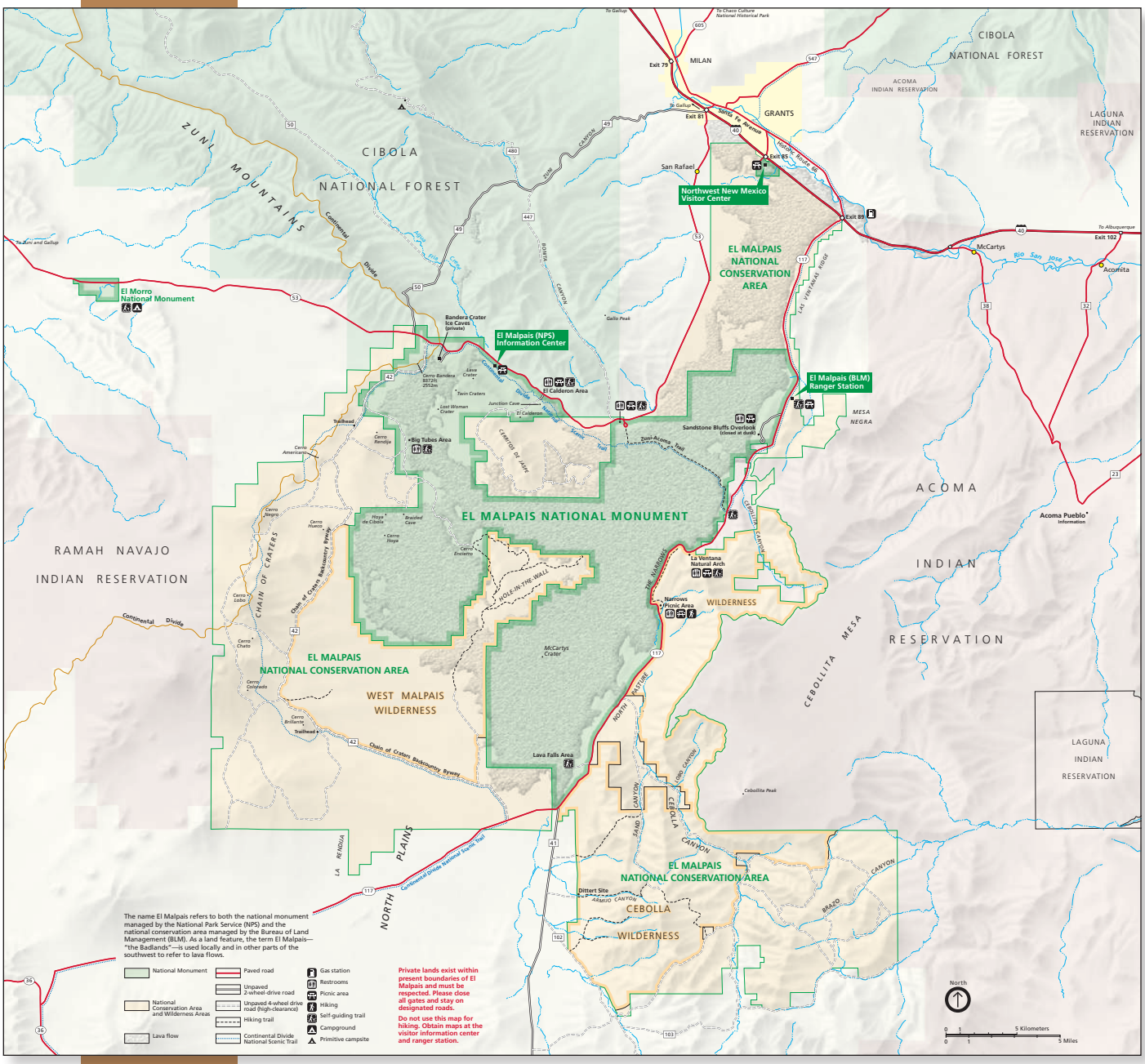
NATIONAL PARK SERVICE • U.S. DEPARTMENT OF THE INTERIOR

Foundation Document

El Malpais National Monument

New Mexico

September 2014


CIBOLA
NATIONAL FOREST
ZUNI MOUNTAINS
MILAN
Exit 79
GRANTS
Exit 81
Exit 85
Exit 89
San Rafael
Northwest New Mexico Visitor Center
EL MALPAIS NATIONAL CONSERVATION AREA
LAGUNA INDIAN RESERVATION
ACOMA INDIAN RESERVATION
McCartys
Acomita
Exit 102
El Morro National Monument
Bandera Crater Ice Caves (private)
El Malpais (NPS) Information Center
El Calderon Area
El Malpais (BLM) Ranger Station
Sandstone Bluffs Overlook (closed at dusk)
MESA NEGRA
Big Tubes Area
EL MALPAIS NATIONAL MONUMENT
ACOMA
INDIAN RESERVATION
Acoma Pueblo
RAMAH NAVAJO
INDIAN RESERVATION
CHAIN OF CRATERS
La Ventana Natural Arch
Narrows Picnic Area
WILDERNESS
HOLE-IN-THE-WALL
EL MALPAIS NATIONAL CONSERVATION AREA
WEST MALPAIS WILDERNESS
McCartys Crater
CEBOLLITA MESA
Lava Falls Area
Chain of Craters Backcountry Byway
Continental Divide National Scenic Trail
NORTH PLAINS
LA RENDIJA
Dittert Site
CEBOLLA WILDERNESS
EL MALPAIS NATIONAL CONSERVATION AREA
LAGUNA INDIAN RESERVATION
The name El Malpais refers to both the national monument managed by the National Park Service (NPS) and the national conservation area managed by the Bureau of Land Management (BLM). As a land feature, the term El Malpais—"the Badlands"—is used locally and in other parts of the southwest to refer to lava flows.
National Monument
National Conservation Area and Wilderness Areas
Lava flow
Paved road
Unpaved 2-wheel-drive road
Unpaved 4-wheel drive road (high-clearance)
Hiking trail
Continental Divide National Scenic Trail
Gas station
Restrooms
Picnic area
Hiking
Self-guiding trail
Campground
Primitive campsite
Private lands exist within present boundaries of El Malpais and must be respected. Please close all gates and stay on designated roads.
Do not use this map for hiking. Obtain maps at the visitor information center and ranger station.
North
5 Kilometers
5 Miles

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Mission of the National Park Service

The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

The NPS core values are a framework in which the National Park Service accomplishes its mission. They express the manner in which, both individually and collectively, the National Park Service pursues its mission. The NPS core values are:

- **Shared stewardship:** We share a commitment to resource stewardship with the global preservation community.
- **Excellence:** We strive continually to learn and improve so that we may achieve the highest ideals of public service.
- **Integrity:** We deal honestly and fairly with the public and one another.
- **Tradition:** We are proud of it; we learn from it; we are not bound by it.
- **Respect:** We embrace each other's differences so that we may enrich the well-being of everyone.

The National Park Service is a bureau within the Department of the Interior. While numerous national park system units were created prior to 1916, it was not until August 25, 1916, that President Woodrow Wilson signed the National Park Service Organic Act formally establishing the National Park Service.

The national park system continues to grow and comprises 401 park units covering more than 84 million acres in every state, the District of Columbia, American Samoa, Guam, Puerto Rico, and the Virgin Islands. These units include, but are not limited to, national parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, scenic rivers and trails, and the White House. The variety and diversity of park units throughout the nation require a strong commitment to resource stewardship and management to ensure both the protection and enjoyment of these resources for future generations.

The arrowhead was authorized as the official National Park Service emblem by the Secretary of the Interior on July 20, 1951. The sequoia tree and bison represent vegetation and wildlife, the mountains and water represent scenic and recreational values, and the arrowhead represents historical and archeological values.

Introduction

Every unit of the national park system will have a foundational document to provide basic guidance for planning and management decisions—a foundation for planning and management. The core components of a foundation document include a brief description of the park as well as the park's purpose, significance, fundamental resources and values, other important resources and values, and interpretive themes. The foundation document also includes special mandates and administrative commitments, an assessment of planning and data needs that identifies planning issues, planning products to be developed, and the associated studies and data required for park planning. Along with the core components, the assessment provides a focus for park planning activities and establishes a baseline from which planning documents are developed.

A primary benefit of developing a foundation document is the opportunity to integrate and coordinate all kinds and levels of planning from a single, shared understanding of what is most important about the park. The process of developing a foundation document begins with gathering and integrating information about the park. Next, this information is refined and focused to determine what the most important attributes of the park are. The process of preparing a foundation document aids park managers, staff, and the public in identifying and clearly stating in one document the essential information that is necessary for park management to consider when determining future planning efforts, outlining key planning issues, and protecting resources and values that are integral to park purpose and identity.

While not included in this document, a park atlas is also part of a foundation project. The atlas is a series of maps compiled from available geographic information system (GIS) data on natural and cultural resources, visitor use patterns, facilities, and other topics. It serves as a GIS-based support tool for planning and park operations. The atlas is published as a (hard copy) paper product and as geospatial data for use in a web mapping environment. The park atlas for El Malpais National Monument can be accessed online at: http://insideparkatlas.nps.gov/.

Part 1: Core Components

The core components of a foundation document include a brief description of the park, park purpose, significance statements, fundamental resources and values, other important resources and values, and interpretive themes. These components are core because they typically do not change over time. Core components are expected to be used in future planning and management efforts.

Brief Description of the Monument

The primeval black basalt terrain of El Malpais was created by volcanic forces over the past million years. Eruptions of lava from dozens of shield volcanoes and cinder cones, as recently as 2,500 years ago, created a complex mosaic of lava flows, lava tube cave systems full of delicate minerals and perennial ice, and other notable geologic formations. The monument preserves volcanic geology and unique habitats such as pygmy pine forests, short-grass prairies and some of the oldest Douglas fir trees on the planet.

The weather at El Malpais is dynamic and changes greatly over the span of hours, weeks, and seasons. Daily temperatures swing roughly 30°F from night lows to afternoon highs. Spring is notoriously dry and windy, with gusts up to 60 miles per hour not uncommon. Summer is the hottest part of the year, before summer monsoon moisture arrives; high winds are less common, but heat builds quickly out on the black lava of the Malpais. The winter brings cold night lows sometimes reaching -20°F and highs usually above freezing.

People have interacted with the lava flow landscape of El Malpais for more than 10,000 years. From prehistory to the present, the rugged topography of El Malpais has dominated Indian, Spanish, and American activities. Despite cultural differences, common threads link, dominate, and dictate living patterns in El Malpais. Climatic conditions, vegetative covering, the boom-and-bust cycle of the mining, timber, and railroad industries have all influenced and molded the interaction of the Indian, the Hispanic, and European-American.

Enjoying vast panoramic views, standing on an ancient cinder cone, or exploring the depths of a lava tube cave brings an experience like no other. El Malpais offers recreational opportunities that range from scenic drives and self-guided trails to remote wilderness and underground exploration.

Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for El Malpais National Monument was drafted through a careful analysis of its establishing legislation and the legislative history that influenced its development. The monument was created when the establishing legislation adopted by Congress was signed into law on December 31, 1987 (see appendix A for establishing legislation). The purpose statement lays the foundation for understanding what is most important about the monument.

El Malpais National Monument preserves, protects, and interprets natural and cultural resources that are an integral part of a volcanic wilderness that includes the Grants Lava Flow and the Chacoan great house community of Las Ventanas.

Park Significance

Significance statements express why a park's resources and values are important enough to merit designation as a unit of the national park system. These statements are linked to the purpose of El Malpais National Monument, and are supported by data, research, and consensus. Statements of significance describe the distinctive nature of the park and why an area is important within a global, national, regional, and systemwide context. They focus on the most important resources and values that will assist in park planning and management.

The following significance statements have been identified for El Malpais National Monument. (Please note that the sequence of the statements do not reflect the level of significance.)

- **Volcanic Processes:** El Malpais protects many lava flows, young and old, that are home to a rich diversity of associated volcanic geologic features including one of the longest lava tube systems in the world.
- **Caves:** El Malpais National Monument preserves a high density and diversity of ecologically significant lava tube caves, including the southernmost ice caves in the United States. Access to a number of these caves provides a rare self-guided recreational and educational experience.
- **Lava-influenced ecosystem:** Lava-influenced environmental conditions have produced uncommon vegetation associations, unusual growth forms, and plant communities sheltered from modern disturbances.
- **Lava-influenced cultural landscape:** El Malpais preserves and protects a cultural landscape influenced by volcanic landforms, including the Chacoan great house community of Las Ventanas, ancient and historic trail networks, basalt architecture, and ritual landscapes.
- **Wilderness:** The wilderness of El Malpais National Monument, a vast volcanic landscape, provides opportunities for inspiration and solitude, physical and navigational challenges, and scientific discovery.

Fundamental Resources and Values

Fundamental resources and values (FRVs) are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. Fundamental resources and values are closely related to a park's legislative purpose and are more specific than significance statements.

Fundamental resources and values help focus planning and management efforts on what is truly significant about the park. One of the most important responsibilities of NPS managers is to ensure the conservation and public enjoyment of those qualities that are essential (fundamental) to achieving the purpose of the park and maintaining its significance. If fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized. All planning will be conducted in coordination and compliance with cultural resource treatment and cultural landscape documents.

