PHOENIX / KINGMAN ZONE
FIRE MANAGEMENT PLAN
2004

September 21, 2004

PHOENIX / KINGMAN ZONE FIRE MANAGEMENT PLAN 2004

September 21, 2004

Phoenix/Kingman Fire Management Zone
Fire Management Plan 2004

Developed By: _____ 9/21/04
Zone Fire Management Officer — Date

Recommended By: Bonnie Winslow 9-23-04
Field Office Manager — Date

Recommended By: _____ 9-27-04
Field Office Manager — Date

Approved By: _____ 9-28-04
State Director — Date

Phoenix/Kingman Fire Management Zone
Fire Management Plan 2004

Table of Contents

Phoenix/Kingman Fire Management Zone
Fire Management Plan 2004

I. Introduction

A. Purpose

The purpose of the Bureau of Land Management (BLM) Phoenix/Kingman Fire Management Zone Fire Management Plan (PKFMP) is to identify and integrate all wildland fire management guidance, direction, and activities required to implement national fire policy and fire management direction from the Phoenix and Kingman Resource Management Plans (RMP). Overall direction from the RMPs and associated implementation plan allows fire to be restored as an integral part of ecosystems to meet resource management objectives and to improve protection of human life and property through the reduction of hazardous fuels. The FMP allows management direction to be easily accessible by fire and resource personnel. It highlights management direction to facilitate development and implementation of fire management strategies. A Glossary of Terms is provided at the end of this document to assist in clarifying technical terms.

The FMP was developed around a zone fire management program and addresses all aspects of it, including wildland urban interface (WUI), rural fire assistance, prescribed fire, fuels management, prevention, and suppression. The FMP identifies a fire program that meets identified fire management objectives. This is a strategic document that covers all burnable public lands within the Phoenix/Kingman Zone.

The fire management organization outlined in the FMP will be utilized in the development of annual budget requests and annual work plans. Proposed actions, alternatives, and environmental analyses, in compliance with the National Environmental Policy Act (NEPA), will be based on these strategies and developed for implementation of site-specific projects. In addition, this FMP lays the foundation for future collaborative efforts involving interagency partners and state and local cooperators.

In Arizona, a statewide organizational effectiveness study of all field offices is under way. The purpose of the study is to analyze options and recommend staffing structures for district and field offices. This study includes the review of the current fire management zones and organizations. Prior to the study being completed and without the FPA process implemented and completed, a conclusion cannot be determined on effective fire management organization and zone configuration for the Phoenix/Kingman Fire Management Zone.

Management will maintain the current organization until completion and recommendation of the study determines the most efficient configuration of fire zones and the FPA determines the most efficient organizational level.

B. Relationship to Environmental Compliance

The Arizona Statewide Land Use Plan Amendment for Fire Fuels and Air Quality, hereafter referred to as the LUP, meets the National Environmental Policy Act (NEPA) requirements as well as other State and Federal regulatory requirements. Any reference to LUP includes the

Resource Management Plan (RMP) or Management Framework Plan (MFP). The Fire Management Plan (FMP) is a document that compiles land use decisions related to fire management from the LUP and is generally considered categorically excluded from further NEPA analysis, provided it does not make decisions other than those in the LUP and other planning documents. Future site specific and project specific proposals to implement the LUP decisions will require additional environmental analysis and compliance with other relevant laws and regulations. If additional direction is necessary to implement the fire management action in the fire planning unit, it can be developed, analyzed and determined through a LUP amendment or activity plan update.

All fire management objectives, constraints, and activities contained within this plan are consistent with the approved land use documents. Refer to Appendix A.

C. Collaboration

The PKFMP is a strategic document identifying approved fire management direction determined by the RMPs and analyzed in the final environmental impact statement for that plan. These RMPs were developed with input from and consultation with representatives from over 700 agencies and individuals. Among these agencies and individuals were Department of Interior, Department of Agriculture, Arizona State Agencies, City and County governments, Indian Tribes and councils and numerous special interest groups. The PKFMP meets the national requirement that all BLM-administered lands subject to wildland fires are managed under a current FMP. The PKFMP also meets regulatory compliance requirements with the National Environmental Policy Act as it is a strategic document that does not make resource management decisions or project specific implementation decisions and therefore is categorically excluded from further NEPA analysis (Categorical Exclusion 516 DM2, Appendix 1, Chapter 2, 1.10). Prior to implementing fire management projects on-the-ground, additional environmental analysis and compliance with other federal and state regulatory requirements such as the National Historic Preservation Act and the Endangered Species Act, the Clean Water Act and the Clean Air Act will be required.

D. Authorities

The "Principal Wildland Fire Laws" reference guide, dated October 2003, consolidates in one guide applicable laws covering the BLM fire management program. The guide should be referenced for a more detailed list.

Authorities for the Fire Management program are listed below:

1. PROTECTION AND SUPPRESSION

    a. BLM LANDS GENERALLY: STATUTORY LAW

        Protection Act of September 20, 1922: Protection of Timber Resource (16 U.S.C. § 594)

Taylor Grazing Act: Protection of Grazing Districts and Other Interior Lands (43 U.S.C. § 315a)

Federal Land Policy and Management Act (FLPMA): Preservation and Protection of BLM Lands (43 U.S.C. §§ 1701-52)

Wildfire Disaster Recovery Act of 1989: Protection of National Forests: Reforestation; Management: Report on Rehabilitation Needs (16 U.S.C. § 551b)

Wildfire Disaster Recovery Act of 1989: Protection of National Forests: Reforestation; Management: Planning for Fire Protection (16 U.S.C. § 551c)

Appropriations Act: Wildland Fire Management (2001)

b. BLM LANDS GENERALLY: ADMINISTRATIVE LAW

Fire Management: Wildfire Prevention (43 C.F.R. § 9212.0 et seq.)

Fire Management: Wildfire Prevention, Prohibited Acts on BLM Lands (43 C.F.R. § 9212.1)

Fire Management: Wildfire Prevention, Fire Prevention Orders (43 C.F.R. § 9212.2)

Fire Management: Wildfire Prevention, Permits (43 C.F.R. § 9212.3)

Fire Management: Wildfire Prevention, Penalties (43 C.F.R. § 9212.4)

Forest Management: Sales of Forest Products May Include Provisions for Fire Safety (43 C.F.R. § 5424.0-6)

Visitor Services: Closures and Restriction Orders, Recreation Management (43 C.F.R. § 8364.1)

Recreation Management: Temporary Closure of Lands (43 C.F.R. § 9268.3)

State and Local Laws (43 C.F.R. § 8365.1-7) Executive Order No. 11644: Use of Off-Road Vehicles on Public Lands

c. SPECIFIC BLM LANDS: ADMINISTRATIVE LAW

1. National Wilderness Preservation System

Regulations for Administration and Use of Wilderness Areas (43 C.F.R. § 19.6)

Emergency Functions in Wilderness Areas (43 C.F.R.

Provisions to Control Fire, Insects, and Disease in Wilderness Areas (43 C.F.R. § 6304.22)

Wild & Scenic Rivers and National Trails System Acts

Emergency Motorized Vehicle Use on National Scenic Trails (43 C.F.R. § 8351.1-1)

Special Rules Exempting Fire Fighters on Official Duty (43 C.F.R. § 8351.2-1)

Prohibition on Fire within National Wild & Scenic River System (43 C.F.R. § 8351.2-1e)

d. OTHER DOI LANDS (NON-BLM): STATUTORY LAW

National Wildlife System Administration Act of 1966: Interagency Agreements (42 U.S.C. § 668dd)

2. PRESCRIBED FIRE AND FIRE USE

a. BLM LANDS GENERALLY: STATUTORY LAW

McSweeney-McNary Act (16 U.S.C. § 1647) – repealed.

Taylor Grazing Act (43 U.S.C. § 315a)

Federal Land Policy and Management Act (FLPMA) (43 U.S.C. §§1701-52)

Appropriations Act: Wildland Fire Management (2001)

b. STATE LANDS: STATUTORY LAW

Pittman-Robertson Wildlife Restoration Act or Federal Aid in Wildlife Restoration (16 U.S.C. § 669)

3. CONTRACTS, COOPERATIVE AGREEMENTS, GRANTS AND COMMUNITY ASSISTANCE

a. BLM GENERALLY: STATUTORY LAW, CONTRACTS

Federal Property and Administrative Services Act: Guidelines for Contracting (40 U.S.C. § 471)

Federal Land Policy and Management Act (FLPMA) (43 U.S.C. §§ 1701-52)

Federal Grant and Cooperative Agreement Act: Using Procurement Contracts, Grants and Cooperative Agreements (31 U.S.C. §§ 6301-6307)

Federal Grant and Cooperative Agreement Act: Intergovernmental Cooperation: Authority to Provide Specialized or Technical Services (31 U.S.C. § 6505)

Federal Grant and Cooperative Agreement Act: Intergovernmental Cooperation (31 U.S.C. §§ 6501-6508)

Economy Act of 1932: Interagency Orders for Goods and Services (31 U.S.C. § 1535)

b. BLM GENERALLY: STATUTORY LAW, COOPERATIVE AGREEMENTS & GRANTS

Federal Grant and Cooperative Agreement Act: Using Procurement Contracts, Grants and Cooperative Agreements (31 U.S.C. §§ 6301-6307)

Federal Grant and Cooperative Agreement Act: Using Procurement Contracts and Grant and Cooperative Agreements: Authority to Vest Title in Tangible Personal Property for Research (31 U.S.C. § 6306)

Federal Grant and Cooperative Agreement Act: Using Procurement Contracts and Grant and Cooperative Agreements: Use of Multiple Relationships for Different Parts of Jointly Financed Projects

Reciprocal Fire Protection Act of 1955: Reciprocal Fire Protection Agreements (42 U.S.C. § 1856 (a)-(d))

Fish and Wildlife Coordination Act: Protection and Conservation of Wildlife: Game, Fur-bearing Animals and Fish (16 U.S.C. § 661).

Appropriations Act: Wildland Fire Management (2001)

Appropriations Act: Wildland Fire Management (Public Law 107-63 (HR 2217))

Supplemental Appropriations of 1982 (U.S.C.C.A.N. 96 Stat. 837)

c. STATE LANDS: STATUTORY LAW

Conservation Programs on Government Lands (16 U.S.C. § 670(h))

d. INTERNATIONAL AGREEMENTS GENERALLY

Wildfire Suppression Assistance Act of 1989 (42 U.S.C. § 1856(m) - (p))

e. SPECIFIC INTERNATIONAL AGREEMENTS, U.S./CANADA AND U.S./MEXICO

Wildfire Suppression Assistance Act of 1989 (42 U.S.C. § 1856(m) - (p))

f. COMMUNITY ASSISTANCE

Appropriations Act: Wildland Fire Management (2001)

g. NON-DOI LANDS: ADMINISTRATIVE LAW

Emergency Fire Protection Aid to Other Fire Departments Not Within DOI (43 C.F.R. § 28)

h . BLM GENERALLY: ADMINISTRATIVE LAW, GRANTS

Grants of Equipment and Supplies from DOI to State and Local Grantees (43 C.F.R. §§ 12.72 & 12.73)

Enforcement of Grants (43 § C.F.R. 12.83)

4. MAJOR DISASTERS AND EMERGENCIES

a. STATUTORY LAW

Major Disaster Assistance Programs: Fire Management Assistance (42 U.S.C. § 5187)

Federal Fire Prevention and Control Act of 1974 as amended: The Federal Emergency Management Administration's Ability to Engage BLM and Other Federal Agencies (15 U.S.C. § 2201)

National Historic Preservation Act: Historic Sites, Buildings, etc. (16 U.S.C. § 464)

b. ADMINISTRATIVE LAW

1. Emergency Management and Requested Assistance (44 C.F.R. § 10.13)

2. Fire Prevention and Control: Assistance by Other Federal Agencies (44 C.F.R. § 206.5)

3. Donation or Loan of Federal Equipment and Supplies (44 C.F.R. § 206.6)

4. Implementation of Assistance from Other Federal Agencies (44 C.F.R. § 206.7)

5. Reimbursement of Other Federal Agencies (44 C.F.R.§ 206.8)

6. Nonliability of Federal Government (44 C.F.R. § 206.9)

7. Standards and Reviews (44 C.F.R. § 206.13)

8. Recovery of Assistance: Liable Party (44 C.F.R. § 206.15)

9. Audit and Investigations (44 C.F.R. § 206.16)

10. Designation of Affected Areas and Eligible Assistance (44 C.F.R. § 206.40)

11. Responsibilities of Coordinating Officers (44 C.F.R. § 206.42)

12. Emergency Support Teams (44 C.F.R. § 206.43)

13. Available Assistance under Emergency Declarations (44 C.F.R. § 206.62)

14. Provision of Assistance Limited to the Immediate and Short Term (44 C.F.R § 206.63)

15. Coordination of Assistance under the Federal Coordinating Officer (44 C.F.R. § 206.64)

16. Cost Sharing (44 C.F.R. § 206.65)

17. Duplication of Benefits to Individuals and Families (44 C.F.R. § 206.191)

18. Direct Federal Assistance (44 C.F.R. § 206.208)

19. Fire Suppression Assistance (44 C.F.R. § 206.390)

20. FEMA-State Agreement Governs Federal Assistance (44 C.F.R. § 206.391)

21. Providing Assistance (44 C.F.R. § 206.393)

22. Expense Recovery (44 C.F.R. § 206.394)

5. OTHER FEDERAL LAWS THAT MAY APPLY

National Environmental Policy Act of 1970 (NEPA) (42 U.S.C. §§ 4321-4370e)

Endangered Species Act of 1973 (ESA) (16 U.S.C. §§ 1531 - 1544)

Clean Water Act of 1948, as amended 1966, 1972 (CWA) (33 U.S.C. §§ 1251 – 1387)

The Clean Air Act of 1970 (CAA) (42 U.S.C. §§ 7401 - 7671q)

Wilderness Act of 1964 (16 U.S.C. §§ 1131-1136)

Antiquities Act of 1906 (16 U.S.C. §§ 431-433)

National Historic Preservation Act of 1966 (NHPA), as amended (1992) (16 U.S.C. §§ 470 et seq.)

6. Other Guidance

United States Department of the Interior Manual (910 DM 1.3).

1995 Federal Wildland Fire Management Policy

2001 Updated Federal Wildland Fire Management Policy (1995 Federal Wildland Fire Management Policy Update)

1998 Departmental Manual 620 Chapter 1, Wildland Fire Management General Policy and Procedures.

II. Relationship to Land Management Planning/Fire Policy

A. Policy

The Fire Management Plan has been tiered to decisions contained within existing land use plans previously referenced. The PKFMP derives overall program guidance from the following:

The "Interagency Standards for Fire and Fire Aviation Operations," which provides overall direction for all fire and aviation activities.

Firefighter and public safety is the first priority. All zone fire management plans and activities will reflect this commitment. Reference: Interagency Standards for Fire and Fire Aviation Operations 2004, Chapter 1 Federal Fire Program Policy and Guidance Overview, under C. 1. Safety.

1998 BLM Handbook 9214, "Prescribed Fire Management" which describes authority and policy for prescribed fire use on public lands administered by the Bureau of Land Management.

September 2000, "Managing the Impacts of Wildfires on Communities and the Environment."

October 2000, National Cohesive Strategy goal is to coordinate an aggressive, collaborative approach to reduce the threat of wildland fire to communities and to restore and maintain land health www.fireplan.gov.

August 2001, "Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment -10 Year Comprehensive Strategy" provides a foundation for wildland agencies to work closely with all levels of government, tribes, conservation, and commodity groups and community-based restoration groups to reduce wildland fire risk to communities and the environment.

May 2002, "Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, 10 Year Comprehensive Strategy – Implementation Plan"

August 2002, "Healthy Forests - An Initiative for Wildfire Prevention and Stronger Communities."

April 2001, Interim guidance for wilderness fires

Various Wilderness Management Plans Phoenix/Kingman Field Offices

The 1997 Standards for Rangeland Health and Guidelines for Grazing Management .

The 1989 Phoenix Field Office RMP and the September 1993 Kingman Field Office RMP.

B. Resource Management Plan Guidance

Wildland fire management activities within the PKFMZ will assist in meeting the following management goals, standards, and guidelines from the following plans: Phoenix, Kingman and Arizona Statewide Land Use Plan Amendment (LUP) for Fire, Fuels and Air Quality Management.

Goals, Standards, Objectives, and/or Desired Future Condition

- Special Management Area plans will identify areas where prescribed burning would benefit wildlife, watershed and rangeland resources.
- Land treatments such as imprinting and seeding, chaining or fire could be implemented to enhance rangeland values, watershed conditions, and wildlife habitat.
- Implement management prescriptions to restore and maintain riparian-wetland areas so 75 percent or more are in proper functioning conditions.
- Maintain and enhance wildlife habitat to ensure viable populations and natural habitat.
- Preserve and enhance threatened and endangered species and their habitats.
- Protect and enhance public land resources by suppressing and managing wildfires.
- Use prescribed fire to improve wildlife habitat, livestock forage and vegetative cover and composition.

- Rehabilitate all surface disturbances to the extent practical to protect soil, vegetation, water and other environmental values and to blend the disturbed site into surrounding terrain and settings.

- Fire is recognized as a natural process in fire adapted ecosystems and is used to achieve objectives for other resources.

- Fuels in WUI areas are maintained at non-hazardous levels to provide for public and fire fighter safety.

- Prescribed fire activities comply with federal and state air-quality regulations.

- Each vegetation community is maintained within its natural range of variation in plant composition, structure, and function, and fuel loads are maintained below levels that are considered to be hazardous.

From Table 2.1 Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality. The vegetation communities that exist in the PKFMZ are identified below.

Vegetation Community Type	**Desired Future Conditions**	**Land Use Allocation**
Upland Sonoran Desert Scrub	The Desired Future Conditions are for an adequate cover and mix of natural plant species that have good vigor. In terms of fire management and fire ecology, the Desired Future Conditions are for fire to control or reduce the exotic annual weeds such as red brome and to limit woody vegetation to non-hazardous levels.	2
Lower Sonoran Desert Scrub	The Desired Future Conditions are for an adequate cover and mix of natural plant species that have good vigor. In terms of fire management and fire ecology, the Desired Future Conditions are for fire to control or reduce the exotic annual weeds such as red brome and to limit woody vegetation to non-hazardous levels.	2
Great Basin Pinyon/Juniper Woodland	The Desired Future Conditions are that annual weeds such as cheatgrass are controlled, ladder fuels and downed woody debris are limited or not present, and juniper and pinyon pine tree densities and cover occur at their historic range of variation.	1
Mohave Desert Scrub	The Desired Future Conditions are for an adequate cover and mix of natural plant species	2

	that have good vigor. In terms of fire management and fire ecology, the Desired Future Conditions are for fire to control or reduce the exotic annual weeds such as red brome and to limit woody vegetation to non-hazardous levels.	
Great Basin Desert Scrub	The Desired Future Conditions are for fire to naturally reduce annual weed densities and cover, limit or reduce the invasion of juniper, and for the densities of shrubs, such as big sagebrush, to be maintained within their historic range of variability.	1
Plains and Great Basin Grasslands	The Desired Future Conditions are for a predominance of perennial grass cover, reduced cover of annual grasses, and for fire to naturally inhibit the invasion of woody shrubs such as rabbitbrush, snakeweed, and big sagebrush.	1
Semidesert Grassland	The Desired Future Conditions are for perennial grasses to cover its historic range of variability, annual grass cover is reduced, and fire naturally inhibits the invasion of woody plants such as juniper, tarbush, whitethorn, and creosote bush.	1
Interior Chaparral	The Desired Future Conditions are that fire naturally maintains shrub cover while reducing annual grass cover, the invasion of woody plants such as juniper and pinyon pine are controlled, and the average age of chaparral stands is reduced through controlled fire or mechanical treatment.	1
Riparian	The Desired Future Conditions are that annual weed cover and density is controlled and ladder fuels and downed woody debris are limited or not present. Disturbances such as livestock grazing, mining, and off-road vehicle travel, that can potentially reduce natural vegetation cover and vigor, are managed to maintain adequate cover and mix of natural plant species.	2
Montane Conifer Forest	The Desired Future Conditions are that dog-hair thickets are controlled, ladder fuels and downed woody debris are limited or not present, a high percent of large trees are maintained, and tree-stand vigor is maintained through controlled fire and mechanical treatments.	1

A map depicting the vegetative community types can be found in Appendix B.
Allocation 1 – Wildland Fire Use: Areas suitable for wildland fire use for resource management benefit. Allocation 2 – Non Wildland Fire Use: Areas not suitable for wildland fire use for resource benefit.

III. Wildland Fire Management Strategies

A. General Management Considerations

In order to comply with direction provided in current National Fire Plan guidance, the RMPs, the Phoenix/Kingman Fire Management Zone field offices developed the following general wildland fire management guidance.

The Phoenix/Kingman Fire Management Zone field offices will take the following actions in all FMUs:

Employ suppression strategies to manage wildland fires that provide for the first priority of firefighter and public safety, minimize cost and resource damage, and are consistent with values to be protected and management objectives.

Protect human life and property and natural resources both within and adjacent to agency administered lands.

Use fire to restore and/or sustain ecosystem health based on sound scientific principles and information, balanced with other societal goals, including public health and safety, and air quality.

Restore and rehabilitate resources and improvements lost in or damage by fire or suppression activities.

Promote an interagency approach to managing fires on an ecosystem basis.

Identify appropriate management response (AMR) goals, objectives, and constraints by, specific Fire Management Units (FMU) within the Phoenix/Kingman Fire Management Zone field offices. All wildland fire management activities will be managed as described in the FMU guidance outlined in Section III.

Provide an appropriate management response (AMR) on all wildland fires, with emphasis on firefighter and public safety, minimizing suppression costs, considering benefits and values to be protected consistent with resource objectives, standards and guidelines.

Minimize, and where necessary mitigate, human-induced impacts to resources, natural processes, or improvements attributable to wildland fire activities.

Utilize “MIST” Minimum Impact Suppression Tactics and other protective means during fire suppression actions to protect and minimize impacts on the landscape and ecosystems.

Meet management goals and objectives through the use of prescribed fire, mechanical treatment, wildland fire for resource benefit, chemical treatment, and biological treatment.

Work collaboratively with communities at risk within the WUI to develop plans for risk reduction. The Federal Register Notice list is located at: http://www.fireplan.gov/ and http://www.fireplan.gov/communities_at_risk.cfm and is not totally inclusive of all communities within PKFMZ boundaries.

Work collaboratively with federal, state, and local partners to develop cross-boundary management strategies and prioritize cross-agency fire management actions.

Encourage public understanding of fire management programs and objectives.

Provide for an aggressive interagency fire prevention, mitigation and education program.

Provide for an aggressive fire investigation and trespass recovery program.

B. Wildland Fire Management Goals

This is a list of the wildland fire management goals. These goals provide the programmatic direction for the wildland fire program. These goals should be stated in broad, programmatic terms, within the context of approved land management plan direction. This section describes how the Fire Management Plan will safely and effectively contribute to achieving the goals in the unit's approved land and resource management plan.

It is identified here how these goals contribute to accomplishing regional or national strategic plans such as the 10 Year Comprehensive Strategy, National Fire Plan, or Cohesive Strategies, as well as wildland fire policy. Fire program goals reflect the core principles and goals of the Comprehensive Strategy and the Cohesive Strategy where supported by land and resource management plans.

The PKFMZ will conduct all wildland fire management actions in compliance with the 1995 Federal Wildland Fire Policy and the 2001 Federal Wildland Fire Policy Update guiding principles. These principles are:

Firefighter and public safety are the highest priority in every fire management activity.

Assess risk to communities in terms of direct wildland fire impact and economic values, and implement effective programs to mitigate that risk through collaborative planning and projects.

Implement the full range of wildland fire and fuels management practices, including prescribed fire, fire use, mechanical, chemical, biological, and cultural treatments that will move all affected landscapes toward desired future condition as described in the

LUPs and RMPs.

Establish partnerships with all interagency cooperators to facilitate coordinated fire management activities.

