woodlands. No forest product harvest acres would be open or closed to motorized travel; 12,186 acres would be limited to existing roads, primitive roads, and trails.	Same as Alternative A, except 270 acres would be closed to motorized travel, 119,141 acres would be limited to existing roads, primitive roads, and trails within the forest product harvest areas, and 24 acres would be open.	Same as Alternative A, except 81 forest product harvest acres would be closed to motorized travel, 18,269 acres would be open, and 541,971 acres would be limited.	Same as Alternative A, except 52 forest product harvest acres would be closed to motorized travel, 19,456 acres would be open, and 624,624 acres would be limited.
Health and Safety (Section 4.2.6)				
Mineral Resources (Section 4.2.6.1.1)	Hazardous materials risk from the use, generation, storage, transportation, and/or disposal of hazardous materials would be negligible given the small number of wells projected. Nevertheless, any mineral exploration and development could increase the potential for adverse hazardous materials risks in the Planning Area.	Same as Alternative A, except that the RPFO would manage 50 acres as the Legacy Uranium Mines ACEC for protection of health and safety by leasing fluid minerals with a NSO stipulation and closing the ACEC to salable mineral extraction.	Same as Alternative B.	Same as Alternative B.
Special Designations (Section 4.2.6.1.2)	Special designations would provide long-term benefits because of surface disturbance restrictions within 137,720 acres managed as special designations.	Same as Alternative A, except 185,625 acres would be managed as special designations.	Same as Alternative A, except 178,000 acres would be managed as special designations.	Same as Alternative A, except 126,392 acres would be managed as special designations.

Lands and Realty (Section 4.2.7)				
Land Tenure Adjustments (Section 4.2.7.2.1)	The types of direct impacts to the lands and realty program occur when other resources are present, preventing or making it considerably more difficult to complete a transaction. 55,384 acres are proposed for disposal. Approximately 689,003 are proposed for retention.	Same as Alternative A, except 57,472 acres are proposed for disposal. Approximately 686,915 are proposed for retention.	Same as Alternative A, except 58,910 acres are proposed for disposal. Approximately 685,477 are proposed for retention.	Same as Alternative A, except 62,051 acres are proposed for disposal. Approximately 682,336 are proposed for retention.
Rights-of-way	Right-of-way development would be allowed on 676,755 acres, avoided on 15,501 acres, and excluded on 64,798 acres.	Pipeline, road, and transmission line right-of-way development would be allowed on 6,346 acres, avoided on 400,345 acres, and excluded from 337,696 acres. Site right-of-way development would be allowed on 6,346 acres, avoided on 77,685 acres, and excluded from 660,356 acres.	Pipeline, road, and transmission line right-of-way development would be allowed on 24,088 acres, avoided on 596,025 acres, and excluded from 124,274 acres. Site right-of-way development would be allowed on 24,088 acres, avoided on 468,969 acres, and excluded from 251,330 acres.	Pipeline, road, and transmission line right-of-way development would be allowed on 32,105 acres, avoided on 611,844 acres, and excluded from 100,438 acres. Site right-of-way development would be allowed on 32,105 acres, avoided on 486,788 acres, and excluded from 225,494 acres.
Lands with Wilderness Characteristics (Section 4.2.10)				

Fire Management (Section 4.2.10.1.1)	There are no management decisions specific to lands with wilderness characteristics under this alternative.	Fire management would cause short-term adverse impacts caused by noise and presence of people, equipment, and operations, and evidence of stumps, while resulting in long-term beneficial impacts from the restored natural landscape that would enhance wilderness characteristics. 22,490 fuel treatment acres occur within lands with wilderness characteristics.	Same as Alternative B, except that 20,084 fuel treatment acres occur within lands with wilderness characteristics.	Same as Alternative B, except that 2,238 fuel treatment acres occur within lands with wilderness characteristics.
Forests and Woodlands (Section 4.2.10.1.6)	There are no management decisions specific to lands with wilderness characteristics under this alternative.	Lands with wilderness characteristics (37,514 acres) would be closed to forest product removal. This closes an additional 1,083 acres of lands with wilderness characteristics to forest product removal that do not fall within SRMAs, which are also closed to forest product removal under Alternative B.	7,329 acres of lands with wilderness characteristics managed to partially protect wilderness characteristics would be open to forest product removal under Alternative C. Vehicle travel associated with forest product removal would be limited to existing routes. 26,110 acres of lands with wilderness characteristics managed to protect wilderness characteristics would be closed to forest product removal, but there are no fuel wood harvest removal areas within this area. 4 ,075 acres would be open to limited forest product removal.	2,239 acres would be closed to forest product removal. 35,275 acres would be open to forest product removal. 0 acres would be open to limited forest product removal.

Livestock Grazing (Section 4.2.10.1.2)	There are no management decisions specific to lands with wilderness characteristics under this alternative.	No acres are proposed for livestock grazing. The naturalness and outstanding opportunities for a primitive and unconfined form of recreation within the areas would be improved as no livestock facilities would be needed, and no evidence of grazing impacts would be present.	Livestock facilities and grazing impacts would be evident on 37,514 acres of lands with wilderness characteristics under this alternative.	Livestock facilities and grazing impacts would be evident on 37,514 acres of lands with wilderness characteristics under this alternative.
Mineral Resources (Section 4.2.10.1.3)	There are no management decisions specific to lands with wilderness characteristics under this alternative.	Mineral resources decisions would provide long-term benefits due to the closure of 37,514 acres of lands with wilderness characteristics to mineral extraction.	30,185 acres would be closed to fluid mineral leasing. The BLM would evaluate extraction of saleable minerals on a case-by-case basis on 4,075 acres of lands with wilderness characteristics, whereas 26,110 acres of lands with wilderness characteristics would be closed to saleable and locatable mineral extraction. Where permitted, the localized area affected by those operations could adversely impact wilderness characteristics.	2,239 acres would be closed to fluid mineral leasing and salable mineral extraction and recommended for withdrawal from locatable mineral entry.

Travel Management (Section 4.2.10.1.4)	There are no management decisions specific to lands with wilderness characteristics under this alternative.	Lands with wilderness characteristics (37,514 acres) would be closed to motorized travel.	26,110 acres of lands with wilderness characteristics would be closed to vehicle travel, which would be beneficial to the naturalness and outstanding opportunities for primitive and unconfined recreation. On 4,075 acres of lands with wilderness characteristics, vehicles would be limited to existing primitive routes. This may adversely compromise the viewshed and/or soundscape within lands with wilderness characteristics, but no more so than Alternative A. 7,329 acres of lands with wilderness characteristics would be open to vehicle use, which would adversely impact wilderness characteristics.	Same as Alternative C except that 2,239 acres of lands with wilderness characteristics would be closed to motorized vehicle travel, 0 acres would be limited to existing primitive routes, and 35,275 acres would be open to motorized vehicles.

Visual Resources (Section 4.2.10.1.5)	There are no management decisions specific to lands with wilderness characteristics under this alternative.	The BLM would manage all lands with wilderness characteristics (37,514 acres) as VRM Class II. The level of change to the landscape would be low. Potential future projects would be constructed in such a way as to not attract the attention of the casual observer,	The BLM would manage 26,110 acres of lands with wilderness characteristics as VRM Class II. In Class II management areas, the level of change to the landscape would be low. Potential future projects would be constructed in such a way as to not attract the attention of the casual observer. 4,075 acres of lands with wilderness characteristics would be managed as VRM Class III. The level of change to the landscape would be moderate. Potential future projects may attract attention, but not dominate the view of the casual observer. This may result in a loss of wilderness characteristics in the localized area of a project, but not in the unit as a whole.	The BLM would manage 2239 acres of lands with wilderness characteristics as VRM Class II.
Livestock Grazing (Section 4.2.8)				
Cultural Resources (Section 4.2.8.2.8)	Adverse impacts are expected where grazing is restricted to protect cultural sites. 95% of BLM lands within the Planning Area are grazing allotments. 13,985 acres of BLM lands within the Planning Area are predicted to have a high probability of cultural resources, 25,921 acres have a medium site probability, and 237,368 acres have a low site probability.			

Lands and Realty (Section 4.2.8.2.1)	Lands and realty decisions could have both adverse and beneficial impacts to livestock grazing. Adverse impacts would result from a loss of forage from lands disposed and devoted to other public purposes, and the loss of AUMs from rights-of-way. Beneficial impacts would be result from the addition of forage through land acquisition. There would be 44,625 acres of grazing allotments and 5,674 AUMs lost by proposed land disposals.	Same as Alternative A, except 45,774 acres of grazing allotments and 5,674 AUMs would be lost by proposed land disposals.	Same as Alternative A, except 46,618 acres of grazing allotments and 5,779 AUMs would be lost by proposed land disposals.	Same as Alternative A, except 49,733 acres of grazing allotments and 6,169 AUMs would be lost by proposed land disposals.
Mineral Resources (Section 4.2.8.2.4)	Mineral extraction activities would adversely impact livestock grazing because acres and AUMs would be lost in areas where mineral extraction would occur. These activities would be located in areas to avoid impacts to livestock grazing. Site-specific NEPA analysis would be completed for applications for disturbance, thereby reducing opportunities for direct adverse impacts related to this disturbance.			
Recreation and Visitor Services (Section 4.2.8.2.7)	Management decisions associated with recreation and visitor services would have adverse impacts to livestock grazing. If increased recreational activities occur in the long-term, vegetation may be trampled or eliminated in some areas. Livestock grazing would incur minor impacts from vegetation loss associated with recreation.			
Renewable Energy (Section 4.2.8.2.2)	Renewable energy developments could adversely impact livestock grazing because they would remove AUMs from the Planning Area. No specific renewable energy projects are proposed in the RMP/EIS. Site-specific NEPA analysis would need to be completed when such projects are proposed.			
Special Designations (Section 4.2.8.2.5)	Both adverse and beneficial impacts to livestock grazing would result from special designations. 2,750 acres (344 AUMs) would be closed to grazing. 697,405 acres (87,175 AUMs) would be subject to prescribed grazing. 78,165 acres would be subject to NSO.	Same as Alternative A, except 137,627 acres (17,203 AUMs) would be closed to grazing. No land (0 acres) would be subject to prescribed grazing. 1,064,095 acres would be subject to NSO.	Same as Alternative A, except no land (0 acres) would be closed to grazing. Up to 859,659 acres (0–116,836 AUMs) would be subject to prescribed grazing. 538,299 acres would be subject to NSO.	Same as Alternative C, except 125,163 acres would be subject to NSO for leasable fluid minerals.

Special-status Species (Section 4.2.8.2.9)	Special-status species management decisions would adversely impact livestock grazing when grazing is restricted within wildlife exclosures, breeding habitat, and occupied habitat.	Same as Alternative A, except the BLM would require the placement of water developments, salt supplements, and mineral supplements for livestock to be located at least 0.25 mile away from known locations of special-status plants. The BLM would also consider the concentration of browsing and grazing animals on known locations of special-status plants and make adjustments as needed.	Same as Alternative A, except the BLM would require the placement of water developments, salt supplements, and mineral supplements for livestock to be located at least 152 m (500 feet) away from known locations of special-status plants.	Same as Alternative A, except the BLM would require the placement of water developments, salt supplements, and mineral supplements for livestock to be located at least 91 m (300 feet) away from known locations of special-status plants.
Travel Management (Section 4.2.8.2.6)	Both adverse and beneficial impacts to livestock grazing would result from travel management decisions. Beneficial impacts are expected with an increase in the closure or limited use of roads. Under Alternative A, 20,316 acres would be closed, 303,580 acres would be open, and 420,491 acres would be limited to existing roads and trails.	Same as Alternative A, except 177,240 acres would be closed to motorized vehicle travel, 4,551 acres would be open, and 562,596 acres would be limited to existing roads and trails.	Same as Alternative A, except 124,075 acres would be closed to motorized vehicle travel, 18,269 acres would be open, and 602,043 acres would be limited to existing roads and trails.	Same as Alternative A, except 100,123 acres would be closed to motorized vehicle travel, 19,456 acres would be open, and 624,808 acres would be limited to existing roads and trails.

Vegetation Management (Section 4.2.8.2.3)	Vegetation management decisions would have both adverse and beneficial impacts to livestock grazing. Adverse impacts would last from immediately after vegetation treatments until revegetation is complete. Long-term beneficial impacts would occur from increased rangeland health. Fuels treatments would take place within 629,737 acres of grazing allotments. Proposed forest product harvest areas would occur on 12,162 acres of grazing allotments.	Same as Alternative A, except proposed forest product harvest areas would occur on 76,339 acres of grazing allotments.	Same as Alternative A, except proposed forest product harvest areas would occur on 434,873 acres of grazing allotments.	Same as Alternative A, except proposed forest product harvest areas would occur on 513,780 acres of grazing allotments.
Mineral Resources (Section 4.2.9)				
Cave and Karst Resources (Section 4.2.9.2.1)	Cave and karst resource management decisions would have adverse impacts on mineral resources where extraction opportunities are limited in order to protect cave and karst features. The Pronoun Cave ACEC (1,181 acres) would be open to locatable and leasable mineral extraction. The ACEC would be avoided for salable mineral extraction.	Same as Alternative A, except oil and gas stipulations would prohibit disturbance within up to 200 m (656 feet) of cave or karst features. The Pronoun Cave ACEC (1,342 acres) would be managed as CSU for leasable fluid minerals, closed to extraction of salable minerals, and recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except oil and gas stipulations would impose CSU restrictions for surface disturbance within up to 200 m (656 feet) of cave or karst features. The Pronoun Cave ACEC (1,181 acres) would be managed as CSU for leasable fluid minerals and extraction of salable minerals would be avoided.	Same as Alternative A, except oil and gas stipulations would be applied for cave/karst areas. The Pronoun Cave would not be managed as an ACEC, but CSU would be applied for leasable fluid minerals and the area would be open to salable and locatable mineral extraction.
Cultural Resources (Section 4.2.9.2.3)	Oil and gas leasing activities would be adversely impacted by cultural resource leasing stipulations. Increased mineral development costs may be incurred due to cultural resource inventories, relocation of facilities to avoid cultural site(s), implementation of alternative drilling techniques, and/or site excavation if avoidance of sites is not possible. Discovery of previously undocumented sites during construction could delay project implementation.			

Lands and Realty (Section 4.2.9.2.2)	Lands and realty management decisions could have adverse impacts to mineral resources through land disposal. Proposed land disposals would include 0 acres of moderate to high potential areas for leasable fluid minerals, 11,253 acres of moderate to high potential areas for salable minerals, and 4,831 acres of moderate to high potential areas for locatable minerals.	Same as Alternative A except proposed land disposals would include 0 acres of moderate to high potential areas for leasable fluid minerals, 12,511 acres of moderate to high potential areas for salable minerals, and 5,755 acres of moderate to high potential areas for locatable minerals.	Same as Alternative A, except proposed land disposals would include 0 acres of moderate to high potential areas for leasable fluid minerals, 12,753 acres of moderate to high potential areas for salable minerals, and 6,282 acres of moderate to high potential areas for locatable minerals.	Same as Alternative A, except proposed land disposals would include 0 acres of moderate to high potential areas for leasable fluid minerals, 15,895 acres of moderate to high potential areas for salable minerals, and 6,350 acres of moderate to high potential areas for locatable minerals.
Lands with Wilderness Characteristics (Section 4.2.9.2.4)	There are no management decisions for lands with wilderness characteristics under Alternative A.	Lands with wilderness characteristics managed to protect wilderness characteristics (37,514 acres) would be closed to extraction of leasable, salable, and locatable minerals. There are no moderate or high potential areas for leasable, salable, or locatable minerals located within lands proposed for management of wilderness characteristics; therefore, there would be minimal to no impact to minerals from these management decisions.	Lands with wilderness characteristics managed to protect wilderness characteristics (26,110 acres) would be closed to the extraction of leasable, salable, and locatable minerals. Lands with wilderness characteristics managed to minimize impacts to wilderness characteristics (4,075 acres) would be closed to extraction of leasable fluid minerals and extraction of saleable and locatable minerals would be evaluated on a case-by-case basis. There would be an adverse impact on mineral resources where minerals cannot be extracted.	Lands with wilderness characteristics managed to protect wilderness characteristics (2,239 acres) would be closed to the extraction of leasable, salable, and locatable minerals. There would be an adverse impact on mineral resources in these areas because minerals could not be extracted.

Paleontological Resources (Section 4.2.9.2.5)	Mineral resources would be adversely impacted by paleontological resources management decisions that restrict mineral development. The Torreon Fossil Fauna ACEC (6,488 acres) would be open to locatable and leasable mineral extraction. The ACEC would be avoided for salable mineral extraction. The Bony Canyon ACEC is not proposed under Alternative A.	Same as Alternative A except, the leasing stipulation for paleontological resources would implement CSU for leasable fluid minerals in areas of PFYC 4 and 5. The Torreon Fossil Fauna ACEC (6,488 acres) would be closed to the extraction of leasable, salable, and locatable minerals. Bony Canyon ACEC (1,150 acres) would be NSO for leasable fluid minerals, closed to the extraction of salable minerals, and recommended for withdrawal from locatable mineral entry.	Same as Alternative A except the leasing stipulation for paleontological resources would implement CSU for leasable fluid minerals in areas of PFYC 4 and 5. Torreon Fossil Fauna ACEC (6,488 acres) would be NSO for leasable fluid minerals, closed to the extraction of salable minerals, and recommended for withdrawal from locatable mineral entry. Bony Canyon ACEC (1,150 acres) would be NSO for leasable fluid minerals, closed to the extraction of salable minerals, and recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except the leasing stipulation for paleontological resources would implement CSU for leasable fluid minerals in areas of PFYC 4 and 5. Torreon Fossil Fauna ACEC (6,488 acres) would be CSU for leasable fluid minerals; extraction of salable minerals would be avoided and open to locatable mineral entry. Bony Canyon ACEC (1,150 acres) would be NSO for leasable fluid minerals, closed to the extraction of salable minerals, and recommended for withdrawal from locatable mineral entry..

Recreation and Visitor Services (Section 4.2.9.2.6)	Adverse impacts to mineral resources would occur if site-specific NEPA analysis requires proposed mineral projects to be modified or prohibited to avoid impacts to recreation areas. No recreation-specific leasing stipulations are proposed for recreation and visitor services under this alternative.	Mineral resources would be adversely impacted by recreation and visitor services management decisions that restrict mineral development within developed recreation areas and RMAs. A proposed leasing stipulation would prohibit surface-disturbing activities within the line of site/sound or 0.25 mile (whichever is closer) of developed recreation areas and undeveloped recreation areas received concentrated public use. ERMAs would also be managed as CSU for leasable fluid minerals, open to salable mineral extraction, and recommend for withdrawal from locatable mineral extraction.	Same as Alternative B, except a proposed leasing stipulation would prohibit surface-disturbing activities within the line of site/sound or 200 m (656 feet) (whichever is closer) of developed recreation areas and undeveloped recreation areas received concentrated public use.	ERMAs would be managed as CSU for leasable fluid minerals, open to salable mineral extraction, and open to locatable mineral extraction.
Riparian Resources (Section 4.2.9.2.7)	Mineral resources management decisions could be adversely impacted by proposed leasing stipulations for riparian areas on BLM lands within the Planning Area. The Bluewater Canyon ACEC (97 acres) would be managed as NSO for leasable fluid minerals, open to locatable mineral entry, and extraction of salable minerals would be avoided.	Same as Alternative A, except 18,186 acres of moderate to high mineral potential areas within riparian areas (18% of BLM lands in the Planning Area) would be protected by the riparian-specific leasing stipulation. The Bluewater Canyon ACEC (941 acres) would be NSO for leasable fluid minerals, closed to the extraction of salable minerals, and recommended for withdrawal from locatable mineral entry.	Same as Alternative B.	No leasing stipulations specific to riparian areas would be proposed under this alternative. The Bluewater Canyon ACEC would be managed as described in Alternative B.

Soil and Water (Section 4.2.9.2.8)	There would be no specific management decisions targeting the protection of sensitive soils under this alternative.	Mineral resources management decisions could be adversely impacted by proposed stipulations for low reclamation potential soils and steep slopes on BLM lands within the Planning Area. 51,803 acres of low reclamation potential soils would be managed as CSU for leasable fluid minerals within moderate to high potential mineral areas. 5,267 acres of steep slopes (15% or greater) would be managed as NSO for leasable fluid minerals within moderate to high potential mineral areas.	Same as Alternative B, except steep slopes would be managed as follows: 4,181 acres of slopes between 15% and 30% would be managed as CSU for leasable fluid minerals within moderate to high potential mineral areas and 1,026 acres of steep slopes greater than 30% would be managed as NSO for leasable fluid minerals within moderate to high potential mineral areas.	Same as Alternative A.

Special Designations (Section 4.2.9.2.9)	Special designations would have potential adverse impacts to mineral resources where a designation includes closures for salable and locatable extraction or NSO leasing stipulations. 19,632 acres of moderate to high mineral potential areas would be managed as CSU, NSO, or closed to leasable fluid mineral extraction. 13,583 acres of moderate to high mineral potential areas would be managed as avoidance or closed areas for salable minerals. 11,789 acres of moderate to high mineral potential areas would be managed as recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 23,066 acres of moderate to high mineral potential areas would be managed as CSU, NSO, or closed to leasable mineral fluid extraction. No areas of moderate to high mineral potential areas would be managed as avoidance or closed areas for salable minerals. 18,286 acres of moderate to high mineral potential areas would be managed as recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 24,063 acres of moderate to high mineral potential areas would be managed as CSU, NSO, or closed to leasable mineral fluid extraction. 7,891 acres of moderate to high mineral potential areas would be managed as avoidance or closed areas for salable minerals. 10,316 acres of moderate to high mineral potential areas would be managed as recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 18,118 acres of moderate to high mineral potential areas would be managed as CSU, NSO, or closed to leasable mineral fluid extraction. 11,624 acres of moderate to high mineral potential areas would be managed as avoidance or closed areas for salable minerals. No areas of moderate to high mineral potential areas would be managed as recommended for withdrawal from locatable mineral entry.
Special-status Species (Section 4.2.9.2.10)	Mineral resources could be adversely impacted by discretionary surface disturbance restrictions that are proposed for special-status species. Under all alternatives, the BLM would consult with the USFWS for mineral resource development activities.	Same as Alternative A, except an additional leasing stipulation would be applied for surface-disturbing activities within 0.5 mile of active prairie dog colonies.	Same as Alternative A, except an additional leasing stipulation would be applied for surface-disturbing activities within 0.25 mile of active prairie dog colonies.	Same as Alternative A, and surface-disturbing activities would be strictly controlled within prairie dog towns if an activity would adversely impact prairie dogs and/or associated species.

Visual Resources (Section 4.2.9.2.11)	Mineral resources management decisions could be adversely impacted by VRM decisions, specifically in VRM Classes I and II, where surface-disturbing activities would be the most restricted. 97,645 acres would be managed as VRM Class I and 84,449 acres as VRM Class II.	Same as Alternative A, except 97,296 acres would be managed as VRM Class I and 318,931 acres would be managed as VRM Class II.	Same as Alternative B, except 97,474 acres would be managed as VRM Class I, and 68,511 acres would be managed as VRM Class II.	Same as Alternative B, except 97,516 acres would be managed as VRM Class I, and 21,549 acres would be managed as VRM Class II.
Wildlife and Fisheries (Section 4.2.9.2.12)	Discretionary measures required to mitigate the adverse impacts of mineral development activities to wildlife would adversely impact mineral resources. No leasing stipulations would be applied for wildlife habitat under this alternative. However, mineral resource developers would be required to avoid surface-disturbing activities in occupied migratory bird habitat during the nesting season.	Same as Alternative A, and proposed restrictions would be implemented for surface disturbance located near raptor nests, big game winter range, big game fawning/calving habitat, prairie dog towns, and wildlife habitat projects.	Same as Alternative B.	Same as Alternative A, and proposed restrictions would be implemented for surface disturbance located near raptor nests and prairie dogs towns.
Paleontological Resources (Section 4.2.11)				
Lands and Realty (Section 4.2.11.1.1)	Lands and realty decisions would have adverse impacts if lands proposed for disposal lead to the loss of paleontological resources. 3,790 acres of PFYC 4 would be disposed of and 854 acres of PYFC 5 are proposed for disposal.	Same as Alternative A.	4,353 acres of PFYC 4 are proposed for disposal, and 854 acres of PFYC 5.	Same as Alternative A, except 6,133 acres of PFYC 4 are proposed for disposal.

Mineral Resources (Section 4.2.11.1.3)	Paleontological resources would be negligibly impacted by mineral resources due to the low predicted mineral development over the next 20 years (1.1% of BLM lands in the Planning Area).	Mineral resources decisions would have adverse impacts to paleontological resources by potentially disturbing areas with PFYC 4 and 5. The RPFO is proposing to implement an oil and gas stipulation that limits the amount of surface disturbance near paleontological resources. CSU for leasable fluid minerals would be implemented in areas of PFYC 4 and 5, and a determination by the BLM would be made as to whether a survey by a qualified paleontologist would be necessary prior to disturbance.	Same as Alternative B.	Same as Alternative B.
Renewable Energy (Section 4.2.11.1.4)	Renewable energy development may result in long-term adverse impacts because there would be no avoidance or exclusions areas for renewable energy projects.	Decisions may have an adverse impact to paleontological resources if renewable energy projects are proposed in areas with vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. Site-specific NEPA analysis would be conducted prior to the RPFO approving renewable energy projects within the Planning Area.	Same as Alternative B.	Same as Alternative B.
Special Designations (Section 4.2.11.1.2)	Special designations would have a beneficial impact to paleontological resources because of management restrictions that are applied within the boundaries of the particular designation. 137,720 acres would be managed as special designations.	Same as Alternative A, except 185,625 acres would be managed as special designations.	Same as Alternative A, except 178,000 acres would be managed as special designations.	Same as Alternative A, except 126,392 acres would be managed as special designations.
Recreation and Visitor Services (Section 4.2.12)				

Cultural Resources (Section 4.2.12.1.5)	Cultural resource management decisions would have both adverse and beneficial impacts to recreation. Camping would be prohibited at Big Bead Mesa (340 acres). Three sites are proposed for allocation for public use and would provide beneficial impacts to recreation.	Same as Alternative A.	Same as Alternative A, except seven sites are proposed for allocation for public use.	Same as Alternative A except 10 sites are proposed for allocation for public use.
Lands and Realty (Section 4.2.12.1.6)	Lands and realty decisions could have both adverse and beneficial impacts to recreation and visitor services. 55,384 acres are proposed for disposal, which could adversely impact dispersed recreation. Any future acquisitions that increase recreational opportunity within the RPFO would provide beneficial impacts.	Any future acquisitions that increase recreational opportunity within the RPFO would provide beneficial impacts to recreation. There are no proposed land disposals within SRMAs in the RMP/EIS.	Same as Alternative B.	Same as Alternative B.
Livestock Grazing (Section 4.2.12.1.1)	Adverse impacts from livestock grazing to recreation and visitor services could occur where livestock compromises the recreational setting for recreational users. Grazing allotments make up approximately 82% of BLM lands in the Planning Area.	Same as Alternative A, except livestock grazing would be prohibited within all special designations (182,122 acres) and riparian areas (1,582 acres).	Same as Alternative A, except livestock grazing would only occur where grazing does not conflict with resources protected by the special designation.	Same as Alternative C.
Mineral Resources (Section 4.2.12.1.11)	Mineral resource decisions would have an adverse impact on recreation and visitor services, resulting in reduced recreation potential on lands developed for mineral resources and decreased recreational experience for most users on adjacent lands. This impact would be negligible because mineral development would take place on 1.1% of BLM lands in the Planning Area.			

Lands with Wilderness Characteristics (Section 4.2.12.1.4)	lands managed to protect wilderness characteristics are not proposed under this alternative.	lands managed to protect wilderness characteristics (37,514 acres) would be beneficial to those visitors seeking recreational opportunities that prefer solitude and non-motorized recreation. Those groups seeking more developed forms of recreation, especially motorized forms of recreation, would not have those opportunities.	There would be 26,110 acres of lands managed to protect wilderness characteristics; on 4,075 acres of lands managed to partially protect wilderness characteristics, primitive routes would remain available for use by motorized vehicles. 7,329 acres of lands with wilderness characteristics not managed to protect wilderness characteristics will be open to vehicle travel.	2,239 acres would be managed to protect wilderness characteristics, which would benefit recreational opportunities. 35,275 acres would not be managed to protect wilderness characteristics.
Recreation and Visitor Services (Section 4.2.12.1.3)	SRMAs are not proposed under this alternative.	Recreation management decisions would have a beneficial impact to recreation. Five SRMAs, totaling 232,242 acres of BLM lands in the Planning Area are proposed under this alternative.	Same as Alternative B.	Same as Alternative B.
Renewable Energy (Section 4.2.12.1.7)	Renewable energy developments would have negative impacts on recreation and visitor services because they would remove recreation potential on the lands being developed and would degrade the recreation experience for most users on adjacent land.			
Special Designations (Section 4.2.12.1.2)	Special designations would provide long-term benefits to recreation because of restricted development. 137,720 acres would be managed as special designations.	Same as Alternative A, except 185,625 acres would be managed as special designations.	Same as Alternative A, except 178,000 acres would be managed as special designations.	Same as Alternative A, except 126,392 acres would be managed as special designations.
Special-status Species (Section 4.2.12.1.9)	Special-status species decisions would cause short-term adverse impacts to recreation and provide long-term beneficial impacts for improved recreational setting for hikers, campers, and wildlife viewers.			

Travel Management (Section 4.2.12.1.8)	Travel management decisions could have both adverse and beneficial impacts to recreation, depending on the type of recreationist. 20,316 acres would be closed to motorized travel, 303,580 acres would be open, and 420,491 acres would be limited to existing roads, primitive roads, and trails.	Same as Alternative A, except 177,240 acres would be closed to motorized travel, 4,551 acres would be open, and 562,596 acres would be limited to existing roads, primitive roads, and trails.	Same as Alternative A, except 124,075 acres would be closed to motorized travel, 18,269 acres would be open, and 602,043 acres would be limited to existing roads, primitive roads, and trails.	Same as Alternative A, except 100,123 acres would be closed to motorized travel, 19,456 acres would be open, and 624,808 acres would be limited to existing roads, primitive roads, and trails.
Vegetation Management (Section 4.2.12.1.10)	Vegetation treatments would cause short-term adverse impacts from potential closures during vegetation treatments but long-term beneficial impacts from improved forage for wildlife and recreational setting for hikers, campers, and wildlife viewers.			
Renewable Energy (Section 4.2.13)				
Renewable Energy (Section 4.2.12.1.1)	Wilderness areas (11,183 acres) would be excluded from renewable projects.	Wilderness areas (11,183 acres) would be excluded from renewable projects.	Wilderness areas (11,183 acres) would be excluded from renewable projects.	Wilderness areas (11,183 acres) would be excluded from renewable projects.
Riparian Resources (Section 4.2.14)				
Fire Management (Section 4.2.14.2.1)	Adherence to the Fire and Fuels Plan Amendment would have beneficial impacts to riparian resources in the Planning Area. 3,855 acres of riparian areas would undergo fuels treatment projects under all alternatives. The BLM would implement BMPs to mitigate adverse impacts from the fuel treatments since the goal of the treatments would be to restore the native plant communities within riparian areas.			
Forests and Woodlands (Section 4.2.14.2.2)	Forest and woodland decisions would be beneficial because forest product harvest activities would be prohibited in riparian areas, except where forest restoration would benefit riparian areas.			

Livestock Grazing (Section 4.2.14.2.3)	Livestock grazing management decisions would have both adverse and beneficial impacts to riparian resources. Adverse impacts would result if improper livestock management practices resulted in the loss of riparian vegetation and trampling of soils. Beneficial impacts would occur from the stimulation of vegetation, removal of standing dead vegetation, and seed distribution. Riparian areas would be managed as described in the EIS for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (BLM 2000).	Same as Alternative A, except the RPFO would remove grazing from 1,582 acres of riparian areas. Riparian areas would be the most protected from livestock grazing impacts under this alternative.	Same as Alternative B, expect prescribed grazing would be applied in riparian areas that meet the New Mexico Standards and Guidelines (BLM 2001).	Same as Alternative C.
Mineral Resources (Section 4.2.14.2.4)	Mineral development would adversely impact riparian resources within the Planning Area because no surface disturbance restrictions are proposed for riparian resources.	Same as Alternative A, except surface-disturbing activities would be prohibited (NSO) within 200 m (656 feet) of the channels of ephemeral, intermittent, and perennial streams, or within 200 m (656 feet) of the outer margins of riparian and wetland areas.	Same as Alternative A, except surface-disturbing activities would be subject to CSU for leasable fluid minerals restrictions within 200 m (656 feet) of the channels of ephemeral, intermittent, and perennial streams, or within 200 m (656 feet) of the outer margins of riparian and wetland areas.	Same as Alternative A.

Lands with Wilderness Characteristics	Alternative A would be the least protective of riparian resources because it would not manage areas within the Planning Area to protect wilderness characteristics.	Managing lands to protect wilderness characteristics would be beneficial to riparian resources because surface-disturbing activities are restricted. Alternative B would be the most protective since 37,514 acres would be managed to protect wilderness characteristics and would be the most restrictive for surface-disturbing activities. There are 243 acres of riparian habitat within these lands.	Same as Alternative B, except that 26,110 acres of lands with wilderness characteristics would be managed to protect wilderness characteristics, and 4,075 acres would be managed to partially protect wilderness characteristics. . Surface-disturbing activities within the lands with wilderness characteristics would be considered on a case-by-case basis. There are 26 acres of riparian habitat within these lands. Within 26, 110 acres of lands with wilderness characteristics managed to protect those characteristics, 236 acres of riparian habitat would benefit from restrictions on surface-disturbing activities.	There would be 2,239 acres of lands managed to protect wilderness characteristics. Within these lands, there are 198 acres of riparian habitat.
Lands with Wilderness Characteristics (Section 4.2.14.2.11)	Alternative A would be the least protective of riparian resources because it would not manage areas within the Planning Area to maintain Wilderness characteristics.	Managing lands to maintain their Wilderness characteristics would be beneficial to riparian resources where NSO stipulations or closing an area to oil and gas leasing are employed, precluding surface-disturbing activities. Alternative B would be the most protective since 37,514 acres would be managed to maintain Wilderness characteristics and would be the most restrictive for surface-disturbing activities.	Same as Alternative B, except surface-disturbing activities within the lands with Wilderness characteristics would be considered on a case-by-case basis.	Same as Alternative A.

Recreation and Visitor Services (Section 4.2.14.2.5)	Recreation decisions would have beneficial impacts to riparian resources because dispersed camping would be prohibited within 46 m (150 feet) of riparian areas.			
Renewable Energy (Section 4.2.14.2.6)	Renewable energy development would adversely impact riparian resources because no surface disturbance restrictions would be proposed for general riparian resources or floodplains.	Management decisions would beneficially impact riparian resources because active floodplains and 100-year floodplains are identified as exclusion or avoidance areas for wind, solar, and geothermal projects. Additionally, surface-disturbing activities would be prohibited within 200 m (656 feet) of the channels of ephemeral, intermittent, and perennial streams, or within 200 m (656 feet) of the outer margins of riparian and wetland areas.	Same as Alternative B, except surface-disturbing activities would be subject to restrictions within 200 m (656 feet) of the channels of ephemeral, intermittent, and perennial streams, or within 200 m (656 feet) of the outer margins of riparian and wetland areas.	Management decisions would beneficially impact riparian resources because active floodplains and 100-year floodplains are identified as exclusion or avoidance areas for wind, solar, and geothermal projects.
Riparian Resources (Section 4.2.14.2.7)	Management decisions would adversely impact riparian resources because no surface disturbance restrictions are proposed for riparian resources.	Management decisions would beneficially impact riparian resources because surface-disturbing activities would be prohibited within 200 m (656 feet) of the channels of ephemeral, intermittent, and perennial streams, or within 200 m (656 feet) of the outer margins of riparian and wetland areas.	Management decisions would beneficially impact riparian resources because surface-disturbing activities would be subject to restrictions within 200 m (656 feet) of the channels of ephemeral, intermittent, and perennial streams, or within 200 m (656 feet) of the outer margins of riparian and wetland areas.	Same as Alternative A.
Special-status Species (Section 4.2.14.2.9)	Special-status species decisions would provide long-term benefits because no management action would be permitted on public lands that would jeopardize the continued existence of plant or animal species that are listed, officially proposed, or candidates for listing as threatened and endangered.			

Special Designations (Section 4.2.14.2.10)	Riparian areas would receive indirect beneficial impacts from proposed special designations because surface restrictions would be implemented within the special designations. 137,720 acres would be managed as special designations.	Same as Alternative A, except 185,625 acres would be managed as special designations.	Same as Alternative A, except 178,000 acres would be managed as special designations.	Same as Alternative A, except 126,392 acres would be managed as special designations.
Soil and Water (Section 4.2.14.2.9)	Adverse impacts would be mitigated because soils and water management decisions would comply with New Mexico Standards and Guidelines (BLM 2001) and would be managed in accordance with Executive Order 11988.	Same as Alternative A. Additionally, the RPFO would prohibit surface-disturbing activities within 200 m (656 feet) of riparian areas and springs. Oil and gas leasing stipulations would implement CSU for 15% to 30% slopes, NSO for leasable fluid minerals for slopes over 30%, and CSU for low reclamation soils.	Same as Alternative B.	Same as Alternative A.
Travel Management (Section 4.2.14.2.12)	All alternatives would have beneficial impacts because riparian areas would be closed to motorized travel.			
Vegetative Communities (Section 4.2.14.2.13)	All alternatives would have beneficial impacts because vegetative treatments would reduce invasive species, restore native plant communities, improving the ecological health of the area.			
Wildlife and Fisheries (Section 4.2.14.2.14)	All alternatives would have a beneficial impact to riparian resources when projects are proposed to protect wildlife that use riparian areas as habitat.			
Social and Economic Resources (Section 4.2.15)				
BLM Expenditures and Employment (Section 4.2.15.2.8)	Average annual BLM expenditures would continue to support 120 jobs and $4.6 million in labor income.			

Environmental Justice (Section 4.2.15.3.1)	All alternatives could result in increased employment and labor income relative to current conditions over the next decade, from which minority and low-income populations may benefit. Access to these materials and sites would continue to provide valuable resources to communities in the area, sustaining lifestyles, traditions, ceremonies, and the heritage that remain an important part of area community's lifestyle and well-being. As discussed above, the removal of forest product collection areas adjacent to communities in the Planning Area could disparately impact minority and low-income populations that depend on these sources of forest products.			
Externally Funded Ecosystem Restoration (Section 4.2.15.2.6)	Approximately one job and $31,000 in labor income would be supported annually.			
Fire Management (Section 4.2.15.2.4)	Under all alternatives, approximately 32,000 acres would be targeted for fuels treatment dependent on budgetary and time constraints. If treatment targets were met, risk and associated costs would be reduced under all the alternatives relative to current treatment levels.			
Forest and Woodlands (Section 4.2.15.2.3)	This alternative would continue to maintain the current accessibility of permit issuing stations and forest product collection areas (12,523 acres) that communities are accustomed to, decreasing travel time and the use of substitute heat sources.	Same as Alternative A, except 141,748 acres are reserved as forest product harvest areas. Adverse impacts could occur because a change in forest product areas has changed, creating more distance between forest products and communities.	Same as Alternative B, except 548,001 acres are reserved as forest product harvest areas.	Same as Alternative B, except 754,835 acres are reserved as forest product harvest areas.
Impacts to Counties (Section 4.2.15.2.7)	Payments to counties would total $2,142,195 annually.	Payments to counties would total $2,139,549 annually.	Payments to counties would total $2,139,771 annually.	Same as Alternative C.

Livestock Grazing (Section 4.2.15.2.2)	Livestock grazing decisions would have beneficial impacts to social and economic resources because approximately 187 jobs and $1.5 million in labor income would be supported annually.	Same as Alternative A, except approximately 151 to 187 jobs and $1.1 to $1.4 million in labor income would be supported.	There would be a higher maximum potential permitted use. On average, the range of potential permitted AUMS would support 151 to 190 jobs and $1.1 to $1.4 million in labor income.	Same as Alternative C.
Mineral Resources (Section 4.2.15.2.5)	Mineral resource decisions would have beneficial impacts to social and economic resources because approximately 15 jobs and $808,000 in labor income would be supported annually. The RPFO would implement two leasing stipulations that would apply NSO for leasable fluid minerals to cultural resources and aviation facilities located Township 11N, Range 1E, as well as churches and cemeteries.	Same as Alternative A, except the RPFO would implement a leasing stipulation requiring NSO for leasable fluid minerals within areas managed for the maintenance of public health and safety and CSU for leasable mineral development near private residences. Alternative B would provide the greatest protection for social and economic resources in this RMP/EIS.	Same as Alternative B.	Same as Alternative A, except the RPFO would implement a leasing stipulation requiring NSO for leasable fluid minerals within areas managed for the maintenance of public health and safety.
Recreation and Visitor Services (Section 4.2.15.2.1)	Recreation and visitor decisions would have beneficial impacts to social and economic resources because expenditures related to recreation would support approximately 34 jobs and $1.1 million in labor income annually.			
Role of Amenities, Migration, and Non-market Values (Section 4.2.15.2.10)	224,233 acres of land would be managed as ACEC, managed to protect wilderness characteristics, and VRM Class I and II which would enhance non-market values associated with natural amenities.	The most amount of land (616,396 acres) would be managed as ACEC, managed to protect wilderness characteristics, and VRM Class I and II which would enhance non-market values associated with natural amenities.	318,284 acres of land would be managed as ACEC, managed for wilderness characteristics, and VRM Class I and II which would enhance non-market values associated with natural amenities.	The least amount of land (153,381 acres) would be managed as ACEC, managed to protect wilderness characteristics, and VRM Class I and II which would enhance non-market values associated

Travel Management (Section 4.2.15.3.10)	Under all alternatives, individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Such access would be considered on a case-by-case basis by the RPFO.			
Soil and Water (Section 4.2.16)				
Livestock Grazing (Section 4.2.16.2.2)	Livestock grazing would be managed in order to achieve and maintain the New Mexico Standards and Guidelines (BLM 2001), generally mitigating the impacts of grazing to soil and water resources. Up to 470,644 acres of sensitive soils would be available to livestock grazing.			
Mineral Resources (Section 4.2.16.2.3)	No stipulations for riparian areas are proposed.	Alternative B would implement CSU for leasable fluid minerals on steep slopes between 15% and 30%, NSO for leasable fluid minerals on slopes over 30%, and CSU for leasable fluid minerals on soils with low reclamation potential. Additionally, NSO for leasable fluid minerals within 200 m (656 feet) of channels ephemeral, intermittent, and perennial streams of within the outer margins of riparian/wetland areas would be implemented.	Same as Alternative B, except CSU for leasable fluid minerals within 200 m (656 feet) of channels ephemeral, intermittent, and perennial streams of within the outer margins of riparian/wetland areas would be implemented.	Alternative D would implement NSO for leasable fluid minerals on steep slopes over 30%.

Renewable Energy (Section 4.2.16.2.4)	Alternative A would result in long-term adverse impacts because there would be no avoidance or exclusions areas for renewable energy projects.	Alternative B may have long-term beneficial impacts on soil and water because sensitive soils are identified as avoidance areas for wind, solar, and geothermal projects; wetland and riparian areas are identified as exclusion areas for wind, solar, and geothermal projects; active floodplains are identified as exclusion areas for wind and solar projects and avoidance areas for geothermal projects; and 100-year floodplains are identified as avoidance areas for wind and geothermal projects and exclusion areas for solar projects.	Same as Alternative B.	Same as Alternative B.
Travel Management (Section 4.2.16.2.5)	Travel management decisions would have both adverse and beneficial impacts to soil and water resources. Where roads are closed, vegetation communities could become re-established and improve soil conditions. Open travel management areas could result in vegetation loss, rutting, and increased soil erosion. 20,316 acres would be closed to travel and 303,580 acres would be open to travel. 420,491 acres would limit travel to existing roads and trails.	Same as Alternative A, except 177,240 acres would be closed to travel, 562,596 acres would limit travel to existing roads, and 4,551 acres would be open to travel.	Same as Alternative A, except 124,075 acres would be closed to travel, 602,043 acres would limit travel to existing roads and trails, and 18,269 acres would be open to travel. 15,188 acres of the open travel area contain sensitive soils.	100,123 acres would be closed to travel, 19,456 be open, and 624,808 acres would limit travel.

Vegetation Management (Section 4.2.16.2.1)	Short-term adverse impacts could occur from vegetation treatments, but BMPs would be implemented to mitigate adverse impacts. Long-term beneficial impacts would occur from vegetation treatments. 12,015 acres are proposed for forest product harvest areas with sensitive soils. 32,000 acres per year would be treated for fire management.	Same as Alternative A, except 0 acres are proposed for forest product harvest areas with sensitive soils.	Same as Alternative A, except 426,239 acres are proposed for forest product harvest areas with sensitive soils.	Same as Alternative A, except 488,149 acres are proposed for forest product harvest areas with sensitive soils.
Special-status Species (Section 4.2.17)				
Cave and Karst Resources (Section 4.2.17.2.1)	The Pronoun Cave Complex would be managed as an ACEC and would protect special-status bat species known to occur within the complex.	Same as Alternative A.	Same as Alternative A.	The ACEC designation would be removed from the Pronoun Cave Complex. Bat species would continue to be considered under site-specific NEPA analysis.
Cultural Resources (Section 4.2.17.2.2)	Cultural resources management decisions may have beneficial impacts to special-status species because of restrictions on surface-disturbing activities that directly protect cultural resources and could indirectly protect habitat and critical habitat.			
Fire Management (Section 4.2.17.2.3)	All alternatives would result in short-term adverse impacts due to habitat loss, along with long-term beneficial impacts from reduced fuel loading, reduced fire risk, and diversified habitat.			
Forests and Woodlands (Section 4.2.17.2.4)	Both adverse and beneficial impacts to special-status species would occur from forest and woodland management decisions. 2% of BLM lands in the Planning Area would be available for forest product harvest.	Same as Alternative A, except 16% of BLM lands in the Planning Area would be available for forest product harvest.	Same as Alternative A, except 75 % of BLM lands in the Planning Area would be available for forest product harvest.	Same as Alternative A, except 87% of BLM lands in the Planning Area would be available for forest product harvest.

Lands and Realty (Section 4.2.17.2.5)	Adverse impacts could occur from proposed land disposals. 55,384 acres of BLM land are proposed for disposal.	Same as Alternative A, except beneficial impacts could occur from rights-of-way avoidance/exclusion areas. 57,472 acres of BLM land are proposed for disposal.	Same as Alternative B, except 58,910 acres of BLM land are proposed for disposal.	Same as Alternative B, except 62,051 acres of BLM land are proposed for disposal.
Livestock Grazing (Section 4.2.17.2.6)	Grazing allotments make up approximately 95% of BLM lands in the Planning Area. Adverse impacts from livestock grazing to special-status species could occur.	Same as Alternative A, except livestock grazing would be prohibited within all special designations (182,122 acres) and riparian areas (1,582 acres).	Same as Alternative A, except, livestock grazing would only occur where grazing does not conflict with resources protected by the special designation.	Same as Alternative C.
Mineral Resources (Section 4.2.17.2.7)	Mineral resource decisions would have both adverse and beneficial impacts to special-status species. Those areas that have restrictions for mineral development would beneficially impact special-status species and their habitat. 6% of special-status species habitat would be managed as NSO, CSU, or closed to leasable fluid minerals. 6% would be closed to mineral extraction. 1% would be recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 20% of special-status species habitat would be managed as NSO, CSU, or closed to leasable fluid minerals; 10% would be closed to mineral extraction; and 16% would be recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 20% of special-status species habitat would be managed as NSO, CSU, or closed to leasable fluid minerals; 7% would be closed to mineral extraction; and 15% would be recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 19% of special-status species habitat would be managed as NSO, CSU, or closed to leasable fluid minerals; 6% would be closed to mineral extraction; and 2% would be recommended for withdrawal from locatable mineral entry.

Lands with Wilderness Characteristics (Section 4.2.17.2.14)	lands managed to protect wilderness characteristics are not proposed under this alternative.	Decisions to manage lands with wilderness characteristics to protect wilderness characteristics on 37,514 acres would have beneficial impacts to special-status species by reducing habitat degradation and fragmentation.	Same as Alternative B except that under this alternative 26,110 acres would be managed to protect wilderness characteristics, which would benefit special-status species by reducing habitat degradation and fragmentation. On 4,075 acres managed to partially protect wilderness characteristics, more miles of primitive routes would be available for motorized use. 7,329 acres would be open to vehicle travel.	2,239 acres would be managed to protect wilderness characteristics and 35,275 acres would not be managed to protect wilderness characteristics.
Recreation and Visitor Services (Section 4.2.17.2.8)	Recreation management decisions could have adverse impacts to special-status species due to habitat loss and human disturbance. No SRMAs are proposed.	Same as Alternative A, except five SRMAs, totaling 10,996 acres of BLM lands in the Planning Area, are proposed under this alternative.	Same as Alternative B.	Same as Alternative B.
Renewable Energy (Section 4.2.17.2.9)	Avoidance and exclusion areas would not be implemented under this alternative.	Avoidance and exclusion areas identified under this alternative would provide protection for special-status species habitat.	Same as Alternative B.	Same as Alternative B.
Riparian Resources (Section 4.2.17.2.10)	There is no surface disturbance restriction for riparian areas under this alternative.	Management decisions to protect riparian areas would have beneficial impacts to special-status species. Surface-disturbing activities would be prohibited within 200 m (656 feet) of riparian areas.	Same as Alternative B, except surface-disturbing activities would be subject to restrictions within 200 m (656 feet) of riparian areas.	Same as Alternative A.