The following fundamental resources and values have been identified for El Malpais National Monument:

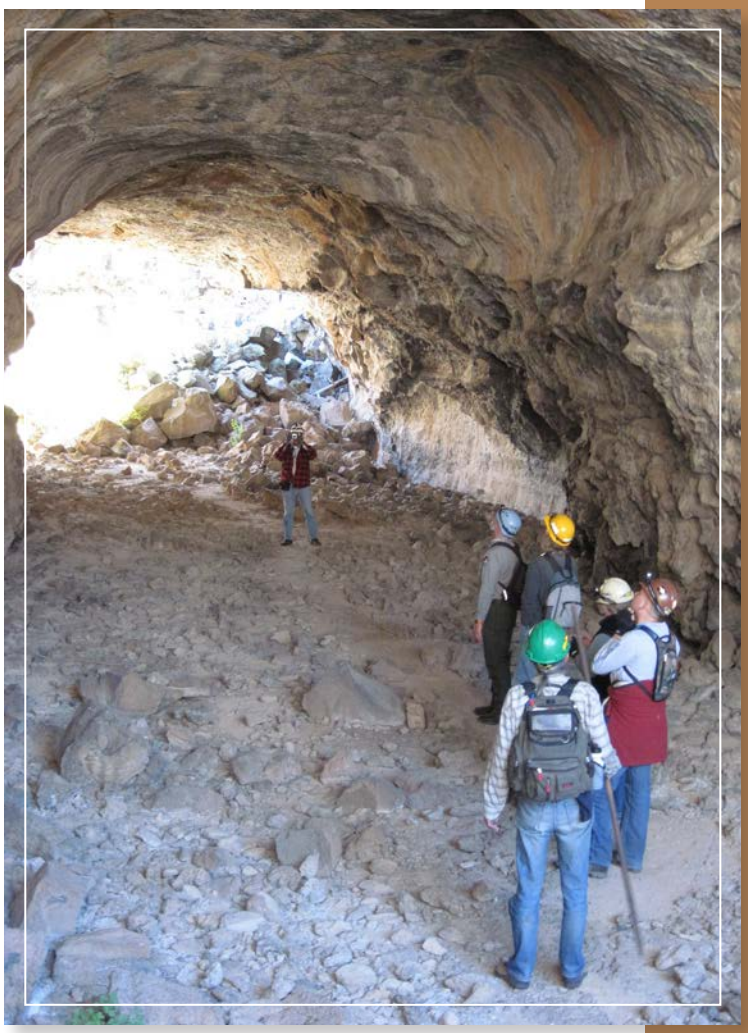
- **Lava surface features.** El Malpais National Monument's landscape preserves one of the best continuous geologic records of volcanism on the planet. The sources of the monument's lava and cinder eruptions are 11 volcanic vents located within, and several outside, the monument. The oldest flow dates back from one-half million to more than one million years ago. Nine major lava flows, including the nationally significant Grants Lava Flow, have created unusual biological habitats, successional ecology, and diverse cultural landscapes.
- **Lava subsurface features.** The nine major lava flows of El Malpais National Monument have also shaped the subsurface features, including volcanic vents, lava caves, perennial ice caves, and numerous and extensive lava tube systems that can reach about 17 miles. These lava tubes provide critical habitat for rare, endemic, and sensitive populations of cave-dependent organisms.
- **Unusual vegetation.** The flows that shaped El Malpais National Monument have produced islands of undisturbed vegetation, or kipukas, which are rare to the Southwest. Other unique vegetation includes pygmy conifer forests, aspen groves on the edges of lava flows, and ancient trees with unusual growth forms.
- **Archeology and other heritage resources.** El Malpais National Monument protects Vanishing Treasures Program resources in a landscape rich with evidence of past and present cultural activities. The monument's cultural landscapes hold potential for significant undiscovered scientific data from studies of the Chaco-style great house community of Las Ventanas with its distinctive lava flow archeology. Once on the periphery of the Chacoan world, these landscapes form a continuum that extends from the lava flows of the past to the Puebloan communities of today.

Other Important Resources and Values

El Malpais National Monument contains other resources and values that are not fundamental to the purpose of the monument and may be unrelated to its significance, but are important to consider in planning processes. These are referred to as "other important resources and values" (OIRV). These resources and values have been selected because they are important in the operation and management of the monument and warrant special consideration in monument planning. All planning will be conducted in coordination and compliance with cultural resource treatment and cultural landscape documents.

The following other important resources and values have been identified for El Malpais National Monument:

- **Wilderness character.** About 85% of El Malpais National Monument is recommended wilderness. This volcanic terrain is exemplary of a remote, pristine, and challenging landscape.
- **Other heritage resources.** The cultural landscapes of El Malpais National Monument encompass archeological resources from the Paleo-Indian to the historic period and include many prominent landscape features such as an 11th century great house and great kiva; Works Progress Administration-era earthen dams that supported ranching; homestead structures built from rock or logs; landform-target areas once used in World War II aerial bombardment training; roads, fence lines, and camps that supported logging, ranching, and mining operations.
- **Recreation and education.** El Malpais National Monument provides unusual recreational, educational, and stewardship opportunities that increase resource relevance to the greater public.



Interpretive Themes

Interpretive themes are often described as the key stories or concepts that visitors should understand after visiting a park—they define the most important ideas or concepts communicated to visitors about a park unit. Themes are derived from, and should reflect, park purpose, significance, resources, and values. The set of interpretive themes is complete when it provides the structure necessary for park staff to develop opportunities for visitors to explore and relate to all park significance statements and fundamental and other important resources and values.

Interpretive themes are an organizational tool that reveal and clarify meaning, concepts, contexts, and values represented by park resources. Sound themes are accurate and reflect current scholarship and science. They encourage exploration of the context in which events or natural processes occurred and the effects of those events and processes. Interpretive themes go beyond a mere description of the event or process to foster multiple opportunities to experience and consider the park and its resources. These themes help explain why a park story is relevant to people who may otherwise be unaware of connections they have to an event, time, or place associated with the park.

The following interpretive themes have been identified for El Malpais National Monument:

- The complex geologic history of volcanic activity at El Malpais National Monument has created an unusually diverse landscape with unique ecosystems.
- The lava tube caves of El Malpais have drawn people to them for millennia and today provide outstanding opportunities for recreation and exploration.
- The El Malpais area has a long history of occupation by more than one cultural group at a time; this history of interaction and adaptation has created, and continues to support, a rich cultural continuum.
- The many conditions and unusual environments of El Malpais National Monument have created a volcanic wilderness, providing varied opportunities for exploration, discovery, and solitude.

Part 2: Dynamic Components

The dynamic components of a foundation document include special mandates and administrative commitments and an assessment of planning and data needs. These components are dynamic because they will change over time. New special mandates can be established and new administrative commitments made. As conditions and trends of fundamental and other important resources and values change over time, the analysis of planning and data needs will need to be revisited and revised, along with key issues. Therefore, this part of the foundation document will be updated accordingly.

Special Mandates and Administrative Commitments

Many management decisions for a park unit are directed or influenced by special mandates and administrative commitments with other federal agencies, state and local governments, utility companies, partnering organizations, and other entities. Special mandates are requirements specific to a park that must be fulfilled. Mandates can be expressed in establishing legislation, in separate legislation following the establishment of the park, or through a judicial process. They may expand on park purpose or introduce elements unrelated to the purpose of the park. Administrative commitments are, in general, agreements that have been reached through formal, documented processes, often through memorandums of agreement. Examples include easements, rights-of-way, arrangements for emergency service responses, etc. Special mandates and administrative commitments can support, in many cases, a network of partnerships that help fulfill the objectives of the park and facilitate working relationships with other organizations. They are an essential component of managing and planning for El Malpais National Monument.

Special Mandates

- **Northwest New Mexico Visitor Center.** Section 508 of the establishing legislation encourages agreements among agencies and other entities for interpretation, including development of a multiagency visitor center near Grants, New Mexico. The Northwest New Mexico Visitor Center (NWNMVC) is owned by the National Park Service and is on a noncontiguous unit of NPS land. The center is operated through a funding agreement between the National Park Service, Bureau of Land Management (BLM), and U.S. Forest Service – Cibola National Forest. The National Park Service is responsible for the upkeep of the center and grounds, and each agency provides staff and funding for the center's operation.
- **Wilderness.** A wilderness suitability study identified 95,811 acres of the monument as suitable for wilderness designation by Congress. Study results were conveyed to Congress, changing the status of the wilderness designation to "recommended." In the interim, until Congress acts on the wilderness question, these lands must be managed as though they are designated wilderness.
- **Traditional Cultural and Religious Purposes for American Indian Peoples.** Sections 502 through 507 of the establishing legislation stipulate access for American Indian peoples for traditional cultural and religious purposes including collecting and gathering resources, while also protecting cultural and religious sites.

Special Designations

- The Grants Lava Flow, much of which is within the boundaries of El Malpais National Monument, is a National Natural Landmark, designated in 1969.
- Two segments of the Continental Divide National Scenic Trail (CDNST) cross El Malpais National Monument: Zuni-Acoma Trail and from near El Calderon west to Chain of Craters Area (managed by Bureau of Land Management).

Administrative Commitments

For more information about the existing administrative commitments and valid rights for El Malpais National Monument, please see Appendix B.

Assessment of Planning and Data Needs

Once the core components of part 1 of the foundation document have been identified, it is important to gather and evaluate existing information about the park's fundamental and other important resources and values, and develop a full assessment of the park's planning and data needs. The assessment of planning and data needs section presents planning issues, the planning projects that will address these issues, and the associated information requirements for planning, such as resource inventories and data collection, including GIS data.

There are three sections in the assessment of planning and data needs:

1. analysis of fundamental and other important resources and values
2. identification of key issues and associated planning and data needs
3. identification of planning and data needs (including spatial mapping activities or GIS maps)

The analysis of fundamental and other important resources and values and identification of key issues leads up to and supports the identification of planning and data collection needs.

Analysis of Fundamental Resources and Values

The fundamental resource or value analysis table includes current conditions, potential threats and opportunities, planning and data needs, and selected laws and NPS policies related to management of the identified resource or value.

Fundamental Resource or Value	Lava Surface Features
Related Significance Statements	• Volcanic processes. • Lava-influenced ecosystem.
Current Conditions and Trends	**Conditions** • The lava surface features are stable and generally undeveloped. • Documentation and surveys are currently incomplete. • Closed unpaved roads and mining scars exist from prior settlement and resource extraction actions. **Trends** • The features are being "discovered" by researchers and visitors. • The monument has been increasing public awareness through programs, and traditional and social media.
Threats and Opportunities	**Threats** • Uninformed management decisions, such as placement of recreational infrastructure, have occurred without vigorous planning and compliance processes, which could result in adverse impacts to cultural and natural resources. • Visitors not educated about resource impacts may accidentally cause harm to surface features. • Before designation, portions of the park were used for ordnance testing. As unexploded ordnance are discovered, policy dictates they must be detonated on site, which causes resource damage. • Accelerated erosion from social trails is a threat to cinder cone slopes. **Opportunities** • Partnership opportunities exist with universities and various science agencies such as the U.S. Geological Survey, National Aeronautics and and Space Administration, BLM conservation area, and other organizations to assist with natural resource survey work and to increase our knowledge about monument resources. • The monument could improve trail systems and other visitor use infrastructure to promote a safer visitor experience, increase interpretive and recreational opportunities, and boost overall monument visitation. • Restore lava surface features damaged by mining. • The monument could pursue environmental disposal liability (with the Department of Defense) for bombs and chemicals introduced during World War II.
Data and/or GIS Needs	• Detailed survey of the entire monument for geologic features and caves. • Ordnance location survey. • LiDAR survey. • Daily weather data collection.
Planning Needs	• Resource stewardship strategy. • Restoration plan for disturbed mining areas. • Trails management plan. • Visitor use management plan. • Comprehensive interpretive plan / long-range interpretive plan. • Exotic plant management plan. • Commercial services plan. • Natural resource condition assessment. • Natural resource vulnerability assessment.

