

**Decision Record
and
Resource Management Plan Amendment
For
Fire and Fuels Management
On Public Land in
New Mexico and Texas**

September 2004

BLM-NM-PL-013-2824



**U.S. Department of the Interior
Bureau of Land Management
New Mexico State Office**

LIST OF ACRONYMS

ACEC	Area of Critical Environmental Concern	NEPA	National Environmental Policy Act
AUM	Animal Unit Month	NHPA	National Historic Preservation Act
BE	Biological Evaluation	NMCRIS	New Mexico Cultural Resources Information System
BLM	Bureau of Land Management	NMED	New Mexico Environment Department
BMPs	Best Management Practices	NMDGF	New Mexico Department of Game and Fish
CAA	Clean Air Act	NMSO	New Mexico State Office - BLM
CEQ	Council on Environmental Quality	NMWQCC	New Mexico Water Quality Control Commission
CFR	Code of Federal Regulations	NOI	Notice of Intent
CPOM	Coarse Particulate Organic Matter	NPS	National Park Service
DFCs	Desired Future Conditions	NRHP	National Register of Historic Places
DBH	Diameter at Breast Height	OF&A	Office of Fire and Aviation
EA	Environmental Assessment	OHV	Off-Highway Vehicle
EIS	Environmental Impact Statement	PM_{2.5}	2.5 microns or less
EO	Executive Order	PNVG	Potential Natural Vegetation
EPA	U.S. Environmental Protection Agency	PSD	Prevention of Significant Deterioration
ESA	Endangered Species Act	RMP	Resource Management Plan
ESR	Emergency Stabilization and Rehabilitation	SHPO	State Historic Preservation Office or Officer
FLPMA	Federal Land Policy and Management Act of 1976	SDA	Special Designated Area
FRI	Fire Return Interval	SMA	Special Management Area
FMU	Fire Management Unit	TCP	Traditional Cultural Property
FO	Field Office	T&E	Threatened and Endangered
FPOM	Fine Particulate Organic Matter	USFWS	U.S. Fish and Wildlife Service
FRCC	Fire Regime Condition Class	VRM	Visual Resource Management
FMP	Fire Management Plan	WHB	Wild Free-Roaming Horses and Burros
FMU	Fire Management Unit	WRAP	Western Regional Air Partnership
HMA	Herd Management Area	WSA	Wilderness Study Area
HMP	Habitat Management Plans	WUI	Wildland Urban Interface
IC	Incident Commander		
IM	Instruction Memorandum		
IMT	Incident Management Team		
IWM	Integrated Weed Management		
MOU	Memorandum of Understanding		
NAAQS	National Ambient Air Quality Standards		
NCA	National Conservation Area		



United States Department of the Interior

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New Mexico State Office
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P.O. Box 27115
Santa Fe, New Mexico 87502-0115
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IN REPLY REFER TO:

1600 (93000)

September 16, 2004

Dear Reader:

The enclosed Decision Record (DR) approves the Fire and Fuels Management Plan Amendment for Public Lands in New Mexico and Texas and amends the following nine Resource Management Plans: Carlsbad, Farmington, Mimbres, Rio Puerco, Roswell, Socorro, Taos, Texas, and White Sands. The proposed Plan Amendment was described in the Fire and Fuels Management Plan Amendment/Environmental Assessment (EA). The Plan Amendment provides guidance for implementing fire and fuels management practices on Bureau of Land Management-administered lands in New Mexico and Texas. Actions covered in the Plan Amendment include: prescribed fire; wildland fire use for resource benefit; mechanical, chemical, and biological treatments; and other actions necessary to implement the National Fire Plan and 2001 Federal Wildland Fire Management Policy.

This Plan Amendment was prepared under the regulations implementing the Federal Land Policy and Management Act of 1976 (43 CFR 1600). An EA was prepared for this Plan Amendment in compliance with the National Environmental Policy Act of 1969.

The DR approves new decisions concerning land allocations (lands in each Fire Management Category) and allowable uses (management actions including fire and fuels management treatments, Best Management Practices, and Conservation Measures for Special Status Species). The DR is available on the internet at www.nm.blm.gov.

The preliminary Plan Amendment/EA was made available for public comment and review from April 16 through May 21, 2004. The proposed Plan Amendment/EA was released on July 9, 2004, and was subject to a 30-day protest period that ended August 9, 2004. There were no protests, and consequently no significant changes were made to the proposed Plan Amendment.

The regulations in 43 CFR 1610.5-2 do not provide for any additional administrative review of this DR. However, actions taken to implement this Plan, such as establishing the boundaries of the Fire Management Units or implementing Fire Management Plans in each Field Office, may be administratively reviewed in accordance with applicable regulations at the time such action is taken.

Thank you for your interest and participation in the development of the Plan Amendment. If you have any questions about the DR, please contact Signa Larralde, Project Manager, at 505-438-7637.

Sincerely,

Linda S.C. Rundell
State Director

Enclosure

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DECISION RECORD


DECISION RECORD

For the

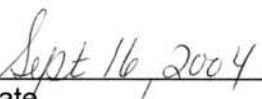
Environmental Assessment and
RESOURCE MANAGEMENT PLAN AMENDMENT
For
FIRE AND FUELS MANAGEMENT
In New Mexico and Texas

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT
New Mexico State Office
1474 Rodeo Road
Santa Fe, New Mexico 87502

Approved by:



Linda Rundell, State Director
New Mexico State Office



Date

INTRODUCTION

The Bureau of Land Management (BLM) proposes to improve implementation of the National Fire Plan and the 2001 Federal Fire Policy by amending all nine Resource Management Plans (RMPs) in New Mexico and Texas, to update direction for fire and fuels management.

These amendments would: (1) provide consistent fire management direction by assigning fire management categories and broad levels of treatment; (2) provide general guidance for fire management needed to protect resource values; and (3) revise RMP decisions that limit BLM's ability to conduct safe and efficient fuels management treatments.

Copies of the *Fire and Fuels Management Plan Amendment/EA for Public Land in New Mexico and Texas*, the corresponding Finding of No Significant Impact (FONSI), and this Decision Record (DR) are available at the New Mexico State Office, at each of the BLM Field Offices in New Mexico and Texas, and on the BLM web site at www.nm.blm.gov.

DECISION

The decision is to approve the proposed fire management categories, guidance, direction, and plan amendments described as the Proposed Action (the Multiple Treatment Alternative) of the *Fire and Fuels Management Plan Amendment/EA for Public Land in New Mexico and Texas*.

The decision is based on the analysis in the EA and corresponding case file. By selecting the Multiple Treatment Alternative, amendments to the following RMPs are approved: Carlsbad, Farmington, Mimbres, Rio Puerco, Roswell, Socorro, Taos, Texas, and White Sands.

These amendments include the following:

Fire Management Categories: All RMPs will be amended to adopt the categorization of fire management within each Field Office, as specified in Table 2.5, Fire Management Units, Categories, and BLM Acres by Field Office and as shown in Figures A.1 through A.9 of the EA.

Guidance and direction to protect resources during wildland fire suppression and fuels management projects: Each RMP will be amended to adopt the direction listed in Table 2.7, Vegetation Treatment Methods Best Management Practices, and Appendix C.2, Conservation Measures, of the EA. This direction applies to Threatened and Endangered Species, as well as cultural resources and other resources that could be affected by wildland fire suppression and fire and fuels management. This direction would be followed unless doing so would compromise protection of human life or property or the protection of special species habitat. (Protective measures summarized in Table 2.7 include direction that already exists from policy, laws, and regulations).

Other specific RMP amendments: Certain RMPs will be amended to improve implementation of the National Fire Plan and the Federal Wildland Fire Policy. The portions of these RMPs that will be amended are listed in Table 2.3, Summary of Current Fire and Fuels Management Guidance. In summary, these include:

- The Socorro RMP will be amended to allow use of a modified suppression plan for some Fire Management Categories, rather than prescribing control during the first burn period of all wildfires on or threatening public land.

- The Carlsbad RMP will be amended to allow treatment of more than 59,000 acres with prescribed fire and to allow chemical treatments on more than 3,000 acres over the life of the Plan Amendment.
- The Taos RMP will be amended to allow vegetative treatment in conjunction with intensive rangeland management on more than 5,000 acres per year.
- The White Sands RMP (Las Cruces Field Office) will be amended to allow treatment projects (chemical, mechanical, and burning) on more than 241,576 acres in the long-term.

The decision also considers the broad levels of treatment identified in the EA. Prior to this analysis, many RMPs did not discuss treatment levels. The identification of impacts in this analysis was based on the following range in levels of treatment, predicted for the next 20 years:

TREATMENT	ACRES
Prescribed Fire	2,384,000 - 3,576,000
Mechanical Treatments	528,000 - 792,000
Chemical Treatments	752,000 - 1,128,000
Biological Treatments	0

ALTERNATIVES

Based on public involvement and interdisciplinary team analyses, the BLM developed three action alternatives for consideration, in addition to the No Action Alternative. These alternatives are summarized below. The full development of each alternative is found in Chapter 2 of the EA (Description of Alternatives).

No Action Alternative

Fire and fuels management would be based on existing RMP decisions, policies, guidance, laws, regulations, and initiatives. No fire management categories would be identified. Low levels of treatment would be anticipated. No additional guidance would be provided at the RMP level.

Proposed Action (Multiple Treatment Alternative)

Fire and fuels management would be guided by new RMP decisions, including fire management categories for public land and guidance and direction to protect resource values. Specific RMP decisions that limit fuels treatment methods and acres would be amended. This Alternative includes an analysis of considerably higher levels of treatments and allows relatively high levels of wildland fire use, prescribed burns and mechanical treatments and a relatively low level of chemical treatments.

Mechanical Emphasis Alternative

This alternative is the same as the Proposed Action with the following difference; it allows a relatively high level of mechanical treatments and relatively low levels of wildland fire use, prescribed burns and chemical treatments.

Fire Use Emphasis Alternative

This alternative is the same as the Proposed Action with the following difference; it allows a relatively high level of wildland fire use and prescribed burns and relatively low levels of mechanical and chemical treatments.

Alternatives Considered but Eliminated from Detailed Study (EA, page 2-20)

- The BLM considered full suppression of all natural and human-caused fires, in combination with not conducting any fuels reduction treatments such as prescribed burns or mechanical thinning. This alternative was not analyzed because it would exacerbate the existing situation, in which the fire suppression policy of the past 100 years has led, in many areas, to high levels of hazardous fuels that may lead to catastrophic fire.
- The BLM considered using only prescribed fire on public land in New Mexico and Texas as a fuels reduction method. This alternative was not analyzed because it would pose a very real danger in some areas where vegetation is far beyond its natural fire cycle, without some form of pre-treatment. In conjunction with the amount of private property in and around these areas, this fuels accumulation creates an unacceptable risk to human life and resources.
- The BLM considered using only mechanical treatment on public land in New Mexico and Texas as a fuels reduction method. This alternative was not analyzed because maximum implementation levels of mechanical treatment alone would be unlikely to meet the BLM's goals to achieve fuels reduction and would also not restore fire's role in ecosystems.
- The BLM considered using only grazing on public land in New Mexico and Texas as a fuels reduction method. This alternative was not analyzed because it would not meet the BLM's goals to achieve fuels reduction, especially in woodlands and shrublands. Grazing alone would not restore fire's role in ecosystems.

MANAGEMENT CONSIDERATIONS/RATIONALE FOR THE DECISION

The Multiple Treatment Alternative was selected because it meets the following elements of the purpose of the Proposed Action:

- Improves implementation of National policy
- Provides consistent fire management direction
- Protects resources during fire suppression and fuels management projects
- Updates RMP decisions that limit fuels treatments

It also better meets the goals of providing greater protection to human life, reducing risk and cost of severe wildfires, sustaining the health and function of fire-adapted ecosystems, minimizing adverse effects of fire suppression, and reducing hazardous fuels while meeting other resource objectives. See Chapter 1 of the EA.

Based on the analysis of the potential impacts contained in the EA and careful consideration of public and agency comments, it has been determined that neither the 14 critical elements nor the other resources analyzed in Chapter 3 of the EA will be significantly affected by the Multiple Treatment Alternative.

The Multiple Treatment Alternative will not affect the production, transmission, or conservation of energy. It will not cause an adverse energy impact.

RESOLUTION OF ISSUES AND MITIGATION MEASURES

Mitigation measures include specifying where fire is not desired, where it might be likely to cause negative effects, and where it might be desired to help manage ecosystems. The types and amount of fuels treatments that could be reasonably anticipated over the next 20 years and potential effects on resources are also identified.

An estimated 7.9 million acres of public land in New Mexico and Texas have moderately or highly altered fire regimes and frequencies that cause dramatic changes in fire size, intensity, severity, and landscape patterns. The Multiple Treatment Alternative identified where fire is not desired and where it is likely to cause negative effects as well as where fire may be desired to manage ecosystems.

The EA also addressed issues raised in public comments. Some comments were addressed by the Best Management Practices provided in Table 2.7; other comments were addressed by the Conservation Measures to protect Special Status Species in Appendix C of the EA. Comments and responses are compiled in Appendix D of the EA.

PLAN MONITORING

RMP monitoring is an ongoing process in each Field Office. In addition to this process, measures proposed in Appendix A.5 of the EA for fire effects monitoring and adaptive management will be implemented.

PUBLIC INVOLVEMENT

A Notice of Intent (NOI) to amend the RMPs was published in the Federal Register on May 7, 2003 (Vol. 68, No. 88, pages 24498-24500). More than 2,600 flyers were sent to potential interested parties identified by the eight Field Offices. A scoping information package was sent to Federal, State, and local agencies and individuals. Approximately 500 persons, groups/organizations, and agency contacts asked to remain on the mailing list. The BLM contacted nine Federal and State agencies as well as 32 tribes in New Mexico and surrounding states known to have traditional patterns of land use in New Mexico, along with all Navajo Nation Chapters in New Mexico.

Thirteen public scoping meetings were held in New Mexico and Texas to obtain information on the public's concerns and ideas. A preliminary E was released on April 16, 2004 with a public comment period ending on May 21, 2004. The preliminary EA was sent to approximately 160 individuals and agencies, plus the Tribes and five Navajo Nation Chapters, and was posted on the New Mexico BLM web site. The 30-day protest period ended on August 9, 2004; the 60-day Governor's consistency review ended on September 7, 2004.

Throughout the planning process, interested persons could visit the link to the Fire and Fuels Management Plan Amendment/EA on the New Mexico State Office web site at www.nm.blm.gov for current information or to see maps of the proposed fire management categories and fire management units. Interested persons could also submit comments by email.

IMPLEMENTATION

Upon signing this Decision Record, all RMPs will be amended to incorporate the fire management categories, the level of treatments, and the appropriate guidance and direction to protect resources.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

The Finding of No Significant Impact (FONSI) was based on the information contained in the Fire and Fuels Management Plan Amendment/EA for Public Land in New Mexico and Texas. The draft FONSI was attached to the EA for review during the public comment period from April 16 to May 21, 2004. No additional significant impacts or issues were raised by the public during this public comment period, during the Governors' consistency reviews (July-August 2004), or during the protest period (July 9 to August 9, 2004). An Environmental Impact Statement (EIS) does not need to be prepared.

RESOURCE MANAGEMENT PLAN AMENDMENT

CHAPTER 1 INTRODUCTION

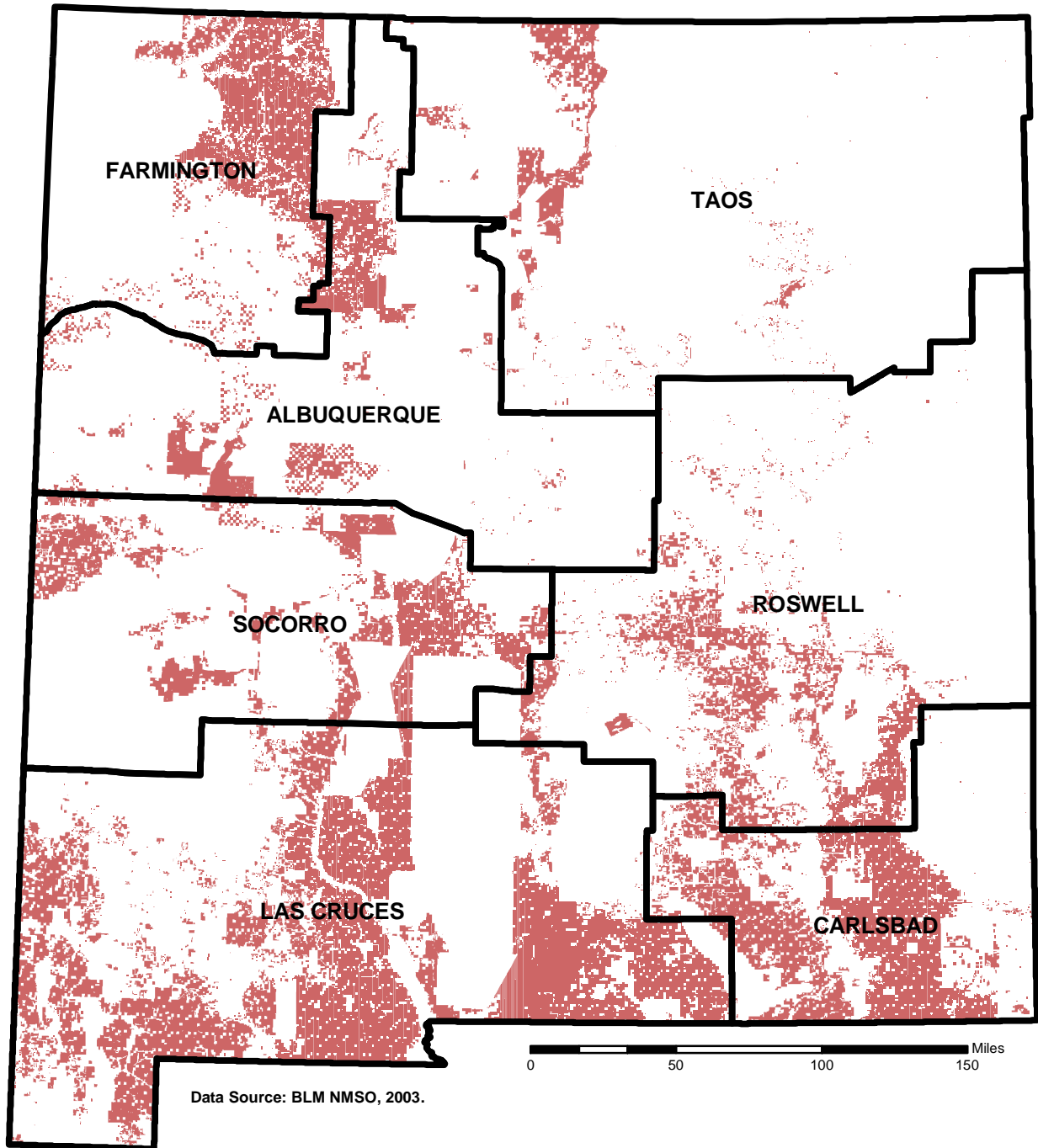
PURPOSE OF THE PLAN AMENDMENT

In order to improve its implementation of the National Fire Plan and 2001 Federal Fire Policy, BLM is amending nine Resource Management Plans (RMPs) in New Mexico and Texas, to update direction for fire and fuels management. Nine RMPs (Carlsbad 1988, Farmington 2003, Mimbres 1993, Rio Puerco 1986, Roswell 1997, Socorro 1989, Taos 1988, Texas 1996, White Sands 1986) are amended in eight Field Offices: Albuquerque, Carlsbad, Farmington, Las Cruces, Roswell, Socorro, and Taos, New Mexico and Amarillo, Texas. The purpose of the Plan Amendment is to incorporate current fire management policy into RMPs, to restore fire as an integral part of fire-adapted ecosystems in order to meet resource management objectives, to improve the protection of human life and property through the reduction of hazardous fuels, and to establish consistent methods of managing fire and fuels on public land in New Mexico and Texas.

The Plan Amendment forms the foundation for revision of the eight Field Office Fire Management Plans (FMPs). The FMPs are activity plans that detail Field Office fire and fuels objectives and implementation strategies for each Fire Management Unit (FMU). FMUs are geographic areas with particular topographic, biological, and socio-political characteristics and specific fire and fuels management objectives. The planning area includes all surface land managed by the BLM in New Mexico and Texas, including El Malpais National Conservation Area and Kasha-Katuwe Tent Rocks National Monument, but not lands for which the BLM only administers the subsurface or mineral estate. The BLM administers some 13.4 million acres of surface public land in New Mexico (Figure 1.1) and 11,802 acres of surface public land north of Amarillo in Potter County, Texas (Figure 1.2, also known as the Cross Bar Ranch). Table 1.1 describes general land ownership in New Mexico.

TABLE 1.1	
NEW MEXICO SURFACE OWNERSHIP	
NEW MEXICO SURFACE OWNERSHIP	ACRES
FEDERAL	
Bureau of Land Management	13,458,833
Bureau of Reclamation	84,429
Fish & Wildlife Service	381,853
National Park Service	371,959
Department of Agriculture	109,461
Forest Service	9,227,914
Valles Caldera National Preserve	88,787
Department of Defense	2,505,370
Department of Energy	43,555
TOTAL FEDERAL LAND	26,272,161
TRIBAL LAND	
	8,067,059
STATE LAND	
State	8,980,955
State Game & Fish	104,279
State Park	25,080
TOTAL STATE LAND	9,110,314
PRIVATE LAND	
	34,374,246
Source: BLM NMSO GeoSciences 2003 Data are subject to ongoing revision.	

Figure 1.1 The BLM Field Offices and Surface Public Land in New Mexico

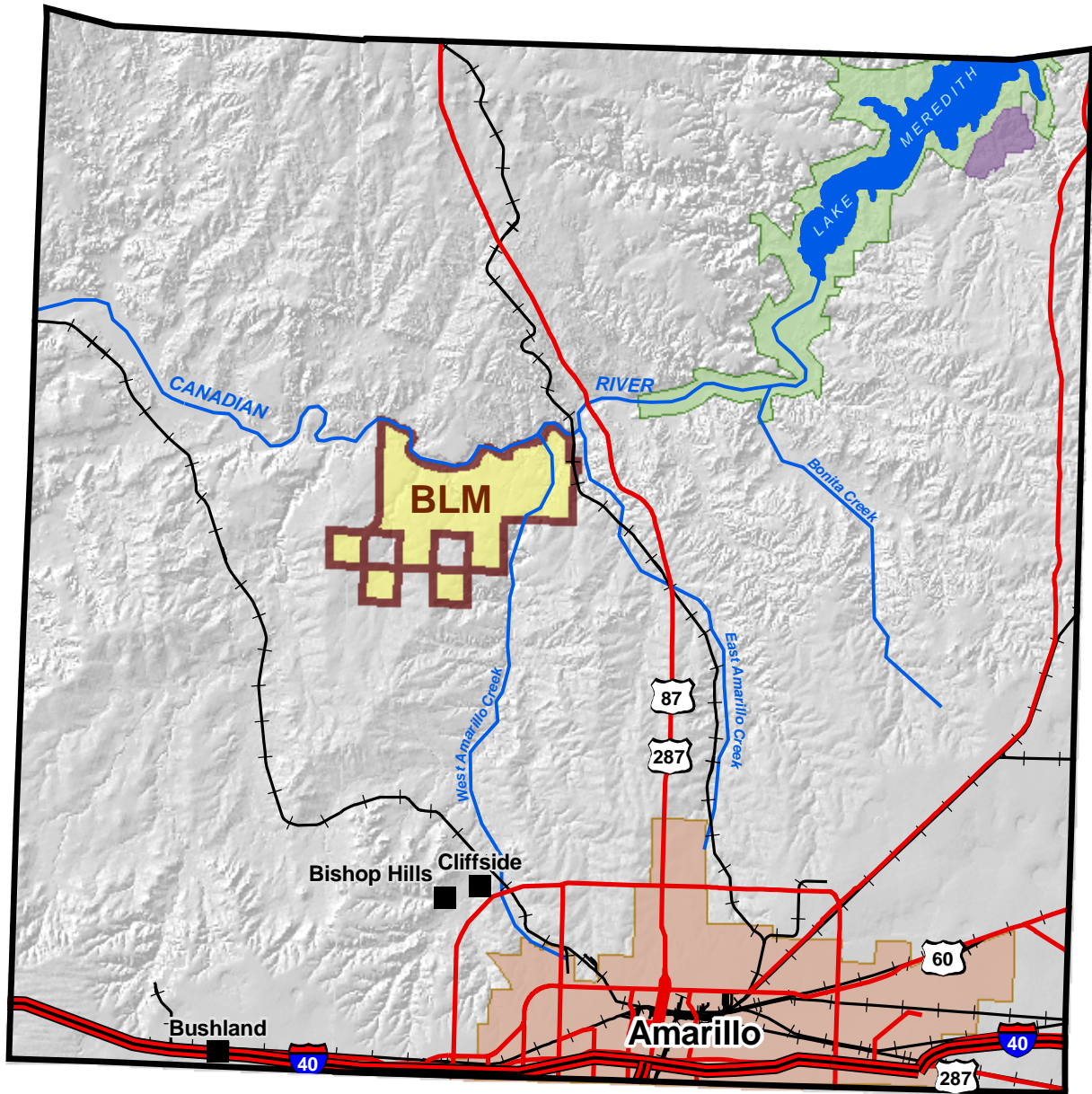


Produced by the BLM New Mexico Geographic Sciences Team.

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




Figure 1.2 The Surface Public Land in Texas



Data source: BLM NMSO, 2003.

Produced by the BLM New Mexico Geographic Sciences Team.

- | | |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|  Public Land |  Lake |
|  Alibates National Monument |  River/Creek |
|  Lake Meredith National Recreation Area |  Interstate Highway |
|  Amarillo City Limits |  Other Roads |
|  Potter County Line |  Railroad |



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NEED FOR THE PLAN AMENDMENT

National fire management policy has evolved in response to the increased fatalities, property loss, local economic disruptions, and risk to ecosystems associated with increasingly catastrophic wildland fire seasons. The Federal Wildland Fire Management Policy and Program (1995) was developed (and then updated) after severe fire seasons in 1994 and 2000. The 2000 fire season also prompted a report from the Secretaries of Agriculture and the Interior, which eventually became the basis of the *National Fire Plan*.

The *National Fire Plan* and the *2001 Federal Fire Policy* both indicated that Federal agencies must change their fire management practices to increase the protection of human life and decrease natural resource and private property damage. Specifically, the *2001 Federal Fire Policy* established that the deteriorating condition of fire-adapted ecosystems is the result of fire exclusion, that the fire hazard in fire-adapted ecosystems is worse than previously thought, and that the extent of the fire hazard in the Wildland-Urban Interface (WUI) was not fully recognized in 1995.

The 2001 Federal Fire Policy referenced preliminary Fire Regime Condition Class data (finalized as Schmidt et al 2002) as a way of inferring risk to ecosystem sustainability and risk of uncharacteristic wildland fire behavior and effects (Hann et al 2003). According to coarse-scale spatial estimates for New Mexico and Texas, the fire regimes and frequencies on about 7.8 million of the 13.4 million acres of BLM-administered public land in the study area have been either moderately or significantly altered (Rocky Mountain Research Station 2000). The result is moderate to dramatic changes in fire size, intensity, severity, and/or landscape patterns. Based on estimates of the condition, these 7.8 million BLM-administered acres need treatments to restore the historical fire regime.

The risk to communities has been projected in response to nationwide inquiries related to the National Fire Plan. Sixty at-risk communities or areas were identified for New Mexico (Federal Register, Vol. 66 No. 160, pages 43383-43435, August 17, 2001). The New Mexico State Forestry Division (2003a) has since further characterized fire hazard risk assessment by delineating 18 WUI areas in New Mexico, containing 120 communities rated at high risk, 63 rated at moderate risk, and 22 rated at low risk from wildland fire.

BLM planning documents generally have not kept pace with National fire and fuels management policies, nor do they reflect the condition of public land in terms of fuels (and associated risks to ecosystems and communities) in New Mexico and Texas.

SCOPING AND ISSUES

Issues and management concerns were identified by BLM through phone calls, emails, letters, and several meetings conducted over the spring and summer of 2003 (see the Scoping Report, BLM NMSO 2003, for additional information about the scoping process). Contacts were made with Tribal members and leaders; local, State, and other Federal agencies; and individuals and user groups. A total of 27 written comments and 33 verbal comments were received during scoping.

Issues Used to Develop Alternatives

Public comments strongly supported the purpose and need for the **Plan Amendment** and all its objectives. Some comments clearly favored mechanical thinning and non-fire treatments over prescribed burning and wildfire use, especially thinning of small diameter trees. Several comments favored biomass use. Other comments stressed that fire must be returned to its natural place in the ecosystem through prescribed burns and wildland fire use. One comment indicated that grazers must play an important part in ecosystem restoration and must be included in plans to return fire to its natural place in the ecosystem.

Issues Addressed in Other Parts of the EA

Resource protection, including protection of wildlife habitat, cultural resources, soils, riparian areas, control of invasive species, and Special Management Areas, was strongly supported by many comments. Protection of air quality was the issue that received the most comments. Limiting road construction was supported, although one comment noted that existing roads are necessary for fire management and evacuation. Many comments favored: non-intrusive methods of fire management for resource protection; a strong scientific emphasis with an independent advisory group to review projects; a strong adaptive management program; and/or long-term monitoring of treatment areas. Local economics were a concern.