Maintain an efficient and effective organization for the suppression of wildland fires consistent with the values at risk.

Encourage close coordination and collaboration among specialists within the Phoenix Kingman Fire Management Zone field offices and among the PKFMZ and federal, interested organizations, private landowners, state, and local partners.

Develop and use the best scientific information available to deliver technical and community assistance to support ecological, economic, and social sustainability.

Utilize wildland fire to protect, maintain, and enhance resources and allow for the use of fire to function in its ecological role when appropriate for the site and situation.

Use an integrated approach to fire and resource management.

Specific fire programmatic direction for each Fire Management Unit (FMU) of the Phoenix/Kingman Fire Management Zone field offices is outlined in Chapter III Section D of the PKFMZ-FMP.

C. Wildland Fire Management Options

The Phoenix/Kingman Fire Management Zone field offices will provide an appropriate management response (AMR) on all wildland fires, with emphasis on fire fighter and public safety, minimizing suppression costs, considering benefits and values to be protected consistent with resource objectives, standards and guidelines. Responses to each wildland will be initiated in a timely manner with a force mix, that is based upon established fire management direction as documented in the approved RMPs. The use of appropriate management response will allow land managers to tailor preplanned wildland fire responses to meet objectives established in resource management plans and their associated implementation plans.

D. Description of Wildland Fire Management Strategies by Fire Management Unit

The appropriate management response concept will be applied for all public lands. Responses range from full fire suppression to managing fires for resource benefits (fire use). Management responses applied to a fire will be based on objectives derived from the land use allocations; relative risk to resources, the public and firefighters; potential complexity; and the ability to defend management boundaries. Any wildland fire can be aggressively suppressed and any fire that occurs in an area designated for fire use can be managed for resource benefits, when it meets the prescribed criteria identified in the approved fire management plan and fire use plan.

All fire management actions will adhere to the standards outline in the "Interagency Standards for Fire and Aviation Operations."
The Arizona Statewide Land Use Plan Amendment for Fire, Fuels and Air Quality Management assigned all BLM-administered lands in Arizona one of the two following land use allocations. The best science available was used to determine the allocations and response to fire.

Identification of fire management units/zones and strategies within the units/zones is the cornerstone for planning the management of the wildland fire program. This section must tie directly to the decisions made in the land and resource management planning process by management area, aggregated into FMUs. This section identifies objectives, standards, guidelines, and/or future desired conditions within the FMU and the wildland fire management strategies that will be used to accomplish them. The first priority in all Wildland Fire Management Strategies is firefighter and public safety.

An FMU is any land management area definable by objectives, management constraints, topographic features, access, values to be protected, political boundaries, fuel types, major fire regime groups, and so on, that set it apart from the management characteristics of an adjacent FMU. The FMUs may have dominant management objectives and pre-selected strategies assigned to accomplish these objectives. The development of FMUs should avoid redundancy. Each FMU should be unique as evidenced by management strategies, objectives and attributes. Refer to appendix B for a map deplicting FMUs.

The Fire Management Unit (FMU) designation was used instead of Fire Management Zone (FMZ). FMZ development is a key step in the Interagency Initial Attack Analysis (IIAA) that describes protection and suppression capabilities within the context of historical fire occurrence as it relates to land use planning. FMU development focuses on key multi-resource management objectives as outlined in land use planning.

Suppression criteria.

Fire suppression actions taken will be appropriate management response which is defined as those fire suppression strategies and tactics that provide for firefighter and public safety first, result in the least impact and disturbances to the landscape, least acreage burned and least suppression cost. Fires that escape initial attack will have a Wildland Fire Situation Analysis completed that will document the selected preferred suppression alternative and guide the management of the fire.

Under the Proposed Action, identified in the Arizona Statewide Land Use Plan Amendment for Fire, Fuels and Air Quality Management (Section 2.0 Description of Alternatives), BLM–administered public lands would be assigned to one of the following two land use allocations for fire management. Refer to Appendix C for a map depicting the two land use allocations for fire.

Allocation 1 – Wildland Fire Use: Areas suitable for wildland fire use for resource management benefit.

This allocation includes areas where wildland fire is desired, and there are few or no constraints for its use. Where conditions are suitable, unplanned and planned wildfire may be used to achieve desired objectives, such as to improve vegetation, wildlife habitat or watershed conditions, maintain non-hazardous levels of fuels, reduce the hazardous effects of unplanned wildland fires and meet resource objectives. Where fuel loading is high but conditions are not initially suitable for wildland fire, fuel loads are reduced by mechanical, chemical or biological means to reduce hazardous fuels levels and meet resource objectives (includes WUI areas).

Allocation 2 – Non Wildland Fire Use: Areas not suitable for wildland fire use for resource benefit.

This allocation includes areas where mitigation and suppression are required to prevent direct threats life or property. It 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. It also includes areas (including some WUI areas) where unplanned ignition could have negative effects to ecosystem unless some form of mitigation takes place. Mitigation may include mechanical, biological, chemical, or prescribed fire means to maintain non-hazardous levels of fuels, reduce the hazardous effects of unplanned wildland fires and meet resource objectives. The allocation of lands is based on the desired future condition of vegetation communities, ecological conditions and ecological risks. The allocation of lands is determined by contrasting current and historical conditions and ecological risks associated with any changes (Figure 2.1). The condition class concept helps describe alterations in key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings. BLM Fire Management Plans, will include the two allocations and identify areas for including fire use, mechanical, biological or chemical means to maintain non-hazardous levels of fuels, reduce the hazardous effects of unplanned wildland fires and meet resource objectives. They will also identify areas for exclusion from fire (through fire suppression), chemical, mechanical, and/or biological treatments.

Fire Management Objectives Common to All FMUs

Specific suppression actions will be common to all FMUs and will be hereafter referenced as such in the following FMU descriptions. The full range of responses are available to implement protection objectives for unplanned ignitions:

Fires will be contained at the minimal acres possible. Washes, roads, natural breaks will be utilized when possible for fire lines. Burn out operations will be conducted that burn the least acreage possible and what is necessary to establish a safe containment/control line. Unburned islands will not be intentional burned unless they pose a risk to the fire line.

Heavy equipment will only be used in consultation with the field office manager or designated resource advisor. Fire engines and support vehicles will minimize off road travel and remain on existing roads when possible depending on the fire situation.

Utilize Minimum Impact Suppression Tactics “MIST” where applicable (ACECs, wilderness areas, fragile desert ecosystems etc). “MIST” Guidelines are found in the 2004 “Interagency

Standards for Fire and Fire Aviation Operations," Chapter 11, Incident Management, Appendix 11-5 on page 11-31.

In established waterways, stock ponds, creeks, etc. the use of fire retardants (slurry, foam, etc.) is to be minimized as they may harm this sensitive environment. Avoid aerial or ground application of retardant or foam within 300 feet of waterways. Guidance on the use of retardants and foam can be found in the 2004 "Interagency Standards for Fire and Fire Aviation Operations," Chapter 12, Suppression Chemicals & Delivery Systems, Section E, Environmental Guidelines for Delivery of Retardant or Foam near Waterways.

Surface disturbing fire/fuels suppression activities should be minimized for archaeological sites.

Camps, staging areas etc will be located in areas that will provide for the least disturbance of the landscape.

A resource advisor will be assigned to coordinate resource concerns with the incident commander. Management strategies and action points will be based on fire activity and location. Normally, specific actions or combinations of actions will be determined on site by the incident commander or fire use manager. These actions could include:

- Monitoring and holding actions to check or confine spread
- Monitoring with pre-planned contingency actions
- Monitoring actions
- Control and extinguishment

Criteria to use for developing a management response:

Risk to firefighters and public health and safety
Land and Resource Management Objectives
Weather
Fuel Conditions
Threats and values to be protected
Cost efficiencies

A map showing the location of the FMUs can be found in Appendix D. A statewide natural fire regime map can be found in Appendix E. A statewide fire condition class map can be found in Appendix F. These maps can be referenced for questions on fire regimes or condition class for the specific FMU.

FMU # 1 Description- PFO Desert South of Interstate 10

a) Characteristics

This FMU consists of approximately 845,454 acres of public lands; the landscapes are typical of Sonoran Desert section of the Basin and Range Physiographic Province. The area is characterized by flood plains, basin floors, stream terraces, alluvial fans, fan terraces and steep, rocky mountains that rise abruptly from the fans. Elevation ranges from 420 feet to more than 4000 feet on the higher mountains.

Winters are mild and summers are hot and dry, the two main periods of rainfall are during the last half of summer and in early winter. Most of the area is desert rangeland, and farming is an important industry on the private lands found in the area, the main crops are cotton, alfalfa and vegetables and grains.

Vegetation is typical of the Sonoran Desert with a great diversity of plants including creosote, palo verde, ironwood and variety of cacti. Grasses and forbs do not constitute a large volume of the community but there are many species that may be present including, threeawn, galleta, bush muhly. Many of the drainages associated with the Gila River are dominated or are invaded by tamarisk or commonly known as salt cedar.

Prehistoric and historic aboriginal groups generally used desert mountains for wild food procurement, and there is evidence of archaeological sites.

Many species of wildlife inhabit the area including mule deer, bighorn sheep, javelina, cottontail and jack rabbits, and a variety of songbirds and raptors.

b) Fire History

Historical fire frequency is greater than 250-year return interval. Between 1980 and 2003, 150 fires started on BLM-administered public lands. These fires burned an estimated 12,293 acres. Most of the area burned was Sonoran Desert ecosystem. The largest fire burned 800 acres. Average fire size was 81.4 acres. There has been 12 large fires 100-plus acres during this time period.

c) Fire Regime/Condition Class

This fire management unit is vegetated with Sonoran Desert scrub species. This vegetation type is classified as Fire Regime III (35 to 100-plus-year frequency, mixed severity). The majority of lands in this unit are in condition class 1, as the current fire regime has not been significantly altered from historic conditions. However, portions of this unit can be classified as condition class 2 and 3, due to the presence of exotic and invasive plant species. Higher elevation uplands in this unit now have increased fire frequency due to the presence of exotic annual grasses. The Gila River corridor is now dominated by stands of saltcedar. The presence of saltcedar has significantly increased fire occurrence and severity in riparian areas, reducing the presence of native species.

d) Values at Risk

Air Quality - The metropolitan area of Phoenix is a PM-10, Carbon Monoxide, and Ozone non-attainment area. Smoke from wildfire and prescribed fire within a sixty mile radius can contribute to the degradation of this air shed.

ACECs - Coffee Pot Mountains, very scenic area with rare Acuna cactus.

T&E, Sensitive,Wildlife/Plant Species–includes cactus ferruginous pygmy-owl, lesser long-nosed bat foraging habitat, Yuma clapper rail, potential southwestern willow flycatcher habitat, Sonoran pronghorn, Acuna cactus, Category 1 & 2 Sonoran desert tortoise habitat, desert bighorn sheep.

Recreation – Facilities for long-term camping at the Painted Rocks Camp and Ajo – Gunsite Wash. Dispersed and unstructured recreation resource opportunities dependent on natural resources such as hunting, OHV driving, sightseeing, hiking, camping etc. Outstanding primitive recreation and solitude opportunities within the Signal Mountain, Woolsey Peak and Sierra Estrella Wilderness Areas with outstanding solitude and primitive recreation opportunities, along with good big horn sheep populations. Designated Quartz Peak Trail and trailhead within Sierra Estrella Wilderness.

Cultural Resources – Sites include the Juan Bautista de Anza National Historic Trail; the historic Butterfield Trail, which coincides with the Anza Trail in some areas; the Painted Rocks petroglyph site; the Red Rock Canyon petroglyph site in the Gila Bend Mountains; extensive prehistoric villages, rock alignments and rock art sites along the Gila River; possible prehistoric and historic canals originating at the Gila River; rock art sites and rock features in the vicinity of Saddle Mountain; prehistoric trails and artifact scatters; and historic mines, homesteads, and railroad camps. Standard mitigation measures: Use Minimum Impact Suppression Tactics. Utilize Resource Advisor and use extreme caution around historic mines, prehistoric pueblos, and other structures. Bulldozer or heavy equipment use is to be coordinated with the Resource Advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: Limit vehicle traffic to existing roads, riverbeds, and floodplains along the Gila River. Do not drive on the Anza or Butterfield trails, and cross them on existing roads. If needed, protect rock art near dense river vegetation by such means as minimizing fuels and smoke near such sites; covering fuels near these sites with foam, water, or retardant while avoiding the rock art; or covering the features with fire retardant fabric.

Riparian - There are a few scattered public land parcels within the Gila River.

Forage production- Livestock grazing is authorized for all public lands within this FMU.

e). Communities at Risk

FMU #1 has several communities within the unit boundaries. Some of the communities are located in the Phoenix metropolitan area, while others are located in remote isolated areas. There are multiple areas with subdivided residential properties that are not associated with a specific community. There are also recreation sites, resource values, range improvements, railways, roadways, utility lines, substations and communication sites within the FMU that may be at risk. Prevention, education and mitigation efforts for most of the subdivided areas can be made through local fire departments but many will require outreach by direct contact. The risk level to each community is based upon fuels, topography, the current state of fire prevention preparedness and unique aspects of each. Above- or below-average precipitation can greatly affect the risk to each community and individual areas by increasing or decreasing the amount of fuel available to a fire. Special considerations will be made for communities with increased risk.

All of the communities listed below lie within the boundaries of FMU #1 and can be categorized on average as a low risk.

1) Ajo
2) Arlington
3) Buckeye
4) Casa Grande
5) Palo Verde
6) Phoenix Metro
7) Tonopah
8) Why
9) Wintersburg

2. Fire Management Objectives

The desired Fire Management objective is to limit the burned acres and to suppress all fires 90% of the time at or below 150 acres.

Sonoran Desert vegetation types are not considered dependent or adapted to fire. Fires within this vegetation type can significantly alter vegetation composition and the ecosystem as a whole. Desert vegetation such as saguaro cactus, palo verdes, organ pipe cactus, and creosote are very susceptible to fire and may take as long as a century to reestablish. Recurring fires would totally eliminate these species from the vegetative community. Sonoran Desert vegetation is more susceptible to larger and more frequent fires due to increasing human starts and naturalized exotic vegetation such as red brome.

Fire in the Sonoran Desert vegetation type may negatively impact federally listed species such as cactus ferruginous pygmy owls and lesser long-nosed bats. Other sensitive species such as desert tortoise and Acuna Valley pineapple cactus may also be negatively impacted.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime 115 to 130 degrees; nighttime temperatures range 90 to 100 degrees, and relative humidity runs 5 to 10 percent), open and hidden mine shafts and pits are present, venomous animals/insects, numerous hazardous materials and dump sites containing medical waste, hazardous chemicals and pesticide; dumping, and tires, wire burning are present., low-level military aircraft training routes, undocumented aliens and drug traffic from Mexico, represent other unique hazards to firefighters. Recreational shooting and OHV use is common and presents a safety concern. The saltcedar/tamarisk fuel type limits escape routes and safety zones.

Access

Access by vehicles into this FMU is good off of numerous dirt roads. Depending on the fire location crews may have short hikes to reach the fire.

Fire Behavior

The Sonoran Desert is mostly barren and wildfire fuels types consists of grass, annuals and perennials with little to no brush cover. Fuels in the desert depend on heavy winter and early spring moisture or fuels that carry over from the previous year's growing season. Above average moisture usually results in an abundance of annual fuels.

Fires in the desert usually do not go beyond the first burning period due to non continuous fuels, fuel size, terrain features such as washes and rocky outcroppings. In years of heavy precipitation, and where fuels are continuous, fires can spread rapidly through the grass and associated material. The grass fuels are also easily influenced by change in relative humidity. A significant increase in relative humidity and a decrease in temperature can quickly slow or extinguish a fire.

Desert Fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Suppression tactics

Suppression strategies and tactics in this fuel type are usually direct attack using hand crews, engines where possible and helicopter dropping water to knock down the fire edge, patrolling and mop up. Fires in the desert usually are quickly contained in the first burning period.

Rate of spread - Low to high (depending on fuel continuity)
Flame length - Depending on wind, one to four feet
Resistance to control - low to moderate

Gila River

In the Gila River drainage and flood plain, thick and heavy accumulations of saltcedar/tamarisk fuels are present both in the wet and dry river channel and washes. This fuel type is thick stands 20 to 30 feet in height with an interlocking aerial canopy. It is similar in fire characteristic to greasewood and chaparral. Saltcedar/tamarisk burns very intensely with instant surface-to-crown fire creating erratic fire behavior, i.e., firewhirls and instantaneous fire fronts, flame lengths of 30 to 60 feet plus and spotting up to 1/4 mile. Depending on the wind and weather rate of spread of 30 to 40 chains per hour have occurred. Fire spread depends on fuel continuity. Saltcedar/tamarisk is confined to river bottoms; once the fire leaves the bottoms, its intensity lessens as it moves into lighter, less continuous fuels that slow or stop its spread.

This fuel type is represented by NFDRS fuel model F and NFFL fuel models 6 and 4. Fires in these fuel types usually go into the second and third burning periods.

Suppression tactics

Suppression strategies and tactics in this fuel type are usually indirect attack using dozers to build fire line and burning out and holding the fire line with hand crews, engines and aerial resources. Once the fire line is completed and the fire intensity decreases it is safe for fire crews to go direct. Dozers, heavy airtankers and type-1 helicopters are the most effective suppression resources in this fuel type. Large and multiple burning period fires occur in this fuel type.

Rate of spread - Moderate to very high
Flame length - 30 to 60 ft plus
Resistance to control - high to very high

Acceptable wildfire size is up to 300 acres at Fire Intensity Level (FIL) 1 and 150 acres for all others FIL.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

Sonoran Desert is not a fire adapted ecosystem. Wildland fire use is not desired. Statewide Land Use Plan Amendment Allocation 2 – Non Wildland Fire Use: Areas not suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

Native vegetation in this Fire Management Unit is not fire dependant or fire adapted. In limited instances prescribed fire may be used to reduce hazardous fuel accumulations along riparian corridors where the presence of saltcedar/tamarisk and other undesirable species poses a significant risk to improvements or critical habitat. Prescribed fire may be used as a means of fuel reduction following mechanical treatments.

d) Non-Fire Fuels Treatments

Mechanical thinning or vegetation removal may be conducted to reduce the presence of saltcedar/tamarisk and other undesirable hazardous vegetation along riparian corridors. Mechanical treatment of upland areas (outside of riparian habitat or floodplain areas) will be limited to treating wildland urban interface (WUI) areas during years of high annual grass production and high fire risk.

e) Post Fire Restoration and Rehabilitation

Post Fire Restoration and Rehabilitation is not applicable in this type of ecosystem. Restoration and rehabilitation efforts may result in more damage to the landscape

f) Community Protection/Community Assistance

Prevention, education and mitigation efforts for FMU #1 include utilizing the local news media to provide fire prevention information and updates to the public, building strong collaborative relationships with local governments and fire departments, performing school presentations, attending events/parades and develop partnerships with home owner organizations, permittees and other groups to assist communities in reducing the risk from wildfire.

---

1. FMU #2 Description- PFO Desert North of Interstate 10

a) Characteristics

This FMU consists of approximately 718,229 acres of public lands; the landscapes are typical of Sonoran Desert section of the Basin and Range Physiographic Province. The area is characterized by flood plains, basin floors, stream terraces, alluvial fans, fan terraces and steep, rocky mountains that rise abruptly from the fans. Elevation ranges from 420 feet to more than 4000 feet on the higher mountains.

Winters are mild and summers are hot and dry, the two main periods of rainfall are during the last half of summer and in early winter. Most of the area is desert rangeland, and farming is an important industry on the private lands found in the area, the main crops are cotton, alfalfa and vegetables and grains.

Vegetation is typical of the Sonoran Desert with a great diversity of plants including creosote bush, palo verde, ironwood and a variety of cacti. Grasses and forbs do not constitute a large volume of the plant community but there are many species that may be present, including, threeawn, galleta, bush muhly. Many of the drainages associated with the Gila River are dominated or are invaded by tamarisk or commonly known as salt cedar.

Prehistoric and historic aboriginal groups generally used desert mountains for wild food procurement, and there is evidence of archaeological sites.

Many species of wildlife inhabit the area including mule deer, bighorn sheep, javelina, cottontail and jack rabbits, and a variety of songbirds and raptors.

b) Fire History

Historical fire frequency is greater than 250-year return interval. Between 1980 and 2003, 255 fires started on BLM-administered public lands. These fires burned an estimated 17,876 acres. Most of the area burned was Sonoran Desert ecosystem. The largest fire burned 6200 acres. Average fire size was 71.5 acres. There have been 27 large fires (100-plus acres) during this time period.

c) Fire Regime/Condition Class

This unit is vegetated with Sonoran Desert scrub and is classified in Fire Regime III (35-100+ year frequency, mixed severity). Low elevation (below 2000') areas within this unit are primarily in condition class 1. Most areas above 2000' in elevation are now in condition class 2 due to the presence of exotic annual grasses in upland areas and saltcedar/tamarisk along riparian corridors.

d) Values at Risk

Air Quality – The metropolitan area of Phoenix is a PM-10, Carbon Monoxide, and Ozone non-attainment area. Smoke from wildfire and prescribed fire within a sixty mile radius can contribute to the degradation of this air shed.

ACECs – Tule Creek.

T&E, Sensitive,Wildlife/Plant Species–includes Gila topminnow (Tule Creek), yellow-billed cuckoo, lowland leopard frog, BLM Sensitive species (Native fishes), Category 2 & 3 Sonoran desert tortoise habitat, desert bighorn sheep.

Recreation – Important recreation sites in this FMU include: the Harquahala Mountain Summit Road National Backcountry Byway and Staging Area; the Smithsonian Harquahala Peak Smithsonian Solar Observation Interpretative Area; the Harquahala Peak Pack Trail (a state and national historic trail); the Vulture Peak trail and two trailheads; the Hassayampa River Riparian Area (on ADOT property), OHV in Vulture Mountains, Hieroglyphic Mountains and Black Canyon areas; and, the Black Canyon Trail and Emery Henderson Trailhead. Dispersed and unstructured recreation resource opportunities dependent on natural resources such as hunting, OHV driving, sightseeing, hiking, camping, etc. Outstanding primitive recreation and solitude opportunities within the Harquahala Mountains, Big Horn Mountains, Hummingbird Springs, Hassayampa River Canyon and Hells Canyon Wilderness Areas.

Cultural Resources– Sites include the historic Harquahala Peak Observatory; the Monte Cristo Mine north of Wickenburg; the historic Vulture City cemetery; the historic cemetery and stone structures (with wooden components) at Weaver; other historic mines in the various mountain ranges; homesteads and ranching features (i.e., line shacks); prehistoric trails and artifact scatters; prehistoric stone quarries; rock rings and alignments; and rock art, including painted designs in canyons of the Harcuvar Mountains. Standard mitigation measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution around historic mines, prehistoric pueblos, and other structures. Heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: Protect interpretive facilities at Harquahala Peak; prior to suppression actions, identify and avoid vulnerable rock art and other sites in canyons of the Harcuvar and Harquahala mountain ranges. Avoid driving over rock rings and rock alignments.

Wild Horse and Burro – Within the Lake Pleasant Herd Management Area, burros are present.

Riparian – Aqua Fria River, Hassayampa River and tributaries.

Forage production – Livestock grazing is authorized for public lands within this FMU with the exception of Tule Creek ACEC.

e) Communities at Risk

FMU #2 has several communities within the unit boundaries. Some of the communities are located in the Phoenix metropolitan area, while others are located in remote isolated areas. There are multiple areas with subdivided, residential properties that are not associated with a specific community. There are also recreation sites, range improvements, railways, roadways, utility lines, substations and communication sites within the FMU that may be at risk. Prevention, education and mitigation efforts for most of the subdivided areas can be made through local fire departments but many will require outreach by direct contact. The risk level to each community is based upon fuels, topography, the current state of fire prevention preparedness and unique aspects of each. Above- or below-average precipitation can greatly affect the risk to each community and individual areas by increasing or decreasing the amount of fuel available to a fire. Special considerations will be made for communities with increased risk.

