APPENDIX A
FIRE MANAGEMENT

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APPENDIX A.1
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.

ACRES TREATED BY TREATMENT TYPE PER FIELD OFFICE, BY ALTERNATIVE

Proposed Action	Albuquerque	Carlsbad	Farmington	Las Cruces	Roswell	Socorro	Taos	Amarillo	Total
40 % Mechanical	5,122	500	7,369	5,701	1,065	7,757	5,604	0	33,118
40% Rx Burn	16,621	19,491	25,063	44,091	13,918	20,485	7,893	1,550	149,112
20 % Chemical	1,428	8,798	1,050	23,457	6,041	3,524	1,535	950	46,783
TOTAL	23,171	28,789	33,482	73,249	21,024	31,766	15,032	2,500	229,013
Mechanical Emphasis									
60 % Mechanical	7,682	746	11,054	8,552	1,597	11,636	8,407	0	49,674
20 % Rx Burn	8,311	9,746	12,532	2,847	10,243	3,946	2,326	310	54,894
20% Chemical	1,428	8,798	1,050	23,457	6,041	3,524	1,535	950	46,783
TOTAL	17,421	19,290	24,636	34,856	14,597	25,403	13,888	1,260	151,351
Fire Use Emphasis									
20%Mechanical	2,561	249	3,685	2,850	532	3,878	2,802	0	16,557
60 % Rx Burn	24,932	29,237	37,595	66,137	20,878	30,728	11,839	2,325	223,671
20% Chemical	1,428	8,798	1,050	23,457	6,041	3,524	1,535	950	46,783
TOTAL	28,921	38,284	42,330	92,444	27,451	38,130	16,176	3,275	287,011

SOURCE: BLM New Mexico State Office 2004.

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 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 form 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.	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. Composition and structure of vegetation and fuels are similar to the natural (historical) regime.
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) is low. Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate.
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity, and pattern; and other associated disturbances.	Risk of loss of key ecosystem components is moderate. Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.

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

Condition Class	Fire Regime	Example Management Options	Examples of Key Ecosystem Component Susceptibility to Changing Fire Regime Condition Class			
			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 are 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: Grasslands – Moderate encroachment of shrubs and trees and/or invasive exotic species. Shrublands – Moderate encroachment of trees, increased shrubs, or invasive exotic species. Forest/Woodland – 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 form their historical range at patch and landscape scales. For example: Grasslands – High encroachment and establishment of shrubs, trees, or invasive exotic species. Shrublands – High encroachment and establishment of trees, increased shrubs, or invasive exotic species. Forest/Woodland – High increases in density, encroachment of shade tolerant 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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APPENDIX A.4
NEW MEXICO BLM WILDLAND FIRES BY YEAR

	Lightning-Caused Fires		Human-Caused Fires		Total Fires	
Year	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.5
PROPOSED 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 fuels and fire 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 would answer 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 year, 5 year, 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 recommended:

- 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 geo-referenced using a GPS unit. This will be coordinated with BLM Geo-Sciences for storage or plot location data.

Intended Data Analysis Approach

Data from the vegetation and fuels management program, along with other projects will provide the results of change as recorded in plot establishment.

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 for 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 to 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 also 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. Implementation of suppression efforts will consider 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. 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 plan during plan 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.

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TABLE A.6 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	**1,395,282**
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

TABLE A.6 FIRE MANAGEMENT UNITS (FMUS), CATEGORIES, AND BLM ACRES BY FIELD OFFICE (AS OF 12/17/03) (CONTINUED)