Issues beyond the Scope of the Plan

One comment asked how, specifically, the Plan Amendment/EA would be coordinated with the BLM-wide vegetation treatment EIS, now in progress. Although drafts of the BLM-wide vegetation treatment EIS revision (Bureau of Land Management 1991) were reviewed as part of the planning process, the schedules for these two efforts are on different tracks, and the Plan Amendment is being finalized prior to the vegetation treatment EIS.

Issues Addressed through Administrative or Policy Action

The need for cooperation and collaboration among agencies was emphasized in public comments. Policy requires cooperation and collaboration among agencies at all levels, and the upcoming Fire Program Analysis has a foundation of interagency collaboration and cooperation.

PLANNING CRITERIA AND LEGAL AND REGULATORY CONSTRAINTS

At the beginning of the planning effort, BLM identified the following planning criteria to guide the planning process: Compliance with all legal mandates of the Federal Land Policy and Management Act of 1976, the National Environmental Policy Act of 1969, the Federal Advisory Committee Act, the Administrative Procedures Act, and the BLM planning regulations in 43 CFR part 1600, as well as consistency with Fire Plans of other agencies and State and local jurisdictions.

BLM will comply with the constraints and processes imposed by the following laws, policies, and legal/regulatory agreements, both on this Plan Amendment and on any future site-specific plans that tier to it:

- Endangered Species Act of 1973: Fire suppression, rehabilitation, fuel reduction treatments, and related activities will comply with the Endangered Species Act (ESA) including, but not limited to, Sections 7(a)(1) for conservation of species and Section 7(a)(2) for consultation on actions that “May Affect” species. This will include consultation on effects from BLM actions or authorizations that may extend onto private, state, tribal, or other land ownership. Section 7 consultations have been completed for this Plan Amendment and will be completed on any future site-specific wildfire restoration, prescribed burns or fuels reduction projects that “May Affect” listed species or critical habitat.
- Emergency Section 7 Consultation: Federal regulations (50 CFR 402.05) recognize the need for expedited consultation in response to natural disaster (including wildland fire) or other calamity. Where emergency actions (including fire suppression) are required that may affect listed species or critical habitats, the action agency will initiate consultation, usually by phone or facsimile, at the first opportunity. Emergency consultation procedures allow action agencies to incorporate endangered species concerns into their actions during the response to an emergency. Under no circumstance where human life is at stake should an emergency response decision be delayed due to administrative work required by the consultation regulations.
- National Historic Preservation Act (NHPA) OF 1966: BLM will comply with the provisions of NHPA, as amended, including Native American consultation, through existing programmatic agreements. In the absence of such agreements, the BLM will adhere to regulations found in 36 CFR 800. Projects subject to the NHPA include fire suppression/restoration activities and fuels reduction projects.
- Permit By Rule: In New Mexico, smoke is regulated through a “permit by rule.” To comply with the New Mexico Smoke Management Regulation, Field Offices will complete a smoke registration and receive a burn identification from the New Mexico Environment Department for each project.
- Additional legal and regulatory authorities relevant to this proposal, as well as the BLM policies that typically guide development and implementation of individual projects, are available on request (see BLM NMSO 2004a in References Cited).

PLANNING PROCESS

Relationship to BLM Policies, Plans, and Programs

The Plan Amendment was developed following BLM planning guidance as described in BLM's planning regulations and handbook (H-1600-1). The following planning documents are relevant to this Plan Amendment:

- Carlsbad RMP (1988)
- Farmington RMP (2003)
- Mimbres RMP (1993)
- Rio Puerco RMP (1986)
- Roswell RMP (1997)
- Socorro RMP (1989)
- Taos RMP (1988)
- Texas RMP (1996)
- White Sands RMP (1986)
- RMP Plan Amendments, as relevant

Virtually every BLM program is affected to some extent by fire and fuels management and will be affected by this Plan Amendment. The Plan Amendment is designed to protect resources of concern to the various BLM programs while ensuring public and firefighter safety.

Collaboration

Intergovernmental, Interagency, and Tribal Relationships

The BLM's Resource Advisory Council was briefed in early June 2003. Congressional delegations were briefed at project initiation. The BLM contacted a number of different agencies to involve them in the planning effort, including:

- U.S. Bureau of Reclamation
- U.S. Forest Service
- New Mexico Department of Game and Fish
- U.S. Fish and Wildlife Service
- New Mexico Historic Preservation Division
- New Mexico State Land Office
- New Mexico State Forestry Division
- Natural Resources Conservation Service
- U.S. Bureau of Indian Affairs

The BLM consulted with the U.S. Fish and Wildlife Service on threatened and endangered species issues, as required by the Endangered Species Act, and has involved the New Mexico State Historic Preservation Office and the New Mexico Department of Game and Fish in the planning process, for consideration respectively of cultural resources and special status species. One Federal agency, the Western Colorado Area Office of the U.S. Bureau of Reclamation, signed a Memorandum of Understanding (MOU) with the BLM as a cooperating agency so that Bureau of Reclamation land surrounding the Navajo Reservoir in northwestern New Mexico could be included in the planning process (MOU finalized November 26, 2003).

The BLM sent letters initiating consultation with 32 tribes in New Mexico and surrounding states known to have traditional patterns of land use in New Mexico. Letters were also sent to all Navajo Nation Chapters in New Mexico. Two tribes, Zia Pueblo and Sandia Pueblo, requested meetings to discuss the Plan Amendment/EA. The BLM met with Zia Pueblo in August, 2003; several attempts to arrange a meeting with Sandia Pueblo were unsuccessful.

Other Stakeholder Relationships

Thirteen public scoping meetings were held in New Mexico and Texas to obtain information on the public's concerns and ideas. A preliminary EA was released on April 16, 2004 with a public comment period ending on May 21, 2004. The preliminary EA was sent to approximately 160 individuals and agencies, plus the tribes and five Navajo Nation Chapters, and was posted on the New Mexico BLM web site. The 30-day protest period ended on August 9, 2004; the 60-day Governor's consistency review ended on September 7, 2004. No protests were received.

Throughout the planning process, interested persons could visit the link to the Fire and Fuels Management Plan Amendment/EA on the New Mexico State Office web site at

www.nm.blm.gov for current information or to see maps of the proposed fire management categories and fire management units. Interested persons could also submit comments by email.

RELATED PLANS

Other plans germane to this Plan Amendment include USDA Forest Service Forest Plans and fire management plans for each of the seven National Forests incorporated in this planning area: the Carson, Santa Fe, Cibola, Gila, Lincoln, and Coronado National Forests, and the Kiowa National Grasslands. Other Department of Interior agencies have developed fire management plans for areas adjacent to BLM, such as National Wildlife Refuges. Various branches of the Defense Department have developed fire management plans for large areas managed by the military in New Mexico's Tularosa Basin.

Also related are Forest Plans, fire and fuels management plan amendments, and fire management plans for National Forests and BLM Field Offices in states adjacent to the planning area. These include the Apache-Sitgraves National Forest and the Safford and Phoenix Field Offices in Arizona; and the San Juan and Rio Grande National Forests and the San Juan and La Jara Field Offices in Colorado.

The risk to communities from wildland fire has been projected in response to nationwide inquiries related to the National Fire Plan. Sixty at-risk communities or areas were identified for New Mexico (Federal Register, Vol. 66, No. 160, pages 43383-43435, August 17, 2001). In cooperation with the BLM and other Federal and State agencies, the New Mexico State Forestry Division (2003a) has since further characterized fire hazard risk assessment in their New Mexico Fire Plan. In that plan, they delineated 18 WUI areas in New Mexico, containing 120 communities rated at high risk, 63 rated at moderate risk, and 22 rated at low risk from wildland fire. The New Mexico Fire Plan coordinates numerous county-level plans for forest stewardship and Wildland Urban Interface inventory. The New Mexico State Forestry Division is also leading a broad collaborative planning effort called the New Mexico Healthy Forests and Watersheds Plan, in which BLM participates along with other Federal, State, Tribal, local and private partners (New Mexico State Forestry 2003b).

The planning team coordinated with the USDA Forest Service, with local forests at BLM's Field Office level and with the Regional Office at the BLM State Office levels, to ensure they were aware of the Plan Amendment. Additional coordination with the Forest Service and other Federal and State agencies is taking place as part of the Fire Program Analysis.

POLICY

Policy most likely to influence the Plan Amendment deals with other BLM programs, mainly the range program and the wildlife program, both of which are invested in range and habitat improvement through vegetative treatments. The Plan Amendment integrates Best Management Practices of these programs as embodied in policy, but additional integration will be critical in ensuring the success of all three programs. Any decisions affecting vegetation have a substantial bearing on all three programs.

CHAPTER 2

MANAGEMENT DECISIONS

GOALS AND OBJECTIVES

Goal: Reduce the risk to human life and property from wildland fire.

Objective: Focus treatments on communities and surrounding areas with the potential for escaped fire or loss of life or property. Focus treatments on public land within the 18 Wildland/Urban Interface (WUI) areas defined in cooperation with the New Mexico State Forestry Division (2003) and on other areas where public land is adjacent to communities.

Goal: Reduce the risk and cost of fire suppression in areas of hazardous fuels buildup.

Objective: Focus appropriate treatments on areas identified as containing hazardous fuels buildup, to reduce the risk and cost of fire suppression.

Goal: Improve landscape health through returning fire to its natural role in the ecosystem.

Objective: Focus treatments on improving landscape health through treating lands in Fire Regime Condition Classes 2 and 3. Maintain Fire Regime Condition Class 1. The Desired Future Condition of the landscape is Fire Regime Condition Class 1. Fire Regime Condition Class is “a function of the degree of departure from historical fire regimes resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, and canopy closure. One or more of the following activities may have caused this departure: fire exclusion, timber harvesting, grazing, introduction and establishment of exotic species, insects and disease (introduced or native), or other pests management activities” (Schmidt et al, 2002). Fire Regime Condition Class is a proxy for landscape, wildlife habitat, and riparian health. Appendix A.1 contains a more detailed definition of Fire Regime Condition Class. Table 2.1 summarizes Fire Regime Condition Class acres for public land in New Mexico and Texas by Field Office. Currently available data for defining Condition Class are at low resolution and are geared towards forests rather than shrublands and grasslands. Therefore, the amount of public land in Condition Class 1 is likely to be overestimated in Table 2.1, and the amount of public land in Condition Classes 2 and 3 is likely to be underestimated (Ann Shilsky, The Nature Conservancy, personal communication, November 21, 2003). Figure 2.1 shows current Fire Regime Condition Class acres for public land in New Mexico.

Table 2.2 summarizes the fire regime and basic fire ecology of the major vegetation communities in New Mexico and Texas on public land. Appendix B summarizes vegetation communities and associated wildlife species.

**TABLE 2.1
FIRE REGIME CONDITION CLASS ACRES BY FIELD OFFICE***

FIELD OFFICE	CLASS 1 ACRES	CLASS 2 ACRES	CLASS 3 ACRES	TOTAL
Albuquerque	106,339	835,764	85,432	1,027,535
Amarillo		11,629		11,629
Carlsbad	1,024,243	1,063,339	1,010	2,088,592
Farmington	86,408	1,167,045	123,619	1,377,072
Las Cruces	3,265,492	2,064,646	20,501	5,350,639
Roswell	421,318	1,042,671	247	1,464,236
Socorro	378,996	981,127	138,572	1,498,695
Taos	206,931	244,084	117,667	568,682
TOTAL ACRES	5,489,727	7,410,305	487,048	13,387,080

NOTE: *1 kilometer resolution

SOURCE: Rocky Mountain Research Station, 2000

MANAGEMENT ACTIONS

Allowable Uses: Fire Management Categories

Public land in New Mexico and Texas will be assigned to one of the following four Fire Management Categories.

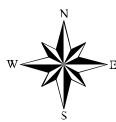
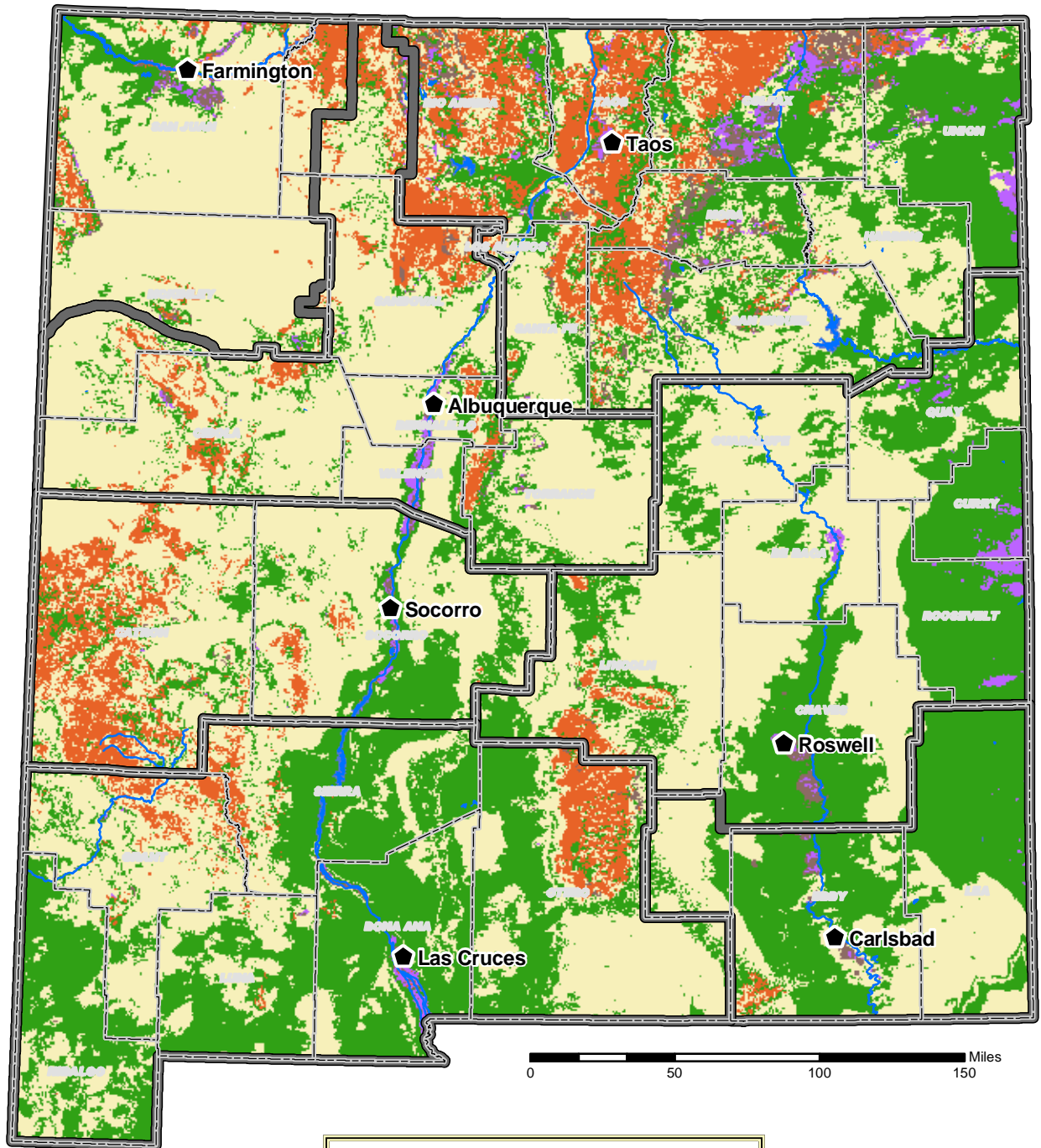
Category A: Areas where fire is not desired at all. This category includes areas where mitigation and suppression are required to prevent direct threats to life or property. It also includes areas where fire never played a large role historically in the development and maintenance of the ecosystem, and some areas where fire return intervals were very long.

Category B: Areas where unplanned wildfire is not desired because of current conditions. These are ecosystems (including some WUI areas) where an unplanned ignition could have negative effects unless/until some form of mitigation takes place.

Category C: Areas where wildland fire is desired, but there are significant constraints on its use. These are areas where significant ecological, social or political constraints (such as air quality, threatened and endangered species, or wildlife habitat considerations) limit wildland fire use.

Category D: Areas where wildland fire is desired, and there are few or no constraints on its use. These are areas where unplanned and planned wildland fire may be used to achieve desired objectives such as to improve vegetation, wildlife habitat or watershed conditions.

Figure 2.1 New Mexico Current Condition Fire Regime (FRCC)



Current Condition Fire Regime

- | | |
|-------------------|-------------------|
| Condition Class 1 | Agriculture |
| Condition Class 2 | Urban/Development |
| Condition Class 3 | Water |

(See Table A.3 for condition class definitions.)

Current Condition Fire Regime data source: USDA Forest Service, published 2002.
Other data source: BLM NMSO, 2003.

- BLM Field Office
- County Line
- Major Rivers/Lakes
- BLM Field Office Boundary

Produced by the BLM New Mexico Geographic Sciences Team.

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards.



**TABLE 2.2
FIRE REGIMES FOR BLM NEW MEXICO AND TEXAS PLANT COMMUNITIES**

Community or Plant Association	Dominant Species	Fire Return Interval (Range)	Fire Effects	Fire Regime	Comments
Rocky Mountain. Montane Grassland	Arizona fescue, Mountain muhly, Fringed brome, Tufted hairgrass	Less than 20 years depending on moisture during any fire season	Tolerant	I, II (I is frequent, low severity; (II is frequent stand replacement)	Fringed brome has low tolerance to moderate and high intensity fires
Plains-Mesa Grasslands	Blue grama, Hairy grama, Purple threeawn, Western wheatgrass, Buffalograss, Little bluestem, Sideoats grama	10-35 years	Generally tolerant. Fire top kills blue grama but species is benefited unless burned during drought.	II	Drought and grazing management influence fire behavior and frequency
Great Basin Desert Grasslands	Galleta, Indian ricegrass, Four-wing saltbush	< 35 to <100 years	Four-wing saltbush sprouts	III (III is 35-100 year frequency and mixed severity)	High variation of fire frequency due to drought and lack of fine fuels
Chihuahuan Desert Grasslands	Black grama, Soaptree yucca	Historically 7-10 years	Black grama is sensitive to fire	II	Yucca is well adapted to fire
Rocky Mountain Montane Scub-Interior Chaparral	Shrub live oaks, Ceanothus, Mountain mahogany, Gambel oak, Manzanita	40-60 years	Adapted to fire because most species resprout; manzanita does not resprout but does seed profusely	IV (35-100 year frequency and high severity)	90 percent stand replacement fires in dense shrub
Plains-Mesa Sand Scrub	Shinoak, Sand bluestem	15-30 years	Oak resprouts, sand bluestem generally tolerant	II	Many sand dunes are fire proof
Great Basin Desert Scrub	Big sagebrush, Greasewood, Winterfat, Atriplexes	20-70 years	Most shrubs resprout	III, infrequent mixed	Fire frequency depends on winter moisture, drought, and grazing of fine fuels
Chihuahuan Desert Scrub	Creosotebush, Mesquite, Tarbush	<35 to 75 years, depending on winter moisture. Prior to 1850 may have been 8-10 year interval	Generally not tolerant	II to III	Fire frequency depends on amount of fine fuels to carry fire between shrubs
Open Conifer Woodlands	One-seed juniper, Utah juniper in NW New Mexico, Snakeweed, Rabbitbrush, Winterfat	< 30 years depends on fine fuel continuity	Juniper is susceptible to fire damage	I and II	A mixture of surface fires and mixed severity dependent on understory fuel loading

**TABLE 2.2
FIRE REGIMES FOR BLM NEW MEXICO AND TEXAS PLANT COMMUNITIES**

Community or Plant Association	Dominant Species	Fire Return Interval (Range)	Fire Effects	Fire Regime	Comments
Madrean Closed Conifer Woodlands	Border or Mexican pinyon, Alligator juniper, Evergreen oaks, some Arizona cypress	10-35 years, depends on understory composition	Tolerant, most species resprout	II and III, mixed severity depending on shrub density	Fuel loading is now higher than historical, thus higher severity fires lead to stand replacement
Madrean Open Oak Woodlands	Arizona white oak, Gray oak, Emory oak, Alligator juniper, mixed with chaparral shrubs and grassy understory	10-20 years, depends on specific plant association	Tolerant, most species will resprout	I and II	Fuel loading affects fire behavior and fire effects
Subalpine Forest	Engelmann spruce	50-200 years	Low frequency and high intensity, generally not tolerant	III and IV	Less than 400 acres of this type in Taos Field Office
Upper Montane Forest	Douglas-fir, White-fir, and mixed with other conifers	6 to 31 years	Mixed severity depending on stand structure and fuel loading	I and II	Less than 1,000 acres on BLM
Lower Montane Forest	Ponderosa pine, Pinyon, One-seed juniper, Gambel oak, usually grassy understory	1 to 10 years	High frequency and usually low intensity surface fires. Stand replacement fires have occurred recently due to increased density in saplings and poles	I	Very frequent fire regime has been altered by fire suppression, grazing, logging, and climate conditions
Riparian (Southwest and Plains Forested/Shrub Wetland)	<i>Tamarisk</i> spp. is an exotic fire adapted species. The common native riparian species are not fire adapted.	Usually <35 years	Saltcedar (<i>Tamarix</i> spp.) can form new plants by sprouting from the root crown, which leads to impenetrable thickets.	IV	Increases in fire size and frequency have been occurring in the Southwest
Texas-Southwest Plateau and Plains Dry Steppe	Short and mid grasses with Mesquite shrubs and scattered juniper	Usually 10 years on 83% of land, 118 years on 17%	Most grasses have rejuvenated from prescribed burning. Mesquite resprouts	II on grasslands, III in some shrub and juniper types	Prescribed fire is being used to restore native grasslands. The current FRCC is 2

NOTE: Data from table was summarized from current literature review, FEIS, Draft Interagency Handbook on Reference Conditions and Potential Natural Vegetation Groups, and USDA Forest Service Region 3 Forest and Woodland Plant Association –Habitat Guide 1997.

The full text of Fire Management Category definitions is included in Appendix A.2. Table 2.3 describes the fire and fuels management associated with each category. Table 2.4 lists acres in each Fire Management category in New Mexico and Texas, by Field Office. FMUs are areas identified by geographic, social, and political characteristics, with specific objectives for fire and fuels management. Each FMU is assigned a Fire Management category. Appendix A.3 contains a list and map boundaries and categories of FMUs in New Mexico and Texas for each Field Office. Note that minor changes in FMUs may be reflected in the September 2004 Fire Management Plans for each Field Office, due to updates since December 2003.

		Wildland Fire Management			Vegetation Treatments	
		Suppression Priority	Suppression Strategy	Wildland Fire Use*	Prescribed Fire	Mechanical/ Chemical/ Biological
A FMU	Fire is not desired at all.	High	Aggressively Suppress fires to limit acreage burned.	No	No , except pile burning of mechanically removed vegetation.	Yes , fuel hazard reduction to mitigate risks a priority.
B FMU	Unplanned wildland fire is not desired.	High	Limit acreage burned , weighing suppression costs against potential damages from fire.	No	Yes , fuel hazard reduction to mitigate risks a priority.	Yes , fuel hazard reduction to mitigate risks a priority.
C FMU	Wildland fire is desired – must consider significant constraints.	Moderate	Utilize least cost suppression tactics where fire is not damaging resources.	Yes , under very limited prescribed conditions	Yes , used to attain desirable resource conditions.	Yes , used to attain desirable resource conditions.
D FMU	Wildland fire desired-fewer constraints.	Low	Utilize least cost suppression tactics. Consider wildland fire use if appropriate.	Yes , under prescribed conditions	Yes , used to attain desirable resource conditions; fuel hazard reduction is lower priority than “C” FMU.	Yes , used to attain desirable resource conditions; fuel hazard reduction is lower priority than “C” FMU.
NOTE: * Wildland fire use is the management of wildland fires to accomplish specific pre-stated resource management goals in predefined geographic areas. SOURCE: BLM New Mexico State Office, 2003						

Field Offices need to be able to change and update FMU categories and boundaries to reflect the dynamic effects of wildland fire, prescribed fire, and non-fire treatments on the landscape over the life of the Plan Amendment. FMU categories and boundaries can be changed when Fire Management Plans are updated, or when social or ecological conditions indicate that changes are necessary. Fire Management Plans are the activity plans that outline how decisions in the RMP Amendment will be implemented. Fire Management Plans are reviewed annually and updated as needed, typically with major revisions every 3 to 5 years. Field Offices that receive public input requesting changes in FMU categories and boundaries or that

**TABLE 2.4
FIRE MANAGEMENT UNITS, CATEGORIES, AND BLM ACRES BY FIELD OFFICE
(AS OF 12/17/03)**

FIELD OFFICE	CATEGORY	NUMBER OF FMUS	BLM ACRES	PERCENT
Albuquerque	A	0	0	0.0%
	B	3	28,087	2.7%
	C	4	955,306	93.4%
	D	1	39,980	3.9%
	TOTAL	8	1,023,373	100.0%
Amarillo	A	0	0	0.0%
	B	0	0	0.0%
	C	3	488	4.1%
	D	1	11,314	95.9%
	TOTAL	4	11,802	100.0%
Carlsbad	A	0	0	0.0%
	B	0	0	0.0%
	C	4	1,790,042	85.6%
	D	1	301,001	14.4%
	TOTAL	5	2,091,043	100.0%
Farmington	A	4	63,898	4.2%
	B	5	60,413	4.2%
	C	10	1,270,971	91.6%
	D	0	0	0.0%
	TOTAL	19	1,395,282	100.0%
Las Cruces	A	11	20,254	0.4%
	B	6	328,497	6.1%
	C	4	4,189,773	77.7%
	D	17	852,241	15.8%
	TOTAL	38	5,390,765	100.0%
Roswell	A	0	0	0.0%
	B	1	25,790	1.7%
	C	2	50,144	3.4%
	D	1	1,407,186	94.9%
	TOTAL	4	1,483,120	100.0%
Socorro	A	4	1,008	0.1%
	B	5	8,562	0.6%
	C	1	1,004,520	66.6%
	D	9	492,927	32.7%
	TOTAL	19	1,507,017	100.0%
Taos	A	1	32	0.1%
	B	9	190,295	33.0%
	C	9	381,344	66.1%
	D	1	4,885	0.8%
	TOTAL	20	576,556	100.0%

Source: BLM New Mexico State Office, 2004.

experience ecological change based on changing land use, fire conditions, or recent fires may consider revising FMU categories and boundaries. The revised FMU categories and boundaries will require NEPA review and compliance.

Actions

Fire and Fuels Reduction Treatments

As hazardous fuel loads are reduced, the potential for intense, severe wildland fire will also be reduced. Damage to resources and property from wildland fire and fire suppression, along with the cost of suppression and emergency stabilization and rehabilitation, will decrease on and near treated areas. Wildland fire trends in fire size, intensity, and severity will continue on untreated areas.

Field Offices will have considerable flexibility in determining the appropriate treatments for specific areas. Effects on wildlife habitat, cultural resources, and other resources will be considered during treatment planning. The proportion of treatments will be balanced, with an average of 40 percent and a range of 20-45 percent of total acres treated with prescribed fire, 40 percent with a range of 20-40 percent with mechanical treatments, and 20 percent with chemical treatments. Biological treatments are not planned but may be considered by Field Offices for site-specific projects. BLM will use a combination of any fuels management technique (wildland fire use, prescribed fire, mechanical treatment, chemical treatment, or biological treatment) on any fuel type, to meet fire and fuels management objectives.

The average acres to be treated were determined by summarizing the total acres of vegetation in five major vegetation groups by Field Office. The major vegetation groups are grasslands, shrublands, woodlands, forests, and riparian which includes the exotic species saltcedar (*Tamarix spp.*). Total acres in each group were derived from the GAP vegetation map for New Mexico and from the Texas Parks and Wildlife Department (1984) for Texas; acres in each vegetation group for each Field Office can be found in Appendix A.4. An average of 40 percent of acres treated annually will be mechanical treatments of woodlands, forest, and saltcedar; an average of 40 percent will be prescribed fire on grasslands and woodlands; and an average of 20 percent will be chemical treatment of shrublands. These acres vary by Field Office because of the varying proportions of vegetation groups in each Field Office. Acres shown in Table 2.5 have been rounded to the nearest 500 acres and are average annual acres for the 20 year life of the Plan Amendment. More information about how the acres were derived is presented in Appendix A.4.

BLM will be flexible in tailoring treatments to fit local needs and conditions. Wildland fire use for resource benefit and prescribed fire (combined under prescribed fire in Table 2.5) plus mechanical treatment are the tools most likely to be used in fire and fuels management on a landscape scale. Therefore, the proportions of treatments using these tools are approximately equal. Because the Plan Amendment involves a large increase in acres, the first few years of implementation may yield relatively low numbers of acres treated until treatment capabilities are increased. The treatment goals represent an annual average; in some years, only a small number of acres may be treated due to drought, fire conditions, funding constraints, or other issues. In other years, treated acres may exceed the average. The treated acres would be reviewed as part of the Fire Management Plan NEPA analysis and adjustments would be made to take into consideration current conditions and improved data. An average 229,000 acres would be treated per year, for an average of 4,580,000 acres treated during the approximate 20 year life of the Plan Amendment. Fire Regime Condition Class was not used to determine the

number of acres to treat, but as noted above, acres in Fire Regime Condition Classes 2 and 3 are priorities for treatment to achieve Fire Regime Condition Class 1.