The communities listed below lie within the boundaries of FMU #2 and are categorized by their individual average risk level.

Low Risk:

1) Aguila
2) Circle City
3) Gila Bend
4) Hillside
5) Morristown
6) Phoenix
7) Skull Valley
8) Wickenburg
9) Wittmann

Moderate Risk:

1) Congress
2) New River
3) Stanton

High Risk:

1) Black Canyon City
2) Rock Springs

2. Fire Management Objectives

The desired Fire Management Objective is to limit the number of burned acres and to suppress all fires 90% of the time at or below 150 acres. Sonoran Desert vegetation types are not considered dependent or adapted to fire. Fires within this vegetation type can significantly alter vegetation composition and the ecosystem as a whole. Desert vegetation such as saguaro cactus, palo verde, organ pipe cactus, and creosote are very susceptible to fire and may take as long as a century to reestablish. Recurring fires would totally eliminate these species from the vegetative community. Sonoran Desert vegetation is more susceptible to larger and more frequent fires due to increasing human starts and naturalized exotic vegetation such as red brome.

Fire in the Sonoran Desert vegetation type may negatively impact threatened or endangered wildlife plant species such as cactus ferruginous pygmy owls and lesser long-nosed bats. Other sensitive species such as desert tortoise and Acuna Valley pineapple cactus may also be negatively impacted.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime 115 to 130 degrees; nighttime temperatures range from 90 to 100 degrees, and relative humidity runs 5 to 10 percent), open and hidden mine shafts and pits are present, hazardous materials dump sites, chemical and pesticide dumping. Venomous animals/insects, low-level military aircraft training routes, recreational shooting and OHV use is common and presents a safety concern.

Access

Access by vehicles into this FMU is good off of numerous dirt roads. Depending on the fire location crews may have short hikes to reach the fire.

Fire Behavior

The Sonoran Desert is mostly barren and wildfire fuels types consists of grass, annuals and perennials with little to no brush cover. Fuels in the desert depend on heavy winter and early spring moisture or fuels that carry over from the previous year's growing season. Above-average moisture usually results in an abundance of annual fuels.

Fires in the desert usually do not go beyond the first burning period due to non continuous fuels, fuel size, terrain features such as washes and rocky outcroppings. In years of heavy precipitation, and where fuels are continuous, fires can spread rapidly through the grass and associated material. The grass fuels are also easily influenced by change in relative humidity. A significant increase in relative humidity and a decrease in temperature can quickly slow or extinguish a fire.

Desert Fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Suppression tactics

Suppression strategies and tactics in this fuel type are usually direct attack using hand crews, engines where possible and helicopter dropping water to knock down the fire edge, patrol and mop up. Fires in the desert usually are quickly contained in the first burning period.

Rate of spread - Low to high (depending on fuel continuity)
Flame length - Depending on wind, one to four feet
Resistance to control - low to moderate

Acceptable wildfire size is up to 300 acres at Fire Intensity Level (FIL) 1 and 150 acres for all others FIL.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL,

b) Wildland Fire Use

Wildland fire use is not desired. Statewide Land Use Plan Amendment Allocation 2 – Non Wildland Fire Use: Areas not suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

Native vegetation in this Fire Management Unit is not fire dependant or fire adapted. In limited instances prescribed fire may be used to reduce hazardous fuel accumulations along riparian corridors where the presence of saltcedar/tamarisk and other undesirable species poses a significant risk to improvements or critical habitat. Prescribed fire may be used as a means of fuel reduction following mechanical treatments.

d) Non-Fire Fuels Treatments

Mechanical thinning or vegetation removal may be conducted to reduce the presence of tamarisk and other undesirable hazardous vegetation along riparian corridors. Mechanical treatment of upland areas will be limited to treating WUI areas at risk during years of high annual grass production.

e) Post Fire Restoration and Rehabilitation

Rehabilitation and restoration efforts may be needed for ecological sites other than Sonoran Desert.

f) Community Protection/Community Assistance

Prevention, education and mitigation efforts for FMU #2 include utilizing the local news media to provide fire prevention information and updates to the public, building strong collaborative relationships with local governments and fire departments, performing school presentations, attending events/parades and develop partnerships with home owner organizations, permitees and other groups to assist communities in reducing the risk from wildfire.

---

1. FMU # 3 Description- PFO Wilderness Areas

a) Characteristics

This FMU consists of approximately 346,833 acres of public lands; the landscapes are typical of Sonoran Desert section of the Basin and Range Physiographic Province. The area is characterized by flood plains, basin floors, stream terraces, alluvial fans, fan terraces and steep, rocky mountains that rise abruptly from the fans. Elevation ranges from 420 feet to more than 4000 feet on the higher mountains.

The wilderness areas provide a standard of solitude and naturalness that ranges from good to outstanding. They contain little to no surface disturbance other than former vehicle ways, and provide visitors with an excellent opportunity to provide solitude experience.

Winters are mild and summers are hot and dry, the two main periods of rainfall are during the last half of summer and in early winter. Most of the area is desert rangeland, and farming is an important industry on the private lands found in the area, the main crops are cotton, alfalfa and vegetables and grains.

Vegetation is typical of the Sonoran Desert with a great diversity of plants including creosote bush, palo verde, ironwood and variety of cacti. Grasses and forbs do not constitute a large volume of the community but there are many species that may be present including, threeawn, galleta, bush muhly.

Prehistoric and historic aboriginal groups generally used desert mountains for wild food procurement, and there is evidence of archaeological sites.

Many species of wildlife inhabit the area including mule deer, bighorn sheep, javelina, cottontail and jack rabbits, and a variety of songbirds and raptors.

Phoenix Field Office Wilderness Areas

Big Horn Mountains Wilderness 21,000 ac
Harquahala Mountains Wilderness 22,880 ac
Hassayampa River Canyon Wilderness*11,840 ac
Hells Canyon Wilderness* 9,900 ac
Hummingbird Springs Wilderness 31,200 ac
North Maricopa Mountains Wilderness* 63,200 ac
Sierra Estrella Wilderness* 14,400 ac
Signal Mountain Wilderness* 13,350 ac
South Maricopa Mountains Wilderness* 60,100 ac
Table Top Wilderness* 34,400 ac
Woolsey Peak Wilderness* 64,000 ac

b) Fire History

Historical fire frequency is greater than 250-year return interval. Between 1980 and 2003, 11 fires started on BLM-administered public lands. These fires burned an estimated 7800 acres. Most of the area burned was Sonoran Desert ecosystem. The largest fire burned 4824 acres. Average fire size was 650 acres. There have been three large fires of 1000-plus acres during this time period

c) Fire Regime/Condition Class

Wilderness areas managed by the Phoenix Field Office are vegetated with Sonoran desert scrub and are classified in Fire Regime III (35-100+ year frequency, mixed severity). Low elevation (below 2000') areas within this unit are primarily in condition class 1. Most areas above 2000' in elevation are now in condition class 2 due to the presence of exotic annual grasses in upland areas. Small portions of the Harquahala and Hassayampa Canyon wilderness areas are vegetated with interior chaparral. These areas would be classified in Fire Regime IV (35-100+ year frequency, stand replacement severity), and condition class 2.

d) Values at Risk

Air Quality - Wilderness areas have Class II air quality designation.

ACECs - None

T&E, Sensitive, Wildlife/Plant Species–includes lesser long-nosed bat foraging habitat, yellow-billed cuckoo, cactus ferruginous pygmy-owl (Wilderness South of I-10), lowland leopard frog, BLM Sensitive species (bats), Category 1, 2 & 3 Sonoran desert tortoise habitat, desert bighorn sheep, mule deer.

Recreation – Natural landscapes and functioning Sonoran Desert ecosystems. Outstanding primitive recreation and solitude opportunities within the Signal Mountain, Woolsey Peak wilderness areas with outstanding solitude and primitive recreation opportunities, along with good big horn sheep populations. Outstanding riparian areas within the Hells Canyon, Hassayampa River Canyon and Harquahala Mountains wildernesses.

Cultural Resources – Sites include prehistoric and historic artifact scatters, prehistoric camps, rock art, roasting pits, homesteads, ranching features, and mines. Standard mitigation measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution around historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use will be coordinated with the resource advisor and approved by the Field Office Manager. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Specific FMU mitigation measures: Exercise extra caution near springs, where there tends to be a higher density of cultural resources.

Riparian – Hassayampa River drainage.

Forage production – Livestock grazing is authorized for public lands within this FMU.

e) Communities at Risk

There are no communities located within the boundaries of FMU #3. There are communities located in FMUs adjacent to FMU #3. Those communities are addressed within the appropriate FMU descriptions.

2. Fire Management Objectives

The desired Fire Management Objective within the wilderness areas is to limit the number of burned acres and to suppress all fires 90% of the time at or below 150 acres. These wilderness areas are typically Sonoran Desert vegetation types and are not considered dependent or adapted to fire. Fires within this vegetation type can significantly alter vegetation composition and the ecosystem as a whole. Desert vegetation such as saguaro cactus, palo verdes, organ pipe cactus, and creosote are very susceptible to fire and may take as long as a century to reestablish. Recurring fires would totally eliminate these species from the vegetative community. Sonoran Desert vegetation is more susceptible to larger and more frequent fires due to increasing human starts and naturalized exotic vegetation such as red brome.

Wilderness Fire Guidance
Phoenix District Interim Guidance for Fire Suppression in Wilderness 1991, modified 2001.This plan provides interim guidance for fire suppression actions in Phoenix/Kingman fire management zone wilderness areas. This plan provides guidance on special legal and administrative constraints, resource management considerations, fire suppression measures, and coordination with BLM management. This interim suppression guidance will be followed until wilderness management plans are completed for each wilderness areas.

This interim guidance follows BLM management Policy for Management of Designated Wilderness Areas; 43 CFR Part 8560; Handbooks 8560-1; WO IM 90-221 – Revisions to the 8560 Manual Management of Designated Wilderness Areas Relating to Fire Management Policy; 910 DM 1 – Wildland Fire Suppression and Management.

Wilderness Management Plans (General Management Section).

The interim suppression guidance will be followed until wilderness management plans are completed for these wilderness areas. Big Horn Mountains Wilderness 21,000 ac, Harquahala Mountains Wilderness 22,880 ac and Hummingbird Springs Wilderness 31,200 ac.

Hassayampa River Canyon Wilderness*11,840 ac
Hassayampa River WMP 1996
Fire - The six recorded fires in the wilderness since 1980 burned more than 4000 acres. The Hassayampa River Canyon consists primarily of desert scrub, oak chaparral and riparian fuel. Annual fuel accumulation in the desert scrub is generated by winter season precipitation. During years of high precipitation, the annual fuels can be abundant and significantly increase the fuel loading and fire potential. Fires are best characterized as fast-moving fires of medium intensity. Arizona chaparral either burns fiercely or does not burn at all; there seems to be no gradation in between. Conditions must be suitable for generating rapid spread before fire will propagate. Resistance to control is moderate to very high.

Hells Canyon Wilderness* 9900 ac
Hells Canyon WMP 1995
Fire - Historically, fires within the wilderness areas are rare. Hells Canyon consists of primarily desert shrub fuels. Annual fuel accumulation is generated by winter season precipitation. During years of high precipitation, the annual fuels can be abundant and significantly increase the fuel loading and fire potential. Fires are best characterized as fast moving fires of medium intensity. Since 1980 two fires have been known to have occurred within the wilderness

Maricopa Complex consist of the South Maricopa Mountains Wilderness* 60,100 ac, North Maricopa Mountains Wilderness* 63,200 ac, Sierra Estrella Wilderness* 14,400 ac, and Table Top Wilderness* 34,400 ac.

Maricopa Complex WMP 1995
Fire - Natural wildfires do not appear to have had an influence on the ecosystems within these four areas. None of these plant species has evolved with or is dependent on fires for survival, nor are any plant species increasing within the wildernesses due to a lack of fire. It appears that the recent human-caused fires during extremely exceptional fuel years, i.e., 1992 and 1993, damaged the dominant succulent and trees (U.S. Department of Interior, 1993). Historic records of fire occurrence have been kept since 1980. There is no record of natural fire within these wildernesses. Five human-caused fires which occurred were suppressed. Current procedures allow for certain mechanized/motorized uses under very specific conditions when authorized by the area manager. To date, there has been no surface damage from firefighting activities.

Woolsey Peak Wilderness* 64,000 ac, and Signal Mountain Wilderness* 13,350 ac,
Woolsey Peak and Signal Mountain WMP 2004
Fire - Natural wildfires have not exerted an influence on the ecosystems of these two wilderness areas. The dominant vegetative components have not evolved with, nor are they dependent on, fires for reproduction and survival. No plant species are believed to be decreasing due to a lack of naturally occurring wildfires. Records of fire occurrence kept by the Phoenix Field Office show one natural fire having occurred in the Woolsey Peak Wilderness and none in the Signal Mountain Wilderness since 1980 (Graham, personal communication). Current procedures allow for certain mechanized/motorized uses under very specific conditions when authorized by the field manager.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. In wilderness areas, fire management strategies and tactics will be utilized that will limit impacts on wilderness values and minimize any surface disturbance. Wilderness suppression objectives are to minimize acres burned, the damage done to wilderness resource values by utilizing "light hands on the land." All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazard to firefighters are extreme temperatures (daytime 115 to 130 degrees; nighttime temperatures range from 90 to 100 degrees, and relative humidity runs 5 to 10 percent), venomous animals/insects, low-level military aircraft training routes, etc. In the North and South Maricopa Mountains and Table Top Wilderness, undocumented aliens and drug traffic from Mexico represents other unique hazards to firefighters.

Access

Access by vehicles into this FMU is only on approved cherry-stemmed roads. Depending on the fire location crews may have long hikes to reach the fire. If the field office manager cannot be contacted within a 15-minute notification window after arrival of the incident commander at the fire, the incident commander has the discretion to authorize, helicopter landings in wilderness for transporting crews, the use of airtankers and helicopter water bucket drops.

Fire Behavior

The Sonoran Desert is mostly barren and wildfire fuels types consists of grass, annuals and perennials with little to no brush cover. Fuels in the desert depend on heavy winter and early spring moisture or fuels that carry over from the previous year's growing season. Above-average moisture usually results in an abundance of annual fuels.

Fires in the desert usually do not go beyond the first burning period due to non continuous fuels, fuel size, terrain features such as washes and rocky outcroppings. In of heavy precipitation and where fuels are continuous fires can spread rapidly through the grass and associated material. The grass fuels are also easily influenced by change in relative humidity. A significant increase in relative humidity and a decrease in temperature can quickly slow or extinguish a fire.

Desert Fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Suppression tactics

Suppression strategies and tactics in this fuel type are usually direct attack using hand crews, engines where possible and helicopter water drops to knock down the fire edge, patrolling and mop up. Fires in the desert usually are quickly contained in the first burning period.

Rate of spread - Low to high (depending on fuel continuity)
Flame length - Depending on wind, one to four feet
Resistance to control - low to moderate

Acceptable wildfire size is up to 300 acres at Fire Intensity Level (FIL) 1 and 150 acres for all others FIL.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

Fire use is not a desired management use in these wilderness areas. Minimum impact suppression tactics and appropriate management response will be used to ensure for firefighter and public safety first and minimize impacts to natural resources.

Statewide Land Use Plan Amendment Allocation 2 – Non Wildland Fire Use: Areas not suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP. The Phoenix Field Office has completed all Wilderness Management Plans except for Big Horn Mountains, Harquahala Mountains Wilderness and Hummingbird Springs Wilderness Areas.

c) Prescribed Fire

Prescribed fire treatments are not anticipated within these wilderness areas, as most areas are dominated by non-fire adapted native vegetation.

d) Non-Fire Fuels Treatments

Fuels treatments are not anticipated for these areas. However, special circumstances that threaten the integrity of the wilderness environment could facilitate the need for future fuels treatment as deemed necessary by resource specialists.

e) Post Fire Restoration and Rehabilitation

Post Fire Restoration and Rehabilitation is not applicable in this type of ecosystem. Restoration and rehabilitation efforts may result in more damage to the landscape

f) Community Protection/Community Assistance

Prevention and mitigation efforts for FMU #3 include public education by utilizing local media outlets, educational signing, outreach to public land use groups, prevention patrols and contacts.

---

1. FMU # 4 Description- PFO Bradshaws 3500' North

a) Characteristics

This FMU consists of approximately 104,807 acres of public lands; the landscapes are typical of the Mexican Highlands and Sonoran Desert sections of the Basin and Range Physiographic Province. The area is characterized by a series of moderately steep and steep soils on hills and mountains and nearly level to strongly sloping soils on alluvial plains. Elevation ranges from 3500 feet to more than 8000 feet on the higher mountains near Crown King.

Winters are mild and summers are hot and dry, the two main periods of rainfall are during the last half of summer and in early winter. Most of the area is desert rangeland, and much of the area is used for livestock grazing, although annual authorizations have declined in the past few years due to economic reasons compounded by extensive drought. The area is popular with recreationists, including hikers and off-highway vehicle enthusiasts.

Vegetation varies from a sparse cover of desert shrubs at lower elevations to a chaparral, grass or pinyon-pine cover in the intermediate areas. Marked differences in vegetation occur within short distances because of the wide variance in soils, elevation, precipitation, and temperature.

Prehistoric and historic aboriginal groups generally used desert mountains for wild food procurement, and there is evidence of archaeological sites.

Many species of wildlife inhabit the area including mule deer, bear, mountain lion, javelina, cottontail and jack rabbits, squirrels and a variety of songbirds and raptors.

b) Fire History

Historical fire frequency 35 to 100-plus-year return interval, Between 1980 and 2003, 146 fires started on BLM-administered public lands. These fires burned an estimated 14,735 acres. Most of the area burned was chaparral plant communities. The largest fire burned 5000 acres. Average fire size was 99.6 acres. There have been 18 large fires (100-plus acres) during this time period.

c) Fire Regime/Condition Class

The chaparral vegetative community that dominates this fire management unit is represented by fire regime 4 (35-100+ year frequency, stand replacement). Current fire condition class is 2, due to the lack of fires having occurred in this area in the recent past. The current condition is overrepresentation of old-age-class chaparral and lack of mixed age class mosaic.

d) Values at Risk

Air Quality - No non-attainment or special status areas occur within this FMU.

ACECs – None

T&E, Sensitive, Wildlife/Plant Species–includes BLM Sensitive species (Native fishes, bats), lowland leopard frog, Category 2 & 3 Sonoran desert tortoise habitat.

Recreation – OHV use, hunting and camping uses.

Cultural Resources– Sites include historic mines and associated features, which could include "ghost towns," historic homestead and ranching features; prehistoric artifact scatters; rock art; roasting pits; and prehistoric stone structures on hilltops. Standard mitigation measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor, use extreme caution around historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: Identify the locations of flammable structures through ground or aerial reconnaissance surveys. Exercise extra caution near springs, which tend to be associated with a higher density of cultural resources.

Riparian – Tributaries of the Hassayampa and Agua Fria rivers.

Forage production – Livestock grazing is authorized for public lands within this FMU.

e) Communities at Risk

FMU #4 has several communities within the unit boundaries. There are multiple areas with sub-divided, residential properties that are not associated with a specific community. There are also recreation sites, range improvements, railways, roadways, utility lines, substations and communication sites within the FMU that may be at risk. Prevention, education and mitigation efforts for most of the subdivided areas can be made through local fire departments but many will require outreach by direct contact. The risk level to each community is based upon fuels, topography, the current state of fire prevention preparedness and unique aspects of each. Above- or below-average precipitation can greatly affect the risk to each community and individual areas by increasing or decreasing the amount of fuel available to a fire. Special considerations will be made for communities with increased risk.

The communities listed below lie within the boundaries of FMU #4 and are categorized by their individual average risk level.

Moderate Risk:

1) Dewey
2) Humboldt
3) Kirkland Junction
4) Peeples Valley
5) Wilhoit

High Risk:

1) Cordes Junction
2) Mayer
3) Spring Valley
4) Yarnell

2. Fire Management Objectives

In chaparral vegetative type the desired Fire Management Objective is to suppress all fire 90% of the time at or below 100 acres. No more than 2,000 acres per year or 20,000 acres per decade in this polygon from wildfire or prescribed fire. The chaparral on the north side of the Bradshaw's is more typical of interior chaparral and probably has a natural fire cycle of once every 25 years or less. Fires in this area should not exceed an average of 2,000 acres of BLM-administered land per year.

Chaparral as a general vegetation type evolved with fire as a natural component of the ecosystem and is maintained in a healthy state by regular burning. The chaparral in the Phoenix Field office area is more open and has a mixture of upper Sonoran Desert vegetation. Natural fires in these areas were probably less common than typically occur in chaparral vegetation in general.

Desert tortoise habitat extends in to the chaparral vegetation type. Depending on the season and weather tortoise and their habitat can be very susceptible to fires. Small cool fires during the right season and under the right weather conditions would reduce fuel loads, and help alleviate the risk of large hot fires that would severely impact tortoise and their habitat. Any prescribed burn or let-burn situation would have to be carefully considered to prevent negative impacts to desert tortoise and Sonoran Desert vegetation.

Although there are no federally listed species associated with chaparral vegetation type, if a fire was to burn out of the chaparral into Sonoran Desert vegetation it could impact lesser long-nosed bats and cactus ferruginous pygmy owls.

Resource constraints during fire suppression actions are: Suppression tactics and use of heavy equipment (dozers) will be utilized that limit damage or disturbance to the habitat and landscape.

A portion of this FMU also includes the urban interface near Cordes Junction; this area is a full suppression area. The desired Fire Management Objective is to suppress all fire 90% of the time at or below 150 acres.

Other grassland vegetation exists in the Phoenix Field Office area most notably in the vicinity of Cordes Junction and Congress. However, due to concerns, such as intermingled ownership patterns, association with Sonoran Desert vegetation in the vicinity of Congress, desert tortoise habitat; any action other than full suppression would have to be carefully considered.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. In the grasslands and lower elevations of the FMU that transactions with association with Sonoran Desert vegetation types Minimum Impact Suppression Tactics "MIST" will be utilized that limit damage or disturbance to the habitat and landscape.

In the area above 3500 feet, fires will be contained at the minimal acres possible. Washes, roads, natural breaks will be utilized when possible for fire lines. Burn out operations will be conducted that burn the least acreage possible to establish a safe containment/control line. Unburned islands will not be intentionally burned unless they pose a risk to the fire line. Heavy equipment such as dozers can be used if necessary in the chaparral vegetation with resource advisor consultation. In the Cordes Junction and Congress grasslands heavy equipment use should be in consultation with the resource advisor. Fire engines and support vehicles should stay as much as possible on existing roads and paths.

All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime 90 to 100 degrees; nighttime temperatures range from 60 to 75 degrees, and relative humidity runs 5 to15 percent), open and hidden mine shafts and pits are present, venomous animals/insects, as well as hazardous materials and dump sites containing hazardous chemicals, pesticide, and tires. Low-level military aircraft training routes, recreational shooting, and OHV use is prevalent and presents a safety concern. In the Bradshaw Mountains, steep terrain is a hazard, slopes average 30 to 40 percent and increase up to 60 percent. The thick chaparral fuel type limits escape routes and safety zones.

Access

Access by vehicles into this FMU is limited due to steepness of grade and road conditions. The number of existing roads into this FMU is few. Travel time into this FMU can exceed one and one-half hours. Depending on the fire location crews may either have a long hike or require helicopter shuttle (if helispots are available) to reach fire location.

Fire Behavior

The Bradshaw Mountains above 3500 feet are dominated by Arizona interior oak chaparral (scrub oak, ceanothus, manzanita, sumac and mahogany). Fire behavior in Arizona oak chaparral should not be underestimated. Under certain conditions, it can burn as intensely as California chaparral.

Arizona chaparral either burns fiercely or does not burn at all; there seems to be no graduation. The critical rate of spread threshold in chaparral to sustain itself is 20 or more feet per minute. Conditions must be suitable for generating spread at or above this rate before fire will spread.