Fundamental Resource or Value	Lava Surface Features
Laws, Executive Orders, Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, Regulations that Apply to the FRV** • Department Interior Policy on Consultation with Indian Tribes of 2012 • National Environmental Policy Act of 1969 • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 6: *Interpretation and Education* • Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* and *DO-12 Handbook* • Director's Order 14: *Resource Damage Assessment and Restoration* • Director's Order 77: *Natural Resource Protection* • Director's Order 79: *Integrity of Scientific and Scholarly Activities* • NPS *Management Policies 2006* (§4.4.2.4) "Management of Natural Landscapes" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS *Management Policies 2006* (§4.8.2) "Management of Geologic Features" • 36 CFR sec 2.1 prohibits possessing, destroying, disturbing mineral resources in park units

Fundamental Resource or Value	Lava Subsurface Features
Related Significance Statements	• Volcanic processes. • Lava-influenced ecosystem. • Caves.
Current Conditions and Trends	**Conditions** • Many lava tubes and their geological formations are fragile. • Critical bat population distribution and trends are largely unknown. • Perennial cave ice formations are known in some caves but their status and trends have not been monitored. • Lava tube caves are attractive to visitors for recreation and exploration. **Trends** • Increased amount of trespassing is occurring in caves closed to visitor access. • The cave access permitting system will increase visitor use and education. • The average annual temperature for the region has increased 0.9°C (1.6°F) per century with the greatest increase during the winter season. • The average annual temperature is projected to increase 2.5°C to 4.7°C (4.5°F to 8.5°F) by 2100, and is likely to affect the volume and distribution of perennial cave ice. • Critical bat population trends remain unknown.
Threats and Opportunities	**Threats** • Incomplete and/or inaccurate survey and inventory makes stewardship of cave resources more difficult. • Visitor access to caves can lead to resource damage, such as vandalism or other prohibited activities (smoking, camping, littering, etc.). • The westward advance of white-nose syndrome is a serious threat to bat populations. **Opportunities** • Increase *Interpretation and Educationa*l programs to improve visitor understanding, appreciation, and stewardship of lava tube resources. • The monument could increase unique unguided experiences of "total darkness." • Citizen stewards and volunteers could increase the monument's ability to provide recreational and educational opportunities for the public. • Improvements to Bat Cave outflight area and other cave-related visitor infrastructure would better protect resources and improve visitor experience. • A virtual cave tour would provide programmatic access for visitors unable to explore caves and improve visitor understanding.
Data and/or GIS Needs	• Cave surveys and assessments (including biotic and abiotic features). • Cave maps. • Cave monitoring data. • Monitoring for white-nose syndrome. • Visitor use capacity study. • Bat population survey. • Detailed survey of the entire monument for geologic features and caves. • LiDAR survey. • Ice monitoring baseline data. • Daily weather data collection.

Fundamental Resource or Value	Lava Subsurface Features
Planning Needs	• Cave management plan. • Visitor use management plan. • Site plan for Bat Cave. • Site plan for Junction Cave. • Site plan for Braided Cave. • Site plan for Xenolith Cave. • Trail management plan (for cave access). • General management plan amendment for Ice Cave / Bandera Crater area. • Restoration plan for disturbed mining areas. • Commercial services plan. • Natural resource condition assessment. • Natural resource vulnerability assessment.
Laws, Executive Orders, Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, Regulations that Apply to the FRV** • Department Interior Policy on Consultation with Indian Tribes of 2012 • National Environmental Policy Act of 1969 • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 6: *Interpretation and Education* • Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* and *DO-12 Handbook* • Director's Order 14: *Resource Damage Assessment and Restoration* • Director's Order 77: *Natural Resource Protection* • Director's Order 79: *Integrity of Scientific and Scholarly Activities* • NPS *Management Policies 2006* (§4.8.2) "Management of Geologic Features" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS General Authorities Act

Fundamental Resource or Value	Unusual Vegetation
Related Significance Statements	• Lava-influenced ecosystem.
Current Conditions and Trends	**Conditions** • Invasive species are not well established in the monument as a whole; however, they exist at trailheads and roads. • Drought stress and legacy of land use continues to change vegetation communities. • Live and dead trees continue to preserve dendrochronological information spanning millennia. **Trends** • Introduction of new invasive species (plants and animals) continues. • Long-term drought, influenced by global climate change, continues to impact monument ecosystems. The average annual temperature for the region has increased 0.9°C (1.6°F) per century with the greatest increase during the winter season.
Threats and Opportunities	**Threats** • Nonnative invasive species (plants and animals) pose a threat to lava-influenced ecosystems. • Legacy disturbances from grazing, logging, and mining have contributed to soil loss, groundwater depletion, and the spread of invasive species that threaten lava-influenced ecosystems. • Climate change is expected to cause ecological impacts such as pathogen epidemics (beetles, rusts, etc.), drought, and greater variability of seasonal precipitation and temperatures. The average annual temperature is projected to increase 2.5°C to 4.7°C (4.5°F to 8.5°F) by 2100. • Fuel buildup from past fire suppression practices is a threat to lava-influenced ecosystems that rely on natural fire regimes, especially more frequent fire return intervals and low-intensity fires. • Changes in air quality, caused by regional fossil fuel use and energy development, may impact sensitive lichen species and other organisms that are the first to colonize and reduce basalt in soils. **Opportunities** • The monument's unique vegetation can be integrated into educational programs and tied to several other NPS units. • Control invasive plant species through community involvement programs, such as weed removal events. • Increase use of wildland fire and prescribed burns as management tools to benefit and preserve the monument's unique vegetation.
Data and/or GIS Needs	• Survey of kipuka vegetation. • Nonnative plant management survey. • Monitoring of flow margin vegetation communities. • Fire history research. • Dating of undated (younger) trees. • Fire effects vegetation transect study. • Fence-line assessment. • Survey and catalogue of lands to understand extent and location of challenging areas (proprietary jurisdiction).

Fundamental Resource or Value	Unusual Vegetation

Planning Needs	• Fire management plan update.
	  • Fuels management plan.
	• Vegetation management plan.
	  • Exotic plant management plan.
	  • Grasslands restoration plan.
	• Resource stewardship strategy.
	• Natural resource condition assessment.
	• Natural resource vulnerability assessment.

Laws, Executive Orders, Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, Regulations that Apply to the FRV** • National Environmental Policy Act of 1969 • National Park Service Organic Act • Federal Noxious Weed Act of 1974, as amended • Executive Order 13112, "Invasive Species" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • Endangered Species Act of 1973 • Secretarial Order 3206 American Indian Tribal Rights, Federal-Tribal Trust responsibilities, and the Endangered Species Act. • Department Interior Policy on Consultation with Indian Tribes of 2012 **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 6: *Interpretation and Education* • Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* and *DO-12 Handbook* • Director's Order 14: *Resource Damage Assessment and Restoration* • Director's Order 18: *Wildland Fire Management* • Director's Order 77: *Natural Resource Protection* • Director's Order 79: *Integrity of Science and Scholarly Activities* • NPS *Management Policies 2006* (§4.4.1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS *National Resource Management Reference Manual 77* • NPS *Wildland Fire Management Reference Manual 18*

Fundamental Resource or Value	Archeology and Other Heritage Resources
Related Significance Statements	• Lava-influenced cultural landscape.
Current Conditions and Trends	**Conditions** • Only 12% of the monument has been inventoried for archeological resources. • Of the inventoried sites, 66% are in good condition. • Less than 1% of the inventoried sites are monitored yearly for conditions, threats, and disturbances. • The homesteads are in good condition due to preservation maintenance. • Erosion has had a moderate to severe impact on archeological values for about 28% of inventoried sites. • Visitor use impacts are greatest on sites at the Sandstone Bluffs and El Calderon areas. **Trends** • Archeological sites, particularly in Cretaceous-age sedimentary landforms (e.g., the North Pasture and Sandstone Bluffs), are highly vulnerable to erosion. • Fuel loading on sites is increasing. • There is increased visitor use and awareness of cultural resources in the Sandstone Bluffs area. • The average annual temperature for the region has 0.9°C (1.6°F) per century with the greatest increase during the winter season, contributing to dryer conditions.
Threats and Opportunities	**Threats** • Looting of archeological sites is ongoing. • Impacts from visitors on sites on Sandstone Bluffs include social trails, collecting, and vandalism. • Fuel on archeological sites increases the damage potential of wildfire. • Monument staff lack the baseline information about the nature and location of sites, particularly on the lava flow. • Natural processes, such as erosion, occur at sites, particularly in the Sandstone Bluffs area. • Assessment and preservation activities hindered by lack of in-field access to digital site records and archives. • Erosion of Cretaceous-age landforms can expose human remains and threaten the integrity of burial features. **Opportunities** • There is an opportunity to identify, document, and assess potential architectural sites on the lava flow. • Opportunities to engage in public outreach and education regarding the diverse cultural heritage in the monument and the need to preserve and protect sites exist. • Archeological databases will provide information for analyses of regional-level patterns spanning hundreds if not a thousand years. • The monument could expand use of new technology and social media for public outreach and education. • The monument could enhance connections with contemporary cultures. • The monument could expand communication with area tribes. • Opportunity for park Division of Resources Management to work with Acoma and Zuni tribes to improve feelings of connectedness for both pueblos.

Fundamental Resource or Value	Archeology and Other Heritage Resources
Data and/or GIS Needs	• Baseline survey for remaining 88% of monument. • Record known sites not yet inventoried (backlog). • Cultural landscape inventory. • Vanishing treasures (architectural sites) condition assessments on lava flow. • Update ethnographic overview and assessment. • Detailed documentation of petroglyphs. • Facility Management Software System for maintained archeological sites (FMSS-MAS). • Global positioning system (GPS) mapping of historic trails (starting/ongoing). • Determinations of eligibility for archeological sites in database. • LiDAR survey. • Finish the National Register of Historic Places district nomination for the Sandstone Bluffs, as well as the state-level significance nominations for homesteads.
Planning Needs	• Cultural landscape report. • Detailed documentation (Historic American Building Survey and Historic American Engineering Record) for Puebloan sites on west side. • Historic structure report for Head Homestead. • Archeological overview and assessment. • Archeological data recovery plan/studies. • Cultural affiliation and lineal descent studies. • Traditional use study. • Update scope of collection statement. • Museum collections emergency operations plan. • Resource stewardship strategy.

Fundamental Resource or Value	Archeology and Other Heritage Resources
Laws, Executive Orders, Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, Regulations that Apply to the FRV** • American Indian Religious Freedom Act of 1978 • Antiquities Act of 1906 • Archaeological Resources Protection Act of 1979 • Archeological and Historic Preservation Act of 1974 • Department Interior Policy on Consultation with Indian Tribes of 2012 • Historic Sites Act of 1935 • National Environmental Policy Act of 1969 • National Historic Preservation Act of 1966 – section 106 and section 110 • National Trust Act • Native American Graves Protection and Repatriation Act of 1990 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Executive Order 13007, "American Indian Sacred Sites" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • Religious Freedom Restoration Act of 1993 **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 6: *Interpretation and Education* • Director's Order 28: *Cultural Resource Management* • Director's Order 28A: *Archeology; Native American Graves Protection and Repatriation Act* • Director's Order 24: *Museum Collections* • Director's Order 71A: *Relationships with American Indian Tribes* • "Curation of Federally-Owned and Administered Archeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* • *The Secretary of the Interior's Standards and Guidelines for Treatment of Historic Properties* • Programmatic agreement between the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (2008) • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate"

Analysis of Other Important Resources and Values

Other Important Resource or Value	Wilderness Character
Current Conditions and Trends	**Conditions** • All five qualities of wilderness character (natural, solitude or primitive and unconfined recreation, undeveloped, untrammeled, and other features/cultural) are in good condition. • Closed, unpaved roads and mining scars exist from prior settlement and resource extraction activities. • The night skies are in good condition. • The soundscapes are in good condition, except at wilderness area boundaries. **Trends** • There is some increase in invasive plants, particularly near vectors, such as roads. • Increased unauthorized vehicle use on closed roads has been occurring (e.g., Cerro Encierro to Hole-in-the-Wall). • There is an increase in research requests, partly or wholly within wilderness. • Visitor use of wilderness is difficult to document; trends cannot be identified with the monument's existing data and information. • The average annual temperature for the region has 0.9°C (1.6°F) per century with the greatest increase during the winter season, contributing to dryer conditions.
Threats and Opportunities	**Threats** • Overflights threaten wilderness character, including military operations areas, commercial flights, and some air tour traffic. • The threat of development of inholdings and adjacent lands continues. • Trespass grazing occurs within wilderness boundaries. • Invasive species continue to expand. • Management inconsistency in protecting wilderness character results in incremental degradation. • There is a lack of public awareness, interest, and understanding of wilderness values and wilderness etiquette. • The average annual temperature is projected to increase 2.5°C to 4.7°C (4.5°F to 8.5°F) by 2100, which will influence ecological responses. **Opportunities** • Opportunities exist for significant stakeholder support for congressional designation of wilderness. • The designation process will create public interest and a means for improving wilderness education and appreciation. • Wilderness messages can be strengthened as interpretive media are updated. • Wilderness resources are not "at capacity" for visitor use and can easily support more recreational use. • Scientific research improves information available for preserving the five wilderness qualities and provides ways to pique stakeholder interest. • The monument could broaden or better publicize wilderness use opportunities including camping, trail development, and GPS trails / nontraditional options to connect visitors to wilderness resources. • Promotion of Continental Divide National Scenic Trail use and realignment of the trail route could improve experience and connectivity with other Continental Divide National Scenic Trail segments. • Create alternate access to wilderness for those with impairments (e.g., cave videos, models, Braille, and large print media). • Partnership opportunities exist with the adjacent BLM conservation area.