Best Management Practices

The use of Best Management Practices is required. Follow BLM policies and guidance for public land treatments in implementing fire suppression, wildland fire use for resource benefit, prescribed fires, and mechanical, chemical, and biological treatment methods. Guidelines are provided in BLM handbooks and manuals cited in the “New Mexico Standards and Guidelines for Public Lands Health” and in Table 2.6. Best Management Practices are summarized in Table 2.6.

Table 2.5				
Average Annual Acres Treated by Treatment Type per Field Office				
Field Office	40% Mechanical	40% Rx Fire	20% Chemical	All Treatments
Albuquerque	5,000	17,000	1,500	23,500
Carlsbad	500	19,500	9,000	29,000
Farmington	7,500	25,000	1,000	33,500
Las Cruces	5,500	44,000	23,500	73,000
Roswell	1,000	14,000	6,000	21,000
Socorro	8,000	20,500	3,500	32,000
Taos	5,000	8,000	1,500	14,500
Amarillo	0	1,500	1,000	2,500
AVERAGE GOAL	32,500	149,500	47,000	229,000
RANGE (+/- 20percent)	26,000-39,000	19,500-179,000	37,000-56,000	183,000-275,000
NOTE: *The treatment goals are an average that may be treated yearly and may vary due to budget, climate, soil conditions, resource availability, or environmental constraint. These acres have been rounded to the nearest 500 acres and are mean (average) annual acres for the life of the plan amendment.				
SOURCE: BLM New Mexico State Office, 2003.				

Appropriate Management Response

The Plan Amendment provides general guidance, goals and objectives for the Fire Management Program in each Field Office. When a wildland fire occurs, input from the plan amendment and from the Field Office’s RMP is used in an evaluation of the fire situation to decide on an appropriate response to the fire. This concept is known as the “appropriate management response” (AMR), and is described by the Federal Wildland Fire Management Policy as follows:

**TABLE 2.6
VEGETATION TREATMENT METHODS BEST MANAGEMENT PRACTICES**

Resource Element	Best Management Practices per Treatment Method			Biological
	Prescribed Fire	Mechanical	Chemical	
Guidance Documents General	BLM handbook H-9214-1 Prescribed Fire Management 2000 Prepare Fire Management Plan. Use trained personnel with adequate equipment.	BLM Manual 1112 (Safety) Ensure that power cutting tools have approved spark arresters. Wash vehicles and equipment before leaving weed infested areas to avoid infecting weed-free areas. Minimize soil disturbance which may encourage new weeds to develop.	BLM Handbooks H-9011-1 H-9015 Prepare spill contingency plan in advance of treatment. Select chemical that is least dangerous to environment while providing the desired results. Keep records of each application, including the active ingredient, formulation, application rate, date, time, and application.	BLM Manuals 1112, 4100 9014 Use only biological control agents that have been tested and approved to ensure they are host-specific. Manage the intensity and duration of grazing.
Land Use	Carefully plan fires in WUI to avoid loss of property. Notify nearby residents and landowners who could be affected by smoke intrusions or by other fire effects.		Consider surrounding land use before aerial spraying. Comply with herbicide-free buffer zones to ensure that no drift will affect adjoining landowners.	
Air Quality See Manual 7000.	Evaluate weather conditions, including wind speed and atmospheric stability, to predict effects of burn and impacts from smoke. Coordinate burn activities with New Mexico Environment Department. Burn when weather conditions are good for rapid smoke dispersion. Maintain safety buffer between burn area and facilities.	Minimize generation of dust and exhaust.	Consider effects of wind, humidity, temperature inversions, and rainfall on herbicide effectiveness and risks.	
Geology, Minerals, Oil and Gas Soil	Minimize broadcast burning on highly erodible soils. Re-seed if necessary following treatment to encourage revegetation and minimize erosion. Minimize soil heating by pre-treatment of fuels where practical.	Minimize area of surface disturbance. Implement erosion control measures where heavy equipment is used. Limit heavy equipment use on slopes greater than 30 percent. Conduct activities on dry or frozen soil to minimize soil compaction. Avoid damage to biological crusts.	Avoid treating areas where herbicide runoff is likely. Consider soil mobility.	

**TABLE 2.6
VEGETATION TREATMENT METHODS BEST MANAGEMENT PRACTICES**

Best Management Practices per Treatment Method				
Resource Element	Prescribed Fire	Mechanical	Chemical	Biological
Water Resources See Manual 7000 and Memorandum of Understanding with New Mexico Environment Department.	Maintain minimum buffer of 25-50 feet between burn area and water bodies. Minimize burning on hillslopes with high erosion potential and consider revegetation to mitigate. Prevent degradation of groundwater quality whenever practicable, even when WQCC standards allow for further degradation. Develop site-specific BMPs for actions that degrade groundwater quality through nonpoint source pollution, for groundwater with 10,000 mg/l total dissolved solids (TDS) or less.	Maintain minimum buffer of 25-50 feet between burn area and water bodies. Reseed skid trails and roads closed after operations. Install erosion control structures on roads used. Prevent degradation of groundwater quality whenever practicable, even when WQCC standards allow for further degradation. Develop site-specific BMPs for actions that degrade groundwater quality through nonpoint source pollution, for groundwater with 10,000 mg/l TDS or less.	Consider climate, soil type, slope, and vegetation types in determining the risk of herbicide to water resources. Follow label instructions, especially near water bodies. Prevent degradation of groundwater quality whenever practicable, even when WQCC standards allow for further degradation. Develop site-specific BMPs for actions that degrade groundwater quality through nonpoint source pollution, for groundwater with 10,000 mg/l TDS or less. Evaluate site-specific potential for groundwater contamination with the Environmental Protection Agency rating system DRASTIC.	Avoid using livestock near residential or domestic water sources. Utilize grazing plans and systems to improve public land health. Prevent degradation of groundwater quality whenever practicable, even when WQCC standards allow for further degradation. Develop site-specific BMPs for actions that degrade groundwater quality through nonpoint source pollution, for groundwater with 10,000 mg/l TDS or less.
Streams and Wetlands	Maintain minimum buffer of 25-50 feet between burn area and water bodies. Minimize burning on hillslopes with high erosion potential and consider revegetation to mitigate.	Maintain minimum buffer of 25-50 feet between burn area and water bodies.	Apply buffer zones of 100 feet for aerial application, 25 for ground, and 10 feet for hand application. Follow label instructions for control of salt cedar.	Avoid using livestock near residential or domestic water sources.
Vegetation See Handbook H-4410-1, 5000, and 9015.	Conduct burn prescriptions to minimize residual damage to desirable trees. Mitigate soil erosion by constructing erosion control structures on any control lines used.	Minimize disturbance to native vegetation by keeping equipment on existing roads and trails. Reseed skid trails and roads to be closed after operations. Install erosion control structures on roads used.	Reduce drift hazard to non-target species. Minimize the use of broadcast foliar applications to reduce the creation of large areas of browned vegetation.	Use grazing animals at times most likely to damage invasive species. Exclude livestock from revegetated areas for at least two growing seasons.

**TABLE 2.6
VEGETATION TREATMENT METHODS BEST MANAGEMENT PRACTICES**

Resource Element	Best Management Practices per Treatment Method			Biological
	Prescribed Fire	Mechanical	Chemical	
Fish See Manuals 6500 and 6780.	Maintain a vegetated buffer near fish-bearing streams to minimize soil erosion and soil runoff into streams.	Avoid treatments adjacent to fish-bearing waters. Refuel and service equipment away from water bodies. Maintain vegetated buffer between treatment area and water body. Retain wildlife trees and other unique habitat features where practical.	Avoid treatments near fish-bearing streams during periods when fish are in life stages most sensitive to the herbicide used. Use appropriate buffer zones based on label instructions and risk.	Limit access of grazing animals to streams and other water bodies to minimize sediments entering water and potential for damage to fish habitat.
Wildlife See Manuals 6500 and 6780.	Avoid treatments during nesting and other critical periods for birds and other wildlife.	Vegetation management strategies should be consistent with historical succession and disturbance regimes. Fuels treatments should consider habitat needs of migratory and non-migratory populations. Avoid treatments during nesting and other critical periods for birds and other wildlife.	Use herbicides of low toxicity to wildlife. Avoid treatments during nesting and other critical periods for birds and other wildlife.	
Threatened and Endangered (T&E) Species See Manual 6840.	Avoid direct impacts to listed species if project may impact listed species, unless studies show that species will benefit from fire. Survey for T & E species and consult with US Fish & Wildlife Service (USFWS) as necessary if project may impact listed species. See site-specific conservation measures from Biological Evaluation and in Appendix C.2.	Avoid use of ground disturbing equipment near T&E species. Survey for T&E species and consult with USFWS as necessary if project may impact listed species. See site-specific conservation measures from Biological Evaluation and in Appendix C.2	Survey for T&E species and consult with USFWS as necessary if project may impact listed species. See site-specific conservation measures from Biological Evaluation and in Appendix C.2.	

VEGETATION TREATMENT METHODS BEST MANAGEMENT PRACTICES			
Resource Element	Best Management Practices per Treatment Method		
	Prescribed Fire	Mechanical	Chemical
Wild Free-Roaming Horses and Burros	Do not burn extensive, contiguous areas of the Herd Management Area in the same year.		Avoid using herbicides in areas actively grazed by wild horses and burros.
	Start prescribed fires in such a way as to decrease the likelihood of horses running through fences. Limit burning during the peak foaling period from March 1 through June 30.		
Livestock See Handbook H-4120-1.	Notify permittees of livestock feeding restrictions in treated areas, if necessary.	Notify permittees of livestock feeding restrictions in treated areas, if necessary.	Notify permittees of livestock feeding restrictions in treated areas, if necessary.
	Provide alternative forage sites for livestock, if use areas burn.	Provide alternative forage sites for livestock, if necessary.	Provide alternative forage sites for livestock, if necessary.
Cultural Resources and Native American Religious Concerns See NM BLM Protocol with State Historic Preservation Office (SHPO) and Manuals 8100 and 8160.	Evaluate potential impacts of proposed treatment. Conduct cultural resource inventories to identify sites at risk from treatment. Develop avoidance measures and project-specific treatment measures to protect sites by reducing fuel loads in the vicinity of at-risk sites.	Evaluate potential impacts of proposed treatment. Conduct cultural resource inventories to identify sites at risk from treatment. Develop avoidance measures and project-specific treatment measures to protect sites by reducing fuel loads in the vicinity of at-risk sites.	Evaluate potential impacts of proposed treatment. If application methods involve ground disturbing activities, conduct cultural resource inventories and implement avoidance measures.
	Consult with SHPO and tribes per NM Statewide Protocol Agreement. In Texas, consult with Texas SHPO for National Register of Historic Places (NRHP) site eligibility and effect.	Consult with SHPO and tribes per NM Statewide Protocol Agreement. In Texas, consult with Texas SHPO for NRHP site eligibility and effect.	Consult with SHPO and tribes per NM Statewide Protocol Agreement. In Texas, consult with Texas SHPO for NRHP site eligibility and effect.
	Monitor effectiveness of site protection measures (Appendix A-6, Monitoring and Adaptive Management).	Monitor effectiveness of site protection measures (Appendix A.5, Monitoring and Adaptive Management).	Monitor effectiveness of site protection measures (Appendix A.6 Monitoring and Adaptive Management).

**TABLE 2.6
VEGETATION TREATMENT METHODS BEST MANAGEMENT PRACTICES**

Resource Element	Best Management Practices per Treatment Method			Biological
	Prescribed Fire	Mechanical	Chemical	
Visual Resources See Manual 8400 and H-8410-1.	Minimize or avoid prescribed burning under conditions that could result in smoke impacting PSD Class I areas. Maintain natural vegetated buffer between burn areas and public high use areas. Revegetate treated sites if necessary. Use existing roads and minimize fireline construction.	Minimize dust drift, especially near recreational or other public use areas. Minimize earthwork and locate from prominent topographic features. Revegetate treated sites if necessary.	Minimize the use of broadcast foliar applications to reduce the creation of large areas of browned vegetation. Minimize herbicide drift.	
Wilderness Areas. See handbooks H-8550-1, H-8560-1, 8351, 8560, plus Specific instructions in Fire Mgt. Unit descriptions & Appendix F of Resource Advisor Guide.	Minimize or avoid soil-disturbing activities during fire suppression or prescribed fire activities. Revegetate sites with native species unless there is no reasonable expectation of natural regeneration.	Use least intrusive methods possible to achieve objectives, and use non-motorized equipment where possible.	Revegetate sites with native species unless there is no reasonable expectation of natural regeneration. Use hand treatments of herbicides only when weeds are spreading within the wilderness or threaten lands outside the wilderness.	Use least intrusive methods possible to achieve objectives, and use non-motorized equipment where possible.
Recreation See Handbook H-1601-1.	Control public access to potential burn areas.	Control public access until potential treatment hazards no longer exist.	Control public access until potential treatment hazards no longer exist. Post signs noting exclusion areas and duration of exclusion.	
Rights-of-Way	Avoid or minimize prescribed burning under powerlines.			
Health and Safety	Use some form of pre-treatment, such as mechanical or manual treatment, in areas where fire cannot be safely introduced due to hazardous build-up. Always use appropriate safety equipment and Personal Protective Equipment (PPE). Notify nearby residents who could be affected by smoke.	Always use appropriate safety equipment and PPE.	Always use appropriate safety equipment and PPE. Have copy of Material Safety Data Sheets at work site. Follow label instructions and BLM procedures in Handbooks H-9011-1, 1112, and 9015.	Always use appropriate safety equipment and PPE.

The response to a wildland fire is based on an evaluation of risks to Firefighter and public safety, the circumstances under which the fire occurs, including weather and fuel conditions, natural and cultural resource management objectives, protection priorities, and values to be protected. The evaluation must also include an analysis of the context of the specific fire within the overall local, geographic area, or National wildland fire situation.

Therefore, the response to every wildland fire will be made based on an array of existing and expected conditions at the time the fire occurs.

Wildland Fires

Past wildland fire history provides a reasonable basis upon which to predict future wildland fire activity. Between 1980 and 2003, BLM New Mexico responded to 2,705 fires on BLM-administered public land for an average of about 112 fires per year (Table 2.7, Appendix A.5). The following areas will be protected from wildland fire on BLM-administered public land: Buildings and structures; oil and gas fields and related facilities; communication sites and related facilities; coal mines and related facilities; cultural sites and historic structures; power lines; communities; important wildlife habitat; campgrounds and other developed recreation areas; forest or woodlands where potential loss of key ecosystem components is high; lands having intermingled public, state, and private ownership where there are currently no agreements for using wildfire as a resource management tool; and other areas identified through continued public involvement in fire planning efforts.

Vegetation Treatments

Vegetation treatments consist of wildland fire use for resource benefit, prescribed burns, mechanical treatments, and chemical treatments. Biological treatments are not anticipated but will be allowed with site-specific analysis. Some treatments may need to be used in combination with others for best results. Some areas may need to be treated repeatedly to achieve desired results.

Wildland Fire Use for Resource Benefit

Wildland fire use for resource benefit will be allowed in areas designated as Fire Management Categories C and D. However, prior to implementation of wildland fire use for resource benefit, the Field Office must have an approved Fire Management Plan in place. The Fire Management Plan will identify areas where wildland fire use is acceptable, and must identify the conditions under which a fire will be managed for resource benefit.

Prescribed Fire

The use of prescribed fire will require the development of a fire prescription. These prescriptions will be designed with regard to site characteristics and the reproductive characteristics of the plant species present on the site. Prescribed burns will generally be conducted in late spring, summer or fall in New Mexico, when temperatures and fuel moistures are within prescription. The prescribed burn prescription analysis will consider factors such as plant mortality, post-fire sprouting, reproduction from seed, effect of season of burning, effects of weather, post-fire plant productivity, relationship of fire to animal use, and post-fire plant competition (BLM 1991). The BLM provides prescribed fire management policy direction under

TABLE 2.7 WILDLAND FIRE HISTORY TRENDS ON PUBLIC LAND IN NEW MEXICO, 1980-2002						
Years/Field Office	Lightning-Caused Fires		Human-caused Fires		Total Fires	
	Number	Acres	Number	Acres	Number	Acres
1980-1987						
Albuquerque	52	513.1	10	128		
Carlsbad	17	3,778.1	26	4,951.6		
Farmington	68	36.4	30	229		
Las Cruces	27	3,579.4	11	284.4		
Roswell	14	1,220	20	7351		
Socorro	23	2,000.8	11	547.1		
Taos	7	2.6	12	37		
TOTAL	208	11,130.4	120	13,529	328	24,659.4
					41/yr	
1988-1995						
Albuquerque	52	7,805.3	21	42.1		
Carlsbad	137	22,833.4	231	82,058.6		
Farmington	108	691.8	27	65.2		
Las Cruces	137	145,722.7	55	18,882.9		
Roswell	112	5,7257.1	135	37,678.4		
Socorro	38	45,758.5	15	3,072.6		
Taos	18	152.1	53	109.4		
TOTAL	602	280,220.9	537	141,909.2	1,139	422,130.1
					142/yr	
1996-2003						
Albuquerque	70	23,223.9	15	702.4		
Carlsbad	42	1,762.3	144	3,484.1		
Farmington	452	543.3	76	382.8		
Las Cruces	33	41,939.6	40	28,599.8		
Roswell	52	7,198.1	185	9,357.7		
Socorro	31	36,062.9	13	6,288.4		
Taos	58	1,111.6	27	142.8		
TOTAL	738	111,841.7	500	48,958	1,238	160,799.7
					155/yr	
Total: 24 yrs	1,548	403,193	1,157	204,395	2,705	607,588
					112/yr	

SOURCE: BLM Wildland Fire Management Information Database; BLM NMSO GeoSciences

BLM Instruction Memorandum No. OF&A 2002-027. This document serves as the BLM handbook for prescribed fire pending development of an interagency prescribed fire management guide. In New Mexico, prescribed fire has been used to reduce hazardous fuels and restore ecosystem health. Most of these burns, 13,417 acres in 2002, also benefited other resources such as rangeland and wildlife habitat. The use of fire prescriptions will minimize negative effects on vegetation and related dependent resources, as compared to wildland fire.

Mechanical Treatments in Combination with Prescribed Fire in Grasslands and Shrublands

The primary objective of treating grasslands and shrublands with mechanical treatments or prescribed fire is to remove encroaching conifers or other shrubs. Encroachment is indicated by the presence of young conifers (e.g., ponderosa pine, pinyon, and juniper) or other woody shrubs progressing from a forest or woodland into grasslands; or shrub encroachment into

grasslands. Mechanical treatments will be applied to remove these individual plants within a grassland or shrubland. Prescribed fire may also be used to meet resource objectives, such as restoring fire-adapted grass and shrublands, or increasing variation of age classes in shrublands. Treatments will be designed to achieve mosaic patterns, which will also reduce the potential of entire stands being destroyed by wildland fire.

Mechanical Treatments in Combination with Prescribed Fire in Forest and Woodlands

Past management practices, including fire suppression, grazing, and forest product harvesting, have helped create density levels of small-diameter trees beyond what would naturally occur. These small diameter trees create “ladder fuels” that carry fire from the ground into the canopy of adjoining crowns or larger overstory trees, where the fire becomes more difficult and dangerous to suppress. In some cases, prescribed fire can be used to thin small trees and remove dead and down woody vegetation. However, where prescribed fire would be difficult or impossible to control because of existing fuels buildup, mechanical or manual preparation may be required to reduce densities and allow a controllable prescribed burn.

Non-commercial thinning will be used where the trees to be thinned are too small to be of commercial value. These materials can then become available for public use. Commercial thinning may be used to reduce the density and the potential for crown fire. Overstory density is a concern where crown continuity creates a high potential for wildland fires to become crown fires. Overstory trees may be removed to reduce competition, allowing individual trees to grow larger and acquire fire-resistant characteristics. For the purposes of reducing wildland fuels, commercial woodland product harvest will be used. The objective of using woodland product harvesting for commercial or personal use on public land as a fuels management technique is to create conditions such that, in the future, harvest may not be needed. A more open stand structure can then be safely maintained with prescribed fire treatments.

Chemical Treatments

Chemical treatments, primarily the use of herbicides, will be applied where other fuel treatments would not achieve resource objectives or will be applied where other fuel treatments would create conditions favorable for expansion of noxious weeds or other undesirable invasive species. Herbicide treatments will follow BLM procedures outlined in BLM Handbook H-9011-1, 1112, and 9015 and will meet or exceed the State label standards (BLM 1991). The application method chosen depends upon the treatment objective, the accessibility, topography, and size of the treatment area; the characteristics of the target species and the desired vegetation; the location of sensitive areas and potential environmental impacts in the immediate vicinity; the anticipated costs; equipment limitations; and the meteorological and vegetative conditions of the treatment area at the time of the treatment.

Biological Treatments

Biological treatments involve the intentional use of grazing animals, plant eating insects, nematodes, mites or pathogens that can weaken or destroy vegetation. The type and level of biological treatments may be considered for meeting site-specific objectives. However, there are currently no plans to use biological treatments, and it is anticipated that they will constitute only a very small fraction of treatments. Livestock grazing could be considered to be a kind of biological treatment which influences Fire Regime Condition Class. Livestock grazing is not considered in the Plan Amendment as a means of fire and fuel management, but it is analyzed at length in BLM’s “Standards and Guidelines for Public Lands Health” (BLM 2000).

Support Activities

Support activities may include strategic development of water resources for fire suppression, development of fuel breaks, and construction of access roads for vegetation treatments. These roads will be rehabilitated after use. Some relocation/design of existing roads is anticipated.

Revegetation and Emergency Stabilization and Rehabilitation (ESR)

Damages resulting from wildland fires take two forms: suppression damages and resource damages. Suppression damage is the result of suppression operations; resource damage is damage to the resources by fire. Emergency stabilization involves short-term treatments (usually 1-6 months) to stabilize a burned area and mitigate suppression damages. This includes replacing equipment, infrastructure, buildings, or facilities damaged or destroyed by a suppression action. Immediate emergency stabilization to prevent further land degradation or resource loss, or to ensure safety, may be carried out as part of the incident.

Post-incident rehabilitation actions must be specified in a rehabilitation plan approved by the Field Manager, State Office, or Washington Office depending on the cost of the plan. Rehabilitation is defined as “long-term post-fire efforts to repair or improve lands unlikely to recover naturally from wildland fire damage, or to replace fire damaged facilities.” Rehabilitation treatments may not be implemented for longer than 3 years. Depending on the complexity of the wildfire, a Burned Area ESR plan will be developed for each incident or multiple incidents.

Currently, the policy for Department of the Interior land is provided by Departmental Manual 620 DM3 (Emergency Stabilization and Rehabilitation), supplemented by BLM Policy Supplement Exhibit 4-2. The objective of the BLM ESR program is to mitigate the adverse effects of fire on the soil-vegetation resource in a cost-effective and expeditious manner and to minimize the possibility of wildland fire recurrence or invasion of weeds. Appropriate use of ESR funds includes implementing practices to:

- protect life, property, soil, water (including water-dependent resources) or vegetation resources.
- prevent unacceptable on-site or off-site damage.
- facilitate meeting land use plan objectives in conformance with land use plan decisions (per the Federal Land Policy and Management Act of 1976) and other applicable Federal laws.
- stabilize and protect known cultural resources from possible further post-fire degradation, and from restoration activities.
- reduce the establishment of undesirable or invasive species of vegetation.
- assist in meeting State Standards for Public Land Health.
- repair or replace BLM minor facilities or structures destroyed or damaged by fire.

Conservation of Special Status Species

In accordance with Section 7(a) 2 of the Endangered Species Act (ESA) of 1973, as amended, BLM requested informal consultation with the US Fish & Wildlife Service (USFWS) for prescribed fire, wildland fire use for resource benefit, mechanical, chemical, and biological treatments to be implemented through the Plan Amendment. BLM prepared a Biological Evaluation (BE) that provided detailed analysis of all Federally listed (threatened and endangered), proposed and candidate species, as well as designated or proposed critical habitat, that may be affected by the Plan Amendment. The BE encompasses all anticipated environmental effects (direct and indirect) including any interrelated and interdependent actions.

The general and species-specific conservation measures that were developed as part of the BE will be implemented to minimize or eliminate adverse effects to Federally-protected species, as detailed in Appendix C. These conservation measures will be implemented during all fuel treatment activities (prescribed fire, wildland fire use, non-fire fuels treatments). In addition, all conservation measures will be implemented during wildland fire suppression activities to the greatest extent possible. Emergency consultation with USFWS will be necessary after wildland fire suppression activities where Federally protected species or their habitats occur.

Fifty-eight Federally listed (threatened and endangered), proposed and candidate species are known or potentially could occur on public land within New Mexico and Potter County, Texas (listed in Appendix C). These 58 Federally-protected species can be grouped as follows: 7 mammals, 8 birds, 14 fish, 2 amphibians, 2 reptiles, 12 invertebrates, and 13 flowering plants.

Based on discussions and analyses during informal consultation, including the development of conservation measures, determinations were made that the Proposed Action (now the Plan Amendment) would have a “May Affect-Not Likely to Adversely Affect” for 30 species and a “No Affect” for the remaining 28 species (Table 2.8). USFWS as part of the informal consultation process reviewed and concurred with all BLM “May Affect-Not Likely to Adversely Affect” determinations (memorandum from USFWS to BLM dated July 21, 2004).

Public Education

BLM will engage in aggressive public education, enforcement and administrative fire prevention mitigation measures. Education efforts will encompass various media, including a signing program, information as to the natural role of fire within local ecosystems, participation in fairs, parades and public contacts. Enforcement will be accomplished by providing training opportunities for employees interested in fire cause determination. Administration includes expanded prevention and education programs with local, Federal and State agencies.

Implementation Decisions

Decisions to delineate fire management areas and identify broad vegetation treatments are RMP-level decisions. Decisions to identify boundaries of FMUs are implementation-level decisions and may be appealed. The State Director will not authorize specific hazardous fuels reduction projects based on this Plan Amendment. Each Field Office will prepare appropriate site-specific National Environmental Policy Act analyses for individual projects. These analyses may include specific fire management objectives and guidance to protect unique resource values within project areas.

**TABLE 2.8
FEDERALLY LISTED (THREATENED AND ENDANGERED), PROPOSED AND CANDIDATE SPECIES IN
NEW MEXICO/TEXAS ANALYZED IN THE BIOLOGICAL EVALUATION**

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS ^A	CRITICAL HABITAT ^A	AFFECT DETERMINATION
REPTILES and AMPHIBIANS				
1. Chiricahua leopard frog	<i>Rana chiricahuensis</i>	T	No	NLAA
2. New Mexico ridge-nosed rattlesnake	<i>Crotalus willardi obscurus</i>	T	No	NLAA
3. Sand dune lizard	<i>Sceloporus arenicolus</i>	C	No	NA
4. Boreal western toad	<i>Bufo boreas boreas</i>	C	No	NLAA
BIRDS				
5. Bald eagle	<i>Haliaeetus leucocephalus</i>	T	No	NLAA
6. Interior least tern	<i>Sterna antillarum</i>	E	No	NLAA
7. Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	E	No	NLAA
8. Piping plover	<i>Charadrius melodus</i>	T	No	NLAA
9. Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	Yes	NLAA
10. Mexican spotted owl	<i>Strix occidentalis lucida</i>	T	Yes	NLAA
11. Yellow-billed cuckoo	<i>Coccyzus americanus</i>	C	No	NLAA
12. Lesser prairie chicken	<i>Tympanuchus pallidicinctus</i>	C	No	NLAA
FISH				
13. Rio Grande silvery minnow	<i>Hybognathus amarus</i>	E	Yes	NLAA
14. Gila trout	<i>Oncorhynchus gilae</i>	E	No	NA
15. Loach minnow	<i>Tiaroga cobitis</i>	T	Yes	NLAA
16. Spikedace	<i>Meda fulgida</i>	T	Yes	NLAA
17. Gila chub	<i>Gila intermedia</i>	PE	PCH	NA
18. Pecos gambusia	<i>Gambusia nobilis</i>	E	No	NA
19. Pecos bluntnose shiner	<i>Notropis simus pecosensis</i>	T	Yes	NLAA
20. Arkansas River shiner	<i>Notropis girardi</i>	T	No	NLAA
21. Gila topminnow	<i>Poeciliopsis occidentalis</i>	E	No	NA
22. Beautiful shiner	<i>Cyprinella formosa</i>	T	No	NA
23. Chihuahua chub	<i>Gila nigrescens</i>	T	No	NA
24. Colorado pikeminnow	<i>Ptychocheilus lucius</i>	E	Yes	NLAA
25. Razorback sucker	<i>Xyrauchen texanus</i>	E	Yes	NLAA
26. Zuni bluehead sucker	<i>Catostomus discobolus yarrowi</i>	C	No	NA
PLANTS				
27. Zuni fleabane	<i>Erigeron rhizomatus</i>	T	No	NA
28. Kuenzler hedgehog cactus	<i>Echinocereus fendleri</i> var. <i>kuenzleri</i>	E	No	NA
29. Pecos sunflower	<i>Helianthus paradoxus</i>	T	No	NLAA
30. Sneed pincushion cactus	<i>Coryphantha sneedii</i> var. <i>sneedii</i>	E	No	NA
31. Gypsum wild-buckwheat	<i>Eriogonum gypsophilum</i>	T	Yes	NA
32. Lee pincushion cactus	<i>Coryphantha sneedii</i> var. <i>leei</i>	T	No	NLAA

**TABLE 2.8
FEDERALLY LISTED (THREATENED AND ENDANGERED), PROPOSED AND CANDIDATE SPECIES IN
NEW MEXICO/TEXAS ANALYZED IN THE BIOLOGICAL EVALUATION**

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS ^A	CRITICAL HABITAT ^A	AFFECT DETERMINATION
33. Sacramento prickly poppy	<i>Argemone pleiacantha</i> ssp. <i>pinnatisecta</i>	E	No	NLAA
34. Todsen's pennyroyal	<i>Hedeoma todsenii</i>	E	Yes	NLAA
35. Knowlton cactus	<i>Pediocactus knowltonii</i>	E	No	NLAA
36. Mancos milk-vetch	<i>Astragalus humillimus</i>	E	No	NLAA
37. Sacramento Mountains thistle	<i>Cirsium vinaceum</i>	T	Yes	NA
38. Mesa Verde cactus	<i>Sclerocactus mesae-verdae</i>	T	No	NLAA
39. Holy Ghost ipomopsis	<i>Ipomopsis sancti-spiritus</i>	E	No	NA
MAMMALS				
40. Black-footed ferret	<i>Mustela nigripes</i>	E	No	NA
41. Jaguar	<i>Panthera onca</i>	E	No	NLAA
42. Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	E	No	NLAA
43. Mexican long-nosed bat	<i>Leptonycteris nivalis</i>	E	No	NLAA
44. Mexican gray wolf	<i>Canis lupus baileyi</i>	E, 10(j)	No	NLAA
45. Canada lynx	<i>Lynx canadensis</i>	T	No	NLAA
46. Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	C	No	NLAA
INVERTEBRATES				
47. Koster's springsnail	<i>Juturnia kosteri</i>	PE	PCH	NA
48. Pecos assiminea snail	<i>Assiminea pecos</i>	PE	PCH	NA
49. Roswell pyrg (springsnail)	<i>Pyrgulopsis roswellensis</i>	PE	PCH	NA
50. Noel's amphipod	<i>Gammarus desperatus</i>	PE	PCH	NA
51. Sacramento Mountains checkerspot butterfly	<i>Euphydryas anicia cloudcrofti</i>	PE	No	NA
52. Alamosa springsnail	<i>Psuedotryonia alamosae</i>	E	No	NA
53. Socorro isopod	<i>Thermosphaeroma thermophilus</i>	E	No	NA
54. Socorro pyrg (spingsnail)	<i>Pyrgulopsis neomexicana</i>	E	No	NA
55. Gila pyrg (springsnail)	<i>Pyrgulopsis gilae</i>	C	No	NA
56. Texas hornshell (mussel)	<i>Popenaias popei</i>	C	No	NA
57. New Mexico pyrg (springsnail)	<i>Pyrgulopsis thermalis</i>	C	No	NA
58. Chupadera pyrg (springsnail)	<i>Pyrgulopsis chupaderae</i>	C	No	NA

NOTES:

^a Federal status designations are Endangered (E), Threatened (T), Proposed Endangered (PE), Proposed Threatened (PT), Federal Candidate (C), Designated Critical Habitat (Yes or No), Proposed Critical Habitat (PCH).