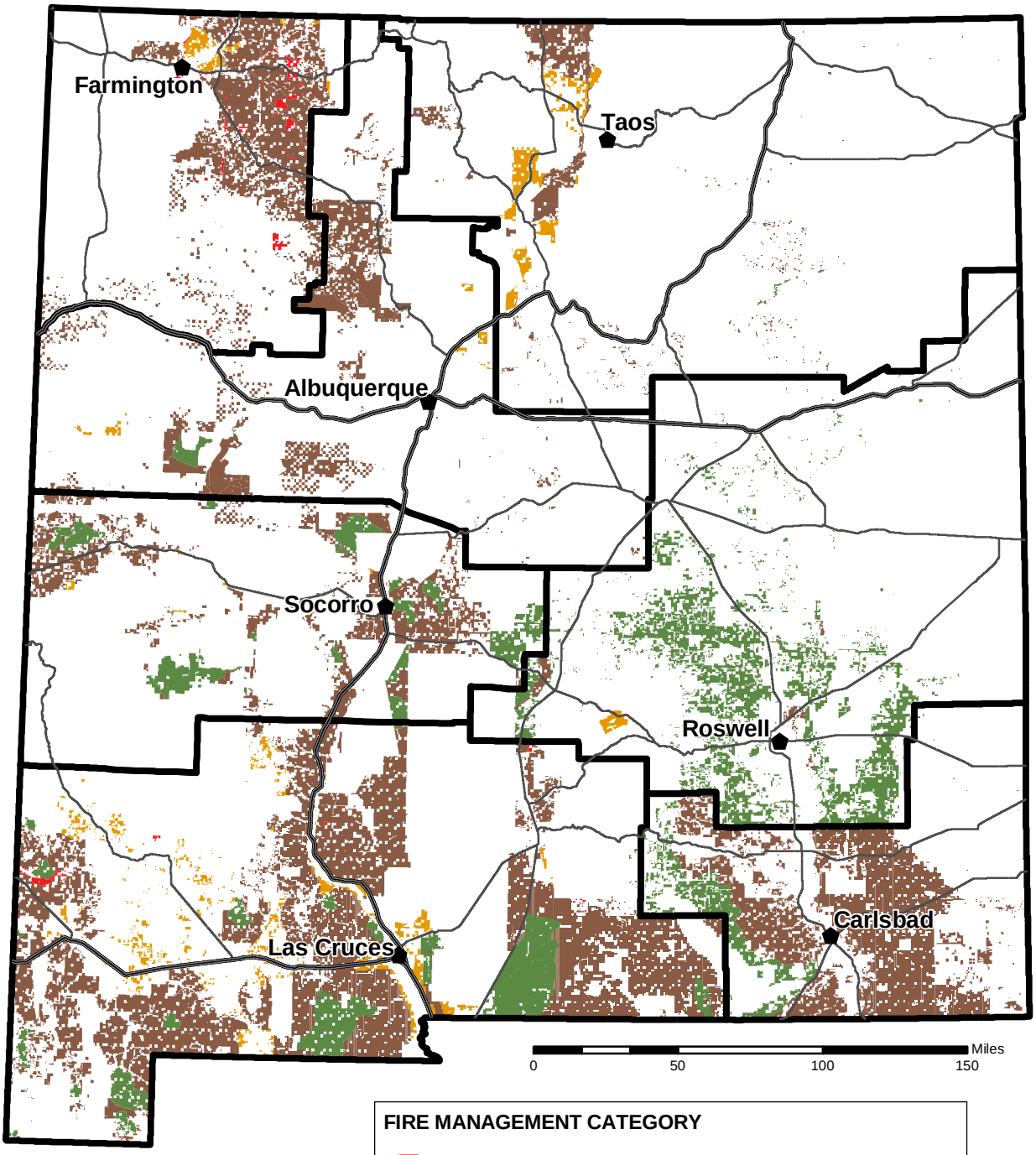
FIELD OFFICE	FMU CATEGORY	FMU NAME	TOTAL ACRES
LAS CRUCES	B	Lordsburg/Deming/Silver City Tri-County Area	173,329
	B	Sacramento Escarpment WSA/ACEC	4,864
	B	Rio Grande River Corridor	115,152
	B	Chaparral Community	14,847
	B	Winston/Ladder Ranch	19,463
	B	Hillsboro	842
	C	Tularosa Basin/Otero Mesa	1,135,297
	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

TABLE A.6 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



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.)

FEATURES

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

N
W
E
S

Data source: BLM NMSO, 2003.

Produced by the BLM New Mexico Geographic Sciences Team.