Other Important Resource or Value	Wilderness Character
Data and/or GIS Needs	• Boundary integrity assessment. • Expanded visitor survey. • Trail counters to monitor use levels. • Alternate Continental Divide National Scenic Trail route identification and mapping. • Backcountry use assessment. • LiDAR survey. • Viewshed inventory and analysis. • Daily weather data collection.
Planning Needs	• Wilderness stewardship plan (underway). • Commercial services plan. • General management plan amendment for Ice Caves / Bandera Crater area. • Comprehensive interpretive plan / long-range interpretive plan. • Exhibit plan. • Continental Divide National Scenic Trail reroute plan – interagency. • Dark night skies preservation plan. • Viewshed management plan. • Trails management plan. • Natural resource condition assessment. • Natural resource vulnerability assessment. • Resource stewardship strategy. • Visitor use management plan.
Laws, Executive Orders, Regulations That Apply to the OIRV, and NPS Policy-level Guidance	**Laws, Executive Orders, Regulations that Apply to the OIRV** • Executive Order 11514, "Protection and Enhancement of Environmental Quality" • Wilderness Act of 1964 • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • Endangered Species Act of 1973 • Secretarial Order 3206 American Indian Tribal Rights, Federal-Tribal Trust responsibilities, and the Endangered Species Act. • Department Interior Policy on Consultation with Indian Tribes of 2012 **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 6: *Interpretation and Education* • NPS *Management Policies 2006* (chapter 6) "Wilderness Preservation and Management" • Director's Order 41: *Wilderness Stewardship* • *Keeping It Wild in the National Parks User Guide* • *Keeping it Wild: Interagency Strategy to Monitor Trends in Wilderness Character* • *Wilderness Stewardship Plan Handbook*

Other Important Resource or Value	Recreation and Education
Current Conditions and Trends	**Conditions** • There are many opportunities not realized yet (e.g., those planned for Ice Cave / Bandera Crater property). • El Malpais offers a variety of challenging recreational opportunities – hiking, spelunking, primitive camping, backpacking, etc. • Trails are in fair condition, however cairn markers are difficult to find and the terrain is rugged to traverse. • Caves suited to recreational use are accessed via a permit system. • Opportunities for recreation and education are not well known, even by longtime locals. **Trends** • Increased recreation "close to home." • Use of technology by monument staff to educate visitors (e.g., Facebook, podcasts) is increasing. • While El Malpais National Monument visitation has decreased, NPS statistics on servicewide recreational visits show a moderate increase. • Opportunities for programs are diminishing due to funding and staff capacity.
Threats and Opportunities	**Threats** • There is a deterioration of trails occurring. • Poor, unpaved road conditions limit backcountry access. • There is a lack of or deterioration of signs and facilities due to lack of funding and staff capacity. • The average annual temperature is projected to increase 2.5°C to 4.7°C (4.5°F to 8.5°F) by 2100, which will influence ecological responses. **Opportunities** • Acquiring the Ice Caves / Bandera Crater inholding would realize many recreational and educational activities envisioned in the general management plan. • Expand hiking, caving, primitive camping, and wildlife viewing activities. • Create enthusiasm for more audiences—youth, caving community, recreational groups, etc.—through public education and outreach. • Increase community involvement through trail building and area "adoption." • Consider the creation of a more developed experience in some areas of the monument including campsites, defined trails, etc. in backcountry areas. • Use of technology, such as virtual cave and hiking tours, could make resources more accessible to populations not inclined to explore these areas first hand. • Educate the public on activities prohibited on NPS lands but allowed on other federal lands. • Commercial services, such as guides, could connect more visitors to backcountry experiences. • Trail signage and markings could be expanded for increased access for novice hikers. • Develop visitor education on climate change and the associated impacts at El Malpais National Monument. • Partnership opportunities exist with the adjacent BLM conservation area. • Opportunity for park Division of Resources Management and park Division of Visitor Services to work with Acoma and Zuni Tribes to improve feelings of connectedness for both pueblos.
Data and/or GIS Needs	• Backcountry use assessment. • Expanded visitor survey. • Accessibility evaluation and assessment. • Alternate Continental Divide National Scenic Trail route identification and mapping. • Ordnance location survey. • Viewshed inventory and analysis.

Other Important Resource or Value	Recreation and Education
Planning Needs	• Comprehensive interpretive plan / long-range interpretive plan. • General management plan amendments (development concept plan updates) for existing visitor use areas and for the Ice Cave / Bandera Crater area. • Accessibility transition plan. • Commercial services plan. • Trails management plan. • Visitor use management plan. • Continental Divide National Scenic Trail reroute plan – interagency. • Site plans for permitted caves. • Dark night skies preservation plan. • Viewshed management plan. • Cave management plan. • Marketing / communications / volunteer plan. • Exhibit plan. • Complete parkwide sustainability assessments.
Laws, Executive Orders, Regulations That Apply to the OIRV, and NPS Policy-level Guidance	**Laws, Executive Orders, Regulations that Apply to the OIRV** • Americans with Disabilities Act of 1990 • Archeological Resource Protection Act (ARPA) • Architectural Barriers Act Accessibility Standards 2006 • Architectural Barriers Act of 1968 • Department Interior Policy on Consultation with Indian Tribes of 2012 • Federal Cave Resource Protection Act of 1988 • National Environmental Policy Act of 1969 • National Historic Preservation Act • National Park Service Concessions Management Improvement Act of 1998 • Rehabilitation Act of 1973 • Wilderness Act of 1964 • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 6: *Interpretation and Education* • NPS *Management Policies 2006* (§8.2.2) "Recreational Activities" • NPS *Management Policies 2006* (§8.2.2.1) "Management of Recreational Use" • NPS *Management Policies 2006* (§8.2.2.6) "Hunting and Trapping" • NPS *Management Policies 2006* (§8.2.4) "Accessibility for Persons with Disabilities" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • Director's Order 17: *Tourism* • Director's Order 41: *Wilderness Stewardship* • Director's Order 42: *Accessibility for Visitors with Disabilities in National Park Service Programs and Services* • Director's Order 45: *National Trails System* • "Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities Conducted by the Department of the Interior" (43 CFR 17) • Draft Final Accessibility Guidelines for Outdoor Development Areas

Identification of Key Issues and Associated Planning and Data Needs

This section considers key issues to be addressed in planning and management and therefore takes a broader view over the primary focus of part 1. A key issue focuses on a question that is important for a park. Key issues often raise questions regarding park purpose and significance and fundamental and other important resources and values. For example, a key issue may pertain to the potential for a fundamental or other important resource or value in a park to be detrimentally affected by discretionary management decisions. A key issue may also address crucial questions not directly related to purpose and significance, but still indirectly affects them. Usually, a key issue is one that a future planning effort or data collection needs to address and requires a decision by NPS managers.

The following are key issues for El Malpais National Monument and the associated planning and data needs to address them:

- **Community Awareness:** Many local community members are not aware of the NPS units in the area. NPS, U.S. Forest Service, and Bureau of Land Management employees are often mistaken for one another. There is a need to develop marketing, communications, and volunteer plans, update interpretive media, and expand use of social media. Communicating agency mission differences, recreational opportunities, and citizen stewardship would improve connections between local communities and the monument. Additional planning needs for this issue includes a visitor use management plan and expanded visitor survey.

- **Acquisition of major inholding:** The Ice Caves / Bandera Crater area is the largest inholding within the legislative boundary. Acquiring this significant tract would fulfill many elements of the monument's 1990 general management plan (developed trails, etc.). The land protection plan identifies this as the highest priority for acquisition and the request for acquisition funding was included in the Fiscal Year 2014 president's budget request.

- **Fencing and Boundary Integrity:** The lack of boundary fencing allows resource damage from trespass cattle and off-road vehicles. In addition, the lack of fencing allows development of unauthorized trails to access cultural sites. Areas of concern include the north properties, shared boundary with the Pueblo of Acoma, and the northwest boundary. A boundary integrity assessment is needed to identify and measure unfenced sections and sections needing replacement. This information would be used to seek construction and repair funds. Areas for pedestrian gates should be identified to encourage visitation.

- **Inadequate access:** There are few developed recreational facilities within the monument, in part because the Ice Caves / Bandera Crater property has not yet been acquired. Visitors do not have access to the full range of experiences and activities envisioned in the general management plan, leaving visitors unaware of how to experience the monument. In the absence of more abundant designated trails, visitors create social trails to experience the wilderness and visit cultural sites, causing resource damage. Planning and data needs that could address this issue include: wilderness stewardship plan, trails management plan, site plans for permitted caves, interagency Continental Divide National Scenic Trail reroute plan, visitor use management plan, cave management plan, commercial services plan, development concept plan revisions for visitor use areas, action and transition plan for accessibility, dark night skies preservation plan, exhibit plan, trail counters to monitor use levels and an expanded visitor survey.

- **Combined jurisdiction:** A combination of both proprietary and concurrent jurisdiction exists within the monument. After monument establishment, the New Mexico State Legislature authorized concurrent jurisdiction for NPS units in the state for lands in public ownership at the time, but future acquisitions were not included in the law. Consequently, all lands acquired after legislation remain under proprietary jurisdiction. This causes confusion over legal authority. Planning needs for this issue include mapping of existing land ownership, boundary data, and a full survey and catalogue of lands to understand extent and location of challenging areas.

- **Lack of cave resource protection:** Many lava tubes, caves, and their geological formations are fragile. White-nose syndrome is a serious threat to bat populations. Data on bat population distribution, survey, and inventory of cave resources are incomplete. Access to select caves via a cave permitting system will increase visitor use. Resource damage, such as vandalism, smoking, camping, and littering could increase as well. Planning and data needs that could help with this issue include: cave monitoring data, cave permitting plan, bat population surveys, cave ice monitoring baseline data, cave management plan, site plans for permitted caves, white-nose syndrome monitoring, detailed survey of entire monument for geologic features and caves, cave mapping, and cave surveys and assessments (including biotic and abiotic).

- **Continental Divide Trail reroute:** The current official route of the Continental Divide National Scenic Trail crosses El Malpais National Monument on the Zuni-Acoma Trail and roughly parallels New Mexico State Road 53 from the Zuni-Acoma Trailhead to the El Malpais Information Center. Elsewhere, the trail is inappropriately sited on the rights-of-way for New Mexico State Road 53 and County Road 42 on the west side of the monument and New Mexico State Highway 117 on the east side. Interagency efforts are underway to seek improved CDNST routes through the area. Additional planning and data needs that could help with this issue include: trail counters to monitor use, alternate Continental Divide National Scenic Trail route identification and mapping, and a formal interagency planning effort to evaluate alternate routes for the Continental Divide National Scenic Trail.

  In addition to the section of trail outlined above, acquisition of the Ice Caves / Bandera Crater property could include additional sections of the Continental Divide National Scenic Trail. All sections of the trail are subject to the National Trails System Act of 1968.

- **Removal of nonhistoric structures on acquired inholdings (north properties)**: Existing plans call for removal of structures on acquired inholdings north of New Mexico State Road 53 to preserve viewsheds from and within the monument. Hazardous building materials surveys are complete. Abatement of identified materials is needed. Once the Facility Management Software System entry is complete for these structures, funds can be sought for abatement and then full demolition.

- **Viewshed protection:** Potential sustainable energy initiatives on nearby public lands and tribal lands could greatly impact the sweeping views across the El Malpais volcanic landscape as plans for wind farms or photovoltaic arrays are considered. Mining activities are expanding not far from the monument's boundary. Residential real estate development pressures may increase as people seek to construct primary and secondary homes in the area. Planning and data needs that could help with this issue include: viewshed management plan and viewshed inventory and analysis.

Planning and Data Needs

To maintain connection to the core elements of the foundation and the importance of these core foundation elements, the planning and data needs listed here are directly related to protecting fundamental resources and values, park significance, and park purpose, as well as addressing key issues. To successfully undertake a planning effort, information from sources such as inventories, studies, research activities, and analyses may be required to provide adequate knowledge of park resources and visitor information. Such information sources have been identified as data needs. Geospatial mapping tasks and products are included in data needs.

Items considered of the utmost importance were identified as high priority, and other items identified, but not rising to the level of high priority, were listed as either medium- or low-priority needs. These priorities inform park management efforts to secure funding and support for planning projects.

Planning Needs – Where A Decision-making Process Is Needed			
Related to an FRV or OIRV?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
OIRV	Wilderness stewardship plan (ongoing)	H	This plan is related to the following OIRV: Wilderness.
FRV	Vegetation management plan	H	This plan is related to the following FRV: Unusual Vegetation. Serving as a link between fire, nonnative weed, and ecological management, a comprehensive vegetation management plan is needed to coordinate stewardship of the terrestrial ecosystems in the monument.
FRV/OIRV	Trails management plan	H	This plan is related to the following FRV/OIRVs: Surface Lava Features, Subsurface Lava Features, Recreation and Education, Wilderness. The visitor's experience and their safety are significantly dependent on the monument's trail system; a comprehensive assessment of current and future trail infrastructure is imperative.
OIRV	Continental Divide National Scenic Trail reroute plan – interagency	H	This plan is related to the following OIRVs: Wilderness, Recreation and Education. Trail connectivity and removal of the route from roads and highway rights-of-way between Grants and Pie Town are high priorities for all three land management agencies. Funding could come from USFS Trails.
FRV	Fire management plan update	H	This plan is related to the following FRV: Unusual Vegetation. This document would be developed concurrently with the vegetation management plan as a component of terrestrial ecosystem management in the monument.
FRV	Detailed documentation (Historic American Building Survey and Historic American Engineering Record) for Puebloan sites on west side	H	This plan is related to the following FRV: Archeology and Other Heritage Resources. Baseline information is needed for resource protection, ARPA prosecutions, and vandalism mitigation.
FRV/OIRV	Comprehensive Interpretive plan / long-range interpretive plan	H	This plan is related to the following FRV/OIRVs: Surface Lava Features, Wilderness, Recreation and Education. Previous interpretive planning efforts are outdated; new planning is needed to reflect changes in monument management, staffing, and visitation.
FRV/OIRV	General management plan amendment for Ice Cave / Bandera Crater area	H	This plan is related to the following FRV/OIRVs: Education and Recreation, Wilderness, Subsurface Lava Features. Revisions to the original general management plan are needed for this area. Significant potential exists for acquisition of this inholding in the next several years.
FRV	Fuels management plan	M	This plan is related to the following FRV: Unusual Vegetation.
FRV/OIRV	Cave management plan	M	This plan is related to the following FRV/OIRVs: Subsurface Lava Features, Recreation and Education.
FRV/OIRV	Site plan for Junction Cave	M	This plan is related to the following FRV/OIRVs: Subsurface Lava Features, Recreation and Education.