^b Species listed as "10(j)" are designated experimental/non-essential populations under Section 10(j) of the Endangered Species Act, as amended. This designation provides greater management flexibility.

For BLM, 10(j) populations of Federally listed species are equivalent to a "proposed" status.

NLAA=May Affect, Not likely Adversely Affect

NA=No Affect

MONITORING AND ADAPTIVE MANAGEMENT

BLM will conduct post-fire and post-treatment monitoring, as well as adaptive management. Adaptive management has been defined as “the rigorous combination of management, research, and monitoring so that credible information is gained and management activities can be modified by experience” (Scientific Panel for Sustainable Forest Practices in Clayoquot Sound 1995). Measures for monitoring and adaptive management are described in Appendix A.6.

CHAPTER 3 PUBLIC INVOLVEMENT

BLM will seek out opportunities to involve stakeholders and the general public in the implementation of this Plan Amendment. It is BLM's intent to continue to build the partnerships developed during the development of the Plan Amendment, including the strong relationships with the New Mexico Department of Game and Fish, the US Fish and Wildlife Service, the Bureau of Reclamation Western Colorado Area Office, and the New Mexico Division of Forestry. BLM is currently working in partnership with The Nature Conservancy to use the best available science to assess grassland and shrubland condition in New Mexico and to map Fire Regime Condition Class. BLM will continue to work in cooperation, consultation, and collaboration with stakeholders, tribal, local and state governments, interest groups and the public to support common objectives.

CHAPTER 4 IMPLEMENTATION OF THE PLAN AMENDMENT

Most of the actions described in this Plan Amendment are administrative in scope and will be implemented following the completion of updated Fire Management Plans by each Field Office, now in progress. Where actions are site-specific, they will be implemented with more detailed environmental analysis following the guidance in this Plan Amendment, as well as BLM program guidance.

PRIORITIES AND COSTS OF THE MANAGEMENT PROGRAM

As detailed in Chapter 2, the priorities of the fire and fuels management program consist first, of treatment in WUI areas to protect human life and property; secondly, treatment in areas of hazardous fuels buildup to reduce the risk and cost of fire suppression; and thirdly, treatment in Fire Regime Condition Classes 2 and 3 to improve landscape health through returning fire to its natural role in the ecosystem. Average annual treatment acres were calculated for each Field Office, using fire regime return intervals and vegetation, as described in Appendix A.4.

The average BLM treatment costs in New Mexico are \$50 per acre for prescribed fire, \$500 per acre for mechanical treatment (except in the Taos Field Office, which has a mean cost for mechanical treatments of approximately \$1,600 per acre because of denser woodland

conditions), and \$25 per acre for chemical treatments. Using these average per-acre costs, the average annual treatment costs by Field Office are reported in Table 4.1.

Because the costs are substantial and do not include the costs of associated environmental analyses, actual acres treated may vary due to budget, as well as due to climate, soil conditions, resource availability, or environmental constraints.

**TABLE 4.1
COST OF AVERAGE ANNUAL TREATMENT ACRES PER FIELD OFFICE**

Field Office	40% Mechanical	Mechanical Costs	40% Rx Fire	Rx Fire Cost**	20% Chemical	Chemical Cost***	All Treatments	Cost of All Treatments*
Albuquerque	5,000	\$2,500,000	17,000	\$850,000	1,500	\$37,500	23,500	\$3,387,500
Carlsbad	500	\$250,000	19,500	\$975,000	9,000	\$225,000	29,000	\$1,450,000
Farmington	7,500	\$3,750,000	25,000	\$1,250,000	1,000	\$25,000	33,500	\$5,025,000
Las Cruces	5,500	\$2,750,000	44,000	\$2,200,000	23,500	\$587,500	73,000	\$5,537,500
Roswell	1,000	\$500,000	14,000	\$700,000	6,000	\$150,000	21,000	\$1,350,000
Socorro	8,000	\$4,000,000	20,500	\$1,025,000	3,500	\$87,500	32,000	\$5,112,500
Taos	5,000	\$8,000,000	8,000	\$400,000	1,500	\$37,500	14,500	\$8,437,500
Amarillo	0	\$0	1,500	\$75,000	1,000	\$25,000	2,500	\$100,000
AVERAGE GOAL	32,500	\$21,750,000	149,500	\$7,475,000	47,000	\$1,175,000	229,000	\$30,400,000
plus 20%	39,000	\$26,100,000	179,400	\$8,970,000	56,400	\$1,410,000	274,800	\$36,480,000
minus 20%	26,000	\$17,400,000	119,600	\$5,980,000	37,600	\$940,000	183,200	\$24,320,000

NOTES: * Mechanical Treatment Cost = \$500/acre (except Taos, which is \$1600/acre)

** Rx Fire Treatment Cost = \$50/acre

***Chemical Treatment Cost=\$25/acre

Note that actual acres treated may vary due to budget, climate, soil conditions, resource availability, or environmental constraints.

CHAPTER 5

PLAN EVALUATION AND ADAPTIVE MANAGEMENT

Evaluation of the Plan Amendment will follow the same schedule as evaluation of the Resource Management Plans for each Field Office. Annually, the Fire Program tracks acres of natural burn and fuels treatments on BLM public land in New Mexico and Texas. The Fire Program, in conjunction with the New Mexico State Office fire ecologist, will evaluate the Plan Amendment periodically, as described in the Monitoring and Adaptive Management Measures in Appendix A.6.

APPENDICES

APPENDIX A

FIRE MANAGEMENT

CONTENTS:

- A.1 Fire Regime Condition Class Definition
- A.2 Fire Management Category Definitions and Overview
- A.3 Fire Management Units, Categories and Acres by Field Office
- A.4 Supporting Data for Deriving Treated Acres
- A.5 New Mexico BLM Wildland Fires by Year
- A.6 Proposed Measures for Monitoring and Adaptive Management

FIGURES:

- A.1 Fire Management Categories on Public Land in New Mexico
- A.2 Albuquerque Field Office Fire Management Units
- A.3 Carlsbad Field Office Fire Management Units
- A.4 Farmington Field Office Fire Management Units
- A.5 Las Cruces Field Office Fire Management Units
- A.6 Roswell Field Office Fire Management Units
- A.7 Socorro Field Office Fire Management Units
- A.8 Taos Field Office Fire Management Units
- A.9 Amarillo, Texas Field Office Fire Management Unit

APPENDIX A.1 FIRE REGIME CONDITION CLASS DEFINITION*

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Coarse-scale definitions for natural (historical) fire regimes have been developed by Hardy et al (2001) and Schmidt et al (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

- I. 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);
- II 0-35 year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);
- III. 35-100+ year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced);
- IV. 35-100+ year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);
- V. 200+ year frequency and high (stand replacement) severity.

As scale of application becomes finer, these five classes may be defined with more detail, or any one class may be split into finer classes, but the hierarchy to the coarse scale definitions should be retained.

A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime (Hann and Bunnell 2001). Coarse-scale FRCC classes have been defined and mapped by Hardy et al (2001) and Schmidt et al (2001) (FRCC). They include three condition classes for each fire regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition, fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and disease mortality, grazing, and drought). There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes.

The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy et al 2001, Schmidt et al 2002). The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

Characteristic vegetation and fuel conditions are considered to be those that occurred within the natural (historical) fire regime. Uncharacteristic conditions are considered to be those that did not occur within the natural (historical) fire regime, such as invasive species (e.g. weeds, insects, and diseases), “high graded” [altered] forest composition and structure (e.g. large trees removed in a frequent surface fire regime), or repeated annual grazing that maintains grassy fuels across relatively large areas at levels that will not carry a surface fire. Determination of amount of departure is based on comparison of a composite measure of fire regime attributes (vegetation characteristics; fuel composition; fire frequency, severity and pattern) to the central tendency of the natural (historical) fire regime. The amount of departure is then classified to determine the fire regime condition class. A simplified description of the fire regime condition classes and associated potential risks follows.

FIRE REGIME CONDITION CLASS	DESCRIPTION	POTENTIAL RISKS
Condition Class 1	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	<p>Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics.</p> <p>Composition and structure of vegetation and fuels are similar to the natural (historical) regime.</p>
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	<p>Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) is low.</p> <p>Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe).</p> <p>Composition and structure of vegetation and fuel are moderately altered.</p> <p>Uncharacteristic conditions range from low to moderate.</p>
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity, and pattern; and other associated disturbances.	<p>Risk of loss of key ecosystem components is moderate.</p> <p>Fire behavior, effects, and other associated disturbances are highly departed (more or less severe).</p> <p>Composition and structure of vegetation and fuel are highly altered.</p> <p>Uncharacteristic conditions range from moderate to high.</p> <p>Risk of loss of key ecosystem components is high.</p>

More detailed descriptions of the fire regime condition classes and associated attributes are provided in the following table.

Examples of Key Ecosystem Component Susceptibility to Changing Fire Regime Condition Class						
Condition Class	Fire Regime	Example Management Options	Species Composition and Structure	Invasion by Non-native Species	Smoke production, hydrology, and soils	Insects and disease
1	Fire regimes are within the natural (historical) range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition, structure, and pattern) are intact and functioning within the natural (historical) range.	Where appropriate, these areas can be maintained within the natural (historical) fire regime by treatments such as fire use.	Species composition and structure are functioning within their natural (historical) range at both patch and landscape scales.	Non-native species are currently not present or present in limited extent. Through time or following disturbance, sites are potentially vulnerable to invasion by non-native species.	Functioning within their natural (historical) range.	Insect and disease populations functioning within their natural (historical) range.
2	Fire regimes have been moderately altered from their natural (historical) range. Risk of losing key ecosystem components is moderate. Fire frequencies have departed from natural frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation and fuel attributes have been moderately altered from their natural (historical) range.	Where appropriate, these areas may need moderate levels of restoration treatments, such as fire use and hand or mechanical treatments, to be restored to the natural fire regime.	Species composition and structure have been moderately altered from their historical range at patch and landscape scales. For example: <u>Grasslands</u> – Moderate encroachment of shrubs and trees and/or invasive exotic species. <u>Shrublands</u> – Moderate encroachment of trees, increased shrubs, or invasive exotic species. <u>Forest/Woodland</u> – Moderate increases in density, encroachment of shade tolerant tree species, or moderate loss of shade intolerant tree species caused by fire exclusion, logging, or exotic insects of disease. Replacement of surface shrub/grass with woody fuels and litter.	Populations of non-native invasive species may have increased, thereby increasing the potential risk for these populations to expand following disturbances, such as wildfires.	Have been moderately altered from their natural (historical) range. Water flow typically less. Smoke and soil erosion following fire typically greater.	Insect and disease population have been moderately altered from their natural (historical) range.
3	Fire regimes have been substantially altered from their natural (historical) range. The risk of losing key ecosystem components is high. Fire frequencies have departed from natural frequencies by multiple return intervals. Dramatic changes occur to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been substantially altered from their natural (historical) range.	Where appropriate, these areas may need high levels of restoration treatments, such as hand or mechanical treatments, before fire can be used to restore the natural fire regime.	Species composition and structure have been substantially altered from their historical range at patch and landscape scales. For example: <u>Grasslands</u> – High encroachment and establishment of shrubs, trees, or invasive exotic species. <u>Shrublands</u> – High encroachment and establishment of trees, increased shrubs, or invasive species. <u>Forest/Woodland</u> – High increases in density, encroachment of shade intolerant tree species, or high loss of shade intolerant tree species caused by fire exclusion, logging, or exotic insects or disease.	Invasive species may be common and in some cases the dominant species on the landscape. Any disturbance will likely increase both the dominance and geographic extent of these invasive species.	Have been substantially altered from their historical range.	Insect and disease population have been substantially altered from their natural (historical) range. Typically higher mortality or defoliation.

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*Hann, Wendel, Havlina, Doug, Shlisky, Ayn, et al. 2003. Interagency and The Nature Conservancy fire regime and condition class website. USDA Forest Service, US Department of the Interior, The Nature Conservancy, and Systems for Environmental Management [fire.org/frcc].

APPENDIX A.2 FIRE MANAGEMENT CATEGORY DEFINITIONS AND OVERVIEW

FMU CATEGORY “A”: AREAS WHERE FIRE IS NOT DESIRED AT ALL.

General description: This category includes areas where mitigation and suppression is required to prevent threats to life and property. It includes areas where fire never played a large role historically in the development and maintenance of the ecosystem, or because of human development, fire can no longer be tolerated without significant loss, or where fire return intervals are very long.

Fire Mitigation Considerations: Emphasis should be focused on prevention, detection, and rapid suppression response and techniques that will reduce unwanted ignitions and threats to life, property, natural and cultural resources.

Fire Suppression Considerations: Virtually all wildland fires would be actively suppressed and no fire is prescribed except as required to combat an immediate threat to firefighter or public health and safety.

Fuel Treatment Considerations: Non-fire treatments employed. Unit costs for prescribed fire would be too prohibitive to implement efficiently. Pile burning of mechanically removed vegetation is acceptable.

FMU CATEGORY “B”: AREAS WHERE UNPLANNED WILDLAND FIRE IS NOT DESIRED BECAUSE OF CURRENT CONDITIONS

General Description: Fire plays a natural role in the function of the ecosystem, however these are areas where an unplanned ignition could have negative effects unless some form of mitigation takes place.

Fire Mitigation Considerations: Emphasize prevention/mitigation programs that reduce unplanned ignitions and threats to life, property, natural and cultural resources.

Fire Suppression Considerations: Fire suppression is usually the objective of unplanned wildfire.

Fuel Treatment Considerations: Fire and non-fire fuels treatments are utilized to reduce the hazardous effects of unplanned wildfire. Restoration treatments may consist of multiple non-fire treatments before the use of fire will be considered.

FMU CATEGORY “C”: AREAS WHERE WILDLAND FIRE IS DESIRED, BUT THERE ARE SIGNIFICANT CONSTRAINTS THAT MUST BE CONSIDERED FOR ITS USE.

General Description: Fire is a desirable component of the ecosystem, however, ecological, social or political constraints must be considered. These constraints could include air quality, threatened and endangered species considerations, or wildlife habitat considerations.

Fire Mitigation Considerations: Programs should mitigate potential threats to values before ignitions occur and reduce unwanted human ignitions.

Fire Suppression Considerations: Ecological and resource constraints along with human health and safety are considered in determining the appropriate suppression response on a case-by-case basis by the incident commander or line officer. Areas in this category would generally receive lower suppression priority in multiple wildland fire situations than would areas in “A” or “B” FMUs.

Fuel Treatment Considerations: Fire and non-fire fuels treatments may be utilized to ensure constraints are met or to reduce any hazardous effects of unplanned wildfire. Treatments may consist of multiple non-fire treatments before the use of fire is considered.

FMU CATEGORY "D": AREAS WHERE WILDLAND FIRE IS DESIRED, AND THERE ARE FEW OR NO CONSTRAINTS FOR ITS USE.

General Description: Areas where unplanned and planned wildland fire may be used to achieve desired objectives, such as, improving vegetation, wildlife habitat or watershed conditions.

Fire Mitigation Considerations: Implement programs that reduce unwanted human-caused ignitions, as needed.

Fire Suppression/ Use Considerations: These areas offer the greatest opportunity to take advantage of the full range of options available for managing wildland fire under the appropriate management response. Health and safety constraints will apply. Fire use considerations similar to those described for Category C may be identified if needed to achieve resource objectives. Areas in this category would be the lowest suppression priority in a multiple fire situation.

Fuel Treatment Considerations: There is generally less need for hazardous fuel treatment in this category. Prescribed fire for hazardous fuel reduction is not a priority except where there is an immediate threat to health and safety. If treatment is necessary, both fire and non-fire treatments may be utilized, as allowed by the resource management plan. Prescribed fire to obtain desired resource/ecological condition is appropriate.

**APPENDIX A.3 FIRE MANAGEMENT UNITS (FMUs), CATEGORIES, AND
BLM ACRES BY FIELD OFFICE (AS OF 12/17/03)**

FIELD OFFICE	FMU CATEGORY	FMU NAME	TOTAL ACRES
ALBUQUERQUE	B	Kasha-Katuwe Tent Rocks National Monument	4,124
	B	Sandia	11,063
	B	Candy Kitchen	12,900
	C	North Malpais	225,582
	C	Wilderness & Wilderness Study Areas (7 subunits)	137,775
	C	Mesa Chivato	58,436
	C	Scattered Grass-Shrublands	533,513
	D	West Malpais Wilderness Area	39,980
ALBUQUERQUE FIELD OFFICE TOTAL			1,023,373
CARLSBAD	C	Eastern Sandhill Country	1,139,078
	C	Western Foothills	613,912
	C	Pecos River Corridor	37,052
	C	Carlsbad Caverns*	0
	D	Guadalupe Escarpment	301,001
CARLSBAD FIELD OFFICE TOTAL			2,091,043
FARMINGTON	A	River Corridors	6,381
	A	Head Canyon/Dunes Recreation Area	3,162
	A	Bald Eagle ACEC/Navajo Reservoir (3 subunits)	1,995
	A	Cultural SDA (73 subunits)	52,360
	B	Reese Canyon	3,514
	B	Glade Run Recreation Area	31,107
	B	Crouch Mesa/Knickerbocker Peak	21,514
	B	Eul Canyon	1,665
	B	MSO ACEC	2,613
	C	Chaco/Other general areas	416,376
	C	Bisti-Denazin Wilderness	38,421
	C	Twin Mounds	33,732
	C	Lonetree Mountain	36,495
	C	Rattlesnake Canyon/Middle Mesa/Rosa Mesa (3 subunits)	217,698
	C	Largo/Carrizo/Blanco Canyons (3 subunits)	505,717
	C	Jones/Thomas Canyons	9,119
	C	Pump Canyon	2,107
	C	Simon Canyon	1,796
	C	Hogback ACEC (2 subunits)	9,510
	FARMINGTON FIELD OFFICE TOTAL		
LAS CRUCES	A	Three Rivers Recreation Site and Petroglyph ACEC	1,040
	A	Pinos Altos	1,789
	A	Gila Lower and Middle Box	15,625
	A	Timberon	827
	A	Caballo Mountain Communication Site	793
	A	Aguirre Spring Recreation Site	37
	A	La Cueva Recreation Site	40
	A	Cox Visitor Center	41
	A	Dripping Springs Recreation Site	41
	A	Talavera Subdivision**	0
	A	Lake Valley	21

**APPENDIX A.3 FIRE MANAGEMENT UNITS (FMUS), CATEGORIES, AND
BLM ACRES BY FIELD OFFICE (AS OF 12/17/03) (CONTINUED)**

FIELD OFFICE	FMU CATEGORY	FMU NAME	TOTAL ACRES
LAS CRUCES	B	Lordsburg/Deming/Silver City Tri-County Area	173,329
	B	Sacramento Escarpment WSA/ACEC	4,864
	B	Rio Grande River Corridor	115,152
	B	Chaparral Community	14,847
	B	Winston/Ladder Ranch	19,463
	B	Hillsboro	842
	C	Tularosa Basin/Otero Mesa	1,135,297
	C	Franklin Mountains	17,979
	C	Rio Grande Valley Uplands	1,720,984
	C	Bootheel/Gila	1,315,513
	D	McGregor Range	362,009
	D	Alamo Hueco Mountains	16,462
	D	Big Hatchet Mountains WSA/ACEC	67,479
	D	Guadalupe Canyon/Cowboy Spring WSA	10,917
	D	Gray Peak WSA/ACEC	19,535
	D	Peloncillo Mountains WSA/ACEC	3,979
	D	Blue Creek WSA	17,310
	D	Apache Box WSA	6,267
	D	Jornada del Muerto WSA	4,106
	D	Brokeoff Mountains WSA	31,148
	D	Organ Mountains WSA/ACEC	40,673
	D	Robledo Mountains WSA/ACEC	12,999
	D	West Potrillos WSA/ACEC	186,944
	D	Las Uvas WSA/ACEC	11,091
	D	Florida Mountains WSA/ACEC	22,407
	D	Cooke's Range WSA/ACEC	24,017
	D	Cedar Mountains WSA	14,898
LAS CRUCES FIELD OFFICE TOTAL			5,390,765
ROSWELL	B	Fort Stanton/Rio Bonito	25,790
	C	Special Management Areas (3 subunits)	21,310
	C	Lava Flow WSA	28,834
	D	Pecos Plains	1,407,186
ROSWELL FIELD OFFICE TOTAL			1,483,120
SOCORRO	A	Socorro Natural Area	201
	A	Riley Community	533
	A	Sawtooth ACEC	125
	A	Fort Craig	149
	B	Datil Campground	669
	B	Horse Mountain Interface	1,890
	B	Pie Town	1,082
	B	Antelope Run	3,824
	B	San Lorenzo Canyon	1,097
	C	All Lands not specified by selected category	1,004,520
	D	Pelona Mountain	114,735
	D	Horse Mountain	6,384
	D	Sierra Ladrones (2 subunits)	65,821
	D	Devil's Backbone	8,970
	D	Jornada	26,859

**APPENDIX A.3 FIRE MANAGEMENT UNITS (FMUs), CATEGORIES, AND
BLM ACRES BY FIELD OFFICE (AS OF 12/17/03) (Continued)**

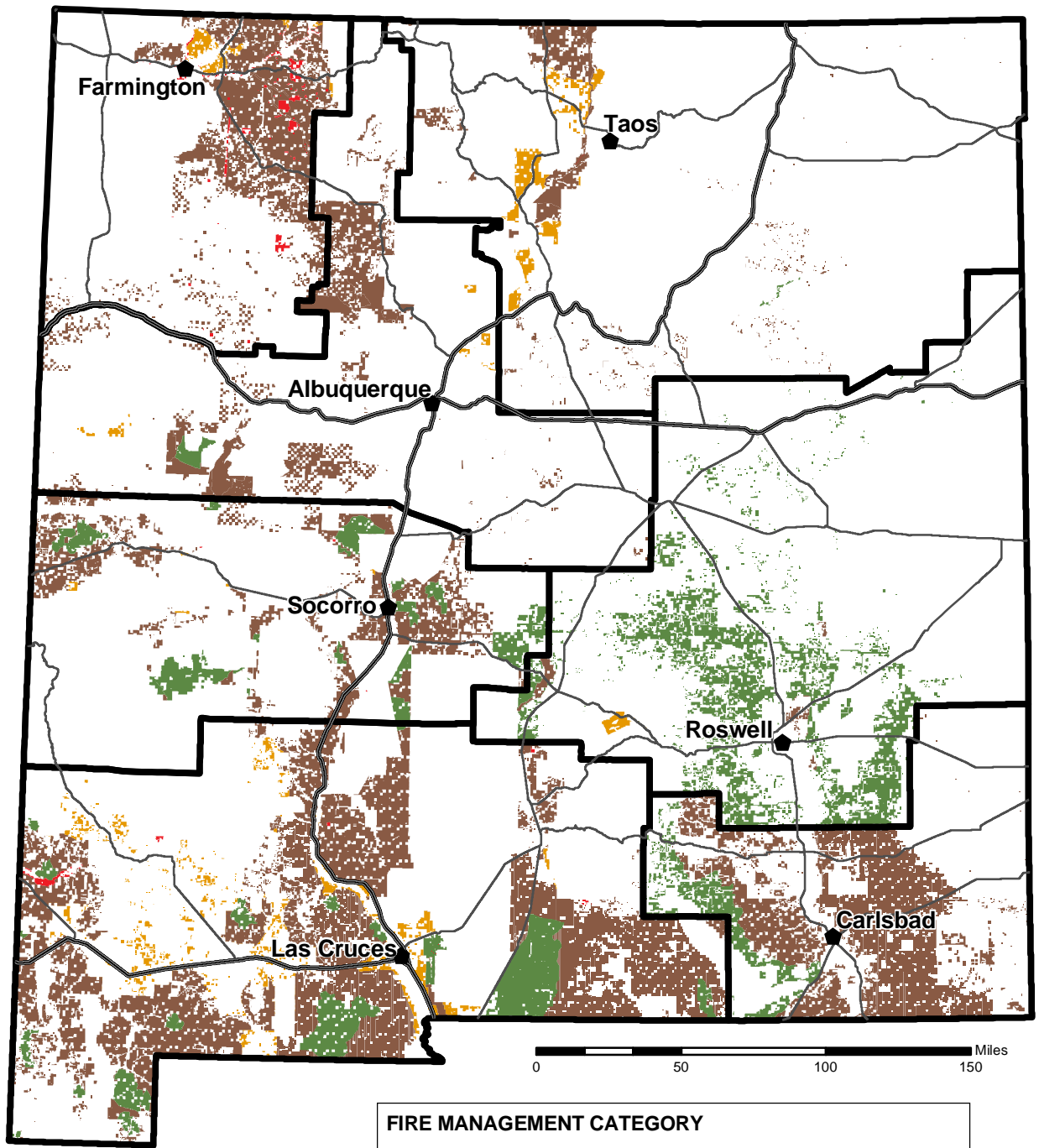
FIELD OFFICE	FMU CATEGORY	FMU NAME	TOTAL ACRES
Socorro	D	Other Wilderness Study Areas (6 subunits)	136,156
	D	Chupadera Mesa	109,760
	D	Isolated Ponderosa Pine Stands (6 subunits)	24,242
	SOCORRO FIELD OFFICE TOTAL		1,507,017
Taos	A	Rio Grande Corridor - Well Developed Riparian	32
	B	Black Mesa/Ojo Caliente	67,101
	B	Copper Hill WUI	1,314
	B	31 Mile Block	11,677
	B	Sombrillo SMA/Santa Cruz Lake	20,187
	B	Chimayo Scout Camp**	0
	B	Buckman	21,331
	B	La Cienega	13,793
	B	Cerro del Aire and Surrounding Southern Area	43,666
	B	Wild Rivers	11,226
	C	Taos Field Office – All Other Unassigned	71,273
	C	Cebolla/Abiquiu	33,541
	C	Copper Hill /Sebastian Martin Grant	53,400
	C	Fun Valley/Chimayo	25,602
	C	North Unit/Pot Mountain	156,258
	C	Archuleta Mesa (2 subunits)	4,007
	C	Rio Grande Corridor	29,950
	C	San Antonio Gorge ACEC (2 subunits)	270
	C	San Antonio WSA (2 subunits)	7,043
	D	Sabinoso WSA	4,885
TAOS FIELD OFFICE TOTAL		576,556	
Amarillo, TX	C	West Amarillo Creek	302
	C	Horse Creek	129
	C	Ranch Creek	57
	D	Flatlands	11,314
AMARILLO FIELD OFFICE TOTAL		11,802	

NOTES: *National Park Service land adjacent to public land.