Special-status Species (Section 4.2.17.2.11)	No management action would be permitted on public lands that would jeopardize the continued existence of plant or animal species that are listed, officially proposed, or candidates for listing as threatened or endangered.	Same as Alternative A, except two restrictions would be applied: 1) for surface-disturbing activities within 0.5 mile of active prairie dog colonies and 2) placement of water developments and salt and mineral supplements for livestock would be located 0.25 mile from known locations of special-status plants.	Same as Alternative B, except surface-disturbing activities would be restricted within 0.25 mile of active prairie dog colonies and water developments and salt and mineral supplements for livestock would be placed at least 152 m (500 feet) from special-status plants.	Same as Alternative B, except surface-disturbing activities would be restricted within active prairie dog colonies and water developments and salt and mineral supplements for livestock would be placed at least 91 m (300 feet) from special-status plants.
Soil and Water (Section 4.2.17.2.12)	No surface disturbance protections for soil and water are proposed under this alternative.	Management decisions to protect soil and water resources would also beneficially impact special-status species because surface-disturbing activities would be restricted. Surface-disturbing activities would be prohibited within 200 m (656 feet) of riparian areas.	Same as Alternative B, except surface-disturbing activities would be subject to restrictions within 200 m (656 feet) of riparian areas.	Same as Alternative A.
Special Designations (Section 4.2.17.2.13)	Special designations management decisions would have beneficial impacts to special-status species because restrictions to surface-disturbing activities, such as mineral development, would be implemented in special designations. 137,720 acres would be managed as special designations.	Same as Alternative A, except 185,625 acres would be managed as special designations.	Same as Alternative A, except 178,000 acres would be managed as special designations.	Same as Alternative A, except 126,392 acres would be managed as special designations.

Travel Management (Section 4.2.17.2.15)	Travel management decisions would have both adverse and beneficial impacts to special-status species. Closed areas would provide protection to special-status species habitat. 3% of special-status species habitat would be closed to motorized travel.	Same as Alternative A, except24% of special-status species habitat would be closed to motorized travel.	Same as Alternative A, except17% of special-status species habitat would be closed to motorized travel.	Same as Alternative A, except12% of special-status species habitat would be closed to motorized travel.
Vegetative Communities (Section 4.2.17.2.16)	Vegetation treatments would cause short-term adverse impacts from habitat loss, but long-term beneficial impacts from improved vegetative communities and diversified habitat.			
Visual Resources (Section 4.2.17.2.18)	VRM Class I and II areas would be the most restrictive to surface disturbance. 97,645 acres would be managed as VRM Class I and 84,449 acres as VRM Class II.	Same as Alternative A, except 97,296 acres would be managed as VRM Class I and 318,931 acres would be managed as VRM Class II.	Same as Alternative A, except 97,474 acres would be managed as VRM Class I and 68,511 acres would be managed as VRM Class II.	Same as Alternative A, except 97,516 acres would be managed as VRM Class I and 21,549 acres would be managed as VRM Class II.
Wildlife and Fisheries (Section 4.2.17.2.17)	Wildlife and fisheries management decisions would have beneficial impacts to special-status species and their habitat. Surface disturbance restrictions would benefit special-status species. No surface disturbance restrictions are proposed under Alternative A.	Proposed restrictions would be implemented for surface disturbance located near raptor nests, big game winter range, big game fawning/calving habitat, prairie dog towns, and wildlife habitat projects.	Same as Alternative B.	Proposed restrictions would be implemented for surface disturbance located near raptor nests and prairie dog towns.
Travel Management (Section 4.2.18)				

Travel Management (Section 4.2.18.1)	Travel management decisions would have beneficial impacts to travel management because specific areas on BLM lands within the Planning Area would have a clear travel category. This alternative closes 20,316 acres to motorized travel, opens 303,580 acres, and limits 420,491 acres to existing roads and trails.	Same as Alternative A, except 177,240 acres would be closed to motorized travel, 4,551 acres would be open, and 562,596 acres would be limited to existing roads and trails.	Same as Alternative A, except 124,075 acres would be closed to motorized travel, 18,269 acres would be open, and 602,043 acres would be limited to existing roads and trails.	Same as Alternative A, except 100,123 acres would be closed to motorized travel, 19,456 acres would be open, and 624,808 acres would be limited to existing roads and trails.
Vegetative Communities (Section 4.2.19)				
Fire Management (Section 4.2.19.1.3)	Short-term adverse impacts would include loss of vegetation during and after fuels treatments. Long-term beneficial impacts would include native and diverse vegetative communities.			
Lands and Realty (Section 4.2.19.1.2)	Adverse impacts to vegetation would occur if rights-of-way are granted for surface-disturbing activities. Beneficial impacts would occur in avoidance/exclusion areas for rights-of-way.			
Livestock Grazing (Section 4.2.19.1.1)	Livestock grazing would be managed to achieve New Mexico Standards and Guidelines (BLM 2001); therefore, beneficial impacts to vegetative communities would result from livestock grazing.			
Mineral Resources (Section 4.2.19.1.5)	All alternatives would cause adverse impacts from surface disturbance associated with mineral development; however, reasonably foreseeable development is estimated to be 1.1% of BLM lands in the Planning Area.			
Recreation and Visitor Services (Section 4.2.19.1.7)	Impacts to vegetative communities would be limited to isolated surface disturbances where activities such as dispersed camping and cross-country hiking occur. Where recreation is managed using an SRMA, BLM rules and guidelines would limit or control activities through specialized management tools such as designated campsites, permits, area closures, and limitations on the number of users and duration of use.			
Renewable Energy (Section 4.2.19.1.8)	Renewable energy management decisions would have adverse and beneficial impacts to vegetative communities. Renewable energy projects would create surface disturbances of various magnitudes depending on the size and location of the project. Beneficial impacts would result from identification of exclusion and avoidance areas for renewable energy projects.			

Special Designations (Section 4.2.19.1.4)	Special designations would provide long-term benefits from restricted surface disturbance within 137,720 acres of special designations.	Same as Alternative A, except 185,625 acres would be managed as special designations.	Same as Alternative A, except 178,000 acres would be managed as special designations.	Same as Alternative A, except 126,392 acres would be managed as special designations.
Travel Management (Section 4.2.19.1.6)	Travel management decisions would have both adverse and beneficial impacts to vegetative communities. Closed areas would allow vegetation to become re-established, while open areas would result in vegetation loss. 20,316 acres would be closed to motorized travel, 303,580 acres would be open, and 420,491 acres would be limited to existing roads, primitive roads, and trails.	Same as Alternative A, except 177,240 acres would be closed to motorized travel, 4,551 acres would be open, and 562,596 acres would be limited to existing roads, primitive roads, and trails.	Same as Alternative A, except 124,075 acres would be closed to motorized travel, 18,269 acres would be open, and 602,043 acres would be limited to existing roads, primitive roads, and trails.	Same as Alternative A, except 100,123 acres would be closed to motorized travel, 19,456 acres would be open, and 624,808 acres would be limited to existing roads, primitive roads, and trails.
Visual Resources (Section 4.2.20)				
Visual Resources (Section 4.2.20.2.1)	Alternative A would manage for the following VRM classes: Class I: 97,645 acres. Class II: 84,449 acres. Class III: 61,780 acres. Class IV: 152,250 acres.	Alternative B would manage for the following VRM classes: Class I: 97,296 acres. Class II: 318,931 acres. Class III: 27,529 acres. Class IV: 300,631 acres.	Alternative C would manage for the following VRM classes: Class I: 97,474 acres. Class II: 68,511 acres. Class III: 80,931 acres. Class IV: 497,471 acres.	Alternative D would manage for the following VRM classes: Class I: 97,516 acres. Class II: 21,549 acres. Class III: 83,050 acres. Class IV: 542,272 acres.
Wilderness Areas (Section 4.2.21)				
Lands and Realty (Section 4.2.21.1.2)	Adverse impacts could result from land disposals that occur adjacent to Wilderness Areas because development on disposed lands would compromise Wilderness values.			

Livestock Grazing (Section 4.2.21.1.4)	Livestock grazing would have adverse impacts to Wilderness Areas. Livestock grazing would be allowed within Wilderness Areas.	Livestock grazing would be prohibited within Wilderness Areas.	Same as Alternative A.	Same as Alternative A.
Surface Disturbance (Section 4.2.21.1.3)	Adverse impacts could result from surface disturbance that occurs adjacent to Wilderness Areas because development could compromise Wilderness values.			
Visual Resources (Section 4.2.21.1.1)	Adverse impacts would result from VRM Class III or IV lands managed adjacent to Wilderness Areas. Beneficial impacts would result from VRM Class I and II areas adjacent to Wilderness Areas.			
Wildlife and Fisheries Resources (Section 4.2.22)				
Cave and Karst Resources (Section 4.2.22.2.1)	Cave and karst management decisions would have beneficial impacts to wildlife. The Pronoun Cave Complex would be managed as an ACEC and would protect bat species known to occur within the complex.	Same as Alternative A.	Same as Alternative A.	The ACEC designation would be removed from the Pronoun Cave Complex. Bat species would continue to be considered under site-specific NEPA analysis.
Cultural Resources (Section 4.2.22.2.2)	Cultural resources management decisions may have beneficial impacts to wildlife because of restrictions on surface-disturbing activities that directly protect cultural resources and could indirectly protect habitat.			
Fire Management (Section 4.2.22.2.3)	Fire management would cause short-term adverse impacts from habitat loss, but long-term beneficial impacts from reduced fuel loading, reduced fire risk, and diversified habitat.			
Forests and Woodlands (Section 4.2.22.2.4)	Forest and woodland management decisions would have both adverse and beneficial impacts to wildlife. Wildlife habitat could be degraded or enhanced depending on the location, goals, methods used for forest product harvest projects. 2% of BLM lands would be available for forest product harvest.	Same as Alternative A, except 16% of BLM lands would be available for forest product harvest.	Same as Alternative A, except 75% of BLM lands would be available for forest product harvest.	Same as Alternative A, except 87% of BLM lands would be available for forest product harvest.

Lands and Realty (Section 4.2.22.2.5)	Lands and realty management decisions could have adverse impacts to wildlife through land disposals and through the authorization or expansion of rights-of-way. 55,384 acres are proposed for land disposal.	Same as Alternative A, except beneficial impacts could occur from rights-of-way avoidance/exclusion areas and 57,472 acres are proposed for land disposal.	Same as Alternative B, except 58,910 acres are proposed for land disposal.	Same as Alternative B, except 62,051 acres are proposed for disposal.
Livestock Grazing (Section 4.2.22.2.6)	Grazing allotments make up approximately 95% of BLM lands in the Planning Area. Livestock grazing decisions could result in both adverse and beneficial impacts to wildlife.	Same as Alternative A, except livestock grazing would be prohibited within all special designations (149,990 acres) and riparian areas (1,582 acres).	Same as Alternative A, except livestock grazing would only occur where grazing does not conflict with resources protected by the special designation.	Same as Alternative C.
Mineral Resources (Section 4.2.22.2.7)	Mineral resource management decisions would have both adverse and beneficial impacts to wildlife. Beneficial impacts would result from closing or restricting mineral extraction activities in wildlife habitat. 6% of wildlife species habitat would be managed as NSO, CSU, or closed to leasable fluid minerals; 6% would be closed to mineral extraction; and 1% would be recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 20% of wildlife species habitat would be managed as NSO, CSU, or closed to leasable fluid minerals; 10% would be closed to mineral extraction; and 16% would be recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 20% of wildlife species habitat would be managed as NSO, CSU, or closed to leasable fluid minerals; 7% would be closed to mineral extraction; and 15% would be recommended for withdrawal from locatable mineral entry.	Same as Alternative A, except 19% of wildlife species habitat would be managed as NSO, CSU, or closed to leasable fluid minerals; 6% would be closed to mineral extraction; and 2% would be recommended for withdrawal from locatable mineral entry.

Lands with Wilderness Characteristics (Section 4.2.22.2.14)	lands managed to protect wilderness characteristics are not proposed under this alternative.	37,514 acres of lands managed to protect wilderness characteristics would provide beneficial impacts to wildlife and fisheries by reducing habitat degradation and fragmentation.	Same as Alternative B except that under this alternative, 26,110 acres would be managed to protect wilderness characteristics, benefitting wildlife and fisheries. 4,075 acres managed to partially protect wilderness characteristics would allow motorized travel on existing routes. 7,329 acres would be open to vehicle travel and other activities that may cause habitat fragmentation.	2,239 acres would be managed to protect wilderness characteristics, benefitting wildlife. 35,275 acres would be open to vehicle travel and other activities.
Recreation and Visitor Services (Section 4.2.22.2.8)	Wildlife could be adversely impacted by recreational activities due to wildlife harassment, habitat fragmentation, and habitat degradation. SRMAs are not proposed under this alternative.	Same as Alternative A, except five SRMAs, totaling 10,996 acres of BLM lands in the Planning Area, are proposed under this alternative.	Same as Alternative B.	Same as Alternative B.
Renewable Energy (Section 4.2.22.2.9)	Renewable energy decisions would have adverse and beneficial impacts to wildlife. Decisions to avoid or exclude certain areas from renewable energy development would result in beneficial impacts to wildlife. Avoidance and exclusion areas would not be implemented under this alternative.	Same as Alternative A, except avoidance and exclusion areas identified under this alternative would provide protection for wildlife habitat.	Same as Alternative B.	Same as Alternative B.

Riparian Resources (Section 4.2.22.2.10)	Riparian resource management decisions would have beneficial impacts to wildlife. Restrictions on surface-disturbing activities within riparian areas would have indirect impacts to wildlife. There is no surface disturbance restriction proposed for riparian areas under this alternative.	Same as Alternative A, except surface-disturbing activities would be prohibited within 200 m (656 feet) of riparian areas.	Same as Alternative A, except surface-disturbing activities would be subject to restrictions within 200 m (656 feet) of riparian areas.	Same as Alternative A.
Special Designations (Section 4.2.22.2.13)	Special designations proposed to protect wildlife and vegetation would directly benefit wildlife species and their habitats. ACECs designated to preserve historic, cultural, and scenic values (as opposed to wildlife or vegetation) would indirectly benefit wildlife by limiting human and surface disturbance, preserving habitat, or preventing noise. 137,720 acres would be managed as special designations.	Same as Alternative A, except 185,625 acres would be managed as special designations.	Same as Alternative A, except 178,000 acres would be managed as special designations.	Same as Alternative A, except 126,392 acres would be managed as special designations.
Special-status Species (Section 4.2.22.2.11)	Activities meant to protect and conserve special-status species would also benefit other wildlife species that share habitat with targeted special-status species.			
Soil and Water (Section 4.2.22.2.12)	Soil and water resource management decisions would have beneficial impacts to wildlife. Restrictions on surface-disturbing activities on steep slopes and low reclamation soils would have indirect impacts to wildlife. No surface disturbance protections for soil and water are proposed under this alternative.	Same as Alternative A, except surface-disturbing activities would be prohibited within 200 m (656 feet) of riparian areas.	Same as Alternative A, except surface-disturbing activities would be subject to restrictions within 200 m (656 feet) of riparian areas.	Same as Alternative A.

Travel Management (Section 4.2.22.2.15)	Travel management decisions would have adverse and beneficial impacts to wildlife. Areas proposed for closure to motorized travel would protect wildlife and wildlife habitat. 3% of wildlife habitat would be closed to motorized travel.	Same as Alternative A, except 24% of wildlife habitat would be closed to motorized travel.	Same as Alternative A, except 17% of wildlife habitat would be closed to motorized travel.	Same as Alternative A, except 13% of wildlife habitat would be closed to motorized travel.
Vegetative Communities (Section 4.2.22.2.16)	Vegetation treatments would cause short-term adverse impacts from habitat loss, but long-term beneficial impacts from improved vegetative communities and diversified habitat.			
Visual Resources (Section 4.2.22.2.18)	VRM Class I and II areas would be the most restrictive to surface disturbance and would provide indirect beneficial impacts to wildlife. 97,645 acres would be managed as VRM Class I and 84,449 acres as VRM Class II.	Same as Alternative A, except 97,296 acres would be managed as VRM Class I and 318,931 acres would be managed as VRM Class II.	Same as Alternative A, except 97,474 acres would be managed as VRM Class I and 68,511 acres would be managed as VRM Class II.	Same as Alternative A, except 97,516 acres would be managed as VRM Class I and 21,549 acres would be managed as VRM Class II.
Wildlife and Fisheries (Section 4.2.22.2.17)	Wildlife and fisheries management decisions would have beneficial impacts to wildlife and wildlife habitat. Surface disturbance restrictions would benefit wildlife. No surface disturbance restrictions are proposed under Alternative A.	Proposed restrictions would be implemented for surface disturbance located near raptor nests, big game winter range, big game fawning/calving habitat, prairie dog towns, and wildlife habitat projects.	Same as Alternative B.	Proposed restrictions would be implemented for surface disturbance located near raptor nests and prairie dog towns.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

2.4.1 No Grazing Alternative

An alternative that proposes to make the entire Planning Area unavailable for grazing would not meet the multiple-use mandate set forth in the purpose and need of the RMP/EIS. FLPMA requires that public lands be managed on a "multiple use and sustained yield basis" (FLPMA, Sections 302 (a) and 102 (7)), and includes livestock grazing as a principal or major use of public lands. While multiple use management does not require that all lands be used for livestock grazing, complete removal of livestock grazing on the entire Planning Area would not meet the principle of multiple use and sustained yield.

NEPA requires that agencies study, develop, and describe appropriate alternatives to a recommended course of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources. Livestock grazing was not identified as an issue during external scoping (BLM, 2008 Scoping Report). During internal scoping, potential resource conflicts between livestock grazing and riparian resources, wildlife resources, and special status species were identified. These resource conflicts were addressed through varying management decisions for these resources across alternatives. Elimination of livestock grazing on all BLM lands in the Planning Area was not identified as a potential management decision that would resolve these resource conflicts.

A range of livestock grazing alternatives was defined in two ways. First, under Alternative B, livestock grazing would be eliminated in WSAs, ACECs, and lands with wilderness characteristics (151,184 acres less than current levels). This would preclude resource conflicts between livestock grazing and other resources in these areas. Second, under Alternatives C and D, variable grazing levels would be allowed via adaptive management according to the New Mexico Standards and Guidelines (BLM 2001). Management prescriptions for each allotment or pasture would depend on the current condition of the area, and management would be adjusted in response to the findings of periodic monitoring. Adaptive management of allotments that do not meet the New Mexico Standards and Guidelines (BLM 2001) might include reducing AUMs, grazing rotation, prescribed rest periods, varying the duration or timing of grazing, adding or relocating water developments, or elimination of grazing in certain areas. The appropriate adaptive management prescription for each allotment is determined in site-specific environmental analyses, such as grazing permit renewal EAs. Through adaptive management, a range of allowable livestock grazing acres and AUMs could be reach under Alternatives C and D.

Riparian, wildlife, and special status species resource management decisions relative to livestock grazing vary as well. Under Alternative B for riparian resources, livestock grazing within riparian areas (about 1,582 acres) would be prohibited, and grazing would be allowed under Alternatives C and D only in riparian areas that meet the Riparian Sites Standards of the New Mexico Standards and Guidelines (BLM 2001). For special status species, water developments and mineral supplements for livestock management would be located a certain distance from known special status plant populations, with the buffer distance varying across alternatives. The wildlife resource alternatives address livestock grazing by spatially or temporally limiting

grazing in big game winter range and fawning or calving habitat. The range of management decisions for these resources addresses the identified resource conflicts.

2.4.2 Wild Horse Preserve, Sanctuary, State Park, or Herd Management Area Alternative

In 1971, Congress enacted the Wild-Free Roaming Horses and Burros Act of 1971, 16 U.S.C. § 1331 *et seq.* (the "Wild Horse Act"). The Wild Horse Act required the BLM to inventory public lands to identify areas where wild horses were located in 1971. During this inventory effort, the BLM identified herd areas, the geographic areas used by wild horse herds as habitat in 1971. Using these herd areas, the BLM established herd management areas for the maintenance of wild horse herds. The BLM is required to managing wild horses so that the distribution of animals is limited to herd areas, where herds existed in 1971 (43 C.F.R. § 4710.4).

Following passage of the Wild Horse Act, the BLM inventoried all public lands in New Mexico for wild horses and the BLM identified herd areas. The BLM determined that there were no wild horses or herd areas within the Rio Puerco Planning Area. Therefore, the 1986 RPFO RMP did not establish any herd management areas.

Because there are no herd areas or herd management areas in the Planning Area of the RPFO, this RMP does not address the Wild Horse and Burro Program. Any unclaimed or unbranded horses currently within the Planning Area are not subject to management under the Wild Horse Act. The BLM does not have authority to designate a herd area or herd management area in a location where wild horses were not present in 1971. Such authority lies exclusively with Congress. The feral and unclaimed horses in the Planning Area are trespassing on BLM-administered lands, are not a part of the BLM's inventory or management program as a result of the Wild Horse Act, and will not be considered as a part of the BLM's resource management program in this RMP/EIS process.

The public scoping comments indicate a desire for the BLM to establish a wild horse state park or wild horse sanctuary. The BLM lacks authority to designate land as a state park. As described above, there is no herd area within the Rio Puerco Planning Area. BLM's regulations call for the BLM to manage herds so that the distribution of animals is limited to herd areas where herds existed in 1971. Therefore, a wild horse sanctuary within the Rio Puerco Planning Area would be contrary to the BLM's wild horse management practice. Any establishment of a wild horse herd management area within the Planning Area would be similarly contrary to the BLM's regulations.

2.4.3 Placitas ACEC

ACEC designations highlight areas where special management attention is needed to protect and prevent irreparable damage to important historical, cultural, and scenic values; fish or wildlife resources; or other natural systems or process, or to protect human life and safety from natural hazards (BLM 1988). In order to be considered for an ACEC designation, the area must meet one or more of the following relevance criteria:

1) A significant historical, cultural, or scenic value (including but not limited to rare or sensitive archaeological resources and religion or cultural resources important to Native Americans).

2) A fish and wildlife resource (including but not limited to habitat for endangered, threatened, or sensitive species or habitat essential for maintain species diversity).

3) A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).

4) Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the RMP process that is has become part of a natural process.

The values, resources, systems, processes, or hazards described in the relevance section must have substantial significance and values to meet the importance criteria. This generally means that the value, resource, system, process, or hazard is characterized by one or more of the following:

1) Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.

2) Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.

3) Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA.

4) Has qualities that warrant highlighting in order to satisfy public or management concerns about safety and public welfare.

5) Poses a significant threat to the human life and safety of property.

Each potential ACEC within the Planning Area has been reviewed following the ACEC relevance and importance criteria summarized above and outlined in BLM Manual 1613. The proposed Placitas ACEC was raised during the public scoping period based on the local residents' interest in cultural resources in the area. This public scoping comment was considered by the RPFO through the application of the ACEC relevance and important criteria analysis. The Placitas ACEC does not meet the relevance criteria for fish and wildlife, natural process, or natural hazards. In addition, the historical, cultural, and scenic values of the area do not meet importance criterion of "having more than locally significant qualities that give it worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource." As a result, the Placitas ACEC is not considered under detailed analysis in this RMP/EIS.

While the Placitas area does contain cultural resources, many that are on BLM land are not eligible for listing on the NRHP, based on BLM staff review of existing survey data. Those that are eligible would be protected (although not necessarily preserved in place) under Section 106 of the NHPA if any undertakings with the potential to affect cultural resources were proposed. The BLM does own a small piece of the NRHP-listed site of San Antonio de Las Huertas, which is of national significance under the NHPA and is also protected under the Galisteo Basin Archaeological Sites Protection Act of 2004. Undertakings with the potential to adversely affect this site would be subject to consultation not only with the New Mexico State Historic Preservation Officer, but also with the Advisory Council on Historic Preservation. Therefore, designation of the potential Placitas ACEC is not necessary to protect the site.

2.4.4 Las Huertas Creek Wild and Scenic River Special Designation

The potential for Las Huertas Creek to be designated as a WSR was raised during internal scoping by members of the RPFO RMP Revision Interdisciplinary Team. The RPFO considered the recommendation of Las Huertas Creek for designation using the guidance provided by BLM Manual 8351 – Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, and Management (BLM 1993). Program guidance is also provided to aid in fulfilling requirements of the Wild and Scenic Rivers Act, including BLM Manual 8351 Section 1623.41A2d and the Final Revised Guidelines for Eligibility, Classification, and Management of River Areas (USDI and USDA 1982). This guidance provides the line manager and program staff professionals with specific policies related to the WSR eligibility determination process, integration of WSR studies within the RMP process, WSR river protection and management, environmental analyses, legislative reporting, and other matters.

In order to be considered eligible for determination of suitability for Congressional designation into the NWSRS, a river is evaluated using the following process:

1) Identify segments to be inventoried (only sections falling under BLM jurisdiction). Las Huertas Creek is approximately 16 miles long, of which approximately one mile crosses BLM-managed land.

2) Determine if segments are free flowing and have any outstandingly remarkable values. Las Huertas Creek has been determined to be free flowing but does not have any outstanding remarkable values. The outstanding remarkable values considered and rationale are as follows:

    a) Scenic: The Las Huertas Creek landscape elements of landform, vegetation, water color, and related factors do not result in notable or exemplary visual features or attractions within the geographic region. The rating area is not "Scenic Quality A," as defined in the BLM Visual Resource Management Manual (BLM 1984).
    b) Recreation: Las Huertas Creek is not eligible because it does not provide a critically important regional recreation opportunity. The creek is not a significant component of a regional recreation opportunity spectrum setting. The portion of Las Huertas Creek in the RPFO Planning Area consists of a dry wash with intermittent water during heavy rainstorms and during snowmelt runoff from the Sandia Mountains. Recreation consists of people who enjoy looking at and collecting river rock. The creek wash is flat with no boundary sides.

c) Wildlife Populations: Las Huertas Creek does not contain nationally or regionally important populations of resident or indigenous wildlife species dependent on the creek's environment, particularly when considering unique species or populations of state, federally listed, or candidate threatened and endangered species.

d) Wildlife Habitat: The area of Las Huertas Creek does not provide high-quality habitat for wildlife of national or regional significance or a critical link in habitat conditions for state, federally listed, or candidate threatened and endangered species.

e) Cultural: The sites within the RPFO portion of Las Huertas Creek are not rare or have exceptional human-interest values. The sites do not have national or regional importance for interpreting prehistory.

Segments that are free flowing and have at least one outstanding remarkable value are considered eligible. Las Huertas Creek is free flowing but does not have at least one outstanding remarkable value; therefore, the creek is not considered eligible for further evaluation as to its suitability as a WSR.

3 AFFECTED ENVIRONMENT

3.1 Introduction

Chapter 3 describes the existing conditions and future trends for resources and resource uses within the RPPA. Where appropriate, indicators are identified for each resource to further describe current conditions. Information from this chapter will be used to analyze the potential effects of the proposed alternatives in Chapter 4: Environmental Effects.

Available data have been gathered from various sources (e.g., BLM, other agencies, published and unpublished reports, databases, and maps) and compiled to create an inventory. Condition will be determined by comparing the value of the indicator(s) to an established standard (current plan goal or objective) and/or benchmark. The condition assessment will relate to Land Health Standards as appropriate. The scale of the analysis may extend beyond the immediate planning area boundary and encompass a logical landscape (the analysis area) to support certain land uses.

3.1 Air Resources

3.1.1 Air Quality

Air resources indicators can be both monitored (measured by an instrument) and modeled (estimated by a computer model). Monitoring is used to measure actual values in a specific place at a specific time, while modeling is used to estimate values in areas without monitoring and to estimate potential future values. The Environmental Protection Agency has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants. Measurement of values nearing or exceeding these standards is an indication of air quality issues which need to be addressed.

All areas in the U.S. are designated to reflect compliance with the NAAQS. Attainment areas are areas for which compliance with the NAAQS has been demonstrated; non-attainment areas are areas in which pollution levels persistently exceed the NAAQS; maintenance areas are former non-attainment areas; unclassifiable areas are areas for which data are not available to determine attainment. There are currently no violations of the NAAQS in the Planning Area.

Most air quality monitoring sites in the planning area are located in the Albuquerque metropolitan area and therefore may not be representative of outlying public lands which are further from major emissions sources. However, in general, trends for criteria pollutants in the Albuquerque area are flat to declining. The exception is for ozone which is showing a slight increase at some observation sites (USEPA. 2010). This increase is associated with increasing population and automobile traffic and not related to activities on public lands managed by BLM. How air quality will change over time will depend on trends in air pollution associated with population and economic activity and technological changes associated with a variety of mobile and stationary sources. Air quality also will be affected by the adoption and implementation of federal, state, and local regulations intended to control emissions. Improvements in engine efficiency and fuel quality will continue to help to reduce many air pollutants in this area. At the same time growing populations could cause increased levels of pollution due to increases in traffic and congested roadways and increased demand for electricity generation. Requirements

for improvement in visibility under the Regional Haze Rule are also forcing states to strategize for further improvements in emissions reduction technology. There may, however, be some temporary impairment of air quality due to increases in prescribed burning and management of wildland fire for resource benefit.

Visibility data have been measured by the Interagency Monitoring of Protected Visual Environments (IMPROVE) network in Bandelier National Park from 1989 through the present and at San Pedro Parks Wilderness from 2001 to the present. Visibility at Bandalier has stayed about the same since 1989. Mean annual visual range varies from 125 to 150 miles on clear days, 90 to 108 miles on average days, and 60 to 83 miles on hazy days. Visibility at San Pedro Parks has stayed about the same since 2001. Mean annual visual range varies from 170 to 190 miles on clear days, about 120 miles on average days, and 80 to 90 miles on hazy days.

3.1.2 Clean Air Act Protection Classes

The Clean Air Act (CAA) accords the strictest air quality protection to Prevention of Significant Deterioration (PSD) Class I Areas. The Bandelier National Monument is within the RPPA, the San Pedro Parks are adjacent to the RPPA, and several other Class I areas are nearby. Efforts must be taken to ensure minimal impact to air quality in these areas by BLM activities.

Areas not designated as Class I are considered Class II for air quality planning. Although some degradation in air quality is allowable in Class II areas, some areas are more sensitive than others and require a greater level of protection. There are three sensitive Class II Areas within the Planning Area (Cebolla, Ojito and West Malpais Wilderness Areas).

3.1.3 Climate

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. Climate within the planning area exhibits considerable variation largely influenced by elevation and topography. Arid to semiarid lower elevations transition into more moist and cool areas at higher elevations. In general, the area experiences warm summer temperatures (daytime highs around 80-90°F) and moderately cold winters (nighttime lows between 10-25°F). Most annual precipitation occurs during the summer months associated with the Southwest Monsoon though rain and snow associated with Pacific weather systems can also occur during winter.

Temperature and precipitation vary considerably across the planning area. Weather stations in the planning area with continuous data availability were selected to demonstrate the climate of the planning area.

Table 3.1: Climate Data from Weather Stations in the Planning Area

County	Station	Elev. (ft.)	Avg. Max. Temp. (°F)	Avg. Min. Temp. (°F)	Avg. Tot. Precip. (in.)	Avg. Tot. Snowfall (in.)	Period of Record
Bernalillo	Albuquerque Int'l Airport	5,310	69.9	43.3	8.72	9.6	1914-2010

County	Station	Elev. (ft.)	Avg. Max. Temp. (°F)	Avg. Min. Temp. (°F)	Avg. Tot. Precip. (in.)	Avg. Tot. Snowfall (in.)	Period of Record
Cibola	Grants/Milan Mun. Airport	6,520	68.0	33.0	10.36	12.5	1953-2010
	Fence Lake	7,065	65.8	31.7	14.13	31.5	1933-2007
McKinley	Zuni	6,311	67.8	33.5	11.91	18.0	1949-2010
Torrance	Mountainair	6,520	67.4	35.5	14.43	27.5	1902-2010
	Estancia	6,120	68.0	33.1	12.90	18.7	1904-2010
Sandoval	Cuba	7,045	63.8	28.5	13.16	28.6	1938-2010
	Torreon Navajo Mission	6,700	66.0	34.7	10.24	19.9	1961-2010
Valencia	Los Lunas	4,840	72.9	37.8	9.05	4.3	1923-2010

Elev., elevation; avg. max. temp., average maximum temperature; avg. min. temp., average minimum temperature; avg. tot. precip., average total precipitation; avg. tot. snowfall, average total snowfall; ft., feet; °F, degrees Fahrenheit; in., inches. Note that the period of record varies by station. The average period of record presented is 22 years (Western Regional Climate Center 2011).

Portions of the planning area have shown overall temperature increases in the past 40 years while no change or a slight cooling trend has occurred in other parts of the planning area (Enquist and Gori, 2008). An extended period of drought from 2000 to 2005 affected much of the state of New Mexico, including portions of the planning area. However, much of the planning area experienced wetter conditions from 1991-2005 compared with a baseline of 1961-1990 (Enquist and Gori, 2008).

Temperature variability patterns in the tropical Pacific Ocean, referred to as the El Niño Southern Oscillation (ENSO), are important drivers of weather patterns in the planning area. During the El Niño phase, the equatorial Pacific sea surface temperatures increase to above average, while during the La Niña phase, the ocean temperature trends to below average. Analysis of El Niño patterns indicates that precipitation in the planning area tends to be above average during the El Niño phase, with an increasing trend from north to south. During the La Niña phase, there is generally a reduction of precipitation as compared to the average, especially toward the south (National Weather Service, 2011).

3.1.4 Climate Change

Climate is the long-term average of annual and seasonal weather conditions in a region. Greenhouse gases are compounds in the atmosphere that absorb infrared radiation and re-radiate a portion of that back to the earth's surface, thus trapping heat and warming the atmosphere. Changes in concentrations of greenhouse gases in the atmosphere have the potential to affect climate patterns, which in turn can affect resource management. The most important naturally occurring greenhouse gas compounds are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Although naturally present in the atmosphere, increasing concentrations of carbon dioxide, methane, and nitrous oxide are due to industrial processes, transportation technology, urban development, agricultural practices, and other human activity.

During the 20th century, global average temperature rose by about 1.5^{o} F. Depending on the level of greenhouse gas emissions, global averages are projected to rise by another 2-11.5^{o} F by the end of the 21st century. The U.S. average temperature has risen by a comparable amount and is very likely to rise more than the global average over this century, with some variation from place to place (USGCRP 2009).

In its 2007 Summary for Policy Makers, the Intergovernmental Panel on Climate Change stated that "Global atmospheric concentrations of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years." They further stated that "Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas (GHG) concentrations. It is likely that there has been significant anthropogenic warming over the past 50 years averaged over each continent." (IPCC, 2007a)

The U.S. Global Change Research Program Report on Global Climate Change Impacts in the United States indicates that average annual temperatures in New Mexico have increased by 1-2°F over a baseline period of 1961 to 1979. Using a 1961-1990 baseline and estimating temperatures using the Prism model, Enquist and Gori (2008) found that over 95% of the geographical area of the state had experienced temperature increases in recent years. Precipitation was less well defined with 54% of the state showing wetter conditions, 41% drier conditions, and 5% showing no change.

Global Change Models (GCMs) project that New Mexicans will experience average annual temperatures 2-3 ^{o}F warmer than the average for the 1961-1979 baseline period by the middle of the 21st Century under a lower emissions scenario. Four to five degrees (F) of total warming in average annual temperatures is predicted by the end of the century under the same scenario. This scenario assumes no effort to reduce emissions but a lower rate of growth than other scenarios (USGCRP 2009). Higher emissions scenarios result in 3-4 degrees of warming in New Mexico by 2050 and 8-10 degrees by the end of the century.

GCMs remain unreliable at the regional scale and are not as robust at predicting precipitation changes as temperature changes. In the southwest, these models consistently predict drier conditions but are not yet able to resolve the southwest monsoon or El Niño, both of which have a strong influence on precipitation in New Mexico (IPCC, 2007b). While many resources are affected by changes in climate, whether natural or anthropogenic, it is not always possible to

make a direct connection between resource changes and climate. The spectrum of resources impacts including climate change, are addressed when describing the affected environment for a specific resource.

3.2 Cave and Karst Resources

Karst is a type of topography that is formed in soluble rock such as limestone and gypsum. It is characterized by sinkholes caves, and underground drainages. A ***cave*** is defined as any naturally occurring void, cavity, recess, or system of interconnected passages occurring beneath the surface of the Earth or within a cliff or ledge large enough to permit an individual to enter, whether or not the entrance is naturally formed or human-made Federal Cave Resources Protection Act [FCRPA], Sec. 3(1)). In the Planning Area, travertine, gypsum, and lava tube caves are the most common types of cave formations.

Under the FCRPA, a cave is considered significant if it meets one or more of the following criteria:

- **Biota** — The cave serves as seasonal or year-long habitat for organisms or animals or contains species or subspecies of flora or fauna native to caves, or that are sensitive to disruption, or that are found on state or federal sensitive, threatened, or endangered species lists.
- **Cultural** — The cave contains historic or archaeological resources included in or eligible for inclusion in the NRHP because of its research importance for history or prehistory, its historical association, or other historical or traditional significance.
- **Geological/Mineralogical/Paleontological** — The cave possesses one or more of the following features: geologic or mineralogical features that are fragile or exhibit interesting formation.
- **Hydrologic** — The cave is part of a hydrologic system or contains water important to humans, biota, or development of cave resources.
- **Recreational** — The cave provides or could provide recreational opportunities or scenic values.
- **Educational or Scientific** — The cave offers opportunities for educational or scientific use or is in a virtually pristine state, lacking evidence of contemporary human disturbance or impact, or the length, height, volume, total depth, or similar measurements are notable.

The 1986 Rio Puerco RMP addressed management actions for cave resources in the Pronoun Cave Area of Critical Environmental Concern (ACEC), which currently has no management plan. No other caves within the Planning Area have been identified and inventoried.

Unpublished data provided by the USGS in addition to published geologic maps show that karst exposures are widespread throughout the Planning Area. Additionally, according to Daniel Doctor (pers. comm. November 2009) of the USGS, "The extent of buried evaporite and carbonate karst is grossly under-represented in the data. Buried karst (i.e., cavities in soluble units that are not exposed at the surface but are covered by some thickness of overlying strata) can present significant hazards to development, particularly related to drilling of water or oil/gas wells." A similar observation has been made by Dr. George Veni of the National Cave and Karst Institute (pers. comm. November 2009).

A map of cave and karst potential will be maintained and will serve as a potential indicator for encountering caves or karst. The cave and karst potential zones were identified using geologic maps and other existing information on caves and karst. There are approximately 1.9 million acres of karst within the entire Planning Area, regardless of surface ownership. This estimated acreage was taken from map data in USGS unpublished report and includes areas of volcanic pseudokarst, carbonate karst, and evaporite karst.

Qualitative trend data for cave resources in the Planning Area are not available. Recreational cavers constitute the majority of cave users. Animal and human visitations into caves, even by competent, careful cavers, impact these resources to some degree. Caves are a target of looters in the Planning Area, and a few are exposed to livestock seeking shelter from the elements.

Given the lack of condition or trend data collected for caves in the Planning Area, predicting changes given current management is not possible. The potential for additional cave discoveries in the Planning Area is high considering the abundance of karst topography. Based on consultation with members of the Southwest Region, National Speleological Society (NSS; Table 3.1), BLM cave specialists believe that a number of undiscovered caves occur within the Planning Area. BLM staff will determine whether or not caves on RPFO public lands meet the criteria for significance as set forth at 43 CFR 37.11(c). If so, the RPFO will describe management objectives and prescriptions. Data to make an accurate estimate of the total number of caves in the Planning Area are not available.

Key features for cave and karst resources are areas underlain by soluble rock types. The potential for cave and karst features are listed by county in Table 3.2, which is based on geologic maps. All cave and karst substrates (volcanic pseudokarst, evaporate and carbonate karst) are represented in the potential table.

Table 3.2: Cave and Karst Potential By County

Cave-Karst Potential	Cibola County	Bernalillo County	Torrance County	Sandoval County	Eastern Sandoval County
High: Probability of Cave/Karst is certain	X	X	X	X	
Medium: Probability of Cave/Karst is likely.		X	X	X	
Low: Probability of Cave/Karst is possible.	X	X		X	
None: Probability of Cave/Karst is unlikely.	X			X	X

3.3 Cultural Resources

Cultural resources as defined by the BLM consist of "a definite location of human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence" (USDI BLM 2004) and include archaeological, historic, or architectural sites, and traditional cultural properties. Archaeological, historic, and architectural sites are spatially finite areas containing physical remains of past human activity. They are important for the information they can provide regarding past lifeways and as a tangible link to the past. Traditional cultural properties (TCP) are definite locations deriving significance from traditional values associated with them by a cultural group such as an Indian tribe or local community (USDI BLM 2004, see also USDI, NPS 1998).

Because cultural resources have intrinsic values (e.g., scientific, traditional, or public interpretation values) that, under FLPMA, must be managed, planning and implementing management practices related to cultural resources involves a multiple resources approach. NEPA, NHPA (as amended), and other Federal legislation require that the BLM assess the impacts of a proposed action to cultural resources.

The RPPA has a wide variety of environmental settings and resources and has long been used by humans. The planning area encompasses a large and diverse assemblage of prehistoric archaeological sites, historic archaeological sites and localities, and locations of traditional religious and cultural importance to Indian tribes. For BLM management purposes, these remains take the form of sites, artifacts, buildings, structures, ruins, features, and natural landscapes with particular cultural importance. With a few exceptions, these remains must be at least fifty years old. In the case of traditional cultural places, the period of traditional use of that place must also be at least fifty years old.

3.3.1 Cultural History of the Planning Area

Occupation of what is today the Rio Puerco Planning Area is divided into several time periods based largely on variation in artifact assemblages and feature types. The dates provided here serve only as general time-frame markers; any new dating technology advances or new discoveries will likely alter these date ranges somewhat. Nevertheless, five broad time periods will serve as temporal foundations for explaining human behavior in this area. An outline of these five periods, typical resources, and their associated behavioral trends is summarized below.

The Planning Area encompasses a long history of occupation, beginning with Paleoindians who camped on Albuquerque's West Mesa at least as early as Folsom times (ca. 9,000 years before present). Sites dating to Paleoindian, Archaic, Ancestral Puebloan, and Historic time periods are represented within the Planning Area. Many other sites lack temporally diagnostic artifacts, precluding assignment to any of the above periods. A brief summary of the culture history of the Rio Puerco Planning Area follows.

The Paleoindian Period (12,000-7,500 years before present) is represented in the Rio Puerco Planning Area as isolated finds as well as more substantial sites. Paleoindians were highly mobile hunters and gatherers living during the Late Pleistocene age. Paleoindians are best known from sites where now extinct Pleistocene fauna (like mammoth) were killed and

butchered. Most sites consist of limited activity artifact scatters, but some more substantial scatters are also found.

The Archaic Period (5500 BC–AD 200) is well represented within the Rio Puerco Field Office. The Archaic way of life was based on hunting of small and medium-sized animals and gathering of wild plants. The Late Archaic period includes what is known as the Basketmaker II period, which marks the transition to the subsequent Puebloan, or Anasazi Period. Archaic site types include special activity sites such as limited activity artifact scatters, hunting blinds and stone quarries, as well as habitation sites with shallow pit structures.

The Rio Puerco Field Office, as well as a much larger region including the four corners, has abundant Ancestral Puebloan (AD 600–1600) sites, which include the archaeological cultures popularly known as the Anasazi and the Mogollon. The Ancestral Puebloan Culture is highlighted by the development of agriculture, architecture, ceramics, and complex social organization. The Planning Area encompasses the southeastern portion of the archaeological culture known as the Chaco Anasazi, represented by several Chacoan outliers that are protected under the Chacoan Outliers Protection Act (COPA). One of these sites is a UNESCO World Heritage Site. In addition, two of the large Ancestral Puebloan communities protected under the Galisteo Basin Archaeological Sites Protection Act (GBASPA) are located within the Planning Area. Puebloan presence extends into the present in the form of pueblos that have been continuously occupied for centuries.

Archaeological evidence of Navajo and Apache occupation of the area appears as early as the late 1400s to 1500s and continues into the present. Site types include culturally modified trees, artifact scatters, and habitation sites. Habitation sites can include shallow pit structures, forked stick hogans, cribbed log hogans, stone hogans, and pueblitos in defensive settings. In the RPPA, culturally modified trees and forked stick hogans are the most common site types.

European settlement of the area that is now the Rio Puerco Planning Area began shortly after the Coronado expedition entered the middle Rio Grande Valley in 1540. The earliest route of Spanish settlement in New Mexico, El Camino Real de Tierra Adentro (designated as a National Historic Trail [NHT]), passes through the Planning Area, and Hispanic communities, some of which were established before the Pueblo Revolt of 1680, are found here. One, San Jose de las Huertas, is also protected under the Galisteo Basin Archaeological Site Protection Act. Large-scale cattle ranching in New Mexico began in the 1880s, a decade characterized by the arrival of the railroads and thriving grasslands due to wetter than normal conditions. A combination of a return to more arid conditions, falling cattle prices after World War II, institution of more sustainable grazing practices, and development of a feedlot cattle business led to smaller herds on the ranges and abandonment of many small ranching homesteads established under the Homestead Act and the Stock Raising Homestead Act.

For a complete culture history of the Planning Area, see Cordell (l997). Mangum (1990) summarizes the history of El Malpais, and Baker and Durand (2003) presents much information regarding the middle Rio Puerco Valley. Much of the information in these two sources pertains to the rest of the Planning Area.

3.3.2 Current Condition

This section provides information on the cultural resources of the Planning Area in terms of their management, current state of knowledge of their nature, historic context, condition, and spatial distribution.

3.3.3 Indicators

Given the goals and objectives of the cultural resources program, several indicators are identified. These are designed to facilitate evaluation of the degree to which the goals and objectives are being met through management action guided by the land use planning process. These indicators and those that will be used for impact analyses in Chapter 4 are based on the same data, but they are not equivalent. Factors relevant for describing the condition of cultural resources of the Planning Area include the:

- Extent of inventory survey and number, type, and significance of identified cultural resources
- Identification of, and responses to threats to the integrity of cultural resources

Archaeological sites are abundant in the region and little funding for proactive inventory, as required by Section 110 of the NHPA, has been available. Inventory of cultural resources is typically done during the NHPA Section 106 compliance process for projects sponsored both internally by the BLM and by external proponents. Therefore, the distribution of known sites in the Planning Area is highly correlated with the location of past federal undertakings which required inventory to complete Section 106 compliance. The distribution of known sites does not necessarily reflect the actual distribution of all archaeological sites created through past human occupation. There may be areas that were extensively used prehistorically that have abundant archaeological sites, but because those areas are not currently the location of federal undertakings, no inventory has been undertaken, and no archaeological sites identified. This underlines the importance of proactive inventory.

Threats and disturbances are identified programmatically through the NEPA and Section 106 process and through direct observations made by field personnel on a site-by-site basis often associated with compliance activities. The RPFO also partners with the New Mexico Historic Preservation Department's SiteWatch program to visit thirty high-value cultural resources on a quarterly basis and document resource damage. Responses to threats often involve some level of NEPA and Section 106 of the NHPA compliance that identifies cultural resources in the area of potential effect, potential impacts, and mitigation measures. The specific responses or mitigations depend on the nature of the impacts and cultural resources involved and are determined on a case-by-case basis. These often include documentation, signage, fencing, or increased patrols.

Information about the status of the inventory and evaluation of cultural resources within the Planning Area are available from two sources: 1) annual tracking data from the RPFO Cultural Resource Program; and 2) the New Mexico Cultural Resource Information System (NMCRIS). Both sources of information have their limitations, but together, they provide a basis for characterizing the current state of knowledge of cultural resources of the Planning Area.

The RPFO began electronic tracking of data from annual reports in fiscal year (FY) 99, providing a general indication of the volume of inventory conducted by the BLM and external project proponents for projects that include BLM land, as well as the number of sites recorded within a FY. The data for inventory and recorded sites on public lands in the Planning Area for FY99 through FY08 are shown in Table 3.3 and will provide the data discussed in the Trends section. Note that eligibility information is incomplete for FY02 through FY06.

Table 3.3: Class III and Site Status (All Jurisdictions)

Fiscal Year	Class III Acres	Newly Recorded Sites	Site Updates	Total Sites in survey	1 site per x acres	Eligible	Not Eligible	Undetermined	Sites with eligibility information	Percent of sites eligible or potentially eligible
FY99	2,583	30	0	30	86					
FY00	2,250	24	8	32	70					
FY01	12,538	240	9	249	50	23	2	3	28	
FY02	7,672	171	39	210	37	89	21	49	159	86.79
FY03	5,285	182	51	233	23	91	9	36	136	93.38
FY04	2,342	86	27	113	21	65	25	21	111	77.48
FY05	3,324	126	23	149	22	77	39	30	146	73.29
FY06	5,450	96	10	106	51	57	29	13	99	70.71
FY07	1,948	42	47	89	22	23	41	25	89	53.93
FY08	2,086	65	25	90	23	65	17	8	90	81.11
Total	**45,478**	**1062**	**239**	**1301**	**35**	**493**	**187**	**188**	**868**	**78.46**

The number of acres surveyed per year varies unpredictably based on the kinds of projects carried out in a given fiscal year. Some projects are large, while others involve only a few acres. The number of sites discovered generally increases with increased survey coverage, but some areas of the RPPA exhibit lower site density than others. For the most part, the RPPA has a high proportion of eligible sites. Some areas contain a larger numbers of sites not meeting the criteria for listing on the NRHP. If survey activities during a given fiscal year were concentrated in a low site density area, or an area with many ineligible sites, this will be reflected in lower numbers of sites overall and lower numbers of eligible sites regardless of the acres surveyed.