Planning Needs – Where A Decision-making Process Is Needed			
Related to an FRV or OIRV?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
FRV/OIRV	Marketing / communications / volunteer plan	M	This plan is related to the following FRV/OIRVs: Archeology and Other Heritage Resources, Recreation and Education, Subsurface Lava Features, Surface Lava Features, Unusual Vegetation, Wilderness.
FRV	Historic structures report for Head Homestead	M	This plan is related to the following FRV: Archeology and Other Heritage Resources.
FRV	Archeological overview and assessment	M	This plan is related to the following FRV: Archeology and Other Heritage Resources.
FRV/OIRV	Site plan at Braided Cave	M	This plan is related to the following FRV/OIRVs: Subsurface Lava Features, Recreation and Education.
OIRV	Viewshed management plan	M	This plan is related to the following OIRVs: Recreation and Education, Wilderness.
FRV	Museum collections emergency operations plan	M	This plan is related to the following FRV: Archeology and Other Heritage Resources.
FRV/OIRV	Natural resource condition assessment	M	This plan is related to the following FRV/OIRVs: Surface Lava Features, Subsurface Lava Features, Unusual Vegetation, Archeology, Wilderness.
OIRV	Complete Parkwide Sustainability Assessment	M	This plan is realted to the following OIRV: Recreation and Education.
FRV	Exotic plant management plan	L	This plan is related to the following FRVs: Unusual Vegetation, Surface Lava Features.
FRV/OIRV	Site plan at Bat Cave	L	This plan is related to the following FRV/OIRVs: Subsurface Lava Features, Recreation and Education.
FRV	Resource stewardship strategy	L	This plan is related to the following FRVs: Archeology and Other Heritage Resources, Surface Lava Features, Subsurface Lava Features, Unusual Vegetation.
FRV	Restoration plan for disturbed mining areas	L	This plan is related to the following FRVs: Surface Lava Features, Subsurface Lava Features.
FRV	Cultural landscape report	L	This plan is related to the following FRV: Archeology and Other Heritage Resources. These plans are for architectural sites that are not yet recorded.
FRV	Archeological data recovery plan/studies	L	This plan is related to the following FRV: Archeology and Other Heritage Resources.
FRV/OIRV	Cultural affiliation and lineal descent studies	L	This plan is related to the following FRV/OIRVs: Archeology, Education and Recreation.
FRV/OIRV	Traditional use study	L	This plan is related to the following FRV/OIRVs: Archeology, Education and Recreation.

Planning Needs – Where A Decision-making Process Is Needed			
Related to an FRV or OIRV?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
FRV/OIRV	Update scope of collection statement	L	This plan is related to the following FRV: Archeology and Other Heritage Resources.
FRV/OIRV	Commercial services plan	L	This plan is related to the following FRV/OIRVs: Subsurface Lava Features, Surface Lava Features, Wilderness, Recreation and Education.
OIRV	Development concept plan revisions for visitor use areas	L	This plan is related to the following OIRV: Recreation and Education. Ice Cave/Bandera Crater area is a high priority; others are lower.
OIRV	Accessibility transition plan	L	This plan is related to the following OIRV: Recreation and Education.
OIRV	Visitor use management plan	L	This plan is related to the following OIRVs: Surface Lava Features, Subsurface Lava Features, Recreation and Education.
OIRV	Dark night skies preservation plan	L	This plan is related to the following OIRVs: Recreation and Education, Wilderness.
FRV/OIRV	Site Plan at Xenolith Cave	L	This plan is related to the following FRV/OIRVs: Subsurface Lava Features, Recreation and Education.
FRV	Grasslands restoration plan	L	This plan is related to the following FRV: Unusual Vegetation.
FRV	Update ethnographic overview and assessment	L	This plan relates to the following FRV: Archeology and Other Heritage Resources.
OIRV	Exhibit plan	L	This plan is related to the following OIRVs: Wilderness, Recreation and Education.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV or OIRV?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes, Including Which Planning Need This Data Need Relates To**
FRV	GPS mapping of historic trails (ongoing)	H	This data need relates to the following FRV: Archeology and Other Heritage Resources. It is needed to identify and map trails that qualify as cultural resources.
OIRV	Survey and catalogue of lands to understand extent and location of challenging areas (proprietary jurisdiction)	H	This data need relates to the following OIRV: Recreation and Education. These data would inform multiple visitor use planning needs and identify which parcels are which in the existing patchwork of proprietary and concurrent jurisdiction.
FRV	Facility Management Software System for maintained archeological sites	H	This data need relates to the following FRV: Archeology and Other Heritage Resources. The FMSS system is required to develop project proposals for funding. Erosion is threatening the resource integrity now.
FRV	Cave monitoring data	H	This data need relates to the following FRV: Subsurface Lava Features. Monitoring the impacts of visitation (use levels), ice levels, bat populations, environmental conditions, and general resource damage is necessary to inform the resource stewardship and cave management plans.
FRV	Monitoring of white-nose syndrome	H	This data need relates to the following FRV: Subsurface Lava Features. Monitoring impacts of visitation (use levels), bat populations, and environmental conditions is needed to inform the resource stewardship and cave management plans.
FRV	Detailed survey of the entire monument for geologic features and caves	H	This data need relates to the following FRV: Surface Lava Features, Subsurface Lava features. Data are incomplete for two-thirds of the monument. This survey would inform the resource stewardship and cave management plans.
FRV	Fire history research	H	This data need relates to the following FRV: Unusual Vegetation. These data would inform the fire management and vegetation management plans.
FRV	Fire effects vegetation transects study	H	This data need relates to the following FRV: Unusual Vegetation. These data would inform the fire management and vegetation management plans.
OIRV	Boundary integrity assessment	H	This data need relates to the following OIRV: Recreation and Education. These data would inform multiple visitor use planning needs and would identify which boundary sections have the greatest need for fencing repair or installation in order to protect natural and cultural resources.
FRV	Detailed documentation for petroglyphs	H	This data need relates to the following FRV: Archeology and Other Heritage Resources. Detailed documentation is needed for preservation and prosecution of ARPA cases.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV or OIRV?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes, Including Which Planning Need This Data Need Relates To**
OIRV	Alternate Continental Divide National Scenic Trail route identification and mapping	M	This data need relates to the following OIRVs: Recreation and Education, Wilderness. This work would inform the interagency planning effort to reroute trail off roads and rights-of-way.
FRV	Exotic plant management survey	M	This data need relates to the following FRV: Unusual Vegetation. This detailed survey would inform the vegetation and resource stewardship strategy.
FRV	Dating of undated (younger) trees	M	This data need relates to the following FRV: Unusual Vegetation. This detailed survey would inform the vegetation and resource stewardship strategy.
OIRV	Expanded visitor survey	M	This data need relates to the following OIRVs: Recreation and Education, Wilderness.
FRV	Determinations of eligibility for archeological sites in database	M	This data need relates to the following FRV: Archeology and Other Heritage Resources.
FRV	Cave surveys and assessments (including biotic and abiotic)	M	This plan is related to the following FRV: Subsurface Lava Features.
FRV	Survey of kipuka vegetation	M	This data need relates to the following FRV: Unusual Vegetation.
FRV	Bat population survey	M	This data need relates to the following FRV: Subsurface Lava Features.
FRV	Ice monitoring baseline data	M	This data need relates to the following FRV: Subsurface Lava Features. A collection process has already been started.
OIRV	Viewshed inventory and analysis	M	This data need relates to the following OIRVs: Wilderness, Education and Recreation.
FRV	Finish the National Register of Historic Places district nomination for the Sandstone Bluffs, as well as the state-level significance nominations for homesteads	M	This data need relates to the following FRV: Archeology and Other Heritage Resources.
FRV	Cave maps	L	This data need relates to the following FRV: Subsurface Lava Features. Cave mapping would help to monitor impacts of visitation (use levels), ice levels, bat populations, environmental conditions, and general resource damage, and would inform the resource stewardship and cave management plans. This work would assist in cave inventories, employee and visitor safety, and would facilitate research.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV or OIRV?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes, Including Which Planning Need This Data Need Relates To**
OIRV	Ordnance location survey	L	This data need relates to the following FRV/OIRV: Surface Lava Features, Recreation and Education. These data would inform multiple visitor use planning needs and would identify which sections of monument may hold additional unexploded ordinance. This is needed to enhance employee and visitor safety.
FRV/OIRV	LiDAR survey	L	This data need relates to all FRVs and OIRVs. It may help identify historic resources (trails, sites). There are possibilities that the monument may be able to get someone to do this for free (universities/partners).
FRV	Monitoring of flow margin vegetation communities	L	This data need relates to the following FRV: Unusual Vegetation. This detailed survey would inform the vegetation management and resource stewardship strategy.
OIRV	Accessibility evaluation and assessment	L	This data need relates to the following FRV: Education and Recreation.
FRV	Baseline survey for remaining 88% of the monument	L	This data need relates to the following FRV: Archeology and Other Heritage Resources.
FRV	Record identified but uninventoried sites (backlog)	L	This data need relates to the following FRV: Archeology and Other Heritage Resources.
FRV	Cultural landscape inventory	L	This data need relates to the following FRV: Archeology and Other Heritage Resources.
FRV	Vanishing treasures (architectural sites) condition assessments on lava flow	L	This data need relates to the following FRV: Archeology and Other Heritage Resources.
OIRV	Backcountry use assessment	L	This data need relates to the following OIRV: Wilderness, Recreation and Education.

Part 3: Contributors

Park

Kayci Cook Collins, (former) Superintendent
Mitzi Frank, Acting Superintendent
Leslie DeLong Bastik, Chief of Visitor Services, retired
Rick Best, Park Ranger and Visitor Services
Steve Baumann, Chief of Heritage Preservation
Richard Greene, Archaeologist
Calvin Chimoni, Masonry Worker
Dana Sullivan, Chief Ranger
Coral Conway, Acting Branch Chief of Visitor and Resource Protection
David Hays, Branch Chief of Natural Resources
Kevin Parrish, Fire Management Officer
Fred Euganeo, Chief of Facilities
William Bledsoe, Administrative Officer
Kelly Lynch, Protection Park Ranger

Region

Liza Ermeling, Regional Planning Liaison

Other NPS Staff

Nancy Shock, Foundation Coordinator, Washington Support Office, Park Planning and Special Studies
Pam Holtman, QA/QC, Washington Support Office, Park Planning and Special Studies
Tamara Delaplane, Project Manager, Denver Service Center, Planning Division
Megan Truebenbach, Project Specialist, Denver Service Center, Planning Division
Steve Whissen, Project Specialist, Denver Service Center, Planning Division
Melody Bentfield, Contract Librarian, Denver Service Center, Planning Division
Ken Bingenheimer, Contract Editor, Denver Service Center, Planning Division
John Paul Jones, Visual Information Specialist, Denver Service Center, Planning Division

Appendixes

Appendix A: Establishing Legislation and Legislative Acts for El Malpais National Monument

Establishment of El Malpais National Monument, December 31, 1987 (P.L. 100-225)(101 Stat. 1539)

Public Law 100-225
100th Congress

An Act

To establish the El Malpais National Monument and the El Malpais National Conservation Area in the State of New Mexico, to authorize the Masau Trail, and for other purposes.

Dec. 31, 1987
[H.R. 403]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I—EL MALPAIS NATIONAL MONUMENT

ESTABLISHMENT OF MONUMENT

SEC. 101. (a) In order to preserve, for the benefit and enjoyment of present and future generations, that area in western New Mexico containing the nationally significant Grants Lava Flow, the Las Ventanas Chacoan Archeological Site, and other significant natural and cultural resources, there is hereby established the El Malpais National Monument (hereinafter referred to as the "monument"). The monument shall consist of approximately 114,000 acres as generally depicted on the map entitled "El Malpais National Monument and National Conservation Area" numbered NM-ELMA-80,001-B and dated May 1987. The map shall be on file and available for public inspection in the offices of the Director of the National Park Service, Department of the Interior.

16 USC 460uu.

Public information.