**Cooperative agreements on private land adjacent to public land.





SOURCE: BLM NMSO, 2004.

Figure A.1 Fire Management Categories on Public Land in New Mexico



FEATURES

-  BLM Field Office
-  Interstate Highway
-  US Highway
-  BLM Field Office Boundary

FIRE MANAGEMENT CATEGORY	
	A - Fire is not desired at all
	B - Unplanned wildfire is not desired because of current conditions
	C - Wildland fire is desired but with significant constraints
	D - Wildland fire is desired with few or no constraints

(See Table A.2 for definitions.)

Data source: BLM NMSO, 2003.

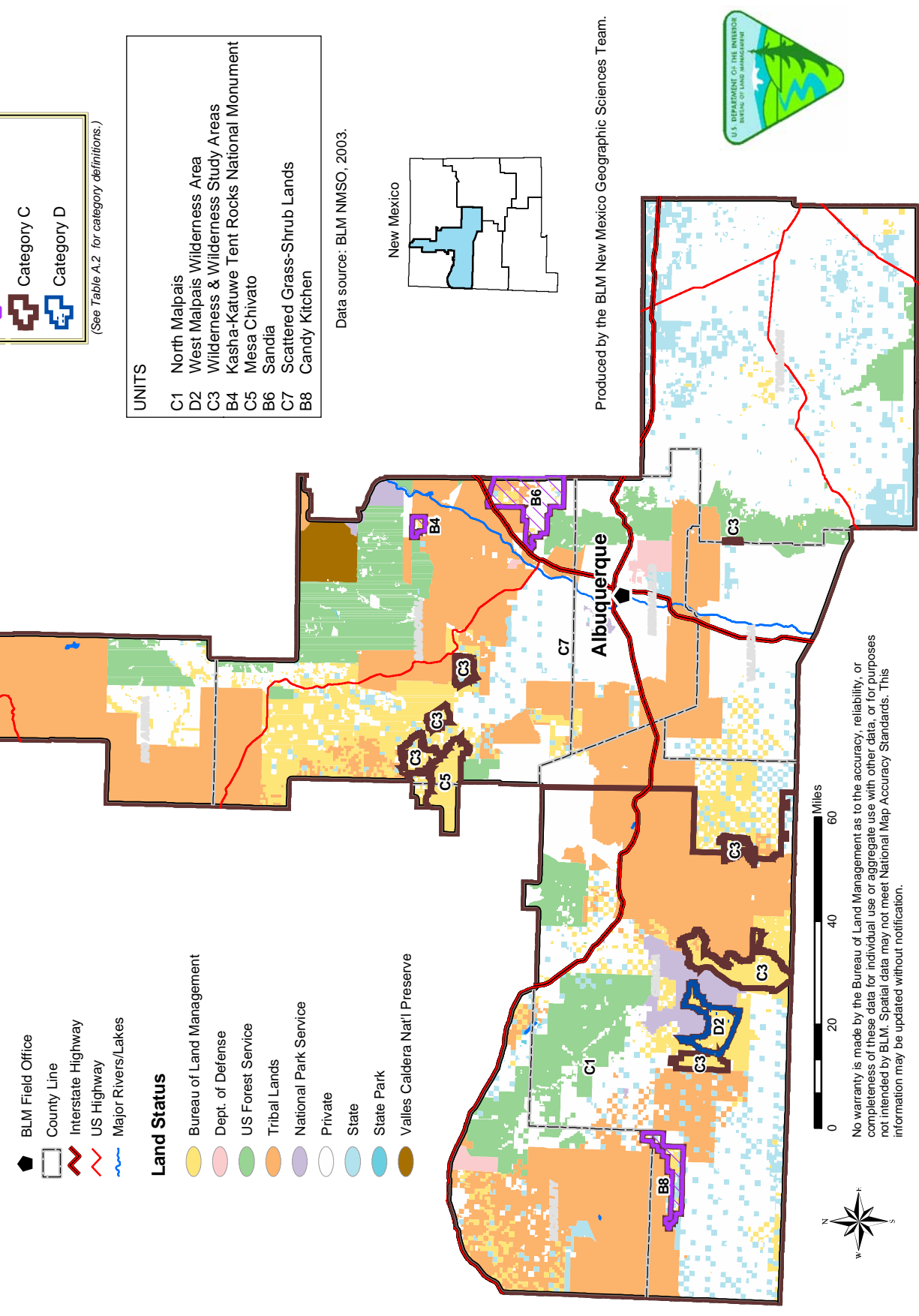
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Figure A.2 Albuquerque Field Office Fire Management Units



Fire Management Units

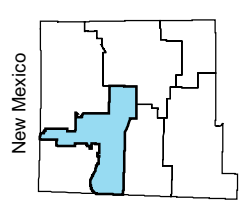
- Category B
- Category C
- Category D

(See Table A.2 for category definitions.)

UNITS

C1	North Malpais
D2	West Malpais Wilderness Area
C3	Wilderness & Wilderness Study Areas
B4	Kasha-Katuwe Tent Rocks National Monument
C5	Mesa Chivato
B6	Sandia
C7	Scattered Grass-Shrub Lands
B8	Candy Kitchen

Data source: BLM NMSO, 2003.



Produced by the BLM New Mexico Geographic Sciences Team.



Figure A.3 Carlsbad Field Office Fire Management Units

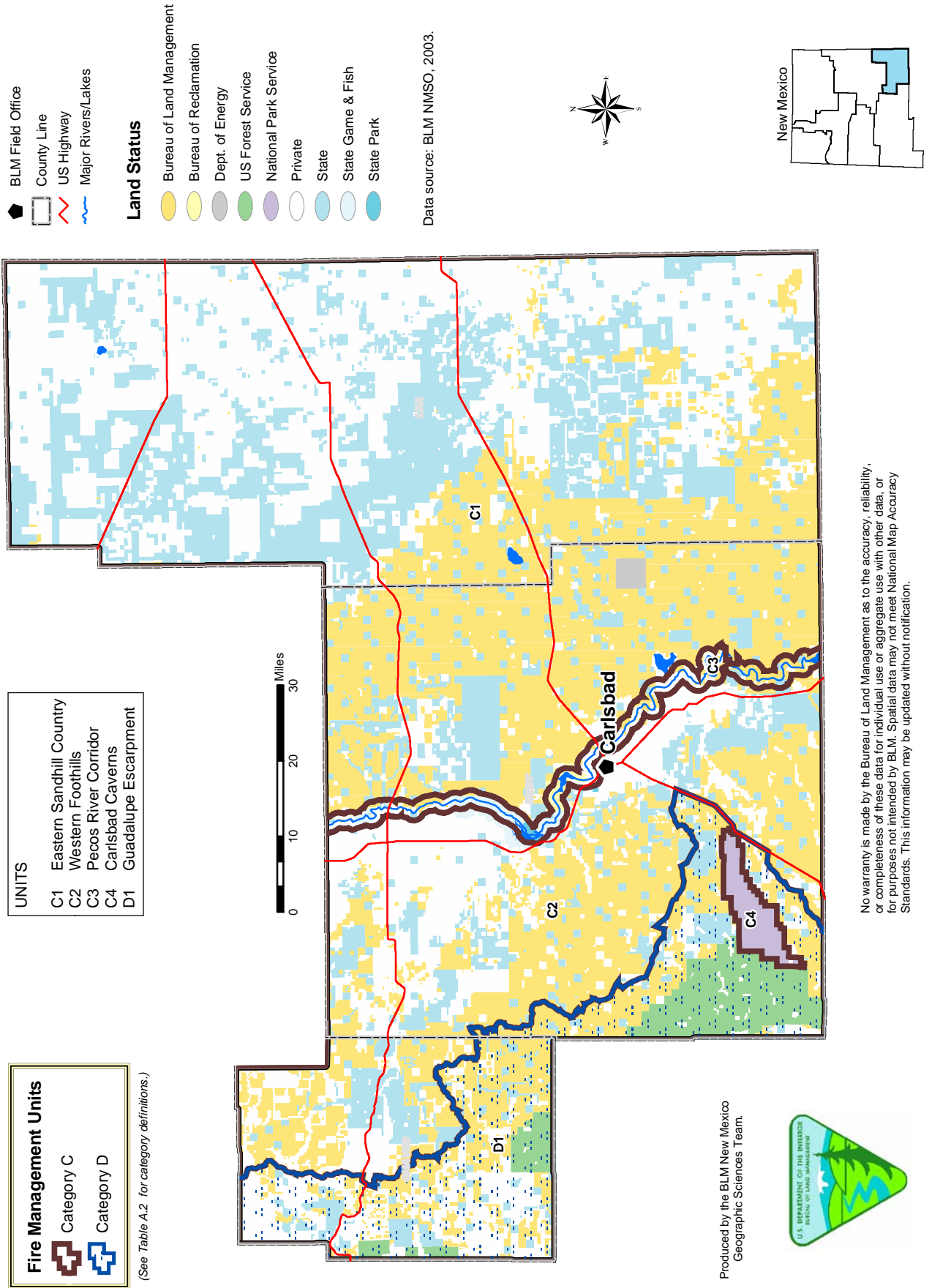
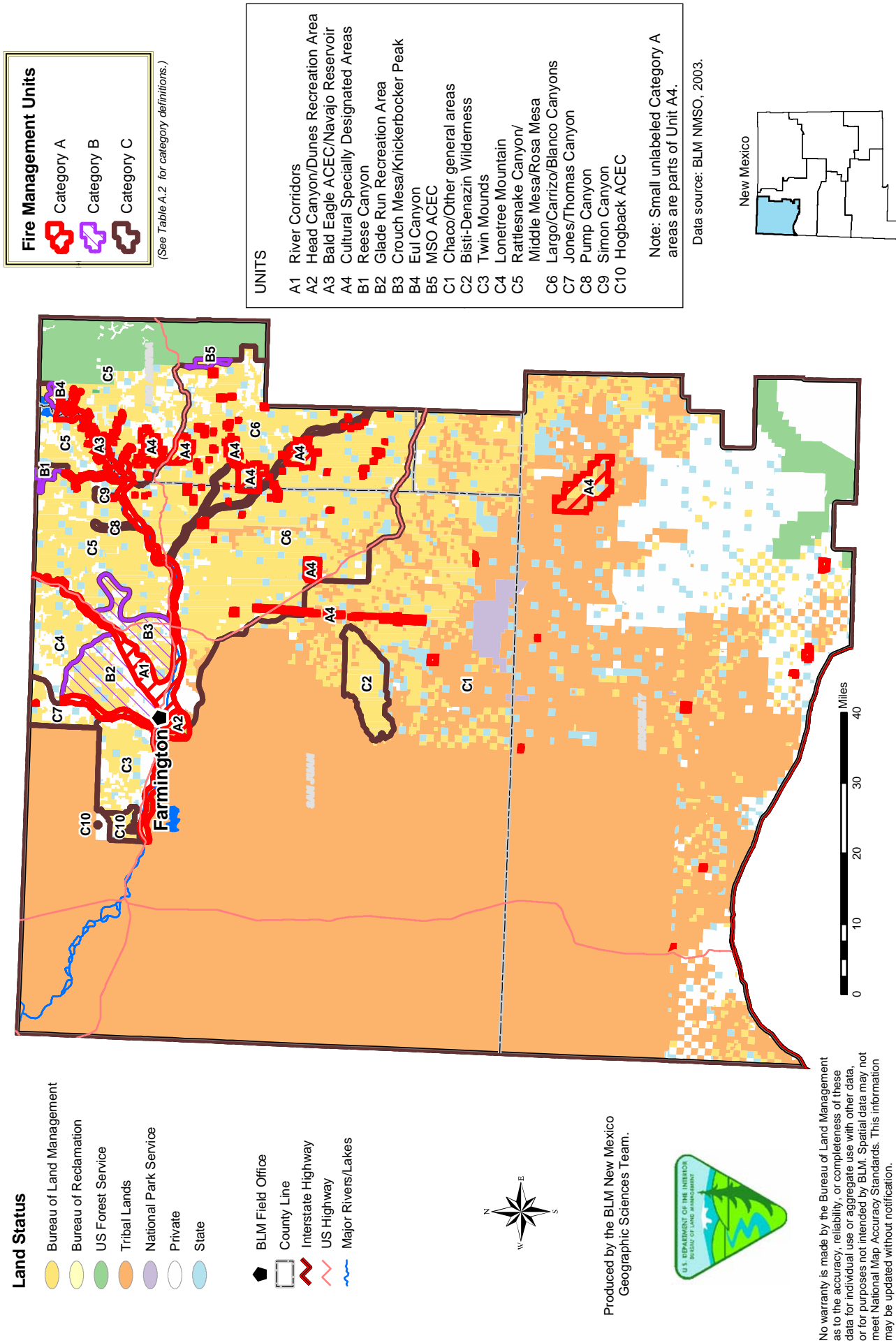


Figure A.4 Farmington Field Office Fire Management Units



Fire Management Units

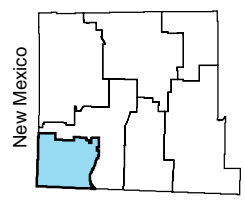
- Category A
- Category B
- Category C

(See Table A.2 for category definitions.)

- UNITS**
- A1 River Corridors
 - A2 Head Canyon/Dunes Recreation Area
 - A3 Bald Eagle ACEC/Navajo Reservoir
 - A4 Culturally Specially Designated Areas
 - B1 Reese Canyon
 - B2 Glade Run Recreation Area
 - B3 Crouch Mesa/Krickerbocker Peak
 - B4 Eul Canyon
 - B5 MSO ACEC
 - C1 Chaco/Other general areas
 - C2 Bisti-Denazin Wilderness
 - C3 Twin Mounds
 - C4 Lonetree Mountain
 - C5 Rattlesnake Canyon/Rattlesnake Canyon/Rosa Mesa
 - C6 Largo/Carrizo/Blanco Canyons
 - C7 Jones/Thomas Canyon
 - C8 Pump Canyon
 - C9 Simon Canyon
 - C-10 Hogback ACEC

Note: Small unlabeled Category A areas are parts of Unit A4.

Data source: BLM NMSO, 2003.



- Land Status**
- Bureau of Land Management
 - Bureau of Reclamation
 - US Forest Service
 - Tribal Lands
 - National Park Service
 - Private
 - State

- BLM Field Office
- County Line
- Interstate Highway
- US Highway
- Major Rivers/Lakes

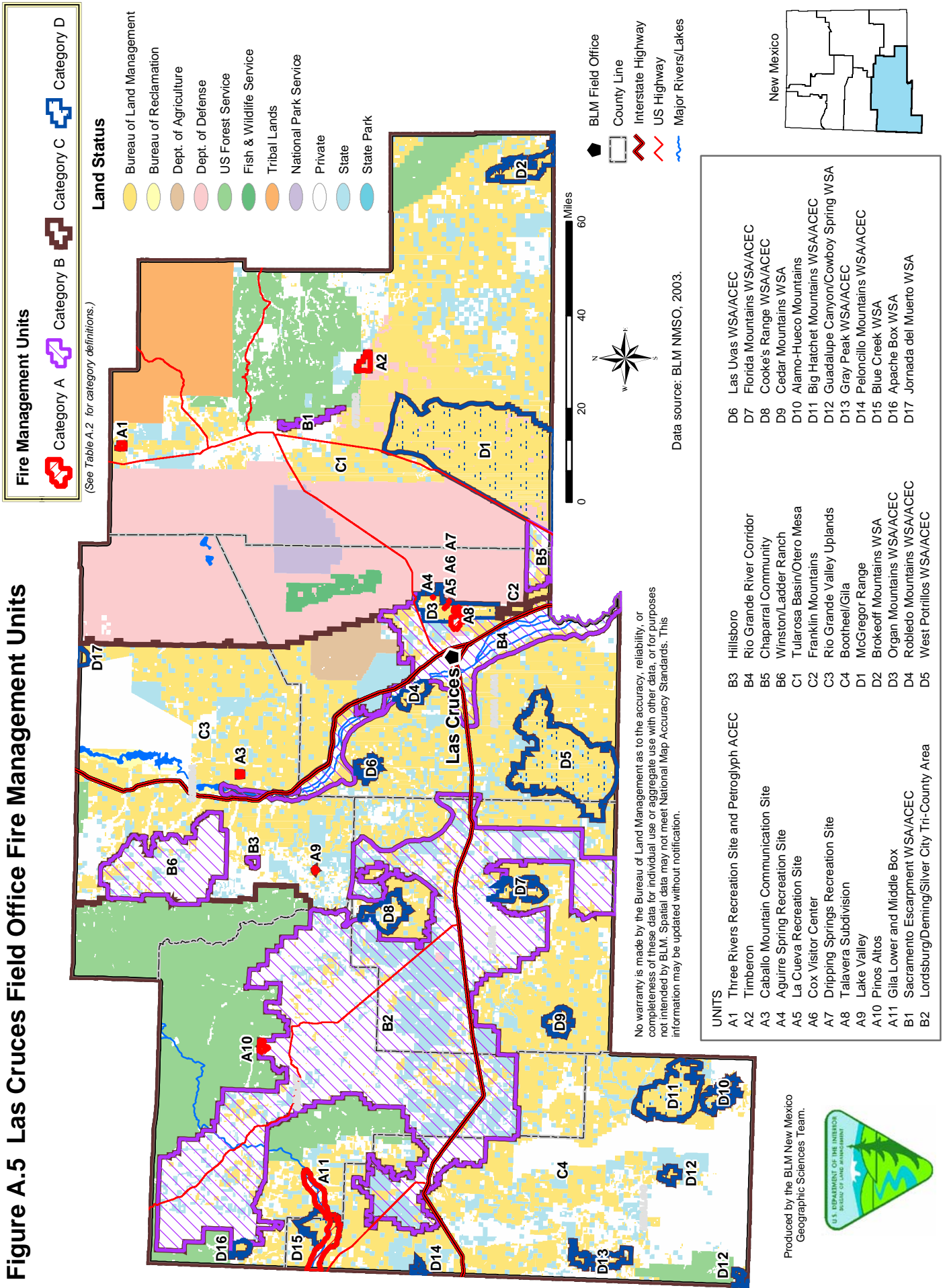


Produced by the BLM New Mexico Geographic Sciences Team.

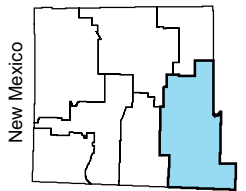


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Figure A.5 Las Cruces Field Office Fire Management Units

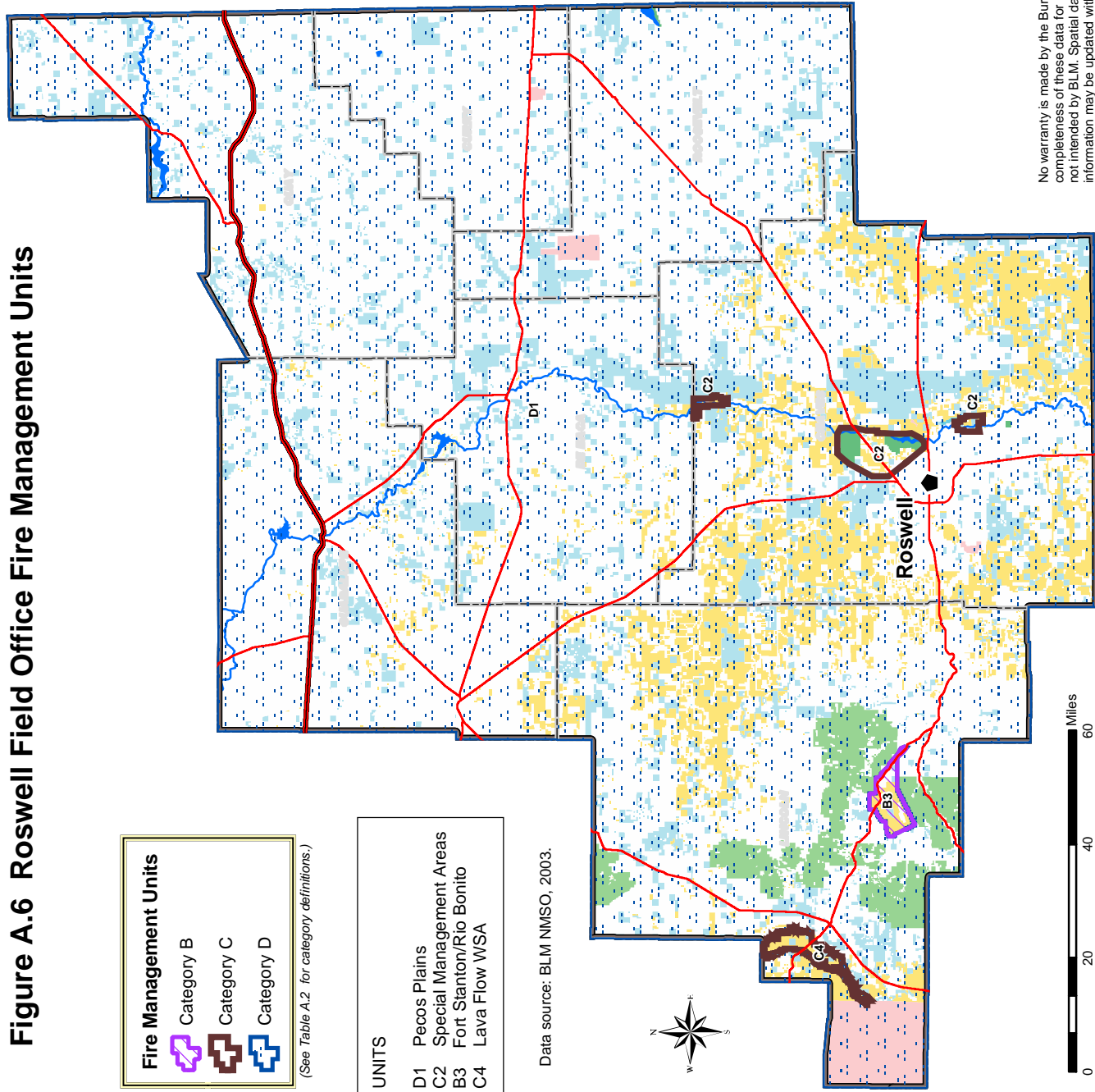


UNITS	UNITS	UNITS	UNITS
A1	Three Rivers Recreation Site and Petroglyph ACEC	B3	Hillsboro
A2	Timberon	B4	Rio Grande River Corridor
A3	Caballo Mountain Communication Site	B5	Chaparral Community
A4	Aguirre Spring Recreation Site	B6	Winston/Ladder Ranch
A5	La Cueva Recreation Site	C1	Tularosa Basin/Otero Mesa
A6	Cox Visitor Center	C2	Franklin Mountains
A7	Dripping Springs Recreation Site	C3	Rio Grande Valley Uplands
A8	Talavera Subdivision	C4	Bootheel/Gila
A9	Lake Valley	D1	McGregor Range
A10	Pinos Altos	D2	Brokeoff Mountains WSA
A11	Gila Lower and Middle Box	D3	Organ Mountains WSA/ACEC
B1	Sacramento Escarpment WSA/ACEC	D4	Robledo Mountains WSA/ACEC
B2	Lordsburg/Deming/Silver City Tri-County Area	D5	West Potrillo WSA/ACEC
D6	Las Uvas WSA/ACEC	D7	Florida Mountains WSA/ACEC
D7	Cooke's Range WSA/ACEC	D8	Cedar Mountains WSA
D8	Cedar Mountains WSA	D9	Alamo-Huaco Mountains
D9	Alamo-Huaco Mountains	D10	Guadalupe Canyon/Cowboy Spring WSA
D10	Guadalupe Canyon/Cowboy Spring WSA	D11	Gray Peak WSA/ACEC
D11	Gray Peak WSA/ACEC	D12	Peloncillo Mountains WSA/ACEC
D12	Peloncillo Mountains WSA/ACEC	D13	Blue Creek WSA
D13	Blue Creek WSA	D14	Apache Box WSA
D14	Apache Box WSA	D15	Jornada del Muerto WSA
D15	Jornada del Muerto WSA	D16	
D16		D17	



Produced by the BLM New Mexico Geographic Sciences Team.

Figure A.6 Roswell Field Office Fire Management Units



Fire Management Units

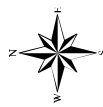
- Category B
- Category C
- Category D

(See Table A.2 for category definitions.)

UNITS

- D1 Pecos Plains
- C2 Special Management Areas
- B3 Fort Stanton/Rio Bonito
- C4 Lava Flow WSA

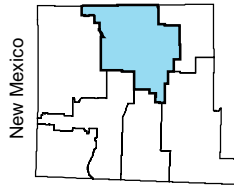
Data source: BLM NMSO, 2003.



- BLM Field Office
- County Line
- Interstate Highway
- US Highway
- Major Rivers/Lakes

Land Status

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Defense
- US Forest Service
- Fish & Wildlife Service
- Private
- State
- State Park



Produced by the BLM New Mexico Geographic Sciences Team.



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial data may not meet National Map Accuracy Standards. This information may be updated without notification.

Figure A.7 Socorro Field Office Fire Management Units

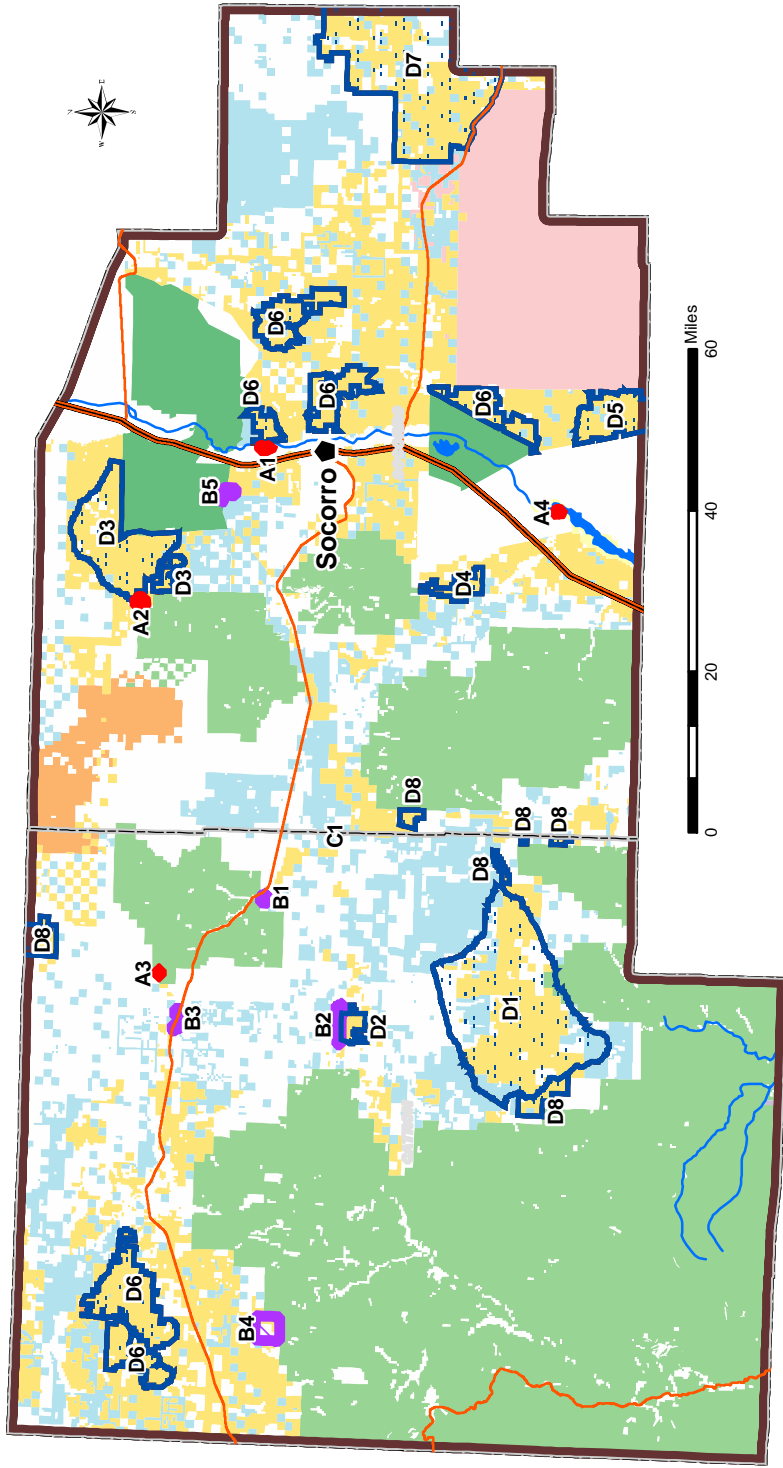
Fire Management Units

■ Category A
 ■ Category B
 ■ Category C
 ■ Category D

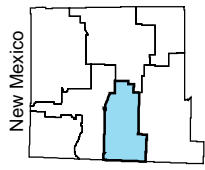
(See Table A.2 for category definitions.)

- UNITS**
- A1 Socorro Natural Area
 - A2 Riley Community
 - A3 Sawtooth ACEC
 - A4 Fort Craig
 - B1 Datil Campground
 - B2 Horse Mountain Interface
 - B3 Pie Town
 - B4 Antelope Run
 - B5 San Lorenzo Canyon
 - C1 All Lands not specified by selected category
 - D1 Pelona Mountain
 - D2 Horse Mountain
 - D3 Sierra Ladrones
 - D4 Devil's Backbone
 - D5 Jornada
 - D6 Other Wilderness Study Areas
 - D7 Chupadera Mesa
 - D8 Isolated Ponderosa Pine Stands

- Land Status**
- Bureau of Land Management
 - Bureau of Reclamation
 - Dept. of Defense
 - US Forest Service
 - Fish & Wildlife Service
 - Tribal Lands
 - National Park Service
 - Private
 - State
 - State Game & Fish



- BLM Field Office
- County Line
- Interstate Highway
- US Highway
- ~ Major Rivers/Lakes



Data source: BLM NMISO, 2003.