Figure A.2 Albuquerque Field Office Fire Management Units

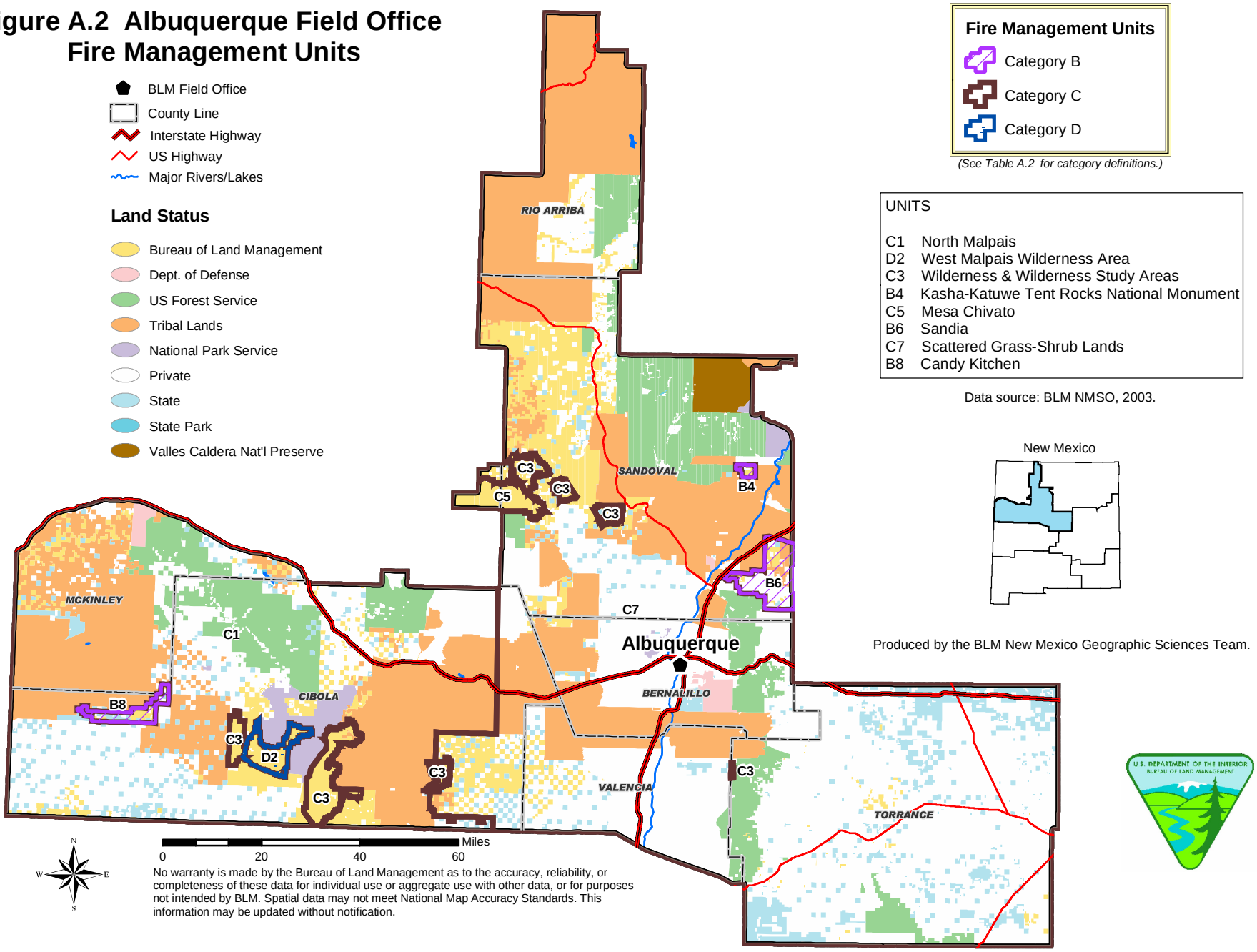
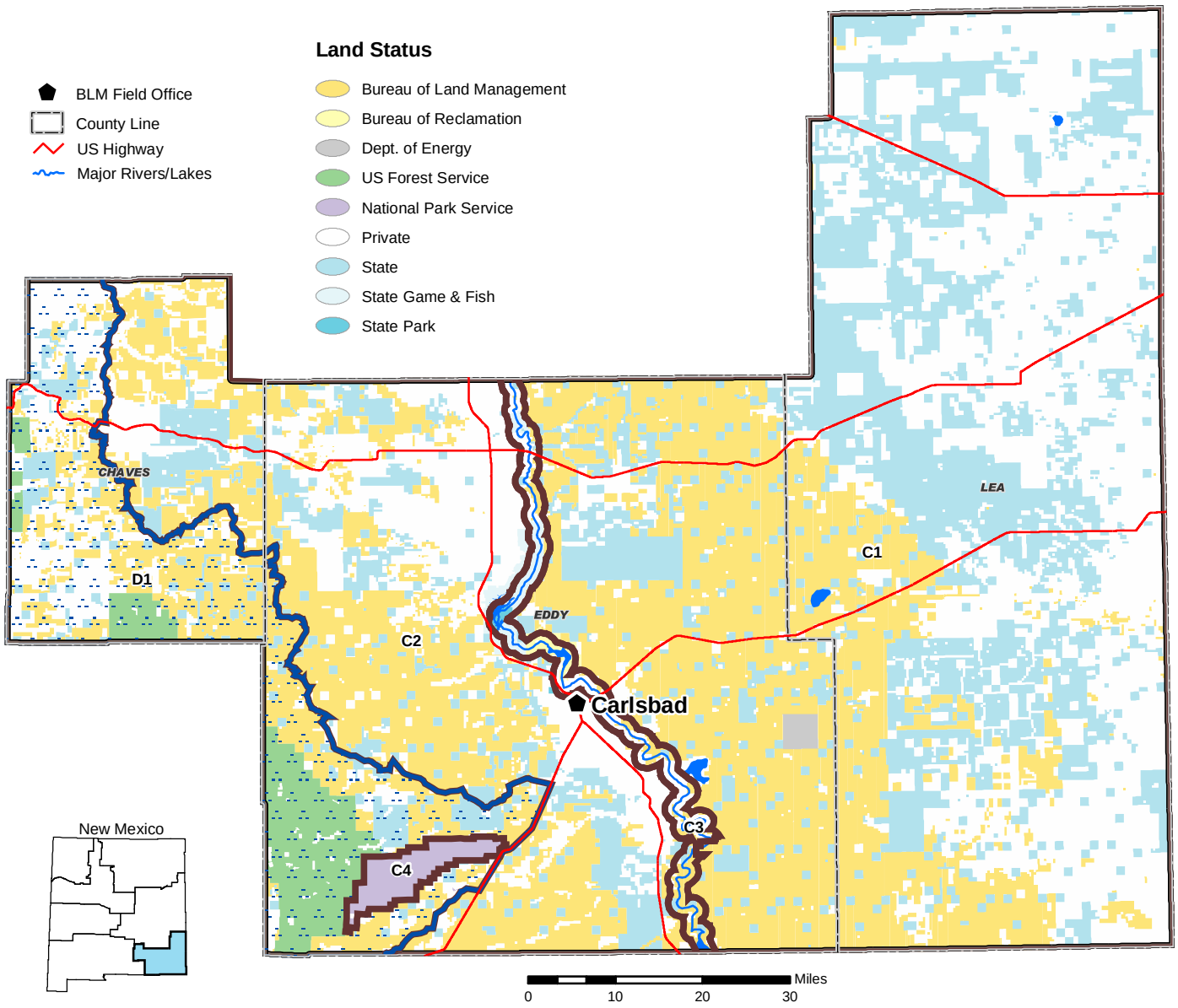