In very high to extreme burning conditions, flame lengths up to 50 feet are common. Spotting up to 1/4 mile and erratic fire behavior may occur. At times, firestorms, firewhirls and major blow-ups could occur instantaneously. High rates of spread of 45 feet per minute would not be unusual. Extreme fire behavior can occur with live fuel moistures below 90%,

Grass fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Chaparral fuel types are represented by NFDRS fuel model F and NFFL fuel model 4 and 6.

Suppression strategies and tactics in grass fuel type are usually direct attack using hand crews, engines where possible and helicopter dropping water to knock down the fire edge. Fires in the grass usually are quickly contained. Occasional fires in this fuel type can go into multiple burning periods.

Suppression tactics

Suppression strategies and tactics in chaparral fuel type are dependent on fire intensity. Low intensity fires; allow for direct attack. High intensity fires; suppression strategies and tactics in chaparral fuel type are usually indirect. Fires in the chaparral fuel type usually go into multiple burning periods.

Grass Fuel

Rate of spread	- Low to high
Flame length	- Depending on wind, one to four feet
Resistance to control	- low to moderate

Chaparral Fuel

Rate of spread	- moderate to very high
Flame length	- 20 to 50 ft plus
Resistance to control	- moderate to very high

Bradshaw/Yarnell - Acceptable wildfire size is up to 2000 acres at Fire Intensity Level (FIL) 1 and 100 acres for all others FIL 2-6.

Cordes Junction - Acceptable wildfire size is up to 300 acres at Fire Intensity Level (FIL) 1 and 150 acres for all others FIL 2-6.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

Portions of the Weaver and Bradshaw mountains may be analyzed for wildland fire use at a future date. Wildland fire use is a viable management consideration for the chaparral vegetative community that covers much of this fire management zone**.** Statewide Land Use Plan Amendment Allocation 1 – Wildland Fire Use: Areas suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

Prescribed fire will be used to treat hazardous fuel accumulations in chaparral vegetation in the Weaver and Bradshaw mountains.

The prescribed fire resource objectives in the chaparral community would be to use fire to remove decadent chaparral and stimulate regrowth for both wildlife and livestock. Prescribed fire in the Bradshaws would be limited to 2000 acres per year. The is due to adjacent landownership (ie National Forest) and topography features.

d) Non-Fire Fuels Treatments

Mechanical, biological, or chemical treatments may be applied where approved to meet resource and fire management objectives. Non-fire fuels treatments will be utilized in WUI areas or those areas where prescribed fire is not a safe and viable means of treatment.

e) Post Fire Restoration and Rehabilitation

Potential exists for emergency restoration and stabilization efforts.

f) Community Protection/Community Assistance

Prevention, education and mitigation efforts for FMU #4 include utilizing the local news media to provide fire prevention information and updates to the public, building strong collaborative relationships with local governments and fire departments, performing school presentations, attending events/parades and develop partnerships with home owner organizations, permitees and other groups to assist communities in reducing the risk from wildfire.

---

1. FMU # 5 Description- PFO Agua Fria National Monument

a) Characteristics

This FMU consists of approximately 71,000 acres of public lands; the landscapes are typical of the Mexican Highlands and Sonoran Desert sections of the Basin and Range Physiographic Province. The area is characterized by three landforms: the relatively narrow river channel and associated drainages, broad benches that border the river and drainages, and low hills and mountains found within short proximity of the drainage. Elevation ranges from 2000 feet to 4000 feet at the top of Joe's Hill.

The Agua Fria National Monument is one of the most significant systems of prehistoric sites in the American Southwest. It contains more than 400 archaeological sites, spanning some 2,000 years of human history. Remnants of stone pueblos, some containing more than 100 rooms represent a system of communities with economic and social ties. There are numerous petroglyphs commonly called rock art located on the monument with many wildlife and human figures. Networks of hilltop structures may have acted as a communication system and structures sitting at the edges of steep canyons are though to have provided defense against invaders.

Vegetation varies from a large cover of desert shrubs at lower elevations on the south end of the monuments to some of the best examples of a tobosa grassland found in the Southwest. Lush riparian forests are along the Agua Fria River and its tributaries and include cottonwood, black walnut, and sycamore. Marked differences in vegetation occur within short distances because of the wide variance in soils, elevation, precipitation, and temperature.

Many species of wildlife inhabit the area including pronghorn antelope, mule deer, bear, mountain lion, javelina, cottontail and jack rabbits, squirrels. The river corridor is one of the best habitats for songbirds and raptors within this part of Arizona.

Winters are mild and summers are hot and dry, the two main periods of rainfall are during the last half of summer and in early winter.

b) Fire History

Historical fire frequency is zero to 35-year return interval, between 1980 and 2003, 101 fires started on BLM-administered public lands. These fires burned an estimated 26,728 acres. Most of the area burned was tobosa grasslands. The largest fire burned 6000 acres. Average fire size was 245.2 acres. There have been 12 large (100-plus acres) fires during this time period.

c) Fire Regime/Condition Class

Tobosa grasslands can be classified as a fire regime 2 (zero to 35-year frequency, stand replacement severity). Grasslands on the Agua Fria National Monument are currently classified as condition class 2. This rating is due primarily to the invasion of woody plant species (juniper, mesquite, snakeweed, prickly pear) and the presence of introduced annuals and noxious weeds.

d) Values at Risk

Air Quality – No non-attainment or special status areas occur in this FMU.

ACECs - Larry Canyon, Lousy Canyon

T&E, Sensitive, Wildlife/Plant Species–includes Gila topminnow, desert pupfish, Gila chub, yellow-billed cuckoo, BLM Sensitive species (Native fishes), pronghorn.

Recreation - Proposed Wild and Scenic River corridor ¼ mile wide on the Agua Fria River north and south of Bloody Basin Road. Hiking and equestrian use at Badger Springs Wash. Dispersed and unstructured recreation resource opportunities dependent on natural resources such as hunting, OHV driving, sightseeing, hiking, camping, etc. Outstanding primitive recreation opportunities within the Agua Fria River canyon.

Cultural Resources– Sites include prehistoric stone pueblos and structures, including from one to more than a hundred rooms; stone structures on hilltops; artifact scatters; roasting pits; agricultural features, such as terraces bordered by rock alignments; rock art sites; and historic mines and ranching-related sites. Standard mitigation measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. The use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: Minimize surface disturbing activities and off-road driving. Implement measures to protect rock art, if needed, in areas of relatively dense vegetation. Avoid igniting prescribed burns within sites. If it is necessary to extract water from the Agua Fria River, avoid damage to the rock flume structure that transmitted water to the historic Richinbar Mine; this site is situated in the river canyon, between Badger Springs and Perry Tank Canyon. Given the importance of the monument's cultural resources, an archaeologist should play a key role in the development of fire and fuels management plans. Riparian – Agua Fria River and tributaries.

Forage production – Livestock grazing is authorized for public lands within this FMU with the exception of Larry and Lousy Canyons ACEC.

e) Communities at Risk

There are no communities located within the boundaries of FMU #5. There are communities located in adjacent FMUs. Those communities are addressed within the appropriate FMU descriptions.

2. Fire Management Objectives

Agua Fria Grasslands is a area where fire is desired to manage the ecosystem. Suppress wildfires at Fire Intensity Level (FIL) 1-6 to 1000 acres or less 90% of the time. Size is limited to assist in creating a mosaic pattern within the grasslands. Allow for up to 8,000 acres per year or 80,000 per decade of burned acres through wildfire or prescribed fire at any fire intensity level.

The Agua Fria Grassland is one area where fire has been recognized as a primary tool in natural resource management and has an interagency cooperative burn plan in place and functioning. . The BLM plan was written and approved in 1994, the three agencies that manage the Agua Fria Grasslands (167,000 acres) are the BLM Phoenix (42,000 acres), Tonto (10,000 acres) and Prescott National Forests (115,000 acres). The resource objectives is to use prescribed fire as a management tool to: increase forage quality for pronghorn antelope and livestock, increase antelope fawn survival, reduce the risk of resource damaging wildfires and maintain the grassland component of the Agua Fria Grassland ecosystem. Burn cycle rotation on BLM land is five to 10 years. The grassland vegetation is Tobosa grass, Side Oats, and Black Gramma. The grasslands have been invaded by mesquite, Snakeweed and Juniper. The shrub component in the vegetation is being reduced and a serial mosaic within the grassland is being created, benefiting pronghorn and other wildlife species. All known and potential conflicts with this burn plan have been addressed and mitigated.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

<u>Health and Safety</u>

Safety hazards to firefighters are extreme temperatures (daytime 90 to105 degrees; nighttime temperatures range from 70 to 90 degrees, and relative humidity runs 5 to 15 percent), open mine shafts and pits are present, venomous animals/insects, low-level military aircraft training routes. When fires are located around mesa edges, steep drop offs and rocky canyon walls are safety hazards. Recreational shooting, and OHV use is common and presents a safety concern. Powerlines adjacent to I-17 present a major concern for aviation resources and for firefighters safety. Interstate I-17 runs on the west side of the monument. Fires adjacent to I-17 presents a traffic concern and safety for the public and firefighters. Smoke obscures visibility and with traffic traveling at high speeds of 70 to 80 mph, this is a hazard to firefighters working in and around the Interstate.

Access

Access by vehicles into this FMU is good off of numerous dirt roads. Depending on the fire location crews may have to hike to reach the fire.

Fire Behavior

Fuels on the monument are predominantly tobosa grass intermixed with small shrubs, cactus, snake weed some mesquite and junipers. The tobosa grasslands depend on heavy winter and early spring moisture or fuels that carry over from the previous year's growing season. Above average moisture usually results in an abundance of annual fuels and a continues fuel bed. Tobosa grass can grow to above two feet in height.

In years of heavy precipitation and where fuels are continuous fires can spread rapidly through the grass and associated material. The grass fuels are also easily influenced by change in relative humidity.
A significant increase in relative humidity and a decrease in temperature can quickly slow or extinguish a fire.

Fuels Grass fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Suppression tactics

Suppression strategies and tactics in grass fuel type are usually direct attack using hand crews, engines where possible, airtankers and helicopters dropping water to knock down the fire edge, patrol and mop up. Fires in the grass usually are quickly contained. In years of abundant grass, fires on the monument usually go into multiple burning periods.

Rate of spread - Low to high (depending on fuel continuity)
Flame length - Depending on wind, one to ten feet
Resistance to control - Moderate to high

Acceptable wildfire size is up to 1000 acres at Fire Intensity Level (FIL) 1- 6.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

Wildand Fire Use is a desired future condition on the Monument. Fire is recognized as a natural process in fire-adapted ecosystems and is used to achieve objectives for other resources and to maintain grasslands on the Agua Fria National Monument. Wildland Fire Use would be allowed from natural ignitions under specific prescribed criteria. Statewide Land Use Plan Amendment Allocation 1 – Wildland Fire Use: Areas suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

Prescribed broadcast burning will be the primary method used to maintain native grasslands located on the Agua Fria National Monument. Pile burning of juniper may occur following hand thinning in some areas. Total treatment will not exceed 10,000 acres per year.

d) Non-Fire Fuels Treatments

Hand thinning of juniper may occur in areas where grass cover is not sufficient to support broadcast burning. Management of the Agua Fria National Monument will limit the possibility of off-road mechanical treatments. Chemical and biological methods would need monument and field office manager approval prior to implementation.

e) Post Fire Restoration and Rehabilitation

Historically suppression activities have followed "MIST" guidelines with little surface disturbance. In the event of surface disturbance implementation of appropriate suppression damage rehabilitation will occur.

f) Community Protection/Community Assistance

There are two ranch headquarters located within the Agua Fria National Monument: Box Bar and Horseshoe. Typically these ranches are maintained, leaving minimal threat from wildfire.

Prevention and mitigation efforts for FMU #5 include public education by utilizing local media outlets, educational signing, outreach to public land use groups, prevention patrols and contacts.

---

1. FMU # 6 Description- PFO Sonoran National Monument

a) Characteristics

This FMU consists of approximately 408,646 acres of public lands; the landscapes are typical of the Sonoran Desert sections of the Basin and Range Physiographic Province. The area is characterized by flood plains, basin floors, stream terraces, alluvial fans, fan terraces and steep, rocky mountains that rise abruptly from the fans. Elevation ranges from 420 feet to more than 4000 feet on the higher mountains.

The Sonoran Desert National Monument is a magnificent example of untrammeled Sonoran desert landscape. The area encompasses a functioning desert ecosystem with an extraordinary array of biological, scientific, and historic resources. The monument's biological resources include a spectacular diversity of plant and animal species. Some of the higher peaks include unique woodland assemblages, while the lower elevations lands offer one of the most structurally complex examples of palo verde/mixed cacti association in the Sonoran Desert.

Vegetation is varied and one of the most important communities is the saguaro cactus forests. The saguaro is a signature plant of the Sonoran Desert and together with the associated trees, shrubs and herbaceous plants make up the community. The creosote/bursage plant community occurs over the open expanses between the mountain ranges. On the north side of the mountain ranges there are plant communities that are remnants of a more mesic period and Kofa mountain barberry, Arizona rosewood and junipers are still present.

Many species of wildlife inhabit the area including desert bighorn sheep, mule deer, mountain lion, javelina, gray fox, and bobcats. Numerous songbird and raptors are present as well as a diverse array of reptiles and amphibians including the desert tortoise.

The monument contains many significant archaeological and historic sites, including rock art, lithic quarries and scattered artifacts. Vekol Wash is believed to have been an important prehistoric travel and trade corridor between Hohokam and tribes located in what is now Mexico. Signs of large villages and permanent habitat sites occur throughout the area, particularly along the bajadas of the Table Top Mountains.

Winters are mild and summers are hot and dry, the two main periods of rainfall are during the last half of summer and in early winter.

b) Fire History

Historical fire frequency is 35 to 100-plus-year return interval, between 1980 and 2003, 27 fires started on BLM-administered public lands. These fires burned an estimated 260 acres. Most of the area burned was Sonoran Desert ecosystem. The largest fire burned 140 acres. Average fire size was 9.6 acres. There has been one large fire 100-plus acres during this time period.

c) Fire Regime/Condition Class

This fire management unit is vegetated with Sonoran Desert scrub species. This vegetation type is classified as Fire Regime III (35-100+ year frequency, mixed severity). The majority of lands in this unit are in condition class 1, as the current fire regime has not been significantly altered from historic conditions. However, portions of this unit can be classified as condition class 2 and 3, due to the presence of exotic and invasive plant species. Higher elevation uplands in this unit now have increased fire frequency due to the presence of exotic annual grasses. The Gila River corridor is now dominated by stands of saltcedar. The presence of saltcedar has significantly increased fire occurrence and severity in riparian areas, reducing the presence of native species.

d) Values at Risk

Air Quality – portions of this FMU lie within the Maricopa County/Phoenix Metro PM-10, Carbon Monoxide, and Ozone non-attainment areas.

ACECs - Vekol Valley grassland

T&E, Sensitive, Wildlife/Plant Species–includes cactus ferruginous pygmy-owl, lesser long-nosed bat foraging habitat, Acuna cactus, Category 1 & 2 Sonoran desert tortoise habitat, desert bighorn sheep (Area A), Vekol Valley amphibians (western narrow-mouthed toad, sonoran green toad).

Recreation - The Anza National Historic Trail in the Maricopa Mountains, associated with the Butterfield Stage Overland Trail, the Gila Trail and the Mormon Battalion Trail; the Margie's Cove Trail and two developed trailheads, the Brittlebush Trail/trailhead, the Lava Flow Trail/three trailheads, and the Table Top Trail with a campground/trailhead. Dispersed and unstructured recreation resource opportunities dependent on natural resources such as hunting, OHV driving, sightseeing, hiking, camping, etc. Outstanding primitive recreation and solitude opportunities within the North Maricopa Mountains, South Maricopa Mountains and the Table Top Wilderness Areas with high-value desert tortoise and big horn sheep habitat.

Cultural Resources – Sites include the Juan Bautista de Anza National Historic Trail; the historic Butterfield Trail, which coincides with the Anza Trail in some areas; historic Big Horn Station, historic and prehistoric trails, and other transportation-related sites; historic mines, ranches, homesteads, and railroad camps; prehistoric villages in the Vekol Valley; prehistoric artifact scatters and stone quarries; rock rings and alignments; and rock art sites.
Standard mitigation measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: Minimize surface disturbing activities and off-road driving, particularly within sensitive areas such as the Vekol Valley. Implement measures to protect rock art, if needed, in areas of relatively dense vegetation. Exercise extra caution near springs, which tend to have a higher

density of associated cultural resources. Avoid driving over rock rings and rock alignments. Given the importance of the monument's cultural resources, an archaeologist should play a key role in the development of fire and fuels management plans.

Riparian – None

Forage production – Livestock grazing is authorized for public lands within this FMU.

e) Communities at Risk

There are no communities located within the boundaries of FMU #6. There are communities located in adjacent FMUs. Those communities are addressed within the appropriate FMU descriptions.

2. Fire Management Objectives

The desired Fire Management Objective is to limit the burned acres. Fire Management Objective is to suppress all fires 90% of the time at or below 150 acres. Sonoran Desert vegetation types are not considered dependent or adapted to fire. Fires within this vegetation type can significantly alter vegetation composition and the ecosystem as a whole. Desert vegetation such as saguaro cactus, palo verdes, organ pipe cactus, and creosote are very susceptible to fire and may take as long as a century to reestablish. Recurring fires could totally eliminate these species from the vegetative community. Sonoran Desert vegetation is more susceptible to larger and more frequent fires due to increasing human starts and naturalized exotic vegetation such as red brome.

Fire in the Sonoran Desert vegetation type may negatively impact federally listed species such as cactus ferruginous pygmy owls and lesser long-nosed bats. Other sensitive species such as desert tortoise and Acuna Valley pineapple cactus may also be negatively impacted.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

<u>Health and Safety</u>

Safety hazards to firefighters are extreme temperatures (daytime 115 to 130 degrees; nighttime temperatures range from 90 to 100 degrees, and relative humidity runs 5 to 15 percent), venomous animals, low-level military aircraft training routes, etc. Undocumented aliens and drug traffic from Mexico represent other unique hazards to firefighters. Recreational shooting, and OHV use is common and presents a safety concern.

Access

Access by vehicles into this FMU is limited. Over 1/3 of the FMU is Wilderness (North and South Maricopa Mountain and Table Top). A railroad right of way runs through the FMU and limits availability of roads into the FMU. Depending on the fire location crews may have long hikes (1 and ½ hours) to reach the fire. Helicopter may be used to shuttle crews to fires.

Fire Behavior

The Sonoran Desert is mostly barren and wildfire fuels types consists of grass, annuals and perennials with little to no brush cover. Fuels in the desert depend on heavy winter and early spring moisture or fuels that carry over from the previous year's growing season. Above-average moisture usually results in an abundance of annual fuels.

Fires in the desert usually do not go beyond the first burning period due to non continuous fuels, fuel size, terrain features such as washes and rocky outcroppings. In years of heavy precipitation and where fuels are continuous fires can spread rapidly through the grass and associated material. The grass fuels are also easily influenced by change in relative humidity. A significant increase in relative humidity and a decrease in temperature can quickly slow or extinguish a fire.

Desert Fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Suppression tactics

Suppression strategies and tactics in this fuel type are usually direct attack using hand crews, engines where possible and helicopter dropping water to knock down the fire edge, patrol and mop up. Fires in the desert usually are quickly contained and usually do not go into multiple burning periods.

Rate of spread - Low to high (depending on fuel continuity)
Flame length - Depending on wind, one to four feet
Resistance to control - low to moderate

Acceptable wildfire size is up to 300 acres at Fire Intensity Level (FIL) 1 and 150 acres for all others FIL.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

Sonoran Desert is not a fire-adapted ecosystem. Wildland fire use is not desired. Statewide Land Use Plan Amendment Allocation 2 – Non Wildland Fire Use: Areas not suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

Native vegetation in this Fire Management Unit is not fire dependant or fire adapted. In limited instances prescribed fire may be used to reduce hazardous fuel accumulations along riparian corridors where the presence of saltcedar/tamarisk and other undesirable species poses a significant risk to improvements or critical habitat. Prescribed fire may be used as a means of fuel reduction following mechanical treatments.

d) Non-Fire Fuels Treatments

Mechanical thinning or vegetation removal may be conducted to reduce the presence of tamarisk and other undesirable hazardous vegetation along washes and floodplains. Mechanical treatment of upland areas will be limited to treatment of hazard fuel accumulation near structures or other improvements.

e) Post Fire Restoration and Rehabilitation

Not applicable in this type of ecosystem, restoration and rehabilitation efforts may result in more damage to the landscape

f) Community Protection/Community Assistance

Prevention and mitigation efforts for FMU #6 include public education by utilizing local media outlets, educational signing, outreach to public land use groups, prevention patrols and contacts.

---

1. FMU # 7 Description- KFO Desert North of Interstate 40

a) Characteristics

This area is a hot desert association composed of approximately 797,590 acres of public land in the Mohave Desert. The land is characterized by rugged north- and south-oriented mountain ranges bisected by broad valleys typical of the Basin and Range Province. Elevation ranges from less than 1000 feet at Sacramento Wash, to 5456 feet at Mount Perkins.

Summers are hot and dry and winters mild with annual precipitation averaging less than 10 inches in nearly all locations. The western edge of this FMU is located along the west side of the rugged Black Mountains in the Colorado River Valley. This area includes some of the hottest, driest, locales in all of North America, with annual precipitation being less than five inches.

Vegetation is typical of eastern Mohave Desert flora, and includes a dominant creosote/bursage desert scrub community. Elevations above 3000 feet may also include various yuccas, blackbrush, and California juniper. Higher elevation sites have also been invaded by exotic annual grasses, which are particularly evident following winters of above average rainfall.

Fire frequency in Mohave desert scrub types is historically low. Most shrubs, trees, and cacti of the hot desert, because they are not adapted to fire, can be severely affected by burning. Wildfire incidence has increased in these areas due to the invasion of exotic annual grasses. Likewise, exotic annual grasses are increasing due to their aggressive establishment in burned areas.

The Black Mountains, paralleling the Colorado River, is year-round habitat for wild burros, desert bighorn sheep, desert tortoise, bats, and several special status plant species. Livestock grazing occurs throughout most of the area and each grazing allotment maintains numerous range improvements (i.e., fences, corrals, water developments). The BLM and Arizona Game and Fish Department (AGFD) maintain numerous wildlife water catchments in this area.

There are many cultural sites throughout the area including Bighorn Cave, which is a site of national significance. Desired resource management is to protect habitat for wildlife and special status species and maintain native vegetation communities in order to reduce the invasion of exotic annuals.

b) Fire History

Historical fire frequency is 35 to 100-plus-year return interval, between 1980 and 2003, 251 fires started on BLM-administered public lands. These fires burned an estimated 72,053 acres. Most of the area burned was Mohave Desert ecosystem. The largest fire burned 21,276 acres. Average fire size was 277.1 acres. There have been 39 large fires 100+ acres during this time period.

c) Fire Regime/Condition Class

This fire management unit covers a large geographic area that is dominated by Mohave Desert scrub, but includes large tracts of and semi-desert grassland (Hualapai Valley and small portions of Detrital and Upper Big Sandy Valleys). Mohave Desert scrub areas are described in Fire Regime IV (35 to 100-plus-year frequency, stand replacement severity). Most of these lands are currently in condition class 2. This is due to the invasion of fire-prone introduced annual grasses and the resulting increase in fire occurrence. Recent large wildfires in Mohave Desert scrub areas have reduced the presence native plant species.

Semi-desert grassland areas in this fire management unit are classified in Fire Regime II (0-35 year frequency, stand replacement severity). Current condition class is 2 and 3 due to the presence of introduced plant species and grazing impacts.

d) Values at Risk

Air Quality – Portions of this FMU lie within the Bullhead City PM-10 Non-attainment area.

ACECs – Joshua Tree Forest, Black Mountain

T&E, Sensitive, Wildlife/Plant Species–includes BLM Sensitive species (bats, desert moonpod, Parish's phacelia, white-margined penstemon, western burrowing owl, Kingman springsnail), Category 1, 2, & 3 Sonoran desert tortoise habitat, desert bighorn sheep.