Produced by the BLM New Mexico Geographic Sciences Team.

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Figure A.8 Taos Field Office Fire Management Units

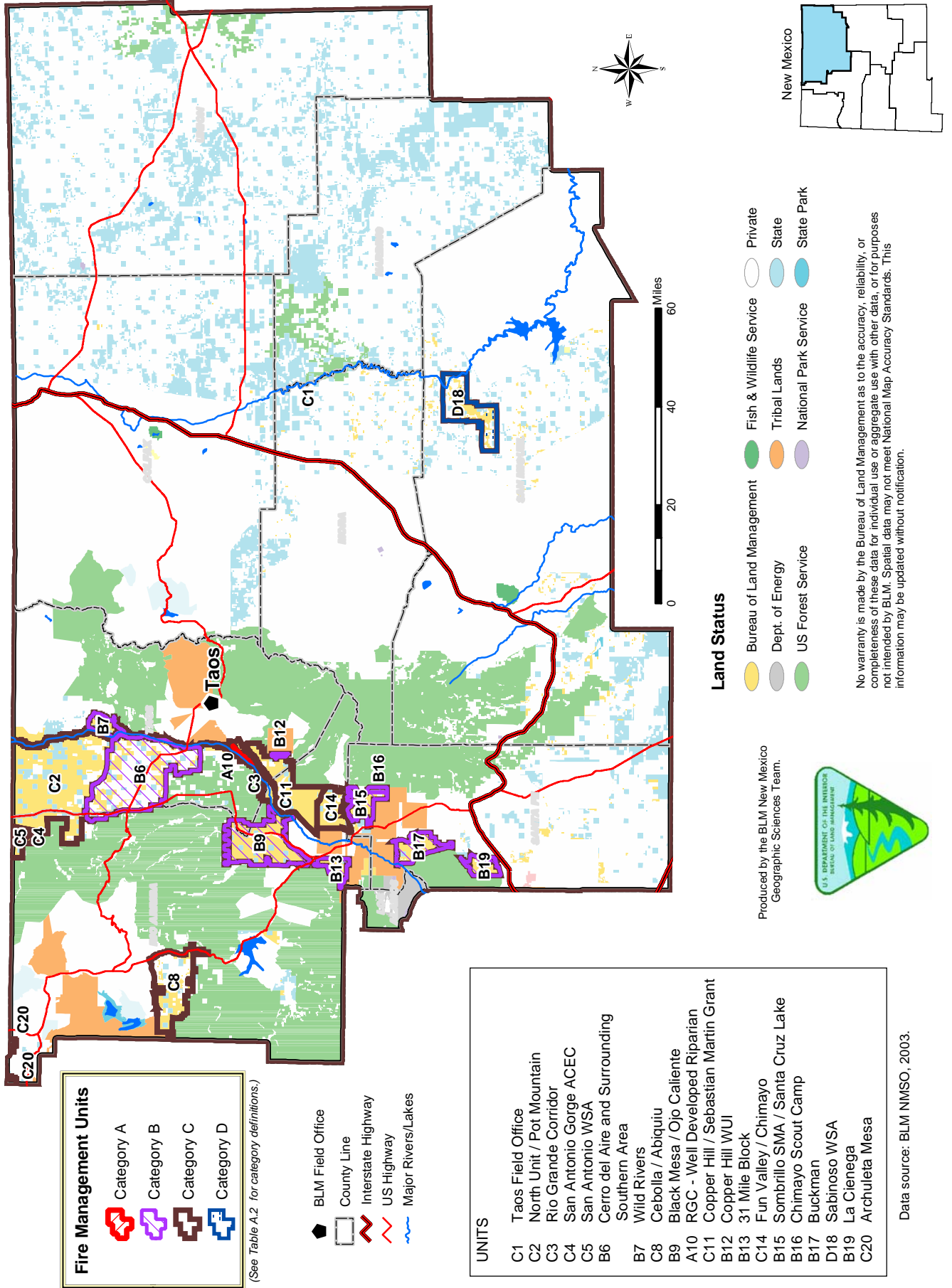
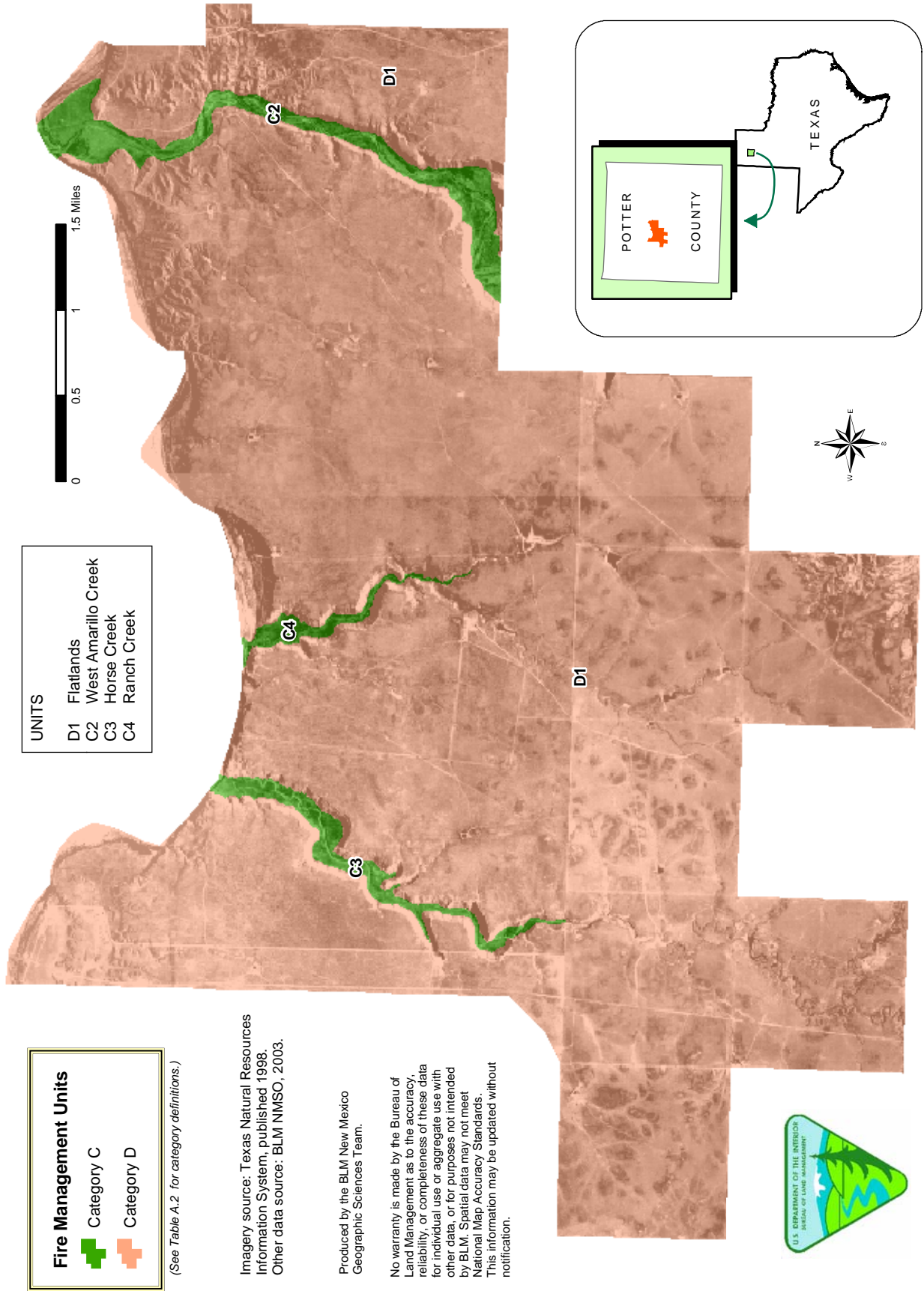


Figure A.9 Amarillo, TX Field Office Fire Management Units



APPENDIX A.4
SUPPORTING DATA FOR DETERMINING ACRES TREATED PER
ALTERNATIVE

The total acres of vegetation types per Field Office were derived from New Mexico GAP vegetation data and Texas Parks and Wildlife Department vegetation data. The number of acres in the following tables is less than the actual BLM acres for each Field Office because the tables do not include barren land, agricultural land, or water.

TOTAL ACRES OF VEGETATION TYPE PER FIELD OFFICE

Field Office	Grasslands	Shrublands	Woodlands	Forests	Saltcedar
Albuquerque	576,526	178,465	254,530	777	
Carlsbad	949,684	1,099,765	24,598	139	727
Farmington	885,931	131,237	366,940	761	
Las Cruces	1,919,827	2,932,154	280,891	1,918	545
Roswell	642,695	749,035	48,353		8,551
Socorro*	636,822	440,495	387,437		749
Taos	114,428	191,935	268,787	5,721	
Amarillo, TX**	11,629				
TOTAL	5,737,542	5,273,086	1,631,536	9,613	10,572

NOTES: * Forest included with woodland

**Grasslands with high shrub encroachment

SOURCE: New Mexico GAP Vegetation Data Analysis Project 1996

For the following vegetation groups, **Mean Fire Return Interval** is assumed to be: grassland – 20 yrs; Shrublands – 25 yrs; Woodlands – 20 yrs; Forests – 10 yrs; Saltcedar – 35 yrs.

Total vegetation in each group is divided by the Mean Fire Return Interval for that group to arrive at the number of acres that would be expected to burn naturally each year under natural (Fire Regime Condition Class 1) conditions.

Treatment alternatives are derived by treating grasslands and woodlands with prescribed fire; woodlands, forests, and saltcedar with mechanical treatments, and shrublands with chemical treatments. The proportion of each group treated per specific treatment type varies by alternative. The following table describes the number of acres treated in each Field Office by treatment type, by alternative.

Amarillo alternatives were determined by a blend of prescribed fire return interval treatments over 20 years to reduce shrub encroachment and restore native grasslands. For additional information on how these alternatives were defined, see NMSO 2004e in References Cited Section.

Average Annual Acres Treated by Treatment Type per Field Office				
Field Office	40% Mechanical	40% Rx Fire	20% Chemical	All Treatments
Albuquerque	5,122	16,621	1,428	23,171
Carlsbad	500	19,491	8,798	28,789
Farmington	7,369	25,063	1,050	33,482
Las Cruces	5,701	44,091	23,457	73,249
Roswell	1,065	13,918	6,041	21,024
Socorro	7,757	20,485	3,524	31,766
Taos	5,604	7,893	1,535	15,032
Amarillo	0	1,550	950	2,500

SOURCE: BLM New Mexico State Office, 2003.

APPENDIX A.5
NEW MEXICO BLM WILDLAND FIRES BY YEAR

Year	Lightning-Caused Fires		Human-Caused Fires		Total Fires	
	Number	Acres	Number	Acres	Number	Acres
1980	36	125.9	29	511	65	636.9
1981	22	512.8	11	663.4	33	1,176.2
1982	21	1,614.8	5	78.1	26	1,692.9
1983	23	1,448.9	11	538.1	34	1,987
1984	20	5.2	9	107.2	29	112.4
1985	48	3,034.3	10	1,582.7	58	4,617
1986	15	652.4	10	2,065	25	2,717.4
1987	23	3,736.1	35	7,983.6	58	11,719.7
1988	34	8,326.8	43	16,783.7	77	25,110.5
1989	132	51,261.7	75	30,240.1	207	81,501.8
1990	38	6,856.9	55	37,940.8	93	44,797.7
1991	29	2,210.7	59	3,444.8	88	5,655.5
1992	44	1,274.2	72	18,315.7	116	19,589.9
1993	97	103,277.1	79	25,922.3	176	129,199.4
1994	168	97,437.6	75	8,709.6	243	106,147.2
1995	60	9,575.9	79	552.2	139	10,128.1
1996	65	17,371.3	62	1,376.7	127	18,748
1997	36	2,656.9	22	2,123.2	58	4,780.1
1998	33	1,192.5	46	4,935.4	79	6,127.9
1999	34	1,975.4	100	7,898.9	134	9,874.3
2000	168	45,275.9	137	29,715.4	305	74,991.3
2001	114	5,203.7	39	1,845	153	7,048.7
2002	161	37,335.2	64	296.9	225	37,632.1
2003	127	830.8	30	766.2	157	1,597
TOTAL: 24 YRS	1,548	403,193	1,157	204,396	2,705	607,589

SOURCE: BLM Wildland Fire Management Information Database and BLM NMSO Geosciences, 2003

APPENDIX A.6

MEASURES FOR MONITORING AND ADAPTIVE MANAGEMENT

A. Introduction

The purpose of fire monitoring is to provide effective evaluation of the BLM New Mexico and Texas Fire and Fuels Management Program. The monitoring process is designed to determine whether fire and resource management objectives are met, as well as to document the consequences of fire management activities.

B. Desired Future Conditions and Management Objectives

An adaptive feedback process will be used to guide and evaluate the Fire and Fuels Management Program. This process begins with policy direction and incorporates the most current information to make knowledge-based management decisions about how best to restore and maintain fire-related natural resource components and processes.

- Review policy, direction, planning documents
- Develop objectives
- Design and implement management
- Design the monitoring methodology
- Evaluate qualitative and quantitative monitoring
- Implement monitoring
- Document and use results

Fire management program goals and objectives are described in Chapter 2. To understand the effects of fire and fuels management activities on public land, measurable benchmarks are needed as a point of reference. Measuring against the benchmarks will determine if resource conditions are approaching natural or historic conditions. Desired future conditions are needed to describe resource goals specifically and to serve as a standard by which to measure fire management program success. Defining desired future conditions answers the question, “What would the resource look like if we achieve fire management goals and objectives?”

Information used to develop these desired conditions includes research data (where available), historic photos, written documents, current vegetation databases, on-going assessment of Fire Regime Condition Class (FRCC), and expert opinion. Desired Future Conditions must be periodically evaluated to determine past, current, and future conditions.

C. Environmental and Fire Conditions

The first two monitoring levels are (1) environmental monitoring and (2) fire observations to provide information that will guide fire management strategies for wildland and prescribed fires.

Monitoring Goal: Environmental monitoring and fire observations provide the basic background information needed for decision-making before, during and after fire events.

Monitoring Objectives

1. Collect information on environmental conditions (current and forecasted weather, fuel model) and fire conditions (name, location, slope, aspect, spread, intensity, smoke transport and dispersal) for all wildland and prescribed fires.
2. Use the information collected in a timely manner to adapt to changing conditions and successfully manage each fire.

Field Measurements

Information will be collected for all wildland and prescribed fires on variables described in the Monitoring and Adaptive Management Plan (in preparation). Additional data will be collected for prescribed fires.

D. Vegetation and Fuels

This part of monitoring deals with information needed to monitor fuels reduction projects, primarily mechanical, chemical or other non-fire treatments.

Monitoring Goal: Vegetation and fuels monitoring provides information needed to determine whether fuels- and vegetation-related management objectives are met and to detect any unexpected consequences of vegetation management treatments.

Desired Future Conditions

Desired future conditions for each vegetation type on public land in New Mexico and Texas will be developed by resource managers, researchers, resource specialists, and cooperators such as The Nature Conservancy (TNC) and the Natural Resources Conservation Service (NRCS). The desired future conditions as of this date will be the Potential Natural Vegetation as described in the Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions. The Potential Natural Vegetation Group (PNVG) is a biophysical site classification based on Kuchler's Potential Natural Vegetation (1964). It refers to vegetation that would exist without human interference and if plant succession were projected to its climax condition while allowing for natural disturbance processes such as fire.

Monitoring objectives

Assess FRCC to validate change in Condition Class, 1 year, 2 years, 5 years, 10 years.

Field Measurements

Field measurements will to be taken at each Fire Management Unit and project to collect information for variables as described in the Monitoring and Adaptive Management Plan (in preparation). A database will be developed for data storage.

Timing of Monitoring

The proposed timing of plot monitoring frequency is:

- Pre-burn or non-fire treatment
- Immediately post-burn or non-fire treatment
- 1 year
- 2 years
- 5 years
- 10 years or until post-burn or re-treatment

Monitoring Plot Relocation

All plot locations will be permanently marked and tagged on the ground. All plots will have written descriptions of their location, and will be geo-referenced using a GPS unit. Plot location, data collection, and data storage will be coordinated with BLM Geo-Sciences.

Intended Data Analysis Approach

Data from the vegetation and fuels management program, along with other projects will provide the results of change as recorded on established plots.

Responsible Parties

The Natural Resource Specialist (Fuels Specialist) and the Fire Management Officer are responsible for developing monitoring objectives, determining the appropriate sampling design, implementing the sampling, hiring fire effects monitors, and summarizing the results of the data recorded.

The Fire Ecologist, in conjunction with Geo-Sciences, will develop a program for storing data electronically for a statewide database, plot locations, training, data analysis, summary quality control, and disseminating results of the monitoring plan.

Management Implications of Monitoring Results

The accomplishment of fuels reduction and vegetation management objectives depends upon having a monitoring program that is sufficient to determine whether specific fuel reduction and structural restoration objectives are met. The monitoring effort provides a consistent and dependable method of documenting the fire and fuels program achievement.

Adaptive change(s) should take place if any of the following are apparent from the monitoring results:

- objectives are not sufficiently met
- an undesirable trend is occurring
- an unexpected result occurs
- monitoring methods cannot adequately assess objectives.

Any modifications of desired future conditions or management objectives should be documented at the earliest opportunity in the appropriate section of the Fire Management Plan.

E. Wildlife

Many wildlife species are affected by fire, with substantial effects on both the structure and the vegetative composition of habitat. Because of these fire-induced or non-fire treatments that change the habitat, wildlife monitoring may be considered, especially if the project objectives include improvement of habitat. Procedures will be developed by an interdisciplinary team with a wildlife biologist, similar to monitoring standards for vegetation.

F. Water Resources

The effects of fire and fuels management on water quality, watershed health, and sediment transport are second order fire effects that have important ecosystem consequences. Hydrologic monitoring may be conducted on specific watersheds where fuels and fire projects may occur. Procedures will be developed by an interdisciplinary team with a hydrologist, similar to monitoring standards for vegetation.

G. Cultural Resources

Wildland fire, prescribed fire, and fuels treatments have potential impacts on Cultural Resources and monitoring is needed to assess these effects.

Wildland Fire

In the event of wildland fire, the Resource Advisor will contact Field Office cultural resource staff and review the Field Office Fire Management Plans for the Fire Management Units concerned. The prescriptions developed for the Fire Management Unit in the Fire Management Plan and specific measures developed by Field Office cultural resource staff to reduce impacts to cultural sites in sensitive areas will be considered during suppression efforts. Field identification of cultural resource sites may require assistance of the Field Office cultural resource staff to develop site protection measures.

Post Fire Rehabilitation (BAER/ESR)

Burned Area Emergency Stabilization and Rehabilitation (ESR) plans may require field evaluation of known cultural resource sites to develop specific measures for preventing impacts from proposed stabilization efforts and to provide additional protection to cultural sites from erosion and further post-fire degradation. These measures will be incorporated into the ESR plan during its development. Site protection measures will be developed to prevent adverse effects to cultural resource sites. The Field Office will consult with the SHPO per provisions of the statewide Protocol Agreement and conduct tribal consultation where measures proposed may have an adverse effect to sites. Field Office cultural resource staff will provide direction to the team during ESR plan development. Post rehabilitation field inspections of cultural resource sites may be conducted to evaluate the effectiveness of site protection and stabilization prescriptions.

Fuels Reduction Treatments

Avoidance of cultural resource sites is the most commonly employed method of preventing impacts from prescribed fire or mechanical treatment. Cultural sites may be isolated from prescribed fire impacts by removing fuel loads from their perimeter by mechanical means or by black lining vegetation with prescribed fire treatments. Project re-design may allow for avoidance of sensitive areas, where existing data indicate vulnerable site concentrations, including Special Designation Areas. Additional measures such as utilizing chain saws and manual labor may be employed to reduce fuel loads within site areas to guard against future impacts from wildfire. The use of these measures is dependent on the type and quantity of fuels present, and the nature of the particular site and feature types involved. Post treatment field inspections of cultural resource sites may be conducted to evaluate site condition, and to determine the effectiveness of site protection and avoidance measures implemented prior to treatment. Further treatment measures may be prescribed to reduce future impacts to cultural resource sites, and to refine methods employed for future fuel reduction projects for specific fuel and site types.

H. Program Integration

Resources and fire management must be integrated as potential new issues arise or objectives change. Refining objectives as fire regime conditions change would be an example, and the integration of multiple agency objectives may also change. Continually identifying new information needs is essential to making sure that the BLM is meeting fire-related resource goals as the fire management program continues to evolve. In response to new management objectives, the appropriate monitoring techniques must be developed and integrated.

I. References

Fire Regime Condition Class, 2003. Interagency Fire Methods Handbook, Field procedures-Standard and Scorecard

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USDI, Fish and Wildlife Service, 2002. Fuel and Fire Effects Monitoring Guide

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APPENDIX B: VEGETATION COMMUNITIES AND ASSOCIATED WILDLIFE SPECIES

GENERAL CHARACTERISTICS OF THE VEGETATION COMMUNITIES ON BLM-ADMINISTERED PUBLIC LAND IN NEW MEXICO AND TEXAS					
VEGETATION COMMUNITY	BLM LAND (%)	DOMINANT PLANT SPECIES	ELEVATION RANGE (FEET)	CLIMATE AND PRECIPITATION	COMMON WILDLIFE SPECIES
Rocky Mountain Montane Grassland	< .1	Arizona fescue (<i>Festuca arizonica</i>), Mountain muhly (<i>Muhlenbergia Montana</i>), Junegrass (<i>Koeleria cristata</i>), Tufted hairgrass (<i>Deschampsia caespitosa</i>)	> 9,000	Cold-temperate 20-30 inches	Pronghorn (<i>Antilocarpa americana</i>), Elk (<i>Cervis elaphus</i>), Mule deer (<i>Odocoileus hemionus</i>), Voles (<i>Microtus spp.</i>), Western flycatcher (<i>Empidonax difficilis</i>), Western bluebird (<i>Stalia mexicana</i>), Meadowlark (<i>Sturnella neglecta</i>), Salamander (<i>Amystoma tigrinum</i>), Garter snake (<i>Thamnophis elegans</i>)
Plain-Mesa Grassland	9.9	Blue grama (<i>Bouteloua gracilis</i>), Hairy grama (<i>Bouteloua hirsuta</i>), Sideoats grama (<i>Bouteloua curtipendula</i>), Little bluestem (<i>Schizachyrium scoparium</i>), Western wheatgrass (<i>Pascopyrum smithii</i>), and Sand dropseeds (<i>Sporobolus cryptandrus</i>)	4,000-7,000	Cold-temperate 10-18 inches	Pronghorn (<i>Antilocarpa americana</i>), Prairie Dogs (<i>Cynomys spp.</i>), Pocket gopher (<i>Geomys bursarius</i>), Harvest mouse (<i>Reithrodontomys montanus</i>), Ground squirrel (<i>Spemophilus tridecemlineatus</i>), Fox (<i>Vulpes Velox</i>), Meadowlark (<i>Sturnella neglecta</i>), Prairie falcon (<i>Falco mexicanus</i>), Prairie rattlesnake (<i>Crotalus viridis viridis</i>)
Great Basin Desert Grassland	10.9	Galleta (<i>Hilaria jamesii</i>), Indian ricegrass (<i>Oryzopsis hymenoides</i>), and Alkali sacaton (<i>Sporobolus flexuosus</i>)	4,500-7,200	Cold temperate 8-10 inches	Pronghorn (<i>Antilocarpa americana</i>), Prairie dogs (<i>Cynomys spp.</i>), Pocket Gopher (<i>Geomys bursarius</i>), Harvest mouse (<i>Reithrodontomys montanus</i>), Ground squirrel (<i>Spemophilus tridecemlineatus</i>), Fox (<i>Vulpes Velox</i>), Meadowlark (<i>Sturnella neglecta</i>), Black-tailed jack rabbit (<i>Lepus californicus</i>), American kestrel (<i>Falco sparverius</i>), Sagebrush lizard (<i>Sceloporus graciosus</i>)
Chihuahuan Desert Grassland	21.7	Dropseeds (<i>Sporobolus flexuosus</i>) Tobosa (<i>Hilaria mutica</i>), Sacatons (<i>Sporobolus wrightii</i>), Saltgrass (<i>Distichlis spicata</i>), and Vine-mesquite (<i>Panicum obtusum</i>)	3,000-5,500	Warm-temperate 8-12 inches	Desert mule deer (<i>Odocoileus hemionus</i>), Bighorn sheep (<i>Ovis canadensis</i>), Desert cottontail (<i>Sylvilagus audubonii</i>), Blacktailed prairie dog (<i>Cynomys ludovicianus</i>), Quail (<i>Callipepla spp.</i>), Harris hawk (<i>Parabuteo unicinctus</i>), Roadrunner (<i>Geococcyx californianus</i>), Merriam's kangaroo rat (<i>Dipodomys merriami</i>), Greater earless lizard (<i>Cophosaurus texanus</i>)
Rocky Mtn Montane Scrub-Interior Chaparral	3.0	Mountain mohogany (<i>Cercocarpus montanus</i>), Gambel oak (<i>Quercus gambelii</i>), and Wavyleaf oak (<i>Quercus undulata</i>), Shrub live oak (<i>Quercus turbinella</i>), Toumey oak (<i>Quercus toumey</i>) and Point-leaf manzanita (<i>Arctostaphylos pungens</i>)	5,500-9,000	Cold to warm temperate 10-20 inches	Mule deer (<i>Odocoileus hemionus</i>), Cliff chipmunk (<i>Eutamias dorsalis</i>), Woodrat (<i>Neotoma albigula</i>), Scrub jay (<i>Apelocoma coerulescens</i>), Bushtit (<i>Psaltriparus minimus</i>), Towhee (<i>Pipilo erythrophthalmus</i>), Rattlesnake (<i>Crotalus viridis</i>), Western fence lizard (<i>Sceloporus occidentalis</i>)
Plain-Mesa Sand Scrub	5.3	Shinoak (<i>Quercus havardii</i>), Sandsage (<i>Artemesia filifolia</i>), White ratany (<i>Krameria grayii</i>), sand bluestem (<i>Andropogon halii</i>), Little bluestem (<i>Schizachyrium scoparium</i>)	3,900-4,200	Warm-temperate 10-14 inches	Mule deer (<i>Odocoileus hemionus</i>), Pronghorn (<i>Antilocarpa americana</i>), Lesser prairie chicken (<i>Tympanuchus pallidicinctus</i>), Vesper sparrow (<i>Spizella arborea</i>), Quail (<i>Callipepla spp.</i>), Swainsons Hawk (<i>Buteo swainsoni</i>), Great horned owl (<i>Bubo Virginianus</i>), Sandlune lizard (<i>Sceloporus arenicolus</i>)

**GENERAL CHARACTERISTICS OF THE VEGETATION COMMUNITIES
ON BLM-ADMINISTERED PUBLIC LAND IN NEW MEXICO AND TEXAS (Continued)**