The NMCRIS database was used as another source of information about the extent of inventory and evaluation of cultural resources within the Planning Area that is broken down by planning unit. NMCRIS is a statewide database that was developed and is maintained by the State Historic Preservation Division (with support from BLM).

3.3.4 Trails, Roads and Railroads

Historic trails, roads, and railroads are another type of cultural resource that is difficult to include in tables such as those in the preceding section. Laboratory of Anthropology numbers can be assigned to segments that are identifiable on the ground, but this results in a single linear site being comprised of many Laboratory of Anthropology numbers. Within the Planning Area, a

number of historic trails, roads, and railroads have been identified through a Class I Inventory of these linear cultural resources within the RPPA, resulting in the identification of trail, road, and railroad corridors (Myers 2009). No field surveys have been carried out to identify the physical remains of the features on the ground. Seven trail or road corridors cross public lands within the Planning Area. The linear transportation corridors are listed in Table 3.4.

Table 3.4: Linear Transportation Corridors within the Planning Area

Type	Non-BLM	BLM
Trails and Roads	• El Camino Real de Tierra Adentro (a NHT) • Long Walk (Forced removal of the Navajo and Mescalero Apache to the Bosque Redondo) • Coronado Expedition Trail • Routes Between Zuni Pueblo and Albuquerque ▪ Amiel Weeks Whipple ▪ Edward Fitzgerald Beale ▪ Juan de Oñate ▪ Dominguez-Escalante ▪ Lorenzo Sitgreaves • Captain John N. Macomb, 1859, Return from Utah • The Road from Jemez to Navajo ▪ Simpson, Washington - 1849 ▪ Backus - 1858 ▪ Shepherd - 1859 • The Road from Jemez to Abiquiu • Roads from Anton Chico and Santa Fe to Fort Stanton • Carleton Expedition to Abó • The Road from Albuquerque to Pecos River • Stage Route from Tijeras to Cañon Blanco • Santa Fe, New Mexico to Prescott, Arizona Stage line • Route 66	• Long Walk (Forced removal of the Navajo and Mescalero Apache to the Bosque Redondo) • Santa Fe, New Mexico to Prescott, Arizona Stage line • Captain John N. Macomb, 1859, Return from Utah • The Road from Jemez to Navajo ▪ Simpson, Washington - 1849 ▪ Backus - 1858 ▪ Shepherd - 1859 • Coronado Expedition Trail • Routes Between Zuni Pueblo and Albuquerque ▪ Amiel Weeks Whipple ▪ Edward Fitzgerald Beale • Route 66
Railroads	• Santa Fe to Torrance • Moriarty to almost Hagan • Algodones to Hagan and Coyote • Bernalillo to San Ysidro to Porter • Bernalillo to San Ysidro and La Ventana • Domingo to Boom	• Moriarty to almost Hagan • Bernalillo to San Ysidro to Porter • Bernalillo to San Ysidro and La Ventana

Type	Non-BLM	BLM
	• Zuni Mountain Rail Lines	

3.3.4.1 Special-Status Resources

Another aspect of evaluation is designating special-status resources. These include national historic sites, national cultural historical parks, national monuments, national historic landmarks, cultural ACECs (Table 3.5), and cultural properties listed on the National or State Registers. Resources determined NRHP-eligible 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. National Historic Landmarks (NHL) are nationally significant sites that have received a higher degree of recognition than sites listed only on the NRHP. Table 3.5 lists special status resources in the Planning Area with the exception of NRHP-listed and state-listed historic properties, a list of which is maintained by the New Mexico Department of Cultural Affairs, Historic Preservation Division (http://www.nmhistoricpreservation.org/PROGRAMS/registers.html). There are 257 state-listed properties in the Planning Area.

Table 3.5: Special-Status Cultural Resources in the Planning Area

Type	In Planning Area, not managed by BLM-RPFO	Managed by BLM-RPFO
National Monuments	• Bandelier (south of Frijoles Canyon) • El Malpais • El Morro • Petroglyph • Salinas Pueblo Missions	Kasha-Katuwe Tent Rocks (contains cultural resources)
National Historic Trails	• El Camino Real de Tierra Adentro • Long Walk (proposed)	Long Walk (proposed)
National Historic Landmarks	• Abo • Acoma Pueblo • Ernie Pyle House • Hawikuh • Quarai • Sandia Cave • San Estevan del Rey Mission Church • Zuni-Cibola Complex • Manuelito Complex	• Big Bead Mesa •
Designated Chacoan Outliers (P.L. 104-11)	• San Mateo • Manuelito-Atsee Nitsaa • Manuelito-Kin Hochoi	• The Dittert Site (within El Malpais NCA) • Guadalupe Ruin • Casamero * • Andrews Ranch* • Kin Nizhoni*
Galisteo Basin	• Pa'ako	• San Jose de las

Type	In Planning Area, not managed by BLM-RPFO	Managed by BLM-RPFO
Sites (P.L. 108-208)	• San Jose de Las Huertas • Espinoso Ridge Pueblo	Huertas
Cultural ACECs	• No equivalent designations	• Canon Tapia • Jones Canyon • Pronoun Cave Complex
New Mexico State Register of Cultural Properties	See list at http://www.nmhistoricpreservation.org/ documents/PropertiesByCounty.pdf	• San Antonio de Padua de Carnue • Mount Taylor Cultural Landscape • Ojo Pueblo • Route 66

* located within Farmington Planning Area but administered by RPFO under inter-area agreement NM-010-071

3.3.4.2 Congressionally Designated or Presidentially Proclaimed Cultural Resources

These cultural resources are nationally significant cultural resources such as national monuments, national historic sites, national historical parks, and NHTs. While Kasha-Katuwe Tent Rocks and El Malpais NCA have cultural resource values that are included in their designation, both areas are excluded from consideration in this planning effort; both areas have stand-alone land use plans.

El Camino Real de Tierra Adentro (the Royal Road of the Interior), one of 19 designated NHTs, crosses through the RPPA. The trail connected Mexico City with New Mexico's Spanish colonial capitals The identified corridor of El Camino Real de Tierra Adentro roughly parallels the Rio Grande. El Camino Real does not currently include public lands in the RPPA, but it would be desirable for the BLM to obtain portions of this NHT in the future from willing sellers. The proposed Long Walk NHT records the route taken by the U.S. military as they forced the Navajo people to relocate from their homeland in Arizona and western New Mexico to Fort Sumner in 1862. Some portions of this route are on public lands, but most are not.

In addition to these designations, two laws have recognized the national significance of certain sites within the Planning Area: 1) Chaco Outlier Protection Act of 1995 (which amended PL 96-550 of 1980, the law that originally designated Chacoan Outliers as special sites); and 2) Galisteo Basin Archaeological Site Protection Act of 2004. These laws recognize that thirty-nine Chacoan Outliers and twenty-four Galisteo Basin sites have special value to the nation through their research and interpretive potential and their value to traditional communities. While most of the Chacoan Outliers are managed by the FFO and most of the Galisteo sites are managed by the Taos Field Office, some are located within the Planning Area, as noted in Table 3.5. These legislatively designated sites have provisions for management in the legislation. Both acts allow for the addition of sites in the future.

3.3.4.3 Traditional Cultural Properties

As defined at the beginning of this section, traditional cultural properties (TCPs) are definite locations deriving significance from traditional values associated with them by a cultural group such as an Indian tribe or local community. The RPPA is known to contain TCPs affiliated with a number of Native American tribes, pueblos, and traditional Hispanic communities such as land grant communities. Some of these locations have been identified, and it is likely that other TCPs exist within the RPPA, but have not been identified to the BLM as TCPs by affiliated groups. The identification of TCPs is an ongoing process of consultation on a project-by-project basis. Within a given project area, it is possible that only TCPs that will be affected by that particular project will be identified. When subsequent projects involving different activities are proposed, it is possible that additional TCPs may be identified if the project's activities are determined by the affiliated group to have potential impacts. Additionally, groups may decide that revealing the location of TCPs may have greater impacts than allowing the project to proceed without identification. For this reason, affiliated groups' silence on the existence of TCPs within the RPPA should not be interpreted to mean that there are no additional TCPs present, and underscores the need for consultation on a case-by-case basis, and for consultation early in the planning process.

3.3.5 Key Features

The geographic distribution of cultural resource features described above is not known due to the limited percentage of lands within the Planning Area that have been inventoried for cultural resources. To address this lack of 100% inventory and to guide land use allocation or management decisions through analysis in Chapter 4, a cultural resources sensitivity model has been developed. The relative site density potential for areas within the Planning Area was estimated using known site locations. All areas of the Planning Area were then ranked as having high, medium, or low potential for containing cultural sites. Table 3.6 summarizes the acreage of the three site probability categories estimated within the Planning Area. A detailed description of the factors considered and methodology used to assess site probability is provided in Chapter 4. Although the model does not attempt to distinguish site type, temporal period, cultural affiliation, or NRHP eligibility, the information presented in this chapter provides the general characteristics that can be expected from the cultural resources modeled.

Table 3.6: Site Probabilities by Acres

	High	Medium	Low	No Data
BLM Surface Ownership	15,056	294,947	28,540	418,531
Acres All Jurisdictions	387,457	2,707,283	267,285	6,141,906

3.4 Fire Management

Land managers have recognized fire as a natural disturbance that plays a significant role in healthy ecosystem function, and that there is a need to reintroduce fire into the landscape. The frequency of fire is often used as an indicator of how well ecosystems are adapted to fire. This can be discussed in terms of fire regime, which is the combination of fire frequency, predictability, intensity, seasonality, and extent characteristic of fire in an ecosystem. Classification of fire regime may be based on the characteristics of the fire itself or on the effects

produced by the fire (Agee 1993). Fire regimes have been described by factors such as frequency, severity, intensity, and size of burn.

The ways in which fire regimes change over both time and space are vitally important to understanding the role of fire in ecosystems. For this reason, the current fire regime condition class (FRCC) of an ecosystem is often described in terms of how it differs from its historic FRCC. By delineating current FRCCs within the context of the historic fire regime, land managers may be better able to predict fire extent, severity, intensity, and effects.

The 2001 Federal Fire Policy references preliminary FRCC data as a way of inferring risk to ecosystem sustainability and risk of uncharacteristic wildland fire behavior and effects (Schmidt et al. 2002). These are qualitative measures that incorporate the concept of historic fire regimes as a baseline against which current conditions are compared. Table 3.7 describes the attributes associated with each FRCC.

Table 3.7: Current Fire Regime Condition Classes

Condition Class	Attributes	Example Management Options
Condition Class 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 wildland fire for resource benefit.
Condition Class 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. This will 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 wildland fire for resource benefit and hand or mechanical treatments, to be restored to the historical fire regime.
Condition Class 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. This will result in dramatic changes to one or more of the following: fire size, frequency, intensity, severity, or landscape patterns. • Vegetation attributes have been significantly	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.

Condition Class	Attributes	Example Management Options
	altered from their historical range.	

Source: USDI BLM 2004a

Historic fire regimes in New Mexico were developed through an interaction of vegetation communities, topography, climate, and ignition sources. Lightning has been a source of fire ignition over geologic time, and the use of fire by Native Americans during the past several centuries is probably not fully understood (Denevan 1992). The term "historic" generally refers to the period from about 1500 to late 1800, a time before extensive settlement by European-Americans in many parts of North America, before intense conversion of wildlands for agricultural and other purposes, and before fire suppression effectively altered fire frequency in many areas (Brown et al. 2000).

The development of Fire Management Units (FMUs) is an attempt by managers to allow fire to play its role as a natural disturbance within social constraints. 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 resources in case of multiple ignitions. FMUs are delineated with consideration of public safety concerns first and natural resource values second. These FMU categories are shown on Map 5.

Based on the historic fire regimes and on-the-ground conditions, the BLM had assigned lands within the Planning Area into the three FRCCs (USDI BLM 2004a). Table 3.8 summarizes current FRCC acres for the Planning Area. The geographical locations of the FRCC are included Map 6.

Table 3.8: Fire Regime Condition Class Acreages by Fire Management Unit

Fire Management Unit	Class 1 Acres	Class 2 Acres	Class 3 Acres	Not Inventoried	Total
B6. Sandia	1,460	7,512	2,971	981	12,924
B8. Candy Kitchen	572	5,869	6,378	9	12,828
C1. North Malpais	4,109	77,619	39,404	1,390	122,522
C3. Wilderness & WSAs	2,870	32,883	1,448	2,661	39,862
C5. Mesa Chivato	3,122	37,707	17,124	421	58,374
C7. Scattered Grass/Shrub	70,195	357,322	43,500	38,441	509,458
Total	82,328	518,912	110,825	43,902	755,967
Total Acres Needing Treatment		**518,912**	**110,825**		**629,737**

Source: USDI BLM 2004a

3.4.1 Wildland Fire Management Strategies

Within the defined FMUs, the BLM has developed specific management 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. 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. Other areas are high priority suppression areas because they pose a high public safety threat.

The number and size of wildland fires is heavily dependent on environmental factors that are variable over time. Fuel characteristics, climate, topography, and suppression activities all interplay to create the dynamics of wildland fire. Some trends may be apparent by analyzing the number and size of past fires.

3.4.1.1 Fuels Treatments

According to coarse-scale spatial estimates for New Mexico, the fire regimes and frequencies on about 7.8 million of the 13.4 million acres of BLM-administered public lands in the state have been either moderately or significantly altered (USDI BLM 2004b). The result is moderate to dramatic changes in fire size, intensity, severity, and/or landscape patterns. Based on estimates of the condition, these 7.8 million BLM-administered acres in New Mexico need treatments to restore the historical fire regime. The RPPA contains 629,737 acres that need to be treated.

Fuels treatment uses various tools (i.e., prescribed fire, mechanical, biological, chemical) to reduce hazardous fuel loads, or to achieve resource objectives. A goal of treating 23,500 acres by prescribed fire and non-fire treatments annually for the RPPA was developed in the Decision Record and RMP Amendment for Fire and Fuels Management on Public Land in New Mexico and Texas (USDI BLM 2004a). The acreage goal was based on a full funding and staffing scenario. Actual prescribed fire accomplishments vary greatly from year to year due to weather patterns; actual mechanical treatment accomplishments tend to be based on annual budget allocation.

Prescribed burning within the RPPA takes place year round. The majority of pile burning takes place during the winter and late spring, but also can take place during monsoon season. Grassland burns take place before green-up in late winter. Ponderosa pine and piñon-juniper burns take place during late spring and summer and have the tightest windows for opportunity, as they require the warmest and driest parameters to meet objectives. Table 3.8 shows approved fuels management treatments for the FMUs in the RPPA.

3.4.1.2 Fire Suppression

Residential developments in outlying areas that are surrounded by lands in the RPPA are termed wildland-urban interface (WUI) areas. These are high priority suppression areas due to public safety concerns. The following is a list of WUI areas in the Planning Area:

- Tent Rocks (In separate planning unit)
- Sandia
- Candy Kitchen

The communities of Candy Kitchen and Pueblo de Cochiti (B4.FMU) are listed in the *Federal Register* as a community at risk from wildfire. The National Fire Plan directs funding to projects designed to reduce the risks to these identified communities.

The RPPA contains seventeen rural volunteer fire departments that are eligible for rural fire assistance grant funding. From 2001 to 2006, thirty-two grant requests were filled for a total of $299,316. This funding goes to the departments to enhance their abilities to fight wildland fires on BLM or nearby lands and are typically used for wildland firefighting equipment and training.

Fire suppression in the Planning Area has been influenced primarily by direction provided in the Review and Update of the 1995 Federal Wildland Fire Management Policy (National Interagency Fire Center 2001). This policy emphasizes the role of fire as a natural process and contains guidance to allow fire to function in this role, among other things (refer to above policy for more information). Expanding WUI areas are creating more areas where wildfire poses a risk to the public. These areas may demand high suppression priority. Collaborative efforts in Sandoval and Cibola counties have created countywide fire risk and hazard mitigation plans and Community Wildfire Protection Plans (CWPPs).

WUI areas are expected to grow, or remain static over the next 20 years, which would result in fire suppression in more areas to respond to public safety concerns. Risk associated with fire danger will increase as population and recreational use increases and will continue to rise until communities complete community wildfire protection plans, or countywide fire risk and hazard mitigation plans. Completion of these plans will enhance agency partnerships and the potential of communities to receive rural fire assistance funding and grants.

The RPFO has completed CWPPs for the communities of Candy Kitchen and Wild Horse (USDI, BLM. 2006). Plans for protection of these communities and other communities at risk (Pueblo de Cochiti) and communities of interest (Village of Cuba, Zuni Mountain) are also addressed in county-wide CWPPs completed for Sandoval, Cibola, and Catron counties. Any future CWPPs would be tiered to the respective county plan.

3.4.1.3 Fire Regimes

From 1980 through 2008, the RPPA averaged seven fires per year, burning an average of 1,119 acres annually. Generally, lightning or naturally-caused fires accounted for approximately eighty percent of the fires, while a variety of human-caused fires account for the other twenty percent. The majority of the lightning-caused fires occurred from May to September, while human-caused fires have occurred at all times of the year (USDI BLM 2004a).

While the majority of fires are relatively insignificant in terms of size and fire intensity, periodic large fire events typically burn at high-intensity levels. These fires can reach several thousand acres in size in a short period of time. The majority of large fires in the RPPA occur in short-grass savanna, short-grass shrub vegetation, and ponderosa pine. Other large fires occur in the piñon-juniper shrublands.

Table 3.9: Prescribed Fire on Public Land of the Planning Area, 2001–2008

Year	Prescribed Fire Treatments	
	Planned Acres	Implemented Acres
2001	1,200	1,592
2002	1,000	1,137

Year	Prescribed Fire Treatments	
	Planned Acres	Implemented Acres
2003	5,325	4,251
2004	3,849	3,815
2005	3,824	1,398
2006	2,225	1,757
2007	2,565	1,510
2008	3,200	1,246
Total	**23,188**	**16,706**

All burns were on FRCC 2 lands with about seventy percent moving to FRCC 1 after the burns. The fire management staff, in collaboration with the resource specialist staff, (e.g., wildlife biologists, range conservationists) initiates most of the prescribed fire projects.

3.4.2 Current Conditions

Natural and human-caused fires will continue throughout the Planning Area. The majority of natural fires will be ignited by lightning every year from May to September. Natural fires are expected to continue to account for approximately eighty percent of the annual number of ignitions. The size of these fires will depend on weather, topography, fuel characteristics, and suppression response times.

Human-caused fires will continue to occur year round and likely will increase in ignitions per year over the next twenty years. The primary drivers for increased human-caused ignitions in the Planning Area are activities associated with recreation, land tenure, and WUI areas. Places that draw recreation and development have an increased potential for ignition from human activities.

The likelihood that any fire will improve the FRCC of an ecosystem will depend on two things – first, the condition of the system before the burn, and second, the management of the community after the burn. For example, a community that is in FRCC 3 due to high densities of invasive grasses will not likely improve as a result of fire alone. Disturbance from fire creates niches for colonizing plants and releases a pulse of nutrients to the soil. These conditions create ideal conditions for opportunistic and invasive plant colonization. If the fire does not burn hot enough to destroy the existing seedbank of invasive grass, or if there is a seed source adjacent to the burned area, the FRCC may not be improved and could potentially deteriorate.

In addition, the management of an area after a burn will continue to play a key role in the resulting FRCC. Emergency stabilization and rehabilitation practices may improve FRCCs by altering the post-burn plant community. FRCC is improved when the resulting plant community better resembles those plant community characteristics present under the historic fire regime. These characteristics involve surface fuel continuity, fuel structure, fuel moisture, and photosynthetic processes.

3.5 Forestry and Woodland Resources

The forestry program within the RPPA consists of managing 3,309 acres of ponderosa pine forest and 188,975 acres of piñon-juniper woodlands. Forests and woodlands are managed for

providing ecosystem services such as wildlife habitat, forage, watershed requirements, carbon sequestration, recreational values, as well as renewable wood products (i.e. special forest products). Within the RPPA, woodlands on BLM-administered lands are still a vital source of fuelwood for heating and cooking.

Forestry and woodland products within the RPPA are managed primarily in conjunction with the District Fire Program. Under this program, woodlands are managed to provide fuelwood for local communities through hazardous fuels reduction and forest health improvement projects. No sale of commercial saw timber is occurring within the RPPA. However, permits are allowable up to a certain volume for commercial species to be purchased under authorities found in 43 CFR 5400 and following ecological principles to achieve land management objectives. Permits are also sold for non-commercial use under contract and stewardship authority for special forest products such as fuelwood, Christmas trees, transplants, and fenceposts.

The following factors are used in the assessment of this resource:

- Number of acres moved into FRCC
- Presence of management actions to restore ecosystem health to forest (acres thinned, regenerated, and/or prescribed burned).
- Contribution to the economic base of local communities by providing a sustained yield of special forest products at a level consistent with local market demands, and desired ecological conditions.
- Stand Density Index (SDI) is an index of competitive interaction. Expressed as a maximum, it indicates the maximum density that a given species can attain at a given reference diameter.

3.5.1 Current Conditions

Forest health in the RPPA is variable across the landscape; however, the majority of forest and woodlands are outside their historical range of conditions (NMSF 2010). Approximately 87% of forest types are in FRCC 2 or 3; in other words, close to 90% of the forestland has had its fire regime altered from historic fire intervals. A result of reduced fire frequency has been an increase in the amount of smaller diameter trees (<16”) found throughout the RPPA.

The current conditions of forest and woodlands are described in part by a forest inventory conducted in 1999–2000 by the USFS Forest Inventory Analysis (FIA) Group (USDA 2000). . Stand data for these plots was collected. In thirty-nine piñon-juniper woodland stands and five Ponderosa pine stands within the RPPA. Table 3.10 gives the current condition of the forest stands within the Decision Area, while Figure 3.1shows the distribution of age class densities (trees per acre (TPA) versus diameter breast height (DBH)) for the inventory of forest and woodlands described in the above table. Table 3.11 shows forest and vegetation type by FRCC in acres.

In addition to FRCCs, SDI gives insight into forest conditions. At 25 percent of maximum SDI, trees begin competing with each other (and begin to out compete understory species; Long 1985) At 35 percent of maximum SDI, trees fully occupy the site. At higher densities competition between trees either results in reduced growth and vigor of individual trees or may result in

competitive stress and tree mortality (perhaps due in part to secondary agents such as insects that are attracted to stressed trees). The RPFO Forest types are currently at 32 percent of maximum.

Optimal forest health and productivity as expressed by the SDI method can currently be achieved in piñon–juniper woodlands by managing forest density through the management of trees in all diameter classes (DBH). The young- to middle-diameter classes will provide the majority of woodland products in the form of fuelwood or other biomass utilization.

Table 3.10: Forest Inventory Analysis for the Planning Area by County

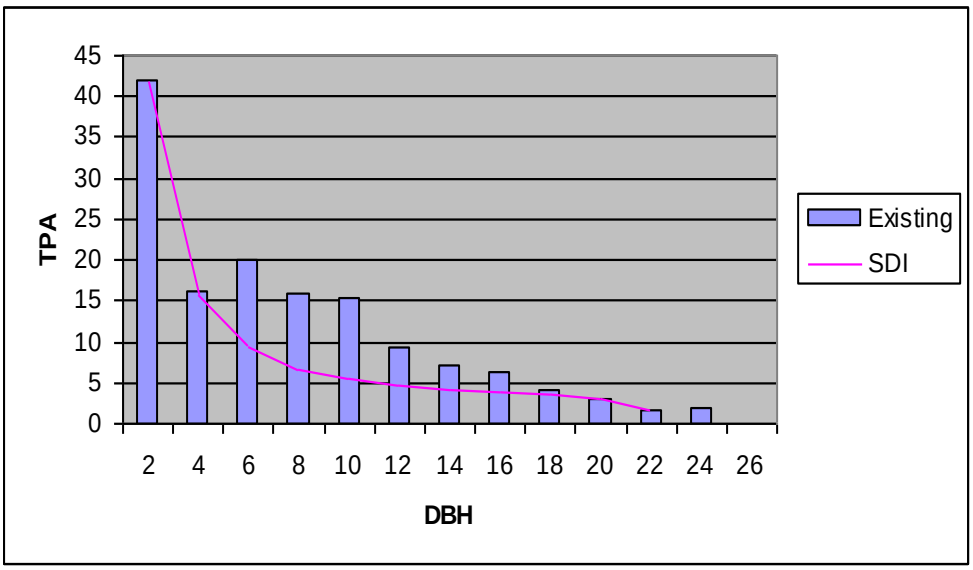
County	Species	# plots	Average Age	Average Elevation (ft)	Basal Area/ac (Sq.ft)	Average Trees/ac	Volume/ac Cu. ft.	Volume/ac Board feet/ac
Cibola	Piñon-Juniper Woodland (PJ)	22	85	7,400	80	149	696	-
McKinley	PJ	7	79	7,330	63	224	412	-
Sandoval	PJ	10	101	6,760				-
Cibola	Ponderosa Pine (PIPO)	4	116	7,650	70	195	910	3,101
McKinley	PIPO	1	58	8,200	89	930	697	836

Table 3.11: Forest and Vegetation Type by Fire Regime Condition Class (Acres)

Forest & Vegetation Type	Total	FRCC 1	FRCC 2	FRCC 3
Ponderosa Pine	3,909	17	244	3,625
Piñon/Juniper	188,975	14,863	110,230	62,746
Riparian/Wetland	3,965	78	478	3,377
Shrub, Steppe, Scrub	341,037	58,221	260,640	20,244
Grasslands	157,642	7,904	130,345	18,456
Other	61,095	-	-	-
Total	**757,074**	**81,083**	**501,937**	**108,448**

Without restoration of natural disturbance process such as fire, the trend of increasing stand densities will most likely continue. For example, encroachment of small diameter junipers into grasslands would continue until management actions designed to restore woodlands are implemented. Similarly, historical spatial distribution would continue to become modified as trees per acre increased. Research has shown that lack of disturbance in many of the piñon-juniper woodlands is reducing overall forest ecosystem health and increasing susceptibility to insects, disease, and wildfire. Management actions such as mechanical treatments or prescribed fire may be used to improve woodland health. Forest health may also be achieved through fuelwood gathering activities and biomass utilization when these activities are properly designed and monitored accordingly (Miller 2001).

Figure 3.1: Distribution of Age Class Densities for the Inventory of Forest and Woodlands



Fuelwood demand by local communities also shows an upward trend (based on number of permits sold). Portions of the local population rely on fuelwood (primarily piñon pine and juniper) as a source of heat and for cooking. As the population increases the demand for quality fuelwood will also increase. The RPFO has also seen an increase in theft of fuelwood primarily in the area west of Cuba, NM.

Other forecasts relevant to forestry and woodland products are found in the Wildland Fire Ecology and Management section, where the trends in fire regime condition class are discussed in relation to current woodland condition, forecasts are described, and treatment objectives are identified.

3.6 Geologic Resources

Factors that describe the condition of geologic resources may include the demand for and establishment of reserves or parks in areas having unique geologic features of interest or scenic value, and the public desire to have existing scenic views unaffected by surface mining activities or development of oil and gas fields. A prime example is the 2001 creation of the Kasha–Katuwe Tent Rocks National Monument administered by the RPFO. This Monument was designated in order to protect geologic and other resource interests and provide opportunities to study, observe, and experience special geologic processes within the Monument. The impact on geologic resources resulting from uses of mineral resources, such as surface mines or quarries, affects the quality of the geology resource.

The geologic resources of the RPPA are best understood within the context of the regional physiography, broad scale regional subdivisions based on terrain texture, rock type, and geologic structure and history (Map 3). The physiography, geologic structure, tectonic history, and rock units of the Planning Area are discussed below.

3.6.1 Physiographic Provinces

The Colorado Plateau, Rio Grande Rift, and Southern Rocky Mountain physiographic provinces are represented within the Rio Puerco Planning area (Map 3). The Colorado Plateau is a crustal block that has been uplifted, and has maintained its elevation despites crustal thinning in the surrounding basin and range province. The Rio Grande Rift, a subset of the Basin and Range province, is an area characterized by crustal extension, or the divergence of tectonic plates. The mountain ranges within the Southern Rocky Mountain province resulted from the collision of tectonic plates in a series of mountain building events such as the Laramide Orogeny.

Table 3.12: Physiographic Provinces and Corresponding Counties and Planning Units

Physiographic Province	Counties
Colorado Plateau	Cibola, West half of Sandoval, Southwest portion of McKinley
Rio Grande Rift	Torrance, Valencia, Bernalillo, Southeast portion of Sandoval
Southern Rocky Mountains	Northeast portion of Sandoval

3.6.2 Rock Units

Major rock units in the planning area consist of Quaternary alluvium, Cretaceous mudstone and sandstone, Tertiary volcanic rocks, Jurassic sandstone, gypsum, limestone, and sedimentary units from the Triassic and Jurassic.

Table 3.13: Geologic Epoch and Major Rock Units Found within the Planning Area

Epoch (mya)	Rock Units
Quaternary (present -2.5)	• Santa Fe Group
Tertiary (2-65)	• Volcanics of various ages, including lava flow, volcanic plugs, and volcanic ash
Cretaceous (65-145)	• Fruitland-Kirtland Formation • Menefee Formation • Pointlookout Sandstone • Mancos Shale
Jurassic (145-200)	• Morrison Formation • Todilto Formation
Triassic	• Chinle Group
Permian	• Yeso Formation

This is not a complete list of units found within the planning area, merely the most significant based the combination of surface exposure, mineralized zones, and depositional environments.

There is a trend of increased public interest in scenic, unique, fragile, or scientifically important geologic resources within the Planning Area. In the past, areas of geologic interest have been proposed for and given special designation by the BLM. For example, on January 17, 2001, Presidential Proclamation 7394 designated Kasha-Katuwe Tent Rocks National Monument to provide opportunities for visitors to observe, study, and experience geological processes and other objects of interest, and to protect these resources. Current special designations known as ACECs have been identified specifically for geologic values. Current areas of interest include

Cabezon Peak, Pronoun Caves, and the San Juan Badlands. Geologic resources within the planning area host a variety of uses from recreation to scientific research. These types of proposals indicate a desire by the public and BLM to protect areas which contain special geologic values.

3.6.2.1 Cibola County and the SE Portion of McKinley County

The foremost geologic feature is the structural Zuni uplift, which includes the Zuni Mountains, a slightly elongated dome, and the Nutria monocline, which is part of the dome's western flank. The northwest end of the uplift and the Nutria monocline can be seen just east of Gallup, New Mexico. This scenic geologic feature would provide a worthy addition to any proposed or existing special designations in the area.

3.6.2.2 Bernalillo County and Northern Valencia County

The Rio Grande rift is the defining feature in this area. There are not many known areas where narrow rifts are tectonically pulled apart, symmetrically stretching the continental crust and producing volcanic activity. The subsequent Rio Grande valley is atypical as it was not formed by stream erosion but by regional extension and mantle upwelling. Therefore, the Rio Grande follows an established and partly filled rift valley. This key feature continues to be studied today and will provide future opportunities for exploration and scientific investigation.

3.6.2.3 Torrance County

The key feature in this area is the Estancia Valley basin, a feature associated with the Rio Grande rift. See the reference section for detailed information sources.

3.6.2.4 Sandoval and Bernalillo Counties

The key features are the Rio Grande Rift (Depression) and associated San Juan and Albuquerque Basins, Jemez Volcanic Field, Nacimiento Uplift, and their related major mount ranges. Minerals are currently being mined in these key features and will need to be mined in the future if New Mexico hopes to continue to provide mining-related commodities to the public.

3.7 Health and Safety

Public safety issues can arise from a variety of circumstances ranging from natural to manmade hazards. In remote areas, natural environmental circumstances pose safety issues, including extreme temperature variations, storms and inclement weather, flooding, debris flows, and the presence of aggressive or venomous animals. Manmade hazards include the presence of active or abandoned mines, unexploded ordnance (UXO) located in and near military training areas, recreational activities such as target shooting, and the presence of hazardous materials, hazardous wastes, and solid wastes. Public safety issues associated with specific geographic areas or BLM programs are described below.

3.7.1 Motorized Vehicle Use

The greatest risk on and to access to public lands is related to the use of motorized vehicles in remote locations. Whether for recreational or commercial purposes, access to public lands is generally through the existing network of federal, state, or county transportation routes.

Safety issues associated with the use of these roadways may have implications for the management of or access to public lands. Such access must consider a variety of user needs. Public land provides public access via traditional established public routes to rural communities and individual homes. Public land access routes lead to lease and ROW destinations, as well as general public access to public land for recreation to specific area destination for focused recreation and lawful harvest of natural resources.

3.7.1.1 Off-highway Vehicles

OHV use, which by definition includes any motor vehicle that may travel over land, occurs throughout the Planning Area for purposes of transportation as well as for recreation. OHVs are used to transport recreational visitors to recreation sites and as a recreational activity in itself with any of several classes of OHV. Specialized activities for motorcycles and ATVs include organized and informal races and hill climbing. This recreational activity has its own safety implications due to the nature of the vehicles, rough terrain, and an active style of operation.

Nationwide, data on OHV injuries and deaths are estimated by the Consumer Product Safety Commission. These statistics show that of the 4,541 OHV-related deaths that have been reported in the U.S. since 1982, 40 have occurred in New Mexico. This includes accidents which occurred in relation to agricultural and municipal operation. Nationwide, the cumulative number of reported deaths associated with OHVs increased by 459 since the 2000 to 2001 report. This is partly attributable to more complete data on public road fatalities that have become available since 1999. The deaths reported represent a minimum count of OHV-related deaths. Using a statistical approximation method, an estimated 547 deaths occurred from OHVs in 2000; a 15.4 percent increase from the 1999 estimate of 474 deaths (Ingle 2002). Estimates of OHV injuries requiring an emergency room visit have more than doubled in recent years – from 54,700 in 1997 to 111,700 in 2001. There was a statistically significant increase in the estimated number of injuries for 2001, up about 17 percent from 2000. About a third of the victims injured in 2001 were younger than 16 years old (Ingle 2002).

The popularity and availability of ATVs has dramatically increased in the past ten years. During the tenure of the present District Law Enforcement Ranger (1995 to the present), there have been no deaths or serious injuries related to recreational use of OHVs on public lands within the Planning Area. Safety training such as that offered by the ATV Safety Institute, manufacturer recommendations for age/size appropriate vehicles, and strict adherences to applicable state laws have shown to be highly influential in reducing accident statistics. Another safety factor to consider is creating specially designated areas where vehicle-specific recreation can take place with minimum conflict with other activities.

3.7.2 Recreational Shooting and Hunting

All firearm use, including recreational target shooting and hunting, carries a certain degree of risk to both participants and nonparticipants. Recreational shooting occurs at organized shooting ranges in the Shooting Range State Park, the only remaining public shooting range in the greater Albuquerque area. This range was created under the Recreation and Public Purposes Act (R&PP). Open shooting also occurs in dispersed, informal locations throughout the Planning Area. Dispersed recreational shooting is not prohibited from BLM-administered lands. Although recreational shooting has not been officially sanctioned, so long as the activity is conducted in accordance with state and federal law, it is recognized as a traditional use of public land. Shooting restrictions do not prohibit legitimate hunting activities except within one-half mile of developed recreational sites or areas.

Concerns were raised during public scoping regarding the safety of some recreational shooting and hunting activities. These concerns pertained principally to hunters and recreational shooters leaving trash behind, including homemade targets and empty cartridges that may pose a safety or contamination hazard (USDI BLM 2005e). A major problem occurs when the community discovers a site littered by shooting debris and decides to bring household trash and appliances onto the site, creating a dump. Existing criminal laws are adequate to address these concerns; however, law enforcement resources are spread thin. Law enforcement is active in the recommendation of suitable areas for specific recreational shooting activities. As part of an ongoing public outreach, the District Ranger will offer safe firearms handling information in impromptu and opportunistic encounters in the field. Localization of these areas makes patrol function more efficiently. Recent land exchanges that removed land from public administration and the closure of R&PP ranges in the Grants and Rio Rancho areas have further concentrated the creation of social or unofficial shooting ranges.

The public lands in Milan, west of Grants, that had been an R&PP public park and shooting range are still being used as an unofficial range. Access difficulties and a lack of sponsorship have created a problem for patrol and litter removal. An already popular area east of the Ojito Wilderness has gained in popularity due to the loss of public lands in Ball Ranch and development of private land north and west of Rio Rancho – both of which were very popular for informal shooting. Directed patrol activities and peer pressure have been instrumental in limiting adverse impact in these areas. Another area of concern is a long-time unofficial range in Valencia County – more specifically, near Bernardo, an area south of Los Lunas. This area has an informal group of regulars who have helped limit trash and who, by repeated use, have established safe impact berms.

3.7.3 Other Recreational Activities

Almost any recreational activity may be hazardous to the participants and, in some circumstances, to nonparticipants. Exercising appropriate caution, using appropriate gear, and wearing the correct clothing helps to reduce the risk of injury.

3.7.4 Abandoned Mines and Prospects

A number of active and abandoned mines and prospects are located throughout the Planning Area. Visitors often find abandoned mines and prospects attractive to explore and may be

exposed to hazards at these sites. Features that could pose public safety hazards at abandoned mining sites include, but may not be limited to the following:

- Open and unstable shafts, adits, drifts, pits, tailings piles, wells, or other excavations
- Dilapidated and unstable buildings or other structures
- Collapsed buildings or other structures
- Mining implements or construction debris
- Hazardous or toxic materials

On-the-ground abandoned mine lands inventories have been conducted under a 1993 BLM directive that established common data elements to ensure that abandoned mine land information would be characterized consistently. To date, only a small percent of all public lands have been inventoried. The available abandoned mine lands data collected have been compiled into the Abandoned Mine Site and Clean Up Module (AMSCM). Locatable, leasable, and saleable mining districts are shown on Maps 30, 32, and 33.

While most mines are hazardous primarily in terms of public safety, the potential for hazardous material and solid waste dumping in old mine shafts exists. As these areas are made known, they are compiled into the AMSCM. Mine tailings located at both active and closed mine sites pose additional potential hazardous effects, including leaching of chemicals into the soil and/or groundwater from mine tailing piles and airborne hazardous wastes.

3.7.5 Air Transportation and Military Operations

Military operations are conducted within the Planning Area. These military operations use airspace for low-level training exercises. While rare, there is a remote possibility of aircraft crashes during military training operations.

3.7.5.1 Unexploded Ordnance

Live munitions are often used during military training operations. In most cases, these munitions detonate on impact, but there is the remote possibility that the ordnance would not explode. UXO, which represents an immediate public safety hazard, may be located on the ground surface or may be buried beneath the surface as a result of the momentum of impact. The U.S. Army Corps of Engineers, through their Formerly Used Defense Sites (FUDS) Military Munitions Response Program, identified four WWII era precision bombing ranges located within our planning area. Initial site screening investigations conducted by the Corps indicated the sites were low hazard/low risk; however, the Corps recommended the sites for additional RI/FS review. The Corps is continuing to review the identified sites. When projects are recommended within these identified sites the BLM requests the Corps to provide clearance of the site.

3.7.6 Livestock Operations

Livestock grazing operations present minimal overall risk to visitors to public lands. Potential risks associated with livestock grazing operations include collisions between livestock and vehicles, encounters with agitated livestock, and visitor mishaps at range improvements such as stock ponds, fences, or wells.

3.7.7 Crimes against Persons and Property

Illegal dumping, vandalism, and discharging of firearms were listed as concerns during the scoping process (USDI BLM 2005e).

Specific issues of crimes against persons have been limited to intimidation and interference with lawful users by physical obstructions. Thefts of resources such as live plants and landscaping rock have increased with the increasing population desiring these items for their homes. Similarly, theft of fuel wood for residential wood burning stoves has been increasing, both in cases of personal use and commercial theft for resale.

3.7.8 Wildfires

Wildfires have the potential to endanger persons or property. The density and types of vegetation and the consequent likelihoods of natural or human-caused fires vary greatly due to differences in elevation, climate, soils, and topography in the Planning Area.

3.7.9 Regulated Hazardous Materials/Hazardous Waste Sites

No Superfund sites are known to be located in the RPFO Decision Area.

3.7.9.1 Regulated Landfills

The construction of landfills on BLM-administered public land has historically been accomplished under the R&PP. The RPFO does not have any active landfills at this time. Five R&PP leases were issued for landfill facilities in the Decision Area between 1966 and 1980. Two cases have been closed and three have expired. The most recent one to expire was in February 1992. The BLM no longer has the authority to lease public land for landfills; landfills must go directly to patent.

3.7.9.2 Illegal Dump Sites

A significant issue related to hazardous and nonhazardous waste on public lands is the practice of abandoning solid and hazardous waste items. Unregulated sites include illegal wildcat dump sites, where solid and hazardous wastes are abandoned in locations other than established landfill facilities. These occurrences range in severity and volume from isolated episodes of individuals dumping household trash and appliances, to regular use by family and community groups, and disposal of items by businesses.

3.7.10 Hazardous Materials

As part of the maintenance and management of the public lands, a variety of hazardous materials are utilized. These include products such as paint (both in gallon cans and spray cans), paint thinner, automobile lubricants (oil and grease), chainsaw fuel and lubricants, fusee, propane, drip torch fuel, and petroleum products. The use, storage, and transport of hazardous substances on public land, by the BLM or authorized users, may lead to accidental releases. Some examples include the above common chemical products, pesticide applications, military operations, construction activities, mining activities, concessionaire operations, commercial transportation, and oil and gas operations.

3.8 Lands and Realty

The 1986 Rio Puerco RMP designated areas for retention and disposal to maintain lands of particular resource and/or use value and to provide for orderly disposition, respectively. Retention areas are generally relatively concentrated blocks of public land that include scattered or isolated parcels of state trust land, or special designations, such as WSAs and ACECs. Disposal areas include tracts of land that are difficult and uneconomic to manage, do not have legal access, or parcels that could serve important public objectives including, but not limited to: community expansion and economic development. Some parcels within Torrance County have been identified for disposal because of the lack of legal access.

Since the 1986 Rio Puerco RMP was adopted, several adjustments to surface ownership have occurred as the result of certain realty actions including exchanges, sales, and patents under the R&PP. Under the R&PP, the BLM issues leases and patents of public land to governmental and non-profit entities for public purposes such as public parks, building sites, schools, and landfills (patent only).

Fifty-seven land sales have occurred for a total of 3,780 acres since 1986. The purpose of most of the sales has been for R&PP and to resolve long-standing occupancy trespass situations in the Planning Area. (LR2000 database report November 2008). The primary means of land ownership adjustment within the Planning Area has been through exchange. Thirty-three exchanges affecting federal and/or non-federal lands within the RPFO Decision Area have been completed since 1986. Through those actions, 165,682 acres left federal ownership and 170,881 acres came into federal ownership. Local governments and special interest groups continue to place a high priority on the BLM's RPFO land acquisitions.

Public lands are fairly well consolidated in Sandoval County, while a checkerboard pattern predominates in those areas of Cibola, Bernalillo, Valencia, McKinley, and Torrance Counties within the Planning Area. Over fifty small tracts are scattered throughout Torrance County. The existing surface management pattern within the Planning Area is shown on Map 2 and land ownership adjustment areas are shown on Maps 11-14.

Land tenure (or land ownership) adjustment refers to those actions that result in the disposal of BLM-administered lands and the acquisition of non-federal lands or interests in land. Current planning guidance with respect to land ownership is provided by the 1986 Rio Puerco RMP. This direction establishes land exchange as the predominant method of land ownership adjustment and categorizes BLM-administered lands into management areas or adjustment areas. The goal in management areas is to retain or enhance public land holdings within retention zones. Management areas typically include the large blocks of BLM-administered lands that meet the retention criteria, but also may include areas in which there are high public values suitable for BLM management. Lands outside these management areas are in the adjustment areas, and are generally available for the full range of land ownership adjustment opportunities including exchange, sale, or other methods of disposal. Land ownership adjustment proposals in the RPFO Planning Area are analyzed in project specific reviews.

3.8.1 Land Use Authorizations

The realty program in the RPFO is responsible for processing ROW applications, Land Use Authorization applications, and R&PP applications. All resource values and uses are considered and environmental impacts analyzed prior to the issuance of leases, grants, patents, and permits.

The RPFO processes approximately twenty ROW actions annually. These include ROW applications for new facilities (e.g., roads, power lines, telephone lines, communication sites, water facilities) as well as amending, assigning, renewing, or relinquishing existing ROW grants (e.g., roads, railroads, power lines, communication sites, water facilities, energy). The RPFO administers 434 ROWs, encumbering 18,673 acres of public land (LR2000 Database Report 2008).

The RPFO currently administers one temporary land use permit involving about two acres of BLM-administered lands (LR2000 Database Report 2008). These permits are issued for a term of up to three years and are for the temporary use of public lands. Most of these permits are used to authorize permittees to temporarily occupy or use land for a short term. Several permits have been issued for commercial filming projects on a one-time basis. No easements have been authorized.

3.8.2 Utility Corridors

The BLM has formally designated ROW corridors and use areas within the RPFO Planning Area, and attempts are made to group compatible facilities where possible. Deviations from designated corridors have been permitted based on the type and need of the proposed facility, and lack of conflicts with other resource values and uses. The RPFO currently has no ROW exclusion or avoidance areas in existing land use plans, although specially designated areas, such as ACECs and WSAs, do restrict such development. Corridors are designated in areas where topographic or land ownership constraints make it advantageous to locate transmission lines and pipelines on public lands.

In addition to designated corridors, the Western Utility Group (an ad hoc organization of major western gas, electric, and telecommunication companies) developed the Western Regional Corridor Study in 1992 to promote ongoing interagency dialogue regarding future utility corridor needs (USDI BLM and USDA USFS 1993). This reference document identifies the segments of four potential utility corridors within the Planning Area. Several corridors cross public lands administered by the BLM. There are designated corridors in the counties within the Planning Area except Torrance County (Map 24-26).

Many of the linear facilities authorized under various ROW grants have led to the establishment of de facto ROW corridors. The corridor philosophy within the BLM is to manage current and future uses of ROWs on public land through a system of designated corridors. The presence of designated ROW corridors does not preclude the granting of a ROW on public land outside a designated corridor although we do encourage placement near or in existing ROW.

3.8.3 Communication Sites

Thirteen communication site rights-of-way occupying four different communication site locations are authorized within the planning area. Potential new users are encouraged to locate within existing locations. Communication site plans are in the process of being finalized for the sites.

The Rio Puerco RMP provides general direction for the placement of any new ROW to be located near existing sites or in existing corridors. As a result, many of the current ROW holders in these areas are authorized to sublease to other users.

3.8.4 Withdrawals

The BLM uses withdrawals for the purpose of withholding an area of federal land from settlement, sale, location, or entry, under some or all of the general land laws; for the purpose of limiting activities under those laws to maintain other public values in the area or reserving the area for a particular public purpose or program; or transferring jurisdiction over an area of federal land. Under Section 204 of FLPMA, the BLM has been given the responsibility of reviewing all land classifications and withdrawals on BLM-administered lands. The review ensures that the reasons for the withdrawal are still valid and that the smallest acreage possible is retained in withdrawal status (USDI BLM 1986a). Withdrawals can be continued, modified, revoked, or terminated, consistent with the needs, as justified by the withdrawing agency. As withdrawals are revoked or terminated, the land use decisions in the RMP will apply to those areas. For withdrawals where the BLM presently has management responsibility, all RMP decisions covering those areas apply (USDI BLM 1993a). This management guidance applies in Planning Area.

The RPFO currently uses nine types of withdrawals. The first is a wilderness designation withdrawal which includes the Ojito Wilderness and includes 11,183 acres. There is one power site withdrawal, which includes 207 acres in the Planning Area. The miscellaneous withdrawals include a variety of purposes, but usually protect a BLM recreation site or other facility that would otherwise be adversely affected by mineral entry. The RPFO administers eight such withdrawals, involving a total of 20,333 acres. The only National Monument withdrawal is to the NPS for 5,280 acres for the Petroglyphs National Monument. There are thirty-five withdrawals to the USFS that are spread across the Planning Area. There are 45,148 acres withdrawn to the Department of Air Force for Sandia Base in Bernalillo County, and three acres are withdrawn to the Federal Aviation Administration for an air naval facility.

Secretarial orders have been used in the RPFO to withdraw public lands from general use by transferring management responsibility to other USDI agencies, such as the Bureau of Indian Affairs (BIA) and the Bureau of Reclamation (BOR). Public lands have been transferred by Executive Order (EO) to agencies outside the USDI, such as the Department of Defense and the Federal Aviation Administration. In such cases, both the lands and responsibility for their management are transferred.

Withdrawals to the BIA for the purpose of benefiting Indian groups will be used only for segregating the land from operation of the other land and mining laws in preparation for the

processing of a land exchange or sale. Such withdrawals will not be used for transferring management responsibility.