Figure A.3 Carlsbad Field Office Fire Management Units



Fire Management Units

Category C

Category D

(See Table A.2 for category definitions.)

UNITS

C1	Eastern Sandhill Country
C2	Western Foothills
C3	Pecos River Corridor
C4	Carlsbad Caverns
D1	Guadalupe Escarpment

Data source: BLM NMSO, 2003.

Produced by the BLM New Mexico Geographic Sciences Team.

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.)

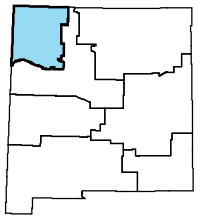
UNITS

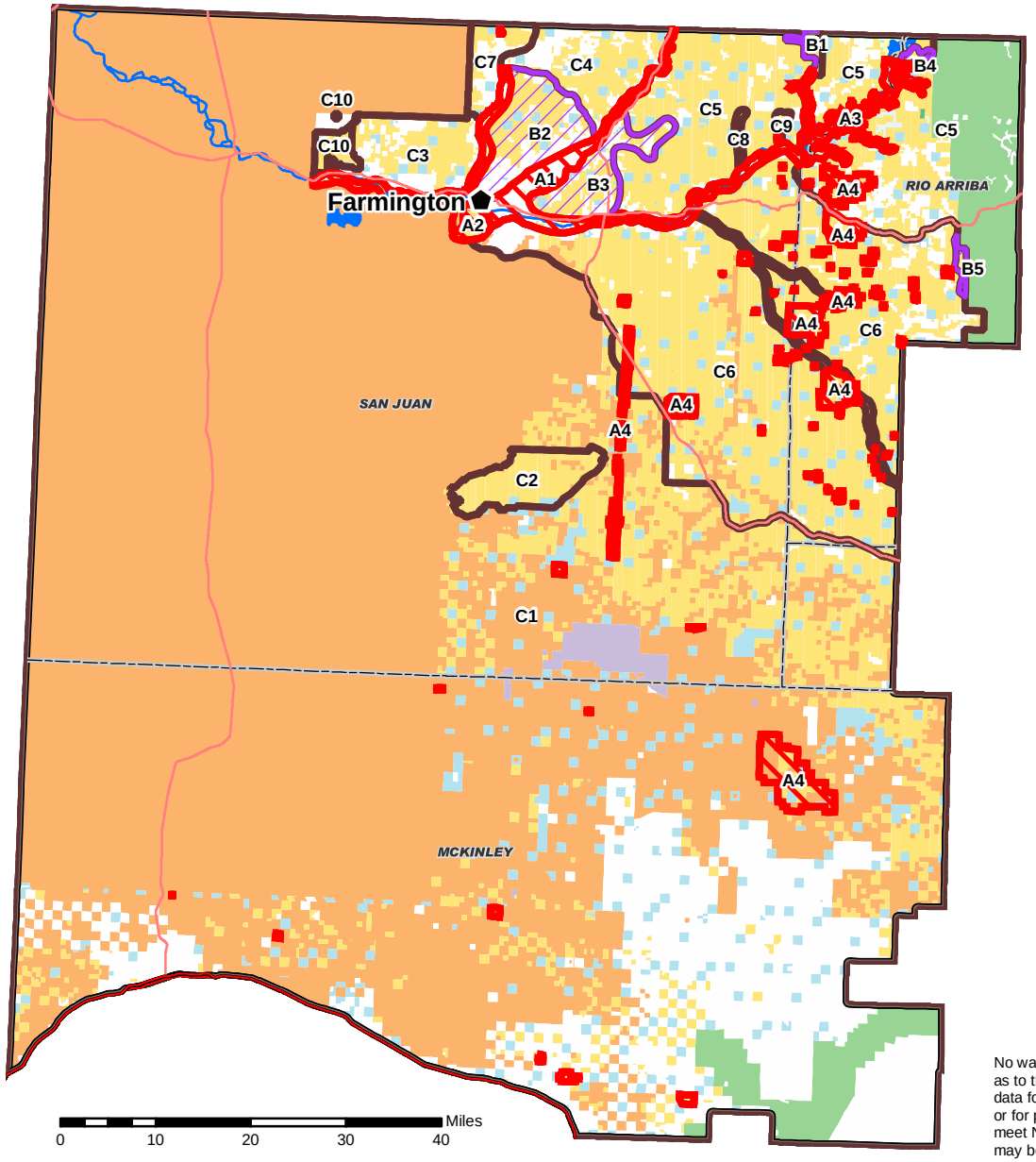
A1 River Corridors
A2 Head Canyon/Dunes Recreation Area
A3 Bald Eagle ACEC/Navajo Reservoir
A4 Cultural Specially Designated Areas
B1 Reese Canyon
B2 Glade Run Recreation Area
B3 Crouch Mesa/Knickerbocker Peak
B4 Eul Canyon
B5 MSO ACEC
C1 Chaco/Other general areas
C2 Bisti-Denazin Wilderness
C3 Twin Mounds
C4 Lonetree Mountain
C5 Rattlesnake Canyon/ Middle Mesa/Rosa Mesa
C6 Largo/Carrizo/Blanco Canyons
C7 Jones/Thomas Canyon
C8 Pump Canyon
C9 Simon Canyon
C10 Hogback ACEC