VEGETATION COMMUNITY	BLM LAND (%)	DOMINANT PLANT SPECIES	ELEVATION RANGE (FEET)	CLIMATE AND PRECIPITATION	COMMON WILDLIFE SPECIES
Great Basin Desert Scrub	3.4	Big sagebrush (<i>Artemisia tridentata</i>), Shadscale (<i>Atriplex confertifolia</i>), Fourwing saltbush (<i>Atriplex canescens</i>), Greasewood (<i>Krascheninnikovia lanata</i>) and Rubber rabbitbrush (<i>Chrysothamnus nauseosus</i>).	5,250-7,200	Cold temperate < 10 inches	Coyote (<i>Canis latrans</i>), Deer mouse (<i>Peromyscus maniculatus</i>), Black-tailed jack rabbit (<i>Lepus californicus</i>), Sage sparrow (<i>Amphispiza belli</i>), horned lark (<i>Eremophila alpestris</i>), Western whiptail (<i>Cnemidophorus neomexicanus</i>)
Chihuahuan Desert Scrub	30.9	Creosotebush (<i>Larrea tridentata</i>) Tarbush (<i>Flourensia cernua</i>), Honey mesquite (<i>Prosopis glandulosa</i>), Whitethorn (<i>Acacia constricta</i>), Ocotillo (<i>Fouquieria splendens</i>).	3,000-5,000	Warm-temperate <4 to 12	Javalina (<i>Tayassu tajacu</i>), Merriam's Kangaroo rat (<i>Dipodomys merriami</i>), Mearns's grasshopper mouse (<i>Onychomys arenicola</i>), Scaled quail (<i>Callipepla squamata</i>), Mourning dove (<i>Zenaidura macroura</i>), Chihuahuan raven (<i>Corvus cryptoleucus</i>), Clark's spiny lizard (<i>Sceloporus clarki</i>), Gila monster (<i>Heloderma suspectum</i>)
Southwest and Plains Forested/ Shrub Wetland	.1	Fremont cottonwood (<i>Populus fremontii</i>), Plains cottonwood (<i>Populus sargentii</i>), Arizona walnut (<i>Juglans major</i>), Nutleaf hackberry (<i>Celtis reticulata</i>) Willows (<i>Salix</i> spp.) and Seepwillow (<i>Baccharis</i> spp.). Russian olive (<i>Elaeagnus angustifolia</i>) and Saltcedar (<i>Tamarix</i> spp.)	3,000-7,000	Cold to Warm Temperate Various	Red-headed woodpecker (<i>Melanerpes formicivorus</i>), American redstart (<i>Setophaga ruticilla</i>), Vermillion flycatcher (<i>Pyrocephalus rubinus</i>), Blue heron (<i>Ardea herodias</i>), Belted kingfisher (<i>Ceryle alcyon</i>), Swallows (<i>Riparia</i> spp.), Warblers (<i>Vermivora</i> spp.), Tiger salamander (<i>Ambystoma tigrinum</i>), Leopard frogs (<i>Rana</i> spp.), Chorus frog (<i>Pseudacris triseriata</i>), numerous fish species
Graminoid Wetlands	266 acres, RFO*	<i>Juncus</i> spp and <i>Carex</i> spp.	3,000-5,000	Cold-temperate > 12 inches	Red-winged blackbird (<i>Agelaius phoeniceus</i>), Pintail (<i>Anas acuta</i>), Teal (<i>Anas cyanoptera</i>), Mallard (<i>Anas platyrhynchos</i>), Marsh wren (<i>Cistothorus palustris</i>)
Closed Conifer Woodland	2.0	Pinyon (<i>Pinus edulis</i>), Junipers, primarily <i>Juniperus monosperma</i>	6,500-8,000	Cold-temperate 16-25 inches	Elk (<i>Cervus elaphus</i>), Golden mantled ground squirrel (<i>Citellus lateralis</i>), Brown bat (<i>Eptesicus fuscus</i>), Porcupine (<i>Erethizon dorsatum</i>), Abert's squirrel (<i>Sciurus aberti</i>), Mule Deer (<i>Odocoileus hemionus</i>), Pgmy nuthatch (<i>Sitta pygmaea</i>)
Open Conifer Woodlands (Savanna)	9.3	One-seed Juniper (<i>Juniperus monosperma</i>) and Utah Juniper (<i>Juniperus osteosperma</i>)	5,000-7,000	Cold-temperate 12-16 inches	Elk (<i>Cervus elaphus</i>), Pronghorn (<i>Antilocarpa americana</i>), Pinyon deer mouse (<i>Peromyscus truei</i>), Pinyon Jay (<i>Gymnorhinus cyanocephalus</i>), Gray vireo (<i>Vireo vicinior</i>)
Madrean Closed Conifer Woodlands	.1	Border pinyon (<i>Pinus discolor</i>), Mexican pinyon (<i>Pinus cembroides</i>) and Alligator juniper (<i>Juniperus deppeana</i>)	5,800-7,500	Warm-temperate 12-16	White-tailed deer (<i>Odocoileus virginianus</i>), Bailey's pocket mouse (<i>Perognathus baileyi</i>), Acorn woodpecker (<i>Melanerpes formicivorus</i>), Western bluebird (<i>Sialia mexicana</i>)
Madrean Open Conifer Woodlands	.7	Gray oak (<i>Quercus grisea</i>), Arizona white oak (<i>Quercus arizonica</i>), Emory oak (<i>Quercus emoryi</i>), Alligator juniper and Shrub liveoak (<i>Quercus turbinella</i>).	4,200-6,800	Warm-temperate 10-12 inches	Javalina (<i>Tayassu tajacu</i>), Quail species, White-tailed deer and Desert mule deer, Trogon (<i>Trogon elegans</i>), Rattlesnake species (<i>Crotalus</i> spp.), Mexican garter snake (<i>Thamnophis eques</i>),

**GENERAL CHARACTERISTICS OF THE VEGETATION COMMUNITIES
ON BLM-ADMINISTERED PUBLIC LAND IN NEW MEXICO AND TEXAS (Concluded)**

VEGETATION COMMUNITY	BLM LAND (%)	DOMINANT PLANT SPECIES	ELEVATION RANGE (FEET)	CLIMATE AND PRECIPITATION	COMMON WILDLIFE SPECIES
Subalpine Conifer Forests	Less than 500 acres	Engelmann spruce (<i>Picea engelmanni</i>), Subalpine fir (<i>Abies bifolia</i>), Douglas-fir (<i>Pseudotsuga menziesii</i>), and White fir (<i>Abies concolor</i>)	9,500-12,000	Cold- temperate > 20 inches	Elk, Deer, Chipmunk (<i>Eutamias minimus</i>), Cassins finch (<i>Carpodacus cassinii</i>), Common flicker (<i>Colaptes auratus</i>), Warbling vireo (<i>Vireo gilvus</i>), American robin (<i>Turdus migratorius</i>), Pine grosbeak (<i>Pinicola enucleator</i>)
Upper Montane Conifer Forest	<.1	Douglas fir, White fir, and Blue spruce (<i>Picea pungens</i>)	8,000-10,000	Cold -temperate 16-25 inches	Elk, Deer, Chipmunk, Pocket gopher (<i>Thomomys spp.</i>), Voles (<i>Microtus spp.</i>), Goshawk (<i>Accipiter gentilis</i>), Stellar's jay (<i>Cyanocitta stelleri</i>), Western tanager (<i>Piranga ludoviciana</i>)
Lower Montane Conifer Forests	<.1	Ponderosa pine (<i>Pinus ponderosa</i>), pinyon, junipers, Gambel oak (<i>Quercus gambelii</i>), Silverleaf oak (<i>Quercus hypoleucoides</i>), Arizona white oak (<i>Quercus arizonica</i>), and Alligator juniper (<i>Juniperus deppeana</i>)	6,500-9,000	Cold-temperate 12-25 inches	Abert's squirrel (<i>Sciurus aberti</i>), Black bear (<i>Ursus americanus</i>), Elk, Deer, Chipmunk, Myotis (<i>Myotis spp.</i>), Wild turkey (<i>Melegris gallopavo</i>), Mountain chickadee (<i>Parus gambelii</i>), rattlesnakes, lizards
BLM-Texas SW Plateau and Plains Dry Steppe	11,802 acres, TX	Sideoats grama (<i>Bouteloua curtipendula</i>), Buffalograss (<i>Buchloe dactyoides</i>), Big bluestem (<i>Andropogon gerardii</i>), Little bluestem (<i>Scizachyrium scoparian</i>), Tabosa (<i>Pleuraphis mutica</i>), Mesquite, Yucca	3,200-3,500	Semiarid 19 inch mean	Pronghorn (<i>Antilocarpa Americana</i>), Bobcat (<i>Lynx rufus</i>) Mourning dove (<i>Zenaida macroura</i>), Coyote (<i>Canis latrans</i>), Red fox (<i>Vulpes vulpes</i>), Red-tailed hawk, (<i>Buteo jamaicensis</i>), Prairie falcon (<i>Falco mexicanus</i>), Rio Grande turkey (<i>Melegris gallopavo intermedia</i>), Bob white quail (<i>Colinus virginianus</i>)

NOTE: * Roswell Field Office
SOURCE: New Mexico GAP species list; Brown (1994), BLM (2000)

APPENDIX C

SPECIAL STATUS PLANT AND WILDLIFE SPECIES

C.1 SPECIAL STATUS SPECIES LISTS FOR NEW MEXICO AND TEXAS

Special status species include Federally-listed (endangered or threatened), proposed, candidate, Federal species of concern, State listed and BLM-sensitive species.

Special Status Species (Federally-Listed, Proposed and Candidate Species):

Mammals

There are seven Federally-listed and candidate mammal species in New Mexico. Several of these species were extirpated from the State and have recovery programs in New Mexico or in the adjoining state of Arizona. As part of the recovery programs, populations are currently being reintroduced or there are plans to re-establish populations by natural migration or reintroductions in the future (in 10-20 years). Habitats on BLM-administered public land are currently or are expected to play an important role in these recovery programs.

Black-footed ferret (*Mustela nigripes*)
Jaguar (*Panthera onca*)
Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*)
Mexican long-nosed bat (*Leptonycteris nivalis*)
Canada lynx (*Lynx Canadensis*)
Mexican gray wolf (*Canis lupus baileyi*)
Black-tailed prairie dog (*Cynomys ludovicianus*)

Birds

The Federally-listed, proposed, and candidate birds in New Mexico include three endangered, three threatened, and two candidate species. The list is dominated by five riparian-obligate species. These species have experienced a variety of threats, primarily habitat loss or fragmentation from urbanization, agricultural expansion, or damming of rivers (affecting native riparian habitats).

Northern aplomado falcon (*Falco femoralis septentrionalis*)
Southwestern willow flycatcher (*Empidonax traillii extimus*)
Interior least tern (*Sterna antillarum*)
Bald eagle (*Haliaeetus leucocephalus*)
Mexican spotted owl (*Strix occidentalis lucida*)
Piping plover (*Charadrius melodus*)
Yellow-billed cuckoo (*Coccyzus americanus*)
Lesser prairie chicken (*Tympanuchus pallidicinctus*)

Fish

The Federally-listed, proposed, and candidate fish species in New Mexico include six endangered, one proposed endangered, six threatened and one candidate species. Many of these species were formerly widespread in the river systems of New Mexico, but are now restricted to isolated or reduced populations on a fraction of their former range. Threats to these species typically include man-made changes to the river systems, such as habitat fragmentation, damming, dewatering for agriculture, mining, and urbanization; and competition or predation by introduced non-native fish species.

Gila topminnow (*Poeciliopsis occidentalis occidentalis*)

Rio Grande silvery minnow (*Hybognathus amarus*)

Razorback sucker (*Xyrauchen texanus*)

Pecos gambusia (*Gambusia nobilis*)

Gila trout (*Oncorhynchus gilae*)

Colorado pikeminnow (*Ptychocheilus lucius*)

Gila chub (*Gila intermedia*)

Beautiful shiner (*Cyprinella formosa*)

Loach minnow (*Tiaroga cobitis*)

Spikedace (*Meda fulgida*)

Pecos bluntnose shiner (*Notropis simus pecosensis*)

Arkansas River shiner (*Notropis girardi*)

Chihuahua chub (*Gila nigrescens*)

Zuni Blue-head sucker (*Catostomus discobolus yarrowi*)

Amphibians

Two amphibian species are listed in New Mexico including one threatened frog and one candidate toad species. Threats to amphibians include predation by introduced bullfrogs and non-native fish, disease, habitat fragmentation or destruction, water manipulation, and water quality degradation. These species frequently have an increased probability of local extirpation because of their small, often isolated, populations.

Chiricahua leopard frog (*Rana chiricahuensis*)

Boreal western toad (*Bufo boreas boreas*)

Reptiles

Two reptile species are listed in New Mexico, including one threatened snake and one candidate lizard species.

New Mexico ridge-nose rattlesnake (*Crotalus willardi obscurus*)

Sand dune lizard (*Sceloporus arenicolus*)

Molluscs/Crustaceans and Other Invertebrates

The Federally-listed, proposed, and candidate invertebrates on BLM-administered public land in New Mexico total 12 species. These include three endangered, five proposed endangered and four candidate species.

Socorro isopod (*Thermosphaeroma thermophilum*)
Alamosa tryonia springsnail (*Tryonia alamosae*)
Socorro pyrg snail (*Pyrgulopsis neomexicana*)
Koster's tryonia springsnail (*Tryonia kosteri*)
Pecos assiminea snail (*Assiminea pecos*)
Roswell pyrg snail (*Pyrgulopsis roswellensis*)
Noel's amphipod (*Gammarus desperatus*)
Sacramento Mountains checkerspot butterfly (*charidryas spp*)
Gila pyrg snail (*Pyrgulopsis gilae*)
New Mexico Hotspring pyrg snail (*Pyrgulopsis thermalis*)
Chupadera pyrg snail (*Pyrgulopsis chupaderae*)
Texas hornshell (*Popenaias popei*)

Flowering Plants

The Federally-listed, proposed, and candidate plants on BLM-administered public land in New Mexico total 13 species. These include seven endangered and six threatened species.

Kuenzler's hedgehog cactus (*Echinocereus fendleri var. kuenzleri*)
Sneed pincushion cactus (*Coryphantha sneedii var. sneedii*)
Sacramento prickly poppy (*Argemone pleiacantha spp. pinnatisecta*)
Todsens pennyroyal (*Hedeoma todsenii*)
Knowlton cactus (*Pediocactus knowltonii*)
Mancos milk-vetch (*Astragalus humillimus*)
Holy Ghost ipomopsis (*Ipomopsis sancti-spiritus*)
Pecos (puzzle) sunflower (*Helianthus paradoxus*)
Zuni fleabane (*Erigeron rhizomatus*)
Gypsum wild-buckwheat (*Eriogonum gypsophilum*)
Lee pincushion cactus (*Coryphantha sneedii var. leei*)
Sacramento Mountains thistle (*Cirsium vinaceum*)
Mesa Verde cactus (*Sclerocactus mesae-verdae*)

Special Status Species (Species of Concern, BLM Sensitive and State Listed):

The following is a list of those Federal Species of Concern, BLM Sensitive and State Listed species.

Mammal

	Western red bat
	Desert pocket gopher
New Mexico meadow jumping mouse	Swift fox
Pecos River muskrat	Cebolleta southern pocket gopher
Townsend's big-eared bat	Organ Mountains colorado chipmunk
Allen's big-eared bat	White Sands woodrat
Southwestern otter	Guadalupe southern pocket gopher

Mammal (Concluded)

White-sided jackrabbit
Spotted bat
Arizona shrew
Least shrew
Western yellow bat
Penasco least chipmunk
Arizona montane vole
American martin
Desert bighorn sheep

Birds

American peregrine falcon
Arctic peregrine falcon
Bairds' sparrow
Black tern
Northern goshawk
Western burrowing owl
Bell's vireo
Common black hawk
Gould's turkey
Whiskered screech owl
Neotropical cormorant
Whooping crane
Common ground dove
Brown pelican
White-tailed ptarmigan
Mountain plover
Whiskered screech owl
Boreal owl
Buff-collared nightjar
Broad-billed hummingbird
White-eared hummingbird
Violet-crowned hummingbird
Lucifer hummingbird
Costa's hummingbird
Elegant trogon
Gila woodpecker
Northern beardless tyrannulet
Thick-billed kingbird
Gray vireo
Albert's towhee
Arizona grasshopper sparrow
Yellow-eyed junco
Varied bunting

Fish

Chihuahua catfish
Desert sucker
Roundtail chub
Sonora sucker
Greenthroat darter
Headwater catfish
Pecos pupfish
Rio Grande shiner
Rio Grande sucker
Rio Grande cutthroat trout
Blue sucker
Gray redbreast
White Sands pupfish
Arkansas River speckled chub
Mexican tetra
Canadian speckled chub
Suckermouth minnow
Southern redbelly dace
Brook stickleback
Bigscale logperch

Amphibians

Lowland leopard frog
Sacramento mountain salamander
Jemez mountain salamander
Colorado river toad
Great Plains narrowmouth toad
Spotted chorus frog

Reptiles

Mexican garter snake
Narrowhead garter snake
Gray-checkered whiptail
Western river cooter
Bunch grass lizard
Giant spotted whiptail
Mountain skink
Reticulate gila monster
Blotched water snake
Green rat snake
Arid land ribbon snake
Mottled rock rattlesnake

Molluscs/Crustaceans

Dona Ana talussnail
Ovate vertigo snail
Pecos pyrg snail
Shortneck snaggletooth snail
Hacheta grande woodlandsnail
Cook's Peak woodlandsnail
Florida mountainsnail
Mineral Creek mountainsnail
Sangre de Cristo pea-clam
Paper-shell mussel
Texas hornshell
Swamp fingernailclam
Lake fingernailclam
Long fingernailclam
Lilljeborg's pea-clam
Wrinkled marshsnail
Star gyro snail

Other Invertebrates

New Mexico silverspot butterfly
Mescalero sands tiger beetle
Mescalero sands June beetle
Desert viceroy butterfly
Anthony blister beetle
Limestone tiger beetle
Millipede
Grants tiger beetle
Animas minute moss beetle
Bonita diving beetle
Sacramento mountain silverspot
butterfly
Sacramento mountain blue butterfly
San Ysidro tiger beetle
William Lar's tiger beetle
San Juan tiger beetle
Estancia tiger beetle
Rumpp's tiger beetle
Regal silverspot butterfly

Flowering Plants

Gila groundsel
Gooding's onion
Hess's fleabane
Mogollon clover
Parish's alkali grass
Santa Fe cholla
Wright's marsh thistle

Flowering Plants (Concluded)

Acoma fleabane
Cinder phacelia
Gypsum phacelia
Dwarf milkweed
Alamo beard tongue
Desert night-blooming cereus
Mescalero milkwort
Nodding rock-daisy
Organ Mountain evening primrose
Organ Mountain figwort
Sand prickly pear
Sandhill goosefoot
Standley whitlow-grass
Few-flowing jewelflower
Glass Mountain (shining) coral-root
Guadalupe rabbitbrush
Mat lestdaisy
Tharp's blue-star
Wright's water-willow
Pinos Altos flame flower
Porsild's starwort
San Carlos wild-buckwheat
Slender spiderflower
Wright's dogweed
Spellenberg's groundsel
Arizona willow
Ripley milk-vetch
Duncan's pincushion cactus
Bisti fleabane
Brack's fishhook cactus
Beautiful gilia
Knight's milk-vetch
Gypsum townsendia
Sierra Blanca cliff daisy
Villard's pincushion cactus
Guadalupe rabbitbrush
Gypsum scalebroom
Sivinski's fleabane
Scheer's pincushion cactus
Organ Mountain pincushion cactus
Golden lady's slipper
Crested coral-root
Gypsum scalebroom
Wood lily
Wilcox pincushion cactus
Great Plains lady tresses

C.2. CONSERVATION MEASURES

The following Conservation Measures will be implemented for all fire management activities (wildland fire use, prescribed fire, mechanical, chemical, and biological treatments). These Conservation Measures are intended to provide statewide consistency in reducing the effects of fire management actions on Federally threatened, endangered, proposed, and candidate ("Federally protected") species. If Conservation Measures for a species cannot be implemented, BLM would re-initiate Section 7 consultation process with the U.S. Fish and Wildlife Service (USFWS) for that particular activity.

BLM will update their local Fire Management Plans to include site-specific actions for managing fuels in accordance with the new Federal fire policies, based on guidance provided in the Decision Record for this Statewide RMP Amendment. These plans, along with subsequent project-level plans, will be coordinated with the USFWS and the New Mexico Department of Game and Fish to address site-specific concerns for Federally protected species. These plans will incorporate the Conservation Measures included in this Statewide Plan Amendment for Federally protected species occurring within each Fire Management Unit. Consultation with the FWS will occur with project-level plans, as necessary.

For fire suppression activities, firefighter and public safety is the first priority in every situation. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources must be based on the values to be protected, human health and safety, and costs of protection (2001 Federal Wildland Fire Management Policy). However, implementing the following Conservation Measures during fire suppression activities to the greatest extent possible would minimize or eliminate the effects to Federally protected species and habitats. Procedures within the Interagency Standards for Fire and Fire Aviation Operations 2003, including future updates, relevant to fire operations that may affect Federally protected species or their habitat are incorporated here by reference¹.

During fire suppression actions, Resource Advisors will be designated to coordinate concerns regarding Federally protected species, and to serve as a liaison between the Field Office Manager and the Incident Commander/Incident Management Team. Resource Advisors (in coordination with the USFWS), Fire Management Officers or Incident Commanders, and other resource specialists would need to coordinate to determine which Conservation Measures would be implemented during a particular activity. The Resource Advisors will have the necessary information on Federally protected species and habitats in the area and the available Conservation Measures for the species. They will be briefed on the intended suppression actions for the fire, and will provide input on which Conservation Measures are appropriate, within the standard constraints of safety and operational procedures.

¹ BLM, NPS, USFWS, USFS. 2003. *Interagency Standards for Fire and Fire Aviation Operations 2003*. Department of the Interior, Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service; Department of Agriculture, U.S. Forest Service. These standards can be found at: <http://www.fire.blm.gov/Standards/redbook.htm> (Note: This document is updated annually. For BLM, this document is Handbook 9213-1).

Conservation Measures For Fire Suppression Activities

Wildland Fire Suppression (FS)

The following Conservation Measures will be implemented during fire suppression operations, including adaptively managed fires, unless firefighter or public safety, or the protection of property, improvements, or natural or cultural resources, render them infeasible during a particular operation. Each Conservation Measure has been given an alphanumeric designation for organizational purposes (e.g., FS-1). Necessary modifications of the Conservation Measures or impacts to Federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor and coordinated with the USFWS.

- FS-1** Protect known locations of habitat occupied by Federally listed species. Best Management Practices and Minimum Impact Suppression Tactics (M.I.S.T.) will be followed in all areas with known Federally protected species or habitat.
- FS-2** Resource Advisors will be designated to coordinate natural resource concerns, including Federally protected species. They will also serve as a field contact representative (FCR) responsible for coordination with the USFWS. Duties will include identifying protective measures endorsed by the Field Office Manager and delivering these measures to the Incident Commander; surveying prospective campsites, aircraft landing and fueling sites; and performing other duties necessary to ensure that adverse effects to Federally protected species and their habitats are minimized. On-the-ground monitors will be designated and used when fire suppression activities occur within identified occupied or suitable habitat for Federally protected species.
- FS-3** All personnel on the fire (firefighters and support personnel) will be briefed and educated by Resource Advisors or designated supervisors about listed species and the importance of minimizing impacts to individuals and their habitats. All personnel will be informed of the conservation measures designed to minimize or eliminate take of the species present. This information is best identified in the incident objectives.
- FS-4** Permanent road construction will not be permitted during fire suppression activities in habitat occupied by Federally protected species. Construction of temporary roads is approved only if necessary for safety or the protection of property or resources, including Federally protected species habitat. Temporary road construction should be coordinated with the USFWS, through the Resource Advisor.
- FS-5** Crew camps, equipment staging areas, and aircraft landing and fueling areas should be located outside of listed species habitats, and preferably in locations that are disturbed. If camps must be located in listed species habitat, the Resource Advisor will be consulted to ensure habitat damage and other effects to listed species are minimized and documented. The Resource Advisor should also consider the potential for indirect effects to listed species or their habitat from the site location of camps and staging areas (e.g., if an area is within the water flow pattern, there may be indirect effects to aquatic habitat or species located off-site).

- FS-6** All fire management protocols to protect Federally protected species will be coordinated with local fire suppression agencies that conduct fire suppression on BLM-administered land to ensure that the agency knows how to minimize impacts to Federally protected species in the area.
- FS-7** The effectiveness of fire suppression activities and Conservation Measures for Federally protected species should be evaluated after a fire, when practical, and the results shared with the USFWS and New Mexico Department of Game & Fish (NMDGF). Revise future fire suppression plans and tactical applications as needed and as practical.

Wildland Fire Suppression (Including Wildland Fire Use) and Rehabilitation in Riparian and Aquatic Habitats (RA)

The following Conservation Measures will be implemented during fire suppression operations in riparian, wetland, or aquatic habitats, unless firefighter or public safety, or the protection of property, improvements, or natural or cultural resources, render them infeasible during a particular operation. Necessary modifications of the Conservation Measures or impacts to Federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor, and coordinated with the USFWS.

- RA-1** During wildland fire suppression, apply M.I.S.T. within riparian habitats occupied by Federally protected species or designated areas that drain into Federally protected fish habitat. Fire suppression actions in riparian habitats should be prioritized to minimize damage to stands of native vegetation from wildland fire or suppression operations. To the extent possible, retain large, downed woody materials and snags that are not a hazard to firefighters.
- RA-2** Fire suppression and rehabilitation in riparian corridors with Federally protected fish or wildlife species will be coordinated with the Resource Advisor or qualified biologist approved by BLM.
- RA-3** Site-specific Fire Management Plans that include project areas with Federally protected aquatic or riparian-obligate species will specify fire management objectives and wildland fire suppression guidance, taking into account the special concerns related to these species.
- RA-4** In riparian habitats occupied by Federally protected species, use natural barriers or openings in riparian vegetation as the easiest, safest method to manage a riparian wildland fire. Where possible and practical, use wet firebreaks or sandy overflow channels rather than constructing firelines by hand or with heavy equipment.
- RA-5** Crossings of perennial streams in suitable or occupied habitat for Federally protected species will not be permitted, unless an established road already exists or where dry, intermittent sections occur.
- RA-6** Avoid the use of fire retardants or chemical foams in riparian habitats or within 300 feet of aquatic habitats, particularly sites occupied by Federally protected species. Apply operational guidelines as stated in the *Interagency Standards for Fire and Fire Aviation Operations 2003 (or updates)*, "Environmental Guidelines for Delivery of Retardant or Foam Near Waterways," Chapter 8 (pp. 8-13 through 8-15).

- RA-7** Priority for placement of fire camps, fire staging areas, and aircraft landing or refueling sites will be outside riparian habitats or river/stream corridors occupied by Federally protected species.
- RA-8** When using water from sources supporting Federally protected species, care must be taken to ensure adverse impacts to these species are minimized or prevented. Consider replacing water when appropriate. Unused water from fire abatement activities will not be dumped in sites occupied by Federally protected aquatic species to avoid introducing non-native species, diseases, or parasites.
- RA-9** Use of containment systems for portable pumps to avoid fuel spills in riparian or aquatic systems will be required.
- RA-10 (Recommended)** Develop and implement restoration plans for affected riparian or aquatic habitats, including long-term monitoring, to document changes in conditions in the riparian zone and watershed that maintain flood regimes and reduce fire susceptibility. Monitor stream water quality and riparian ecosystem health to determine the effects of wildland fire and fire management activities. Coordinate efforts and results with the USFWS and NMDGF.

Conservation Measures For Fire Management Activities

Fuels Treatments (Prescribed Fire; Mechanical, Chemical, and Biological Treatments) in Riparian and Aquatic Habitat (RA)

The following Conservation Measures **are mandatory** when implementing prescribed fires and the proposed vegetation treatments (mechanical, chemical, biological) within riparian, wetland, or aquatic habitats. If these Conservation Measures can not be followed as part of the Proposed Action, consultation with USFWS will be re-initiated if necessary.

- RA-11** All Conservation Measures for wildland fire suppression (**RA-1 to RA-10, Section 6.1.2**), also apply to fuels treatment activities (prescribed fire; mechanical, chemical, and biological treatments) in riparian, wetland, and aquatic habitats with suitable habitat for threatened, endangered, or protected (TEP) species.
- RA-12** No vegetative manipulation within ¼ mile of riparian/wetland areas with occupied or potential habitats of any TEP species will be allowed without further consultation with USFWS.
- RA-13** Fire management treatments outside ¼ mile of riparian and aquatic habitats will be designed to provide long-term benefits to aquatic and riparian resources with TEP species by reducing threats associated with dewatering and surface disturbance, or by improving the condition of the watershed and enhancing watershed function.
- RA-14** For priority fire/fuels management areas (e.g., WUIs) with Federally protected species or designated critical habitat downstream from these areas, BLM biologists and other resource specialists, as appropriate, in coordination with USFWS and NMDGF, will determine:
- A) The number of acres and the number of projects or phases of projects to occur within one watershed per year.

- B) An appropriately-sized buffer adjacent to perennial streams in order to minimize soil and ash from entering the stream.
- C) Where livestock grazing occurs in areas that have been burned, specialists will determine when grazing can be resumed. Such deferments from grazing will only occur when necessary to protect streams from increased ash or sediment flow into streams.

If agreement cannot be reached or treatment will not meet fuel reduction objectives, BLM will re-initiate consultation.

RA-15 Water from sources supporting Federally protected species (e.g., fire engine use in support of prescribe burning) will not be taken to ensure no adverse impacts to these species. Unused water from fire activities will not be dumped in sites occupied by Federally protected aquatic species to avoid introducing non-native species, diseases, or parasites.

Fuels Treatments (Prescribed Burning and Other Fuels Management Treatments - FT)

The following Conservation Measures **are mandatory** when implementing prescribed fires and the proposed vegetation treatments (mechanical, chemical, biological):

- FT-1** Biologists will be involved in the development of prescribed burn plans and vegetation treatment plans to minimize effects to Federally protected species and their habitats within, adjacent to, and downstream from proposed project sites. Biologists will consider the seasonal and spatial needs of Federally protected species (e.g., avoiding or protecting important use areas or structures and maintaining adequate patches of key habitat components) during project planning and implementation.
- FT-2** Best Management Practices and M.I.S.T. will be followed in all areas with known Federally protected species or habitats.
- FT-3** Pre-project surveys and clearances (biological evaluations/assessments) for Federally protected species will be required for each project site before implementation. All applicable Conservation Measures will be applied to areas with unsurveyed suitable habitat for Federally protected species, until a survey has been conducted by qualified personnel to clear the area for the treatment activity.
- FT-4** Use of motorized vehicles during prescribed burns or other fuels treatment activities in suitable or occupied habitat will be restricted, to the extent feasible, to existing roads, trails, washes, and temporary fuel breaks or site-access routes. If off-road travel is deemed necessary, any cross-country travel paths will be surveyed prior to use and will be closed and rehabilitated after the prescribed burn or fuels treatment project is completed.
- FT-5** As part of the mandatory fire briefing held prior to prescribed burning, all personnel (firefighters and support personnel) will be briefed and educated by Resource Advisors or designated supervisors about listed species and the importance of minimizing impacts to individuals and their habitats. All personnel will be informed of the Conservation Measures designed to minimize or eliminate take of the species present.