In an effort to keep as much of the public land open to the widest variety of uses as is possible, the RPFO reviews all existing withdrawals on a periodic basis. Such review ensures that the reasons for the restrictions are still valid and that the smallest acreage possible is included in withdrawal status. The need for new withdrawals of public land within the Planning Area should continue to decrease in the future. Most BLM-administered lands containing resources that need to be protected by withdrawals already have such protection in place.

3.8.5 Access

For the purposes of this section, access refers to the physical ability and legal right of the public, agency personnel, and authorized users to reach public lands. The lands and realty program primarily assists in the acquisition of easements to provide for legal access where other programs have identified a need.

Access to public lands administered by the RPFO is an issue of concern to both agency personnel and the public. The existing, fragmented ownership pattern of BLM-administered lands intermingled with private, state, and other federal lands complicates the access situation.

The RPFO uses the acquisition of road and trail easements as the primary means of obtaining legal access to public lands where it does not currently exist. There are three types of easements: exclusive easements, where the BLM acquires full public rights to the road in perpetuity and exclusively manages all other uses; nonexclusive easements, where the BLM acquires only the right to use the road in perpetuity but does not control other uses; and temporary easements, where the BLM acquires only the right to use the road for a fixed period.

When possible, emphasis for easement acquisition is on those roads or trails identified through a route analysis process. Although used much less frequently than easement acquisition, the RPFO uses land exchanges on occasion to acquire needed access to public lands. Access is typically just one of many benefits of these exchanges. The consolidation of BLM land ownership patterns by exchange has generally improved the access situation in the RPFO Planning Area. When disposing of BLM parcels containing roads or trails necessary for access to other public lands, the RPFO protects these access routes by reserving them in the conveyance documents. Access needs within the RPFO Planning Area are predicted to remain at a relatively constant level. Recreation access to public land should still be a high priority in the future.

The scattered public land pattern in the RPFO Planning Area contributes to trespass problems, particularly where patented mining claims make the determination of federal/private property lines difficult. The RPFO attempts to abate trespassing by prevention, detection, and resolution. In the lands and realty program, priority for resolving trespass in the Planning Area is accorded to those newly discovered ongoing uses, developments, or occupancies where resource damage is occurring and needs to be halted to prevent further environmental degradation. Lesser priority is accorded those historic trespass cases where little or no resource damage is occurring. Realty trespass cases in this latter category are resolved as time permits. Trespass problems are anticipated to remain at current levels within the Planning Area. With the BLM's scattered land pattern, encroachments on public land will likely continue to occur.

Based on the projected growth of the communities in the Planning Area, particularly near Albuquerque, the number of land disposals likely will increase. Disposals could occur for various uses, particularly under R&PP leases and patents where public lands administered by the BLM provide opportunities for uses such as schools and parks (New Mexico does not set aside state trust land for schools). In addition to more public land disposals for developed uses, more public land may be disposed of for parks and recreation areas as communities are seeking dedicated open space in perpetuity, rather than assuming that what now may appear as open space (i.e., state trust land or BLM-administered public land presently serving as *de facto* open space) will continue to be undeveloped in the future. As part of the lands and realty program, the BLM will continue to coordinate disposals with state, county, and local agencies, as appropriate, to consider consistency with existing plans for the Planning Area.

Based on past trends, the BLM anticipates that requests for land use authorizations, such as ROWs, will continue, with the greatest proportion of requests in designated corridors and developing areas. Additionally, the projected population growth will likely drive an increase in the demand for facilities to accommodate this growth, including transmission lines, communication sites, and other utilities.

3.9 Lands with Wilderness Characteristics

Wilderness characteristics are defined by sufficient size, naturalness, and either outstanding opportunities for solitude or primitive and unconfined recreation. In addition, it may also possess supplemental values.

Sufficient size is defined as 5,000 acres of contiguous roadless BLM land, or large enough to make practical its preservation and use in an unimpaired condition. Areas under 5,000 acres may also meet the size criteria under certain circumstances, such as islands; lands adjacent to other federal lands where wilderness characteristics are being protected (for example adjacent to a BLM WSA or a National Forest Wilderness); or natural areas where topography clearly makes possible the opportunity to experience outstanding opportunities for solitude and there is strong public agreement with this conclusion.

Naturalness is a measure of the degree to which the area appears to have been affected primarily by the forces of nature, and the degree that human work is substantially unnoticeable. Examples of human-made features that may be, in certain cases, considered substantially unnoticeable are: trails, trail signs, trail bridges, fire breaks, fire presuppression facilities, pit toilets, fire rings, water quantity and quality measuring devices, research monitoring markers and devices, air quality monitoring devices, fencing, spring developments, occasional ways, and small reservoirs.

Outstanding opportunities for solitude or primitive and unconfined recreation means that the opportunities must stand out among others of their kind. This, however, does not mean that no better opportunities can be found. The area does not have to possess outstanding opportunities for both elements, nor does it need to have outstanding opportunities on every acre, so long as these opportunities are identified somewhere within the area.

Solitude is “the state of being alone or remote from others; isolation; a lonely or secluded place” (BLM IM 2011-154). Solitude is often present in landforms of rugged relief or vegetation that

may provide screening from other visitors and the ability to enjoy the area without experiencing frequent contact with others or evidence of other visitors.

Primitive and unconfined recreation occurs where there are minimal or no developed recreational facilities. Areas that offer opportunities for primitive recreation are marked by the absence of developed recreational facilities, are sufficiently large enough to allow these types of outdoor recreational uses, and may contain features or attractions that lend themselves to primitive and unconfined types of recreational uses.

The BLM is required under Sec. 201 of FLPMA to maintain a current inventory of the public lands, including those areas with wilderness characteristics. In 1980, the BLM conducted a nationwide inventory of its lands for wilderness characteristics. That inventory included the lands within the Rio Puerco planning area. Where changes to the landscape have occurred since the 1980 inventory, there is the potential for wilderness characteristics to now be present where they were not before. Examples of changes that could lead to the presence of wilderness characteristics include land acquisition, road decommissioning, facility removal, and reclamation projects. The BLM reviewed its records to identify these and similar changes and evaluated public scoping comments to identify areas where the potential for wilderness characteristics exists. Where these factors were identified, the BLM conducted new wilderness inventory to update the 1980 inventory. The new inventory resulted in the identification of seven areas outside of WSAs or Wilderness as having wilderness characteristics:

Table 3.14: Lands with Wilderness Characteristics

Name	Acres
Chamisa E	2,239
Cimarron Mesa	7,329
Ignacio Chavez A	2,462
Ignacio Chavez B	1,541
Ignacio Chavez C	72
Petaca Pinta A	38
Volcano Hill	23,833

3.9.1 Chamisa E

This area is located between the Chamisa WSA, Ignacio Chavez WSA, and the Cibola National Forest in western Sandoval and eastern McKinley counties. The BLM 1103 Road forms the northwestern boundary between the Chamisa E unit and the Ignacio Chavez WSA. In 1991, the New Mexico Wilderness Study Report recommended that this inventory unit be designated as wilderness (USD1 BLM, 1991). In 1980 the area was separated by a road from the Chamisa WSA to the east. That road, however, was closed to the public and is no longer maintained for regular and continuous use. As a result, the 2,239-acre Chamisa E unit is of sufficient size to make managing to protect its wilderness characteristics practical.

The Chamisa E unit meets the wilderness characteristic criteria of naturalness because the scattered imprints of human activity, such as primitive vehicle routes and fences, are substantially unnoticeable due to the dense vegetation, rugged foothills, and steep slopes. The Chamisa E unit also possesses outstanding opportunities for solitude and primitive unconfined

recreation because of its proximity to the Chamisa WSA. The topographic and vegetative screening provides outstanding opportunities for the experience of solitude. A variety of primitive and unconfined recreational opportunities exist in this area, including hiking, camping, hunting, wildlife viewing, horseback riding, and photography.

3.9.2 Cimarron Mesa

The Cimarron Mesa inventory unit is located east of the Volcano Hill inventory unit and Pronoun Caves ACEC. In 1985, the BLM completed a land exchange in this area that created a contiguous block of public lands. The 7,329-acre Cimarron Mesa inventory unit is of sufficient size to make protection of wilderness characteristics practicable, and is predominantly natural, having several stock tanks and fences which are substantially unnoticeable. The screening provided by topography and vegetation of the area provides areas in which solitude is outstanding, and the area also includes outstanding opportunities for hiking, hunting, and other primitive forms of recreation.

3.9.3 Ignacio Chavez A, B, and C

All three Ignacio Chavez inventory units meet the wilderness characteristic criteria of naturalness because the scattered imprints of human activity, such as primitive vehicle routes and fences, are substantially unnoticeable due to the dense vegetation, rugged foothills, and steep slopes. These three inventory units also possess outstanding opportunities for solitude and primitive unconfined recreation because of their proximity to the Ignacio Chavez WSA. These areas have topographic and vegetative screening that provides outstanding opportunities for the experience of solitude, and a variety of primitive and unconfined recreational opportunities exist in this area, including hiking, camping, hunting, wildlife viewing, horseback riding, and photography.

The Ignacio Chavez A inventory unit is located between the Ignacio Chavez WSA to the east, the San Miguel Dome (proposed ACEC) to the north, and the Cibola National Forest to the south and west. In 1980, the 2,462-acre unit was separated from the Ignacio Chavez WSA by a road. The road is no longer in use and has returned to a natural condition. As a result, when the area is considered in conjunction with the Ignacio Chavez WSA, the area is of sufficient size to make protection of wilderness characteristics practicable..

The Ignacio Chavez B inventory unit is located between the Ignacio Chavez WSA to the south and east and BLM lands to the north (RPFO) and west (Farmington Field Office). A road leading to a line camp along the east boundary of this unit partially separates it from the adjacent WSA. However, the southern part of the unit is not separated from the Ignacio Chavez WSA. The activities associated with the road and line camp are outside the unit and do not affect wilderness characteristics in the unit. As a result, the 1,541-acre Ignacio Chavez B inventory unit, when considered in conjunction with the adjacent WSA, is of sufficient size to make protection of wilderness characteristics practicable..

The Ignacio Chavez C inventory unit is located between the Ignacio Chavez WSA to the south, the Ignacio Chavez B inventory unit to the west, BLM land to the north, and private land to the east. The 72-acre Ignacio Chavez C inventory unit is separated from the Ignacio Chavez WSA by a quarter-section line. When considered in conjunction with the adjacent WSA, this inventory unit is of sufficient size to make protection of wilderness characteristics practicable..

3.9.4 Petaca Pinta A

The Petaca Pinta A inventory unit is located between the Petaca Pinta WSA to the north and west, state land to the east, and Native American land to the south. This 38-acre inventory unit was separated from the WSA by a road at the time of the 1980 inventory. The road is no longer in use, and has been reclaimed. When the inventory unit is considered in conjunction with the Petaca Pinta WSA, the area is of sufficient size to make protection of wilderness characteristics practicable.

This unit also meets the naturalness criteria because the imprint of human activities is substantially unnoticeable. No range improvements are located within this parcel. The Petaca Pinta A inventory unit possesses outstanding opportunities for solitude and primitive unconfined recreation due to its proximity to the Petaca Pinta WSA. The physical isolation and topographic screening provide outstanding opportunities for solitude. There are a variety of opportunities for primitive and unconfined recreation, such as hiking, backpacking, and photography.

3.9.5 Volcano Hill

The Volcano Hill inventory unit is located between the Petaca Pinta WSA and the Pronoun Caves ACEC. In 1985, the BLM completed a land exchange in this area that created a contiguous block of public lands. The 23,833-acre inventory unit meets the 5,000-acre size exception. The unit is predominantly natural, having several stock tanks and fences which are substantially unnoticeable. The screening provided by topography and vegetation of the unit provides areas in which solitude is outstanding, and the area also includes outstanding opportunities for hiking, hunting, and other primitive forms of recreation.

3.10 Livestock Grazing

The livestock grazing resource is measured in forage acres available for livestock grazing expressed in animal unit months (AUMs), which determines livestock carrying capacity. Livestock grazing management practices are assessed using the NM Standards and Guidelines, which bridges the health of the public lands to the occurring multiple uses.

3.10.1 Livestock Use of Grazing Allotments

Grazing use is authorized and billed on the basis of the number of *Animal Unit Months* (AUMs) that the forage on a particular allotment will sustain. An AUM is the amount of forage needed by one animal unit (e.g., a 1,000 pound cow and calf) for one month (USDI-BLM Grazing Regulations 43 CFR Part 4100 Sec 4100.0-5). There are a total of 119,064 AUMs authorized for livestock grazing within the Planning Area. Grazing operations range in size from small to large. In addition to variations in size of operations, there are variations in individual allotment use. For example, one individual may be authorized to graze livestock on several different allotments, or may only be authorized to graze a few head of livestock as part of a community allotment. Grazing authorizations on *community allotments* are held by more than one individual or family that run livestock in conjunction with one another.

There are a total of 213 grazing allotments within the planning area of the Rio Puerco Field Office. There are 195 allotments within the decision area that total 711,716 acres of public land

within Sandoval, Bernalillo, Cibola, McKinley, Valencia, Socorro, and Torrance counties. Surface ownership of lands within grazing allotments consists of BLM, private, state, and tribal lands. A description of each allotment by acreage and authorized public AUMs within the planning area can be found in Appendix B.

Grazing is administered by the RPFO on forty allotments within the boundaries of the Farmington Field Office (FFO) as well as three allotments partially within the boundaries of the Socorro Field Office (SFO). Both the SFO and FFO administer grazing on allotments that are within the boundaries of the RPFO. Exchanges in allotment administration between the FFO and the RPFO are outlined in a memorandum of understanding. Administration of thirty allotments located in Rio Arriba County (FFO) was returned to the FFO in 2006 by the RPFO.

Authorized use varies each year depending upon a number of factors, including the current range condition, the ability of the permittee/lessee to purchase livestock, and long-term weather patterns. Long-term weather patterns and the ability of the permittee/lessee to purchase livestock are interrelated. Often permittees/lessees remove livestock from their grazing allotment and sell them during a period of prolonged drought. In many cases, it may take a number of years for an individual to purchase the authorized number of livestock even if range conditions are suitable. Prior to the annual generation of grazing bills, a grazing application is mailed to each permittee/lessee as a courtesy. The grazing application allows the permittee/lessee to designate the number of livestock that will be run on a particular allotment in that year up to the number authorized on the permit or lease. During this time, the permittee/lessee is allowed to designate non-use, which means that they will not place a specified number of livestock on the allotment during a specified period of use and will not be billed for those livestock.

The number of cattle or AUMs within an allotment can vary each year, depending on current range conditions and livestock management needs. The majority of allotments are grazed year-round, with some type of grazing system (pasture rotation, watering sites, salt placement) in place to reduce or disperse grazing impacts on soils and vegetation. Grazing systems (grazing prescriptions) can vary within the Planning Area, ranging from intensive management, where cattle are moved every couple of days, to a rotational grazing plan that provides grazing and deferment periods throughout the year (see Appendix C).

Of the 195 allotments, 149 are grazed year-long, while forty-six are grazed seasonally. Grazing is authorized both seasonally and year-long on nine community allotments. Permittees/lessees that graze allotments seasonally are authorized to graze on allotments managed by the USFS. Generally, these individuals graze on Forest Service allotments from June to the middle of October.

One hundred and four of the 213 allotments within the planning area are authorized by Section 15 of the Taylor Grazing Act, while the other 109 are under the authority of Section 3 of the Taylor Grazing Act (see Appendix E). Grazing allotments authorized by Section 3 of the Taylor Grazing Act are located within a grazing district, while those allotments authorized by Section 15 of the Taylor Grazing Act are outside of grazing district boundaries. Grazing permits are issued to qualified individuals for Section 3 allotments while grazing leases are issued to qualified individuals for Section 15 allotments. Private land capable of supporting livestock grazing (base land) as well as permanent watering sources (base water) qualifies as base property for Section 3 allotments. Issuance of grazing permits/leases is dependent upon base property

owned or controlled by the individual applying for grazing privileges. Base property qualifications are the primary difference between allotments inside and outside grazing district boundaries. Base land adjacent to BLM land qualifies as base property for Section 15 allotments (4110 Handbook).

3.10.1.1 Lands Removed From Grazing

Livestock grazing has been removed in the interest of wildlife values from the following allotments: Molino, Rock Ridge, San Miguel, Bama, and Elk Springs. AUMs on the Molino, Rock Ridge, San Miguel, and Bama allotments were identified in the 1978 Rio Puerco Grazing EIS for wildlife use only. Livestock grazing on the Elk Springs allotment was removed in October of 1991 through a cooperative agreement between the BLM and The Rocky Mountain Elk Foundation (RMEF). The Elk Springs Allotment is within a designated ACEC because of key deer and elk winter range values. Grazing privileges would likely have been granted to RMEF due to their purchase of the base property for the Elk Springs allotment. RMEF agreed to relinquish grazing privileges, however, in return for the retirement of the allotment from livestock grazing by the BLM.

According to the Kasha–Katuwe Tent Rocks National Monument Proposed RMP and Final EIS, annual grazing of both the Tent Rocks and Peralta allotments is to be discontinued. This action is in accordance with Presidential Proclamation 7394 (USDI BLM 2007).

In establishing the El Malpais National Monument, Congress transferred over 100,000 acres of public land formerly administered by the BLM as multiple use lands to the NPS. Public Law 100-225 provided that livestock grazing in the monument could continue until December 31, 1997, under BLM administration. Now that such use has been discontinued in the monument, the BLM has adjusted all affected grazing permits to reduce livestock numbers. (USDI BLM 1999).

Grazing has also been excluded from certain riparian areas managed by the RPFO, which are described in detail in the Final EIS for Riparian and Aquatic Habitat Management (USDI BLM 2000).

3.10.2 Selective Management Categorization

In the 1980s, the BLM developed classification criteria to assist field offices in identifying management priorities by allotment. Allotments are placed in one of three selective management categories – Maintain, Improve, or Custodial – based on the following criteria (USDI BLM 2000a):

3.10.2.1 Maintain (M) Category:

- Present range condition is satisfactory
- Allotments have moderate to high resource production potential, and are producing near their potential (or trending in that direction)
- No serious resource-use conflicts and/or controversies exist
- Opportunities may exist for positive economic return from public investment
- Present management appears satisfactory

- Other local criteria
- Allotments will be managed to maintain current satisfactory ecological condition

3.10.2.2 Improve (I) Category:

- Present range condition is unsatisfactory
- Allotments have a moderate or high resource production potential, and are producing at low to moderate levels
- Serious resource-use conflicts and/or controversy exist
- Opportunities exist for positive economic return for public investment
- Present management appears unsatisfactory
- Other local criteria
- Allotments will be managed intensively to improve unsatisfactory ecological condition and resolve resource conflicts

3.10.2.3 Custodial (C) Category:

- Present range condition is not a factor
- Allotments have a low resource production potential, and are producing at low to moderate levels
- Limited resource-use conflicts and/or controversy may exist
- Opportunities for positive economic return on public investments do not exist or are constrained by technological or economic factors
- Opportunities exist to achieve the allotments' potential through changes in management
- Other local criteria
- Allotments will be managed to prevent resource degradation

Selective management categorization provides a system for establishing priorities for implementing changes in grazing management based on the need for improved management, and the potential for improved ecological condition, with consideration for cost-effectiveness. Selective management categories can be changed as additional resource data becomes available. Changes in categories would result in management changes appropriate to the new category, consistent with the objectives of the approved RMP.

Each allotment was placed into one of the three selective management categories based on present resource conditions and potential for improvement. Management categorization allows the establishment of priorities for implementing grazing management based on the need for management and potential for improved range condition, with consideration for cost-effectiveness.

Allotment categories enable the BLM to direct attention to those areas in greatest need of management to improve a resource or resolve serious resource-use conflicts. Using management categories as a tool, BLM managers can create allotment management plans (AMPs) and cooperative management plans (CMPs). AMPs and CMPs are developed in an effort to help

achieve the stated goals of RMPs. Specific methods for controlling when, where, and how much livestock grazing takes place are covered in both types of plans. AMPs promote the protection of resource values, such as water quality and riparian area resource management, and coordinate livestock grazing with other resource uses. Both plans also address needed rangeland improvements, monitoring methods, and implementation schedules.

Information including the unit each grazing allotment is located in, allotment management category, Section 3 or 15 status of each allotment, and the EIS relevant to each allotment is outlined in Appendix E.

Three types of monitoring studies were conducted on public land in the RPFO. Condition and trend studies were established and conducted in accordance with the Public Rangelands Improvement Act of 1978. Intensive vegetative monitoring studies, including the collection of precipitation, utilization, and actual use data, were conducted on the "I" category allotments to evaluate the success of changes in grazing management and to aid in the determination of livestock grazing capacities. In addition, the USFS Rocky Mountain Forest and Range Experimental Station have conducted vegetative studies in the Rio Puerco Grazing ES (USDI BLM 1978b) area in support of the results of the intensive monitoring studies.

3.10.3 Continuing Management Guidance for Resolution of the Vegetative Uses Issue

This issue considers the range resource on the public lands that were not covered by an approved grazing ES/EISs. In the 1986 RMP, ninety-two allotments in the vegetative uses issue area had been placed into one of three selective management categories based on the present resource condition and the potential for improvement. Currently fifty-seven (or about 62%) of the ninety-two original allotments within the vegetative uses issue area remain. Many of these allotments no longer exist due to the transfer of BLM land to the New Mexico State Land Office as a result of the 1987 El Malpais/Torrance County Land Exchange. Various other land exchanges have contributed to changes in surface ownership within the RPFO boundary, resulting in a loss of the remainder of grazing allotments covered under the vegetative uses issue.

Thirty-two of the allotments administered by the RPFO that are within the decision area of the FFO are covered under the Vegetative Uses Section of the Proposed Farmington RMP/Final EIS. These allotments were not previously addressed in the San Juan Grazing Management EIS. The main objective of this issue that was relevant to these particular allotments was the determination of correct levels of vegetative use based on a five-year monitoring plan.

3.10.4 Land Health

Rangeland Health Assessments (RHAs) are completed prior to each permit renewal process. The permit renewal process is initiated by a transfer between permittees or every ten years, whichever comes first. Yearly RHAs are prioritized by those allotments that have never been analyzed with the NEPA process using environmental assessments (EAs). One hundred thirty-six allotments have had an initial health assessment conducted from 1999 to 2011. Of the one hundred thirty-six assessments, sixty were assessed using the New Mexico Standards and Guidelines, (USDI BLM 2001a) both primary and secondary since 2007, with the rest being assessed using the Fundamentals of Rangeland Health (43 CFR 4180.1). Forty of the one

hundred thirty-six allotments were prescribed with a necessary management change required to achieve a sustainable level of public land health that was identified through the RHA/permit renewal/EA process. Appendix F contains a brief description of the relationship between the Fundamentals of Rangeland Health and the Standards and Guidelines.

3.10.5 Range Improvements

Typical rangeland improvements and the general procedures to be followed in implementing them are described in Appendix D. Future rangeland improvements will be designed and constructed to meet the management objectives proposed in the DRMP. The extent, location, and timing of such actions would depend on the improvements needed for each allotment, allottee contributions, and BLM funding capability, and would be developed with consideration for other resource uses.

Fifty percent of all BLM grazing fees, or $10 million, whichever is greater, is allocated to the range improvement fund annually, *pursuant to section 401 of the Federal Land Policy and Management Act* . Range improvements should be consistent with multiple use management and the objective of improvement projects should meet one of the following criteria: enhance or improve livestock grazing management, improve watershed conditions, enhance wildlife habitat, or serve similar purposes (43 CFR subpart 4100). These improvements can be both structural and nonstructural and include, but are not limited to, prescribed burns, chemical brush control, mechanical brush control, water wells, water pipelines, and fencing. Range improvement funds in the RPFO are typically allocated to the treatment of brush or invasive species with aerially applied herbicides as well as structural improvements such as water wells, water pipelines, and fencing.

3.10.5.1 Pipeline Systems

Several water wells (Chiuilla, Continental Divide, Pan Am, Pelon, and Piedra Lumbre) were drilled in the 1960s in support of the Rio Puerco Watershed Project. At that time, water was needed for the proper compaction of retention and detention dams being constructed in the western portion of Sandoval County. After the completion of the Rio Puerco Watershed Project in the 1970s, these wells were converted to facilitate livestock grazing management. In the 1980s, maintenance was assigned to permittees for the pipeline systems with the exception of the wells themselves and wildlife watering points. Complete maintenance of the Chiuilla and Continental Divide systems is now the responsibility of the permittees. User fees based on the number of AUMs serviced by the well/pipeline are currently being collected by the BLM for the Pan Am, Pelon, and Piedra Lumbre systems. These fees are collected to pay for electrical usage and well maintenance (well pulling, electrical problems, and pump maintenance/replacement).

The largest well/pipeline system in the Planning Area is the Cabezon pipeline system. A test hole, drilled during a period of uranium exploration, produced a high output artisan well (the Homestake Well), which was subsequently developed into an extensive pipeline system. The well and pipeline system provide water for livestock to approximately twenty grazing allotments from nearly 100 miles of pipeline. At this time, the BLM has maintenance responsibility of the main trunkline. Maintenance responsibility has been assigned to the Cabezon Water User Association for the rest of the system.

3.10.6 Forecast

Future livestock grazing management will be determined according to precipitation and the corresponding condition of native and desirable upland and riparian species, riparian proper functioning condition, and overall biotic health. Increased demand from other resources may result in new challenges and opportunities in grazing management. Other factors such as high input costs (e.g. fuel, and supplemental feed) as well as an aging population of permittees/lessees may affect the future of livestock grazing on lands managed by the RPFO. It may no longer be economically feasible for permittees/lessees who live a great distance from their grazing allotment to run livestock, especially on small allotments. It is possible that these permittees/lessees would relinquish grazing rights on these allotments, and the allotments would be absorbed into larger neighboring allotments.

3.10.7 Key Features

Allotments within the "I" category would be considered key features, as additional management activities are required to improve the public land health in these areas. Livestock grazing must be achieved in a manner consistent with land use plans, the principles of multiple use and sustained yield, environmental values, public land health standards, economic and other objectives stated in 43 CFR 1600, Subpart 1610; the Taylor Grazing Act of June 28, 1934, as amended (Title 43 of the USC, Chapter 315), 43 CFR 4180.1, and Section 102 of the FLPMA of 1976 (43 USC 1740).

3.11 Mineral Resources

Leasable minerals discussed in this section include the following:

- Nonrenewable energy fluid minerals – oil and gas, coalbed methane (CBM)
- Nonrenewable nonenergy fluid minerals – carbon dioxide and helium
- Nonrenewable energy solid minerals – coal, potash, sulfur, and sodium

Locatable mineral resources discussed in this section include the following:

- Metallic minerals—e.g., gold, silver, base metals, and rare earth elements (REE)
- Nonmetallic minerals—e.g., gemstones, fluorspar, gypsum, perlite, uranium

Salable mineral resources discussed in this section include sand, gravel, limestone, cinders, and building stone.

The mineral resource discussions include known prospects, mineral occurrences, and mineralized areas; mining claims, leases, and material sites; and types of mineral deposits in the area of interest.

3.11.1 Salable Minerals

Salable minerals include sand and gravel, cinders, scoria, non-block pumice, building stone, limestone, common clay, and humate. These minerals must be purchased from the BLM and are sold by the ton or cubic yard at an estimated fair-market value. Certain governmental agencies and organizations, such as the New Mexico Highway Department, can qualify for a free use

permit and are not charged for mineral extraction on public land. Applications for mineral material sales must go through NEPA review, unless they are sales and free use from community pits and common use areas. Permit stipulations to protect surface values are based on interdisciplinary review of the environmental impacts of the application request. Regulations pertaining to this program are found in 43 CFR 3600. In keeping with regulations in 43 CFR 3000.11, the applicant must pay a reimbursable fee estimate before the BLM can process a request for a mineral material sale. This fee estimate is based on the reasonable cost the BLM expects to incur in processing an application and issuing a mineral material contract. In addition, reclamation bonds are required and held by the BLM for mineral material permits.

The availability of BLM-administered lands for extraction of salable minerals can be measured by the number of acres of federally-owned minerals open, open with limitations, or closed to mineral material sales. The actual amount of salable mineral development in the Planning Area can be quantified by the number of mineral material sales and the tonnage of mineral material produced. As of January 2010, there are 20 mineral material sales in the RPFO authorized on 2,070 acres.

Sand and gravel is abundant in the Planning Area. In general, sand and gravel deposits in the area are located in Quaternary and Teriary age deposits in playas, fluvial areas, channels, and drainages. There are currently four mineral material sales of sand and gravel in the Planning Area, located in Sandoval, Cibola, Valencia, and Torrance Counties. There are also non-federal sand and gravel mining operations on Indian lands in the Planning Area.

Limestone is present in Cibola, Bernalillo, SE McKinley, and northern Valencia Counties in the Jurassic-age Todilto formation, Pennsylvanian-age members of the Madera group, and the Permian Age San Andres formation. In Bernalillo and Valencia Counties, limestone is found in the Lucero Uplift, the Manzano Mountains, and the Albuquerque Basin. There is currently one mineral material sale of limestone in the Grants area (Cibola County).

Scoria is only found in Cibola and SE McKinley Counties in Tertiary-Age volcanic flows associated with the Zuni Mountains and El Malpais. There is currently one mineral material sale of scoria in Cibola County.

Moss rock, which is lichen-covered sandstone, is found scattered throughout the Planning Area in Precambrian-Quaternary age formations. There is currently one common-use area for which the BLM sells permits in the Bluewater area (Cibola County).

Humate is found in Sandoval County in the Cretaceous-age Menefee formation. There are currently two humate material sales in the Planning Area. There are also non-federal humate mining operations on Indian lands in the Planning Area.

Baked shale (red dog) is located in Sandoval County, where deposits in the Upper Cretaceous age Menefee Formation and is interbedded with mudstones, siltstones, sandstones, and coals. Some shales are heated up (baked), causing them to turn red, hence the name, red dog. There are currently two mineral material sales of baked shale in the Planning Area, as well as one free-use area.

Basalt is being mined for riprap in Sandoval County and is present as angular blocks and comes from several successive Quaternary age lava flows of the San Felipe volcanic field. This

extensively faulted field forms the Santa Ana Mesa, north of the Rio Grande and Jemez river confluence. There is currently one free-use area where basalt is being removed.

Sandstone is being mined in a common use area 11 miles south of Cuba (Sandoval County). The sandstone here is most likely from landslide deposits of the Cretaceous age Mesa Verde Group or Dakota Formation.

The demand for industrial minerals (including sand, gravel, and scoria) continues to rise over time as these mineral materials supply construction industries. Because of the current downturn in the housing industry, new home sales are sluggish. When the industry rebounds, construction of new residential (and commercial) properties will increase demand for salable mineral materials. Depending on the rate of future commercial and residential development in the region, it is expected that there will be continued demand for salable minerals in the Planning Area.

In particular, increased demand for salable minerals is expected in Valencia County, which is predicted to be one of the fastest growing counties in New Mexico over the next five years. Also, on public land around nearby Albuquerque, sand and gravel deposits are nearly depleted. Therefore, in the future more sand and gravel may need to be brought into the Albuquerque metropolitan area from outlying areas, some of which may include portions of the Planning Area.

In Sandoval County, there is likely to be a sustained interest in the development of salable mineral resources, particularly for baked shale (red dog). Baked shale is popular for xeriscaping lawns and other areas; therefore, demand for this salable mineral should increase as water is now becoming scarce and more costly. Demand for humate, basalt, and sandstone should remain constant barring economic fluctuations.

In Cibola and McKinley Counties, key features for the presence of salable mineral materials are Quaternary age terrace, alluvial fan, stream, and alluvium deposits, mountainous areas like the Zuni uplift, and scattered volcanic flows. In Cibola, Valencia, and Bernalillo Counties, sand and gravel deposits are present in Tertiary-Quaternary age playa, fluvial, and terrace features throughout Bernalillo and northern Valencia Counties, particularly along drainage systems. Other salable minerals can be present in Quaternary-Precambrian age deposits in the Lucero Uplift, Manzano Mountains, and Albuquerque Basin features. In Torrance County, sand and gravel can be found in Quaternary age alluvial fans, pediment, bolson, bench, and lacustrine deposits of the Estancia Basin. In Sandoval County, humate is found where the coal-bearing part of the Menefee Formation crops out. Baked shale (red dog) is also associated with the Menefee Formation and can be found in the northern part of Sandoval County near Torreon. Basalt is found in areas of Quaternary age lava flows. In eastern Bernalillo and southeastern Sandoval Counties, sand and gravel deposits are present in Tertiary age Ortiz Fanglomerate and from Rio Grande braided channel deposits which comprise a series of Quaternary age terraces.

3.11.2 Locatable Minerals

Public land is open to mineral entry unless previously withdrawn. The 1872 Mining Law allows for the location of mining claims on public land for the purpose of exploration, development, and production of minerals. Exploration and development, and filing for a mining claim are regulated under 43 CFR 3800. The RPFO's responsibility consists of completing validity exams

for patent or BLM actions, and review and inspection of notices and plans filed under 43 CFR 3809 regulations. Most solid minerals are locatable, but exceptions exist (e.g., coal, potash, sulfur, and sodium). Locatable minerals are metallic (e.g., gold and silver) and nonmetallic (e.g., gemstones, perlite).

Before any surface disturbing mining can begin, an operator must submit a notice (for disturbing five acres or less) or a plan of operations (more than five acres disturbance) describing the proposed activities. For a plan of operations, an EA must be prepared and a reclamation bond is required. For a notice, preparation of a NEPA document is not required though a reclamation bond is.

The availability of BLM-administered lands for mining claim location can be measured by the number of acres of federally-owned minerals that are open to or withdrawn from location. According to the Rio Puerco RMP/ROD (November 1986), all BLM-managed federal mineral estate in the RPFO is available for claim location except for the Special Management Areas (SMAs) that had been withdrawn. There were a total of 11,821 acres withdrawn from location in nine SMAs.

The actual amount of claim location in the Planning Area can be quantified by the number of claims filed and the acreage that is actively claimed. As of January 2010, there are 427 mining claims in the RPFO and these occupy 64,131 acres. However, very few of these mining claims are actively producing locatable minerals.

3.11.2.1 Mining Districts

A mining district is an area of land which has been designated by name, having described boundaries under which mineral resources are worked under rules and regulations prescribed by the miners themselves. A mining area is an area of land where minerals are worked, but have not been designated as a mining district.

Table 3.15: Summary of Locatable Mineral Presence in the Planning Area

Mining District	Area	Minerals	Active Claims	Active Mines
Chupadera Mesa	Torrance County (3)	Iron, Sulfide, Silver, Lead, Fluorite, limestone, sandstone	No	No
Cochiti	Sandoval County (4)	Gold, Silver, Copper, Lead, Uranium	No	No
Cuba	Sandoval County (4)	Manganese	Yes	No
Grants Uranium	Cibola County (1)	Uranium	Yes	No
Hagan Basin	Sandoval (5)	Uranium	Yes	No
Hell Canyon	Valencia County (2)	Gold, Silver, Copper	No	No
Jemez Pumice	Sandoval County (4)	Pumice	Yes	No
Jemez Springs	Sandoval (4)	Copper, Gold, Silver, Uranium	Yes	No

Mining District	Area	Minerals	Active Claims	Active Mines
La Ventana-Collins	Sandoval County (4)	Uranium, Vanadium	Yes	No
Manzano Mountains	Valencia County (2) Torrance County (3)	Gold, Silver, Lead, Copper, Uranium	No	No
Marquez		Uranium, Molybdenum	Yes	No
Mesa Aparejo	Valencia County (2)	Travertine	Yes	Yes
Nacimiento	Sandoval County (4)	Copper, Gold, Silver, Uranium, Vanadium	Yes	No
Pedernal Hills	Torrance County (3)	Gold, Silver, Uranium, Iron, Copper, Sulfides	No	No
Placitas	Sandoval (5)	Fluorite, Barite, Copper, Galena, Gold, Silver, Zinc	Yes	No
Rio Puerco	Sandoval County (1)	Copper, Silver, Uranium	No	No
Scholle	Valencia County (2) Torrance County (3)	Copper, Uranium, Vanadium, Gold, Silver, Lead	No	No
Tijeras Canyon	Bernalillo (2/5)	Gold, Silver, Copper, Lead, Zinc, Barite, Fluorite, Galena	Yes	No
White Mesa	Sandoval County (4)	Gypsum	Yes	No
Zuni Mountains	Cibola County (1)	Gold, Silver, Copper, Iron, Uranium, Fluorite, Barite	No	No

(See Map 34).

The BLM has a policy to make mineral resources available for disposal and encourage development of these minerals to meet local and national needs. In the near future, the mining industry will have to locate their operations further away from populated areas where zoning restrictions, land development regulations, and environmental concerns discourage or prohibit mining actions. As a result, shortages of certain mineral resources in urban and industrial areas will increase and these resources will have to be obtained from outside sources at a much greater cost to public users.

3.11.2.1.1 Uranium

The economic feasibility of uranium development depends upon the price of uranium, the availability of mill-sites and transportation, and the political and regulatory framework for uranium extraction in New Mexico. In 2007, the price of uranium rose high enough ($60.00 to $135.00 per pound) to make uranium economic to mine in New Mexico. Since then, most likely due to the current economic slump, demand for uranium has dropped, along with interest in development of uranium resources. However, it is predicted that demand will increase in the future as more alternative energy sources are needed, and if the price of uranium remains high or continues to increase. New Mexico's uranium mills have been dismantled, leaving the area without a local means of processing uranium ore. A Texas-based company, Uranium Resources, Inc., announced plans in 2007 to open a new uranium mill near Grants, New Mexico. However, these plans are currently on hold. Should uranium prices rise again, the most likely area to be

targeted for development is the Grants Uranium district, followed by the Rio Puerco district. The Hagen Basin is not as likely to be developed because of high production costs, and low-grade ore. If prices become high enough, it may be economic to produce uranium deposits in the Hagen Basin area. Uranium deposits are most likely to be explored in the Grants District (along with associated vanadium and molybdenum the Zuni uplift and the Rio Puerco District, southeastern Valencia and southwestern Torrance Counties, the Marquez-Bernabe Montano and Nacimiento Districts, and the Hagen Basin.

3.11.2.1.2 Metals

The mining of metallic mineral resources is in a supply and demand market. Mining overseas has increased and metallic minerals are being imported, resulting in less development of smaller deposits in the U.S. Demand is increasing and prices are rising, which could make exploration for, and mining of, metals in the Planning Area more economically viable in the future. Should prices rise high enough, some of these favorable environments could be economic enough to increase exploration and production of some locatable mineral occurrences. The mining districts most likely to experience development are the Cochiti, Nacimiento, or Jemez Spring districts. The Tijeras Canyon and Placitas districts are less likely to experience development because of low-grade ore-bodies, regulatory obstacles, and residential expansion. Metals, including gold, silver, copper, iron, lead, zinc, and manganese, are most likely to be developed in the Zuni Uplift area (Cibola County), the Rio Puerco District (Sandoval County) the Lucero area, the Manazano Mountains area, and in the mining districts located in central Sandoval County and eastern Bernalillo County.

Fluorite and barite deposits are most likely to be explored and developed in the Zuni Uplift area (Cibola County). There should be a sustained demand for decorative rock (travertine), which is produced in Valencia County. It is probable that there will be continued claim location and extraction of travertine deposits in the Planning Area. Travertine is most likely to be developed in Valencia County, where travertine deposits are already being mined.

3.11.2.2 Travertine

Gypsum deposits are found primarily in Sandoval County, the Lucero Uplift, Manzano Mountains, Albuquerque Basin, and the western edges of the Nacimiento Mountains. The gypsum deposits are found primarily in the Jurassic-age Todilto formation. There are currently two gypsum operations located within the Planning Area, both on Indian lands. The first is White Mesa, located on Zia Pueblo land, near San Ysidro (Sandoval County). The other is Bar J Gypsum on San Felipe land (Sandoval County). Gypsum demand is currently lower due to the downturn in the housing and other construction markets, but should increase when the slump is over.

3.11.3 Leasable Minerals

Leasable minerals are from three categories: energy fluid minerals (e.g., oil and gas, coal-bed methane, and geothermal), non-energy fluid minerals (e.g., carbon dioxide and helium), and leasable solid minerals (e.g., coal, potash, sulfur, and sodium). Requirements for extraction of leasable minerals from public lands are a lease and royalty payment. Leasable minerals include

oil and gas, geothermal, coal, coalbed methane, oil shale, tar sands, phosphate, sodium, and potash.

Oil and gas leases are sold by auction on a quarterly basis, as are leases for other fluid minerals, such as carbon dioxide and helium. Coal leases are processed in a "lease by application" procedure (see Appendix H) for a more detailed description of the process by which the BLM makes leasable minerals available).

The USGS designates areas prospectively valuable for geothermal energy as Known Geothermal Resource Areas (KGRAs). The New Mexico State Land Office designates favorable areas as Known Geothermal Resource Fields (KGRFs).

The availability of BLM-administered lands for mineral leasing can be measured by the number of acres of federally-owned minerals that are open to leasing, open to leasing with moderate constraints (controlled surface use or timing limit leasing stipulations), open to leasing with major constraints (no surface occupancy leasing stipulations), or closed to leasing.

The actual amount of leasing of federal mineral estate in the Planning Area can be quantified by the number of leases authorized and the acreage that is currently leased. As of July 2010, there are ninety-seven fluid mineral leases in the RPFO and these occupy 82,190 acres.

Another indicator of leasable mineral development in the Planning Area is the number of wells that have been drilled and the amount of fluid minerals that have been produced from those wells. There have been 889 wells drilled in the RPFO, of which 189 wells produced oil or gas, or were used as service well (such as for salt water disposal). There has been no development of leasable minerals other than oil and gas resources.

3.11.3.1 Oil and gas

The primary oil and gas fields in New Mexico are located in the northwestern and southeastern parts of the state. However, there are oil and gas resources located within the RPFO. Most of the exploration and development of oil and gas resources in the Planning Area has taken place in the northwestern portion of Sandoval County, which is on the fringe of the highly-productive San Juan Basin. Small amounts of exploration and production have taken place in other areas of the Planning Area.

Although there are currently no oil and gas leases in Cibola County and SE McKinley County (Map 31), there are potential reservoirs in the area that have undergone exploration in the past. These were primarily in Cretaceous and Pennsylvanian sandstone formations in the Lucero Uplift, Acoma Basin, Baca Basin, the Zuni Uplift, the Gallup sag, and the southern fringe of the San Juan Basin in McKinley County. There have been oil and gas shows from exploratory wells drilled in this part of the Planning Area, but there are currently no producing wells on BLM-administered mineral ownership.

Very little petroleum has been produced in Bernalillo County and northern Valencia County, but there have been several exploratory drilling programs in the Albuquerque Basin between 1912 and 2007. There is currently one oil and gas lease in Valencia County, and there were recently as many as fifteen leases that have now expired (see Map 31). The best petroleum source rocks

are located in the Valencia County part of the Albuquerque Basin, in the Lucero Uplift, and the Rio Puerco Fault Belt.

Very little, if any, petroleum has been produced in Torrance County, but there are currently six oil and gas leases located in the southeastern Torrance County (see Map 31). The best petroleum reservoir rocks are predominantly in sandstones, but can be present in sandy limestone. There have been oil and gas shows reported primarily in rocks from the Permian age Abo Formation and from Pennsylvanian units located on the flanks of the Pedernal Uplift, Chupadera Mesa in southwestern Torrance County, and the Punta del Agua and Buffalo anticlinal traps in the Estancia Basin.

There are currently eighty oil and gas leases located mainly in the northwest corner Sandoval County, west and southwest of Cuba, New Mexico, within Sandoval County (see Map 31). These leases contain approximately 44 producing oil, gas, or water injection wells associated with oil and gas field development.

For details on porosity, permeability, various structural and stratigraphic trapping mechanisms, and production statistics the reader is referred to the reference section, specifically, McLemore 1984.

There is currently one oil and gas lease near Placitas, New Mexico (see Map 31), although there has been exploration in the area in the past. The best potential for petroleum occurrence here is in the Albuquerque and Hagan basins. Potential source rocks in these basins include bituminous shales of the Pennsylvanian age Magdalena Group and those of the Upper Cretaceous, and limestones of the Jurassic age Todilto Formation. The best reservoir goals in the basins are the Upper Cretaceous fluvial and marine sandstones, which should be similar to those in the San Juan Basin. Other possible reservoirs are from the Jurassic age Entrada Sandstone, Pennsylvanian and Permian age sandstones, and Pennsylvanian age limestones.

Increased oil and gas exploration and development is a direct result of the price of a barrel of crude oil, which is a function of supply and demand. Crude oil demand and prices are likely to continue to increase over time, which, in turn, can cause more exploration in hitherto unexplored areas, potentially resulting in new oil and gas fields. Secondary and tertiary petroleum recovery from known producing and past producing formations and reservoirs should also become economically viable. Oil and gas lease sales are likely to increase within the Planning Area in the future. Petroleum resources in the Albuquerque, Hagan, and Espanola basins, the Nacimiento Uplift, and the Sandia Mountains, which in the past had low potential, may also become economic to mine. The proximity of the Planning Area to major transportation routes and pipeline corridors may also attract exploratory drilling.

Table 3.16: Reasonably Foreseeable Fluid Mineral Development In The RPRA

County	Past No. Wells	Reasonably Foreseeable No. Wells
McKinley	76	No more than 1
Cibola	34	No more than 1
Valencia	55	No more than 1
Bernalillo	27	No more than 1
Torrance	128	No more than 1

County	Past No. Wells	Reasonably Foreseeable No. Wells
Sandoval	569	1 to 3

Likely areas for oil and gas exploration and development in Cibola County and SE McKinley County are Permian-Cretaceous age rocks in sedimentary basin features such as the Acoma and San Juan basins, the Lucero and Zuni uplifts, and areas near the Rio Grande Rift.

In the Albuquerque Basin, key petroleum features are the dark grey shale of the Cretaceous age Mancos and Menefee formations as well as the Gallup and Dakota sandstones, the Jurassic age Todilto Formation, the Pennsylvanian age Madera Formation, and the Tertiary age Santa Fe Group. All of these may be sources of oil and natural gas as these formations are petroleum sources or producers in the San Juan Basin. The dark grey shale from the Pennsylvanian age Madera Formation may contain source rocks in the Lucero Uplift area. Here too, possible reservoirs are in Pennsylvanian age limestones and sandstones of the Madera and Sandia formations. The Rio Puerco Fault Belt, located north of the Lucero Uplift, contains Cretaceous age Mancos Shale, limestone of the Jurassic age Todilto Formation, and dark grey shale from the Pennsylvanian age Madera Formation, all of which contain possible source rocks for petroleum. Possible reservoirs here are in the Cretaceous age Dakota Sandstone, Jurassic age Entrada Sandstone, and the limestone and sandstone from the Pennsylvanian age Madera and Sandia formations.

Key Features for petroleum resources in Torrance County are Permian and Pennsylvanian age sandstones in the Pedernal Uplift, Chupadera Mesa, and the Punta del Agua and Buffalo anticlinal traps in the Estancia Basin.

Jurassic, and mainly Cretaceous, rocks are sources of oil and gas in Sandoval County mainly in the San Juan Basin part of the unit. The best reservoir rocks here are from the Jurassic age Entrada Sandstone and the Upper Cretaceous age sandstones, namely the Dakota, Hospah, basal Niobrara, Hosta, Point Lookout, the upper Mancos Shale, and the Chacra producing interval. All of these rock units produce or have produced petroleum in the San Juan Basin. Other key features include favorable source rocks, structures, and stratigraphic facies present in the Albuquerque, Hagan, and Espanola basins, Sandia Mountains, and the Nacimiento Uplift. For additional details, see McLemore 1984.

In the Albuquerque and Hagan basins, Pennsylvanian and Upper Cretaceous age shales, and the Jurassic age Todilto Formation are key features which can contain petroleum sources. Oil and gas trap features include fault blocks, rollover anticlines, lenses, and pinchouts.

3.11.3.2 Coal

Coal normally crops out in coal-bearing sedimentary rocks. Locations where coal occurs and is mineable are designated as coal fields. Deposits are ranked on quality and are based on carbon content, volatile and water content, hardness, and heat released during burning. Lowest to highest quality are termed lignite, sub-bituminous, bituminous, and anthracite.

There are no active coal leases in Cibola and SE McKinley Counties. Coal is present within this area, but it is currently uneconomic to mine due to depth and quality. Cibola County contains Cretaceous age coal-bearing outcrops that are designated as recognized fields. The formations

present in outcrops are the Crevasse Canyon, Moreno Hill, Menefee Formation, and the Gallup and Dakota sandstones. The coal fields here are southwestern East Mount Taylor, South Mount Taylor, northern Datil Mountains, northern Salt Lake, and southern Zuni fields. See McLemore et al. 1986 for physiographic and detailed geologic description of the coals in each field. The portion of McKinley County within the Planning Area contains a portion of the Gallup and Zuni recognized fields. The Gallup Field coal-bearing rock units are the Gallup Sandstone, Gibson and Dilco members of the Crevasse Canyon Formation, and the Cleary Coal Member of the Menefee Formation. The Zuni Field is defined by outcrops of the Dakota Sandstone, Gallup Sandstone, and Dilco Member.