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

Data source: BLM NMSO, 2003.

New Mexico





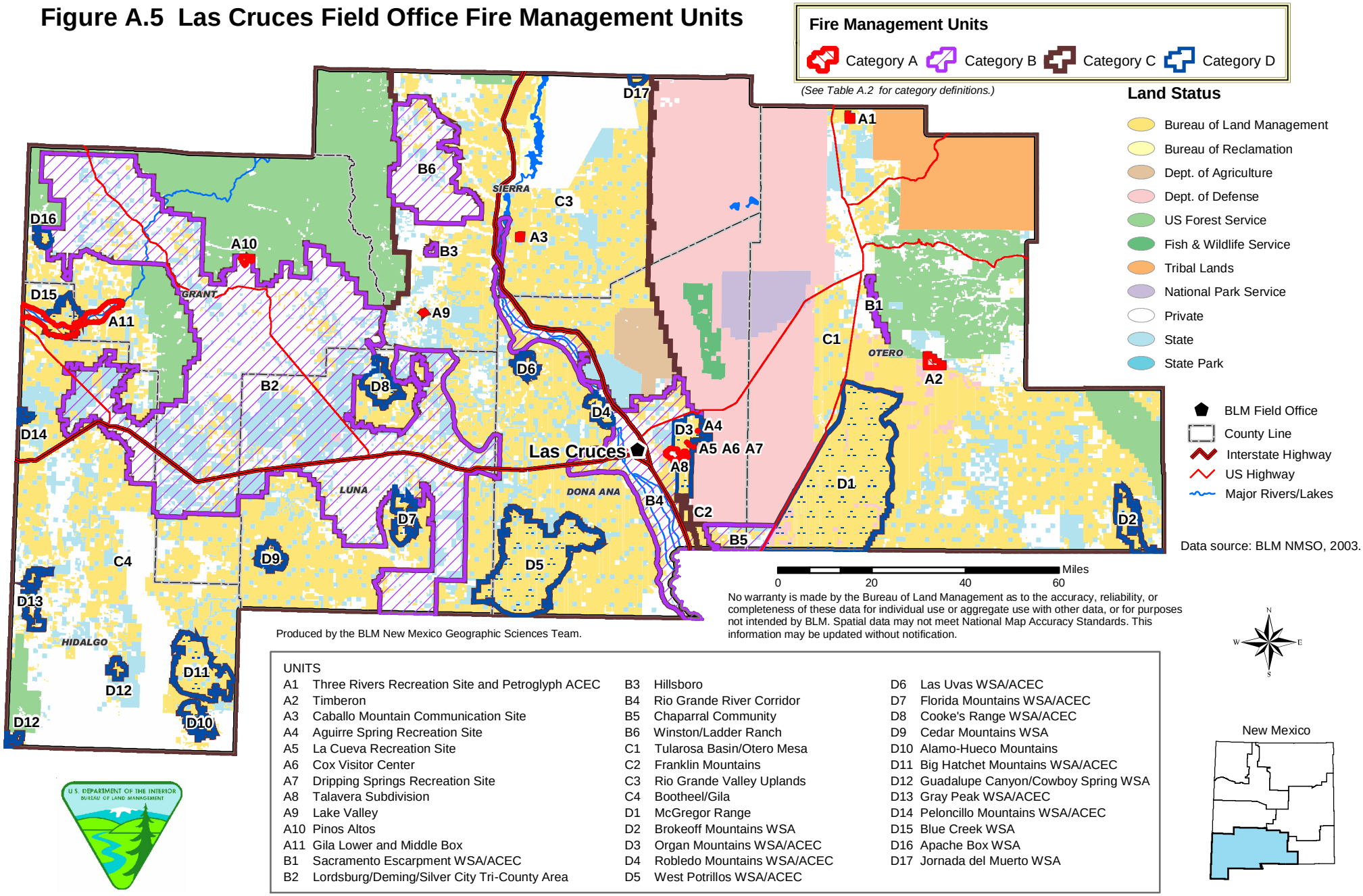
- BLM Field Office
- County Line
- Interstate Highway
- US Highway
- Major Rivers/Lakes