Rehabilitation and Restoration (RR)

- RR-1 When rehabilitating important areas for Federally listed species that have been damaged by fire or other fuels treatments, the biologist will give careful consideration to minimizing long-term impacts. Someone who is familiar with fire impacts and the needs of the affected species will contribute to rehabilitation plan development. Appropriate timing of rehabilitation and spatial needs of Federally listed species will be addressed in rehabilitation plans.
- RR-2 Seed from regionally native or sterile alien (non-native) species of grasses and herbaceous vegetation will be used in areas where reseeding is necessary following ground disturbance to stabilize soils and prevent erosion by both wind and water.
- RR-3 Sediment traps or other erosion control methods will be used to reduce or eliminate influx of ash and sediment into aquatic systems.
- RR-4 Use of motorized vehicles during rehabilitation or restoration activities in suitable or occupied habitat will be restricted, to the extent feasible, to existing roads, trails, or washes, and to temporary access roads or fuel breaks created to enable the fire suppression, prescribed burn, or fuels treatment activities to occur. If off-road travel is deemed necessary, any cross-country travel paths will be surveyed prior to use and will be closed and rehabilitated after rehabilitation or restoration activities are completed.
- RR-5 All temporary roads, vehicle tracks, skid trails, and off-road vehicle (ORV) trails resulting from fire suppression and the proposed fire management activities will be rehabilitated (using water bars, etc.), and will be closed or made impassible for future use.
- RR-6 Burned area emergency rehabilitation (BAER) activities and long-term restoration activities should be monitored, and the results provided to the USFWS and NMDGF. Section 7 consultation for BAER activities will be conducted independently, if necessary.
- RR-7 **(Recommended)** Develop public education plans that discourage or restrict fires and fire-prone recreation uses during high fire-risk periods. Develop brochures, signs, and other interpretive materials to educate recreationists about the ecological role of fires, and the potential dangers of accidental fires.

Species Specific Conservation Measures

In addition to the general Conservation Measures listed in Sections 1.0 and 2.0, the following species-specific Conservation Measures will be applied during wildland fire suppression to the greatest extent possible, and will be required during fuels treatment activities (wildland fire use, prescribed fire, vegetation treatments). Necessary modifications of the Conservation Measures or impacts to Federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor, and coordinated with the USFWS.

Reptiles and Amphibians

Chiricahua Leopard Frog (Federal Threatened)

- CF-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats.

- CF-2** No implementation of management activities will occur within occupied habitat for the Chiricahua leopard frog without further consultation with U.S Fish and Wildlife Service.
- CF-3** Install sediment traps, as determined by a Resource Advisor or qualified biologist approved by the BLM, upstream of tanks and ponds occupied by Chiricahua leopard frogs in order to minimize the amount of ash and sediment entering the water. Consultation with a qualified biologist during the planning phase will aid in determining sediment trap installation requirements (see Conservation Measures FT-1 and FT-3).
- CF-4** All personnel performing management activities at any creek crossing will be informed of the potential presence of Chiricahua leopard frogs, their status, and the need to perform their duties to avoid impacts to the frog and its habitat.

New Mexico Ridgenose Rattlesnake (Federal Threatened)

- RN-1** To the extent possible, minimize surface disturbing activities from fire suppression and fuels treatment activities within New Mexico ridgenose rattlesnake habitat on BLM-administered land in the Peloncillo and Animas Mountains, particularly during active periods for snakes (July through October).
- RN-2** Prior to using wildland fire for resource benefit, cool season (November – March) prescribed fire or other fuel treatments should be used to reduce unnatural fuel loads within suitable habitat to avoid catastrophic fires and loss of canopy cover.

Sand Dune Lizard (Federal Candidate)

- DL-1** No management activities (wildland fire use; prescribed fire; mechanical, chemical, or biological treatments) of shinnery oak will be implemented within known occupied habitat of the Sand Dune lizard. For management activities within potential habitat for the Sand Dune lizard, unsurveyed areas will be considered occupied unless surveyed prior to project implementation.
- DL-2** Suppress all wildfires in sand dune lizard habitat with minimum surface disturbance so as not to impact the integrity of the sand dunes.
- DL-3** No campsites, aircraft landing or fueling sites, or equipment staging areas will be located within known or unsurveyed potential sand dune lizard habitat.
- DL-4** As soon as practical, all personnel involved in wildland fire suppression (firefighters and support personnel) will be briefed and educated about sand dune lizards and the importance of protecting habitat and minimizing take, particularly due to vehicle use.
- DL-5** Fire crews or rehabilitation crews will, to the extent possible, obliterate off-road vehicle tracks made during fire suppression in sand dune lizard habitat, especially those of tracked vehicles, to reduce future use.

Boreal Western Toad (Federal Candidate)

- BT-1** Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats.

- BT-2** No management activities will be implemented within known occupied habitat of the Boreal western toad. For management activities within potential habitat for the Boreal western toad, unsurveyed areas will be considered occupied unless surveyed prior to project implementation.
- BT-3** Install sediment traps, as determined by a Resource Advisor or qualified biologist approved by BLM, upstream of streams, ponds, lakes, or any wetlands of potential habitat of the Boreal western toad in order to minimize the amount of ash and sediment entering the water. Consultation with a qualified biologist during the planning phase will aid in determining sediment trap installation requirements (see Conservation Measures FT-1 and FT-3).
- BT-4** All personnel performing management activities at any creek crossing will be informed of the potential habitat of Boreal western toads, their status, and the need to perform their duties to avoid impacts to the habitat.
- BT-5** All personnel performing fire management activities at any creek crossing with potential habitat of Boreal western toad will minimize the impacts to the habitat by keeping the vehicular traffic, pedestrian traffic, and any other disturbing activities to a minimum to avoid habitat degradation.

Birds

Bald Eagle (Federal Threatened)

- BE-1** No human activity will be allowed within ½ mile of known bald eagle nest sites between December 1 and June 30.
- BE-2** No tree cutting will be allowed within ¼ mile of known nest trees.
- BE-3** No human activity will be allowed within ¼ mile of known bald eagle winter roost areas between October 15 and April 15.
- BE-4** No tree cutting will be allowed within the area immediately around winter roost sites as determined by BLM biologists.
- BE-5** No helicopter or aircraft activity or aerial retardant application will be allowed within ½ mile of bald eagle nest sites between December 1 and June 30 or winter roost sites between October 15 and April 15.
- BE-6** Conduct prescribed burn activities outside of nesting season in a manner to ensure nest and winter roost sites are more than ½ mile from downwind smoke effects.
- BE-7** Provide reasonable protective measures so fire prescription or fuels treatment will not consume dominant, large trees as identified by the Resource Advisor or qualified biologist approved by the BLM within ½ mile of known nests and roosts of bald eagles. Pre-treatment efforts should provide reasonable protection of identified nesting and roosting trees (see Conservation Measure FT-4).

Interior Least Tern (Endangered), Piping Plover (Threatened), Yellow-billed Cuckoo (Federal Candidate)

- IT-1** Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats.
- IT-2** Prescribed fires, vegetative and herbicide treatment projects in occupied or suitable riparian/marsh habitat will only occur between September 1 and March 15 to avoid the breeding season.
- IT-3** Drift-inhibiting agents will be used to assure that the herbicide does not enter river areas.

Northern Aplomado Falcon (Federal Endangered), Lesser Prairie Chicken (Federal Candidate)

- AF-1** All conservation measures for Fuels Treatments and Fire Suppression, and Rehabilitation treatments (6.1.1, 6.1.2, and 6.1.3) will be implemented in occupied and potential aplomado falcon/lesser prairie chicken habitats.
- AF-2** BLM will implement temporary closures to human access and project implementation (prescribed burning, vegetation treatments) within ½ mile of nest sites for aplomado falcons and lek sites for lesser prairie chickens during the breeding season. Prescribed burning will be conducted in a manner to ensure that nest and lek sites are more than ½ mile from downwind smoke effects.

Southwestern Willow Flycatcher (Federal Endangered)

- WF-1** Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats.
- WF-2** Except where fires are active in occupied habitat, minimize unnecessary low-level helicopter flights during the breeding season (April 1 – September 30). Approach bucket dip sites at a 90-degree direction to rivers to minimize flight time over the river corridor and occupied riparian habitats. Locate landing sites for helicopters at least ¼ mile from occupied sites to avoid impacts to willow flycatchers and their habitat.
- WF-3** Minimize use of chainsaws or bulldozers to construct firelines through occupied or suitable habitat except where necessary to reduce the overall acreage of occupied habitat or other important habitat areas that would otherwise be burned.
- WF-4** Implementation activities (prescribed burning or vegetation treatments) will not occur within or adjacent to occupied or unsurveyed suitable habitat without further consultation with USFWS.
- WF-5** Avoid developing access roads that would result in fragmentation or a reduction in habitat quality. Close and rehabilitate all roads that were necessary for project implementation (see **RR-5**).
- WF-6** Prescribed burning will only be allowed within ½ mile of occupied or unsurveyed suitable habitat when weather conditions allow smoke to disperse away from the habitat when birds may be present (breeding season of April 1 – September 30).

Mexican Spotted Owl (Federal Threatened/Critical Habitat)

- SO-1** No fuels management activities will occur within Mexican Spotted Owl (MSO) critical habitat designated on BLM-administered lands or occupied suitable habitat without further consultation with the USFWS.
- SO-2** BLM wildlife biologists will be involved early in the decision-making process for fuels management treatments (wildland fire use, prescribed fires, and vegetation treatments) that are planned within suitable habitat for MSO.
- SO-3** Suitable habitat for MSO will be surveyed prior to implementing prescribed fire or vegetation treatment activities on BLM-administered land to determine MSO presence and breeding status. These management activities will only be implemented within suitable habitat if birds are not present. If a spotted owl is discovered during these surveys, BLM will notify the USFWS to reinitiate consultation and will determine any additional Conservation Measures necessary to minimize or eliminate impacts to the owl.
- SO-4** The following measures will be followed in suitable habitat (unoccupied) whenever consistent with objectives to reduce hazardous fuels:
- A) Manage mixed-conifer and pine-oak forest types to provide continuous replacement nest habitat over space and time (Table III.B.1 of the Recovery Plan for Mexican Spotted Owl).
 - B) Incorporate natural variation, such as irregular tree spacing and various stand/patch sizes, into management prescriptions and attempt to mimic natural disturbance patterns.
 - C) Maintain all species of native vegetation in the landscape, including early seral species. To allow for variation in existing stand structures and provide species diversity, both uneven-aged and even-aged systems may be used as appropriate.
 - D) Allow natural canopy gap processes to occur, thus producing horizontal variation in stand structure.
 - E) Within pine-oak types, fuels treatment activities should emphasize retaining existing large oaks and promoting the growth of additional large oaks.
 - F) Retain all trees >24 inches diameter at breast height (dbh).
 - G) Retain hardwoods, large down logs, large trees, and snags. Emphasize a mix of size and age classes of trees. The mix should include large mature trees, vertical diversity, and other structural and floristic characteristics that typify natural forest conditions.
- SO-5** The following measures will be followed in suitable habitat (unoccupied) with steep slopes outside of Protected Activity Centers (PAC), whenever consistent with objectives to reduce hazardous fuels:

- A) Within mixed-conifer and pine-oak types, allow no harvest of trees >18 inches dbh on any slopes >40 percent where timber harvest has not occurred in the past 20 years. These guidelines also apply to the bottoms of steep canyons. Thinning of trees <18 inches dbh, treatment of fuels, and fire are allowed. No seasonal restrictions apply if the sites are unoccupied by spotted owls. Prescribed natural fire and the creation of firebreaks may be used as appropriate.
- B) On steep slopes treated to reduce fire risk, either by the use of prescribed fire alone or in conjunction with removal of stems and ground fuels, pre- and post-treatment monitoring of habitat conditions should be completed. Specific habitat characteristics to be measured include fuel levels, snag basal area, volume of large logs (>18 inches dbh) remaining, and live tree basal area. No burning will be allowed in occupied or suitable habitat; USFWS would require a Take Statement if burning were to occur. Fuels treatments on steep slopes will be avoided when possible (see Conservation Measure FT-4).

SO-6 If a MSO is discovered during fire suppression or fuels treatment activities (wildland fire use, prescribed fire, vegetation treatments), the Resource Advisor or a qualified wildlife biologist will document the find and assess potential harm to the owl and advise the Incident Commander or project crew boss of methods to prevent harm. The information will include for each owl the location, date, and time of observation and the general condition of the owl. The Resource Advisor or biologist will contact the appropriate USFWS office, and BLM will reinitiate consultation for the fire suppression or project activities.

SO-7 The effects of fire suppression and fuels treatment activities on MSO and their habitat, and the effectiveness of these Conservation Measures, will be assessed after each fire event or fuels treatment project by the Resource Advisor or local biologist to allow evaluation of these guidelines and to allow the USFWS to track the species environmental baseline. Prescriptions for wildland fire use, prescribed fires, and vegetation treatments will be adjusted, if necessary.

Fish

Rio Grande Silvery Minnow (Federal Endangered), Gila Trout (Federal Endangered), Loach Minnow (Federal Threatened/Critical Habitat), Spikedace (Federal Threatened/Critical Habitat), Gila Chub (Proposed Endangered/Critical Habitat), Pecos Gambusia (Federal Endangered), Pecos Bluntnose Shiner (Federal Threatened/Critical Habitat), Arkansas River Shiner (Federal Threatened), Gila Topminnow (Federal Endangered), Beautiful Shiner (Federal Threatened), Chihuahua Chub (Federal Threatened), Colorado Pikeminnow (Federal Endangered/ Critical Habitat), Razorback Sucker (Federal Endangered/Critical Habitat), Zuni Bluehead Sucker (Federal Candidate)

FI-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats.

FI-2 No permanent or temporary road construction would be allowed within the boundaries of WUI areas.

- FI-3** No equipment use will be allowed in perennial channels or intermittent channels with water, except at crossings that already exist. Vehicle and heavy equipment use in drainage bottoms, including in both riparian and non-riparian areas, that drain into T&E Fish habitat will be coordinated with the District Biologist and/or a fisheries biologist.
- FI-4** Thinning and any other type of mechanical treatment of vegetation in drainage bottoms will be coordinated with the District Biologist and/or a fisheries biologist. Best Management Practices (BMPs) will be followed in all treatment areas.
- FI-5** No pile or jackpot burning in ephemeral, intermittent, or perennial channels will be allowed. Pile and jackpot burning adjacent to channels (ephemeral, intermittent, or perennial) that flow into T&E Fish habitat will be coordinated with the District Biologist and/or a fisheries biologist so that adequate buffers are identified.
- FI-6** The District Biologist and/or a fisheries biologist will be involved in the development of prescribed burn plans to minimize ash input into T&E Fish habitat. Consider the following activities in the effort to minimize ash input: Prescribe burn WUI areas in multiple year phases; prescribe burn WUI areas early enough (fall or early spring burning) to allow vegetation growth prior to summer rains; protect key riparian areas; minimize fire in riparian areas; etc.
- FI-7** Fire line and skid trail construction in drainages that flow into T&E Fish habitat will be coordinated with the District Biologist and/or a fisheries biologist.
- FI-8** To minimize the cumulative affect of livestock grazing in areas that have been burned, livestock will not be allowed in the treated area of the watershed that flows into T&E Fish habitat until the area has recovered enough to control ash and sediment produced by the treatment. This time period will be coordinated with the Range Specialist, Hydrologist and Biologist.
- FI-9** No machinery used for vegetation removal or firebreak preparation will be allowed within 10 feet of standing or flowing water in the river channel. Vegetation removal needed for the construction of firebreaks within 10 feet of standing or flowing water will be removed using hand tools. Any material removed during the construction of firebreaks will be pushed away from the river channel and never into the channel itself.

Flowering Plants

The following Conservation Measures for known locations and unsurveyed habitat within the planning area of all Federally protected plant species listed below will be implemented during prescribed fire and vegetation treatment activities:

Zuni Fleabane (Federal Threatened), Kuenzler Hedgehog Cactus (Federal Endangered), Pecos sunflower (Federal Threatened), Sneed Pincushion Cactus (Federal Endangered), Gypsum Wild-buckwheat (Federal Threatened/Critical Habitat), Lee Pincushion Cactus (Federal Threatened), Sacramento Prickly Poppy (Federal Endangered), Todsen's Pennyroyal (Federal Endangered/Critical Habitat), Knowlton's Cactus (Federal Endangered), Mancos Milk-vetch (Federal Endangered), Mesa Verde Cactus (Federal Threatened)

- PL-1** No staging of equipment or personnel will be permitted within 100 meters of identified individuals or populations of Federally protected and sensitive plant populations, nor will

off-road vehicles be allowed within the 100-meter buffer area, unless necessary for firefighter or public safety or the protection of property, improvements, or other resources (see **FS-7**). One of the primary threats to many of these plant species is trampling or crushing from personnel and vehicles.

- PL-2** No prescribed burning will be implemented within 100 meters of identified locations or unsurveyed suitable habitat for Federally protected and sensitive plant populations unless specifically designed to maintain or improve the existing population.
- PL-3** Utilize minimum impact tactics to minimize disturbance of vegetation and soils.
- PL-4** Utilize a Resource Advisor for all management activities within and adjacent to Federally protected and sensitive plant population habitats.
- PL-5** Implement Conservation Measures for Fire Suppression Activities (6.1.1) and Conservation Measures for Fire Activities in Riparian and Aquatic Habitats.

There are no species-specific conservation measures for the following Federally protected plant species, because they do not occur within BLM administered lands: **Sacramento Mountains thistle** and **Holy Ghost impomopsis**.

Mammals

Black-footed Ferret (Federal Endangered), Black-tailed Prairie Dog (Federal Candidate)

- BF-1** No heavy equipment operation off of existing roads will be allowed within ¼ mile of Black-tailed prairie dog towns, or Gunnison prairie dog towns with known occurrence of Black-footed ferrets.
- BF-2** No aerial retardant application will be allowed within ¼ mile of Black-tailed prairie dog towns or Gunnison prairie dog towns with known occurrence of Black-footed ferrets.
- BF-3** No surface disturbance of Black-tailed prairie dog towns or Gunnison prairie dog towns with known occurrence of Black-footed ferrets will be allowed.

Jaguar (Federal Endangered)

- JA-1** Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats to minimize adverse effects to jaguars that may occur in dense riparian habitats on BLM-administered land.
- JA-2** Maintain dense, low vegetation in major riparian or xero-riparian corridors on BLM-administered land in identified locations south of Interstate 10 in the Bootheel region of New Mexico. Locations will be identified in site-specific fire management plans.

Lesser Long-nosed and Mexican Long-nosed Bats (Federal Endangered)

- LB-1** Instruct all crew bosses (managed wildland fire, prescribed fire, and vegetation treatments) in the identification of agave cacti and the importance of their protection.

- LB-2** Prior to implementing any fuels treatment activities (prescribed fire, vegetation treatments), pre-project surveys will be conducted for paniculate agaves that may be directly affected by fuels management activities.
- LB-3** Protect long-nosed bat forage plants--high concentrations of agaves--from modification by fuels treatment activities (prescribed fire, vegetation treatments) to the greatest extent possible. "Agave concentrations" are contiguous stands or concentrations of more than 20 plants per acre. Avoid driving over plants, piling slash on top of plants, and burning on or near plants. No staging of fire management crews or equipment will be allowed within concentration areas of agave.
- LB-4** No seeding/planting of nonnative plants will occur in any wildland fire rehabilitation site or fuels treatment site with paniculate agaves or saguaros.
- LB-5** BLM personnel should examine concentrations of agaves (including shindagger – *A. schottii*) within each proposed fuels treatment area, and blackline or otherwise protect from treatments any significant concentrations of agaves that appear to be amidst fuel loads that could result in mortality greater than 20 percent (>50 percent for *A. schottii*). BLM personnel should use their best judgment, based on biological and fire expertise, to determine which significant agave stands are prone to mortality greater than 20 percent (>50 percent for *A. schottii*) (see Conservation Measures FT-1 and FT-3).

Mexican Gray Wolf (Federal Endangered; 10(j) species), Canada Lynx (Federal Threatened)

If Mexican gray wolves or Canada lynx are re-established on public lands, then the following Conservation Measures will apply:

- GW-1** Implement Conservation Measures for Fire Suppression Activities and Fire Management Activities.
- GW-2** No human disturbance associated with management activities will be allowed within one mile of a Mexican gray wolf den or rendezvous site from April 1 to June 30.

Invertebrates

Implementation of the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats is the only Conservation Measure for all invertebrate species. None of the invertebrate species occur within BLM administered lands. Any measures implemented to enhance riparian and aquatic habitats would benefit the invertebrates' habitat.

There are no species-specific conservation measures for the following Federally protected species: Koster's springsnail, Pecos assimineia snail, Roswell pyrg, Noel's amphipod, Sacramento Mountain checkerspot butterfly, Alamosa springsnail, Socorro isopod, Socorro pyrg, Gila pyrg, Texas hornshell, New Mexico hotspring pyrg, and Chupadera pyrg.

GLOSSARY

GLOSSARY

ADAPTIVE MANAGEMENT: The rigorous combination of management, research, and monitoring so that credible information is gained and management activities can be modified by experience.

AIR QUALITY: The composition of air with respect to quantities of pollution therein; used most frequently in connection with "standards" of maximum acceptable pollutant concentrations. Used instead of "air pollution" when referring to programs.

AIRSHED: A geographic area based on watershed boundaries that, because of topography, meteorology, and/or climate, is frequently affected by the same air mass.

APPROPRIATE MANAGEMENT

RESPONSE: The response to a wildland fire is based on an evaluation of risks to firefighter and public safety, the circumstances under which the fire occurs, including weather and fuel conditions, natural and cultural resource management objectives, protection priorities, and values to be protected.

The evaluation must also include an analysis of the context of the specific fire within the overall local, geographic area, or national wildland fire situation.

CANOPY: The stratum containing the crown of the tallest vegetation present, living or dead, usually above 20 feet.

CATASTROPHIC (Severe wildland fire): Fire that burns more intensely than the natural or historical range of variability, thereby fundamentally changing the ecosystem, destroying communities and/or rare or threatened species/habitat, or causing unacceptable erosion.

COVER: The area on the ground covered by the combined aerial parts of plants expressed as a percent of the total area.

CRITICAL HABITAT: 1) Specific areas within the habitat a species occupies at the time it is listed under the Endangered Species Act that have physical or biological features a) that are essential to the conservation of the species and b) that may require special management considerations or protection, and 2) specific areas outside the habitat a species occupies at the time it is listed that the Secretary of the Interior determines are essential for the species' conservation.

CULTURAL RESOURCES: Remains of human activity, occupation, or endeavor, reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture, and natural features that were important in past human events. Cultural resources consist of 1) physical remains, 2) areas where significant human events occurred, even though evidence of the events no longer remains, and 3) the environment immediately surrounding the actual resource.

DEPENDENT: An animal species that required a certain vegetative community (or habitat) type during part of its life cycle.

DESIRED PLANT COMMUNITY: The kind, amount, and proportion of vegetation that best meets land use objectives for a particular site and which must be within the site's capability to produce.

DUFF: The partly decayed organic matter on the forest floor.

ECOSYSTEM: An interacting system of organisms considered together with their environment.

ECOREGION: Relatively large units of land or water containing a distinct assemblage of natural communities and species, with boundaries that approximate the original extent of natural communities prior to major land-use change. Others have defined ecoregions as areas of ecological potential based on combinations of biophysical parameters such as climate and topography.

EMISSION REDUCTION: A strategy for controlling smoke from prescribed fires that minimizes the amount of smoke output for unit area treated.

ENVIRONMENTAL ASSESSMENT (EA): A systematic environmental analysis of a BLM activity used to determine whether the activity would have a significant impact on the quality of the environment; if so, an environmental impact statement would be required.

ENVIRONMENT: The complex surroundings of an item or area of interest, such as air, water, natural resources, and their physical conditions (temperature, humidity).

EMERGENCY STABILIZATION AND REHABILITATION: A policy and program designed to mitigate the adverse effects of fire on the soil-vegetation resource in a cost-effective and expeditious manner and to minimize the possibility of wildland fire recurrence or invasion of weeds.

FIRE MANAGEMENT: Activities required for the protection of burnable wildland values from fire and the use of prescribed or wildland fire to meet land management objectives.

FIRE REGIME CONDITION CLASS: Based on coarse scale national data, Fire Regime Condition Classes measure general wildfire risk as follows:

Class 1: Fire regimes in this Fire Condition Class are generally within historical ranges.

Class 2: Fire regimes on these lands have been moderately altered from their historical range by either increased or decreased fire frequency.

Class 3: Fire regimes on these lands have been significantly altered from their historical return interval.

See Appendix A.3 for additional information.

FUEL: All the dead and living material that will burn. This includes grasses, dead branches and pine needles on the ground, as well as standing live and dead trees. Also included are minerals near the surface, such as coal, that will burn during a fire and human-built structures.

FUELBREAK: A wide strip with a low amount of fuel, usually grass, in a brush or wooded area to serve as a line of fire defense.

FUEL TYPE: An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.

HAZARDOUS FUELS REDUCTION: The removal of dangerously high amounts of fuels in areas where the negative impacts of wildland fire are greatest.

INVASIVE SPECIES: Species that have been introduced into an environment in which they did not evolve and thus usually have no natural enemies to limit their reproduction and spread.

LONG-TERM: Ten to twenty years.

MITIGATION MEASURES: Means taken to avoid, compensate for, rectify, or reduce the potential adverse impacts of an action.

MONITORING: The orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives.

MOSAIC: The intermingling of plant communities and their successional stages. Frequently, fuel treatment projects strive to create a mosaic of plant communities.

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS): A legal limit on the level of atmospheric contamination. The level is established as the concentration limits needed to protect the public against adverse effects on public health and welfare, with an adequate safety margin.

NOXIOUS WEED: A plant that causes disease or has other adverse effects on man or his environment and therefore is detrimental to the agriculture and commerce of the United States and its public health. Noxious weeds are designated and regulated by various State and Federal laws. In most cases, noxious weeds are also nonnative species.

PRESCRIBED BURNING: The planned application of fire to wildland fuels in their natural or modified state under specific conditions of fuels, weather, and other variables, to allow the fire to remain in a predetermined area and to achieve site-specific fire and resource management objectives.

PUBLIC LAND: Land administered by the Bureau of Land Management

REHABILITATION: Short-term actions taken following fire to stabilize soils and encourage rapid establishment of vegetative cover.

RESOURCE MANAGEMENT PLAN: A multiple-use plan that provides management direction for all Bureau of Land Management resources within a Field Office. It is often supplemented by more detailed, site-specific management plans for a particular land use activity, such as livestock grazing.

RESTORATION: A long-term landscape-based approach to changing the ecological health of the rangelands, which requires implementation of a set of actions, that promotes plant community diversity and structure to encourage communities to be more resilient to future disturbance and invasive species.

RIPARIAN: A form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil (BLM Manual 1737).

SENSITIVE SPECIES: A list of animal and plant species that were designated by the BLM State Director in cooperation with the New Mexico Game and Fish Department. It is BLM policy to give these species the same protection as Federal candidate species in BLM Manual 6840.06.

SHORT-TERM: Five years or less.

SHRUB: A woody perennial plant differing from a perennial herb by its persistent and woody stem; and from a tree by its low stature and habit of branching from the base.

SPECIAL DESIGNATION AREA: Land that contains natural and cultural resource features that have been recognized by law, Presidential Proclamation or through the BLM planning process as being unique, important and deserving of some form of special management.

SPECIES COMPOSITION: The relative abundance of one plant species to another using a common measurement; the proportion (percentage) of various species in relation to the total on a given area.

SUPPRESSION: All the work of extinguishing or confining a fire beginning with its discovery.

THREATENED SPECIES: Plant or animal species that are not in danger of extinction but are likely to become so within the foreseeable future throughout all or a significant portion of their range.

UNDERBURN: A fire that consumes surface fuels but not trees and shrubs.

VEGETATION COMMUNITY: A kind of existing plant community with distinguishable characteristics described in terms of the present vegetation that dominates the aspect or physiognomy of the area.

VEGETATIVE REGENERATION: Development of new above ground plants from surviving plant parts, such as by sprouting from a root crown or rhizomes. Even if plants form their own root system, they are still genetically the same as the parent plant.

VISUAL RESOURCES: The visible physical features on a landscape (e.g., land, water, vegetation, animals, structures and other features).

WILDERNESS: An area established by the Federal Government and administered either by the Forest Service, USDA or National Park Service, Fish & Wildlife Service, or Bureau of Land Management, DOI, in order to conserve its primeval character and influence for public enjoyment, under primitive conditions, in perpetuity.

WILDERNESS STUDY AREAS: Those lands that have been inventoried and found to have wilderness characteristics as described in section 603(a) of FLPMA and section 2(c) of the Wilderness Act of 1964.

WILDFIRE: A fire occurring on wildland that is not meeting management objectives and thus requires a suppression response.

WILDLAND: An area in which development is essentially non-existent, except for roads, railroads, power lines, and similar transportation facilities. Structures, if any, are widely scattered.

WILDLAND FIRE: Any fire occurring on the wildlands, regardless of ignition source, damages, or benefits.

WILDLAND FIRE USE: A naturally ignited wildland fire that is managed to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans.

WILDLAND URBAN INTERFACE: The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

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