There are no active coal leases in Bernalillo and northern Valencia Counties. Coal is present within the unit, but it is currently uneconomic to mine due to thin beds, high-angle faulting, and quality. Valencia County contains Cretaceous age coal-bearing outcrops in the southern part of the Rio Puerco recognized field from the Cretaceous age Dilco and Gibson members of the Crevasse Canyon Formation. Coal here ranks sub-bituminous A to high volatile C bituminous. Ash content is low (less than 8.0 percent) and the sulfur content high (greater than 1.5 percent; McLemore 1985).

There are no coal leases, no Cretaceous age coal bearing rocks due to erosion or non-deposition, and no other coal-bearing units in Torrance County.

There are no active coal leases in Sandoval County. Sandoval County contains a major part of the San Juan Basin coal fields. These fields are defined by the coal-bearing Fruitland, Menefee, and Crevasse Canyon formations. The coal fields here are La Ventana, northeast East Mount Taylor, northeast Rio Puerco, east Chacra Mesa, east San Mateo, and east Star Lake. La Ventana field coals are from the Allison and Cleary Members of the Menefee Formation. The northeast East Mount Taylor field contains coals in the Gibson Member of the Crevasse Canyon Formation. The northeast Rio Puerco field consists of Mesaverde Group sediments, specifically in the Dilco and Gibson members of the Crevasse Canyon Formation. Most of the coal in the east Chacra Mesa field is found in the Cleary Member of the Menefee Formation, but can also be present in the Allison Member. In the east San Mateo field coals crop out in the Cleary Member of the Menefee Formation, along with some Allison Member coals. Star Lake coals are present in outcrops of the Fruitland Formation.

There are no active coal leases in eastern Sandoval County. This area contains the Hagan and Placitas fields in the southeastern corner of Sandoval County, and the Tijeras field in northeastern Bernalillo County. The Hagan field, structurally a syncline, contains coals of the Menefee Formation that are exposed near the structural axis. The Placitas field coals are also from the Menefee and occur in the steeply dipping beds of the formation. The Tijeras field coals are found in the Mesaverde Group. Here the structure is two synclines in which the coals dip up to thirty degrees. Two coal zones are present with the upper zone containing the best quality coal.

An increase in demand for coal would likewise increase new coal mine development, although coal resources in the Planning Area are not suitable for economic development without a commensurate price increase. For example, the steep dip and thinness of the beds makes strip mining economically impractical in the Tijeras Field and transportation to market would need to be made available. If construction of coal-fired power plants increases, the demand for coal will

also increase and leases will again be issued. Coal resources in the Planning Area are uneconomical to mine commercially at this time.

Coal, when economic, will be found in Cibola and SE McKinley Counties in features such as the Zuni, Mt. Taylor, and Salt Lake designated coal fields, and in Cretaceous age rocks of formations such as the Fruitland and Menefee. In Bernalillo and northern Valencia Counties, coal will be found in features such as the Rio Puerco recognized field, in Cretaceous age coal-bearing outcrops from the Dilco and Gibson members of the Crevasse Canyon Formation. Coal sources in Sandoval Counties are from the Fruitland, Menefee, and Crevasse Canyon formations in the coal fields discussed above. In eastern Sandoval County, coal will be found within coal-bearing sedimentary rocks of the Cretaceous age Mesaverde Group, in areas such as the Hagan, Placitas, and Tijeras fields discussed above.

3.11.3.3 Geothermal

Two KGRAs have been identified by the USGS, the Baca Location #1 and San Ysidro. These are both located in Sandoval County. KGRFs have been identified by the New Mexico State Land Office in the following locations: western McKinley and Cibola Counties, the Lucero Uplift in eastern Cibola County, western Valencia County, the Rio Grande rift, and the Jemez Mountains (which includes the two KGRAs). Geothermal resources will be found in areas like the KGRFs. These features are typically associated with volcanism and have a magmatic source for geothermal energy. Another source is in active tectonic sedimentary basins, which contain warm waters that circulate to great depth along major fault systems. A different system is that of hot dry rock, where water is not present. The geothermal energy is extracted from hot rock via injected water. Geothermal areas are found in various host rocks, generally late Tertiary to Quaternary in age. Although there are known geothermal resources in the Planning Area, there are no leases at this time.

New geothermal resources may be discovered by drilling exploratory wells in areas of high temperature gradients or in areas of oil and gas exploratory drilling. Geothermal resources may not be economically competitive with other energy forms, however, as drill holes are very expensive to drill and distances to market are enough to add significantly to the cost (USDI BLM 2008). Exploration for and development of geothermal resources should continue as petroleum resource costs are on the rise, creating a demand for renewable energy forms such as geothermal.

3.11.3.4 Carbon Dioxide

The Estancia Basin (eastern Sandoval County) contains carbon dioxide reservoirs that were explored from 1934 to 1942. Depending upon the demand for carbon dioxide and the supply available from other resources, it is possible that the carbon dioxide resources in the Estancia Basin could be developed in the coming years. Carbon dioxide reservoirs are also located in the Nacimiento Mountains (Sandoval County), Mesita (Cibola and SE McKinley Counties), and Valencia County, but these areas are rated as only having moderate potential.

3.11.3.5 Sodium/Halite

There is a high potential source location for sodium in playas located in Torrance County, but the development potential of this mineral resource is low. There are no other sources of

sodium/halite in the Planning Area. Although there are sulfur and sodium/halite resources within the Planning Area, the development potential for these is likely to remain low.

3.11.3.6 Sulfur

There are sources of sulfur in the Planning Area at Sulfur Springs and San Diego, but there is low development potential for these resources.

3.11.3.7 Helium

The Nacimiento Mountains of Sandoval County and the Mesita area of Cibola County have moderate deposits of helium. The development potential of these helium reservoirs is also moderate because other sources of helium are becoming limited. If demand cannot be met by other helium sources (such as the Bravo Dome in northeastern New Mexico), it is possible that exploration and development of helium in the RPPA could occur.

Helium and carbon dioxide resource development potential depends on the longevity of existing sources of these gases as well as the level of demand in the future. If demand remains high for these gases and the existing sources dwindle, it is likely that development of these resources in the RPFO will occur.

3.12 Paleontological Resources

The fossils found on public lands are considered part of our national heritage and are therefore afforded protection. Vertebrate fossils or other noteworthy occurrences of invertebrate and plant fossils are considered significant by the BLM. Invertebrate and plant fossils are typically more abundant, and the BLM does not ordinarily consider them to be of significance.

Indicators for the condition of paleontological resources are as follows:

- Type of fossil resource present (vertebrate, invertebrate, or plant).
- Prevalence of the fossil resource in the area.
- Physical condition of the fossil.
- Scientific, educational, and/or recreational value of the resource.

A classification scale, termed the Potential Fossil Yield Classification (PFYC), has been developed to estimate the potential for discovering significant fossils during any surface-disturbing activity in specific geologic formations. Based on specific geologic formations, the scale uses a ranking of 1 through 5, with Class 5, 4, and 3 being assigned to high potential rock units.

Fossil resources are part of the geologic formation in which they occur. Most fossils occur in sedimentary rock formations, where they may be distributed extensively both vertically and horizontally throughout the formations, or they may occur in discontinuous pockets. Few geologic formations are uniformly rich in fossils throughout, and some are richer in fossils than others. Although experienced paleontologists can predict which formations will contain fossils and, in general, what types of fossils will be found based on the age of the formation and its depositional environment, predicting the exact location where fossils will be found without field

surveys is not possible. Development of the PFYC is based in part on known fossil occurrences, and geology (see Map 47). Acreages of each class can be expected to change as more data is collected from ongoing field surveys and inventories.

The PFYC map (Map 47) was developed by the BLM. Since the scale of the base map is 1:500K, the RPFO would refine the data as part of plan implementation. The geologic units range from almost two billion years old to the present. Almost all fossils are found in sedimentary deposits. Sedimentary rocks form in marine and non-marine environments and include sandstone, siltstone, shale, and limestone. There are caves in lava tubes in volcanic fields and limestone terrains within the Planning Area that can serve as traps for animals and have preserved a record of the changing conditions through the ice ages (New Mexico Museum of Natural History and Science [NMMNHS] 2005). The PFYC of both volcanic and limestone areas may be 1, 2, or 3, but cave and karst conditions should enter into decisions.

Within the Planning Area, Class 5, 4 and Class 3 geologic formations account for approximately 31% of the total acreage, including all ownerships. About 32% of public land in the Planning Area is underlain by Class 2 formations, and Class 1 makes up 37% of the Planning Area.

Although the Planning Area contains rocks as old as 2 billion years, known fossil deposits represent about 300 million years, reflecting a long history of life on earth. Many major fossil bearing formations identified within New Mexico are present in the Planning Area. Vertebrates represented within these sedimentary rocks range from fish, reptiles, amphibians, dinosaurs, birds, and mammals. Rock units exposed in the Planning Area include some important boundaries, including the transition from fish to early land dwelling animals, into a dinosaur dominated ecosystem, through early and middle portions of the predominance of mammals. Data contained in this section is derived from the NMMNHS Collections database.

3.12.1 Cibola County and Southeast McKinley County

Located in west-central New Mexico contains 364,208 acres of surface estate where BLM has direct responsibility for management of surface resources. In the case of split estate, any paleontological resources belong to the surface owner. The BLM's obligation in a case where a federal action may affect the paleontological resources is to ensure the action is conditioned with appropriate paleontological mitigation recommendations to protect the interests of the surface owner. For this reason, the tables of PFYC at the end of this section are not separated by surface ownership.

Specific physiographic features occurring within the area include: the Zuni Uplift, Zuni Basin, and the Zuni Bandera Lava Fields. Various geologic formations occur at the surface of the earth within these physiographic features and vary in potential to contain significant fossil resources.

Cibola County and southeast McKinley County contain geologic formations ranked 4 and 3 for potential to produce significant fossil resources. Formations that occur in the described area and have produced vertebrate fossils include: (oldest to youngest) Triassic, Jurassic, Cretaceous, Paleogene and Neogene rock units.

3.12.2 Bernalillo County and portions of Cibola and Valencia Counties

Located in the Central New Mexico, this area contains 139,724 acres of surface estate where BLM has direct responsibility for management of surface resources. In the case of split estate, any paleontological resources belong to the surface owner. The BLM's obligation in a case where a federal action may affect the paleontological resources is to ensure the action is conditioned with appropriate paleontological mitigation recommendations to protect the interests of the surface owner. For this reason, the tables of PFYC at the end of this section are not separated by surface ownership.

Specific physiographic features occurring within the described area include: the Acoma Sag, Mount Taylor Volcanic Field, Lucero Uplift, Rio Puerco Fault Zone and the Albuquerque Basin. Various geologic formations occur at the surface of the earth within these physiographic features and vary in potential to contain significant fossil resources.

This area contains geologic formations ranked 3 and 2 for potential to produce significant fossil resources. Formations that occur in Bernalillo and northern Valencia Counties and have produced vertebrate fossils include: (oldest to youngest) Pennsylvanian, Permian, Triassic, Jurassic, Cretaceous, Paleogene and Neogene rock units.

Within this area, the surface acreage is concentrated within the Acoma Sag and the Lucero Uplift. Geologic formations exposed at the surface include Permian, Triassic, Jurassic and Cretaceous sedimentary rocks. Some checkerboard pattern of BLM-administered lands occurs within the Albuquerque Basin east of the Lucero Uplift where Neogene formations are exposed. These rock units are all given Class 3 sensitivity and would require some level of screening for paleontological resources when considering land use authorizations. Site specific clearances will be considered when permitting surface disturbing activities. Known localities have been documented within the rock units exposed in this area.

In addition, there have been excavations and recovery of significant fossil resources within caves formed in mineral spring deposits and along fault scarps and landslide deposits.

Rock units within this area have produced important vertebrate fossils, but very little survey has been completed on these rocks. Pennsylvanian, Permian, and Triassic sedimentary rocks containing key features occur within this area. There is a significant invertebrate locality and potential exists to discover additional localities. Key features also occur around Cerro Verde and Volcano Hill. In addition, travertine cave deposits have produced important Pleistocene fossil material.

3.12.3 Torrance County

Located in central New Mexico, this area contains 16,356 acres of surface estate where the BLM has direct responsibility for management of surface resources. In the case of split estate, any paleontological resources belong to the surface owner. The BLM's obligation in a case where a federal action may affect the paleontological resources is to ensure the action is conditioned with appropriate paleontological mitigation recommendations to protect the interests of the surface owner.

Specific physiographic features occurring within this area include: the east slope of the Manzano Mountains and the Estancia Basin. Various geologic formations occur at the surface of the earth within these physiographic features and vary in potential to contain significant fossil resources. The concentration of public surface is located within what was the center of Pleistocene Lake Estancia. Today, remnants of the lake exist as playa lakes (Laguna del Perro).

Although the sensitivity level given to the area is class 1 because of map scale, localities have been documented and recorded in the NMMNHS. All of the localities are recorded within Pleistocene lake margin and shoreline deposits. The fossil material has been discovered in areas where mineral materials were being extracted.

Actions that could affect paleontological resources would include extraction of mineral materials from surface estate parcels near the margins of the playa lakes. Consideration for these resources could be made by including stipulations to mitigation in the event of discovery during mineral operations.

Pleistocene lake margins have produced vertebrate fossils within Torrance County. Mineral materials sales in this area could expose or encounter fossils resources.

Sandoval County contains key features where Cretaceous and Paleocene rocks have produced significant vertebrate fossils for over 150 years. This area preserves rocks that record the end of the dinosaurs and the expansion of mammals to fill that empty niche. An important and active Jurassic bone bed quarry occurs within this unit. Other important Jurassic localities occur within designated wilderness.

3.12.4 Sandoval County

Located in the northwestern New Mexico, Sandoval County contains 465,670 acres of surface estate where the BLM has direct responsibility for management of surface resources. In the case of split estate, any paleontological resources belong to the surface owner. The BLM's obligation in a case where a federal action may affect the paleontological resources is to ensure the action is conditioned with appropriate paleontological mitigation recommendations to protect the interests of the surface owner.

Specific physiographic features occurring within Sandoval County include: the eastern edge of the San Juan Basin, the Nacimiento Uplift, the Acoma Sag, the Rio Puerco Fault Zone and the Albuquerque Basin. Various geologic formations occur at the surface of the earth within these physiographic features and vary in potential to contain significant fossil resources.

Sandoval County contains geologic formations ranked 5, 4, and 3 for potential to produce significant fossil resources. Formations that occur in the unit and have produced vertebrate fossils include: (oldest to youngest) Triassic, Jurassic, Cretaceous, Paleogene, and Neogene units.

The San Juan Basin has been an important fossil producing area for the last two centuries and continues to produce material important to science. Within Sandoval County, there are areas designated for paleontological resources and a number of areas where exposed badlands occur on the surface of the earth. In these areas, very little soil formation has occurred and bedrock is essentially exposed at the surface.

These rock units are all given level 5, and 4 sensitivity and would require some level of screening for paleontological resources when considering land use authorizations. Numerous localities have been documented within the rock units exposed in this area. Site-specific clearances will be considered when permitting surface disturbing activities. Leasing actions for oil and gas, geothermal, or other land use authorizations, and exchanges should consider affects on paleontological resources prior to permitting activities or disposal of public lands. Any surface disturbing activity or permitted use should consider paleontological resources.

There are areas within the unit where active excavation of fossil resources occurs. One locality has produced important dinosaur material and excavation has been ongoing for seventeen years. Another area has produced fossils that define part of the geologic time scale for the Paleocene. The excavations have been conducted by the NMMNHS. These areas and localities could be considered for some special designation.

3.12.5 Eastern Sandoval County

Located in central New Mexico, eastern Sandoval County contains 11,069 acres of surface estate where the BLM has direct responsibility for management of surface resources. In the case of split estate, any paleontological resources belong to the surface owner. The BLM's obligation in a case where a federal action may affect the paleontological resources is to ensure the action is conditioned with appropriate paleontological mitigation recommendations to protect the interests of the surface owner. Specific physiographic features occurring within the area include: the Albuquerque Basin, the Hagen Basin, and a portion of the Sandia Uplift. Various geologic formations occur at the surface of the earth within these physiographic features and vary in potential to contain significant fossil resources. These formations have been given a Class 3 and 2 level of sensitivity and have produced important paleontological resources. Formations that occur in eastern Sandoval County and have produced vertebrate fossils include: (oldest to youngest) Cretaceous, Paleogene, and Neogene units.

Site-specific clearances will be considered when permitting surface disturbing activities. Leasing actions for oil and gas, geothermal, or other land use authorizations, and exchanges should consider affects on paleontological resources prior to permitting activities or disposal of public lands. Any surface disturbing activity or permitted use should consider paleontological resources. In addition, there are known areas within the area that might warrant some special designation.

Specific fossil resources in the Planning Area have been, and will continue to be, identified by field surveys conducted by permitted paleontologists, including faculty at universities and curators at museums, as well as by students conducting research. Additional fossil resources may be identified by consultants conducting environmental reviews of specific land use proposals and as discoveries reported by members of the public. There are four active research paleontology permits in the Planning Area (two survey permits, two excavation permits), representing six different researchers. Two of these active permits are issued statewide to the NMMNHS and active research is being conducted under these permits within the Planning Area. Student researchers are considered and encouraged to pursue research under the supervision of a qualified advisor.

Collection of fossils from public lands is allowed with some restrictions, depending on the significance of the fossils. Under existing regulations, hobby collection of common invertebrate or plant fossils by the public is allowed in reasonable quantities using hand tools, and no commercial use of these hobby collections is allowed. Current regulations do not allow any commercial collecting of paleontological resources. The public is allowed to collect petrified wood without a permit for personal, noncommercial purposes. They can collect up to twenty-five pounds plus one piece per person per day, with a maximum of 250 pounds in one calendar year.

Collection of significant fossils, which includes all vertebrate (body and trace fossils) and any administratively designated plant or invertebrate fossil locality, may only be done under authority of a permit issued to qualified individuals. Two types of permits are issued. The basic permit is the survey and limited surface collection permit, issued for reconnaissance work and collection of surface finds, with a one square meter limit on surface disturbance. If the work will exceed one square meter, the researcher must apply for an excavation permit. Prior to authorization of an excavation permit, BLM must assess and complete the appropriate level of review under NEPA for the proposed action.

All fossils collected under a permit remain public property and must be placed in an approved repository. Permits issued to qualified researchers must include The NMMNHS, a New Mexico state institution under the Department of Cultural Affairs, serves as the official repository for fossils recovered from BLM land. Research permits would be issued to qualified researchers and yearly reports of findings including locality and specimen information are required to be submitted to the BLM. In addition to permit reporting requirements, the NMMNHS shares data with the BLM to identify new localities, legacy data, and at-risk collections to ensure preservation of public fossils. Management tools for land use planning have been developed as a partnership relationship between the BLM and the NMMNHS. This data is not subject to the Freedom of Information Act (FOIA). This would include any required data submitted by other researchers working in New Mexico.

Trends within the RPFO are for increased use of the landscape for resource extraction, increased recreational use both permitted and unpermitted use, and decreasing funding and personnel for resource protection. Such trends are expected to have an effect on some important paleontological resources from permitted and unpermitted uses. Over the past twenty years, BLM New Mexico has worked cooperatively with the NMMNHS. The partnership is expected to continue if personnel are present to maintain the partnership.

As the public lands within the Planning Area become subject to more use for a variety of purposes, significant fossil resources might be more likely to be affected from the use. The increase of uses within key areas will require additional measures to be taken in order to manage these resources according to BLM policy and laws. New species may be discovered at any time, and even fragments may yield important information. The scientific, educational, and recreational value of any discovered resource must be determined with each discovery and by careful examination and evaluation by a paleontological resource specialist.

There are key features in the Planning Area where important fossil-bearing rock units are well exposed on the earth's surface with minimal soil development. Exposure of the rock at the surface allows for easier discovery of significant fossils. There are also some important

localities known that will require monitoring and more intense management to conserve and management these resources according to BLM policy.

Key features within this area consist of important localities of the Eocene Era. In addition to fossil resources, the area preserves interesting geologic features which have served as an outdoor classroom for the NMMNHS.

3.12.6 Cibola County and SE McKinley County

Important vertebrate fossils, including new species of dinosaurs discovered in Catron County, outside of Cibola County, and in southeast McKinley County; however, the same type rocks occur within the Cibola County area.

3.13 Recreation and Visitor Services

3.13.1 Recreation Opportunity Spectrum

A Recreation Opportunity Spectrum (ROS) inventory was conducted for the RPFO and is described in the 1986 RMP. According to BLM Manual 8320, ROS is defined as a continuum used to characterize recreation opportunities in terms of setting, activity, and experience opportunities. ROS is a conceptual planning tool that applies a set of criteria to a land area's physical, social, and managerial settings to describe the existing conditions, which in combination define a land area's capability and suitability for providing a particular range of recreational experience opportunities.

The ROS is subdivided into six classes that cover the full spectrum of experience opportunities: primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, rural, and urban. Once these opportunities have been defined, managers are able to determine which opportunities are provided and are able to assess the impacts of other resource actions on the recreation resource.

BLM assessed ROS for specific management areas:

- Azabache Station—Roaded Natural
- Cabezon Peak—Semi-primitive Non-motorized
- Guadalupe Ruin—Semi-primitive Non-Motorized
- Ignacio Chavez—23,587 acres of Primitive, 8,800 acres of Semi-primitive Non-motorized, 3,696 acres of Semi-primitive Motorized, and 7,065 acres of Roaded Natural
- Oh My God Motorcycle Race Tracks—Roaded Natural
- Perea Nature Trail—Roaded Natural
- San Ysidro Trials Area—Semi-primitive Motorized
- White Mesa Bike Trails—Semi-primitive Non-motorized

Recreation programs in the RPFO are managed according to multiple use principles, unless specified otherwise by law. The RPFO's primary goal is to ensure the continued availability of outdoor recreation opportunities which are not readily available from other sources. Recreation use is managed to protect the health and safety of users, to protect natural and cultural resource

values, and to promote public use and enjoyment of the public lands. Public recreational opportunities located in north-central New Mexico occur on lands managed by the U.S. Forest Service, the BLM, NM State Parks, the National Park Service, Valles Caldera National Preserve, USACE, Indian Tribe Nation, and Pueblo Lands, as well as local government. Landscape attributes that enhance opportunities for recreation and attract visitors to public land include volcanic necks, lava fields, rolling hills, arroyos, canyons, sandstone mesas, and wooded environments. With this diverse landscape, the Planning Area provides various opportunities for sightseeing, wildlife viewing, hiking, backpacking, picnicking, horseback riding, sport shooting, bird and big game hunting, rock climbing, biking, OHV use, geocaching/orienteering, camping, as well as solitude. A majority of the recreational uses occurring on public land are dispersed.

Most public land is managed to maintain a freedom of recreational choice with a minimum of regulatory constraints. Current management direction for dispersed recreation is provided in 43 CFR 8300 and subsequent BLM manuals, guidance, and policy. RPFO management priorities are to congressionally recognized areas, administratively recognized areas, and to undeveloped areas currently experiencing resource damage, user conflicts, or threatening visitor safety. Management priority is also given to those areas where use exceeds current capacity and to areas near urban centers. Additionally, unique and/or scenic attractions adjoining heavily traveled highways are managed on a priority basis. Other priorities are preservation and protection of natural and cultural resources, including scenic, historic, and archeological values, and primitive environments.

The RPFO issues Special Recreation Permits (SRPs) to authorize certain recreational uses of land administered by the BLM. Authority to issue these permits is provided in 43 CFR 2932. Permits are issued for competitive events, commercial use, organized groups, and recreation use in special areas. Commercial use is recreational use of public land for business or financial gain. Competitive use is any formally organized or structured use, event, or activity on public land in which there are elements of competition between two or more contestants, registration of participants, and/or a predetermined course or area is designated. Competitive use also includes individuals contesting an established record such as speed or endurance. Organized group activity means a structured, ordered, consolidated, or scheduled event on, or occupation of, public lands for the purpose of recreational use that is not commercial or competitive. The RPFO would continue to issue SRPs after the appropriate NEPA is completed. The RPFO administers approximately twenty-eight SRPs annually, nineteen of which are authorized within the Planning Area. Recreation resources will continue to be evaluated on a case-by-case basis as part of project level planning. Such evaluation will consider the significance of the proposed project and the sensitivity of recreation resources in the affected area. Stipulations will be attached as appropriate to assure compatibility of projects with recreation management objectives and the BLM's policy of multiple use.

During the 2007/2008 season, the following SRPs were issued: thirteen Big Game Outfitting, one motorcycle race, one Trials Event, one Llama Hike, one Environment Education, and two Jeep Tours. The remaining fifteen permits were commercial tours to the Kasha–Katuwe Tent Rocks National Monument.

As a result of the resolution of the RMP for the Planning Area in the Albuquerque District (USDI BLM 1986), thirteen areas were identified as containing important and valuable recreation values and opportunities which warrant special management attention. These thirteen

areas are located within the following SMAs: Historic Homesteads, Canon Jarido, Jones Canyon, Azabache Station, Cabezon Peak, Ignacio Chavez, Elk Springs, Ojito, Pronoun Cave Complex, Continental Divide Trail, 1870s Wagon Road Trail, Petaca Pinta, and Bluewater Canyon. In the 1986 RMP, Tent Rocks and El Malpais were listed in the count of thirteen, making the actual number fifteen. Both areas now have their own RMPs.

Included in the Planning Area are El Malpais NCA and Kasha Katuwe Tent Rocks National Monument. Stand alone plans exist for the management of these BLM-designated areas.

In addition to BLM-administered lands, other recreation providers include New Mexico State Parks and State Land Office; NPS, Valles Caldera National Preserve; USFS; USACE; Indian Tribe, Nation, and Pueblo Lands; as well as local government.

As the population in the area continues to increase, the demand for recreational uses of public land and visitor services has also increased. The public has expressed interest in adopting various RPFO areas for hiking, camping, and OHV use.

Albuquerque and Santa Fe, the largest population areas in New Mexico, are located within the Planning Area. The population growths of these two cities are expected to continue. The vast majority of this population use the public lands for their recreation purposes.

The BLM's 2003 Priorities for Recreation and Visitor Services acknowledges that the ways in which people use public land is changing as a result of evolving values and advances in technology. For example, baby boomers increasingly access BLM-administered lands for traditional recreational purposes, while younger generations commonly use new technologies such as OHV equipment for extreme sports such as rockcrawling. In addition, the demographics of people using local public lands for recreational purposes are changing. Growing populations tend to strain the land and its resources due to increased demand for recreation opportunities in the same areas.

The changing demographic profile of recreation users in New Mexico was identified as a recreation planning issue in the New Mexico 2004 Statewide Comprehensive Outdoor Recreation Plan (SCORP). Concern was expressed for the challenges of providing future recreational activities for both youth and the aging baby boomers. Around the state of New Mexico, recreation is viewed as critical for youth development and playing an important role in providing youth with positive outlets for energy as well as instilling an environmental ethic at an early age. In addition, the existing recreation areas might need to be retrofitted to accommodate the needs of an active and growing senior population.

The BLM's Recreation 2000 Strategic Plan recognizes that the BLM's recreation program is an important part of the economic base of the western states, and helps to satisfy the growing public demand for outdoor recreation by providing tourism-related opportunities on BLM-administered lands.

In addition, the BLM will need to provide for recreational activities involving new technological developments (e.g., recreational vehicles, new camping equipment) as they gain popularity among the public. According to the strategic plan, the primary concern in providing future recreation opportunities will include how to provide for resource protection, visitor services, and maintenance and effective management of the existing and future resources and facilities.

Some recreation activities, such as paintball, rockcrawling, and geocaching are beginning to pose management concerns. These uses likely will increase as population in the Decision Area grows.

Key features in the Decision Area are areas or features that experience high demand for dispersed or developed recreational uses, have the potential to accommodate demand, or provide unique recreational amenities. These key features include areas that offer opportunities for recreational activity within SMAs.

3.13.1.1 White Mesa Bike Trails

Located southwest of San Ysidro, New Mexico, the bike trail crosses a landscape of spectacular beauty and exceptional geology, meandering through the Pueblo of Zia, state of New Mexico, and public lands managed by the RPFO. White Mesa is named for the color of the gypsum that forms much of the mesa and majority of the bike trails. Trails were developed primarily for mountain biking; however, hikers are welcome and often find the trails as exhilarating as the bikers.

3.13.1.2 Oh My God Race Courses

Three separate and unique loop trails were designed and implemented for the Oh My God competitive motorcycle race. Oh My God consists of three courses, race course A, B, and C, which are designed solely for event use once every three years. Race course A is twenty-two miles, B is twenty-eight miles, and C is thirty-six miles. All three courses are only two to three miles from each other and are located west of Cuba, New Mexico, and north of State Road 197.

3.13.1.3 San Ysidro Trials Area

Located approximately one mile west of San Ysidro, New Mexico, north of U.S. 550, is the San Ysidro Trials Area, which is quite popular with hikers, mountain bike enthusiasts, as well as the trials bike community. The San Ysidro Trials Area is a unique slot canyon area that offers recreation for anyone with an appreciation of natural wonders. The entire recreation area lies at the southern tip of the Jemez Mountain range and is open for hiking, primitive camping, equestrian activities, and mechanical vehicles such as mountain bikes. The area is closed to off-road motorized vehicles except for the special use permitted to the New Mexico Trials Association, which uses the area for competitive and practice events.

3.13.1.4 Perea Nature Trail

A mountain peak dominates the one-mile Perea Nature Trail located just outside the village of San Ysidro in northwest New Mexico. The mountain highlights the Jemez Mountain Range, which is the southern start of the Rocky Mountains that extend northward to Alaska. The Perea Nature Trail offers a short, refreshing hike. Visitors to the Perea Nature Trail may look to the southwest over the Rio Salado riverbed to view an outstanding geologic setting. Blanco Mesa, known for its unusual white surface, is used as a creative backdrop for motion pictures and photography. The high rock formations with purple hues seen in the distance are part of the Nacimiento Mountain chain, and are some of the oldest rocks in the area.

3.13.1.5 Guadalupe Ruin

The Guadalupe Ruin is a prehistoric Chacoan outlier of about forty-five rooms (of which about one-half have been excavated and stabilized). The earliest date of occupancy occurred approximately A.D. 918; by A.D. 1140. Guadalupe was abandoned. A second occupation occurred in the late 1200s with migrations from the Mesa Verde region. The central ruin and community lie on the western edge of the Rio Puerco Valley immediately below the confluence of the Arroyo Chico and Rio Puerco.

3.13.1.6 Ojo Azabache Old Stage Station

Located in the northern boundary area of the Ignacio Chavez SMA, along County Road 25, is the old stage station at Ojo Azabache. This station served as a way stop for travelers on the route from Santa Fe to old Fort Wingate during the 1870s.

3.13.1.7 Cabezon Peak

Cabezon Peak's dramatic volcanic formation is one of the most well-known landmarks in northwest New Mexico. With an elevation of 7,785 feet, the Peak is part of the Mount Taylor volcanic field and is the largest of fifty volcanic necks rising from the Rio Puerco Valley. The peak is believed to have religious significance for the Pueblo and Navajo Indians, and remnants of their visits still exist. Cabezon, rising nearly 2,000 feet above the valley floor, is a popular area for rock climbing and scrambling. A climb to the summit provides an expansive view of the Rio Puerco Valley.

3.13.1.8 Ignacio Chavez Grant

Steep canyons and high, rugged cliffs provide rewarding challenges for the backcountry hiker within Ignacio Chavez. The Ignacio Chavez Grant was awarded to settlers in 1768 by the Spanish government for establishing communities. Because these communities were never developed, the U.S. government later acquired the land grant. Activities such as hiking, hunting, backpacking, mountain biking, and horseback riding can all be enjoyed without a permit in this remote, secluded area. The sensitivity of the resources in the area makes it necessary for the BLM to close Road 1103 to motorized vehicles certain times of the year. Unless specifically designated, all roads and trails are open to mountain biking.

3.13.1.9 Continental Divide Trail

The Continental Divide National Scenic Trail provides for high quality, scenic, primitive hiking and horseback-riding recreational experiences. Extending 3,100 miles between Mexico and Canada, the trail traverses landscapes primarily on public lands within fifty miles of the natural geographic feature of the divide. This National Scenic Trail was established in 1978 through the authority of the National Trails System Act (PL 90-543) and is one of the outstanding resources of the National Landscape Conservation System (NLCS).

3.14 Renewable Energy

In some locations within the Planning Area, it may be economic to produce renewable energy resources (e.g., wind, biomass, solar, and geothermal). Where feasible, BLM policy is to make possible environmentally sound development of renewable energy projects. Renewable energy resources in the Planning Area can be managed if the BLM authorizes the use of public lands for the development of various energy-generating facilities. Applications for commercial renewable energy projects are processed as ROW authorizations under Title V of FLPMA and under 43 CFR 2800.

3.14.1 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. Substantial biomass material is placed in landfills or allowed to decompose unharvested in locations such as forests and scrubland. As the demand for biomass increases, fast-growing trees, shrubs, and grasses (so-called energy crops) could be grown to meet that demand and provide sustainable energy. In addition, collection and processing facilities may be constructed and use available biomass to produce electricity.

During a 2001 Biomass Technology meeting with the DOE and the BLM, a new approach was offered to rate the biomass resources in a given area (DOE 2003). Areas are assessed for long-term sustainability to support biomass plants using satellite imagery. The assessment is based on the monthly Normalized Difference Vegetation Index (NDVI) developed by the National Aeronautics and Space Administration (NASA) for measurement of biomass using very high-resolution satellite data. The data have a resolution equivalent to an area of sixty-four square kilometers (twenty-five square miles).

The monthly NDVI is calculated from the visible (VIS) and near-infrared (NIR) light reflected by vegetation. Vegetation appears very different at visible and near-infrared wavelengths. In visible light, vegetated areas are very dark while desert regions are light. At near-infrared wavelengths, the vegetation is brighter and deserts are about the same. The relative amount of vegetation is measured by comparing visible and infrared light. Healthy vegetation absorbs most of the visible light that hits it, and reflects a large portion of the near-Infrared light. Unhealthy or sparse vegetation reflects more visible light and less near-infrared light. The formula for calculating the NDVI is NDVI = (NIR - VIS)/(NIR + VIS). Satellite images can be processed using this formula to calculate the NDVI for an area. Periodic images are used to calculate monthly NDVI values. Variables such as time of year and climate play important roles in data interpretation.

The report prepared by the DOE and the BLM identified the Planning Area as having a fair biomass potential (DOE 2003). On public lands within the Planning Area, there currently are no commercial biomass facilities.

In the Planning Area, the forecast for biomass resources is dependent on the cost of nonrenewable energy resources such as petroleum. If biomass resources become competitive with other energy resources and thereby economic to produce, new facilities will need to be

constructed for processing and burning. This should lead to more biomass harvesting, especially in areas where downed trees, tree limbs, and underbrush have not been harvested or cleared.

Agricultural and forested areas within the Planning Area contain biomass resources for energy production, but due to arid conditions biomass may not be as sustainable as in other states.

3.14.2 Solar Energy

The report prepared by the DOE and the BLM identified lands within the Planning Area as having large acreage with high-potential concentrations of solar power and/or photovoltaic sites (DOE 2003). Solar energy is a renewable energy resource that has excellent potential for generating electricity in the Planning Area. Solar energy resources are classified based on the amount of solar radiation that contacts the ground surface in a specified area.

Solar energy in the Planning Area ranges from 5.6 to 6.5 kilowatt-hours per square meter per day (see Maps 60-62). There are no commercial solar energy facilities currently on public lands within the Planning Area.

Applications for commercial solar energy facilities will be processed under Title V of FLPMA and Title 43, Part 2800, and will be in conformance with the current RPFO land use plan.

The development forecast for solar resources in the Planning Area is directly tied to solar technology cost, suitable areas for solar, and the availability of transmission corridors. With technological advances in and mass production of solar collection equipment, costs should decrease in the long run. Cost increases for non-renewable energy resources will also help to make solar energy more competitive in the future market.

New Mexico, including the Planning Area, receives a large amount of annual sunshine. The Planning Area is well located for development of PV and CSP solar energy resources. The Indian Pueblo Cultural Center in Albuquerque has the largest Native American PV installation (carport) in the U.S. This system delivers about twenty-three megawatt hours per year to the local utility grid (PNM).

3.14.3 Wind Energy

Wind resources are classified based on the wind power density at a location or area and in units of watts per square meter of surface land area. Wind power is dependent on the height of the wind turbine above ground level. The current commercial standard is fifty meters (150 feet). Effective wind power classes range from lowest (class 1) to highest (class 7). Wind power is considered economic for large turbines (utilities-scale) at class 4 and higher for short-term installation and operation and class 3 and higher for long-term installation and operation, although a small non-commercial turbine can be used at class 1.

The report prepared by the DOE and the BLM identified lands within the Planning Area as having minimal acreage with high-potential wind power density (DOE 2003). The majority of the Planning Area falls into wind power density class 1 (poor), but there are a few high elevation sites that fall into class 2 (marginal) and class 3. There are no commercial wind energy facilities currently on public lands within the Planning Area.

The DOE and BLM survey of topographic and historical wind conditions has identified locations in the Planning Area where wind resources are available for development.

There are no commercial wind energy facilities on public lands within the Planning Area, but there are private commercial operations outside the Planning Area towards the eastern border of New Mexico. A number of companies have recently expressed an interest in possible wind power projects in Torrance County, and increased interest in this resource is forecasted. Future wind resource use is dependent on cost of installing and operating wind resource facilities. Technological advances may decrease costs for equipment and facilities making this resource economically competitive with non-renewable resources. Requests for ROW permits for wind facility installation in some areas may conflict with other resources, such as visual.

Areas with the highest wind resource classification, crests and slopes of mountains, highlands, mesa tops, and the eastern plains are key features for wind power resources. The majority of the Planning Area falls into the poor wind power density class, with only a few locations containing key features. These areas are in the marginal-fair wind power density classes.

The forecast for renewable energy sites is unclear because only one site exists in the Planning Area, although there have been numerous inquiries. More renewable energy sites may be developed, requiring additional ROWs from BLM. Public lands in the RPFO provide opportunities for wind energy. A 2003 study by the BLM and US Department of Energy (DOE) found several locations of medium-to-high wind energy potential, generally located on higher elevations (USDI BLM and DOE 2003). Private companies have expressed interest in developing potential sites in Torrance County, but no permits have been issued. There is also the potential for the development of solar energy resources in the Planning Area, although no applications have been received.

3.15 Riparian Resources

The indicators for soil and site stability within riparian areas are listed as Standard Checklist items Pritchard 1999, 1998) for both lotic (flowing water, i.e., stream) and lentic (standing water, i.e., pond, marsh systems) systems.

Many of the specific indicators and standard checklist items from these assessments have been incorporated into the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* (referred to as the Standards and Guidelines; USDI BLM 2001a). For New Mexico, the Riparian Sites Standard is “Riparian areas are in a productive, properly functioning, and sustainable condition within the capability of that site. Adequate vegetation of diverse age and composition is present that will withstand high stream flow, capture sediment, provide for groundwater recharge, provide habitat and assist in meeting State and Tribal water quality standards. An indicator that is listed for this standard that directly relates to soil erosion is “streambank stability as determined by degree of: shearing or sloughing, and vegetative cover on the bank.”

In the Planning Area, existing roads and other developed infrastructure (e.g., oil and gas exploration and development) on public land can cause erosion and sedimentation, potentially degrading upland, riparian, and habitat function. The soil impacts from roads and other developments should be judged against land health standards for upland and riparian sites, as

appropriate. Also, there are standards and guidelines for soil erosion for road construction, maintenance, and reclamation developed for oil and gas operations (USDI and USDA 2007), and these guidelines also can be applicable to other land disturbing activities on public lands.

Riparian-wetland areas, though they comprise a small percent of the total land base, are the most productive resources on BLM land. Riparian areas make up less than 2 percent of the land base in New Mexico, but are critical areas in relation to the total amount of land administered by the Rio Puerco Field Office. These areas represent important migratory bird flyways and nesting areas for threatened and endangered species and have been found to contain large populations of bird species in desert areas (USDA 2005).

Riparian zones are the most critical wildlife habitats in managed rangelands. More wildlife species depend entirely on or spend disproportionately more time in this habitat than any other. The zone is also disproportionately important for grazing, recreation, fisheries production, road location and other similar developments, and water quality and quantity.

The major watersheds occurring in the planning area are the Rio Grande and Rio Puerco. Aquatic and riparian habitats are relatively rare in the Rio Puerco Field Office. Rivers and creeks in the decision area include the Rio Puerco, Las Huertas, Bluewater, Rio Senorito, Rio Gallina, Rito Leche, Rio Salado and others. The Rio Puerco Resource Area riparian areas also include a number of springs and seeps.

Riparian-wetland areas in the RPFO traverse portions of public, state, tribal and private land, and therefore not all habitats have been completely mapped and studied. Also, due to recent land acquisitions, some riparian-wetlands have not been inventoried at all. Riparian monitoring and management emphasis is based upon the degree to which that portion of the riparian area has existing use and impact, or the potential for increased use or impact. A great deal of variation can occur between riparian zones and even within (or along) the same drainage.

The 2000 Riparian and Aquatic Habitat Management Plan for the Albuquerque Field Office represents an adaptive management strategy for maintaining, restoring, improving, protecting and expanding riparian areas in the planning area. The table below lists mapped riparian areas in the field office.

Table 3.17: Riparian Areas In The Rio Puerco Field Office

Riparian/Wetland Area	Area (Acres)	Length (Feet)	PFC Status
Arroyo Chico – Azabache	380	43,200	FAR – D (1998)
Arroyo Chico – Charlotte's Well	15	3,300	PFC (1998)
Arroyo Chico – Chico Crossing	206	50,000	NF (1998)
Azabache Flowing Artesian Well	16	-	PFC (1998)
Bluewater Canyon	25	10,800	PFC (1998)
Cabezon Community	45	10,200	FAR – U (1998)
Cachulie	26	11,500	FAR – D (1998)
Cebolla Canyon	91	23,300	FAR – U (1998)
Cebolla Spring	7.2	-	PFC (1998)
Cerros Colorados	43	12,500	FAR – NA (1998)
Chamisa Losa Spring & Canyon	0.25	-	NR

Riparian/Wetland Area	Area (Acres)	Length (Feet)	PFC Status
Charlotte's Well	1.5	-	PFC (1998)
Coal Creek	100	18,500	FAR – U (1998)
Guadalupe Community	77	10,500	NF (FAP) (1998)
La Lena Artesian Well	0.5	-	PFC (1998)
Las Huertas Creek	-	-	NR
Long Ridge	36	7,000	NF (FAP) (1998)
Lost Valley	103	21,600	FAR – U (1998)
Mound Springs	50	-	NR
Oak Spring	3	-	NR
Ojo de las Yeguas	0.25	-	NR
Ojo Frio	1.5	-	NR
Rinconada Canyon	15	3,000	FAR – NA (1998)
Rio Gallina	10	2,000	FAR – U (1998)
Rio Salado Community	143	18,000	NF (FAP) (1998)
Rio Salado Community (Jemez Valley Irrigation)	12.6	-	PFC (1998)
Rito Leche	9.6	2,800	PFC (1998)
Road Spring	0.2	-	NR
San Luis Community	22	6,000	FAR – D (1998)
Senorito Canyon	35	9,800	PFC (1998)
Two Bridges	30	10,000	N/A
Wilson Canyon	77	12,000	FAR – U (1998)
Total	**1,581.6**	**286,000 (~55 miles)**	

PFC = Properly Functioning Condition NR = Not Rated

FAR = Functional At Risk N/A = Not Applicable

FAP = Functioning At Potential NF = Non-Functional

Out of all inventoried/assessed riparian areas, 8 are at proper functioning condition, eleven are functioning at risk and four are non-functional. Currently, the RPFO is actively involved in riparian restoration projects that include physical reconstruction of hydrologic flow, revegetation, exclusion of livestock and more. These projects are aimed at bringing the above riparian areas up to PFC and/or maintaining them at that level or above. The RPFO continues to acquire new critical riparian areas through land exchanges with the state and private groups or individuals, and also manages riparian values through partnerships with Federal, state and private cooperators.

The desired condition for riparian-wetland management areas is described in Technical Reference 1737, Riparian Area Management, and is measured by the Properly Functioning Condition assessment. Though PFC is a qualitative assessment, it shall be used as an indicator that the trend of the resource condition will be based on because quantitative data do not exist that describe or explain these trends. Additionally, the adoption of the Standards for Public Land Health and Guidelines for Livestock Grazing Management incorporate soil and site stability indicators from BLM assessment methods.

Up to 90% of natural riparian communities in New Mexico have been lost or significantly altered due to human activity, resulting in loss of habitat for wildlife, increased/decreased streamflows, increased erosion, and altered stream channel configurations. More recently, streams and rivers have been impounded for flood control, irrigation water storage, agriculture, and municipal uses. Flood plains have been constricted and wetland areas drained for development. The resulting hydrologic changes (drop in water tables, diminished flow rates, lack of overbank flooding, and reduced in-channel scouring), have decreased natural regeneration of native vegetation, and allowed for uncontrolled growth of exotic, nonnative vegetation. Invasive species, especially Russian olive and saltcedar are outcompeting native cottonwoods and willows.

The presence of water often attracts people for recreation activities, especially in the desert southwest where water is scarce and its presence creates a unique ecosystem. Riparian habitats support a high diversity of plant and animal communities, which also attracts human use.

Several activities permitted on BLM land have the potential to impact riparian resources. Threats to habitat include but are not limited to recreation, livestock grazing, agricultural development, water diversion and impoundment, and mineral development. The two most common issues that have led to the degradation of riparian habitat in the RPFO are overgrazing by livestock and the replacement of native habitats by introduced vegetation such as saltcedar and Russian olive. Improper livestock grazing practices in and around riparian areas may harm riparian habitat and the rich diversity of wildlife that thrives in these environments. Overgrazing reduces water quality, changes stream flow, compacts and erodes soil, and affects native plants and animals that live in and around riparian-wetland areas. To protect critical areas, the RPFO has limited livestock access to some riparian zones, and alternate water sources have been provided.

In the 2000 Riparian & Aquatic Management Plan for the Albuquerque District Office, there were approximately twenty-four riparian areas assessed for PFC. Out of those twenty-four, thirteen were grazed and eleven were un-grazed. Out of those that were grazed, only 8% were rated at PFC, while 92% were either functioning at risk or non-functional. Out of those that excluded from grazing via fencing structures, 73% were rated at PFC, while 27% were either functioning at risk or non-functional. At least sixty projects, aimed at riparian restoration and enhancement, have been conducted since the 1986 RMP. The majority of these projects involved riparian fencing to exclude livestock grazing. Project types included treatment of noxious weeds, cottonwood and willow pole and seed plantings, development and fencing of natural springs, construction of hydrologic structures such as retention dams, beaver reintroductions and others.

From the data described above, there is a higher occurrence of riparian-wetland areas rated at PFC in areas protected from livestock grazing than areas unfenced from grazing. From this qualitative analysis, the trend for areas protected from livestock grazing seems to be in upward mobility. Due to a lack of regular monitoring and quantitative data from the riparian-wetland areas in the RPFO, this conclusion is based on the assumption that the increased quality of areas protected from livestock grazing is a direct effect of removal of grazing (grazing as independent variable). Without detailed monitoring data, we cannot conclude that the removal of livestock grazing has in fact been the only factor contributing to this change. However, it can reasonably be assumed for analysis purposes.

Currently, a number of noxious weeds treatments are ongoing within the Rio Puerco watershed. While the condition of riparian plant communities is important to the hydrologic function and water quality of these systems, it also contributes to the health of habitat for special status species, specifically the endangered southwest willow flycatcher. The goal of ongoing invasive weed projects is to develop and protect riparian ecosystems by controlling and removing invasive, nonnative vegetation, restoring native plant cover, and improving wildlife habitat for a variety of terrestrial and aquatic species.

BLM biologists and range conservationists in the RPFO are increasing efforts to monitor riparian areas to determine if land use plans and subsequent management actions are meeting the resource objectives. This information advises managers on the effectiveness of land use and activity plans and recommends where changes in management strategies are needed. As for the current trends in riparian resource condition in the RPFO, current management practices are addressing the threats to riparian habitat and in the past ten years have shifted management to focus on restoration and enhancement of these habitats.

The geographic location, distribution, functioning status and habitat management objectives (including those of special status species) of riparian-wetland resources are key features that guide the allocation of land uses and management decisions. There are approximately 1,600 acres of riparian area described in the 2000 Riparian and Aquatic Habitat Management Plan for the Albuquerque District Office. These areas along with those not described in the document represent important considerations for land management authorizations including livestock grazing, recreation activities, mineral development, and potential sites for renewable energy and rights of way. The Proper Functioning Condition assessment is a key feature in determining compliance with bureau policies including the New Mexico Standards for Public Land Health.

3.16 Social and Economic Conditions

Certain defining features of every area influence and shape the nature of local economic and social activity. Among these are the local history, population, presence of or proximity to large cities or regional population centers, types of longstanding industries such as agriculture and forestry, predominant land and water features, and unique area amenities. The BLM operates as a steward of many of these area resources and opportunities and thus plays a principal role in the community. This discussion gives further insight on the character and extent of these community connections.