Land Status

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

Produced by the BLM New Mexico Geographic Sciences Team.

Figure A.5 Las Cruces Field Office Fire Management Units



UNITS

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

Figure A.6 Roswell Field Office Fire Management Units

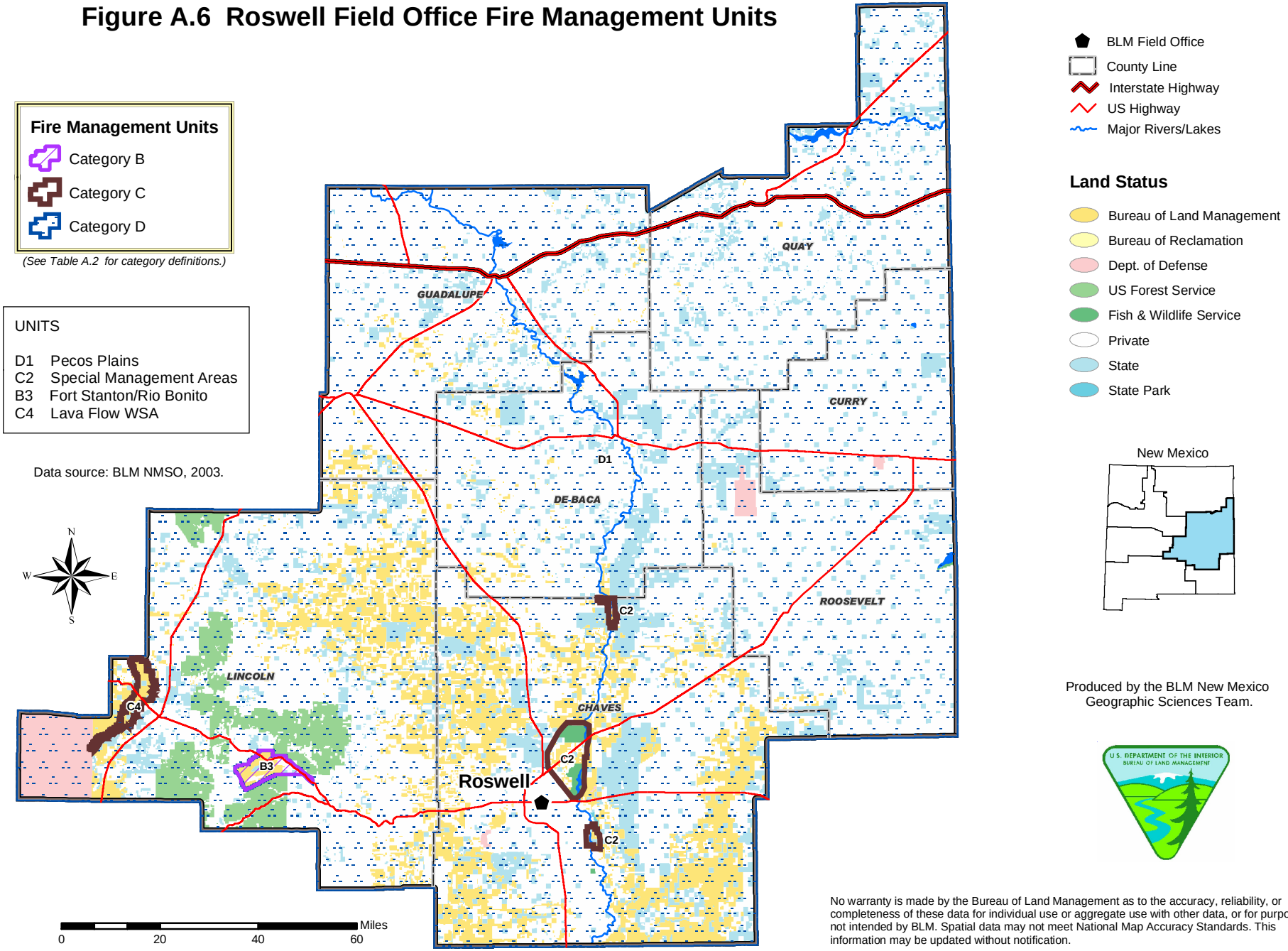


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Figure A.7 Socorro Field Office Fire Management Units