(b) As soon as practicable after the enactment of this Act, the Secretary of the Interior (hereinafter referred to as the "Secretary") shall file a legal description of the monument with the Committee on Interior and Insular Affairs of the United States House of Representatives and with the Committee on Energy and Natural Resources of the United States Senate. Such legal description shall have the same force and effect as if included in this Act, except that the Secretary may correct clerical and typographical errors in such legal description and in the map referred to in subsection (a). The legal description shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior.

Public information.

TRANSFER

SEC. 102. Lands and waters and interests therein within the boundaries of the monument, which as of the day prior to the date of enactment of this Act were administered by the Forest Service, United States Department of Agriculture, are hereby transferred to the administrative jurisdiction of the Secretary te be managed as part of the monument in accordance with this Act. The boundaries of the Cibola National Forest shall be adjusted accordingly.

National Forest System.
16 USC 460uu-1.

MANAGEMENT

SEC. 103. The Secretary, acting through the Director of the National Park Service, shall manage the monument in accordance with

16 USC 460uu-2.

the provisions of this Act, the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1 et seq.), and other provisions of law applicable to units of the National Park System. The Secretary shall protect, manage, and administer the monument for the purposes of preserving the scenery and the natural, historic, and cultural resources of the monument and providing for the public understanding and enjoyment of the same in such a manner as to perpetuate these qualities for future generations.

PERMITS

Animals. Contracts. 16 USC 460uu-3.

SEC. 104. Where any lands included within the boundary of the monument on the map referred to in subsection 101(a) are legally occupied or utilized on the date of enactment of this Act for grazing purposes, pursuant to a lease, permit, or license which is—

(a) for a fixed term of years issued or authorized by any department, establishment, or agency of the United States, and

(b) scheduled for termination before December 31, 1997,

the Secretary, notwithstanding any other provision of law, shall allow the persons holding such grazing privileges (or their heirs) to retain such grazing privileges until December 31, 1997, subject to such limitations, conditions, or regulations as the Secretary may prescribe to insure proper range management. No grazing shall be permitted on lands within the boundaries of the monument on or after January 1, 1998.

State and local governments. Indians.

TITLE II—MASAU TRAIL

DESIGNATION OF TRAIL

Arizona. Federal Register, publication. 16 USC 460uu-11.

SEC. 201. In order to provide for public appreciation, education, understanding, and enjoyment of certain nationally significant sites of antiquity in New Mexico and eastern Arizona which are accessible by public road, the Secretary, acting through the Director of the National Park Service, with the concurrence of the agency having jurisdiction over such roads, is authorized to designate, by publication of a description thereof in the Federal Register, a vehicular tour route along existing public roads linking prehistoric and historic cultural sites in New Mexico and eastern Arizona. Such a route shall be known as the Masau Trail (hereinafter referred to as the "trail").

AREAS INCLUDED

16 USC 460uu-12.

SEC. 202. The trail shall include public roads linking El Malpais National Monument as established pursuant to title I of this Act, El Morro National Monument, Chaco Cultural National Historical Park, Aztec Ruins National Monument, Canyon De Chelly National Monument, Pecos National Monument, and Gila Cliff Dwellings National Monument. The Secretary may, in the manner set forth in section 201, designate additional segments of the trail from time to time as appropriate to link the foregoing sites with other cultural sites or sites of national significance when such sites are designated and protected by Federal, State, or local governments, Indian tribes, or nonprofit entities.

INFORMATION AND INTERPRETATION

SEC. 203. With respect to sites linked by segments of the trail which are administered by other Federal, State, local, tribal, or nonprofit entities, the Secretary may, pursuant to cooperative agreements with such entities, provide technical assistance in the development of interpretive devices and materials in order to contribute to public appreciation of the natural and cultural resources of the sites along the trail. The Secretary, in cooperation with State and local governments, Indian tribes, and nonprofit entities, shall prepare and distribute informational material for the public appreciation of sites along the trail. 16 USC 460uu-13.

MARKERS

SEC. 204. The trail shall be marked with appropriate markers to guide the public. With the concurrence and assistance of the State or local entity having jurisdiction over the roads designated as part of the trail, the Secretary may erect thereon and maintain signs and other informational devices displaying the Masau Trail Marker. The Secretary is authorized to accept the donation of suitable signs and other informational devices for placement at appropriate locations. 16 USC 460uu-14.

TITLE III—EL MALPAIS NATIONAL CONSERVATION AREA

ESTABLISHMENT OF AREA

SEC. 301. (a) In order to protect for the benefit and enjoyment of future generations that area in western New Mexico containing the La Ventana Natural Arch and the other unique and nationally important geological, archeological, ecological, cultural, scenic, scientific, and wilderness resources of the public lands surrounding the Grants Lava Flows, there is hereby established the El Malpais National Conservation Area (hereinafter referred to as the "conservation area"). The conservation area shall consist of approximately 262,690 acres of federally owned land as generally depicted on a map entitled "El Malpais National Monument and National Conservation Area" numbered NM-ELMA-80,001-B and dated May 1987. The map shall be on file and available for inspection in the offices of the Director of the Bureau of Land Management of the Department of the Interior. 16 USC 460uu-21. Public information.

(b) As soon as practicable after the date of enactment of this Act, the Secretary shall file a legal description of the conservation area designated under this section with the Committee on Energy and Natural Resources of the United States Senate and the Committee on Interior and Insular Affairs of the United States House of Representatives. Such legal description shall have the same force and effect as if included in this Act, except that the Secretary may correct clerical and typographical errors in such legal description. The legal description shall be on file and available for public inspection in the offices of the Director of the Bureau of Land Management, Department of the Interior. Public information.

MANAGEMENT

SEC. 302. (a) The Secretary, acting through the Director of the Bureau of Land Management, shall manage the conservation area to protect the resources specified in section 301 and in accordance with this Act, the Federal Land Management and Policy Act of 1976 and other applicable provisions of law, including those provisions relating to grazing on public lands. Animals. 16 USC 460uu-22.

(b) The Secretary shall permit hunting and trapping within the conservation area in accordance with applicable laws and regulations of the United States and the State of New Mexico; except that the Secretary, after consultation with the New Mexico Department of Game and Fish, may issue regulations designating zones where and establishing periods when no hunting or trapping shall be permitted for reasons of public safety, administration, or public use and enjoyment.

(c) Collection of green or dead wood for sale or other commercial purposes shall not be permitted in the conservation area.

(d) Except as otherwise provided in section 402(b), within the conservation area the grazing of livestock shall be permitted to continue, pursuant to applicable Federal law, including this Act, and subject to such reasonable regulations, policies, and practices as the Secretary deems necessary.

TITLE V—GENERAL PROVISIONS

MANAGEMENT PLANS

SEC. 501. (a) Within three full fiscal years following the fiscal year of enactment of this Act, the Secretary shall develop and transmit to the Committee on Interior and Insular Affairs of the United States House of Representatives and the Committee on Energy and Natural Resources of the United States Senate, separate general management plans for the monument and the conservation area which shall describe the appropriate uses and development of the monument and the conservation area consistent with the purposes of this Act. The plans shall include but not be limited to each of the following:

National Wilderness Preservation System. 16 USC 460uu–41.

(1) implementation plans for a continuing program of interpretation and public education about the resources and values of the monument and the conservation area;

(2) proposals for public facilities to be developed for the conservation area or the monument, including a visitors center in the vicinity of Bandera Crater and a multiagency orientation center, to be located in or near Grants, New Mexico, and adjacent to Interstate 40, to accommodate visitors to western New Mexico;

(3) natural and cultural resources management plans for the monument and the conservation area, with a particular emphasis on the preservation and long-term scientific use of archeological resources, giving high priority to the enforcement of the provisions of the Archeological Resources Protection Act of 1979 and the National Historic Preservation Act within the monument and the conservation area. The natural and cultural resources management plans shall be prepared in close consultation with the Advisory Council on Historic Preservation, the New Mexico State Historic Preservation Office, and the local Indian people and their traditional cultural and religious authorities; and such plans shall provide for long-term scientific use of archaeological resources in the monument and the conservation area, including the wilderness areas designated by this Act; and

Indians.

(4) wildlife resources management plans for the monument and the conservation area prepared in close consultation with appropriate departments of the State of New Mexico and using previous studies of the area.

Wildlife.

(b)(1) The general management plan for the conservation area shall review and recommend the suitability or nonsuitability for preservation as wilderness of those lands comprising approximately 17,468 acres, identified as "Wilderness Study Area" (hereafter in this title referred to as the "WSA") on the map referenced in section 101.

(2) Pending submission of a recommendation and until otherwise directed by an Act of Congress, the Secretary, acting through the Director of the Bureau of Land Management, shall manage the

lands within the WSA so as to maintain their potential for inclusion within the National Wilderness Preservation System.

(c)(1) The general management plan for the monument shall review and recommend the suitability or nonsuitability for preservation as wilderness of all roadless lands within the boundaries of the monument as established by this Act except those lands within the areas identified as "potential development areas" on the map referenced in section 101.

(2) Pending the submission of a recommendation and until otherwise directed by Act of Congress, the Secretary, through the Director of the National Park Service, shall manage all roadless lands within the boundaries of the monument so as to maintain their potential for inclusion in the National Wilderness Preservation System, except those lands within the areas identified as "potential development areas" on the map referenced in section 101.

ACQUISITIONS

Public lands. Gifts and property. 16 USC 460uu-42.

SEC. 502. Within the monument and the conservation area, the Secretary is authorized to acquire lands and interests in lands by donation, purchase with donated or appropriated funds, exchange, or transfer from any other Federal agency, except that such lands or interests therein owned by the State of New Mexico or a political subdivision thereof may be acquired only by exchange. It is the sense of Congress that the Secretary is to complete the acquisition of non-Federal subsurface interests underlying the monument and the conservation area no later than three full fiscal years after the fiscal year of enactment of this Act.

STATE EXCHANGES

Public lands. Gifts and property. 16 USC 460uu-43.

SEC. 503. (a) Upon the request of the State of New Mexico (hereinafter referred to as the "State") and pursuant to the provisions of this section, the Secretary shall exchange public lands or interests in lands elsewhere in the State of New Mexico, of approximately equal value and selected by the State, acting through its Commissioner of Public Lands, for any lands or interests therein owned by the State (hereinafter referred to as "State lands") located within the boundaries of the monument or the conservation area which the State wishes to exchange with the United States.

(b) Within six months after the date of enactment of this Act, the Secretary shall notify the New Mexico Commissioner of Public Lands what State lands are within the monument or the conservation area. The notice shall contain a listing of all public lands or interest therein within the boundaries of the State of New Mexico which have not been withdrawn from entry and which the Secretary, pursuant to the provisions of sections 202 and 206 of the Federal Land Policy and Management Act of 1976, has identified as appropriate for transfer to the State in exchange for State lands. Such listing shall be updated at least annually. If the New Mexico Commissioner of Public Lands gives notice to the Secretary of the State's desire to obtain public lands so listed, the Secretary shall notify the Commissioner in writing as to whether the Department of the Interior considers the State lands within the monument or conservation area to be of approximately equal value to the listed lands or interests in lands the Commissioner has indicated the State desires to obtain. It is the sense of the Congress that the exchange of

lands and interests therein with the State pursuant to this section should be completed within two years after the date of enactment of this Act.

MINERAL EXCHANGES

SEC. 504. (a) The Secretary is authorized and directed to exchange the Federal mineral interests in the lands described in subsection (b) for the private mineral interests in the lands described in subsection (c), if— 16 USC 460uu-44.

(1) the owner of such private mineral interests has made available to the Secretary all information requested by the Secretary as to the respective values of the private and Federal mineral interests to be exchanged; and

(2) on the basis of information obtained pursuant to paragraph (1) and any other information available, the Secretary has determined that the mineral interests to be exchanged are of approximately equal value; and

(3) the Secretary has determined—

(A) that except insofar as otherwise provided in this section, the exchange is not inconsistent with the Federal Land Policy and Management Act of 1976; and

(B) that the exchange is in the public interest.

(b) The Federal mineral interests to be exchanged under this section underlie the lands, comprising approximately 15,008 acres, depicted as "Proposed for transfer to Santa Fe Pacific" on the map referenced in subsection (d).

(c) The private mineral interests to be exchanged pursuant to this section underlie the lands, comprising approximately 15,141 acres, depicted as "Proposed for transfer to U.S." on the map referenced in subsection (d).

(d)(1) The mineral interests identified in this section underlie those lands depicted as "Proposed for transfer to Santa Fe Pacific" and as "Proposed for transfer to U.S." on a map entitled "El Malpais Leg. Boundary, HR3684/S56", revised 5-8-87.

(2) As soon as practicable after the date of enactment of this Act, the Secretary shall file a legal description of the mineral interest areas designated under this section with the Committee on Interior and Insular Affairs of the United States House of Representatives and the Committee on Energy and Natural Resources of the United States Senate. Such legal description shall have the same force and effect as if included in this Act, except that the Secretary may correct clerical and typographical errors in such legal description. The legal description shall be on file and available for public inspection in the offices of the Director of the Bureau of Land Management, Department of the Interior. Public information.

(e) It is the sense of the Congress that all exchanges pursuant to this section shall be completed no later than three years after the date of enactment of this Act.