3.16.1 Methodology for Analysis

The economic analysis focuses on changes in demand for goods and services from BLM-administered lands within the Planning Area. These lands contribute a wide range of economic values to people. Market goods such as minerals, timber, livestock, and recreation generate payments to local communities and some revenue for the federal treasury. Non-market goods such as the existence values of cutthroat trout or other unique ecosystems and habitats generate value everyone reaps but do not necessarily pay for. Other goods such as outdoor recreation and scenery are valued by the people who use them, but only a portion of this value is represented in market purchases.

While a value for ecological or recreational goods may exist, it is difficult to quantify. Direction provided in the Land Use Planning Handbook (Appendix D of the Handbook; pages 6, 7 and 10; BLM 2005) suggests the use of benefit transfer to evaluate the effects of these non-market values. In the absence of quantitative information for these goods, they are discussed qualitatively where appropriate.

These are important considerations alongside contributions to local jobs and income from a change in demand for goods and services provided by the BLM. If demand exists for these goods and services, employment and income would likely be supported in other areas if these goods and services are provided by other means. Therefore it is important to consider the efficiency of using these resources alongside potential job and income generation from their use.

3.16.2 Impact Area

To accurately portray the relationship of current BLM management and the community, the social and economic geographic scope of analysis must be defined. The economic effects from changes on BLM-administered lands feasibly extend beyond the immediate vicinity of these lands. The role of BLM-administered lands within the larger region must be addressed while not masking change within smaller counties and communities in the Planning Area. A multidimensional approach is thus appropriate, examining both the role of BLM-administered lands at a broad regional scale and smaller county level scale.

At the broad scale, economic areas from the Bureau of Economic Analysis (BEA) are used. These economic areas represent the relevant regional markets for labor, products, and information, and are mainly determined by commuting patterns. This delineates local labor markets and also serves as a proxy for local markets where businesses in the areas sell their products (US Department of Commerce 2004).

The BEA's Albuquerque economic area contains all counties within the Rio Puerco Planning Area except McKinley County, which falls within the Phoenix-Mesa-Scottsdale economic area. Analysis of these two economic areas would mask social and economic relationships with BLM in the smaller communities within the Planning Area; however, it can be reasonably assumed that the small portion of McKinley County overlapping the Planning Area is integrated with the other five impact area counties. While geographic relationships are important to communities of place, social relationships extend beyond geographic characteristics and are examined in this document as they relate to communities interested in BLM management within the Rio Puerco RMP Planning Area.

3.16.2.1 History

Central New Mexico was home to social and cultural groups long before Europeans reached the Americas. Approximately 5,000 years ago, the lifestyles of local people were based on hunting game and gathering wild plants. Around 200 A.D., people lived in year-round pit houses and depended intimately on the land for their food, clothing, and shelter. The switch to a less nomadic lifestyle supported the development of infrastructure, communities, and cultural distinctions between groups not present earlier. In the late eleventh century, multi-storied pueblos began to appear and soon after the Athabascan people (now called Apaches and

Navajos) began to settle in the area. Land now administered by the BLM within the Planning Area has been supporting social and cultural traditions for thousands of years.

In 1540, pueblos in the area had their first contact with the Spanish during Don Francisco de Coronado's expedition, near present day Bernalillo. Spanish colonizers brought cattle and sheep to the area and taught the Pueblos how to raise them. The Pueblos in return taught the Spanish how to grow corn and other native plants and how to subsist in New Mexico. In 1598, Juan de Oñate led an expedition from Compostela, Mexico to the Tewa village of Ohkay Owingeh, located near the confluence of the Rio Chama and the Rio Grande. They renamed the village San Juan de los Caballeros and established the first Spanish capital of New Mexico. This event often marks the formal Spanish colonization of New Mexico.

Following Oñate, colonists from Mexico and Spain continued to come to the area along the Camino Real de Tierra Adentro trail, which covered 2,000 miles from Mexico City to Santa Fe through the Planning Area. Spanish colonizers brought cattle and sheep to the area and taught the Pueblos how to raise them. The Spanish also brought mining and forging techniques, and the Pueblos learned to use metals for weapons, tools, and art. El Camino Real de Tierra Adentro was used by settlers, missionaries, the military, and traders for almost 300 years. When the railroad reached New Mexico in 1880, the Camino Real gradually fell out of use.

In 1821, Mexico won its independence from Spain and the vast area of "Nuevo México" was divided into four cabeceras (headquarters) in 1823. In 1846, the U.S. Congress declared war against Mexico, and General Stephen Kearny entered Santa Fe on August 18 and took possession of New Mexico. In 1852, the seven original counties of the New Mexico Territory were created by the New Mexico Territorial Legislature.

3.16.2.2 Bernalillo County

The Mexican governmental division of the area in 1823 extended as far south as Socorro and can be considered the origin of Bernalillo County. Bernalillo was also one of the original seven counties recognized by the New Mexico Territorial Legislature. Albuquerque has been thriving since 1706 and is the center of commercial and cultural activity. In terms of population, Bernalillo is the largest county in New Mexico, with a population of over 635,000 in 2008, and benefits from the economic and social diversity that comes with the Albuquerque metropolitan area. This county also includes communities of Los Ranchos de Albuquerque, Tijeras, and a number of unincorporated communities.

3.16.2.3 Cibola County

Cibola County was created in 1981 from the western portion of Valencia County and is the last county to form in New Mexico. In the 1950s, uranium mining took off in the Grants area and continued until prices fell in the 1980s. Today milling, tourism, and outdoor recreation are considered important to the area economy. Area attractions include mountain biking in the Zuni Mountains, El Malpais National Monument, El Moro National Monument, Mount Taylor, and Acoma Sky City (Cibola County 2008).

3.16.2.4 McKinley County

In the 1880s, farmers and coal miners began to arrive on the Overland stage, and a way station was established near Gallup. In 1881, the Atlantic and Pacific railroad reached Gallup. Ten years later, Gallup became an incorporated town and McKinley County was created in 1899. Coal production waned in the 1920s, but continues today along with oil and gas production and refinement. Uranium, vanadium, crushed stone, and perlite are also produced and are considered important to the economy, as is tourism. Local attractions include Navajo and Zuni art and cultural opportunities, Red Rock State Park, and the Chuska and Zuni mountains (McKinley County 2008).

3.16.2.5 Sandoval County

Sandoval County is one of the most geographically and culturally diverse counties in New Mexico. Sandoval County was created in 1903 from part of Santa Ana County. The county contains numerous sites of cultural importance depicting Puebloan, Spanish, Mexican, and Anglo histories. This rich cultural history attracts many visitors to sites such as Bandelier National Monument, Coronado and Jemez state monuments, Casa San Ysidro, the DeLavy House, and area pueblos. In addition to cultural attractions, outdoor opportunities at Valles Caldera National Preserve, Kasha-Katuwe Tent Rocks National Monument, as well as excellent hunting and fishing attract visitors to the area. While tourism is important to the county, semiconductor manufacturing and construction are considered important to the economy. Its largest city is Rio Rancho and the county seat is Bernalillo, which is one of the oldest cities in the nation. Other communities include Corrales, Cuba, Jemez Springs, and San Ysidro. Pueblos within the county include Cochiti, Jemez, Sandia, San Felipe, Santa Ana, Santo Domingo, and Zia, as well as portions of the Navajo and Jicarilla Apache Nations.

3.16.2.6 Torrance County

Torrance County was created in 1903, and this farming area was devastated by drought at the late 1940s. Today, agriculture remains important and focuses more on livestock industry and orchards. In addition to agriculture, area residents find appeal in the rural lifestyle and commute to Albuquerque (MRCOG 2009). Tourism plays some role in the local economy; the Cibola National Forest, Salinas Pueblo Missions National Monument, and Manzano Mountain State Park attract visitors to the area. Moriarty is the largest city and Estancia is the county seat. Other communities include Mountainair, Willard, Encino, Manzano, Tajique, and Torreon.

3.16.2.7 Valencia County

Valencia County was one of the original seven counties that made up the New Mexico Territory in 1852. The proximity of Los Lunas to Albuquerque and its rural amenities have made it an attractive area for retirees and commuters to Albuquerque who are looking for alternatives to city living. Real estate and new home construction have played a large role in the area economy recently. Further south, the community of Belen has maintained an identity connected to agricultural traditions and also relies on transportation sectors (MRCOG 2009).

3.16.3 Cultural Identity

High concentrations of Hispanic and Native American groups have lived in the Planning Area for centuries. Europeans have been in the area since Coronado's party arrived in 1540. Throughout the Planning Area, the merging of Native American, Hispanic, and Anglo histories provides a diversity of cultural traditions and identities in the area. While these groups historically may have clashed and culturally identified as disparate groups, the lines between them have often become less discernible over time. Cultural identity continues to diversify as new settlers move in, attracted by unique natural and cultural opportunities.

Native American groups with land within the boundaries of the RPFO include the Pueblos of Acoma, Cochiti, Isleta, Jemez, Laguna, San Felipe, Sandia, Santa Ana, Santa Clara, Santo Domingo, Zia, and Zuni. The Jicarilla Apache and Navajo Nations are also located in the Planning Area. The Southern Ute, Ute Mountain Ute Tribe, Comanche, and pueblos of Taos, Picuris, Ohkay Owingeh, Pojoaque, San Ildefonso, Nambe, Tesuque, Keresan, Ysleta del Sur and Santo Domingo and Hopi are not located in the Planning Area, but may have associated historical and cultural ties. These groups are ancestors to people who inhabited many of the archaeological sites within the Planning Area.

3.16.4 Population and Demographic Change

Population change in the Planning Area increased by 132% (563,489 persons) between 1970 and 2010 outpacing the state and the nation, which increased by 102% and 52% (1.04 and 105 million persons), respectively. Most of this growth occurred in Sandoval County, which increased by 648% or 114,684 persons; more than 10% of the total statewide increase. Population growth in Bernalillo, McKinley, and Torrance counties also increased by 109%, 65%, and 196%, respectively, over this period. The aggregate total of Cibola and Valencia counties increased by 211% over this period (63,267 persons). Cibola County saw a decrease in its share of population of 3.2% (902 persons) from its inception in 1981 to 2010 (U.S. Department of Commerce 2011).

Population projections suggest all counties in the impact area will increase in the next 20 to 25 years. Projections suggest that between 2010 and 2035, Bernalillo will increase the most (502,165 persons) while Torrance County will have the greatest increase as a share of its total population (89%) followed by Bernalillo County (76%). Cibola County will increase the least in absolute terms (7,315 persons) and as a share of its population (27%; University of New Mexico 2008). These trends reflect existing urban and rural character of impact area counties discussed below. The population density of the entire impact area and Bernalillo, Sandoval and Valencia counties was greater than the state of New Mexico in 2010 (17 persons per square mile) containing 51, 573, 36 and 72 persons per square mile, respectively. Cibola, McKinley, and Torrance counties had population densities of 6, 13, and 5 persons per square mile in 2010 (U.S. Department of Commerce 2011).

The BEA estimates the flow of annual earnings of in-commuters and out-commuters for a given county. Commuting data shows all counties except Bernalillo County have received more income from people commuting out of the county in which they live between 2000 and 2010. In this manner, they can be thought of as bedroom communities since income from people commuting out of the counties to work exceeds the income from those commuting into the

counties. Bernalillo County can be described as an employment hub since income derived from people commuting into the county to work exceeds the income from those commuting out of the county (U.S. Department of Commerce 2006a). While these trends are true for earnings from all industries, they may vary for specific industries within counties. In this manner, these classifications may mischaracterize actual commuting patterns for certain industries where commuting patterns cannot be characterized by earnings data for all industries. For example, ranchers in Cibola County likely live and work within the county instead of commuting to Bernalillo County.

The population in the impact area has slightly aged since 2000, as the median age in 2010 was higher than 2000 in all individual counties. The largest age category is 45 to 49 years. Between 2000 and 2010, age groups between 45 and 64, which include some of the baby boomer population, showed the largest increases in their share of total population while those aged 35 to 44 showed decreases (U.S. Department of Commerce 2012).

In 2010, 46% of New Mexico's population was composed of Hispanic Americans (comprised of both recent immigrants and descendants of Spanish colonists), which was higher than all other states (U.S. Census Bureau 2009). Hispanic groups make up a substantial portion of the twenty-first-century population. (Table 3.18). The share of total population of Hispanic descent increased in four of the impact area counties between 1980 and 2010, while the share decreased in Torrance County and remained the same in McKinley County. Since Cibola County was formed from Valencia County in 1981, data is not available for Cibola County. The aggregate share of both counties increased from 44-to 93% in 1980 and 2010, respectively. Within the impact area as a whole, the number of people of Hispanic origin increased by 211,523 persons and these increases accounted for 44% of the total Hispanic population increase and 28% of the total population increase within the state.

Table 3.18: Number and Percent of Persons of Hispanic Origin (of Any Race)

	1980		2000		2010	
	Number	Share %	Number	Share %	Number	Share %
New Mexico	477,051	37	765,610	42	953,400	46
Impact Area	201,675	35	320,342	39	413,198	43
Bernalillo County	154,638	37	233,527	42	302,480	47
Cibola County	NA	NA	8,441	33	9,763	36
McKinley County	7,531	13	9,303	12	9,393	13
Sandoval County	9,586	28	26,426	29	42,527	34
Torrance County	3,076	41	6,282	37	6,281	38
Valencia County	26,844	44	36,363	55	42,754	57

Source: U.S. Census Bureau 2000

Race and Ethnicity are broken out separately since Hispanics can be of any race. Within the impact area, the share of total population increased for all races except White and American Indian and Alaska Native races. At the county level, decreases were seen for several non-white races. On a national level, New Mexico had the second-highest percentage of American Indians and Alaska Natives (10 percent) after Alaska (15 percent) in 2008, and McKinley County has the highest share in the state (U.S. Census Bureau 2009). Regardless, American Indian populations decreased in McKinley County, Sandoval County, and the impact area as a whole between 2000

and 2008. All other races increased as a share of county population except the share of Native Hawaiian and Other Pacific Islanders in Sandoval County, which decreased slightly.

Table 3.19: Population Comparison by Race

	White Alone	American Indian and Alaska Native Alone	Black or African American Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Two or more races
New Mexico	9.7%	3.0%	1.4%	0.1%	1.8%	84.0%
Impact Area	80.1%	12.3%	3.5%	1.9%	0.2%	2.1%
Bernalillo County	86.1%	5.1%	4.1%	2.3%	0.2%	2.2%
Cibola County	53.9%	42.4%	1.6%	0.5%	0.1%	1.6%
McKinley County	21.6%	74.1%	1.4%	0.8%	0.1%	2.0%
Sandoval County	80.1%	13.5%	2.9%	1.5%	0.1%	1.8%
Torrance County	92.5%	2.6%	2.4%	0.4%	0.1%	1.9%
Valencia County	91.7%	4.0%	1.9%	0.7%	0.1%	1.6%

3.16.5 Economic Specialization and Employment

Employment within the impact area is distributed amongst industry sectors and displayed below in Figure 2.40 (IMPLAN 2009). The Interior Columbia Basin Ecosystem Management Project identified communities that were specialized with respect to employment. Their method used the ratio of the percent employment in each industry in the region of interest (counties within the impact area) to an average percent of employment in that industry for a larger area (the reference region; the BEA's Economic Areas). For a given industry, when the percent employment in the analysis region is greater than in the reference region, local employment specialization exists in that industry (USFS 1998). Using this criterion applied with 2009 data, counties within the impact area can be characterized as specialized with respect to a variety of sectors. Of particular concern are counties where specialization occurs within industries related to BLM management. In Valencia and McKinley counties, varying degrees of specialization exists in the Agricultural industry which includes the livestock industry, while McKinley and Cibola counties are specialized with respect to the mining industry.

From 1970 to 2006, total employment in the impact area increased by 227 percent (from 166,907 to 546,007 jobs classified as full- and part-time employment). The state of New Mexico saw an increase in total employment of 176 percent. Between 1970 and 2006, the rate of job growth in Bernalillo, Sandoval, and Torrance counties (315, 1,173, and 314 percent, respectively) was faster than the state (276 percent) and the nation (195 percent), while the rate of employment growth in McKinley County (214 percent) and the aggregate of Cibola and Valencia (270 percent) were slower than the state and faster than the nation. The employment growth seen in all impact area counties combined was largely due to estimated increases between 1982 and 2000 in Service and Professional sector employment (includes retail trade, health and social services and the combined services sector) which accounted for approximately 75 percent of new area employment[1]. In addition, the share of total employment attributable to this sector increased by

5.9 percent; from 61.6 to 67.5 percent. Thus, the service and professional related sectors have been an important part of area employment. Jobs in the government sector decreased in their share of total employment (by 4.2 percent; from 21.9 to 17.8 percent) indicating a decrease in specialization in the government sector over this period (U.S. Department of Commerce 2000; Economic Profile System 2009).

Employment changes in the farm, mining, and manufacturing sectors translated into smaller portions of total employment in 2000, decreasing by 0.5, 1.3, and 0.6 percent, respectively. These natural resource elated sectors have provided a small and slightly decreasing portion of total area employment while the Service and Professional sector has maintained a steady increase (U.S. Department of Commerce 2000; Economic Profile System 2009).

3.16.6 Economic Well-Being and Poverty

As noted above, the service and professional sectors increased in their share of total employment while the farm and agriculture services, mining, and manufacturing sectors experienced decreases between 1982 and 2000. The service and professional sector jobs may not pay as much, which could decrease area economic well being. Within the impact area, the private sectors examined can be lumped into goods producing sectors (natural resources, construction, and manufacturing) and service-providing sectors (e.g., trade, transportation, utilities, finance, education, and health). In 2006, the goods-producing and service-providing sectors paid average annual wages of $42,783 and $33,326, respectively (U.S. Department of Commerce 2000b). These statistics demonstrate that while the service sector accounts for an increasing share of total employment, these jobs do not pay as much. The welfare implications of these changes are not so clear. The population changes in some counties noted above suggests some people may be moving away instead of taking lower paying jobs in the service sector. Other people might move to the area to take a service sector job, but exchange the lower wage they may receive for the unique natural and cultural amenities. In this manner, some may benefit from a secondary income not provided by their place of employment but by the benefits they gain from living in the area.

Total personal income (TPI) and per capita personal income (PCPI) are useful measures of economic well-being. From 1970 to 2006, annual TPI in the economic impact area increased by $21 billion to $28.7 billion, and annual PCPI increased from $17,295 to $31,373 (all measures adjusted for inflation to 2006 dollars). This translates to a TPI increase of 290 percent (roughly 8 percent annually) and a PCPI increase of 81 percent (roughly 2 percent annually) over this time period. Average PCPI in the economic impact area was higher than the state ($29,929) and lower than the nation ($36,714) in 2006 (U.S. Department of Commerce 2006b).

While PCPI is a useful measure of economic well-being, it should be examined alongside changes in real earnings per job. Since PCPI includes income from 401(k) plans as well as other non-labor income sources such as transfer payments, dividends, and rent, it is possible for per capita income to rise, even if the average wage per job declines over time. While PCPI rose between 1970 and 2006, average earnings per job rose from $36,898 to $39,591 (values adjusted for inflation to 2006 dollars), indicating a possible increase in area economic well-being (U.S. Department of Commerce 2006b).

From 1993 to 1999, average annual unemployment rates in the six-county impact area fell along with national and state levels to 4.2. After 1999, unemployment continued to follow state and national trends rising to 5.6 in 2003 and then falling to 3.5 in 2007. With the recent national economic downturn, unemployment has started to rise again, which is reflected in the increase to 4.2 percent in 2008 seen in Figure 2.41 below. Individually all counties were at 10-year unemployment lows in 2007 and have increased in the last year. In 2008, all counties except Bernalillo had unemployment levels lower than the nation (5.8 percent) but higher than the state (4.2 percent); they were 3.9, 4.3, 4.9, 4.8, 4.7, and 4.5 percent in Bernalillo, Cibola, McKinley, Sandoval, Torrance, and Valencia, respectively (U.S. Department of Labor 2009). New jobs created in an area are filled from two principal sources: local unemployment and in-migration. If unemployment remains high, new jobs are likely to be filled by local area residents; however, if unemployment is persistently low, new jobs could be filled more often by new area residents.

While the number of people living below the poverty level increased in New Mexico, the impact area and all counties, except Cibola, between 1989 and 1999, the share of those persons, from the number of persons for whom poverty status was assessed, remained stable. The largest decreases occurred in Cibola County where the level fell by 9 percent. Despite these decreases in the share of individuals living below the poverty level, shares in Cibola, McKinley, and Torrance counties remained greater than the state in 1999 (U.S. Census Bureau 2000).

3.16.7 Components of Personal Income

Further examining trends within personal income provides insight to the area economy and its connection to the lands administered by the BLM. There are three major sources of personal income: 1) labor earnings or income from the workplace; 2) investment income, or income received by individuals in the form of rent, dividends, or interest earnings; and 3) transfer payment income or income received as Social Security, retirement and disability income or Medicare and Medicaid payments.

Labor earnings were the largest source of income in the impact area accounting for 67 percent of all income in 2006. In New Mexico, labor earnings also made up 65 percent of TPI. The government and manufacturing sectors were the largest components of labor income in 2006 for the economic impact area. The contributions from the BLM represent only a portion of the economic activity reflected in industry sectors.

While labor earning's share of TPI has decreased from 1970 to 2006 (from 79 to 67 percent), the share of non-labor income has risen (from 21 to 33 percent). As a share of TPI, investment income and transfer payments rose from 12 to 16 and 9 to 16 percent, respectively, over this 37-year time period. The increase in transfer payments are not entirely due to increases in welfare or unemployment related payments. Data show the share of transfer payments from unemployment payments decreased from 5 to 1 percent and the share from income maintenance benefit payments, or welfare decreased from 18 to 11 percent. In 2006, the largest component of transfer payments were the age related payments (classified as Old Age, Survivors, and Disability Insurance and Medicare Benefits) accounting for 51 percent of total transfer payments (U.S. Department of Commerce 2006).

These patterns reflect the importance of the aging population noted above, who are more likely to have investment earnings than younger adults. As the population of the area continues to age,

the share of income from these non-labor sources should continue to rise as long as residents continue to stay in the area after retirement or new retirees move in. Rural county population change, the development of rural recreation and retirement-destination areas are all related to natural amenities (Knapp and Graves 1989, Clark and Hunter 1992, Treyz et al. 1993, Mueser and Graves 1995, McGranahan 1999, Lewis et al. 2002). Many of the natural amenities in the area are managed by the BLM and thus, indirectly contribute to area labor and non-labor income.

3.16.8 Contributions to the Area from BLM Management

BLM-administered lands in the Planning Area contribute to the livelihoods of area residents through subsistence uses as well as through market-based economic production and income generation. Public lands provide products of value to households at no or low cost (permit fees) such as fuelwood, wood posts, and livestock. Additional products with subsistence value may include fish, game, plants, berries, and seeds. Use of these products is often part of traditions that sustain local culture.

Contributions to the area economy through market-based production can be measured using the impact analysis for planning (IMPLAN) input-output model. Input-output models describe commodity flows from producers to intermediate and final consumers. The total industry purchases are equal to the value of the commodities produced. Industries producing goods and services for final demand purchase goods and services from other producers. These other producers, in turn, purchase goods and services. This buying of goods and services continues until leakages from the region stop the cycle. The resulting sets of multipliers describe the change of output for regional industries caused by a change in final demand in an industry. The IMPLAN database describes the economy in 440 sectors using federal data from 2009[2]. These sectors are further aggregated below to better identify areas relevant to BLM management activities.

Using the most recent data available, IMPLAN response coefficients were applied to BLM outputs and expenditures to estimate the economic contribution of the BLM within the analysis area. While the discussion above examines the current situation and historical context, this analysis examines the linkages and interdependencies among businesses, consumers, and the RPFO resources on which some area economic activity depends. IMPLAN allows a more complete examination of these linkages.

IMPLAN not only examines the direct contributions from the RPFO but also indirect and induced contributions. Indirect employment and labor income contributions occur when a sector purchases supplies and services from other industries in order to produce their product. Induced contributions are the employment and labor income generated as a result of spending new household income generated by direct and indirect employment. The employment estimated is defined as any part-time, seasonal, or fulltime job. In Table 3.20, direct, indirect, and induced contributions are included in the estimated BLM contributions.

[2] IMPLAN data are derived from a variety of sources included the Bureau of Economic Analysis, Regional Economic Information System, Bureau of Labor Statistics, and U.S. Census.

[3] Rates of change in employment and labor income as final demand changes.

Table 3.20: Estimated Annual Employment (Full- And Part-Time Jobs) and Labor Income (Thousands 2012 $) Contributions

Resource or Resource Value	Jobs	Labor Income
Recreation[1]	30	$949
Wildlife and Fish Rec.	2	$73
Grazing	117	$925
Timber	0.05	$0.03
Minerals	15	$808
Ecosystem Restoration	1	$31
Payments to Counties	29	$1,398
BLM Expenditures	120	$4,627
Total BLM Management[2]	314	$8,811

[1]Expenditures by local residents for recreation on BLM do not introduce new money into the economy. If local residents could not recreate on BLM-administered lands, they would likely find other forms of recreation in the area and continue to spend their recreation dollars in the local economy. Therefore, these portions of employment (and labor income below) are not necessarily dependent on the existence of the opportunities provided by BLM.

[2]Totals may not add due to rounding.

Source: IMPLAN 2009

3.16.9 Tourism and Recreation

BLM land within the RPFO provides a variety of recreational opportunities. While USFS lands are often closed in the summer due to the fire danger, BLM land in the Planning Area is often open. Field office staff estimate that there were 55,000 recreational visits to the Planning Area on an average annual basis between October 2006 and September 2007. On their way to the Planning Area, and once they arrive, these visitors spend money on goods and services they would spend elsewhere if these opportunities did not exist. In this manner, the opportunities on BLM-administered lands contribute to the local economy by attracting these visitors.

Analyses of expenditures reported by national forest visitors show the primary factor determining the amount spent by a visitor was the type of trip taken and not the specific activity or forest visited (Stynes and White 2005). Since expenditure information for the type of trip taken is not yet available, National Visitor Use Monitoring (NVUM) data from adjacent national forests will serves as a proxy. These six trip type segments are defined below;

Visitors who reside greater than 50 miles from visited BLM:

- Non-local residents on day trips
- Non-local residents staying overnight on BLM
- Non-local residents staying overnight off BLM

Visitors who live within 50 miles of the visited BLM:

- Local residents on day trips

- Local residents staying overnight on BLM
- Local residents staying overnight off BLM

Non-primary visits were not included since primary activities on BLM-administered lands are of most interest. In accordance with the report prepared for the USFS by the American Sportfishing Association (2006), the data used to divide total visits into these trip types were provided by Stynes and White (2005). An average of the visitation proportions for a national forest closest to the Planning Area (Cibola National Forests) was used (Stynes and White 2005). Generalizing from the NVUM data also indicates approximately 7 percent of all visits to BLM-administered lands were wildlife related. The largest trip type segment was non-wildlife related local day trips which numbered 30,690.

While providing recreation opportunities to local residents is an important contribution, the recreation expenditures of locals do not represent new money introduced into the economy. If BLM-related opportunities were not present, residents would likely participate in other locally based activities and their money would still be spent in the local economy. After separating the contributions made from local residents, recreation contributes 32 jobs and $1.02 million in labor income (see Table 3.20). Local recreationists on BLM-administered lands contribute another 12 jobs and $416,000 in labor income for a total of 44 jobs and $1.4 million in labor income on an average annual basis.

3.16.10 Livestock Production

Within the Planning Area, agriculture plays an important economic and social role; area residents identify with the tradition, land-use, and history. In 2007, Torrance and McKinley counties were New Mexico's 11th and 12th largest cattle producers containing 2.7 and 2.2 percent of the total state cattle inventory. The most recent USDA's Census of Agriculture (2007) reports all six counties within the Planning Area had 5,690 farms and ranches and of these, 48 percent (2,750 operators) were engaged in cattle production, with total cattle numbering 135,108 in 2007. While the number of total farms and farms engaged in cattle production has risen dramatically since 1997 (by 84 and 64 percent, respectively), the share of farms engaged in cattle production has decreased by 6 percent over the last 10 years (USDA 2007).

On BLM-administered lands, approximately 220 permittees operate in the six-county area with most in Sandoval and McKinley counties (50 and 16 percent, respectively; USDI BLM 2009). The established preference limit for AUMs in the Planning Area is currently 129,815 AUMs. This is the maximum number of AUMs that could be offered under ideal forage conditions. Actual use of AUMs has ranged between 45 and 67 percent (58,663 to 87,118 AUMs) of the preference limit in the last 10 years due to factors such as drought, financial limitations on operators, market conditions, and implementation of grazing practices to improve range conditions. Grazing in the Planning Area occurs year-round and quite a few permittees also have USFS permits that they move to from June to October. Table 3.21 provides authorized use numbers between 1999 and 2008.

Authorized use of AUMs has remained relatively stable, but shows a decreasing trend despite the recent jump in authorized AUMs in 2007 (Table 3.21). Possible decreases in authorized use could be explained by a tendency of ranching operations to subdivide and sell, often breaking longstanding family ranching traditions. In addition, with rising operating costs smaller operators

are finding it more difficult to remain in the industry (personal communication with Nathan Combs, July 28, 2008). Between 1999 and 2008, averages of 74,339 cattle AUMs have been provided. The forage provided represents approximately 9 percent of the forage required for the 2007 cattle inventory within the six-county Planning Area (USDI BLM 2009 and USDA 2007).

Table 3.21: Annual AUM Authorizations in the RPFO

Year	AUMs	Preferred AUMs	%
2008	70,010	129,815	54
2007	84,554	129,815	65
2006	70,414	129,815	54
2005	58,663	129,815	45
2004	70,160	129,815	54
2003	69,430	129,815	53
2002	76,623	129,815	59
2001	78,243	129,815	60
2000	87,118	129,815	67
1999	84,943	129,815	65

Source: BLM Rangeland Administration System

A thin profit margin often separates these livestock producers from negative net earnings. Often, employment outside the ranch augments livestock producer income. Federal grazing land is particularly valuable because of the low grazing fees charged for use of this land. Fees charged by BLM for grazing are calculated using the formula required under BLM grazing regulations found at 43 CFR 4130.81(a)(1) and are considerably less than those charged for private grazing land. In 2007, the statewide average AUM price for private land was $11 (USDA 2008). The BLM formula yielded a fee of $1.35 per AUM in 2008, which is down from $1.56 in 2006. This federal land is the least expensive grazing land available, hence use and access is coveted by area ranchers even though additional costs are usually incurred to use these lands. It is estimated that in 2008 the benefit of low cost BLM AUMs used in the RPFO was $675,600 to area ranchers. The active use levels of grazing on BLM currently support approximately 117 jobs and $925,000 in labor income on an average annual basis (Table 3.18). While these numbers appear small, it must be remembered that BLM allotments provide an important complement to ranching operations that also occur on national forest and privately leased land.

Ranching operations within the RPFO are both large and small operations. In 2008, the ratio of AUM use to the number of permittees was somewhat lower within the RPFO than for New Mexico as a whole (355 versus 550 AUMs per permittee in the state overall; USDI BLM 2009) due to some small scale subsistence ranching in the Planning Area. Small-scale non-commercial family herds for local use have been a tradition in the area for centuries (Atencio 2004a). According to field office data, roughly 70 percent of these operators are authorized to run less than 80 head per year (USDI BLM 2009).

Information on the ethnicity of operators is available from the USDA National Agricultural Statistical Service and indicates New Mexico had the largest share of principle operators of Spanish, Hispanic, or Latino origin of all 50 states; its share of 28 percent was 19 percent greater than California, which had the second largest state share in the nation. Within the impact area, all

counties except McKinley exceeded the state share (28 percent) of Spanish, Hispanic, or Latino operators, while Valencia County had the greatest share (49 percent). Bernalillo, Cibola, McKinley, Sandoval, and Torrance counties had 41, 33, 3, 42, and 32 percent, respectively.

3.16.11 Forest Products

Recent examination of forest product patterns on northern New Mexico national forests (e.g., volume of wood cut, number of permits, and contracts) reveals that the majority of area logging and woodcutting is smaller in scale and primarily for local use (Atencio 2004b). Fuelwood has historically been an important forest product provided by lands within the RPFO. Fuelwood use can be considered traditional as those with access to electric or gas stoves often prefer cooking with wood (Atencio 2004b).

Between 2003 and 2007, an annual average of 19,000 cubic feet (CCF) of fuelwood was cut from the Cibola and Santa Fe national forests (USFS cut and sold reports for Region 3). RPFO staff estimate approximately 700 CCF of fuelwood is currently removed from BLM-administered lands, which amounts to 3.7 percent of the average annual contribution from area national forests. While small relative to fuelwood cut from USFS lands, BLM contributions are still locally important. In winter months, fuelwood gathering occurs on BLM since USFS collection areas are closed and inaccessible due to snow and mud (Borland pers. comm. 2008).

While fuelwood collected on RPFO land is important for household use, some of this fuelwood is sold by contractors to area distributors. The sale of fuelwood from BLM by these contractors supports less than 1 job and $3,000 in labor income on an average annual basis (see Table 3.18); however, these estimates do not account for the household use of fuelwood from BLM.

A different and possibly more accurate measurement of benefits to local communities from fuelwood is the number of permits issued, which may reflect the number of families receiving the direct benefit of these resources. On an average annual basis, RPFO staff estimate approximately 330 permits are issued each year, while on the Santa Fe National Forest the number of woodcutting permits issued averaged 7,950 between 1992 and 1999 (Atencio 2004b). Thus, the contribution to area families from the BLM is far less than that received from area national forests. As noted above, the importance of the BLM contribution remains; for example, the season of use often differs from fuelwood collection on the national forest.

3.16.12 Mining

Of the nation's 33 oil and gas producing states, New Mexico ranked fifth in number of crude oil wells drilled, sixth in crude oil production, and fourth in both the number of wells drilled and production of natural gas in 2004 (IPA 2008). Oil and gas production is primarily located in two regions of the state, the northwest and southeast corners. The northwest corner is the primary gas producing region, with San Juan County accounting for most of the production. The southeast corner of New Mexico primarily produces oil, with Lea and Eddy counties accounting for the majority of production.

In 2008, Sandoval County produced the least amount of oil and gas in the state and was the only county producing oil and gas from BLM managed mineral estate in the Planning Area. Total production of oil from all ownerships and production from BLM-managed mineral estate

decreased in Sandoval County between 1999 and 2008 (by 34,500 and 66,400 barrels, respectively). The share of total oil production from BLM-managed mineral estate decreased over this period from 71 percent in 1999 to 33 percent in 2008. Total production of gas in Sandoval County decreased alongside oil over this period; however, it has steadily increased since 2004. The share of total gas produced from BLM managed mineral estate increased over this period from 32 to 42 percent (Figure 2.43). Oil and gas production from BLM managed mineral estate over this 10-year period generates 7 jobs and $382,000 in labor income on an average annual basis. Oil and gas well drilling has also contributed jobs and income to the impact area.

Total wells spud have fallen in the county from their high of 63 in 1981 to an average below 5 per year from 1994 to 2004 (State of New Mexico 2008b). Oil and gas drilling on BLM-managed mineral estate contributes approximately 8 jobs and $405,000 in labor income on an average annual basis in the impact area.

Saleable mineral material removed from the RPFO includes general stone, common variety crushed stone, construction sand and gravel, humate and scoria. The scoria and crushed stone are most often used for highway resurfacing, while construction sand and gravel is often used for concrete or other construction purposes such as bank stabilization. General stone is used for a wide variety of applications, including decorative purposes, while humate is used often as a soil conditioner. The removal of these materials generates approximately one job and $21,000 in labor income on an average annual basis within the impact area.

The combined leasable, locatable, and salable mining activity in the Planning Area supports approximately 15 jobs and $808,000 in labor income on an average annual basis.

3.16.13 Externally Funded Ecosystem Restoration

A portion of the management activities occurring on BLM-administered lands in the area are performed with funds not accounted for under general BLM ecosystem restoration projects support approximately one job and $31,000 in labor income in the impact area economy on an average annual basis.

Ecosystem restoration in the form of reclamation of disturbances created by mineral extraction (e.g., oil and gas drilling, gravel mining) also creates job opportunities for area residents. Reclamation of mining disturbance is funded by the company (operator) that caused it, and is overseen by BLM personnel. Operators may hire any contractor they choose that is able to accomplish the prescribed reclamation actions, and while some operators hire out-of-area contractors, many choose locally-based contractors.

3.16.14 Revenue Sharing

In 1976, Congress passed legislation to provide funding to counties through Payments in Lieu of Taxes (PILT) in order to compensate for tax revenues not received from federal lands. These taxes would typically fund various services that are provided by counties (road maintenance, emergency services, and law enforcement). The PILT payments are determined using a formula which accounts for the county acreage of federal land, county population, and the previous year's revenue sharing from resource uses on federal land (e.g., timber, range, mining). In all impact

area counties, payments attributable to BLM entitlement acreage have increased since 1999. In November of 2008, additional payments were authorized by the Emergency Economic Stabilization Act of 2008 (PL 110-343). The law authorized counties to receive their full entitlement level payment from 2008 through 2012.

In addition to PILT, counties receive a share of range revenues under the 1934 Taylor Grazing Act. Receipts from mineral material removal, oil and gas production, and revenues from leased land are also shared with counties under the 1920 Mineral Lands Leasing Act and the 1902 Reclamation Act. These payments support approximately 29 jobs and $1.4 million in labor income on an average annual basis.

3.16.15 BLM Expenditures and Employment

The RPFO is located in Albuquerque, providing a direct contribution to the area economy. BLM operations and management make direct contributions to area economic activity by employing people who reside in the area and by spending dollars on project-related goods and services throughout the impact area (Table 3.22). Management of BLM-administered lands in the Planning Area is largely carried out through a professional and administrative staff in the RPFO. Staffing levels of these BLM employees have decreased since 2004. In addition to these full-time equivalent (FTE) employees, seasonal staff work and live in the area (other than permanent [OTP]). Contracts for facilities maintenance, shuttling vehicles, and projects contribute directly to the area economy and social stability as well. Many of these impacts are captured in from the total expenditures BLM makes in the Planning Area. Although total expenditures within the Planning Area had been decreasing, expenditures rose again in 2007, largely due to an increase in project-related spending.

Table 3.22: RPFO Expenditures and Employment

	Total Expenditures	FTEs	OTPs
2004	$ 6,894,399	70	15
2005	$ 4,692,644	60	15
2006	$ 3,512,051	60	15
2007	$ 4,358,461	60	15
2008	$ 4,403,756	60	15

Source: Pers. comm. Danette Herrera 2009

Project-related expenditures are attributable to project work for all BLM program areas, while the contributions from the specific resource programs in Table 3.20 do not also include these BLM expenditures. Thus, these contributions accrue to the area in addition to other program specific contributions. On an average annual basis, RPFO expenditures and employment support 120 jobs and $4.6 million in labor income), accounting for the largest employment and labor income contribution to the impact area of all categories.

3.16.16 Renewable Energy Development

Wind generation is becoming a larger part of the New Mexico landscape and economy. The landscape has always been subject to strong winds, which are now being harnessed by wind

farms. Local businesses and counties are benefiting from the influx of resources and tax revenue from these projects. It remains to be seen whether BLM land can contribute to the Planning Area economy and community well-being through provision of energy leases.

Small community/cooperative projects sell power through power purchase agreements with regulated utilities. These projects are attractive because they can become community revenue generators, involve schools and local interests, and help supplement future power growth. Large commercial projects are sited in areas of strong winds, transmission access, and market demand. As suitable windy areas become more saturated with development, the availability of leases on federal land may play a larger role in the industry.

Installed wind power capacity in New Mexico has increased from one megawatt (MW) of power in 1999 to 497 MWs as of March 31, 2009 (DOE 2009). No wind projects are currently under construction in the Planning Area. Existing projects are found in Guadalupe County, which is adjacent to the Planning Area, as well as in Curry, Debaca, and Quay further to the east (AWEA 2009). No BLM land in the Planning Area is being leased for alternative energy. Two applications for wind energy meteorological testing have been received in Torrance County. These applications have not yet been processed; however, if granted, these companies would be issued a three-year permit for wind monitoring. If wind energy development were to occur on BLM administered-lands in the impact area, employment and labor contributions would result. Per 1.5 MW turbine, 11 full-time equivalent jobs and $400,000 in labor income would result during construction and one full-time equivalent and $64,500 labor income would be provided during normal operation on an average annual basis (DOE 2009).

3.16.17 RPFO Contributions by Industry

The RPFO-related employment and labor income contributions listed here exclude those made from local resident recreation. In total, management activities of the RPFO account for 0.06 percent of jobs and 0.03 percent labor income in the impact area. The two largest employment and labor income contributions would occur in the Agriculture and the Accommodation and Food Services sectors. The industry sector with the highest level of dependence on the BLM Planning Area contributions is the Agricultural sector, relying on BLM for approximately 2.5 percent of employment and less than one percent of labor income. Employment and income generated by activities on BLM account for less a half of one percent of impact area totals in all other industry sectors

While data were not available to examine contributions by county or community, the labor income and employment generated from activities on BLM-administered lands in the Planning Area may be more important to smaller communities within the impact area. Consequently, changes in activities on BLM administered lands could result in localized effects that are not readily apparent across the broader six-county impact area. Specialization of individual counties within the impact area is discussed above. While contributions across the broad, six-county impact area are seemingly small, counties with dependence on sectors influenced by BLM may be more susceptible to changes on BLM-administered lands under this RMP.

Government, agriculture, retail trade, and the accommodation and food services sectors are those sectors receiving most of the contributions from BLM and make up 74 percent of the total employment and 60 percent of the total labor income contribution. Individual counties within the

impact area identified as specialized in the Agricultural sector include McKinley and Valencia counties. In addition, other counties in the impact area can be considered specialized with respect to the government sector (Valencia, Sandoval and Cibola counties), Retail Trade (Valencia, Sandoval and McKinley counties) and the Accommodation & Food Services sector (Sandoval and McKinley counties) thus may be more susceptible to changes within the impact area given their specialization in these sectors connected to the BLM.

3.16.18 Non-market Economic Value

The value of resource goods traded in a market can be obtained from information on the quantity sold and market price; however, markets do not exist for some resources, such as recreational opportunities and environmental services. Measuring their value is important, since without estimates, these resources may be implicitly undervalued and decisions regarding their use may not accurately reflect their true value to society. Because these recreational and environmental values are not traded in markets, they can be characterized as non-market values.

Non-market values can be broken down into two categories; use and non-use values. The use value of a non-market good is the value to society from the direct use of the asset; within the Planning Area this occurs through activities such as recreational fishing, hunting, and bird watching. The use of non-market goods often requires consumption of associated market goods, such as lodging, gas, and fishing equipment. Non-use values of a non-market good reflect the value of an asset beyond any use. These can be described as existence, option, and bequest values. Existence values are the amount society is willing to pay to guarantee that an asset simply exists. An existence value of BLM-administered lands within the RPFO might be the value of knowing that undisturbed areas of cultural importance to Pueblos exist on BLM-administered lands. Other non-use values are thought to originate in society's willingness to pay to preserve the option for future use; these are referred to as option values and bequest values. Option values exist for something that has not yet been discovered, such as the future value of a plant as medicine.

Non-market use and non-use values can be distinguished by the methods used to estimate them. Use values are often estimated using revealed preference methods or stated preference methods, while non-use values can only be estimated using hypothetical methods. Although use and non-use values exist for the Planning Area, evaluation is not always feasible during the planning process; however, this does not preclude their consideration in the planning process.

3.16.19 Community Resiliency

Community resilience can be described as the existence, development, and engagement of community resources to thrive in a dynamic environment characterized by change, uncertainty, unpredictability, and surprise. Resilient communities intentionally develop personal and group capacity to respond to and influence change, to sustain and renew the community, and to develop new trajectories for the community’s future (Magis 2007). How a community faces change is also tied to community well-being.

The well-being of the community is an integral part of life, necessary to survival (Raish and McSweeney et al. 2003).Community resiliency and well-being can be tied to the resources or assets available to a community. Community resources or assets, when invested, become

community capital, which the community can then reinvest in a cycle of community development. These are not limited to financial investments, and can include investment in collective action and cooperation. Using a community capital framework enables the identification of the entire range of community assets. It also provides a systematic structure with which to analyze the existence, change, and development of community resources (Flora et al. 2004). Descriptions of these capitals are listed below:

- **Natural Capital** – Air, soils, water (quality and quantity), landscape, and biodiversity
- **Cultural Capital** – Language, rituals, ethnicity, generations, stories and traditions, spirituality, habits, and heritage
- **Human Capital –** All the skills and abilities of people, self-esteem, education, leadership, knowledge, the ability to access resources, and human health
- **Social Capital** – Groups, organizations, networks in the community, the sense of belonging, bonds between people, trust, and reciprocity
- **Political Capital** – Connections to people in power, access to resources, leverage, and influence to achieve goals
- **Financial Capital** – Money, charitable giving, grants, access to funding, and wealth
- **Built Capital** – Buildings and infrastructure in a community, schools, roads, water and sewer systems, and main streets

Assessing the capital assets of communities within the RPFO first requires identification of these communities. For communities living in the area and those outside the area but interested in BLM-administered lands, discussion of community capitals connected to BLM management are included below.

3.16.20 Communities Living in the Area and Interested in the BLM within the RPFO

Communities within the Planning Area can be described by the areas they live in and by their connections to the local landscape. During the resource management planning process, the public has given the BLM insightful information about their connections to the land and their interests in BLM management. This information has provided BLM with community characteristics and values that help when defining these communities.

When we look at the effects of federal land management actions, the most critical impacts may be to small, rural communities (USDA USFS 2000). Consequently, geographically defined communities are an important and relevant level for social assessment. Not all social scientists agree that the geographically based community is always the appropriate level of analysis. FEMAT makes the point that this view “only refers to physical or political boundaries and not to the relationships among people who reside within such boundaries” (1993).

Communities of interest bring together stakeholders from different backgrounds to solve a problem of common concern (Fischer 2001). Brown and Duguid describe communities of interest as “communities-of-communities” (Brown and Duguid 1991). They provide unique opportunities to explore the linkages between people and public land that may transcend the geographically defined community.

While communities of interest often form temporarily, the issues that bring them together in the Planning Area often present no immediate resolution. While BLM might foster resolution of their issues, many communities of interest may need involvement outside the scope of BLM management or the formation of networks to help bring them together. These networks provide a structure for individuals to form communities of interest and address these concerns.

3.16.21 Environmental Justice

Environmental justice refers to the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, implementation, and enforcement of environmental laws, regulations, programs, and policies. EO 12898 requires federal agencies to "identify and address the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

According to the Council on Environmental Quality's (CEQ) Environmental Justice Guidelines for NEPA "minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent; or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis" (1997). Table 3.18 above shows that Bernalillo and Valencia counties' share of those of Hispanics origin was greater than the state and economic impact area in 2008. Table 3.19 shows the American Indian share of population in Cibola, McKinley, and Sandoval counties were greater than the impact area and the state in 2008. The U.S. Census data suggest minority populations within the economic impact area meet the CEQ's Environmental Justice criterion.

3.17 Soil and Water Resources

3.17.1 Soil Resources

Soil types and properties vary within the Planning Area. Soils are formed on volcanic and sedimentary bedrock, and on water-deposited and wind-deposited sediments on the landscape.

The overriding importance of stable soils on the landscape is to support vegetation. Soil properties, in combination with the precipitation and topography, are key factors in determining what vegetation types are supported. The soils support forest, woodland (piñon-juniper), brush, and grass vegetation types that provide livestock grazing, wildlife habitat, and watershed stability. Rock outcrops and rubble fields occur in many areas, which support little, if any, soil and vegetation.

In a semi-arid landscape typical of the RPFO, naturally-occurring surface water runoff and flooding may create sheet, rill, gully, and stream bank erosion on some areas of public lands. A normal degree of soil erosion caused by wind or water is expected under natural conditions, but erosion that exceeds natural rates because of land use activities is referred to as accelerated erosion, which will result in the loss of soil productivity and stability. The deposition of eroded soil particles is referred to as sedimentation and also is a natural landscape process to some degree. However, sedimentation resulting from accelerated water erosion may create water

quality and channel stability problems or may destructively cover upland vegetation. Deposition from accelerated wind erosion also can suppress vegetation and produce air quality problems.

In this planning document, "sensitive soil" refers to: 1) erosion-sensitive soils that have higher susceptibility to wind or water erosion; and 2) reclamation-sensitive soils that would be difficult to restore or reclaim with vegetation after drastic disturbance of the soil profile has occurred. This sensitive soil description is based on detailed soil information found in soil surveys published by the USDA Natural Resources Conservation Service in cooperation with other entities including the BLM (USDA NRCS 2011). Due to soil mapping procedures, most soil mapping units (the individual areas outlined on soil maps) contain at least two major soil types that have different properties; the proportions of the different soils within the mapping unit are specified, but the spatial locations of the different soils are not shown. There is some overlap between the erosion-sensitive soils and reclamation-sensitive soils. Soil mapping units that are dominantly erosion-sensitive and reclamation-sensitive are depicted on maps 66 and 67, respectively. Additional discussion of sensitive soils follows.

Erosion-sensitive soils would include those with higher susceptibility to *wind* erosion as indicated by a wind erosion potential rating of "high" or "very high" in the soil survey. Soils that are rated as such are due to a surface layer that has a sandy particle size, high carbonate content, low organic matter content, or no coarse fragment protection. These soils occur as the dominant condition on approximately 399,000 acres of soil mapping units on RPFO lands.