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 Jornado
D6 Other Wilderness Study Areas
D7 Chupadera Mesa
D8 Isolated Ponderosa Pine Stands

Land Status

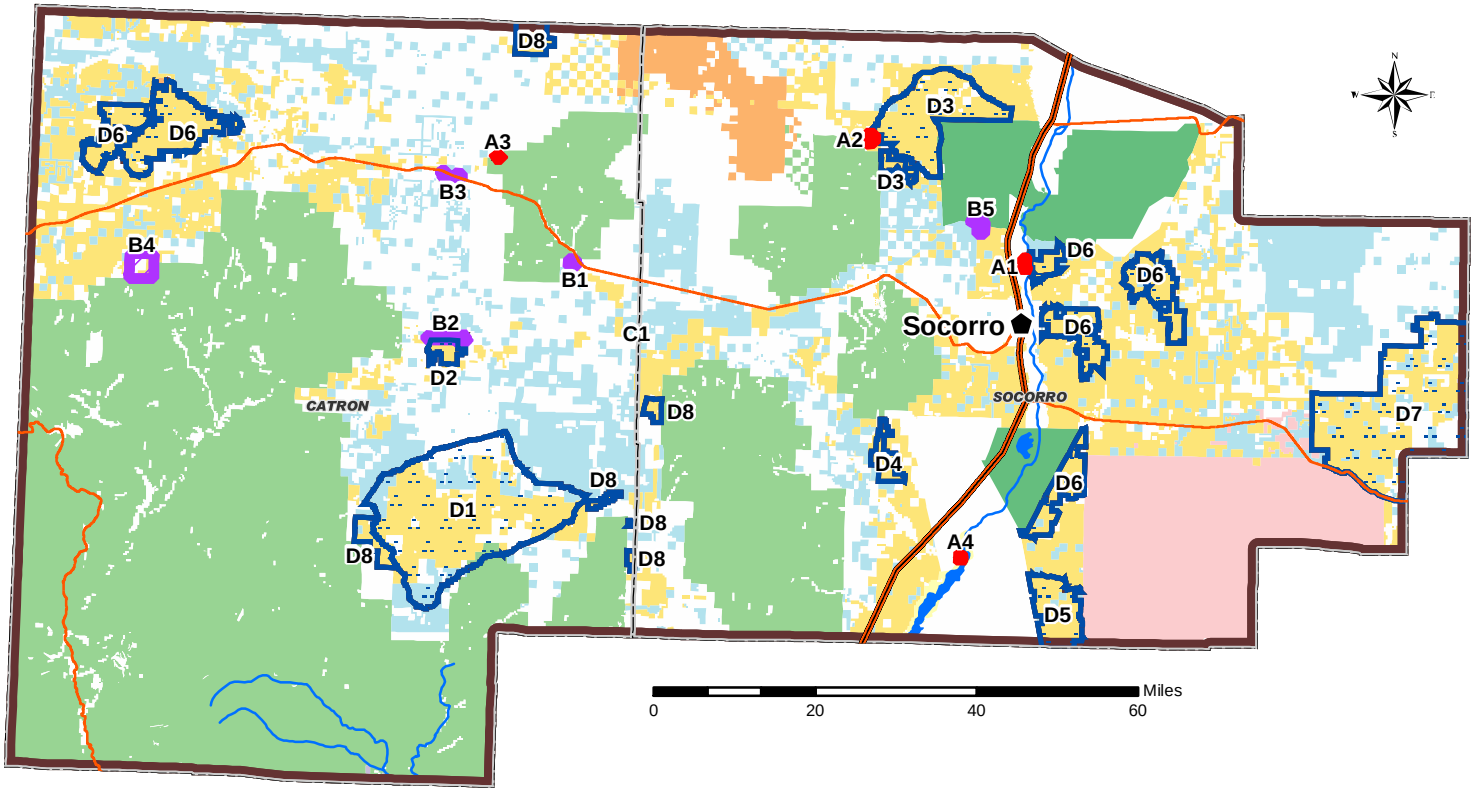
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Defense
- US Forest Service
- Fish & Wildlife Service
- Tribal Lands
- National Park Service
- Private
- State
- State Game & Fish

Fire Management Units

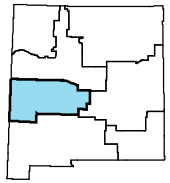
Category A | Category B | Category C | Category D

(See Table A.2 for category definitions.)

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



New Mexico



Data source: BLM NMSO, 2003.

Produced by the BLM New Mexico Geographic Sciences Team.