View sheds – High quality view sheds along major roads, highways and recreation travel routes, including Diamond Bar Road and the Route 66 National Back Country Byway. These routes, and others in this unit, are traveled by thousands of domestic and international tourists each year.

Recreation – Dispersed and unstructured recreation resource opportunities such as hunting, OHV driving, sightseeing, hiking, camping etc., dependent on natural resources and aesthetic settings. Designated and planned motorized/non-motorized trails in the Cerbat Foothills Recreation Area in the Black Mountains.

Cultural Resources – Historic Mines, old roads/trails, structures, walls and various artifact scatters. Standard Mitigation Measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: none.

Riparian – Cool Springs.

Forage production – Livestock grazing is authorized for public lands within this FMU.

Herd Management Area (HMA) - Black Mountain HMA, Cerbat Herd Area.

e) Communities at Risk

FMU #7 has several communities within its boundaries. There are multiple areas with sub-divided, residential properties that are not associated with a specific community. There are also recreation sites, resource values, range improvements, railways, roadways, utility lines, substations and communication sites within the FMU that may be at risk. Prevention, education and mitigation efforts for most of the subdivided areas can be made through local fire departments but many will require outreach by direct contact. The risk level to each community is based upon fuels, topography, the current state of fire prevention preparedness and unique aspects of each. Above or below average precipitation can greatly affect the risk to each community and individual areas by increasing or decreasing the amount of fuel available to a fire. Special considerations will be made for communities with increased risk.

All of the communities listed below lie within the boundaries of FMU #7 and can be categorized as a moderate risk on average.

1) Chloride
2) Dolan Springs
3) Golden Valley
4) Hackberry
5) Kingman
6) Meadview/Lake Mead City
7) Oatman
8) Valley Vista
9) Yucca

2. Fire Management Objectives

The Mohave Desert shrub and grassland is a full suppression area. Fire management objective is to suppress all fire 90% of the time at or below 100 acres. This area is a hot desert typified by creosote bush/bursage and desert shrub vegetation communities. Fire frequency in these vegetation types is historically low. Most shrubs, trees, and cacti of the hot desert, because they are not adapted to fire, can be severely affected by burning. Wildfire incidence has increased in these areas due to the invasion of exotic annual grasses. Likewise, exotic annual grasses are increasing due to their aggressive establishment in burned areas. The Black Mountains, paralleling the Colorado River, is year round habitat for wild burros, desert bighorn sheep, desert tortoise, bats, and several special status plant species. Livestock grazing occurs throughout most of the area and each grazing allotment maintains numerous range improvements (i.e., fences, corrals, water developments). Desired resource management is to protect habitat for wildlife and special status species and maintain native vegetation communities in order to reduce the invasion of exotic annuals and limit surface disturbance activities.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime 90 to 110 degrees; nighttime temperatures range from 70 to 80 degrees, and relative humidity runs 5 to 15 percent), open and hidden mine shafts and pits are present, venomous animals/insects, in some areas dump sites are common and may contain hazardous materials, dumping, tires, low-level military aircraft training routes, etc. Recreational shooting and OHV use is common and presents a safety concern.

Access

Access by vehicles into this FMU is good off of numerous dirt roads. Depending on the fire location crews may have short hikes to reach the fire.

Fire Behavior

Fuels in the Mohave Desert consists of desert shrub, blackbrush intermixed with grass, annuals and perennials. Fuels in the desert depend on heavy winter and early spring moisture or fuels that carry over from the previous year's growing season. Above average moisture usually results in an abundance of annual fuels.

Fires in the desert usually do not go beyond the first burning period due to non continuous fuels, fuel size, terrain features such as washes and rocky outcroppings. In years of heavy precipitation and where fuels are continuous fires can spread rapidly through the grass and associated material. The grass fuels are also easily influenced by change in relative humidity. A significant increase in relative humidity and a decrease in temperature can quickly slow or extinguish a fire.

Desert Fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Suppression tactics

Suppression strategies and tactics in this fuel type are usually direct attack using hand crews, engines where possible, airtankers and helicopter dropping water to knock down the fire edge, patrol and mop up. Fires in the desert usually are quickly contained and usually do not go into multiple burning periods. The exception is in years of heavy and continuous grass fuels, fires will grow to large acreages and burn through multiple burning periods.

Rate of spread - Low to high (depending on fuel continuity)
Flame length - Depending on wind, one to eight feet
Resistance to control - low to high

Acceptable wildfire size is up to 300 acres at Fire Intensity Level (FIL) 1 and 100 acres or less for all others FIL 2-6.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

The Mohave Desert is not a fire-adapted ecosystem. Wildland fire use is not desired. Statewide Land Use Plan Amendment Allocation 2 – Non Wildland Fire Use: Areas not suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

The use of prescribed fire in this area is not anticipated due to the lack of fire-adapted vegetation. However, pile burning may be used in conjunction with mechanical treatment where appropriate.

d) Non-Fire Fuels Treatments

Mechanical thinning or removal of vegetation may be used to reduce hazardous vegetation in WUI areas and where vegetation poses a fire risk to historic sites, communication facilities, recreation areas, or other improvements.

e) Post Fire Restoration and Rehabilitation

Not applicable in this type of ecosystem, restoration and rehabilitation efforts could result in damage to the landscape.

f) Community Protection/Community Assistance

Prevention, education and mitigation efforts for FMU #7 include utilizing the local news media to provide fire prevention information and updates to the public, building strong collaborative relationships with local governments and fire departments, performing school presentations, attending events/parades and develop partnerships with home owner organizations, permitees

and other groups to assist communities in reducing the risk from wildfire. The fuels specialist and prevention officer will work collaboratively with communities in determining the need for and implementing specific treatments that would help to reduce the risk from wildfire.

---

1. FMU # 8 Description- KFO Desert South of Interstate 40

a) Characteristics

This area is a hot desert association composed of the Mohave and Sonoran deserts. Broad, gently sloping valleys separate rugged mountain ranges on approximately 895,203 acres of public land. Elevation ranges from 1300 feet on the Santa Maria River, to 4807 feet on Arrastra Mountain.

Hot, dry summers and mild winters prevail with annual precipitation being less than 10 inches in all areas except for higher elevation peaks on the east side of the FMU. Most precipitation falls during the winter or late summer.

This FMU supports a mixture of Sonoran and Mohave Desert vegetation. Sonoran Desert Species become more dominant in the southern and eastern potions of this FMU. A creosote bush/bursage community dominates the landscape with ocotillo, saguaro, fishhook barrel cactus all abundant. Palo verde and catclaw are present along washes. Higher elevation areas contain crucifixion thorn, juniper, and prickly pear cactus, as well as various native grass species.

Fire frequency in the Sonoran and Mohave vegetation types is historically low. Most shrubs, trees, and cacti of the hot desert, because they are not adapted to fire, can be severely affected by burning. Wildfire incidence has increased in these areas due to the invasion of exotic annual grasses, particularly at elevations above 2,000 feet. Likewise, exotic annual grasses are increasing due to their aggressive establishment in burned areas.

Livestock grazing occurs throughout most of the area and each grazing allotment maintains numerous range improvements (i.e., fences, corrals, water developments). The BLM and AGFD maintain numerous wildlife water catchments in this area. There are many cultural sites throughout the area.

b) Fire History

Historical fire frequency is 35 to 100-plus-year return interval, between 1980 and 2003, 198 fires started on BLM-administered public lands. These fires burned an estimated 29,004 acres. Most of the area burned was Mohave Desert ecosystem. The largest fire burned 9380 acres. Average fire size was 139.4 acres. There have been 15 large fires 100-plus acres during this time period.

c) Fire Regime/Condition Class

This fire management unit consists of Mohave Desert scrub, Sonoran Desert scrub, and small tracts of semi-desert grassland vegetation. These areas are represented by fire regime III and IV (35 to 100-plus year frequency, mixed and stand replacement severity). Current condition class is 1 and 2. Upland areas not invaded by exotic annual grasses can be classified in condition class 1. Those upland and riparian areas impacted by exotic species would fall into condition class 2.

d) Values at Risk

Air Quality – There are currently no non-attainment or special status areas within this FMU.

ACECs – Aubrey Peak, McCracken, White Margined Penstemon, Carrow Stephens, Burro Creek & Clay Hills, Three Rivers.

T &E, Sensitive, Wildlife/Plant Species–includes southwestern willow flycatcher, yellow-billed cuckoo, Arizona cliffrose, Yuma clapper rail, bald eagle, Gila topminnow, desert pupfish, BLM Sensitive species (Native fish, bats, white-margined penstemon), Category 1, 2, & 3 Sonoran desert tortoise habitat, desert bighorn sheep.

View sheds – High-quality view sheds along major roads, highways, river/stream corridors and recreation travel routes.

Wild & Scenic Rivers – Approximately 49 total miles of proposed Wild & Scenic River corridor (as much as ½ mile wide) along Burro Creek, Big Sandy River and Santa Maria River, with outstandingly remarkable values related to fish and wildlife, riparian, cultural, geology, scenic quality and recreational opportunities.

Recreation – Dispersed and unstructured recreation resource opportunities such as hunting, OHV driving, sightseeing, hiking, camping, etc., dependent on natural resources and aesthetic settings. Designated and planned motorized/non-motorized trails in the lower slopes of the Hualapai Mountains. Developed campground at Burro Creek.

Cultural Resources: Quarry, trail/roads, lithic scatter and various historic and prehistoric artifacts. Standard Mitigation Measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: none.

Riparian – Big Sandy, Burro Creek, and Santa Maria River.

Forage production – Livestock grazing is authorized for public lands within this FMU.

HMA- Big Sandy and Alamo Lake

e) Communities at Risk

FMU #8 has several communities within its boundaries. There are multiple areas with sub-divided, residential properties that are not associated with a specific community. There are also recreation sites, resource values, range improvements, railways, roadways, utility lines, substations and communication sites within the FMU that may be at risk. Prevention, education and mitigation efforts for most of the subdivided areas can be made through local fire

departments but many will require outreach by direct contact. The risk level to each community is based upon fuels, topography, the current state of fire prevention preparedness, and unique aspects of each. Above or below average precipitation can greatly affect the risk to each community and individual areas by increasing or decreasing the amount of fuel available to a fire. Special considerations will be made for communities with increased risk.

The two communities listed below lie within the boundaries of FMU #8 and can be categorized as a moderate risk on average. 1) Bagdad 2) Wikieup.

2. Fire Management Objectives

The Mohave and Sonoran desert are full suppression areas. Fire management objective is to suppress all fire 90% of the time at or below 100 acres. This area is a hot desert typified by creosote bush/bursage and desert shrub vegetation communities. Fire frequency in these vegetation types is historically low. Most shrubs, trees, and cacti of the hot desert, because they are not adapted to fire, can be severely affected by burning. Wildfire incidence has increased in these areas due to the invasion of exotic annual grasses. Likewise, exotic annual grasses are increasing due to their aggressive establishment in burned areas. Livestock grazing occurs throughout most of the area and each grazing allotment maintains numerous range improvements (i.e., fences, corrals, water developments). Desired resource management is to protect habitat for wildlife and special status species and maintain native vegetation communities in order to reduce the invasion of exotic annuals and limit surface disturbance activities.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime 90 to 105 degrees; nighttime temperatures range from 70 to 80 degrees, and relative humidity runs 5 to 15 percent), open and hidden mine shafts and pits are present, venomous animals/insects, in some areas dump sites are common and may contain hazardous materials, dumping, tires, low-level military aircraft training routes, etc.

Access

Access by vehicles into this FMU is good off of numerous dirt roads. Depending on the fire location crews may have short hikes to reach the fire.

Fire Behavior

Fuels in the Mohave and Sonoran Deserts consist of desert shrub intermixed with grass, annuals and perennials. Fuels in the desert depend on heavy winter and early spring moisture or fuels that carry over from the previous year's growing season. Above-average moisture usually results in an abundance of annual fuels.

Fires in the desert usually do not go beyond the first burning period due to non-continuous fuels, fuel size, terrain features such as washes and rocky outcroppings. In years of heavy precipitation and where fuels are continuous fires can spread rapidly through the grass and associated material. The grass fuels are also easily influenced by change in relative humidity. A significant increase in relative humidity and a decrease in temperature can quickly slow or extinguish a fire. The exception is in years of heavy and continuous grass fuels, fires will grow to large acreages and burn through multiple burning periods.

Desert Fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Suppression tactics

Suppression strategies and tactics in this fuel type are usually direct attack using hand crews, engines where possible and helicopter dropping water to knock down the fire edge, patrol and mop up. Fires in the desert usually are quickly contained and usually do not go into multiple burning periods.

Rate of spread - Low to high (depending on fuel continuity)
Flame length - Depending on wind, one to four feet
Resistance to control - low to moderate

Acceptable wildfire size is up to 300 acres at Fire Intensity Level (FIL) 1 and 100 acres or less for all others FIL 2-6.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

Mohave and Sonoran Desert ecosystems are not fire-adapted. Wildland fire use is not desired. Statewide Land Use Plan Amendment Allocation 2 – Non Wildland Fire Use: Areas not suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

The use of prescribed broadcast burning is not anticipated in this area due to the lack of fire adapted vegetation. However, pile burning may be used in conjunction with mechanical treatment where appropriate.

d) Non-Fire Fuels Treatments

Mechanical thinning or removal of vegetation may be used to reduce hazardous vegetation in WUI areas and where vegetation poses a fire risk to historic sites, communication facilities, recreation areas, or other improvements.

e) Post Fire Restoration and Rehabilitation

Not applicable in this type of ecosystem, restoration and rehabilitation efforts could result in damage to the landscape.

f) Community Protection/Community Assistance

Prevention, education and mitigation efforts for FMU #8 include utilizing the local news media to provide fire prevention information and updates to the public, collaborate with local governments and fire departments, performing school presentations, develop partnerships with home owner organizations, permitees and other groups to assist communities in reducing the risk from wildfire.

---

1. FMU # 9 Description- KFO Music Mountains

a) Characteristics

This FMU covers the Music Mountain range beginning east of Meadview and continuing southeast to Valentine. The Music Mountains contain approximately 126,278 acres of public land. The Hualapai Indian Reservation borders this FMU to the north and east. This area represents a transition zone between the Basin and Range Province to the south and east, and the Colorado Plateau to the north and east. The western-most edge of the Colorado Plateau extends along the top of the Music Mountains and is typified by a north facing, gently sloping plateau that extends to the south rim of the Grand Canyon. The Music Mountains drop abruptly to the south and west along the Grand Wash Cliffs. Elevation ranges from 3200 feet at the base of the Grand Wash Cliffs to 6760 feet at Laughing Jack Butte.

Climate varies considerably with elevation, but summers are generally warm and dry, and winters are cool. Precipitation ranges from less than 10 inches at the base of the Grand Wash Cliffs, to over 15 inches atop the Music Mountains.

This FMU contains a wide diversity of vegetation types due to its geographic location and range of elevation. Vegetation at lower elevations consists of typical Mohave desert scrub creosote bush/bursage, with yucca and Joshua trees present. The northwest portion of this FMU is dominated by Joshua tree forest with blackbrush understory. Intermediate elevations on the slopes of the Music Mountains contain crucifiction thorn and scattered pockets of interior chaparral and pinyon/juniper, with native grasses present. Higher elevations atop the Music Mountains are dominated by pinyon/juniper forest, with interior chaparral understory. Big Mountain Sagebrush and small pockets of Ponderosa pine are present in isolated locations

This area provides habitat for elk, mule deer, mountain lion, and other non-game species.

Livestock grazing occurs throughout this area. Pinyon/juniper has encroached on some sites with deeper soils formerly occupied by grasses and shrubs. When pinyon/juniper encroaches on these sites they form a closed canopy and grasses and shrubs are shaded out leaving almost no understory component.

b) Fire History

Historical fire frequency is 35 to 100-plus-year return interval, between 1980 and 2003, 23 fires started on BLM-administered public lands. These fires burned an estimated 984 acres. Most of the area burned was pinyon/juniper communities. The largest fire burned 400 acres. Average fire size was 44.7 acres. There have been three large fires 100-plus acres during this time period.

c) Fire Regime/Condition Class

This fire management unit is dominated by pinyon/juniper woodland with significant tracts of interior chaparral. Great Basin big sagebrush dominates a very small portion of this unit. Fire

regimes III (pinyon/juniper dominated areas) and IV (chaparral dominated areas) are represented in this unit. Condition class for most locations is 2, due to a combination of introduced annual species, insect infestation, and lack of recent fire occurrence.

d) Values at Risk

Air Quality – The western portion of Grand Canyon National Park (Class 1 Airshed) lies approximately 20 miles northeast of this FMU.

View Corridors – Grand Wash Cliffs

ACECs – Joshua Tree Forest

T&E, Sensitive,Wildlife/Plant Species–includes pronghorn, peregrine falcon, Mexican vole.

View sheds corridors – High-quality view sheds along Diamond Bar Road and Highway 66.

Recreation – Dispersed and unstructured recreation resource opportunities such as hunting, OHV driving, sightseeing, hiking, camping etc., dependent on natural resources and aesthetic settings. Planned non-motorized trails in the Music Mountains.

Cultural Resources: Artifact scatter, burials, cemetery, house foundations, walls, dumps, middens, and other historic and prehistoric artifacts. Standard Mitigation Measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: If human remains are found halt ongoing project immediately and contact an archaeologist.

Riparian – None

Forage production – Livestock grazing is authorized for public lands within this FMU.

e) Communities at Risk

FMU #9 has only a small number of urban interfaced areas which consist of a few working cattle ranches, two commercial tourist ranches and a small number of private residences within its boundaries. There are also resource values, range improvements, roadways and utility lines sites within the FMU that may be at risk. Diamond Bar Road, located within the FMU, is the primary access route to Grand Canyon West and is traveled by thousands of tourist each year. The private lands are not associated with any specific community. Prevention, education and mitigation efforts for most of the subdivided areas will require outreach by direct contact. The risk level and state of fire prevention preparedness is directly dependant upon the actions performed by each individual land owner.

2. Fire Management Objectives

This FMU represents a transition zone between desert and Great Basin range vegetation associations. Fire management objective is to suppress all fire 90% of the time at or below 500 acres. This FMU is dominated by pinyon/juniper and chaparral communities with a smaller component of Big sagebrush. This area provides habitat for elk, mule deer, mountain lion and non-game species. Livestock grazing occurs throughout this area. Pinyon/juniper has encroached on some sites with deeper soils formerly occupied by grasses and shrubs. When pinyon/juniper encroaches on these sites they form a closed canopy and grasses and shrubs are shaded out leaving almost no understory component. Desired resource management is to increase available browse for wildlife and enhance livestock forage production while protecting existing and potential wildlife habitat. Resource management objective would be to encourage fire to play its natural role on those sites where pinyon/juniper has encroached that was formerly occupied by grasses and shrubs.

There is potential for fuels treatment and prescribed burns in this area with the objective of increasing forage production and reducing the risk of a catastrophic fire event. Fires that are 200 to 300 acres would produce the most beneficial results for this vegetative type and total acres burned per year should not exceed 5000. In this area there is potential to do prescribe fire treatments in cooperation with the Hualapai Indian Tribe.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime 90 to 100 degrees; nighttime temperatures range from 60 to 70 degrees, and relative humidity runs 5 to 15 percent.) Venomous animals/insects and low-level military aircraft training routes are other hazards. Steep terrain and 70% slopes on the Grand Wash Cliffs presents a safety concerned for firefighters. The thick pinyon/juniper, big sagebrush and chaparral fuel types limit escape routes and safety zones. An abandon survivalist community could present a safety concern.

Other

Hualapai Indian reservation adjacent on east boundary. Politically sensitive due to the adjacent land ownership (Truxton Canyon Agency, Grand Canyon NP).

Access

Road access into this FMU is limited. Only a few established roads are present. This FMU is remote rugged and inaccessible for most vehicles. Fire engine travel is restricted and slow. The average travel time into this FMU is over two hours. Depending on the fire location crews may have long hikes to reach the fire. Crews must use helicopter shuttles to access most fires.

Fire Behavior

In this mixed fuel type of pinyon/juniper, chaparral and big sagebrush fires can burn very intense, displaying high rate of spread, flame lengths up to 50 feet and spotting up ¼ to ½ mile.

Fuel types are represented by NFDRS fuel model F and NFFL fuel model 4 and 6

Suppression tactics

Suppression strategies and tactics are dependent on fire intensity. Low intensity fires; allow for direct attack. High intensity fires; extreme fire behavior can occur with live fuel moistures below 90%, with extreme fire behavior conditions suppression strategies and tactics in this mixed fuel type are usually indirect. Fires in this fuel type usually go into multiple burning periods.

Mixed Pinion Juniper/ Chaparral/Big Sagebrush Fuels

Rate of spread - moderate to very high
Flame length - 20 to 50 ft plus
Resistance to control - moderate to very high

Acceptable wildfire size is up to 1000 acres at Fire Intensity Level (FIL) 1, 500 acres at FIL 2, 300 acres at FIL 3, 50 acres at all other FIL's.4-6. No more than 5,000 acres in any given year.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

This area does not currently have an approved wildland fire use plan. However, this Fire Management Unit holds potential for wildland fire use due to its remote nature and the vegetation types represented. This area may be analyzed for Wildland Fire Use at a future date. Statewide Land Use Plan Amendment Allocation 1 – Wildland Fire Use: Areas suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

Prescribed fire may be used to treat hazard fuel accumulations in chaparral and pinyon/juniper vegetation. Prescribed broadcast burning of chaparral may occur during the winter months.

Prescribed broadcast burning of pinyon/juniper vegetation would need to be conducted from May to October to produce necessary fire behavior. Pile burning of juniper may occur following mechanical treatment in areas where broadcast burning is not a viable option.

d) Non-Fire Fuels Treatments

Mechanical treatment may be conducted to reduce fuel loading around improvements or where prescribed fire can not be effectively applied. Many areas dominated by pinyon/juniper vegetation do not have sufficient understory fuels to carry a fire.

Chemical treatment may be applied in sagebrush areas.

e) Post Fire Restoration and Rehabilitation

Potential exist for appropriate post fire restoration and rehabilitation efforts.

f) Community Protection/Community Assistance

Prevention and mitigation efforts for FMU #9 include utilizing the local news media for current information on prevention issues, prevention signing, prevention patrols and direct contact of the private land owners.

---

1. FMU # 10 Description- KFO Grasslands

a) Characteristics

This Fire Management Unit includes native grasslands located in the Truxton and Goodwin Mesa areas. This FMU includes approximately 114,036 acres of public land. Terrain consists primarily of gently sloping mesas and plateaus bisected by rugged canyons and volcanic mountains. Elevation ranges from 3200 feet on the east side of Goodwin Mesa to over 5600 feet at Cherokee Point.

Summers are hot and winters are cool with average annual precipitation ranging from 10 to 15 inches. Most precipitation falls during the winter and late summer months.

Vegetation includes tobosa, sideoats grama, desert needlegrass, black grama, and sand dropseed. Mountainous areas and canyons contain chaparral, pinyon/juniper, cliffrose, and various species of cacti. Many of these woody species have increased to unnatural levels on grassland sites due livestock grazing and fire suppression.

This area provides habitat for mule deer, antelope, javalina, quail, and other non-game species. Livestock grazing occurs throughout the area. With the fire suppression in the past this area has an increasing component of undesirable species (i.e., snakeweed, prickly pear).

b) Fire History

Historical fire frequency is zero to 35-year return interval, between 1980 and 2003, 23 fires started on BLM-administered public lands. These fires burned an estimated 1,245 acres. Most of the area burned was tobosa grasslands. The largest fire burned 620 acres. Average fire size was 44.5 acres. There have been four large fires 100-plus acres during this time period.

c) Fire Regime/Condition Class

Grasslands represented in this management unit are in fire regime II (0-35 year frequency, stand replacement severity). Current condition class is 2, due to an unnatural presence of woody plant species (juniper, catclaw, prickly pear, snakeweed) and introduced annual grasses.

d) Values at Risk

Air Quality – No non-attainment or special status areas are located in this FMU.