ACOMA PUEBLO EXCHANGES

SEC. 505. (a)(1) Upon the request of the Pueblo of Acoma, the Secretary shall acquire by exchange any lands held in trust for the Pueblo of Acoma (hereinafter referred to as "trust lands") located within the boundary of the conservation area which the Pueblo Indians. Public lands. 16 USC 460uu-45.

wishes to exchange pursuant to this section. Such trust lands shall be exchanged either for—

(A) lands described in subsection (c) (with respect to trust lands west of New Mexico Highway 117); or

(B) public lands of approximately equal value located outside the monument and outside the conservation area but within the boundaries of the State of New Mexico which are selected by the Pueblo of Acoma, so long as such exchange is consistent with applicable law and Bureau of Land Management resource management plans developed pursuant to the Federal Land Policy and Management Act of 1976.

(2) All lands selected by and transferred to the Pueblo of Acoma at its request pursuant to this section shall thereafter be held in trust by the Secretary for the Pueblo of Acoma in the same manner as the lands for which they were exchanged.

(3) Any lands west of New Mexico Highway 117 which are acquired by the Secretary pursuant to this section shall be incorporated into the monument and managed accordingly, and section 104 and all other provisions of this Act and other law applicable to lands designated by this Act as part of the monument shall apply to such incorporated lands.

(b) For purposes of acquiring lands pursuant to subsection (a) of this section, the Secretary, consistent with applicable law and Bureau of Land Management resource management plans described in subsection (a), shall make public lands within the boundaries of the State of New Mexico available for exchange. Nothing in this Act shall be construed as authorizing or requiring revocation of any existing withdrawal or classification of public land except in a manner consistent with applicable law.

(c)(1) The Secretary shall make the lands within the areas identified as "Acoma Potential Exchange Areas" on the map referenced in section 301 available for transfer to the Pueblo of Acoma pursuant to this subsection.

(2) Upon a request of the Pueblo of Acoma submitted to the Secretary no later than one year after the date of enactment of this Act, lands within the areas described in paragrapb (1) shall be transferred to the Pueblo of Acoma in exchange for trust lands of approximately equal value within tbat portion of the conservation area west of New Mexico Highway 117. The Secretary may require exchanges of land under this subsection to be on the basis of compact and contiguous parcels.

(3) Any lands within the areas described in paragraph (1) not proposed for exchange by a request submitted to the Secretary by the Pueblo of Acoma within the period specified in paragraph (2), and any lands in such areas not ultimately transferred pursuant to this subsection, shall be incorporated within the conservation area and managed accordingly. In addition, any lands in that portion of the areas described in paragraph (1) lying in section 1, township 7N, range 9W, New Mexico Principal Meridian, not transferred to the Pueblo of Acoma pursuant to this subsection shall be added to and incorporated within the Cebolla Wilderness and managed accordingly.

Public lands.
16 USC
460uu-46.

EXCHANGES AND ACQUISITIONS GENERALLY; WITHDRAWAL

SEC. 506. (a) All exchanges pursuant to this Act shall be made in a manner consistent witb applicable provisions of law, including this

Act, and unless otherwise specified in this Act shall be on the basis of equal value; either party to an exchange may pay or accept cash in order to equalize the value of the property exchange, except that if the parties agree to an exchange and the Secretary determines it is in the public interest, such exchange may be made for other than equal value.

(b) For purposes of this Act, the term "public lands" shall have the same meaning as such term has when used in the Federal Land Policy and Management Act of 1976.

(c) Except as otherwise provided in section 505, any lands or interests therein within the boundaries of the monument or conservation area which after the date of enactment of this Act may be acquired by the United States shall be incorporated into the monument or conservation area, as the case may be, and managed accordingly, and all provisions of this Act and other laws applicable to the monument or the conservation area, as the case may be, shall apply to such incorporated lands.

Indians.

(d)(1) Except as otherwise provided in this Act, no federally-owned lands located within the boundaries of the monument or the conservation area shall be transferred out of Federal ownership, or be placed in trust for any Indian tribe or group, hy exchange or otherwise.

Minerals and mining.

(2) Except as otherwise provided in this Act, and subject to valid existing rights, all Federal lands within the monument and the conservation area and all lands and interests therein which are hereafter acquired by the United States are hereby withdrawn from all forms of entry, appropriation, or disposal under the public land laws and from location, entry and patent under the mining laws, and from operation of the mineral leasing and geothermal leasing laws and all amendments thereto.

(e) The acreages cited in this Act are approximate, and in the event of discrepancies between cited acreages and the lands depicted on referenced maps, the maps shall control.

(f) The Secretary is authorized to accept any lands contiguous to the boundaries of the Pecos National Monument (as such boundaries were established on the date of enactment of this Act) which may be proposed for donation to the United States. If acceptance of such lands proposed for donation would be in furtherance of the purposes for which the Pecos National Monument was established, the Secretary shall accept such lands, and upon such acceptance such lands shall be incorporated into such monument and managed accordingly.

16 USC 431 note.

(g)(1) Capulin Mountain National Monument is hereby redesignated as Capulin Volcano National Monument.

(2) Any reference in any record, map, or other document of the United States of America to Capulin Mountain National Monument shall hereafter be deemed to be a reference to Capulin Volcano National Monument.

(3) Section 1 of the Act of September 5, 1962 (76 Stat. 436) is hereby amended by striking the remaining portion of section 1 after "boundaries of the monument" and inserting "shall include the lands and interests in lands as generally depicted on the map entitled 'Capulin Volcano National Monument Boundary Map' which is numbered 125-80,014 and dated January 1987.".

(4) Jurisdiction over federally-owned lands within the revised boundaries of the monument is hereby transferred to the National Park Service, without monetary consideration, for administration as part of the monument.

Indians.
Religion.
16 USC
460uu-47.

ACCESS

SEC. 507. (a) In recognition of the past use of portions of the monument and the conservation area by Indian people for traditional cultural and religious purposes, the Secretary shall assure nonexclusive access to the monument and the conservation area by Indian people for traditional cultural and religious purposes, including the harvesting of pine nuts. Such access shall be consistent with the purpose and intent of the American Indian Religious Freedom Act of August 11, 1978 (42 U.S.C. 1996), and (with respect to areas designated as wilderness) the Wilderness Act (78 Stat. 890; 16 U.S.C. 131).

(b) In preparing the plans for the monument and the conservation area pursuant to section 501, the Secretary shall request that the Governor of the Pueblo of Acoma and the chief executive officers of other appropriate Indian tribes make recommendations on methods of—

(1) assuring access pursuant to subsection (a) of this section;

(2) enhancing the privacy of traditional cultural and religious activities in the monument and the conservation area; and

(3) protecting traditional cultural and religious sites in the monument and the conservation area.

(c) In order to implement this section and in furtherance of the American Indian Religious Freedom Act, the Secretary, upon the request of an appropriate Indian tribe, may from time to time temporarily close to general public use one or more specific portions of the monument or the conservation area in order to protect the privacy of religious activities in such areas by Indian people. Any such closure shall be made so as to affect the smallest practicable area for the minimum period necessary for such purposes. Not later than seven days after the initiation of any such closure, the Secretary shall provide written notification of such action to the Energy and Natural Resources Committee of the United States Senate and the Interior and Insular Affairs Committee of the House of Representatives.

(d) The Secretary is authorized to establish an advisory committee to advise the Secretary concerning the implementation of this section. Any such advisory committee shall include representatives of the Pueblo of Acoma, the Pueblo of Zuni, other appropriate Indian tribes and other persons or groups interested in the implementation of this section.

COOPERATION

Indians.
State and local
governments.
Arizona.
16 USC
460uu-48.

SEC. 508. In order to encourage unified and cost effective interpretation of prehistoric and historic civilizations in western New Mexico, the Secretary is authorized and encouraged to enter into cooperative agreements with other Federal, State and local public departments and agencies, Indian tribes, and nonprofit entities providing for the interpretation of prehistoric and historic civilizations in New Mexico and eastern Arizona. The Secretary may, pursuant to such agreements, cooperate in the development and operation of a multiagency orientation center and programs on lands and interests in lands inside and outside of the boundaries of the monument and the conservation area generally, with the concurrence of the owner or administrator thereof, and specifically in or near Grants, New Mexico, adjacent to Interstate 40 in accordance with the plan required pursuant to section 501.

WATER RIGHTS

SEC. 509. (a) Congress expressly reserves to the United States the minimum amount of water required to carry out the purposes for which the national monument, the conservation area, and the wilderness areas are designated under this Act. The priority date of such reserved rights shall be the date of enactment of this Act.

(b) Nothing in this section shall affect any existing valid or vested water right, or applications for water rights which are pending as of the date of enactment of this Act and which are subsequently granted: *Provided*, That nothing in this subsection shall be construed to require the National Park Service to allow the drilling of ground water wells within the boundaries of the national monument.

(c) Nothing in this section shall be construed as establishing a precedent with regard to any future designations, nor shall it affect the interpretation of any other Act or any designation made pursuant thereto.

AUTHORIZATION

SEC. 510. There is authorized to be appropriated $16,500,000 for the purposes of this Act, of which $10,000,000 shall be available for land acquisition in the national monument; $1 million shall be available for development within the national monument; $4 million shall be available for land acquisition within the conservation area; $1 million shall be available for development within the conservation area; and $500,000 shall be available for planning and development of the Masau Trail.

Approved December 31, 1987.

Appendix B: Inventory of Administrative Commitments and Valid Existing Rights

Administrative Commitments

Name	Agreement Type	Start Date/ Expiration Date	Stakeholders	Purpose	Notes
New Mexico Joint Powers Agreement	Memorandum of agreement	2008 / Expired	El Malpais National Monument (ELMA), El Morro National Monument (ELMO), U.S. Forest Service (USFS), Bureau of Land Management, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, and the Forestry Division of the State of New Mexico Department of Natural Resources	Document the agencies' commitment to this agreement to improve efficiency by facilitating the coordination and exchange of personnel, equipment, supplies, services, and funds among the agencies to this agreement for management of wildland fires	Agreement expired but currently being revised for New Mexico
Four Winds Fire Agreement	Interpark agreement	5/16/2001 / 5-year agreement expired	ELMA, ELMO, Petrified Forest National Park (PEFO), Petroglyph National Monument (PETR), Salinas Pueblo Missions National Monument (SAPU)	Define mutual responsibilities	
Regional Dispatch Agreement	Cooperative	1/01/2009 / 12/31/2014	NPS, Cibola County	Provision of dispatch services for incidents/ emergencies	
La Mosca and Oso Ridge Repeaters	Interagency	7/01/2008 / 9/30/2012	NPS, USFS	Radio repeater on USFS antenna in national forest	Revision underway
Oso Ridge Lookout	Memorandum of agreement	7/01/2008 / 9/30/2012	NPS, USFS	Mutual aid for law enforcement	
Mutual Aid Agreement (County Sheriff)	Memorandum of understanding	10/02/2012 / 12/13/2014	NPS, Cibola County Sheriff's Office	Mutual aid for law enforcement	
Mutual Aid Agreement (Grants Police Department)	Memorandum of understanding	7/25/2013 / 7/25/2018	NPS, Grants Police Department	Mutual aid for law enforcement	
Mutual Aid Agreement with Ramah Navajo Police Department	Memorandum of understanding	3/6/2013 / 3/5/2018	NPS, Ramah Navajo Police Department	Mutual aid for law enforcement	

Name	Agreement Type	Start Date/ Expiration Date	Stakeholders	Purpose	Notes
Medical Advisor agreement with Ann Heath, MD	Memorandum of understanding	5/27/2010 / 5/27/2015	Ann Heath, MD	Medical advisor for emergency medical services	
Northwest New Mexico Visitor Center	Interagency	6/29/2009 / 06/29/2014	NPS, BLM, USFS	Operation of the visitor center	
Statewide Continental Divide National Scenic Trail Agreement	Memorandum of understanding	2007 / 2012 – pending renewal	USFS, NPS, BLM, Pueblo of Acoma, New Mexico State Land Office, New Mexico State Parks Division, and Continental Divide Trail Alliance	Construction, maintenance, development of Continental Divide National Scenic Trail in New Mexico	Agreement lapsed but collaboration continuing
The El Malpais Project	Memorandum of understanding ongoing	2013 / 2018	Sandia Grotto of the National Speleological Society	Conduct cave survey, inventory, and monitoring	Other grottos may initiate similar memorandums of understanding

Valid Existing Rights

Case Type	Customer Name	Case File Number	Size in Acres	Expiration Date
Right-of-way for New Mexico State Road 53	New Mexico State Highway Department	NM 52195	Unknown	Perpetual but due for review
Right-of-way for New Mexico State Road 117	New Mexico State Highway Department	45785, 52200, 45779, 76791	Unknown	Perpetual but due for review
Continental Divide Electric Cooperative powerline rights-of-way: 1. East Side - 117 2. West Side - El Calderon Area	Continental Divide Electric Cooperative	East Side: RW-16105, granted in 1964; NM 555708 (1965) El Calderon: NM56080; NM57942	Electric distribution lines	Expiration variously in 2014, 2015
Easement for NWNMVC gas service	New Mexico Gas Company	MOU-7190-4-9401)	2800 linear feet	50 year memorandum of understanding expires in 2044

Appendix C: Basics for Wilderness Stewardship

Wilderness Background Information

History of Land Status, Proclamations and Legislation

Designation of El Malpais Wilderness Area, December 31, 1987 (P.L. 100-225)(78 Stat. 890)

TITLE IV—WILDERNESS

DESIGNATION OF WILDERNESS

SEC. 401. (a) In furtherance of the purposes of the Wilderness Act (78 Stat. 890; 16 U.S.C. 131), there are hereby designated as wilderness, and, therefore, as components of the National Wilderness Preservation System, the Cebolla Wilderness of approximately 60,000 acres, and the West Malpais Wilderness of approximately 38,210 acres, as each is generally depicted on the map entitled "El Malpais National Monument and National Conservation Area" numbered NM-ELMA-80,001-B and dated May 1987. The map shall be on file and available for inspection in the offices of the Director of the Bureau of Land Management, Department of the Interior.