Erosion-sensitive soils also would include those with higher susceptibility to *water* erosion as indicated by a water erosion potential rating of "high" or "very high" in the soil survey. Soils that are rated as such are due to unfavorable particle sizes and low organic matter content, in combination with high runoff, that have low resistance to water erosion processes. These soils occur as the dominant condition on approximately 159,000 acres of soil mapping units on RPFO lands. Areas that are dominantly water or wind erosion-sensitive are depicted in Map 67.

Reclamation-sensitive soils would include those with a rating of "poor" for potential reclamation in the soil survey, which indicates that revegetation and stabilization are expected to be difficult and costly following drastic disturbances such as oil and gas field development, temporary road construction, or similar disturbances. This rating of the disturbed soil and its subsequent reclamation potential is based on the soil properties that affect erosion and stability of the surface and the vegetation productivity potential of the reclaimed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; edibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility. These soils occur as the dominant condition on approximately 393,000 acres soil of soil mapping units on RPFO lands. Areas that are dominantly rated as poor reclamation potential are depicted in Map 67.

Development of infrastructure and soil disturbance on steeper slopes (greater than 15% slope) generally increases the down slope water erosion potential because of increased runoff volumes and rates. This typically would be expected with permanent surface installations such as windfarms, solar arrays, pipelines, roads, communication sites, transmission lines, and oil and gas production facilities. The appurtenant access roads required for most of these would be a part of the increased runoff and erosion potential. Therefore, the effect of slope steepness on soil

stability would be considered when authorizing land uses where disturbance on slopes could present increased runoff and erosion potential.

3.17.2 Water Resources

Surface water and ground water is an important factor in public land management. The overriding importance of surface water is the support of upland and riparian vegetation through recharge of soil water and ground water aquifers. In addition, streams and ponds provide wildlife and livestock water, and support recreation and aesthetics. Ground water from wells and springs has been developed for public water supply, livestock, and wildlife use, and for on-going or temporary industrial uses such as mining and road construction activities.

The BLM files claims for existing water uses in accordance with applicable state and federal laws and regulations, and participates in adjudications. The RPFO holds ground water and surface water permits and rights for livestock and wildlife watering and for public water supply.

3.17.2.1 Surface and Ground Water

The occurrence of surface water and ground water on BLM land varies considerably with the diversity in geology, topography, and climate in the Planning Area. The Continental Divide runs through the west part of Planning Area, separating streamflow between the Rio Grande River and the Colorado River basins. Most of the RPFO drains to the Rio Grande through the Rio Puerco, Arroyo Chico, and Rio San Jose drainages, which have the greatest acreage of BLM land in the RPFO.

Streams on BLM lands are dominantly ephemeral or intermittent channels (normally dry washes and stream beds) that flow for brief periods only in response to rainfall and snowmelt. Runoff and stream flow may result from summertime thunderstorms, melting snow in higher terrain, and frontal system rainfall. Many perennial and intermittent streams, springs, or seeps within the Planning Area occur on higher terrain within National Forest boundaries or on private lands both upstream and downstream from BLM-administered lands.

Ground water is an important resource in the Planning Area, and its distribution and quality are complex and not completely defined. The principal aquifers within the planning area are the Rio Grande aquifer system and the Colorado Plateau aquifers (Robson and Banta 1995). The more important ground water discharge areas in the planning area are exemplified by the presence of perennial and intermittent streams and springs. A number of these water sources occur on BLM lands and support riparian/wetland areas that are detailed in the *EIS for Riparian and Aquatic Habitat Management (USDI BLM 2000).*

BLM land management does have a direct influence on ground water recharge in both upland and stream channel environments. Increasing infiltration is identified as an objective in the *Standards for Public Land Health and Guidelines for Livestock Grazing* (USDI BLM 2001a). Riparian and upland vegetation communities are dependent upon infiltration and recharge to provide reliable amounts of shallow ground water and soil moisture.

In the RPFO, an extensive watershed management practice in the past was to construct earthen erosion control dams and diversions. In the 1950s through the 1970s, approximately 650 dams

and diversions were built to reduce peak flows and stabilize stream channels, and many of them have filled with sediment and require regular maintenance so that stored sediment is not lost downstream, and so that runoff and erosion rates remain controlled. Many of these dams/reservoirs continue to serve as a source for livestock and wildlife water.

The occurrence of 100-year floodplains as designated by the Federal Emergency Management Agency (FEMA) is a key feature in complying with the Executive Order (EO) 11988-Floodplain Management. Digital data for these areas was available for Sandoval, McKinley, and Bernalillo counties, which shows that there currently are 10,769 acres of this designation on BLM-administered lands for these three counties; this should include the majority of the acreage in the decision area under this designation as it includes the major streams such as the Rio Puerco, Arroyo Chico, and the Rio San Jose. In addition, active floodplains, defined as the low-lying land surface adjacent to a stream that is flooded at least once or twice (on average) every three years (Pritchard 1999, 1998), are associated with nearly all identifiable streams such as those depicted in the National Hydrologic Dataset (USDI USGS, 2011). An acreage figure for active floodplains on the decision area is not readily known because this is not usually mapped for channels. Both kinds of floodplains areas are important considerations for land management authorizations including but not limited to rights-of-ways and potential sites for renewable energy facilities.

3.17.2.2 Water Quality

The BLM complies with applicable water quality laws, chiefly the federal Clean Water Act, and therefore protection and improvement of water quality is a primary goal for the BLM. Water quality protection and improvement on BLM land is achieved mainly through the implementation of Best Management Practices (BMPs). BMPs are implemented in land management actions that are carried out by the BLM (e.g. vegetation management projects) as well as in actions that are authorized on BLM land but are conducted by another party (e.g., rights-of-way developments) .

The New Mexico Environment Department (NMED) assesses and monitors water quality under the Clean Water Act, and designates surface waters that are not meeting water quality standards in the *CWA §303(d) List of Impaired Waterbodies (NMED, 2010)*. No water bodies on the *2010-2012 303(d)* list are on RPFO lands. Impaired waters within the planning area are generally perennial streams that are upstream from BLM land, or are the major perennial rivers such as many reaches of the Rio Grande. Ground water protection is achieved largely through State of New Mexico drilling regulations for water wells and oil and gas wells, and by controlling surface pollution that could migrate to ground water.

In addition to the many erosion control structures built from the 1950s through the 1970s (as previously described), watershed protection and improvement in the RPFO continues through implementation of BMPs and watershed restoration and stabilization projects. Other agencies and watershed interest groups as well as the BLM have focused on planning and project efforts to improve watershed conditions, especially in the Rio Puerco watershed. Current management activities include fuels and vegetation treatments, grazing management actions, transportation management, and erosion control projects such as stream stabilization and restoration of disturbed areas (e.g., unused/unneeded dirt roadbeds.)

3.17.2.3 Trends

Surface water quality and watershed health in the Planning Area is improving over time through continuing implementation of both regulatory and non-regulatory programs. In the Planning Area, voluntary water quality improvement projects are funded by programs such as the *CWA Section 319* grants, public land management agency efforts, and private land initiatives (e.g., USDA NRCS landowner programs). The designation of impaired water bodies by NMED on the CWA §303(d) *List of Impaired Waterbodies* will be potential key areas for management attention if they are on BLM-administered lands or if public lands are tributary to these waters. The BLM New Mexico *Standards for Public Land Health and Guidelines for Livestock Grazing Management* includes erosion assessments to inform and guide management for the protection or improvement of water quality and watershed health.

Surface water quality is probably most vulnerable to increased urbanization, conversion of rangeland to suburbs, and development of more roads. Increased runoff associated with these factors usually increases erosion from uplands and stream channels and increases turbidity and sedimentation. Urban and suburban surface water quality issues might increasingly be a factor in public land management decisions where public lands are in close proximity to these areas.

In the Planning Area, surface water supplies always are subject to climatic conditions. Ground water withdrawals for public water supply and agricultural irrigation represent the largest water current water use in the Rio Grande corridor (NMOSE, 2008). Increased withdrawals for public water supply represent the largest potential ground water demand in the middle Rio Grande region, and population increases here already have caused dramatic increases in ground-water withdrawals from the aquifer system, resulting in large ground-water level declines (Mid-Region Council of Governments, 2004).

The use of ground water from non-public lands adjacent to public land has not yet presented apparent problems. Under current RPFO management, the supply and quality of water, both surface and underground, have not been identified as major limiting factors for public land management. It is likely that there will be growing interest in surface and ground water on the public lands corresponding with regional growth and increasing use of the public lands.

3.18 Special Designations

Special designations include areas provided special management prescriptions to protect certain significant values, Congressional designations, or other Administrative or Executive designation giving emphasis to significant resources or activities. Such designations within the planning area include ACECs, SMAs, WSRs, WSAs, and Wilderness. Many of these areas are currently designated, while other areas have been determined to quality for special management subsequent to previous land use planning efforts.

3.18.1 Wilderness and Wilderness Study Areas

Wilderness characteristics are defined by sufficient size, naturalness, and either outstanding opportunities for solitude or primitive and unconfined recreation. In addition, it may also possess supplemental values.

Sufficient size is defined as 5,000 acres of contiguous roadless BLM land, or large enough to make practical its preservation and use in an unimpaired condition. Smaller areas that may be practical for preservation include: islands; lands adjacent to other federal lands where wilderness characteristics are being protected (for example adjacent to a BLM WSA or a National Forest Wilderness); or natural areas where topography clearly makes possible the opportunity to experience outstanding opportunities for solitude and there is strong public agreement with this conclusion.

Naturalness is a measure of the degree to which the area appears to have been affected primarily by the forces of nature, and the degree that human work is substantially unnoticeable. Examples of human-made features that may be, in certain cases, considered substantially unnoticeable are: trails, trail signs, trail bridges, fire breaks, fire presuppression facilities, pit toilets, fire rings, water quantity and quality measuring devices, research monitoring markers and devices, air quality monitoring devices, fencing, spring developments, occasional ways, and small reservoirs.

Outstanding opportunities for solitude or primitive and unconfined recreation means that the opportunities must stand out among others of their kind. This, however, does not mean that no better opportunities can be found. The area does not have to possess outstanding opportunities for both elements, nor does it need to have outstanding opportunities on every acre, so long as these opportunities are identified somewhere within the area.

Solitude exists in an area "when the sights, sounds, and evidence of human activity are rare or infrequent, and where visitors can be isolated, alone, or secluded from others" (USDI BLM 2003c). Solitude is often present in landforms of rugged relief or vegetation that may provide screening from other visitors and the ability to enjoy the area without experiencing frequent contact with others or evidence of other visitors.

Primitive and unconfined recreation occurs where there are minimal or no developed recreational facilities. Areas that offer opportunities for primitive recreation are marked by the absence of developed recreational facilities, are sufficiently large enough to allow these types of outdoor recreational uses, and may contain features or attractions that lend themselves to primitive and unconfined types of recreational uses.

3.18.1.1 Wilderness

One designated wilderness is located within the Planning Area; Ojito Wilderness (11,183 acres). Only Congress may designate Wilderness areas.

The Ojito Wilderness Act was signed into law on October 27, 2005. The Ojito Wilderness includes 11,183 acres of public land, with 640 acres of state land and approximately 160 acres of private land included as inholdings as well as 116 acres still in WSA status. The wilderness is located in Sandoval County, approximately 5 miles southwest of San Ysidro, New Mexico. Mesas, cuestas, rock terraces, retreating escarpments, canyons, arroyos, and badlands all make up the dramatic landscape of the wilderness. The natural qualities of the area are highlighted by multi-colored rock formations, sculptured badlands, and expansive plateaus and mesa tops. The scenic values of these diverse landforms and close proximity to the population centers of Albuquerque and Santa Fe contribute to the area's outstanding opportunities for solitude and primitive and unconfined recreation. The cultural resources include Archaic and other prehistoric

and historic sites. Paleontological sites include fossil resources including petrified wood, plant fragments, mollusks, and dinosaur bones. The longest dinosaur ever recovered, Seismosaurus, was discovered here. In addition, the rare plant species are found in the Ojito Wilderness.

Wilderness management is guided by Manual 8560 to preserve wilderness characteristics. A Wilderness Management Plan for the Ojito Wilderness will be prepared when the Rio Puerco RMP is complete.

3.18.1.2 Wilderness Study Areas

The BLM was authorized to consider areas under its management for wilderness designation upon passage of FLPMA in 1976. An inventory was conducted in 1980 that identified which areas met the wilderness criteria of naturalness and ability to provide an outstanding opportunity for solitude or primitive and unconfined recreation. These areas must also be 5,0-00 acres or larger in size. The 1980 inventory resulted in the designation of 8 WSAs. A portion of Ojito WSA was later designated as a Wilderness, while the others remain in WSA status.

There are 8 WSAs for a total of 87,061 acres in the planning area:

- Cabezon Peak WSA, NM-010-022 (8,162 acres)
- Chamisa WSA, NM-010-021 (14,510 acres)
- Ignacio Chavez WSA, NM-010-020 (32,431 acres)
- La Lena WSA, NM-010-063A (10,252 acres)
- Petaca Pinta WSA, NM-010-014 (11,664 acres)
- Empedrado WSA, NM-010-063 (9,035 acres)
- Manzano WSA, NM-010-092 (896 acres)
- Ojito WSA, NM-010-024 (111 acres)

No additional areas can be considered for designation as WSA because the congressional authorization to do so expired. However, the BLM does recognize that some public land areas that have been acquired since the 1986 Rio Puerco RMP, or that have seen more limited use since the inventory was completed, have wilderness characteristics that should be considered in the planning g process.

Management of the WSAs is guided by Manual 8550 to prevent impairment of their suitability for preservation as wilderness. Each WSA is managed under the IMP until added to the National Wilderness Preservation System or removed by Congress from further wilderness consideration. The BLM manages WSAs to ensure that existing wilderness characteristics (naturalness, solitude, primitive and unconfined-type recreation opportunities, and special features) are not impaired. Current allowable uses of these WSAs include hiking, hunting, horseback riding, backpacking, and biking or vehicle use on ways (undeveloped vehicle routes) that were present upon the establishment of the WSA. Other activities that may occur include livestock grazing, wildlife management, certain mineral uses, restoration activities, or other activities that do not result in impairment of the wilderness values. The Ignacio Chavez and Chamisa WSAs have higher densities of conifer species than is natural due to past land use practices including fire suppression and grazing. Detailed information and descriptions of the WSAs within the

Planning Area can be found in the USDI BLM New Mexico Wilderness Study Report, Volume 1 (September 1991).

Human activity and its effects in the WSAs are increasing as the population continues to grow in both Albuquerque and Santa Fe. Visitation to Cabezon WSA draws the largest number of visitors due to the uniqueness of the peak, a large volcanic plug, and the climbing experience. A visitor-created trail provides access to the base of the peak. The Ignacio Chavez and Chamisa WSAs draw fewer visitors, but are an attraction because of the pine forests (their visitation peaks during hunting season). The increasing levels of use of the WSAs may continue to diminish the ability to find solitude. The other WSAs are much less frequently visited, and are places where those looking for solitude are the primary visitors. Many of the access roads are impassible during inclement weather. The only designated trail in the WSAs is the Continental Divide National Scenic Trail, which passes through the Ignacio Chavez, Empredrado, and La Lena WSAs.

3.18.2 Continental Divide National Scenic Trail

The Continental Divide National Scenic Trail traverses the Planning area for approximately 135 miles; approximately fifty miles are located on BLM lands or BLM-owned easements. The majority of the trail is absent tread; instead it is marked across the landscape by posts and rock cairns. The nature of the trail means that travelers walk on live vegetation in many portions of the trail. The setting is a primitive, natural appearing route. Use on the trail is light, but is increasing closest to access points near towns. Portions of the trail are not rideable by horses or mountain bikes where it climbs up steep slopes. Water is very limited along its route. The trail is permanently located except for two areas where its location is not in close correlation with the purposes of the Trail. Those areas are the vicinity of the town of Cuba, and the area south of Grants where the trail is located on the shoulder of paved highways. The purposes of the Continental Divide National Scenic Trail are to connect people and communities to the Continental Divide by providing scenic, high-quality, primitive hiking and horseback riding experiences, while preserving the significant natural, historic, and cultural resources along the Trail.

3.18.3 Wild and Scenic Rivers

The Planning Area was inventoried for the presence of rivers eligible for designation as Wild and Scenic. Wild and Scenic Rivers must have at least one outstandingly remarkable value associated with the river. Eligible rivers are managed under Manual 8351 to protect their free-flowing qualities, outstandingly remarkable values, and tentative classification until superseded by Congressional action. Land use controls on private land are a matter of state and local zoning. Although the Wild and Scenic Rivers Act of 1968 includes provisions encouraging protection of river values through state and federal land use planning, these provisions are not binding on local governments. The federal government is responsible for ensuring that management of designated rivers meets the intention of the act. In the absence of local or state river protection provisions, the federal government could ensure compliance through acquisition of the private lands or other interest lands.

There are no congressionally-designated Wild and Scenic Rivers in the planning area. The BLM evaluated all flowing streams and other courses based on public scoping or resource information

provided by staff specialists. One stream was found to be eligible as a Wild and Scenic River: Bluewater Creek. Bluewater Creek is approximately thirty miles long and the area is rated as scenic quality "A," as defined in the BLM Visual Resource Inventory Handbook. Bluewater Creek contains four relevant environmental resources which require special management attention. These resources are: (a) natural systems, (b) scenic values, (c) wildlife resources, and (d) cultural values. Bluewater Creek is the only perennial stream on public land in the Rio Puerco Field Office. The beginning of Bluewater Creek is below the dam of Bluewater Reservoir which receives recreation use year-round, but this use is heaviest during the spring/summer seasons.

- **Natural System** – Bluewater Creek is composed of riparian habitat and a perennial stream. The habitat contains large cottonwoods, dense vegetation, and abundant wildlife.
- **Scenic Values** – Bluewater Creek contains outstanding scenic values and have been rated as a Class II Visual Resource Management area. The steep rocky canyon walls offer a pleasant contrast to the vegetation that grows along them and the lush vegetation in the canyon bottom provides an agreeable setting for primitive recreation opportunities.
- **Wildlife Resources** – Adequate water contributes to wildlife concentrations. The canyon walls provide potential habitat for the peregrine falcon along with several other species as identified in 1983 Environmental Assessment for Bluewater Canyon ACEC Plan Element.
- **Cultural Values** – Bluewater Creek contains one identified "moki" ruin. This is a single storage bin located three-fourths of the way up one of the canyon walls. Mokis were usually used to store corn, beans, grains, etc., and are usually found either on cliff as an isolated occurrence or in a pueblo ruin.

A three-phase process is used for Wild and Scenic River inventory: eligibility determination, tentative classification (wild, scenic, or recreation), and suitability determination.

3.18.3.1 Phase One: The Eligibility Determination

A determination that a river is eligible for designation does not lead immediately to a recommendation that it should be added to the system. The eligibility study simply determines whether a river should be carried into classification and suitability phases of the study.

According to the Wild and Scenic Rivers Act, eligible river segments must be free flowing and , with their immediate environment, possess one or more outstandingly remarkable values (ORVs), such as scenic, recreational, geological, fish habitat, wildlife, historic, ecological or cultural resource values. "Free flowing" is defined as "existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping or other modifications to the waterway that would encourage future construction of such structures. Free flowing should not be confused with naturally flowing, a state in which the river flows without any upstream manipulation except by nature. Many designated Wild and Scenic River segments are damned on either or both ends.

3.18.3.2 Phase Two: The Classification Analysis

The classification analysis determines whether a river should be tentatively classified as "Wild", "Scenic" or "Recreational". The three classification categories for eligible rivers are defined as follows:

- **Wild Rivers:** Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive.
- **Scenic Rivers:** Those rivers or sections of rivers that are free of impoundments with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible by roads.
- **Recreational Rivers:** Those rivers or sections or rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

3.18.3.3 Phase Three: The Suitability Assessment

The Suitability Assessment identifies the impacts of designation and manageability of eligible rivers. In considering suitability, the criteria below specified in Section 4a of the Wild and Scenic Rivers Act provide the basis for the assessment.

- Characteristics that do or do not make the river corridor a worthy addition to the WSR system;
- Current status of land ownership and uses in the area;
- Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed or curtailed if the river were designated;
- Estimated costs of acquiring necessary lands and interests in lands, and of administering the river if designated;
- Ability of the agency to manage the river and protect identified values;
- Historical or existing right what would be adversely affected by designation;
- Other issues and concerns identified in the land use planning process.

3.18.4 Areas of Critical Environmental Concern and Special Management Areas

The ACEC is unique to the BLM, and is authorized be section 202 of FLPMA. ACEC designation highlight areas where special management attention is needed to protect and prevent damage to important historic, cultural, scenic, or natural resources or values. For an area to be eligible for designation as an ACEC, it must meet one or more relevance criteria, and one or more importance criteria (BLM Manual 1613). It must also require special management to protect the resources or values identified for the area. The special management prescriptions for each of the existing or potential ACECs are presented in their respective sections in Ch. 2.

3.18.4.1 Relevance

An area meets relevance criterion if it contains one or more of the following:

- **R-1**. A significant historic, cultural, or scenic value (including, but not limited to, rare or sensitive archeological resources and religious or cultural resources important to Native Americans).
- **R-2**. A fish and wildlife resource (including, but not limited to, habitat for endangered, sensitive, or threatened species, or habitat essential for maintaining species diversity).
- **R-3**. A natural process or system (including, but not limited to, endangered, sensitive, or threatened plant species; rare, endemic, or relic plants, or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).
- **R-4**. Natural hazards (including, but not limited to, areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the resource management planning process to have become part of a natural process.

3.18.4.2 Importance

In order to satisfy the importance criterion, the value, resource, system, process, or hazard described above must have substantial significance, generally characterized by one or more of the following:

- **I-1**. More than locally significant qualities that gives it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
- **I-2**. Qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
- **I-3**. Recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA.
- **I-4**. Qualities that warrant highlighting to satisfy public or management concerns about safety and public welfare.
- **I-5**. Poses a significant threat to human life and safety or to property.

3.18.4.3 Existing ACECs/SMAs

Both ACECs and SMAs are described below. Because SMA is a designation that is no longer used by the BLM, RPFO staff determined whether each SMA met relevance and importance criteria for ACEC designation. All but two SMAs (Pelon Watershed and Historic Homesteads) were found to meet the relevance and importance criteria for ACEC designation. The results of the evaluation of each area for the presence of relevance and importance criteria are included in the description of each area.

3.18.4.3.1 Azabache Station SMA (80 Acres)

The Azabache Stage Station is an abandoned, four-room, sandstone masonry ranch house with spring house, corral, and evidence of at least two other buildings built near the base of Mesa La Azabache, next to a small spring known as Ojo Azabache. The ruin is located along the old Santa Fe-Prescott wagon road and the even older Zuni-Jemez trail about 15 miles west of the Village of Cabezon. The house was built and occupied during the late territorial period (1846-1880), homesteaded following World War I, and was abandoned around 1925.

Evaluation of Azabache Station as an ACEC found that the SMA does not have relevance criteria, but does possess one importance criteria due to its fragility (I-2). As such, the SMA does not qualify as an ACEC, but would be managed instead as a Cultural Resource Area to protect and preserve the important cultural values present at this site.

3.18.4.3.2 Ball Ranch (1,278 acres)

The Ball Ranch ACEC is located in Sandoval County, approximately 30 miles north of Albuquerque, New Mexico. This ACEC is divided into three small tracts or segments. This area contains extensive paleontological deposits of petrified wood. In the 1940's Charles E. Stearns discovered a deposit of fossil material along Arroyo Pinovetito. The fossil material is composed largely of bones of titanotheres, a group of extinct, horned, odd-toed ungulates related to horses that reached the size of small elephants. In addition, the area also has several populations of endangered plant species. A past survey conducted by Paul J. Knight found five plant species of concern to be within the area.

3.18.4.3.3 Big Bead Mesa (311 Acres)

This site presents and excellent opportunity for archaeologists to study the effects of intertribal relations, conflicts, and alliances. It is an important representation of trade patterns and raiding that characterized Navajo relations with Pueblos, Apache, and Hispanics. It is the best known site of its time period and cultural affiliation. It is the first National Historic Landmark designated with Navajo cultural affiliation.

The importance ranking for this site is I-1 for importance based on is rarity and ranks and R1 for relevance based on its significant historic value.

3.18.4.3.4 Bluewater Canyon (89 acres)

Bluewater Canyon ACEC, located in an area of sandstone mesas, is a steep-walled canyon. This canyon contains the only perennial stream within the Rio Puerco Field Office. The canyon bottom is composed of riparian habitat and a perennial stream. The availability of water leads to a heavy concentration of birds and mammals. The canyon contains outstanding scenic values and has been rated as a Class II Visual Resource Management (VRM) area. The canyon contains a unique and aesthetically appealing combination of vegetation, which includes cotton-woods, piñon-juniper, ponderosa pine, oak and willow; along with various grasses, shrubs, and cacti. Under some alternatives the canyon would be expanded to include the entire stretch of the creek that meets up with Bluewater Lake.

3.18.4.3.5 Cabezon Peak ACEC (5,765 acres)

Cabezon Peak, at over 8,000 feet high, is one of the most prominent local landmarks in the Rio Puerco Valley. It is a popular recreation site for casual visitation and rock climbing. The area also contains raptor nesting sites, and various raptor species have been observed using the area. The peak has populations of the rare plant species *Mammillaria wrightii*, *Sclerocactus papyracanthus*, *Abronia bigelovii*, and *Astragalus knightii*. Cultural resources are also present on the peak, and the peak has religious significance for both Pueblo and Navajo tribes. In addition to being a traditional cultural place, the peak also served as a boundary marker and reference point in prehistoric times.

Because of these geologic, biologic, and cultural values, Cabezon Peak ACEC possesses relevance (R-1, R-2, R-3) and importance (R-1, R-2, R-3) criteria. Several other volcanic necks in the area also possess these criteria, and under some alternatives the ACEC would be expanded to include Cerro Guadalupe, Cerro Chato, Cerro Santa Clara, and Cerro Quate.

3.18.4.3.6 Cañon Jarido SMA (1,803 acres)

Cañon Jarido is a steep-sided sandstone canyon cut approximately 100 feet into Mesa Portales which provides raptor nesting sites. The vegetative community also provides good mule deer habitat. There are five springs in the canyon, two of which are associated with historic homesteads settled during the early 1900s. Additional historic and prehistoric cultural resources have also been identified in the canyon. Due to the presence of these scenic, wildlife, and cultural resources, the Cañon Jarido SMA possesses relevance and importance criteria (R-1, R-2, I-1, I-2). The same relevance and importance criteria are also present in an adjacent area, Mesa Portales, which is proposed to be included in the Cañon Jarido ACEC under some alternatives.

3.18.4.3.7 Canon Tapia (1,093 Acres)

The Canon Tapia ACEC is located in Sandoval County, about 80 miles northwest of Albuquerque, New Mexico. The ACEC is located within a five mile section of Tapia Canyon, a major secondary drainage that flows eastward into the Rio Puerco about a mile away in T. 15 N, R. 3 W. The ACEC is approximately 1,093 acres in size and contains three privately-owned segments. The BLM currently manages approximately four of the five miles comprising the designated ACEC. Important resources within the ACEC include very high densities of both prehistoric and historic art in petroglyph and pictograph forms, related small storage and residential structures, spectacular views of contrasting red, orange, and brown high sandstone cliffs, and a large natural sandstone bridge. Resource management objectives within Canon Tapia would include: (1) maintain current conditions of rock art and other cultural and natural features; and (2) maintain existing environmental conditions and promote awareness of and provide recreational use of unique visual values.

3.18.4.3.8 El Malpais (305,400acres) RMP/EIS Completed September 2001

The Albuquerque Field Office has prepared a “stand-alone plan” – the El Malpais Plan – to consolidate the RMP amendment decisions and activities as they relate to El Malpais National Conservation Area (NCA). The El Malpais lies south of the city of Grants, New Mexico, primarily in Cibola County. The Plan Area encompasses approximately 266,100 acres of Federal land, 36,800 acres of private land, and 2,500 of Indian land.

3.18.4.3.9 Elk Springs (10,300 Acres)

The Elk Springs ACEC is located in Sandoval County, approximately 65 miles northwest of Albuquerque, New Mexico. Access to the ACEC is available from New Mexico State Highway 44 and several dirt roads leading to northern, central, and southern portions of the area. Several miles of road leading to the northern and central parts of Elk Springs cross private land. The topography of the ACEC is characterized by mesa tops with steep rocky sides and rimrock cut by narrow drainages and valleys. Elevations range to 8,000 feet. The ACEC is bounded on the east by the steep cliffs and rocky slopes of the Nacimiento Mountains, which also form the western boundary of the Santa Fe National Forest. The Jemez Indian Reservation lies just south of the ACEC, and the Rio Puerco is located about one and one-half miles west of the area. The

adjacent land to the north of the ACEC is privately owned. Vegetation is characterized by types typical of piñon-juniper woodlands and sagebrush-dominated valleys. Key forage species for livestock and wildlife include mountain mahogany, Gambel's oak, four-wing saltbush, big sagebrush, western wheatgrass, mutton bluegrass, alkali sacaton, bottlebrush squirrel-tail, and Indian ricegrass. The management goals of the Elk Springs ACEC continue to be providing quality winter range for the Jemez elk and deer herds by providing optimal cover and forage, thus alleviating big game depredations on adjacent private lands.

3.18.4.3.10 Guadalupe Ruin and Community (487 acres)

Guadalupe Ruin is a single-story masonry 10th – 13th century pueblo situated on an isolated sandstone mesa rising nearly 200 feet above the valley floor and isolated by sheer walls on all sides. The ruin consists of at least 39 rectangular rooms and 7 kivas. Archaeological investigations conducted in the 1970s suggest that the site was originally built as a Chacoan Outlier, but was reoccupied in the late 13th century by immigrants from the Mesa Verde area. The surrounding community consists of 157 recorded sites. Curiously, most outliers are situated at locations generally north, west, and south of Chaco Canyon, while Guadalupe stands out nearly alone in its eastern placement in the Chaco world and may have been positioned to take advantage and possibly control a migration and trade route between the San Juan Basin and the Rio Grande. Guadalupe Ruin is one of the Chaco Outliers protected under PL 96-550 and is recognized as one of the earliest firmly dated Chaco Outliers. This site has been excavated and some of the masonry walls stabilized, including two kivas which also have protective roofs over them to protect them while leaving them open for public visitation. These special qualities rate the site as for Importance (I-2, I-2) and Relevance (R-1).

3.18.4.3.11 Headcut Prehistoric Community SMA (2,274 acres)

The Headcut Prehistoric Community SMA contains a prehistoric Pueblo II-III community with a large isolated kiva, at least five major pueblos ranging in size from 45 to 100 rooms, and numerous smaller sites. This site is likely a Chacoan outlier. The Headcut Prehistoric Community SMA did not meet the ACEC relevance and importance criteria, but will be managed as a Cultural Resource Area to protect and preserve the significant cultural resources in this area.

3.18.4.3.12 Historic Homesteads SMA (16 acres)

This SMA consists of nine historic log cabin sites scattered through the northern portion of the planning area. These cabins were constructed between 1900 and 1940. RPFO staff did not find that the Historic Homesteads SMA met ACEC relevance and importance criteria. In addition, cultural resource staff at RPFO determined that the small size of each homestead site (10 acres or less) would be adequately protected by standard cultural resource survey techniques.

3.18.4.3.13 Ignacio Chavez ACEC (43,182 acres)

The Ignacio Chavez ACEC is located approximately 25 miles west of San Ysidro, New Mexico, in Sandoval and McKinley counties. The ACEC has a variety of landforms, including mesas, cuestas, rock terraces, canyons, basalt plains, cinder cones, and talus slopes. The proximity of these landforms to one another creates a striking landscape and gives the area a high scenic quality. The habitat in the Ignacio Chavez ACEC is a mix of piñon-juniper woodland, ponderosa pine with oak understory, and open grasslands. The ACEC provides excellent habitat for many

wildlife and plant species. Because of these scenic and wildlife values, the Ignacio Chavez ACEC meets the relevance (R-2) and importance (I-2) criteria.

3.18.4.3.14 Jones Canyon ACEC (649 acres)

Nationally significant cultural resources are present in Jones Canyon ACEC. Most notably, the large prehistoric Pueblo II-III, with nearly 200 rooms and numerous other prehistoric dwellings present in the area. As such, Jones Canyon ACEC continues to meet the relevance (R-1) and importance (I-1, I-2) criteria. An additional 320 acres adjacent to the existing ACEC also possess these relevance and importance criteria and would be included in the ACEC under some alternatives.

3.18.4.3.15 Ojito (13,657 acres)

The Ojito ACEC consists of 13,657 acres. The BLM administers 11,697 acres of the surface estate, 1,600 acres belong to the State, and 360 are privately owned. The Ojito ACEC is located in west-central Sandoval County approximately 40 air miles northwest of Albuquerque and 6 miles west of San Ysidro. The Ojito ACEC is located in a rather special setting in that it is situated at the intersection of the Navajo and Datil sections of the Colorado Plateau physiographic province, and the southern terminus of the Southern Rocky Mountains physiographic province. Expressions of these physiographic subdivisions which occur in and around the Ojito ACED include lava flows, volcanic necks and plugs, cuestas, fault block mountains, desert plains, and canyoned plateaus.

3.18.4.3.16 Pelon Watershed SMA (858 acres)

The Pelon Watershed SMA is one of three Watershed Study Areas that were part of the Rio Puerco Hydrology Study. The objectives of the study was to monitor hydrologic responses to the Rio Puerco grazing management programs, which was achieved by allowing grazing in the watershed study areas but excluding all other surface disturbing activities. The watershed study ended in 2004, so the management actions associated with the Watershed Study Area are no longer necessary.

3.18.4.3.17 Petaca Pinta (13,789 acres)

The area is a Wilderness Study Area and has unique geological formations. Because of these values, the area meets relevance (R-1, R-2, R-3) and importance (I-3,I-4).

3.18.4.3.18 Pronoun Cave Complex (1,194 acres)

The travertine deposit housing these caves is proposed to be some of the most unusual in the world, (Forbes, 1993). Entering the caves is equated to entering the throat of an extinct travertine-depositing spring. In addition, paleontolgic resources are abundant within the caves and have been used for paleoclimate reconstruction. Given the well preserved spring vent depositional environment, hydrologic interaction between the lower San Andres limestones, and extensive paleontological resources, this are rate Relevance (R-30) and Importance (I-1, I-2).

3.18.4.3.19 San Luis Mesa Raptor Area ACEC (10,447 acres)

The San Luis Mesa Raptor Area ACEC consists of about 20 miles of sandstone bluffs about 100 to 200 feet high. The geologic values associated with these bluffs are exemplary exposure of Mancos Shale and Point Lookout Sandstone outcrops, with implications for paleographical reconstruction. Ledges carved in the bluff by wind erosion form excellent raptor nest sites, and

numerous raptor species have been observed nesting there. Because of these wildlife and geologic values, the San Luis Mesa Raptor Area meets relevance (R-2, R-3, R-4) and importance (I-1, I-2, I-3) criteria.

3.18.4.3.20 Tent Rocks (11,743 acres)

Located in north-central New Mexico in the foothills of the Jemez Mountains on the Pajarito Plateau, the Kasha-Katuwe Tents Rocks National Monument is in Sandoval County. The Monument was designated by Presidential Proclamation 7394 on January 17, 2001. With a standalone plan, existing actions, decisions, and guidelines under which the ACEC have been managed have effectively met public needs and /or resolved issues; thus, the BLM will continue to use them as specified in the Final Protection Plan for Tent Rocks.

3.18.4.3.21 Torreon Fossil Fauna ACEC (2,981 acres)

This area, located near the head of Torreon Wash, is a major collecting area for fossil mammals. Wood et al (1941) formally defined this area as the type locality for the Torreon Fauna. A type locality is an important paleontological feature in that it represents the place at which a fossil assemblage is typically displayed and from which it derives its name. Type specimens of the Torreon Fauna were originally recognized and described from this locale. Thus, the area represents a unique and irreplaceable resource. Because of these important paleontological resources, this area meets the relevance (R-1, R-3) and importance (I-1, I-2, I-3) criteria.

3.19 Special Status Species

Suitable habitat is the prerequisite for the presence and continued existence of special status species. Furthermore, the condition and health of habitats are associated with the potential for presence and maintenance of special status species in that particular habitat. Therefore, the condition of the environment is one indicator of the condition and/or viability of special status species. Another indicator of this condition is the trend that can be seen in the actual presence or occupancy of special status species, as measured by survey and monitoring efforts.

The RPFO maintains a Special Status Species List that contains both federally protected species as well as BLM sensitive species. Many species listed by the New Mexico Department of Game and Fish are contained in this list as well. Monitoring for many special status species has been ongoing since the 1986 RMP. However, many data gaps exist due to budget and staffing constraints throughout the years. The following description of the current conditions of Special Status Species within the RPFO was ascertained from the current available data within the field office as well as outside data sources.

The following table represents the federally endangered, threatened, and proposed species that occur within the affected environment.

Table 3.23: Federally Protected Species In Planning And Decision Areas

Species	Status	County Occurrence	Occurs in Planning Area	Occurs in Decision Area
Black-footed ferret, *Mustela nigripes*	Endangered	Bernalillo, Cibola, McKinley, Sandoval,	No	No

Species	Status	County Occurrence	Occurs in Planning Area	Occurs in Decision Area
		Torrance, Valencia		
Southwestern willow flycatcher, *Empidonax traillii extimus*	Endangered	Bernalillo, Cibola, McKinley, Sandoval, Valencia	Yes	Yes
Rio Grande silvery minnow, *Hybognathus amarus*	Endangered	Bernalillo, Sandoval, Valencia	Yes	No
Mexican spotted owl, *Strix occidentalis lucida*	Threatened	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia	Yes	No
Pecos sunflower, *Helianthus paradoxus*	Threatened	Cibola	Yes	No
Zuni fleabane, *Erigeron rhizomatus*	Threatened	Cibola, McKinley	Yes	No
Mountain plover, *Charadrius montanus*	Proposed	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia	Yes	Yes

The current condition of federally listed special status species within the planning area is best described by analyzing the availability and health of critical habitat based on defined key habitat types. For federally listed species, designation of critical habitat is used. Critical habitat for Mexican spotted owl (*Strix occidentalis lucida*), Rio Grande silvery minnow (*Hybognathus amarus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and Pecos sunflower (*Helianthus paradoxus*) exists within the planning area, but no critical habitat exists within the decision area. Out of these four species, suitable habitat for the southwestern willow flycatcher occurs within the decision area.

According to current RPFO data, the only federally listed species known to occur within the Planning Area is the Southwestern willow flycatcher. The RPFO contains habitat that may support the Mexican spotted owl, but higher densities of this species are more likely found in higher elevation mixed conifer forests. No data suggests the RPFO supports the Rio Grande silvery minnow or the Pecos sunflower. However, these habitats may be considered part of the affected environment as management decisions within the planning area may have the potential to affect these species populations that are outside the planning area. For example, the Rio Puerco feeds into a segment of the Rio Grande River that contains designated critical habitat for the southwest willow flycatcher and the Rio Grande silvery minnow, therefore decisions made affecting the condition of the Rio Puerco have the potential to affect this critical habitat.

3.19.1 Southwestern Willow Flycatcher

The RPFO has conducted annual surveys for the flycatcher in multiple locations throughout the field office where it has been positively identified, and seven other riparian sites are monitored annually for all breeding birds. The three sites that have been most consistently monitored for

SWFL are Bluewater Canyon (south of Bluewater, NM), Lost Valley (north of Cabezon Peak) and San Ysidro (on southern edge of San Ysidro, NM). From 1996 to 2009, the occurrence of SWFL at Bluewater and Lost Valley appears to be in a downward trend according to survey data taken throughout those years (r^2=0.01 for Bluewater, r^2=0.2 for Lost Valley). The only site that appears to have an upward trend in occurrence is San Ysidro (r^2=0.1). The goodness-of-fit values, as measured by r^2, indicate that although we can see a general upward or downward trend, none of the data is significantly conclusive of the trend of this species in each site surveyed. However, since the southwestern willow flycatcher is a riparian obligate species, we can look to the current condition of riparian areas in the RPFO to indicate trends in the habitat of this endangered species.

Riparian/wetland areas represent important migratory bird flyways and nesting areas for threatened and endangered species and have been found to contain large populations of bird species in desert areas (USDA 2005). Riparian-wetland areas in the RPFO traverse portions of public, state, tribal, and private land, and therefore not all habitats have been completely mapped and studied. Out of all inventoried/assessed riparian areas, eight are at proper functioning condition, eleven are functioning at risk, and four are non-functional. Currently, the RPFO is actively involved in riparian restoration projects that include physical reconstruction of hydrologic flow, re-vegetation, exclusion of livestock and others. Many of these projects include the objective of recovery of the southwestern willow flycatcher. Threats to their habitat include, but are not limited to: recreation, livestock grazing, agricultural development, water diversion and impoundment, and mineral development. Riparian habitat is discussed in detail in Section 3.1.14.

The general condition for southwestern willow flycatcher habitat in the RPFO is in an upward trend. However, many threats to the species' habitat from multiple land uses remain present, and there is still a great need to continue with restoration projects to improve this habitat for riparian obligates such as the flycatcher as well as other southwestern species dependent on the rare oases these habitats provide in the desert southwest.

3.19.2 Black-footed Ferret

The other federally listed endangered species that warrants discussion is the black-footed ferret (*Mustela nigripes*). This species is considered extirpated in the state of New Mexico (Natureserve). However, opportunities exist to implement certain measures of the Black-footed Ferret Recovery Plan (USFWS, 1988) involving enhancement of prairie dog colonies/complexes.

Currently, the El Malpais Plan (BLM/NM/PL-01-007-1610) designates the historic location of the largest known prairie dog colony within the RPFO as a prairie dog colony enhancement area. This effort was initiated to benefit two local special status species, the burrowing owl and the mountain plover. However, if the colony can be expanded to the appropriate size and density, it will be a potential release site for an experimental population of the endangered black-footed ferret.

The RPFO is actively augmenting this population of Gunnison's prairie dog. Based on ongoing monitoring and surveys, if this effort is successful at expanding the colony, it would pave the way for future augmentation projects within the RPFO RMP decision area.

3.19.3 RPFO Sensitive Species

In addition to management of federally listed threatened, endangered, and proposed species, the RPFO also maintains a list of bureau sensitive species which includes rare plants. This list is below.

Table 3.24: RPFO Sensitive Species in the Decision Area

Species	Status	County Occurrence
Millipede, *Totecus chihuanus*	RPFO Bureau Sensitive (Arthropod)	Bernalillo
Ferruginous Hawk, *Buteo regalis*	RPFO Bureau Sensitive (Bird)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia
Northern Goshawk, *Accipiter gentilis*	RPFO Bureau Sensitive (Bird)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia
Mountain Plover, *Charadrius montanus*	RPFO Bureau Sensitive (Bird)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia
Black Tern, *Chlidonias niger*	RPFO Bureau Sensitive (Bird)	Bernalillo, McKinley, Torrance
White-faced Ibis, *Plegadis chihi*	RPFO Bureau Sensitive (Bird)	Bernalillo, McKinley, Sandoval, Valencia
Western Burrowing Owl, *Athene cunicularia hypugea*	RPFO Bureau Sensitive (Bird)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia
Loggerhead Shrike, *Lanius ludovicianus*	RPFO Bureau Sensitive (Bird)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia
Gray vireo, *Vireo vicinior*	RPFO Bureau Sensitive (Bird)	Bernalillo, Cibola, McKinley, Sandoval
Baird's Sparrow, *Ammodramus bairdii*	RPFO Bureau Sensitive (Bird)	Bernalillo, Sandoval, Torrance, Valencia
Flathead chub, *Platygobio (Hybopsis) gracilis*	RPFO Bureau Sensitive (Fish)	Bernalillo, Sandoval, Valencia
Zuni bluehead sucker, *Catostomus discobolus yarrowi*	RPFO Bureau Sensitive (Fish)	Cibola, McKinley
Cebolleta southern pocket gopher, *Thomomys umbrinus paquatae*	RPFO Bureau Sensitive (Mammal)	Cibola
New Mexican jumping mouse, *Zapus hudsonius luteus*	RPFO Bureau Sensitive (Mammal)	Bernalillo, Sandoval, Valencia
Pecos River muskrat, *Ondatra zibethicus ripensis*	RPFO Bureau Sensitive (Mammal)	Valencia
Fringed myotis, *Myotis thysanodes*	RPFO Bureau Sensitive (Mammal)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia
Long-eared myotis, *Myotis evotis*	RPFO Bureau Sensitive (Mammal)	Cibola, McKinley, Sandoval, Valencia
Long-legged myotis, *Myotis volans*	RPFO Bureau Sensitive (Mammal)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia

Species	Status	County Occurrence
Occult myotis, *Myotis occultus (check on latest)*	RPFO Bureau Sensitive (Mammal)	Bernalillo, Cibola, McKinley, Sandoval
Small-footed myotis, *Myotis ciliolabrum*	RPFO Bureau Sensitive (Mammal)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia
Yuma myotis, *Myotis yumanensis*	RPFO Bureau Sensitive (Mammal)	Bernalillo, Cibola, Sandoval, Valencia
Pale Townsend's big-eared bat, *Corynorhinus townsendii pallescens*	RPFO Bureau Sensitive (Mammal)	Bernalillo, Cibola, Sandoval
Spotted bat, *Euderma maculatum*	RPFO Bureau Sensitive (Mammal)	Bernalillo, Cibola, Sandoval, Valencia
Big free-tailed bat, *Nyctinomops macrotis*	RPFO Bureau Sensitive (Mammal)	Bernalillo, Cibola, Sandoval, Valencia
Acoma fleabane, *Erigeron acomanus*	RPFO Bureau Sensitive (Plant)	Cibola, McKinley
Cinder phacelia, *Phacelia serrata*	RPFO Bureau Sensitive (Plant)	Cibola
Grama grass cactus, *Sclerocactus papyracanthus*	RPFO Bureau Sensitive (Plant)	All
Gypsum townsendia, *Townsendia gypsophila*	RPFO Bureau Sensitive (Plant)	Sandoval
Knight's milk-vetch, *Astragalus knightii*	RPFO Bureau Sensitive (Plant)	Sandoval
New Mexico spiny milkvetch, *Astragalus kentrophyta var. neomexicana*	RPFO Bureau Sensitive (Plant)	McKinley, Sandoval
Santa Fe Milkvetch, *Astragalus feensis*	RPFO Bureau Sensitive (Plant)	Bernalillo, Sandoval, Torrance
Sivinski's fleabane, *Erigeron sivinskii*	RPFO Bureau Sensitive (Plant)	McKinley
Tufted evening primrose, *Oenothera caespitosa*	RPFO Bureau Sensitive (Plant)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia
Tufted sand verbena, *Abronia bigelovii*	RPFO Bureau Sensitive (Plant)	Sandoval
Wright’s nipple cactus, *Mammillaria wrightii*	RPFO Bureau Sensitive (Plant)	Bernalillo, Cibola, McKinley, Sandoval, Torrance, Valencia
Texas horned lizard, *Phrynosoma cornutum*	RPFO Bureau Sensitive (Reptile)	Cibola, Torrance

Currently, the RPFO maintains little data on the previously mentioned RPFO bureau sensitive animal species. One-time surveys have been conducted for few of them, and there are no monitoring programs in place for any of them. The majority of bureau sensitive species include bats, birds, and plants. A survey in 1998 documented thirteen bat species, many of which are special status species, in five sites. Two riparian sites (Rio Salado Marsh and Bluewater

Canyon), two piñon-juniper sites (Canyon Jarido and Pronoun Caves), and one site with characteristics of both riparian and piñon-juniper habitat types (Cebolla Canyon) were surveyed, and the following species were identified: Pallid bat, Townsend's Big-eared bat, Big brown bat, California myotis, Western small-footed Myotis, Long-eared myotis, Little brown bat, Fringed myotis, Long-legged myotis, Yuma myotis and Spotted bat. A roost of Townsend's big-eared bat was located at Pronoun Caves. The caves also provide important winter hibernacula for bat species.

Although the 1986 RPFO RMP designated Pronoun Caves as a SMA for protection of resources, the area the SMA covers currently has mining claims on it. There are large travertine deposits in the area and two active mines within one mile of the caves. It is likely that these mining activities are having a negative effect on bats utilizing the Pronoun Caves due to their close proximity and the noise/ground disturbance they produce.

Sensitive bird species in the RPFO occupy a variety of habitats including piñon-juniper, desert scrub, riparian/wetlands, and grassland savannahs. The main habitat type that most birds in the desert southwest gravitate toward is riparian/wetland due to its ability to provide food, water, shelter and nesting substrate. Riparian restoration is one common objective of the Wildlife, Riparian and Special Status Species program goals in the RPFO. Annual breeding bird monitoring in riparian/wetland areas is ongoing. Current threats to special status bird species include landscape level mechanical and chemical treatments of sagebrush and piñon-juniper encroached grasslands, livestock grazing in riparian areas and the invasion of noxious weeds in all native habitats.