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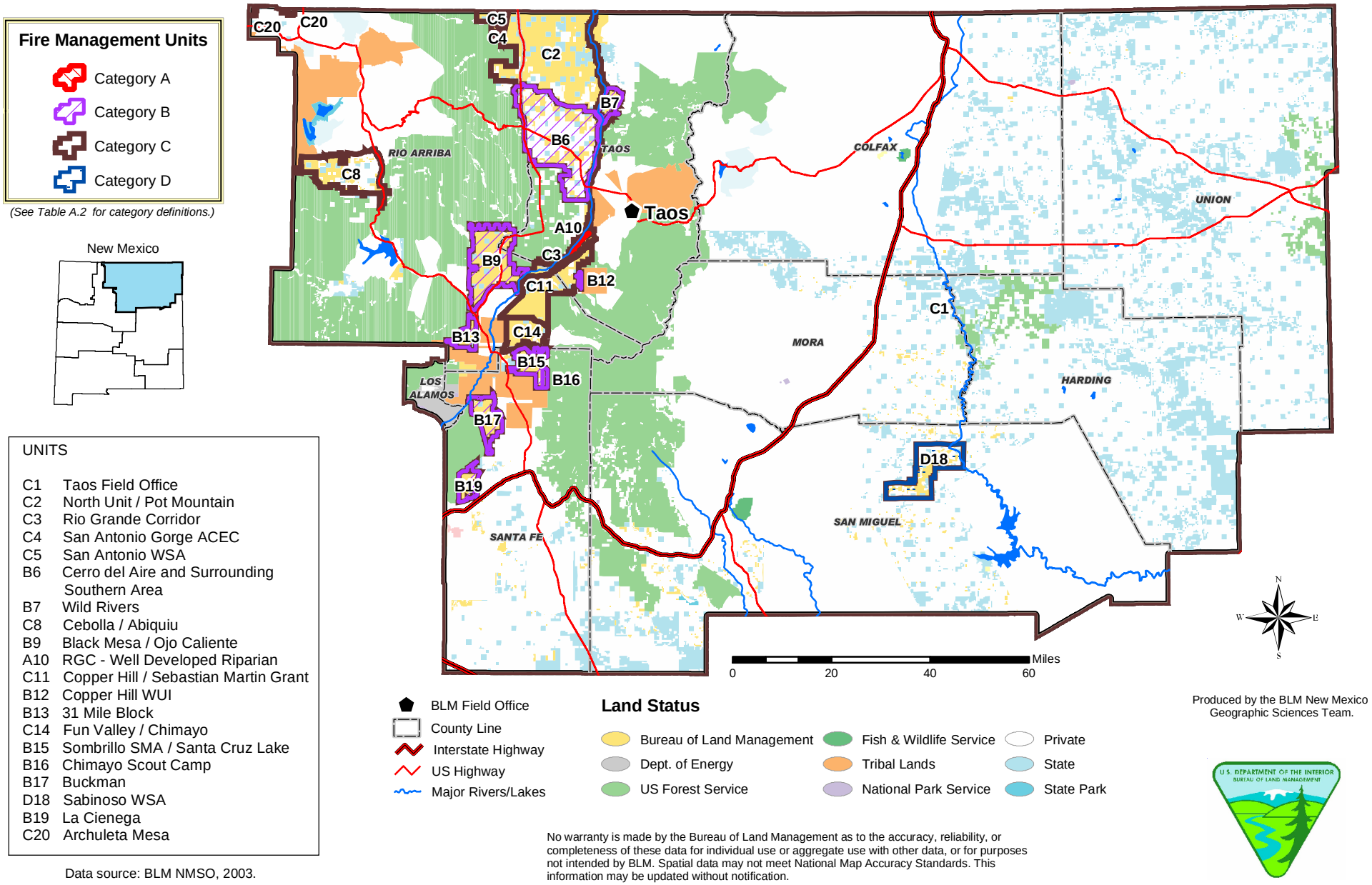
Figure A.8 Taos Field Office Fire Management Units



UNITS

C1	Taos Field Office
C2	North Unit / Pot Mountain
C3	Rio Grande Corridor
C4	San Antonio Gorge ACEC
C5	San Antonio WSA
B6	Cerro del Aire and Surrounding Southern Area
B7	Wild Rivers
C8	Cebolla / Abiquiu
B9	Black Mesa / Ojo Caliente
A10	RGC - Well Developed Riparian
C11	Copper Hill / Sebastian Martin Grant
B12	Copper Hill WUI
B13	31 Mile Block
C14	Fun Valley / Chimayo
B15	Sombrillo SMA / Santa Cruz Lake
B16	Chimayo Scout Camp
B17	Buckman
D18	Sabinoso WSA
B19	La Cienega
C20	Archuleta Mesa

Data source: BLM NMSO, 2003.

Produced by the BLM New Mexico Geographic Sciences Team.

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