(b) As soon as practicable after the date of the enactment of this Act, the Secretary shall file a legal description of each wilderness area designated by this Act with the Committee on Interior and Insular Affairs of the United States House of Representatives and with the Committee on Energy and Natural Resources of the United States Senate. Such legal description shall have the same force and effect as if included in this Act, except that the Secretary may correct clerical and typographical errors in such legal description. The legal description shall be on file and available for public inspection in the offices of the Director of the Bureau of Land Management, Department of the Interior.

MANAGEMENT

SEC. 402. (a) Subject to valid existing rights, each wilderness area designated under this Act shall be administered by the Secretary, through the Director of the Bureau of Land Management, in accordance with the provisions of the Wilderness Act governing areas designated by that Act as wilderness, except that any reference in such provisions to the effective date of the Wilderness Act shall be deemed to be a reference to the date of enactment of this Act.

(b) Within the wilderness areas designated by this Act, the grazing of livestock, where established prior to the enactment of this Act, shall be permitted to continue subject to such reasonable regulations, policies, and practices as the Secretary deems necessary, as long as such regulations, policies, and practices fully conform with and implement the intent of Congress regarding grazing in such areas as such intent is expressed in the Wilderness Act and section 108 of Public Law 96-560 (16 U.S.C. 1133 note).

El Malpais National Monument was established December 31, 1987, by Public Law 100-225 "in order to preserve, for the benefit and enjoyment of present and future generations, that area in western New Mexico containing the nationally significant Grants Lava Flow, the Las Ventanas Chacoan Archeological Site, and other significant natural and cultural resources." The total area encompassed in the monument's authorized boundary is 114,277 acres, although not all of that area is currently under NPS ownership. The monument consists largely of a complex of forested lava flows in a landscape that has been used and inhabited by humans for thousands of years. The sources of these lava and cinder eruptions are 11 volcanic vents located within, and several more outside, the monument. The oldest flows date from half a million to more than one million years before the present. Five recent flows are less than 250,000 years old, and the most recent flow event occurred less than 4,000 years ago. These conditions have created an abundance of rich geological, ecological, cultural, and archaeological resources forged by millennia of volcanic activity, unique ecological conditions, and a long history of human occupation and use.

However, the face of a landscape reflects more than simply its ecological and geological past; it is impossible to understand the present condition of an area without understanding the historical context of the region. The idea of incorporating the lands that currently comprise El Malpais National Monument into the national park system significantly predates the actual designation date. Over the last century and a half the lands around Grant's Station (now simply Grants), a railroad town established largely to provide a stop between Albuquerque and Gallup, have weathered a number of boom-and-bust cycles with industries ranging from mining and timber to agriculture and livestock. Throughout that time, a good deal of the land nearby—later El Malpais National Monument and the greater El Malpais National Conservation Area—was federally owned. Interest in creating a national park began in the 1920s and was initially motivated by concern for the deterioration of privately owned ice caves in the area. Unfortunately, repeated evaluations of the land over subsequent decades failed to convince the National Park Service that establishing a park there would be worthwhile. Grazing and other activities continued in the area, and during World War II areas of the park were used as a bombing range by the Department of Defense. Although the 1960s saw renewed interest in creating a national park, the two attractions that would have formed the park's centerpiece, namely the ice caves that prompted initial NPS interest in the area and Ice Cave / Bandera Crater, were still privately owned, and their owners had no interest in selling. Without these, the National Park Service decided, a park wouldn't be worth establishing, and plans were put on hold once more. Finally, in 1986 the owners of Bandera Crater and Ice Caves agreed to sell and the monument was established in 1987. The monument's general management plan was completed in 1990, organizing the management of the park with the understanding that the Bandera Crater and Ice Caves properties would be assimilated before long.[1] However, park development has not adhered entirely to the plans outlined by the 1990 plan.[2]

As directed by the establishing legislation, the 1990 general management plan for the park included a wilderness suitability study that found approximately 85% (97,428 acres) of the monument suitable for designation by Congress as wilderness. Transmittal of the general management plan and wilderness suitability study to Congress in 2002 moved the monument's wilderness status from "proposed" to "recommended." As of 2010 this area remains recommended wilderness and awaits official designation. However, pursuant to the monument's establishing legislation (Sec.501.[c][2]) as well as Director's Order 41: *Wilderness Stewardship* (Sec.B[3][d][iv]), these recommended wilderness lands have been managed as wilderness since the monument's establishment "to preserve their wilderness character and values undiminished until Congress acts on the recommendations."

1. The owners of these attractions ultimately decided to keep them in the family, and these remain privately held lands today.
2. For example, the Las Ventanas Archaeological Site was never developed as an attraction, the proposed location of the information center was changed, and County Road 42 was not rerouted.

Current Land Status, Map, and Boundary Description

Located in northwest New Mexico within Cibola County, El Malpais National Monument is bordered on the east by New Mexico State Road 117 (NM 117) and on the northwest by New Mexico State Road 53 (NM 53). It is also bordered on the west by the unpaved Cibola County Road 42. It is adjacent to the Cibola National Forest to the north and the Acoma Indian Reservation to the east. The monument is surrounded by the greater 263,000 acre El Malpais National Conservation Area, which is administered by the Bureau of Land Management (BLM). The conservation area contains the Cebolla Wilderness Area (60,000 acres), the West Malpais Wilderness Area (38,210 acres), and the Chain of Craters Wilderness Study Area (17,468 acres).

A large portion of the monument is covered by lava fields that have historically limited human access and development, and most of this area was deemed suitable for wilderness designation. In several places, the margins of the McCartys, Hoya de Cibola, Bandera, and Twin Craters flows were used to delineate wilderness-suitable areas. Other zones deemed suitable for wilderness designation include areas outside the flow margins along the southwestern monument boundary that adjoin the West Malpais Wilderness Area, forming an adjacent NPS/BLM wilderness boundary.

Lands in the monument deemed unsuitable for wilderness designation include setbacks adjacent to major roadways; the road corridor to Cerro Encierro; the road corridor to Lost Woman Crater; and development sites such as El Calderon, Sandstone Bluffs, the Zuni-Acoma/Acoma-Zuni trailheads, the El Malpais Information Center, and the Northwest New Mexico Visitor Center.

Although the monument is currently composed primarily of federally owned land, the authorized boundary also contains privately owned parcels, such as the Bandera Crater and Ice Caves properties. Additionally, though the 1990 general management plan highlights unresolved issues concerning privately held subsurface ownership rights, these issues have since been resolved, with ownership now in the hands of the National Park Service.

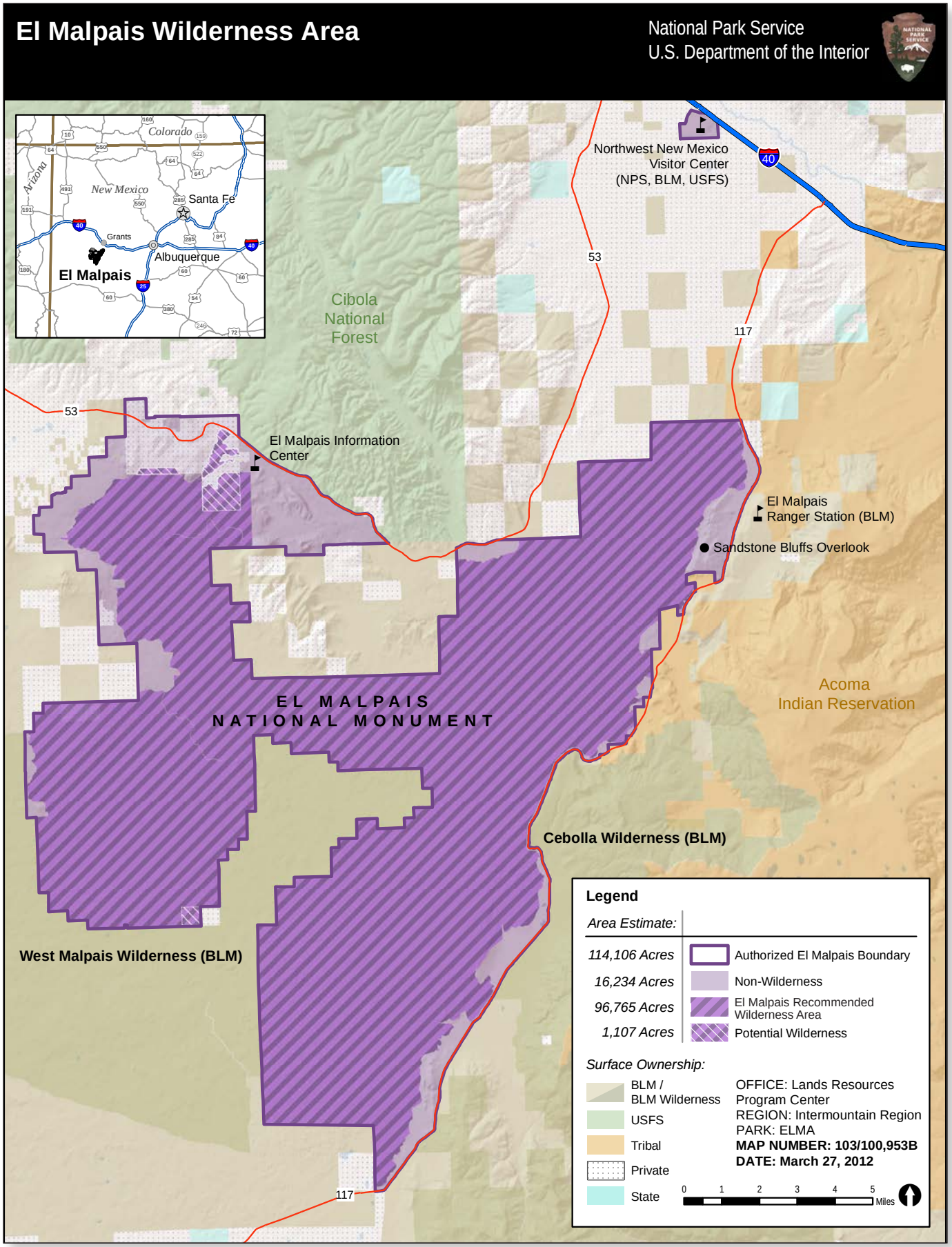


Figure 1. El Malpais Wilderness and Wilderness Study Areas

Appendix D: Tribes Associated with El Malpais National Monument

Hopi Tribal Council
Hopi Tribe of Arizona
PO Box 123
Kykotsmovi, AZ 86039

Laguna Pueblo Tribal Council
Pueblo of Laguna, New Mexico
PO Box 194
Laguna, NM 87026

Mescalero Apache Tribe of the Mescalero Reservation
Mescalero Apache Tribal Council
PO Box 227
101 Central Avenue
Mescalero, NM 88340

Navajo Nation Tribal Council
Navajo Nation, Arizona, New Mexico & Utah
PO Box 7440
Window Rock, AZ 86515

Pueblo of Acoma Tribal Administration
Pueblos of Acoma, New Mexico
PO Box 309
Acoma, NM 87034

Pueblo of Santa Ana Tribal Council
Pueblo of Santa Ana, New Mexico
2 Dove Road
Santa Ana Pueblo, NM 87004

Pueblo of Santo Domingo
Kewa Pueblo, New Mexico
PO Box 99
Santo Domingo Pueblo, NM 87052

Pueblo of Zuni Tribal Council
Zuni Tribe of the Zuni Reservation, New Mexico
PO Box 339
Zuni, NM 87327-0339

Sandia Pueblo Tribal Council
Pueblo of Sandia, New Mexico
481 Sandia Loop
Bernalillo, NM 87004

Intermountain Region Foundation Document Recommendation
El Malpais National Monument

August 2014

This Foundation Document has been prepared as a collaborative effort between park and regional staff and is recommended for approval by the Intermountain Regional Director.

Mitzi Frank 8/28/14

RECOMMENDED
Mitzi Frank, Superintendent, El Malpais National Monument **Date**

Sue E. Masica 9/22/14

APPROVED
Sue E. Masica, Regional Director, Intermountain Region **Date**

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

ELMA 103/124074
September 2014

Foundation Document • El Malpais National Monument

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