Management of special status species in the RPFO is often done through the designation and protection of Special Management Areas (SMAs) and ACECs. Currently, the RPFO manages four ACECs for the protection of rare plants. These areas include: Cabezon Peak ACEC (*Abronia bigelovii*, *Astragalus knightii*, *Mammillaria wrightii* and *Sclerocactus papyracantha*)*;* Cañon Tapia ACEC (*Astragalus knightii*)*;* Espinosa Ridge ACEC (formerly Ball Ranch ACEC) (*Astragalus feensis*, *Astragalus kentrophyta var. neomexicana*, *Oenothera caespitosa spp. navajoensis*, *Sclerocactus papyracantha* (synonymous with genera *Toumeya* and *Pediocactus*) (*Abronia bigelovii*); Ignacio Chavez Grant SMA (*Sclerocactus papyracantha*, *Mammillaria wrightii*, and *Corypantha missouriensis*); and Ojito ACEC (*Scerocactus papyracantha* and *Astragalus knightii*). Surveys were conducted (anywhere from 5-20 years ago) to determine the extent of the populations, however, regular monitoring programs are not in place, and it is difficult to determine the trends of these species and their occupied habitat. There are few to no projects that protect sensitive plant species from resource uses in the RPFO.

Threats likely to be affecting special status plant species on the RPFO include recreation uses such as motorized and non-motorized OHV use, special recreation events, recreational visitors leaving authorized roads and trails, trampling due to livestock grazing, habitat loss due to the creation of roads, trails, rights of way, mineral development facilities, and any other surface disturbing activities that occur within the RPFO.

3.19.4 Migratory Birds

The Migratory Bird Treaty Act (1918) implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory

birds. Under the Act, taking, killing or possessing migratory birds is unlawful. Over 800 species are covered under the treaty. The RPFO protects migratory birds by designating ACECs, protecting riparian areas, and implementing best management practices and mitigation during all construction and project activities (analyzed through NEPA). Three areas that are protected for raptors specifically are San Luis Mesa Raptor ACEC, Cabezon Peak ACEC, and Cañon Tapia ACEC. Protection of these areas includes protection of prairie dog towns adjacent to suitable nesting habitat for prey base. In the 1986 RMP, one management objective for San Luis Mesa Raptor ACEC was to alter livestock grazing patterns within the ACEC and surrounding allotments to improve raptor prey base. However, management prescriptions to accomplish this objective were never implemented, and reports of raptor numbers in the ACEC have been lower than expected.

The main threats to migratory birds in the RPFO are depletion of water resources and riparian/wetland areas, mineral development and construction activities during the nesting season and habitat loss, specifically to nesting areas and migratory bird flyovers/migration corridors.

3.20 Travel Management

The existing RMP does address OHV (formerly known as off-road vehicle, or ORV) designations, but does not include access and transportation program issues throughout the Planning Area. These designations will not be covered in this section. A formal transportation plan was scheduled for 1987, but was not completed due to inadequate staffing and funding. As a result, only minimal information is known about the transportation network for the Planning Area. No documentation was found on the current goals, objectives, or actions taken in regards to transportation and access. There are twenty-nine roads and fifteen trails currently tracked in the BLM FAMS for the RPFO. The FAMS database is the official repository of current information on the BLM's transportation systems.

The Rio Puerco Field Office used the BLM Facility Inventory System to manage and maintain their roads and trails up until 2002 when the Bureau switched over to FAMS. There are currently twenty-eight roads and one primitive road tracked in the Planning Area. Two of the twenty-nine are located in Cibola and southeast McKinley Counties and the rest are located in Sandoval County. In addition, the BLM has sixty-seven existing road ROWs in the Planning Area. Each of the roads listed below are traveled by a variety of users, including BLM personnel, hunters, recreationists, and ranchers.

The RPFO currently tracks fifteen trails in FAMS. These trails have never been formally condition assessed, and minimal information is known about the current condition of the trails. These trails are maintained through a combination of annual maintenance funding, recreation funding, and volunteer support.

In the 1986 RMP, the RPFO delineated twenty-three SMAs. These areas were analyzed and planned actions were made on how each area would be classified. Classifications include open, limited, or closed to motorized travel.

There has been a noticeable deterioration of the roads listed above. County maintenance of BLM roads has increased, but still does not account for all of the roads listed above. Trails have seen

minimal maintenance, with the focus being on maintaining recreational sites; not much maintenance has been achieved due to lack of funding.

There is also a large portion of linear features within the Rio Puerco Management Area that may qualify as roads, primitive roads, and trails that has yet to be assessed. Once the Transportation Plan has been completed for the RPFO, the number of roads, primitive roads and trails being tracked in FAMS will increase. Current maintenance funding will continue to be inadequate as it will be spread across more linear features. With an increase of annual maintenance that was not performed when it was scheduled or was delayed for a future period then increases the DM need.

The RPFO has five road projects identified in the DM 5-Year Plan for 2009-2013 (Table 3-26). The total deferred maintenance cost for these assets is $4,930,000.

Table 3.25: Identified Road Projects for 2009–2013

Project Title (PDS)	Includes Asset in Quadrant 2?	DOI Ranking Score	Deferred Maintenance	Capital Improvements	Total Investment	Projected Year in 5-year Plan
Ignacio Chavez Road	No	530	$1,703,000	$0	$1,703,000	2010
Cebolla Canyon Road	No	490	$1,547,000	$0	$1,547,000	2010
Chiuilla Road Reconstruction	Yes	460	$1,155,000	$0	$1,155,000	2011
Starveout Canyon Road Reconstruction	No	400	$210,000	$0	$210,000	2013
Ojo Hallado Road Reconstruction	No	400	$315,000	$0	$315,000	2013

As the population in the Planning Area continues to grow, so does the demand for access to public lands. Sandoval County currently holds the highest volume of BLM roads in the Planning Area. With the population growth in the city of Rio Rancho, development will continue to increase and encroach upon BLM-administered lands located within Sandoval County, which is a high use area. The maintenance on these roads, primitive roads, and trails that provide public land access also increases while funding to accomplish the maintenance decreases annually. Funding will play a vital role in the classification of the road as open, limited use, or closed.

The growing populations in urban areas such as Albuquerque, Rio Rancho, and Los Lunas may demand additional access to BLM-administered lands.

The checkerboard surface ownership pattern allows private entities to block access to some BLM-administered lands. Legal access has the potential to be illegally gated by private landowners or permittees. Areas where access may be an issue extend throughout the Planning Area, and are not necessarily concentrated within a particular geographic area.

Route inventories have been completed for ACECs and WSAs in the Planning Area. Designating routes in portions of the Decision Area as open or closed will assist BLM in managing transportation and access within and to these areas.

Open, limited, and closed designations should be evaluated to ensure that resources or resource uses that are sensitive to motorized travel have been adequately protected. OHV designations will also assist BLM in managing recreation-related transportation.

3.21 Vegetative Communities

3.21.1 Community Characterization Background

The information used to characterize current conditions within Bernalillo, Cibola, Sandoval, Valencia, Torrance, and McKinley counties was obtained from the following four information sources: 1) Environmental Protection Agency (EPA) Level III Ecoregions descriptions; 2) NRCS Major Land Resource Areas (MLRAs) descriptions; 3) ecological site descriptions (USDA NRCS), and 4) land cover information derived from the SWReGAP) data (USDI USGS).

Ecological regions or ecoregions are designed to serve as a spatial framework for environmental resource management; ecoregions denote areas within which ecosystems (type, quality, and quantity of environmental resources) are generally similar.

The MLRAs provide a coarse-scale description of the vegetation and habitat found within the Planning Area; this information – presented below – has been excerpted from the New Mexico Standards and Guidelines (USDI BLM 2001a). Ecological site descriptions provide more detailed information on vegetation within the MLRAs (based on a general association of these two datasets).

The Southwest Regional Gap Analysis Project (SWReGAP) data has been aggregated using the National Landcover Dataset Classification (NLDC) system (USDI USGS 2004a, b), developed in collaboration with NatureServe (2003) to represent the U.S. National Vegetation Classification system (USNVC). The NLDC system combines finer-scale units defined by the USNVC to provide the basis for interpreting coarse scale ecological systems more practically. The USNVC categories are further combined into Natural Land Cover Types (NLCT) for coarse-scale analysis, for which NLDC Classifications would be impractical. The following discussion integrates these data sets in order to most accurately describe the current condition and trend of vegetation, as they relate to both the Planning Area and Decision Area.

3.21.2 EPA Level III Ecoregions

Ecological regions or ecoregions are identified through the analysis of the patterns and the composition of biotic and abiotic phenomena that affect or reflect differences in ecosystem quality and integrity (Wiken 1986; Omernik 1987, 1995). These phenomena include geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology. The relative

importance of each characteristic varies from one ecological region to another regardless of the hierarchical level. Because of possible confusion with other meanings of terms for different levels of ecological regions, a Roman numeral classification scheme has been adopted for this effort. Level I is the coarsest level, dividing North America into fifteen ecological regions, whereas at Level II the continent is subdivided into fifty-two classes (CEC 1997). For portions of the United States, the ecoregions have been further subdivided to Level IV. The applications of the ecoregions are explained in Gallant et al. (1989). Level III Ecoregions and estimated BLM acres within each are identified in the table below. Descriptions of each ecoregion within the planning area can be found at (http://www.epa.gov/wed/pages/ecoregions.htm).

Table 3.26: Ecoregions in the Decision Area

Ecoregion	BLM Acres
Arizona/New Mexico Mountains	63,406
Arizona/New Mexico Plateau	668,937
Southern Rockies	10,095
Southwestern Tablelands	14,669

3.21.3 Major Land Resource Areas

MLRAs found within the Planning Area classify nearly homogeneous areas in terms of land use, elevation, topography, climate, water resources, potential natural vegetation, and soils. These coarse-scale descriptions of the Planning Area are based upon aggregations of geographically associated areas derived from New Mexico State soil geographic database map unit boundaries, and include the known plant community types that could potentially occur. Information specific to each MLRA including; physiography, geology, climate, water, soils, biology, and land use can be found in the U.S. Department of Agriculture Handbook 296 (USDA NRCS). Each MLRA is broken down further into Land Resource Units:

Land resource units (LRUs) are the basic units from which major land resource areas (MLRAs) are determined. They are also the basic units for State land resource maps. They are typically coextensive with State general soil map units, but some general soil map units are subdivided into land resource units because of significant geographic differences in climate, water resources, or land use. (USDA NRCS)

The Planning Area is classified within six MLRAs, and 10 LRUs as described by the USDA Natural Resources Conservation Service (USDA NRCS) shown in the table below. The MLRAs and LRUs are broken down by county within the Planning Area in Table 3.27 below.

Table 3.27: MLRAS and LRUS in the Planning Area

MLRA	LRU
35) Colorado Plateau	35.1 Colorado Plateau Mixed Grass Plains 35.3 Colorado Plateau Sagebrush-Grasslands 35.6 Colorado Plateau Piñon-Juniper-Sagebrush 35.7 Colorado Plateau Piñon-Juniper 35.8 Colorado Plateau Ponderosa Pine Forest
36) Southwest Plateaus, Mesas, and Foothills	36.2 Southwestern Plateaus, Mesas, and Foothills, Warm Semiarid Mesas and Plateaus

MLRA	LRU
39) Arizona and New Mexico Mountains	39.2 Central New Mexico Mountains
42) Southern Desertic Basins, Plains, and Mountains	42.1 Upper Rio Grande Rift Valley
48) Southern Rocky Mountains	48A.1 Southern Rocky Mountains-High Mountains and Valleys
70C) Central New Mexico Highlands	70C.1 Central New Mexico Highlands

Table 3.28: LRUs by County Within the Planning Area

MLRA	*LRU by County					
	McKinley	Cibola	Valencia	Bernalillo	Sandoval	Torrance
35	35.1, 35.6, 35.7, 35.8	35.1, 35.6, 35.7, 35.8	35.7	35.1	35.3, 35.1, 35.8	
36					36.2	
39			39.2	39.2	39.2	39.2
42		42.1	42.1	42.1	42.1	42.1
48					48A.1	
70C			70C.1	70C.1		70C.1

*Units provided include RPFO lands outside of the decision area.

LRUs are broken down further into ecological site descriptions (ESD; USDA NRCS). An ecological site, as defined for rangeland, is a "distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation" (NRCS 2003). A large number of ESDs occur within the Planning Area and can be found in the NRCS Field Office Technical Guide on line at: http://www.nm.nrcs.usda.gov/technical/fotg/section-2/esd.html. State and Transition Models associated with ecological sites specify indicators of ecological resilience and thresholds. Ecological sites are currently being updated to include state and transition models in the state of New Mexico. The BLM uses state and transition models as guides to manage vegetative communities in a manner that will result in a stable or desired state.

3.21.4 Southwest Regional Gap Analysis Project

While the MLRA model uses a soils-based approach to identify and describe potential vegetative communities and habitat, the SWReGAP model uses canopy cover and reflectance values in a vegetation-based approach to map and assess current vegetative communities (USDI USGS). The SWReGAP data set emphasizes the vegetative communities more than the MLRA data set and provides greater detail describing the different plant communities. SWReGAP data is available online at: http://earth.gis.usu.edu/swgap/.

3.21.5 Riparian

Riparian and wetland areas within the Planning Area were identified in the Riparian and Aquatic Habitat Management Plan (USDI BLM 2000). The purpose of the plan is to provide guidance for the restoration and protection of riparian habitats under the jurisdiction of the RPFO. Standard 3 of New Mexico Standards and Guidelines also addresses the riparian health standards.

Native species such as cottonwoods and willows have been replaced by exotic invaders such as saltcedar and Russian olive. Only fragmented stands of cottonwoods/willows are now found along streambanks.

In the riparian-wetland ecosystem, there are certain plants or organisms that are more important than others and are considered dominant species. In the Rio Puerco basin, the Fremont cottonwood should be dominant and form the main tree canopy in the riparian zone. Beneath the cottonwoods, a shrubby layer of willows should develop and below the willows an herbaceous layer of rushes, sedges, grasses, and other riparian plants should occur at the water's edge. Emergent or aquatic plants such as bullrushes or cattails should be evident in slow water or marshy areas. This layering of vegetation is referred to as stratification. This structural layering should also contain diverse age classes.

Among other factors, a proper functioning riverine riparian area should have bank vegetation, with root masses capable of withstanding high stream flow events. This vegetation should protect stream banks and dissipate energy.

Riparian and wetland resources are discussed further within their own section in this chapter.

3.21.6 Noxious and Invasive Species

The establishment and spread of invasive species can directly affect vegetation by increasing the overall competition with native species for limited resources (e.g., water, nutrients, space), limiting the capacity of native or desirable communities to reestablish. Over time, invasive species also can alter the structural and functional components of a system (e.g., soil structure/function, hydrologic function, fire return intervals, energy flow) severely enough that reestablishment of native or desirable species is not feasible (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, generally associated with agriculture and livestock. Under the 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." Common locations for noxious weed infestations in the Planning Area include roadsides and areas that are highly disturbed or degraded.

Appendix K lists the noxious weeds that have been identified as occurring on lands within the boundaries of the RPFO. The 2009 New Mexico Noxious Weed List can also be found in Appendix K. This list is updated as new infestations are discovered and/or eradicated.

In addition to the Noxious Weed Prevention Schedule for the RPFO, the Final Programmatic Environmental Impact Statement (PEIS) for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States was released to the public on June 29, 2007. To facilitate the implementation of the PEIS, the Instruction Memorandum (IM) No. 2008-030, November 13, 2007, Instructions for Implementing the Final PEIS Record of Decision requires the inclusion of Best Management Practices (Appendix B) and Vegetation Treatment Mitigation Measures (Appendix C) found in the PEIS to be integrated into RMPs.

The trend for noxious weed abundance and distribution is difficult to assess because some of the comprehensive data for noxious weed occurrence was collected based on presence/absence,

providing little abundance data. Noxious weeds continue to expand their distribution by a variety of mechanisms, and often the mechanism is associated with human activity and soil disturbance. Abundance of most noxious weed species results from their ability to out-compete local native species for water or other resources.

The forecast for the noxious weeds in the Planning Area varies by species because of the variety of natural strategies each species possesses for survival. In some instances, a plant is relatively widespread but responds to management actions to control it if implemented consistently over time. Because other species cannot be controlled with current established methods, preventing their initial establishment is the only means of managing them.

Based on current weed management for both invasive and noxious species, BLM is likely to continue individual and cooperative efforts to inventory the extent and location of existing populations, and to control and/or prevent new infestations where possible. As the amount and types of human uses increase, so does the potential for the spread and establishment of invasive and noxious weed species. Therefore, unless management and control measures are intensified to address increased land uses, it is likely that invasive and noxious weed species could proliferate throughout the Planning Area. Upon completion of an Integrated Weed Management Environmental Assessment, an Early Detection/Rapid Response Program would be implemented to treat new weed infestations as they are discovered. All herbicide treatments would be conducted in accordance with the Standard Operating Procedures (SOP) and mitigating factors as listed in the *Vegetation Treatments Using Herbicides on BLM-administered lands in 17 Western States Programmatic Environmental Impact Statement* (see Appendices M and N).

3.21.7 Vegetation Inventories

Five rangeland inventories have been conducted in the Planning Area since 1975. The Rio Puerco RMP/EIS range inventory utilized the SCS (now NRCS) range site methodology, as directed by BLM Instruction Memoranda WO-83-340 and 83-394 (USDI BLM 1983j and 1983f). The NRCS inventory was completed on the Section 3 permit lands only. Section 3 permit lands are public lands within Grazing Districts for which livestock grazing is authorized under Section 3 of the Taylor Grazing Act. These are generally more consolidated blocks of public land. The Section 15 leased lands were not inventoried because a decision was made not to invest public funds on lands being considered for disposal or having limited potential for improved resource condition. Section 15 leased lands are public lands outside Grazing Districts for which livestock grazing is authorized under Section 15 of the Taylor Grazing Act.

The inventory data collected for the Section 3 permit lands were used to calculate an ecological condition rating for each allotment. An ecological condition rating is the comparison of the current vegetative production to the potential vegetation of a range site (an area possessing the capacity to produce a distinct and unique vegetative community), and is expressed as a percentage of the potential vegetation. The ecological condition ratings are one criterion used to determine the Selective Management Category (Maintain, Improve, or Custodial) for each allotment (Appendix E; USDI BLM 1986).

A stocking rate analysis was performed for the Section 15 leased lands to indicate where forage allocation problems might exist. This analysis involved the comparison of the current stocking rates determined from the grazing case files to an estimation of the potential stocking rate for

each leased area. An assumption was made that all range sites in the leased areas were in high fair ecological condition and the stocking rates recommended in the individual NRCS Range Site Guides, currently known as Ecological Site Descriptions, were used to represent potential stocking for this analysis. The results of the stocking rate comparisons were used as the basis for establishing selective management categories for the Section 15 leased lands.

3.21.8 Land Health

Rangeland Health Assessments (RHAs) are completed prior to each permit renewal process. The permit renewal process is initiated by a transfer between permittees or every ten years, whichever comes first. Yearly RHAs are prioritized by those allotments that have never been analyzed with the NEPA process using environmental assessments (EAs). Rangeland Health Assessments are based off the BLM and National Science and Technology Center Technical Reference, Interpreting Indicators of Rangeland Health (Pellant et. al. 2005). One hundred thirty-six allotments have had an initial health assessment conducted from 1999 to 2011. Of the one hundred thirty-six assessments, sixty were assessed using the New Mexico Standards and Guidelines, (USDI BLM 2001a) both primary and secondary since 2007, with the rest being assessed using the Fundamentals of Rangeland Health (43 CFR 4180.1). Forty of the one hundred thirty-six allotments were prescribed with a necessary management change required to achieve a sustainable level of public land health that was identified through the RHA / permit renewal / EA process. Management changes include but are not limited to vegetation manipulation projects as well as grazing prescriptions. Appendix F contains a brief description of the relationship between the Fundamentals of Rangeland Health and the Standards and Guidelines.

Several types of vegetation manipulation activities have been administered by the RPFO since the completion of the 1986 RMP. Activities affecting trend utilized by the RPFO on a large scale include, but are not limited to: herbicide application, prescribed fire, and woodland thinning/mastication. Other forms of vegetation manipulation activities performed to a relatively minor extent include: rangeland re-seeding, cottonwood pole planting, and sagebrush shaving.

Herbicide application to Great Basin big sagebrush (*Artemisia tridentata*), saltcedar (*Tamarix spp*.), and piñon /juniper (*Pinus edulis/Juniperus monosperma*) is summarized by acres treated and year of treatment in the table below.

Table 3.29: Acres of Herbicide Application by Year and Species

Year	Acres of Herbicide Application by Species		
	Sagebrush	Saltcedar	Piñon–Juniper
1988	780	-	-
1989	860	-	-
1990	550	-	-
1991	2,020	-	-
1992	-	-	-
1993	5,538	-	-
1994	2,230	-	-
1995	6,418	-	-

Year	Acres of Herbicide Application by Species		
	Sagebrush	**Saltcedar**	**Piñon–Juniper**
1996	-	28	-
1997	7,350	132	-
1998	6,970	13	-
1999	-	5	-
2000	10,498	100	-
2001	-	44	-
2002	5,742	-	-
2003	1,060	263	-
2004	1,951	-	-
2005	-	-	-
2006	2,510	181	-
2007	810	374	-
2008	1,421	340	7,473
Total	**56,708**	**1,480**	**7,473**

Forecasts of public land health would depend on comprehensive baseline data and good trend data over a long period of time, combined with expected weather conditions. A forecast of a maintenance or improvement of public land health would require a stable or improving trend, properly implemented management actions based on monitoring results and sufficient precipitation to allow vegetation to respond after being disturbed. BLM will continue to collect monitoring data, similar to historical efforts and in accordance with the Standards and Guidelines. This data will be analyzed and used to make management decisions. Future trends in vegetation would be dependent on a number of changing environmental variables as well as management direction.

3.22 Visual Resources

The BLM is responsible for ensuring that RMPs consider the scenic values of public lands. The BLM accomplishes this through the visual resource management (VRM) system that follows the management guidelines in BLM Manual Section 8400, Information Bulletin No. 98-135, and Instruction Memorandum No. 98-164. The objective of the VRM system is to manage public lands in a manner that will preserve the quality of the scenic (visual) values of those lands.

Three indicators are used to characterize and determine the relative values of the visual resources within the Planning Area: 1) landscape scenic quality;2) viewer sensitivity; and 3) distance zones. VRM Classes may differ from Visual Resource Inventory (VRI) Classes reflecting visual resource management objectives that balance resource allocations decisions with protecting visual values. Ensuing projects and resource development would be required to conform to the visual resource management class decisions and respective visual management objectives. VRM Class conformance is determined through use of the BLM Contrast Rating procedures described within BLM Handbook H-8431-1.

The Scenic Quality Evaluation is the first step in the Visual Resource Inventory. Scenic quality is a measure of the visual appeal of a tract of land. In the visual resource inventory process,

public lands are give an A, B, or C rating based on the apparent scenic quality which is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.

Delineation Scenic Quality Rating Units (SQRU's) is done in the office before the scenic quality evaluations are completed. The planning area is subdivided into scenic quality rating units for rating purposes. Rating areas are delineated on a basis of: like physiographic characteristics; similar visual patterns, texture, color, variety, etc.; and areas which have similar impacts from man-made modifications. The size of SQRU's may vary from several thousand acres to 100 or less acres, depending on the homogeneity of the landscape features and the detail desired in the inventory. The Planning Area had a total of 16 SQRU. These SQRU's were delineated using GIS with the assistance of an ID team.

The BLM currently authorizes activities on BLM-administered lands that range from vegetation and habitat improvement projects to large-scale energy, mineral and mining operations, all of which have the potential to impact visual resources. The BLM updated a VRI of the Planning Area. The results of this inventory to be used to assist in establishing VRM Classes during this planning process. See Table 3.30 below.

Table 3.30: Acres of BLM-Administered Lands within Each Visual Resource Inventory Class

VRI Class I	VRI Class II	VRI Class III	VRI Class IV	Total
86,590 acres	13,363 acres	330,649 acres	326,472 acres	757,074

3.22.1 Landscape Scenic Quality

While the RPFO is still largely undeveloped, urban sprawl coupled with increased resource demand has occurred. VRM in the Planning Area focuses on values and resources existing throughout the Planning Area. VRM addresses the visual quality of landscapes and covers views of native landscapes and unique areas with high visual quality. All lands have scenic value, but areas with the most variety and the most harmonious composition have the greatest scenic value.

Cultural modifications are defined as any human-caused change in the landform, water or vegetation, or the addition of a structure that creates a visual contrast when evaluated against the basic elements (form, line, color, texture) of the natural character of a landscape (USDI BLM 1984a). This does not mean that human-made features within a landscape necessarily detract from the scenic value: human-made features that complement the natural landscape may enhance the scenic value (USDI BLM 1986c). Much of the Planning Area retains its natural visual qualities, though numerous landscape modifications exist. The introduction of new structures, or other manmade changes, into the landscapes of the Planning Area primarily occur near areas of urban and residential development, which are dispersed throughout the Planning Area. Existing changes (cultural modifications) in the Planning Area include the following:

- Access roads, ranging from highways to two-track roads
- Public utilities, including electric transmission lines and distribution lines, and gas, water, fiber optic, and telecommunication lines
- Agricultural fields, including range improvements
- Communication sites, particularly on mountaintops

- Residential, commercial, and industrial development
- Recreational development, including picnic areas, parking lots, visitor centers, and trails

Special management areas generally contain areas of high scenic quality. Special designations with landscapes of visual interest within the Planning Area include:

- Pronoun Caves ACEC
- Petaca Pinta SMA and WSA
- Azabache Station SMA
- Cabezon Peak ACEC, SMA, and WSA
- Canyon Jarido SMA
- Canyon Tapia SMA and ACEC
- Chamisa WSA
- Ignacio Chavez SMA and WSA
- Elk Springs SMA and ACEC
- Empedrado WSA
- Historic Homestead SMA
- La Lena WSA
- Ojito Wilderness Area and ACEC
- Pelon Watershed SMA
- San Luis Raptor Area ACEC
- Tent Rock National Monument (not included in this RMP)
- Torreon Fossil Fauna ACEC
- Ball Ranch ACEC

Modifications added are generally considered to be of lower scenic quality and hence the visual conditions would not be significantly impacted by change. Open space, parks, and recreational areas are commonly used within the Planning Area and the landscape characters of these lands are valued by the community. Also, BLM and other federal and state agencies have protected valuable landscapes of high scenic quality by designating specific lands as ACECs, WSAs, wildlife refuges, or scenic corridors. Typically, any special designation that regulates use of an area serves to preserve scenic views as well as natural vegetation, wildlife, and wildlife habitat.

3.23 Wildlife, Fish, and Habitat

The Rio Puerco Field Office (RPFO) wildlife program works with Federal, state and other cooperators to protect and enhance wildlife habitat and to mitigate, where necessary, the impacts of other resource uses. A goal of the wildlife program is to maintain wildlife habitat and species occurrence data with an emphasis on biodiversity and ecosystem management. These data are used in land use planning, habitat management, and program coordination for multiple use decisions.

All proposed actions are reviewed and given site-specific analysis through the NEPA process to determine whether the action will affect special status species, terrestrial, wetland or riparian ecosystems. Impacts to resident species' habitat, habitat management projects and compatibility with the New Mexico Department of Game and Fish (NMDGF) habitat objectives are considered. The El Malpais Plan (USDI; BLM, 2000), the Kasha-Katuwe Tent Rocks National Monument RMP (USDI; BLM, 2007) and the Riparian & Aquatic Habitat Management Plan for the Albuquerque District Office (USDI; BLM, 2000) contain wildlife habitat goals, objectives and management actions that provide direction for implementation of the wildlife program across the planning area. A number of Special Management Areas since the 1986 RPFO RMP have been designated as ACECs, and protection plans have been developed that outline management prescriptions for sensitive wildlife/habitat areas.

Priority landscapes have been identified through the Comprehensive Wildlife Conservation Strategy for New Mexico (New Mexico Department of Game & Fish, 2006) and the BLM's HMPs, ACECs and SMAs. These areas have been identified for habitat improvement projects based on their ecological value. Priorities have also been placed on the twenty-four riparian/wetland areas identified in the Riparian and Aquatic Habitat Management Plan for the Albuquerque District (USDI; BLM, 2000). Implementation of HMPs has resulted in wildlife water projects, fence modifications, livestock exclusions, vegetation treatments and other projects that improve habitat for wildlife in the RPFO.

Wildlife population sizes and species diversity within the planning area vary depending upon the extent and type of habitat. For example, dry upland habitat may support low species diversity and scattered populations over extensive areas, while riparian habitat and lands adjacent to them contain more plant and animal species during certain seasons than much larger areas year-round. The major ecosystems of the RPFO are scrub/steppe/shrub, piñon-juniper, grassland, ponderosa pine, riparian/wetland and aquatic.

Table 3.31: Major Vegetation Communities of the RPFO (Acres)

Ecosystem Types	Acres
Aquatic	451
Grassland	157,641
Other	60,205
Piñon-Juniper	188,974
Ponderosa Pine	3,909
Riparian/Wetland	3,965
Shrub/Steppe/ Scrub	341,036
Total	756,181

3.23.1 Seasonal Habitats

Critical winter range for elk and mule deer is located within the planning area. The Elk Springs ACEC and Ignacio Chavez SMA are managed for this value. Mesa Portales also provides crucial winter habitat for these species but is not yet managed for this particular value.

Table 3.32: Critical Winter Range within the RPFO

Management Area	Designation	Acreage

Management Area	Designation	Acreage
Elk Springs	ACEC	10,303
Ignacio Chavez Grant	SMA	42,857
Mesa Portales	No Designation	6,536

3.23.2 Special Designation Areas

Special Management Areas (SMAs) were delineated in prior planning efforts. Management prescriptions were developed to enhance and protect key winter ranges, improve habitat privacy, promote habitat diversity, protect and enhance riparian and aquatic habitat, and increase forage availability. Since the 1986 RPFO RMP, the designation of SMA has become obsolete, and has since been replaced with the designation of Area of Critical Environmental Concern (ACEC). Some former SMAs have been designated as ACECs. Key management prescriptions for these areas are summarized in SMA and ACEC protection plans.

In the 1986 RPFO RMP, thirteen SMAs were listed as containing significant wildlife habitat values or features that warrant special management attention. These areas were: Bluewater Canyon, Canyon Jarido, Jones Canyon, San Luis Mesa Raptor Area, Ignacio Chavez Grant, Elk Springs, Tent Rocks, Ojito, El Malpais, Cañon Tapia, Pronoun Cave Complex, Cabezon Peak, and Ball Ranch. Three of these areas provide protection for rare plants (Cabezon Peak, Ojito and Ball Ranch). Since the 1986 RPFO RMP, many of these areas have been designated as ACECs. The following table indicates these changes.

Table 3.33: Changes in Special Designations with Habitat Values

Name of Area	1986 RMP Designation	Current Designation	Resource Values Protected
Bluewater Canyon	SMA	ACEC	Endangered species habitat (Southwest willow flycatcher), and high quality riparian habitat
Canyon Jarido	SMA	SMA	Critical winter deer/elk range, and riparian area
Canon Tapia	SMA	SMA	Sensitive plant species (*Astragalus knightii*), keystone species and raptor prey base habitat (*Cynomys gunnisoni*)
Jones Canyon	SMA	SMA	Riparian habitat
San Luis Mesa Raptor Area	SMA	ACEC	Critical raptor nesting area
Ignacio Chavez Grant	SMA	SMA	Exemplary diverse wildlife habitat, critical winter elk/deer range, sensitive plant species
Elk Springs	SMA	ACEC	Crucial winter deer/elk range, riparian areas
Tent Rocks	SMA	National Monument	N/A

Name of Area	1986 RMP Designation	Current Designation	Resource Values Protected
Ojito	SMA	ACEC	Raptor nesting habitat, sensitive plant populations (*Sclerocactus papyracantha* and *Astragalus knightii*)
El Malpais	SMA	National Conservation Area	N/A
Cabezon Peak	SMA	ACEC	Raptor nesting sites, sensitive plant populations (*Abronia bigelovii*, *Astragalus knightii*, *Mammillaria wrightii* and *Sclerocactus papyracantha)*
Ball Ranch	SMA	Espinosa Ridge ACEC	Sensitive plant populations (*Astragalus feensis, Astragalus kentrophyta var. neomexicana, Oenothera caespitosa spp. navajoensis, Sclerocactus papyracantha* (formerly of the genus *Toumeya*) and *Abronia bigelovii*), riparian areas
Pronoun Cave Complex	SMA	SMA	Bat roost habitat and winter hibernacula

These special designation areas are crucial in the protection of wildlife in the RPFO. The following discussion describes their habitat values and how the RPFO is currently managing for the resources these areas were designated to protect. The Tent Rocks SMA has been designated as the Kasha-Katuwe Tent Rocks National Monument, and management of the area is covered under its own stand-alone Resource Management Plan. El Malpais SMA has been designated as a National Conservation Area and is also covered under its own stand-alone plan. Therefore these areas will not be discussed further.

3.23.2.1 Bluewater Canyon ACEC

Bluewater Canyon ACEC is located in an area of sandstone mesas and contains a steep-walled canyon. This stream is the only perennial stream in the southern portion of the RPFO. The riparian habitat contains large cottonwoods, dense willow stands, and abundant water for wildlife. Bluewater Canyon provides some of the highest quality habitat for the endangered southwestern willow flycatcher within the planning area. The RPFO conducts annual monitoring in this riparian area for the endangered southwestern willow flycatchers (SWFL). Restoration projects have greatly enhanced the habitat, and a very high concentration of resident, migratory and nesting birds inhabit the area. There are also a number of active beavers within the canyon. Livestock grazing was found to be the main reason the riparian area was not meeting PFC in the past. Therefore, it has been excluded to promote the restoration of riparian functioning and increase the quality of habitat for wildlife. The implementation of restoration projects and removal of grazing have increased the quality of wildlife habitat in Bluewater Canyon. However, the increase of recreational interest in the area has led to increased pedestrian traffic that is possibly having a negative effect on the wildlife species utilizing the area.

3.23.2.2 Cañon Jarido SMA

Cañon Jarido consists of a steep-sided sandstone canyon cut approximately 100 feet into Mesa Portales, which provides raptor nesting sites. Lower elevations consist of sage cover interspersed with piñon and juniper. This vegetative community progresses into ponderosa pine and Gambel's oak, providing good mule deer habitat. Five springs are located within the canyon. Currently, the largest spring in Canyon Jarido has been fenced to exclude livestock in cooperation with the NMDGF. This riparian area is managed to support the general wildlife population in the area, with an emphasis on the support of mule deer. Adjacent Mesa Portales consists of crucial winter habitat for the Jemez/Nacimiento deer and elk herds. Currently, chemical treatments of sagebrush within the canyon are aimed at improving rangeland health for both livestock and wildlife. Chemical treatments of this type may have both negative and positive impacts on wildlife species, but will in the long term benefit wildlife.

3.23.2.3 Jones Canyon

Vegetation in Jones Canyon is typical of the dry, high elevation plateaus of north-central New Mexico (6,800 – 7,200 ft elev.). Dense juniper and piñon are the dominant species, with scattered grasses, Gambel's oak, cliff rose, sage, squawberry, yucca, cholla, and ponderosa pine also present. Recent reconnaissance of this area has shown an apparent increase in the occurrence of sagebrush. This area was once thought to have riparian characteristics due to a spring development and a detention damn on the adjacent private land. However, the spring no longer produces water, and there are only remnants of the development. The area no longer harbors particularly valuable wildlife habitat.

3.23.2.4 San Luis Mesa Raptor ACEC

San Luis Mesa Raptor ACEC consists of approximately twenty miles of sandstone bluffs 100 to 200 feet high. The exposure is generally to the south and southeast. Ledges carved in the bluff by wind erosion form excellent nesting substrate for birds of prey (raptors). Some species which have been recorded nesting at San Luis Mesa are golden eagle, prairie falcon, great horned owl, red-tailed hawk, and raven. Management actions of the 1986 RPFO RMP included designating the area (former SMA) as an ACEC. The area is currently designated as an ACEC, and management objectives set at the time of its designation were to protect raptor nesting sites and manage the adjacent lands for prey base by adjusting livestock grazing practices to provide increased quality habitat for prairie dogs and associated prey species. However, specific management of these prey populations has never been implemented, and according to the most current reports the RPFO maintains, numbers of raptors utilizing the nesting habitat are lower than would be expected given the quality of the nesting substrate provided by the sandstone bluffs.

3.23.2.5 Ignacio Chavez Grant SMA

The Ignacio Chavez Grant SMA is within one of the most diverse and productive wildlife habitat areas on BLM-administered lands in northwest New Mexico. The mix of piñon-juniper woodland ponderosa pine with oak understory, and open grassland parks in the Ignacio Chavez SMA, along with the protection afforded by the steep slopes and cliffs of Mesa Chivato, provide

excellent habitat for many species of wildlife. The area provides important habitat for a large variety of wildlife, including at least six game species (mule deer, elk, Merriam's turkey, black bear, tassel-eared squirrel, and mourning dove). Management of the Ignacio Chavez Grant SMA emphasizes maintenance of current wildlife habitat diversity by maintaining the current mix of three representative ecosystems. This has been done through prescribed fire and fuels treatments. Wildlife waters have also been developed in this area to support big game species, particularly elk.

3.23.2.6 Elk Springs ACEC

The western foothills and piedmont of the Nacimientos were designated as a crucial winter range for the Jemez elk and deer herds in the New Mexico Comprehensive Wildlife Plan (NMDGF, 1980). The portion of this area north of the Jemez Indian Reservation is predominantly public land managed as the Elk Springs ACEC (former SMA). In the past, chaining and seeding projects have been completed to improve winter forage for big game species. More recently, an integrated approach utilizing chemical and mechanical treatments and prescribed fire has been implemented to accomplish the same goal more efficiently with lower disturbance to the ecosystem. Wildlife waters have also been developed for the primary benefit of elk and deer, but benefit all wildlife in the area. The productivity of the area has also benefited from the exclusion of livestock grazing in this ACEC.

3.23.2.7 Ojito ACEC

The Ojito ACEC (former SMA) has a particularly high density and wide variety of special features. The landscape is characterized by a central valley which has been cut into red-brown rocks of Mesozoic age and a surrounding rimrock composed of gray-white Jurassic-aged gypsum. Landforms in this region include mesas, cuestas, rock terraces, escarpments, canyons, arroyos and badlands. Two sensitive plant species occur in this ACEC. Although wildlife is not abundant, a diversity of species is present. A number of bluffs and mesa edges in the SMA provide excellent nesting habitat for raptors, swallows, and swifts. Several stock ponds provide resting areas for migrating waterfowl. Scaled quail and mourning doves inhabit the brushy draws and rocky wooded hillsides. Mule deer occupy the piñon-juniper ecotype, and antelope range into the northwest corner of the ACEC. There are several possible reasons why wildlife is not more abundant in this area. The heavily visited White Mesa bike trails are adjacent to the Ojito ACEC, and consequently, the nearby areas receive elevated levels of visitor traffic. This area has also become very popular for recreational shooting. This type of activity has a tendency to drive out wildlife temporarily, and possibly permanently, if it occurs on a regular basis. This area is currently receiving increased interest from multiple recreational and professional shooting groups. Furthermore, this area includes Las Milpas natural gas storage facility. Although this facility is no longer in operation, the surface disturbance it caused was never reclaimed and has resulted in a certain degree of habitat loss due to replacement of native vegetation with noxious weeds.

3.23.2.8 Cañon Tapia SMA

The Cañon Tapia SMA is located within a large secondary drainage that empties into the Rio Puerco south of the Village of Guadalupe. Juniper and piñon are the dominant species along the

canyon rim, with piñon, juniper, and saltcedar dominant within the canyon itself. There is a population of the sensitive/rare plant Astragalus knightii within the Canyon Tapia ACEC boundary. The north part of the ACEC contains a prairie dog population that has potential to be proposed as part of a prairie dog augmentation area to benefit nesting, migratory and resident raptors in the nearby Cabezon Peak ACEC and adjacent volcanic plugs. Currently, no specific management of these biological resources is occurring. The canyon bottom is highly infested with invasive weeds, predominantly saltcedar.

3.23.2.9 Cabezon Peak ACEC

The Cabezon Peak ACEC contains Cabezon Peak, one of the most prominent local landmarks in the Rio Puerco Valley. The surrounding low-lying foothills give way to large rugged shoulders that support a nearly cylindrical neck from which the Peak receives its name. Vegetation is confined primarily to the rolling foothills, and consists of cactus, shrubs, grasses and some piñon juniper. The area contains raptor nesting sites and two rare cactus species. Raptors using the area include golden eagle, prairie falcon, great horned owl, sparrow hawk, raven, and red-tailed hawk. Management actions from the 1986 RPFO RMP included designating the area (former SMA) as an ACEC. Currently, Cabezon Peak is designated as an ACEC, and management objectives include managing the raptor prey base in adjacent BLM lands. After an evaluation of existing and potential biological special management areas in the RPFO, it was recommended to include four adjacent volcanic plugs and prairie dog habitat in the Cabezon Peak ACEC because they also provide excellent nesting substrate (The Nature Conservancy, 1992). This has yet to occur but is being considered as an alternative in Chapter 2 of this document.

3.23.2.10 Espinosa Ridge ACEC

The Espinosa Ridge ACEC (Formerly Ball Ranch ACEC) was originally designated as an SMA to protect sensitive plant species. Five sensitive plant species are known to occur there. Those species are *Astragalus feensis*, *Astragalus kentrophyta var. neomexicana*, *Oenothera caespitosa spp. navajoensis*, *Sclerocactus papyracantha* (synonymous with genera *Toumeya* and *Pediocactus*), and *Abronia bigelovii*. This ACEC also contains an active spring that feeds into two substantially large ponds both supporting riparian vegetation and multiple species of wildlife. This resource is on newly acquired land (FY2010), and has yet to be fully inventoried. During several brief visits to this riparian site, it was noted that the area appears to be infested with invasive bullfrogs. This could possibly be having a detrimental impact on the native aquatic and riparian fauna. Management of this riparian area will follow management prescriptions in the RPFO Riparian EIS (2000), but should also involve an evaluation of invasive aquatic pest species.

3.23.2.11 Pronoun Cave Complex SMA

The Pronoun Cave Complex consists of What Cave, Which Cave, That Cave, and approximately six additional caves. These vertical caves are particularly valued for their paleontological values and habitat for several species of bats. The Which Cave is a known winter hibernaculum for chiropteran species. Summer roosting has also been reported (RPFO 1991 SMA Survey). Winter hibernacula warrant special protection because bats are particularly sensitive to disturbance during the hibernation period, and populations can be significantly negatively impacted if

disturbance is severe enough to wake them prior to the end of this period. Caves have also been documented to be some of the least known ecosystems due to their rarity and the physical difficulty associated with studying them. They have also been known to reveal a significantly high amount of biodiversity. The Pronoun Caves are known to harbor sensitive species including Townsend's big-eared bat. They continue to warrant protection from mining activities and recreational visitors. The main threats to these caves include the nearby active travertine mining operations and the possible introduction of the white-nose fungus that is projected to enter New Mexico (USFWS).

3.23.3 Habitat Trends

Increasing residential and recreational development presents a source of change and potential departure from management objectives for wildlife habitat in the planning area. Change in the extent of various land cover types has been driven primarily by human land and water uses over the past 400 years, and is now possibly affected by climate change. Habitat conversion in the form of development and aquatic habitat alteration due to draining and channelization are priority conservation management issues in the Rio Grande watershed (NMDGF 2005).

While there is no recent habitat monitoring data available, observations by BLM staff suggest most suitable mule deer habitat is in a status of downward trend due to lack of fire, the early succession vegetation component, and edge habitat upon which the species depends. BLM staff and NMDGF observations suggest habitat conditions on the public land in the planning area for elk are in an upward trend, while pronghorn habitat remains static. Improvement projects are targeted for mule deer and elk habitats to increase cool season grasses and forbs, as well as a mosaic of habitat types.

Habitats have been fragmented by roads, highways, and utility corridors, and lost because of human population growth and development. Continued encroachment of subdivisions and roads into previously undisturbed areas is an important factor in habitat fragmentation. Recent road inventory data will be used in the upcoming RPFO Travel Management Plan to estimate the levels of habitat fragmentation in the planning area. To date, exploration for energy or mineral materials has not had a major influence on habitat fragmentation in the planning area. Mineral potential in the RPFO is somewhat limited when compared with other BLM field offices in New Mexico. Therefore, it does not appear to be a significant threat to wildlife species. However, important wildlife areas should be protected from energy and mineral exploration and development through exclusion, closure, and application of mitigation stipulations.

Given the synergistic effects of these and other factors, the planning area has a lesser ability to produce and maintain wildlife habitat when compared to the past. However, conditions improve for wildlife as meaningful cooperative relationships with other agencies and organizations are developed, appropriate objectives are incorporated into grazing allotment management plans, and stipulations are provided for BLM-approved authorizations to mitigate impacts and protect and/or enhance wildlife habitat.

3.23.4 Species with Special Management Emphasis

3.23.4.1 Gunnison's Prairie Dog

Gunnison's Prairie Dog (*Cynomys gunnisoni*) is discussed in the Special Status Species section of this chapter with respect to the endangered black-footed ferret. However, it warrants discussion here because of its ecological value as a keystone species. A keystone species is a species whose ecological influence in a biotic community is disproportionately large with respect to its numerical abundance. Keystone species typically function as predators, prey, mutualists, or habitat modifiers. Prairie dogs differ from most conventional keystone species because they exhibit more than one of these functions. They act as prey and modify habitat structure and dynamics in many ways (Kotliar et al., 1999). Species in the RPFO that benefit from prairie dogs include burrowing owl, mountain plover, and raptors. Currently, the RPFO is conducting a prairie dog population augmentation project in El Malpais National Conservation Area to enhance the largest historical colony of prairie dogs in the field office. If successful, the possibility of conducting this type of project will open up for the area covered under this RMP.

3.23.4.2 Big Game Species

The primary big game species in the planning area are Rocky Mountain elk, mule deer and pronghorn antelope. The NMDGF is the agency with the authority and responsibility for managing big game populations. The BLM works in partnership with the NMDGF to establish population goals in big game management units that include public land and to manage habitats to try to achieve those goals.

3.23.4.3 Mule Deer

Much of the BLM land managed by the RPFO is important winter and/or summer habitat for mule deer. Areas with important winter range include Elk Springs, Ignacio Chavez Grant and Mesa Portales. While mule deer occur throughout most of the planning area in woodland and timbered areas as well as adjacent shrublands, observations are infrequent and management emphasis in these areas is to increase the quality of habitat and potential habitat. Mule deer are known to utilize 167 vegetative types as a food source throughout the year. In the RPFO, the mule deer's diet is made up of sagebrush, mountain mahogany, cliff rose, oaks, etc., and primarily occurs within the Madrean Pine-Oak Conifer-Oak Forest and Woodland/Intermountain Basins Big Sagebrush Shrubland key habitat types as described in the Comprehensive Wildlife Conservation Strategy (CWCS). Mule deer are a Species of Greatest Conservation Need (SGCN) within New Mexico's Wildlife Conservation Strategy (NMDGF) and include a browse/shrub component within their habitat.

Projects for deer include wildlife waters and vegetation treatments such as prescribed thinning/burning to increase diversity of vegetation composition and structure. Currently, the RPFO conducts numerous chemical treatments to control encroaching sagebrush and piñon-juniper into historic grass/shrublands. An arising concern is that large scale chemical treatments have potential to wipe out forb species highly valuable to species such as mule deer. Prior to chemical treatments, the RPFO should conduct vegetation surveys of treatment areas and exclude those areas with high density browse species to preserve mule deer habitat. There are no

established studies within these key habitat areas that address the condition of the mule deer habitat, and subsequently, the current condition of the habitat is unknown. Therefore, rangeland health standards assessments will be utilized to look at the habitat components and to address any degradation that might occur.

3.23.4.4 Rocky Mountain Elk

The RPFO also provides important winter and/or summer habitat for Rocky Mountain elk. Crucial winter range occurs in the Elk Springs, Ignacio Chavez Grant, and Mesa Portales areas for the Jemez/Nacimiento elk herds. Management of these areas has included designation of Elk Springs as an ACEC, the installation of wildlife waters, vegetation treatments, and seasonal closure of roads. Removal of livestock grazing has occurred on the Elk Springs ACEC and has greatly benefitted the resource. Chapter 2 of this document identifies both Ignacio Chavez Grant and Mesa Portales as eligible for designation as an ACEC, and presents these alternatives for analysis. Elk habitat management should prioritize crucial winter and summer ranges, migration corridors and calving areas. The RPFO does not yet have calving areas identified. However, in order to conserve and enhance big game calving and fawning habitat, identification of these areas should receive priority.

3.23.4.5 Bats

In the past two decades, considerable research emphasis has been placed on bat habitat relationships and population characteristics in the western states. The BLM signed a memorandum of understanding with Bat Conservation International in 1993 which increased BLM efforts to consider bat habitat protection in its management activities. Important habitat for bats includes cliffs, trees, caves, and abandoned mines. The RPFO is known to contain habitat for at least thirteen bat species. Pronoun Cave Complex is known to harbor a roost of Townsend’s big-eared bat, a sensitive bat species in the RPFO. It is also a known winter hibernaculum. Although the Pronoun Caves are currently a Special Management Area and are proposed in Chapter 2 of this RMP as an ACEC, the area is covered in mining claims.