ACECs – Wright & Cottonwood Creek, Burro Creek

T&E, Sensitive, Wildlife/Plant Species–includes bald eagle, BLM Sensitive species (Native fishes), pronghorn, Category 3 Sonoran desert tortoise habitat.

View sheds – Most public lands within this unit are of moderate to high quality. The landscape along Route 66 in the Truxton area is especially sensitive to changes on the landscape because of domestic and international interest in this historic road. Sensitive view sheds also present along Burro Creek and recreation travel routes

Wild & Scenic Rivers – Approximately 2.2 miles of proposed Wild & Scenic River corridor (as much as ½ mile wide) along Burro Creek with outstandingly remarkable values related to fish and wildlife, riparian, geologic, cultural, scenic quality and recreational opportunities.

Recreation – Dispersed and unstructured recreation resource opportunities such as hunting, OHV driving, sightseeing, hiking, camping, etc., dependent on natural resources and aesthetic settings. This area is popular for hunting quail, mule deer and javelina.

Cultural Resources: Mass structure, artifact scatters, trail/roads and various historic and prehistoric artifacts. Standard Mitigation Measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: none.

Riparian – Wright & Cottonwood Creek, Burro Creek, Francis Creek.

Forage production – Livestock grazing is authorized for public lands within this FMU.

e) Communities at Risk

Truxton is the only community within FMU #10 boundaries but there are several areas with sub-divided, residential properties that are not associated with a specific community. There are also resource values, range improvements, railways, roadways and utility lines within the FMU that may be at risk. There is no fire department or organization associated with the community. All of the urban interface areas within FMU #10 will require outreach efforts by direct contact. The average risk level from wildfire to Truxton and other private residences is rated as moderate**.** The risk level and state of fire prevention preparedness is directly dependant upon the actions performed by each individual land owner.

2. Fire Management Objectives

This FMU consists of the Goodwin Mesa and Truxton Flats grasslands. Fire Management Objective is to suppress all fires 90% of the time at or below 2500 acres. This FMU is a Southwestern shrub steppe vegetation type dominated by tobosa, sideoats grama, desert needlegrass, black grama, and sand dropseed. Small areas of shrub live oak and pinyon/juniper occur in isolated pockets. This area provides habitat for mule deer, antelope, javalena, quail, and non-game species. Livestock grazing occurs throughout the area. With the fire suppression in the past this area has an increasing component of undesirable species (i.e., snakeweed, prickly pear).

Desired resource management is to maintain a healthy grassland ecosystem community and provide forage and habitat for wildlife and livestock. We would like to see fire reintroduced into this area to keep invasive woody species from increasing. Objective would to allow fire to play its natural role in this area and to maintain the grassland ecosystem. It would be most beneficial to have at least 2500 acres burned per year not to exceed 5000 acres per year burned.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

In sensitive areas such as ACECs "MIST" will be utilized that limit damage or disturbance to the habitat and landscape Fires will be contained at the minimal acres possible. Washes, roads, natural breaks will be utilized when possible for fire lines. Fire engines and support vehicles will stay on existing roads; paths as much as possible.

In established waterways, stock ponds, creeks, etc., the use of fire retardants (slurry, foam, etc.) is to be minimized as they may harm this sensitive environment. Avoid aerial or ground application of retardant or foam within 300 feet of waterways. Guidance on the use of retardants and foam can be found in the 2004 "Interagency Standards for Fire and Fire Aviation Operations," Chapter 12, Suppression Chemicals & Delivery Systems, Section E, Environmental Guidelines for Delivery of Retardant or Foam near Waterways.

Surface disturbing fire/fuels suppression activities should be minimized for archaeological sites.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime temps may reach 100 plus degrees nighttime temperatures range in the 60 to 70 degrees, and relative humidity runs 5 to 15 percent), venomous animals/insects, low-level military aircraft training routes, etc. When fires are located on Goodwin Mesa, steep drop offs and rocky canyon walls are a safety hazard.

Access

Road access into this Goodwin Mesa area of the FMU is poor and limited. Only a few established dirt roads are present. This FMU is remote rugged and inaccessible for most vehicles. Fire engine travel is restricted and slow. The average travel time into this FMU is over two hours. Depending on the fire location, crews may have long hikes to reach the fire. Crews must be flown in to most fires. Road access into the Truxton Flat area of the FMU is good with numerous roads and good access for fire vehicles.

Fire Behavior

Fuels in this FMU are dominated by grass. Small areas of shrub live oak and pinyon/juniper occur in isolated pockets. This grassland depend on heavy winter and early spring moisture or fuels that carry over from the previous year's growing season. Above-average moisture usually results in an abundance of annual fuels and continues fuel bed.

In years of heavy precipitation and where fuels are continuous fires can spread rapidly through the grass and associated material. The grass fuels are also easily influenced by change in relative humidity. A significant increase in relative humidity and a decrease in temperature can quickly slow or extinguish a fire.

Fuels Grass fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Suppression tactics

Suppression strategies and tactics in grass fuel type are usually direct attack using hand crews, engines where possible, airtankers and helicopters dropping water to knock down the fire edge, patrol and mop up. Fires in the grass usually are quickly contained. In years of abundant grass, fires on the monument usually go into multiple burning periods.

Rate of spread - Low to high
Flame length - Depending on wind, one to ten feet
Resistance to control - Moderate to high

Acceptable wildfire size is up to 5000 acres at Fire Intensity Level (FIL) 1- 2 and 600 acres at FIL 3-6.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL.

b) Wildland Fire Use

Portions of this Fire Management Unit (Goodwin Mesa area) may be analyzed for wildland fire use at a future date. The remote nature of this area and the fire-adapted tobosa grassland ecosystem make wildland fire use a potential management option. Statewide Land Use Plan Amendment Allocation 1 – Wildland Fire Use: Areas suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

Prescribed broadcast burning is an effective means of reducing invasive woody species and maintaining vigor in these grassland ecosystems. Warm season burning on Goodwin Mesa and portions of the Truxton plains may be implemented when sufficient grass exists to carry fire and achieve desired objectives for mortality in woody species.

d) Non-Fire Fuels Treatments

Mechanical treatment may be used to reduce juniper encroachment in native grasslands near Truxton. Prescribed burning is not viable in many areas due to lack of grass cover and or close proximity to homes.

e) Post Fire Restoration and Rehabilitation

Potential exist for emergency stabilization of burned areas in deep soil types.

f) Community Protection/Community Assistance

Prevention and mitigation efforts for FMU #10 include utilizing the local news media for current information on prevention issues, prevention signing, prevention patrols and direct contact of the private land owners.

---

1. FMU # 11 Description- KFO Chaparral

a) Characteristics

This FMU encompasses interior chaparral and pinyon/juniper woodlands of the Cerbat, Hualapai, and Aquarius mountain ranges within the Kingman Field Office boundary. This FMU includes approximately 165,720 acres of public land. All of these mountain ranges are rugged, north- and south-oriented ranges separated by broad valleys, typical of the Basin and Range Province. Elevation in this FMU ranges from approximately 4000 feet near Tule Wash in the Aquarius Mountains, to 7225 feet at Pine Peak in the Hualapai Mountains. Average elevations are between 4000 and 6000 feet.

Climate in this FMU is typified by warm summers and cool winters. Annual precipitation ranges from 10 inches to over 15 inches. Most precipitation falls during the winter and late summer.

This area is predominately interior chaparral associations composed of dense stands of scrub oak, manzanita, desert ceanothus, sugar sumac, and mountain mahogany. Single-leaf pinyon and one seed juniper occur in association with chaparral species in all three mountain ranges. Pinyon/juniper woodland occurs as the dominant vegetation in some locations, particularly on steep north facing slopes on shallow soils. Mohave and Sonoran desert scrub vegetation occupy many south facing slopes at elevations below 5500 feet. Isolated small stands of ponderosa pine occur on north facing slopes near Granite Peak, Burch Peak, and Pine Peak in the Hualapai Mountains. Grass cover is sparce and limited mostly to desert scrub communities due to the competitive nature of interior chaparral and pinyon juniper stands.

This area provides habitat for mule deer, quail, and other non-game wildlife species. Due to fire suppression activities in the past much of this area is so dense it has sparse to no herbaceous understory. When these areas are excluded from fire they become so dense wildlife and livestock can not move freely through them and forage species are crowded out. Most species in this area are adapted to fire and will regenerate after the burn.

b) Fire History

Historical fire frequency is 35 to 100-plus-year return interval. Between 1980 and 2003, 52 fires started on BLM-administered public lands. These fires burned an estimated 11,139 acres. Most of the area burned was interior chaparral. The largest fire burned 2945 acres. Average fire size was 176.8 acres. There have been nine large fires 100-plus acres during this time period.

c) Fire Regime/Condition Class

Interior chaparral communities are represented by fire regime IV (35 to 100-plus-year frequency, stand replacement severity). Current condition class in most areas is 2 or 3 due to lack of mixed age class stands and overabundance of old-age-class vegetation.

d) Values at Risk

Air Quality – No non-attainment or special status areas are located in this FMU.

ACECs – Hualapai Mountain

T &E, Sensitive, Wildlife/Plant Species–includes Hualapai Mexican vole, BLM Sensitive species (Native fishes, bats, rosy boa), Category 3 Sonoran desert tortoise habitat, mule deer.

View sheds – High quality view sheds along major roads and recreation travel routes.

Recreation – Dispersed and unstructured recreation resource opportunities such as hunting, OHV driving, sightseeing, hiking, camping etc., dependent on natural resources and aesthetic settings. Designated and planned motorized/non-motorized trails in both the Cerbat and Hualapai Mountains. Developed campgrounds include Packsaddle and Windy Point in the Cerbat Mountains.

Cultural Resources: Roasting pits, rock rings, and various historic and prehistoric artifacts. Standard Mitigation Measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: none.

Riparian – Scattered riparian areas are located throughout this FMU.

Forage production – Livestock grazing is authorized for public lands within this FMU.

Cerbat Herd Area

e) Communities at Risk

There are no communities within FMU #11 but there are several urban interfaced areas which consist of working cattle ranches and subdivided, private land with residences. There are also recreation sites, resource values, range improvements, roadways, utility lines and communication sites within the FMU that may be at risk. The private lands are not associated with any specific community. Prevention, education and mitigation efforts will require outreach by direct contact. The risk levels for subdivided areas are categorized as moderate**.** The risk level and state of fire prevention preparedness is directly dependant upon the actions performed by each individual land owner.

2. Fire Management Objectives

Cerbat Mountains - Fire Management Objectives is to suppress all fire 90% of the time at or below 25 acres. Desired resource management for this area is to maintain cover and habitat for wildlife and wild horses. It would be desirable to have small 10- to 20-acre fires to occur in dense chaparral to increase accessibility and improve palatability of chaparral species. Total acres burned per year should not exceed 100 acres.

South Hualapai - Fire Management Objectives is to suppress all fire 90% of the time at or below 500 acres. Desired resource management is to increase available browse for wildlife and enhance livestock forage production. It is desired to have fires 100 to 200 acres in size in the dense chaparral to increase accessibility and improve palatability of chaparral species and livestock. These fires would also reduce the potential for catastrophic fire events. A mosaic of small burns with a minimum of five age classes would prove most beneficial for wildlife and livestock. This area is being considered for future Fire Use Area that would allow fire to play its natural role under predetermined prescription criteria. The total acres burned per year in this area should not exceed 15,000 acres.

Aquarius - Fire Management Objectives is to suppress all fire 90% of the time at or below 500 acres. Desired resource management is to increase available browse for wildlife and enhance livestock forage production. It is desired to have fires 100 to 200 acres in size in the dense chaparral to increase accessibility and improve palatability of chaparral species and livestock. These fires would also reduce the potential for catastrophic fire events. A mosaic of small burns with a minimum of five age classes would prove most beneficial for wildlife and livestock. This area is being considered for future fire use. The total acres burned per year in this area should not exceed 2000 acres.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime temps in the upper 90's; nighttime temperatures range in the 60 degrees, and relative humidity runs 10 to 15 percent), open and hidden mine shafts and pits are present, venomous animals/insects, in some areas dump sites are common and may contain hazardous materials, dumping, tires, low-level military aircraft training routes, etc. Steep terrain with slopes averaging 30 to 40 % are common and some locations exceed 70%. Cerbat and Hualapai mountain areas have high recreational use. Fires are very visible to the public and creates high news media interest. This increases the public interest and visit to the area that could potential result in a safety issue for fire personnel

and the public. Adjacent to the Wabayuma wilderness the survivalist community of Walnut Creek could be a safety concern for firefighters.

Access

Road access into this FMU is poor and limited. Only a few established dirt roads are present. This FMU is remote rugged, steep and inaccessible for most vehicles. Fire engine travel is restricted and slow. The average travel time into this FMU is over two hours. Depending on the fire location crews may have long hikes to reach the fire. Crews must be helicopter in to most fires.

Fire Behavior

This FMU is dominated by Arizona interior oak chaparral (scrub oak, ceanothus, manzanita, sumac and mahogany). Fire behavior in Arizona oak chaparral should not be underestimated. Under certain conditions, it can burn as intensely as California chaparral.

Arizona chaparral either burns fiercely or does not burn at all; there seems to be no graduation. The critical rate of spread threshold in chaparral to sustain itself is 20 or more feet per minute. Conditions must be suitable for generating spread at or above this rate before fire will spread.

In very high to extreme burning conditions, flame lengths up to 50 feet are common. Spotting up to 1/4 mile and erratic fire behavior may occur. At times, firestorms, firewhirls and major blow-ups could occur instantaneously. High rates of spread of 45 feet per minute would not be unusual. Extreme fire behavior can occur with live fuel moistures below 90%,

Chaparral fuel types are represented by NFDRS fuel model F and NFFL fuel model 4 and 6.

Suppression tactics

Suppression strategies and tactics in chaparral fuel type are dependent on fire intensity. Low intensity fires; allow for direct attack. High intensity fires suppression strategies and tactics in chaparral fuel type are usually indirect. Fires in the chaparral fuel type usually go into multiple burning periods.

Rate of spread - moderate to very high
Flame length - 20 to 50 ft plus
Resistance to control - moderate to very high

Cerbats - Acceptable wildfire size is up to 50 acres at Fire Intensity Level (FIL) 1, 20 acres at FIL 2 and 25 acres for FIL 3 and above. No more than 100 acres in any given year.

South Hualapai – Acceptable wildfire size is up to 1000 acres at Fire Intensity Level (FIL) 1- 6

Aquarius - Acceptable wildfire size is up to 1000 acres at Fire Intensity Level (FIL) 1-2, 600 acres at FIL 3-6.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

Remote areas in this fire management unit have potential for being managed as wildland fire use areas in the future. The south Hualapai and Aquarius mountains are Statewide Land Use Plan Amendment Allocation 1 – Wildland Fire Use: Areas suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP. Wildland Fire Use is not a viable consideration for the Cerbat Mountains due to its location to WUI areas and number of improvements.

c) Prescribed Fire

Prescribed fire is a very effective tool for reducing hazardous fuel accumulations in chaparral vegetation. Broadcast burning of chaparral is an approved means of treatment in the Hualapai, Cerbat, and Aquarius mountain ranges. Prescribed fire may be used to reduce the risk of large wildfires, improve firefighter and public safety, and improve forage conditions for wildlife and livestock.

d) Non-Fire Fuels Treatments

Mechanical treatment may be used to reduce fire risk near isolated improvements, or where prescribed burning can not be safely accomplished to meet objectives.

e) Post Fire Restoration and Rehabilitation

Potential exists for emergency rehabilitation and stabilization efforts.

f) Community Protection/Community Assistance

Prevention and mitigation efforts for FMU #11 include utilizing the local news media for current information on prevention issues, prevention signing, prevention patrols and direct contact of the private land owners.

---

1. FMU # 12 Description- KFO Wildland Urban Interface

a) Characteristics

FMU 12 includes 74,144 acres of public lands in the north end of the Hualapai Mountains. Topography is characterized by several large canyons that drop off of the east and west side of the mountain range. Terrain is steep and extremely rugged and elevation ranges from 3800 feet near Interstate 40 to 8417 feet at Hualapai Peak.

Climate varies significantly with elevation. Higher elevations experience warm summers and cold winters while lower elevations have hot summers and cool winters. Precipitation falls mostly during winter and late summer months. Average annual precipitation varies from 10 inches at lower elevations to approximately 20 inches on the highest peaks.

Vegetation in FMU 12 ranges from Mohave Desert scrub at lower elevations to mixed conifer with douglas fir, white fir, ponderosa pine and pockets of aspen on north facing slopes above 7500 feet. However, interior chaparral and pinyon/juniper vegetation dominates the majority of the area at elevations between 4000 and 6500 feet. Chaparral is dominant even at 8000 feet on south-facing slopes. Ponderosa pine/gambel oak association with grass and shrub understory occurs on most north facing slopes above 6000 feet.

This area provides habitat for elk, mule deer and non-game wildlife. The Hualapai Mexican Vole is known to inhabit this area and the area provides habitat for the Mexican Spotted Owl. In the past fire has been excluded from these areas, which historically had high frequencies of understory fires. The continued exclusion of fire from these areas will result in the weakening of the stands, an increase in activity of bark beetles, and an increase in the proportion of dead trees. Fuels and/or bug-killed trees lead to stand-destroying fires.

b) Fire History

Historical fire frequency is 35 to 100-plus-year return interval. Between 1980 and 2003, 95 fires started on BLM-administered public lands. These fires burned an estimated 2,034 acres. Most of the area burned was ponderosa pine. The largest fire burned 1,120 acres. Average fire size was 21.6 acres. There have been three large fires 100-plus acres during this time period.

c) Fire Regime/Condition Class

This fire management unit is represented by two fire regimes. Chaparral communities within this unit fall into fire regime IV (35- to 100-plus-year frequency, stand replacement severity). Ponderosa pine dominated communities are best represented by fire regime I (zero to 35-year frequency, low severity). Condition class is 3 in most locations. Long-term drought and insect infestations have resulted in significant mortality in most ponderosa pine stands. In addition, natural fire occurrence has been altered by fire suppression efforts for the past 50-plus years, resulting in unnatural fuel loadings in both ponderosa pine and chaparral vegetation.

d) Values at Risk

Air Quality – No non-attainment or special status areas are located within this FMU.

ACECs – Hualapai Mountain

Wildlife, Sensitive, Plant Species–includes Mexican spotted owl habitat, Hualapai Mexican vole, BLM Sensitive Species (bats), mule deer, elk.

View sheds – High quality view sheds along major roads and recreation travel routes, and surrounding the Pine Lake, Pinion Pines and Blake Ranch Road communities.

Recreation – Dispersed and unstructured recreation resource opportunities such as hunting, OHV driving, sightseeing, hiking, camping, etc., dependent on natural resources and aesthetic settings. Designated and planned motorized/non-motorized trails in both the Cerbat and Hualapai mountains. One developed BLM campground at Wild Cow Springs and considerable developed camping at Mohave County's Hualapai Mountain Park. This FMU is an especially popular area for public visitation during the summer months.

Cultural Resources: Gold King Mansion, Hualapai Mountain County Park, and various prehistoric and historic mining sites. Standard Mitigation Measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: Sites should be cleared of low hanging branches and any brush that could catch fire.

Riparian – Scattered riparian area located throughout this FMU.

Forage production – No grazing in the Hualapai Mountain Park area and Pine Lake.

e) Communities at Risk

FMU #12 has two communities within its boundaries. There are multiple areas with sub-divided, residential properties that are not associated with a specific community. There are also recreation sites, resource values, range improvements, roadways, utility lines and communication sites within the FMU that may be at risk. Prevention, education and mitigation efforts for most of the subdivided areas can be made through local fire departments but many will require outreach by direct contact. The risk level to each community is based upon fuels, topography, and the current state of fire prevention preparedness and unique aspects of each. The primary carrier for fires is dense stands of chaparral, mixed conifer and desert shrub at lower elevations. These fuel types generally maintain a more consistent volume and continuity throughout the year as compared to grass type fuels. Risks to communities in this fuel type are generally high each fire season due to the characteristics of the fuel. The urban interface areas within FMU #12 are a paramount concern due to the high potential for catastrophic wildfire.

The two communities listed below lie within the boundaries of FMU #12 and can be categorized as a High Risk on average.

1) Pine Lake/Hualapai Mountain Park 2) Pinion Pine/Atherton Acres

2. Fire Management Objectives

Fire Management Objectives are to suppress all fire 90% of the time at or below 25 acres. The north facing slopes are dominated by ponderosa pine and the south-facing slopes are dominated by interior chaparral. This area provides habitat for elk, mule deer and non-game wildlife. The Hualapai Mexican Vole is known to inhabit this area and the area provides habitat for the Mexican Spotted Owl. In the past fire has been suppressed in these areas, which historically had high frequent understory fires. The continued exclusion of fire from these areas will result in the weakening of the stands, an increase in activity of bark beetles, and an increase in the proportion of dead trees. Fuels and/or bug-killed trees lead to stand-destroying fires. Desired resource management for this area is to maintain cover and habitat for elk and mule deer, and protect existing and potential habitat for endangered species. Desired future condition would be for low to moderate intensity understory fires to occur in these areas to reduce the accumulation of ground fuels and potential for large crown fires and increase seedling establishment of ponderosa pine.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. Aggressive suppression strategies and tactics will be used to protect Pine Lake, Pinion Pines and Mohave County Park.

<u>Health and Safety</u>

Safety hazards to firefighters are extreme temperatures (daytime temps in the upper 90s; nighttime temperatures range in the 60 degrees, and relative humidity runs 10 to 15 percent), venomous animals/insects, low-level military aircraft training routes, etc. Steep terrain with slopes averaging 30 to 40% are common and some locations exceed 70%. The Hualapai Mountains is a high recreational use area. Fires are visible to the public and creates high news media interest. This increases the public interest and visit to the area that could potential result in a safety issue for fire personnel and the public. The community of Pine Lake and Pinion Pines are located in this FMU. Wildfires in the communities adjacent to public land would be a safety concern for fire fighters due to the significant number of residences and out buildings, propane tanks, power lines and roads with limited turn outs and access.

Access

Road access into this FMU is poor and limited. Only a few established dirt roads are present. This FMU is remote rugged, steep and inaccessible for most vehicles. Fire engine travel is restricted and slow. The average travel time into this FMU is over 2 hours. Depending on the fire location crews may have long hikes to reach the fire. Crews must be helicopter in to most fires.

Fire Behavior

This FMU is dominated by Arizona interior oak chaparral (scrub oak, ceanothus, manzanita, sumac and mahogany. Fire behavior in Arizona oak chaparral should not be underestimated. Under certain conditions, it can burn as intensely as California chaparral.

Arizona chaparral either burns fiercely or does not burn at all; there seems to be no graduation. The critical rate of spread threshold in chaparral to sustain itself is 20 or more feet per minute. Conditions must be suitable for generating spread at or above this rate before fire will spread.

In very high to extreme burning conditions, flame lengths up to 50 feet are common. Spotting up to 1/4 mile and erratic fire behavior may occur. At times, firestorms, firewhirls and major blow-ups could occur instantaneously. High rates of spread of 45 feet per minute would not be unusual. Extreme fire behavior can occur with live fuel moistures below 90%.

Ponderosa pine consists mostly of open stands where canopies are not interlocking. Fire spread is usually through surface fuels, primarily fine herbaceous vegetation either curing or dead, with a litter layer of needles, twigs and branches; occasionally downed logs and trees are present. Ladder type fuel arrangements are nonexistent except in areas of chaparral understory.

Fires here are generally not very intense because surface fuel loads are light. Intensity increases when the fires encounter occasional heavy fuel concentrations that can flare up. Flame lengths are usually low, one to three feet, but can increase if wind-aided and burning in chaparral or heavy fuel concentration. Rate of spread is usually low unless wind-aided. Resistance to control is low to moderate.

Chaparral fuel types are represented by NFDRS fuel model F and NFFL fuel model 4 and 6.

Ponderosa Pine fuel type is represented by NFDRS fuel model U and NFFL fuel model 9.

Suppression tactics

Suppression strategies and tactics in chaparral fuel type are dependent on fire intensity. Low intensity fires; allow for direct attack. High intensity fires suppression strategies and tactics in chaparral fuel type are usually indirect. Fires in the chaparral fuel type usually go into multiple burning periods.

Rate of spread - moderate to very high
Flame length - 20 to 50 ft plus
Resistance to control - moderate to very high

Acceptable wildfire size is up to 50 acres at Fire Intensity Level (FIL) 1, 20 acres at FIL 2 and 25 acres for FIL 3 - 6 and above. No more than 200 acres in any given year.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL,

b) Wildland Fire Use

This area meets the Statewide Land Use Plan Amendment Allocation 1 – Wildland Fire Use: Areas suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP. However, Wildland Fire Use is not a viable consideration for this fire management unit due to the large number of improvements and WUI areas.

c) Prescribed Fire

Prescribed fire may be used as a means of reducing hazardous vegetation in chaparral, ponderosa pine, and pinyon-juniper fuel types. Cool season broadcast and pile burning may be conducted to reduce the risk of wildfire to WUI areas including Pine Lake, Pinion Pines, Atherton Acres, Lazy YU, and scattered developments throughout this fire management unit.

d) Non-Fire Fuels Treatments

Mechanical thinning may be used to create fuel breaks and reduce hazardous fuel accumulations in and around WUI areas. Mechanical treatments may be conducted by hand or using specialized equipment where approved.

e) Post Fire Restoration and Rehabilitation

Potential exist for emergency rehabilitation and stabilization efforts.

f) Community Protection/Community Assistance

Communities within FMU #12 are one of the highest priorities for the Phoenix/Kingman FMZ. Special considerations are to be provided for these mountain communities due to exceptional risk from wildfire. Prevention, education and mitigation efforts for urban interface areas include

utilizing the local news media to provide fire prevention information and updates to the public, prevention patrols, prevention signing, building strong collaborative relationships with local governments and fire departments, performing school presentations, attending events/parades and develop partnerships with home owner organizations, permitees and other groups to assist communities in reducing the risk from wildfire.

---

1. FMU # 13 Description- Wilderness Areas, Chaparral

a) Characteristics

This FMU is composed of two wilderness areas, each approximately 16 miles from Kingman. Mount Tipton Wilderness area includes approximately 30,760 acres of public land in the north end of the Cerbat Mountains. Terrain within this wilderness area is extremely steep and rugged, climbing from 3440 feet near Stockton Hill Road to 7148 feet at Mount Tipton, in just three miles distance. Several rugged canyons descend steeply east and west from the main ridgeline near Mount Tipton to the base of the Cerbat Mountains.

Climate varies greatly with elevation. Annual precipitation ranges from 10 inches at lower elevations to over 15 inches at Mount Tipton.

The extreme elevation variability and aspect changes produce a diverse vegetation community in the wilderness. Mohave Desert scrub vegetation dominates lower elevations with scattered juniper. Middle elevation areas contain juniper-grassland, blackbrush, interior chaparral, and pinyon-juniper forest. Pinyon/juniper and chaparral extend to the highest elevations where they mix with small stands of ponderosa pine on north-facing slopes.

Wabayuma Peak Wilderness is located approximately 16 miles south of Kingman in the Hualapai Mountains, and is typical of mountain terrain found in the Basin and Range Province. This Wilderness area contains approximately 40,000 acres of public land. The area is characterized by steep, rugged terrain dominated by Wabayuma Peak. The elevation ranges from 2480' on the western most edge of the wilderness to 7601 feet at the top of Wabayuma Peak. The Hualapai Mountains are mostly made up of older Precambrian rock, primarily granite, gneiss and phyllite.

As with Mount Tipton Wilderness, climate varies with elevation. Low elevation areas on the western edge of the wilderness have hot, dry summers and mild winters, while weather at elevations above 7000 feet is typified by warm summers and cool or cold winters. Snow cover may persist on north-facing slopes near Wabayuma Peak for long periods of time during the winter. Precipitation ranges from less than 10 inches per year at the lowest elevations to over 15 inches near Wabayuma Peak.

A diverse range of vegetation is found within this wilderness due to the broad range of elevation. The lower elevations support a unique combination of Sonoran and Mohave Desert ecosystems. Vegetation typical of both deserts is found here, including the northern-most stands of saguaro cactus found in Arizona. Intermediate elevations support desert scrub species on south aspects and interior chaparral or pinyon juniper woodland on other aspects. Elevations above 6000 feet are dominated by interior dense stands of chaparral and ponderosa pine. Ponderosa pine stands are generally found only on steep, north-facing slopes.

b) Fire History

Historical fire frequency is 35 to 100-plus-year return interval. Between 1980 and 2003, 21 fires started on BLM-administered public lands. These fires burned an estimated 570 acres. Most of the area burned was interior chaparral. The largest fire burned 350 acres. Average fire size was 24.8 acres. There have been two large fires 100-plus acres during this time period.

c) Fire Regime/Condition Class

The Mount Tipton and Wabayuma wilderness areas are dominated by chaparral vegetation, but also contain significant acreage of ponderosa pine, pinyon/juniper, and desert scrub vegetation. The primary Fire Regime for this unit is IV (35-100+ year frequency, stand replacement severity) due to dominant vegetation being interior chaparral. Current condition class is 3, due to lack of fire occurrence and recent insect outbreaks. The resulting condition is unnatural live and dead fuel loadings in chaparral and ponderosa vegetation types.

d) Values at Risk

Air Quality – Wilderness areas are considered class 2 airsheds. No non-attainment or special status areas occur within this FMU.

ACECs – N/A

T&E, Sensitive, Wildlife/Plant Species–includes Mexican spotted owl habitat, Hualapai Mexican vole, peregrine falcon, BLM Sensitive species (bats, white-margined penstemon, desert rosy boa), Category 2& 3 Sonoran desert tortoise habitat.

View sheds – Both wilderness areas classified as VRM Class I, which requires preservation of the natural landscape.

Recreation – Outstanding opportunities for primitive and unconfined recreation activities, including hiking, horseback riding, hunting, camping, etc., all dependent on the natural condition of the environment.

Cultural Resources: Various historic and prehistoric artifacts. Standard Mitigation Measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: none.

Riparian – Scattered riparian areas are located throughout this FMU.

Forage production – Livestock grazing is authorized for public lands within this FMU.

Cerbat Herd Area

f) Communities at Risk

There are no communities located within the boundaries of FMU #13. There are communities located in adjacent FMUs. Those communities are addressed within the appropriate FMU descriptions.

2. Fire Management Objectives

Wabayuma Peak Wilderness* 40,000 ac and Mount Tipton Wilderness* 30,760 ac

Wabayuma and Mount Tipton WMP 1995
In the 13 years that accurate records have been kept, fire has not played a significant role in either wilderness. Since 1980, there have been five fires responded to by BLM that have burned a total of 9.7 acres in the Wabayuma Peak Wilderness. All fires occurred in June or July. In the Mount Tipton Wilderness, two fires have been reported since 1980 that have burned a total of less than one acre. All reported fires have been lightning caused. Records prior to 1980 are unavailable. Fire scars on standing pines and fallen trunks indicate that other fires have occurred in recent history.

Vegetative types in both wilderness areas are conducive to large wildfires. Areas of dense chaparral and black brush as wall as the presence of fine fuels in the form of annual grasses and forbs at lower elevations provide continuous fuels. In years where climate and vegetative conditions are conducive wildfire can effect a significant change to wilderness vegetation. Regional fire research has shown that fire is very cyclic in chaparral and is believed to return at about forty year intervals. Current policy is to suppress all wildfires in these wilderness areas.

Fire Management Objective in the Wabayuma Peak Wilderness is to suppress all fire 90% of the time at or below 500 acres. Desired resource management is to increase available browse for wildlife and enhance livestock forage production. It is desired to have fires 100 to 200 acres in size in the dense chaparral to increase accessibility and improve palatability of chaparral species and livestock. These fires would also reduce the potential for catastrophic fire events. A mosaic of small burns with a minimum of five age classes would prove most beneficial for wildlife and livestock. This area is being considered for future Fire Use Area that would allow fire to play its natural role under predetermined prescription criteria.

Fire Management Objective in the Mount Tipton Wilderness is to suppress all fire 90% of the time at or below 25 acres. Desired resource management for this area is to maintain cover and habitat for wildlife and wild horses. It would be desirable to have small 10- to 20-acre fires to occur in dense chaparral to increase accessibility and improve palatability of chaparral species.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. In wilderness areas, fire management strategies and tactics will be utilized that will protect and maintain the wilderness integrity, limit impacts on wilderness values and minimize any surface disturbance. Wilderness suppression objectives are to minimize acres burned, damage done to wilderness resource values by utilizing "light hands on the land" Minimum Impact Suppression Tactics. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime temps in the upper 90s; nighttime temperatures range in the 60s, and relative humidity runs 10 to 15 percent), venomous animals/insects, low-level military aircraft training routes, etc. Steep terrain with slopes averaging 30 to 40% are common and some locations exceed 70%. The Hualapai and Cerbat mountain areas have high recreational use. Fires are very visible to the public and create high news media interest. This increases the public interest and visit to the area that could potential result in a safety issue for fire personnel and the public.

Access

Road access into this FMU is poor and limited. Only a few established dirt roads are present. This FMU is remote rugged, steep and inaccessible for most vehicles. Fire engine travel is restricted and slow. The average travel time into this FMU is over two hours. Depending on the fire location, crews may have long hikes to reach the fire. Crews must be helicopter in to most fires.

Fire Behavior

This FMU is dominated by Arizona interior oak chaparral (scrub oak, ceanothus, manzanita, sumac and mahogany. Fire behavior in Arizona oak chaparral should not be underestimated. Under certain conditions, it can burn as intensely as California chaparral.

Arizona chaparral either burns fiercely or does not burn at all; there seems to be no graduation. The critical rate of spread threshold in chaparral to sustain itself is 20 or more feet per minute. Conditions must be suitable for generating spread at or above this rate before fire will spread.

In very high to extreme burning conditions, flame lengths up to 50 feet are common. Spotting up to 1/4 mile and erratic fire behavior may occur. At times, firestorms, firewhirls, and major blow-ups could occur instantaneously. High rates of spread of 45 feet per minute would not be unusual. Extreme fire behavior can occur with live fuel moistures below 90%.

Ponderosa pine consists of open stands where canopies are not interlocking. Fire spread is usually through surface fuels, primarily fine herbaceous vegetation either curing or dead, with a litter layer of needles, twigs and branches; occasionally downed logs and trees are present. Ladder type fuel arrangements are nonexistent except in areas of chaparral understory.

Fires here are generally not very intense because surface fuel loads are light. Intensity increases when the fires encounter occasional heavy fuel concentrations that can flare up. Flame lengths are usually low, one to three feet, but can increase if wind-aided and burning in chaparral or heavy fuel concentration. Rate of spread is usually low unless wind-aided. Resistance to control is low to moderate.

Chaparral fuel types are represented by NFDRS fuel model F and NFFL fuel model 4 and 6.

Ponderosa pine fuel type are represented by NFDRS fuel model H and NFFL fuel model 8.

Suppression tactics

Suppression strategies and tactics in chaparral fuel type are dependent on fire intensity. Low intensity fires; allow for direct attack. High intensity fires suppression strategies and tactics in chaparral fuel type are usually indirect. Fires in the chaparral fuel type usually go into multiple burning periods.

.

Rate of spread	- moderate to very high
Flame length	- 20 to 50 ft plus
Resistance to control	- moderate to very high

Wabayuma Peak Wilderness - acceptable wildfire size is up to 1000 acres at Fire Intensity Level (FIL) 1- 6

Mount Tipton Wilderness - acceptable wildfire size is up to 50 acres at Fire Intensity Level (FIL) 1, 20 acres at FIL 2 and 25 acres for FIL 3 and above. No more than 100 acres in any given year.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL.

b) Wildland Fire Use

Wildland fire use is a potential consideration for both the Mount Tipton and Wabayuma wilderness areas. The presence of private in-holdings and exotic grasses at lower elevations has prevented development of fire use plans in the past. An environmental analysis and agreements with private landowners would be required prior to implementing a fire use plan. Statewide Land Use Plan Amendment Allocation 1 – Wildland Fire Use: Areas suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

Prescribed fire may be used to treat chaparral, ponderosa pine, and pinyon-juniper vegetation in the Wabayuma and Mount Tipton wilderness areas if such treatment is supported in the applicable wilderness plan.

d) Non-Fire Fuels Treatments

Non-fire fuels treatments are not anticipated in this fire management unit due to potential conflict with wilderness values.

e) Post Fire Restoration and Rehabilitation

Historically suppression activities have followed "MIST" guidelines of little surface disturbance. In the event of surface disturbance implementation of appropriate suppression during rehabilitation will occur.

f) Community Protection/Community Assistance

Prevention and mitigation efforts for FMU #13 include public education by utilizing local media outlets, educational signing, outreach to public land use groups, prevention patrols and contacts.

---

1. FMU # 14 Description- KFO Wilderness Areas (Non Chaparral)

a) Characteristics

The wilderness areas represented in this FMU are located throughout the southern and western portions of the Kingman Field Office--which includes approximately 339,167 acres of public lands. All of these wilderness areas encompass rugged mountain ranges typical of the Basin and Range Province. Elevation ranges from 1000 feet in Warm Springs Wilderness, to 5445 feet in the Mount Wilson Wilderness area. Most areas range between 2000 and 4000 feet in elevation.

All of these wilderness areas experience a climate of hot, dry summers and mild winters. Precipitation varies from less than five inches on the western-most portions of Warm Springs, Mount Nutt, and Mount Wilson wilderness areas, to over 10 inches in the Upper Burro Creek wilderness.

Vegetation is dominated by typical desert scrub species. Wilderness areas north and west of Kingman support Mohave Desert scrub plant species, while wilderness areas south and east of Kingman support both Sonoran and Mohave Desert species. California Juniper can be found in many of the higher elevation locations. Portions of Upper Burro Creek, Tres Alamos, and Arrastra Mountain wilderness areas are considered semi-desert grassland. Interior chaparral species can be found sporadically in canyons and north-facing slopes in Upper Burro Creek, Arrastra Mountain, and Tres Alamos wilderness areas. Exotic annual grasses have become established in many locations.

Kingman Field Office Wilderness Areas

Arrastra Mountain Wilderness 129,800 ac
Aubrey Peak Wilderness* 15,400 ac
Mount Nutt Wilderness* 27,600 ac
Mount Wilson Wilderness* 23,900 ac
Tres Alamos Wilderness* 8,300 ac
Upper Burro Creek Wilderness 27,440 ac
Warm Springs Wilderness* 112,400 ac

b) Fire History

Historical fire frequency is 35- to 100-plus-year return interval, between 1980 and 2003, 39 fires started on BLM-administered public lands. These fires burned an estimated 10,255 acres. Most of the area burned was Mohave Desert scrub. The largest fire burned 5000 acres. Average fire size was 256.4 acres. There have been eight large fires 100-plus acres during this time period.

c) Fire Regime/Condition Class

Wilderness areas in this fire management unit contain Sonoran Desert scrub and Mohave Desert scrub vegetation. The Upper Burro Creek Wilderness Area also supports semi-desert grassland.

The desert scrub communities fall into fire regime III and IV. Condition class in these areas is 1 where exotic annual grasses have not established (lower elevation areas), while those areas that have experienced increased fire occurrence due to these grasses are in condition class 2.

d) Values at Risk

Air Quality – Wilderness areas are considered class 2 airsheds. No non-attainment or other special status areas occur within this FMU.

ACECs – Black Mountain, McCracken, Aubrey Peak, Poache, Three Rivers, Burro Creek

T&E, Sensitive, Wildlife/Plant Species–includes bald eagle, desert pupfish, yellow-billed cuckoo, southwestern willow flycatcher, peregrine falcon, BLM Sensitive species (Native fishes, bats, Kingman spring snail, Aravaipa woodfern, desert rosy boa), Category 1, 2, & 3 Sonoran desert tortoise habitat, bighorn sheep.

Recreation – View sheds – All of these wilderness areas are classified as VRM Class I, which requires preservation of the natural landscape.

Recreation – Outstanding opportunities for primitive and unconfined recreation activities, including hiking, horseback riding, hunting, camping, etc., all dependent on the natural condition of the environment.

Cultural Resources: Various historic and prehistoric artifacts includes the Big Horn Cave, which is a site of national significance. Standard Mitigation Measures: Use Minimum Impact Suppression Tactics. Utilize resource advisor and use extreme caution near historic mines, prehistoric pueblos, and other structures. Bulldozers or heavy equipment use is to be coordinated with the resource advisor. Use of retardant on wooden and stone structures is discouraged, but is permissible under extreme conditions. Fire engines should be used on established roads only. Specific FMU mitigation measures: none.

Riparian – Santa Maria, Burro Creek, Big Sandy and Francis Creek.

Forage production – Livestock grazing is authorized for public lands within this FMU.

HMA- Alamo, Big Sandy, Black Mountain

e) Communities at Risk

There are no communities located within the boundaries of FMU #14. There are communities located in adjacent FMUs. Those communities are addressed within the appropriate FMU descriptions.

2. Fire Management Objectives

The desired Fire Management Objective within the wilderness areas is to limit the number of burned acres. Fire Management Objective is to suppress all fires 90% of the time at or below 150 acres. These wilderness areas are Sonoran and Mohave Desert vegetation types and are not considered dependent or adapted to fire. Fires within this vegetation type can significantly alter vegetation composition and the ecosystem as a whole.

Wilderness Fire Guidance
Interim Guidance for Fire Suppression in Wilderness 1991, modified 2001
This plan provides interim guidance for fire suppression actions in Phoenix/Kingman Fire Management Zone wilderness areas. This plan provides guidance on special legal and administrative constraints, resource management considerations, fire suppression measures, and coordination with BLM management. This interim suppression guidance will be followed until Wilderness management plans are completed for each wilderness areas.

This interim guidance follows BLM management Policy for Management of Designated Wilderness Areas; 43 CFR Part 8560; Handbooks 8560-1; WO IM 90-221 –Revisions to the 8560 Manual Management of Designated Wilderness Areas Relating to fire Management Policy; 910 DM 1 – Wildland Fire Suppression and Management.

There are only two kinds of fire: prescribed fire and wildfire. Prescribed fire is the planned application of fire under specified conditions in a predetermined area to achieve the management objectives. Wildfire is an unplanned fire that is burning without a prescription.

Wilderness Management Plans (General Management Section).

Arrastra Mountain Wilderness 129,800 ac
The interim suppression guidance will be followed until wilderness management plans are completed for this wilderness area.

Aubrey Peak Wilderness* 15,400 ac
Aubrey Peak WMP 1997
Fire has historically been a rare occurrence in this wilderness; no fires have been documented since 1980. The Sonoran Desert shrubs which provide most of the fuels s are widely spaced. Fires which have occurred were neither large nor intense. The fire ecology is changing somewhat in the area due to the introduction and rapid increase of non-native annual grasses and forbs which increase the chance of fire starting as well as allowing for rapid spread and increased intensity. Currently, a fire in this wilderness would be suppressed as soon as possible.

Warm Springs Wilderness* 112,400 ac, Mount Nutt Wilderness* 27,600 ac, and Mount Wilson Wilderness* 23,900 ac.
Warm Springs, Mount Nutt, Mt Wilson - Black Mountain Ecosystem Management Plan and Environmental Assessment 1996

The frequency and size of wildfires has greatly increased from historic occurrences due to the presence of exotic annuals (i.e., red brome, Mediterranean grass, etc.). The native plant communities within the Black Mountain ecosystem are not adapted to frequent fire occurrences. Following fires, species diversity is typically reduced and plant palatable forage is lost.

Develop a revegetation strategy which will slow or halt the spread of fire climax plant communities that have resulted from the spread of undesirable exotic plants. Establish experimental plots to identify plant species and revegetation techniques which might prove most useful in post-fire and disturbance rehabilitation efforts.

Tres Alamos Wilderness* 8,300 ac
Tres Alamos Wilderness Management Plan (WMP) 2000

Fire
No fires larger than 100 acres have occurred within the planning area since 1980 when record keeping began. Fire potential varies from year to year depending on the amount of winter rain, vegetation and other factors. Small natural fires of less than 100 acres have occurred in the region. Although fire has not influenced the vegetative community to any great extent, there is concern that large fires could significantly change the native vegetation.

Upper Burro Creek Wilderness 27,440 ac
Upper Burro Creek Wilderness WMP Draft 2004
Several fires have occurred within the planning area since 1980 when record keeping began. Fire potential varies from year to year depending on the amount of winter rain, non-native annual vegetation and other factors. Several small natural fires of less than 100 acres have occurred in the region. Although fire has not influenced the Sonoran Desert vegetative community to any great extent, there is a concern that large fires could significantly affect the native vegetation. Plant species native to the Sonoran Desert are not fire adapted and therefore recover very slowly following a wildfire. This often results in an increase in non-native fire adapted annual species that increase the size and frequency of wild land fires. Large fires in the Sonoran Desert vegetative community were quite rare prior to the introduction of these exotic plants. Wildfires are becoming more frequent in Sonoran Desert habitats as these exotics invade new areas.

Unlike the Sonoran desert plant community, the semi-desert grassland on Goodwin Mesa is an area that benefits from periodic fire. Grasslands on Goodwin Mesa were naturally maintained by lightning-ignited wildfires that typically occurred with the onset of the summer monsoon season. Fires reduced invading woody and half-shrub plant species, while summer rains following the fire(s) allowed for native annual and perennial grasses to quickly reestablish in the burned area. The Lunch Fire burned 620 acres on Goodwin Mesa in June of 1986. Monitoring of the burned area showed a substantial increase in native grasses following the fire.

Grazing practices and fire suppression have resulted in fewer fires affecting Goodwin Mesa than what occurred in pre-settlement times. This lack of fire has led to an increase in unwanted species such as snakeweed, devil cholla, and catclaw on large portions of Goodwin Mesa. An approved plan is in place to use management-ignited fire on Goodwin Mesa to reduce invading plant species and increase native perennial grass cover.

3. Fire Management Strategies

a) Suppression

Firefighter and public safety is the first priority in all fire management strategies and suppression actions. In wilderness areas fire management strategies and tactics will be utilized that will protect and maintain the wilderness integrity, limit impacts on wilderness values and minimize any surface disturbance. Wilderness suppression objectives are to minimize acres burned, damage done to wilderness resource values by utilizing "light hands on the land" Minimum Impact Suppression Tactics. All other applicable suppression strategies are included in section III-D, Fire Management Strategies Common to All FMUs.

Health and Safety

Safety hazards to firefighters are extreme temperatures (daytime 100 to 110 degrees; nighttime temperatures range from 70 to 80 degrees and relative humidity runs 5 to 10 percent), venomous animals/insects, low level military aircraft training routes, steep terrain, etc.

Access

Access by vehicles into this FMU is only on approved cherry-stemmed roads. Depending on the fire location crews may have long hikes to reach the fire. If the field office manager cannot be contacted within a 15 minute notification window after arrival, the incident commander at the fire, the incident commander has the discretion to authorize helicopter landings in wilderness for transporting crews, use air tankers and helicopter water bucket drops.

Fire Behavior

The Sonoran and Mohave Desert is mostly barren and wildfire fuels types consists of grass, annuals and perennials with little to no brush cover. Fuels in the desert depend on heavy winter and early spring moisture or fuels that carry over from the previous year's growing season. Above-average moisture usually results in an abundance of annual fuels.

Fires in the desert usually do not go beyond the first burning period due to non continuous fuels, fuel size, terrain features such as washes and rocky outcroppings. In of heavy precipitation and where fuels are continuous fires can spread rapidly through the grass and associated material. The grass fuels are also easily influenced by change in relative humidity. A significant increase in relative humidity and a decrease in temperature can quickly slow or extinguish a fire.

Desert Fuel types are represented by NFDRS fuel model A and NFFL fuel model 1.

Suppression tactics

Suppression strategies and tactics in this fuel type are usually direct attack using hand crews, engines where possible and helicopter water drops to knock down the fire edge, patrolling and mop up. Fires in the desert usually are quickly contained in the first burning period.

Rate of spread - Low to high (depending on fuel continuity)
Flame length - Depending on wind, one to four feet
Resistance to control - low to moderate

Acceptable wildfire size is up to 300 acres at Fire Intensity Level (FIL) 1 and 150 acres for all others FIL.

FIL 1- 0-2 ft FL, FIL 2 - 2-4 ft FL, FIL 3 - 4-6 ft FL, FIL 4 - 6-8 ft FL, FIL 5 - 8-12 ft FL, FIL 6 -12 + ft FL

b) Wildland Fire Use

Wildland fire use is a viable option for the Upper Burro Creek Wilderness Area (a fire adapted grassland ecosystem). Statewide Land Use Plan Amendment Allocation 1 – Non Wildland Fire Use: Areas suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

The remaining wilderness areas are located in Sonoran and Mohave Desert ecosystems. Wildland fire use is not desired in these areas. Statewide Land Use Plan Amendment Allocation 2 – Non Wildland Fire Use: Areas not suitable for wildland fire use for resource benefit. Reference pages 13-15 of this FMP.

c) Prescribed Fire

Prescribed fire is an approved means of treatment for maintaining native grasslands within the Upper Burro Creek Wilderness Area. Prescribed fire projects are not anticipated in the other wilderness areas within this fire management unit.

d) Non-Fire Fuels Treatments

Non-fire fuels treatments are not expected for this management unit due to wilderness values and lack of significant hazard fuel concentrations. Special situations (exotic or noxious weed infestations, etc.) could result in future fuels treatment if deemed necessary by resource specialists.

e) Post Fire Restoration and Rehabilitation

Historically, suppression activities have followed “MIST” guidelines with little surface disturbance. In the event of surface disturbance, implementation of appropriate suppression damage rehabilitation will occur.

f) Community Protection/Community Assistance

Prevention and mitigation efforts for FMU #14 include public education by utilizing local media outlets, educational signing, outreach to public land-use groups, prevention patrols and contacts.

IV. Fire Management Components

A. Wildland Fire Suppression

1. Fire Planning Unit Fire History

The Phoenix/Kingman Fire Management Zone is comprised of the Phoenix Field Office and the Kingman Field Office. The zone's Fire Management Program is responsible for the protection of 4,997,839 BLM acres and 1,077,510 Barry M. Goldwater Air Force Training Range acres. Fuel types within the zone are Sonoran Desert ecosystem, grass lands, desert oak/chaparral with intermixed manzanita, desert shrub and ponderosa pine. Elevation ranges from 1000 feet in the south part of the zone to 8000 feet in the north part of the zone. Fire season usually starts in mid-March and ends early September, with an annual average of 61 BLM-action fires and a total annual average of 86 actions including assists and false alarms. About 9000 BLM acres burn annually, on the average, within the zone. Appendix G contains fire history graphs developed from the Firefamily plus software.

2. Suppression/Preparedness Actions

Based on historical analysis, the Phoenix/Kingman Fire Management Zone's length of fire season is 160 to 170 days. Phoenix/Kingman Fire Management Zone uses Appropriate Management Response (AMR) to suppress all fires in accordance with management objectives based on current conditions and fire location. Responses can vary from an aggressive initial direct action to indirect actions based on firefighter and public safety. AMR strategies will be tailored to address areas of significant constraints including wildland urban interface, wilderness, areas of critical environmental concern (ACECs), critical habitat for T&E species, and areas of other critical resource constraints.

Required fire operations/suppression plans can be found in the "Interagency Standard for Fire and Fire Aviation Operations" (Red Book) and the Office of Fire and Aviation website at http://www.fire.blm.gov/. All plans for the Phoenix/Kingman Fire Management Zone are located for fire and resource personnel use in the Phoenix and Kingman Field Offices and the Arizona Interagency Fire Center (AIFC dispatch office).

Firefighter and public safety is the first priority in all fire management and suppression actions.

The operational role of the BLM in the wildland/urban interface is wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, state, or local governments as described in the "Interagency Standards for Fire and Fire Aviation Operations." Chapter 1, Federal Fire Program Policy and Guidance Overview, under 3. Policy # L.

Agency administrators will ensure that their employees are trained, certified, and made available to participate in the wildland fire program locally, and nationally as the situation demands. This policy is outlined in the "Interagency Standards for Fire and Fire Aviation Operations." Chapter 1, Federal Fire Program Policy and Guidance Overview, under C. Elements of the Federal Wildand Fire Management Policy # 17 Agency Administrator and Employees Roles.

3. Fire Prevention, Community Education, Community Risk Assessment, and other Community Assistance Activities

a) Annual Prevention Program

The Phoenix/Kingman Fire Management Zone Fire Prevention Program strives to develop and apply efficient and effective prevention efforts to minimize unwanted human caused wildfires. The prevention program focuses on education, aimed at changing people's behavior through increasing their awareness and knowledge. This is accomplished through printed materials, mass media, personal contacts, group and school presentations, signing, events and parades.

The fire prevention program is also focused on reducing the risk from wildfire in wildland urban interface areas. A primary goal is to work collaboratively and cooperatively with communities, agencies, groups, organizations and private home owners to develop and implement citizen driven solutions for mitigating wildfire hazards and risks. The prevention, fire, and fuels staff will continue to develop cohesive partnerships with community stakeholders. Those partnerships will increase community and public awareness and help them to understand and appreciate the importance of hazardous fuel reduction and risk mitigation. Additionally, the zone fire staff is working in collaboration with the Arizona State Land Department, fire departments, counties, and other cooperators in preparing community wildfire protection plans which will establish guidelines and procedures for managing incidents with high risk or catastrophic potential.

The RAMS (Risk Assessment Mitigation Strategy) program is used to identify fire prevention activities, strategies and desired program. A RAMS fuels summary report is located in Appendix H.

b) Special Orders and Closures

During times of high fire danger, restrictions and or closures may be imposed to mitigate the risk of wildland fires. Emergency closures have a substantial impact on the public and are only used under the most sever conditions. All special orders and closures will be coordinated with local cooperators and regional agencies. The zone fire management officer will make recommendations to field office managers for the approval of restrictions and/or closures. Those restrictions and/or closures recommendations will follow the guidelines outlined in the Interagency Closures and Restriction Tool Box and will be implemented in the interest of public safety.

c) Industrial Operations and Fire Precautions

Within the Phoenix/Kingman Fire Management Zone, industrial operations are limited and have very little impact on BLM public lands as a source of wildfire ignitions. Some commercial mining operations are active. However, these operations tend to be in areas of low risk and historically have posed a minimal ignition potential.

4. Training Activities

a) Qualification and Fireline Refresher

Only qualified personnel will participate in wildland firefighting activities, prescribed fire implementation projects and support functions. A list of qualified personal, training records and annual requirements are maintained at AIFC dispatch, in accordance to the "Interagency Standard for Fire and Fire Aviation Operations" (Red Book) and bureau policy.

b) Fire Season Readiness

Preparedness reviews will be completed by May of each year as directed by the the "Interagency Standards for Fire and Aviation Operations." Established fire season on the Phoenix/Kingman Fire Management Zone varies, depending on unusually dry or wet years. On average the zone can expect the fire season to be 160 to 170 days, from mid April to mid September.

5. Detection

The zone does not maintain any lookouts during the established fire season. Daily monitoring of weather and lighting patterns may trigger zone-wide aerial recons by helicopter or fixed-wing aircraft. The zone also relies heavily on reports from the public passing through on the multiple transportation corridors within the zone.

6. Fire Weather and Fire Danger

The zone maintains and annually updates a National Fire Danger Rating Operating Plan and associated preparedness plan. The zone also initiates the calculation of daily and forecasted outputs in the Weather Information Management System (WIMS). The following weather stations are maintained by the zone as part of the NFDRS plan.

Music Mountain RAWS
Union Pass RAWS
Moss Basin RAWS
Goodwin Mesa RAWS
Stanton RAWS
Smith Peak RAWS
Sunset Point RAWS
Humbug RAWS

The NFDRS and preparedness plan can be found at the AIFC dispatch center.

7. Aviation Management

The zone has two aircraft contracts; a helicopter is located at Wickenburg, Arizona, and a single engine air tanker located at Kingman, Arizona, The Phoenix/Kingman Fire Management Zone maintains and updates annually the zone Aviation Plan. The aviation program is the responsibility of the zone FMO. In addition to fire-related aviation activities, 50 hours of

aviation flights for wild horse and burro census and additional resource programs are coordinated through the fire dispatch center and aviation manager.

8. Initial Attack

Based upon the 1998 FMP and the National Fire Plan supplement of 2000, the zones' initial attack resources are as follows:

One Single Engine Airtanker
One Helicopter
Two Heavy Engines
Two Light Engines
One Fuels Engine
One Water Tender
One Crew Buggy
One AD crew (10 person)

a. FMU Suppression Priorities

FMU suppression priorities are ranked as low, moderate or high. These rating levels identify the FMU priority setting for suppression action and will assist the fire and line manager in setting priorities for suppression actions when wildfires are occurring in multiple FMUs.

The ratings are based on an assessment of each FMU and wildland fire threat to six categories: #1 Values at Risk, #2 WUI , #3 Fire History (occurrence), #4 Fire Behavior (components: fuel types, slope, topography, spread potential, etc.), #5 Suppression Difficulty (access, resistance to control, etc.), #6 Health and Safety (considerations for the firefighter and public health and safety). The ratings are dynamic and can change yearly based on variations, i.e., increase in WUI, seasonal weather trends resulting in an increase or decrease in fuel loading. The ratings will be reviewed each year. The ratings were determined by the FMP development group that represents subject matter experts from the Phoenix and Kingman Field offices fire and resource management staffs.

Reference FMU Ranking Format for individual FMU ranking and point score.

1. PFO Desert South of Interstate 10
2. PFO Desert North of Interstate 10
3. PFO Wilderness Areas
4. PFO Bradshaws 3500' North
5. PFO Agua Fria National Monument
6. PFO Sonoran National Monument
7. KFO Desert North of Interstate 40
8. KFO Desert South of Interstate 40
9. KFO Music Mountains
10. KFO Grasslands
11. KFO Chaparral
12. Wildland Urban Interface
13. KFO Wilderness Areas, Chaparral
14. KFO Wilderness Areas

2004 - FMU Ranking Format

Not Applicable = N/A, Low = L, Moderate = M, High = H
Point score N/A = 0, L = 1, M = 2, H = 3
FMU ranking point score is determined by point total divided by six (categories)
Point Break – Low = 0 - 1.4 Moderate = 1.5 - 2.4 High = 2.5 – 3

FMU	Values at Risk	WUI	Fire History	Fire Behavior	Suppression Difficulty	Health & Safety	Ranking / Score
1	H	L	L	M	H	H	M 2.1
2	H	H	L	L	L	H	M 2.0
3	H	N/A	L	L	M	H	M 1.6
4	M	M	L	H	H	H	H 2.5
5	H	L	M	M	M	M	M 2.0
6	H	N/A	L	L	L	H	M 1.5
7	M	M	M	L	L	H	M 2.1
8	L	L	L	L	L	M	L 1.1
9	M	L	L	H	M	H	M 2.0
10	L	N/A	L	L	L	M	L 1.0
11	M	M	M	H	H	H	H 2.5
12	H	H	H	H	H	H	H 3.0
13	M	N/A	L	H	H	H	M 2.0
14	M	N/A	L	L	M	M	L 1.3

b. **Dispatch Procedures**

The Phoenix/Kingman Fire Management Zone's Arizona Interagency Fire Center dispatch office will be staffed seven days a week, or as zone activity dictates--generally between mid April and mid October. The core hours of operation will be 6 am to 8 pm daily unless fire activity warrants extended or 24-hour operation.

The zone will use WILDCAD as the resource dispatching mechanism. Dispatchers will initiate an appropriate dispatch considering location, expected fire behavior, fuels, time of day, time of year and availability of resources. The duty officer will coordinate with the center for adjustments to the initial attack response. Additional resources may be moved up, as the situation requires. The "appropriate closest resource concept" will be the guiding principle in all zone dispatch operations. The initial attack incident commander has the responsibility to assess the situation and adjust the type and quantity of resources being dispatched. When in high to extreme fire danger or when zone resources are not available, state and local cooperators will be ordered as needed. Additional resources can also be ordered from adjacent federal, state or local cooperators while in the initial attack phase of the fire, and from the Southwestern geographic area for extended attack fires.

As a minimum, at least one qualified incident commander will be dispatched to each wildland fire. A minimum of one engine and the zone helicopter, if on contract, will be dispatched to each fire report. If the fire is suspected to be human caused, a law enforcement officer will be dispatched.

c. Criteria for the Appropriate Initial Attack Response

The intensity of initial attack and the priority between competing incidents will vary based on the following considerations:

- ✓ Threats to human life
- ✓ Threats to high value private property and natural resources
- ✓ Fuel type
- ✓ Predicted fire behavior
- ✓ Natural resource and fire management objectives

9. Extended Attack and Large Fire Suppression

Generally fires that exceed the ability of local resources to reach containment within the first operational period should be referred to as extended attack incidents. A type-3 suppression organization will manage all extended attack fires until transitioning from extended attack to atype-1 or type-2 Incident Management Team. The complexity analysis identified in the Standards for Fire and Aviation Operations will be used to determine the appropriate fire management level. A Wildland Fire Situation Analysis (WFSA) will be done to evaluate suppression responses to wildland fires that have exceeded initial attack response or exceeded planned management capability.

The zone has a need to develop and maintain a minimum of two type-3 organizations. The staffing of these type-3 organizations should consist of fire and non-fire employees within the zone. In order to meet this objective the zone must invest in overhead development to train and staff these teams.

10. Other Fire Suppression Considerations

FMU specific special considerations are identified and discussed in individual FMU descriptions, Chapter III, section D. part 3.a.

B. Wildland Fire Use

1. Wildland Fire Use Areas

There are no wildland fire use areas within the PKFMZ. Several areas have been identified as potential wildland fire use areas. These areas may be analyzed for wildland fire use at a future date. Areas that may be considered for wildland fire use include:

In the Phoenix Field Office: Agua Fria National Monument (FMU 5),
Portions of the Weaver and Bradshaw mountains (FMU 4)

In the Kingman Field Office: Mount Tipton and Wabayuma wilderness areas (FMU13)
Portions of the Music Mountains (FMU 9)
Goodwin Mesa (FMU 10)
Portions of the Hualapai, Cerbat, and Aquarius mountains (FMU 11)
Upper Burro Creek Wilderness Area (FMU 14)

2. Preplanned Implementation Procedures

Development of wildland fire use areas in the PKFMZ would require development of an approved wildland fire use plan. The wildland fire use plan would outline required implementation procedures for all wildland fire use fires. Wildland fire use plans would address the following criteria: initial actions procedures, required personnel, public information, prescribed conditions, planning and documentation.

C. Prescribed Fire

1. Planning and Documentation

Appropriate NEPA analysis and documentation will be conducted for all proposed fuels management projects. Fuels and fire staff will coordinate closely with resource staff specialists, agency cooperators, and affected public during project planning and development. All prescribed fire projects will have approved NEPA documentation and an approved burn plan prior to implementation. Each project will have a NEPA file and a project file. The NEPA file will contain original signed copies of all NEPA documents and all related correspondence. The project file will contain the burn plan, maps, smoke modeling and ADEQ forms, copies of the signed NEPA decision record, burn boss report(s), financial records, and monitoring information.

Prescribed burning is conducted throughout the year. Broadcast burning of interior chaparral and ponderosa pine is typically conducted from fall through winter. Broadcast burning of grasslands and pinyon/juniper stands is conducted from late spring through summer. Pile burning may be conducted at any time in some locations, though most burning occurs during the winter to reduce the risk of escape fire. The RAMS program created for the PKFMZ maintains a list of proposed fuels treatment projects for a minimum of three years beyond the current fiscal year. This program will be updated annually to insure that fuels treatment projects are identified for out-years. It is anticipated that the PKFMZ will conduct prescribed burning on 6000 to 11,000 acres of public land annually, based on current out-year planning. Priorities for projects are determined based on the following criteria:

1) Fuels reduction near federally listed communities at risk from wildfire.
2) Fuels reduction around other communities of interest.
3) Treatment of FRCC3 lands.
4) Treatment of FRCC2 lands.
5) Maintenance of FRCC1 lands.

a) Prescribed Fire Summary

FY	PLANNING	IMPLEMENT	MONITOR	TOTAL	ACRES
2005	$33,110	$486,310	$6,850	$519,420	9,460
2006	$37,900	$485,770	$6,100	$523,670	12,255
2007	$33,720	$433,655	$5,950	$467,375	11,830

Fiscal Year Totals: (RAMS report)

FY 2005:

Planning $33,110
Implementation $476,110
Other Project Costs $10,200
Monitoring $6850
Other Expenses $5000
Total Costs $519,420
Total Acres 9,460
Implementation & Other Project Cost Per Acre $51

FY 2006:

Planning $37,900
Implementation $482,770
Other Project Costs $3,000
Monitoring $6100
Other Expenses $5000
Total Costs $523,670
Total Acres 12,175
Implementation & Other Project Cost Per Acre $40

FY 2007:

Planning $33,720
Implementation $430,855
Other Project Costs $2,800
Monitoring $5950
Other Expenses $5000
Total Costs $467,375
Total Acres 11,805
Implementation & Other Project Cost Per Acre $37

Refer to Appendix J for summary of fuels projects for 2005-2007.

(1) Contractor Projects

Opportunities for contractors to manage and implement fuels treatments by prescribed fire are currently limited due to the availability and lack of expertise of contractors within the local area. Contract crews and or equipment may be utilized to supplement federal resources during

prescribed fire implementation. Implementation of non-fire fuels treatments may be conducted by contracting non-federal resources.

Contract resources are currently being used for mechanical thinning and chipping projects in both the Kingman and Phoenix field offices.

(2) Acres treated in FRCC2 moved to FRCC1

Approximately 7000 acres will be moved from FRCC2 to FRCC1 in 2004. The majority of these acres are accomplished through broadcast burning of chaparral and grassland sites. Additional condition class improvements have been accomplished mechanically through juniper thinning and pile burning in grassland sites that currently have an unnatural occurrence of juniper and other woody plant species. Future treatment of FRCC2 areas is expected to remain fairly consistent with the treatment accomplished in 2004.

(3) Acres treated in FRCC3 moved to CC 2 or 1

Approximately 90 acres will be adjusted from FRCC3 to FRCC2 or FRCC1 in 2004. These acres will be accomplished through mechanical and prescribed fire treatment in chaparral and ponderosa pine habitat in the Hualapai Mountains. Future treatment of FRCC3 areas will increase if current consultation efforts with the U.S. Fish and Wildlife Service result in the ability to treat additional ponderosa pine and chaparral habitat in the Hualapai Mountains.

Initial fuels treatments may not result in changing a condition class. Multiple treatments may be required to alter the condition class. For example, a mechanical thinning and piling of juniper may not alter condition class until prescribed burning is used to remove the piled vegetation. For this reason, annual acres reported for condition class change will generally be less than annual fuels treatment acres.

b) Fuels Personnel

Current fuels organization is identified in section V, below. All personnel utilized for fuels management projects will be qualified with currency for their respected positions to NWCG standards.

c) Monitoring

Monitoring of fuels management projects will occur as outlined in the PKFMZ Monitoring Plan. This plan provides minimum guidelines for pre-burn, post burn, and burn day weather, smoke, and vegetation monitoring. More project specific monitoring procedures may be established to document success in meeting project specific objectives. Fuels management staff is responsible for conducting fire effects monitoring for one calendar year after treatment to document first order fire effects. On complex fuels treatments within the zone monitoring is being conducted for a longer period of time to insure that success in meeting project objectives is achieved.

d) Map

Specific project maps are maintained as part of the project file for each completed fuels project. Post treatment maps include mapping of treated areas within planned perimeter. A fuel treatment zone map for the PKFMZ is maintained with the RAMS program.

2. Air Quality and Smoke Management

a) Class 1 Air shed and clean air corridors

No Class 1 Airsheds occur within the Phoenix or Kingman field office boundaries. Grand Canyon National Park (Class 1 Airshed) is located approximately 20 miles northeast of the Kingman Field Office boundary. The Pine Mountain and Castle Creek wilderness areas (located in the Tonto and Prescott National Forests) are also designated Class 1 Airsheds. All wilderness areas within the Phoenix and Kingman field office boundaries are classified as Class 2 Airsheds. Appropriate measures are taken to minimize impacts to these areas, though air quality standards for Class 2 areas are less stringent than with Class 1 Airsheds.

b) Smoke Sensitive areas

Bullhead City (western Mohave County) and Maricopa County are classified as PM10 non-attainment areas. Bullhead City is not expected to be impacted by any fuels management projects or wildfires on KFO lands. Future fuels management projects in or near Maricopa County may be impacted by PM10 regulations.

c) Local / Regional Smoke Management Restrictions / Procedures

Smoke Management Policy and Procedure is regulated by the Arizona Department of Environmental Quality (ADEQ). Regulations are enforced by ADEQ to meet all national and regional air quality standards. All prescribed fires conducted in the PKFMZ must be approved by ADEQ. Approval is contingent on annual burn registration, burn plan approval, and approval of daily burn requests. Smoke modeling and mapping is required for most prescribed fire projects.

d) Non-Fire Fuel Treatments

Mechanical, biological, and chemical fuel treatments may be utilized where prescribed fire is not a safe or viable means of treatment. Mechanical treatment of hazard fuel accumulations has been conducted in several WUI communities within the zone. All fuels treatments require field manager approved NEPA analysis and decision prior to implementation. No chemical or biological treatments have been identified for this planning period.

e) Emergency Stabilization and Rehabilitation

An interim Emergency Stabilization and Rehabilitation Handbook is available and provides operational guidance for emergency stabilization and rehabilitation. It includes a common cost-effectiveness analysis for evaluating proposed actions, a standard project accomplishment report format, and a mechanism for archiving and broadly disseminating the results of monitoring

treatment effectiveness. Additional Departmental guidance and procedures are contained in 620 DM 3.

The Phoenix/Kingman Fire Management Zone has had one fire rehabilitation project over the last 20 years. The Phoenix and Kingman field offices do not have a Normal Fire Rehabilitation Plan. This is because the infrequent nature of landscape wide wildfires and the vegetative types and topography do not require emergency rehabilitation actions. If emergency stabilization and rehabilitation is needed, an interdisciplinary burned area rehabilitation team would be formed, and plans would be developed at that time. Specific Emergency Stabilization and Rehabilitation actions may be considered on a case-by-case basis depending on the severity of the burn, vegetation type, and resource values at risk.

f) Community Protection / Community Assistance

1. Mission - The Phoenix/Kingman Zone Wildfire Prevention Program is a critical element of the Zone's Fire Management Program. The prevention program is directed towards preventing unwanted human ignitions and it assists in reducing the risk to urban interface areas so to minimize the potential for catastrophic loss and damage.

(a) Values - The number of urban interface communities are increasing within the Fire Planning Unit. Values to be protected are community infrastructure and developments.

(b) Risk (ignitions) - Risks are defined as human activities which have a potential to result in an unwanted wildfire ignition. Even though lightning cannot be prevented; the potential for lightning ignitions can be reduced by removing excess amounts of dead trees in urban interface areas. Unwanted human caused ignitions come from a variety of sources which include the following; power equipment, service contracts, maintenance projects, construction projects, power lines, mining, agricultural/ranching, railroads, recreation areas, campfires/barbeques, OHV/motorized use, hunters, party areas, hikers, camps/resorts, commercial operations, schools, transportation corridors, fireworks, shooting, children with matches, transients, incendiary devices, electronic sites, debris burning, dumps, woodcutting, cultural activities, drug labs and military training. It is important to note that threats from wildfire may come from ignitions that start inside or outside an urban interface area.

C. Hazards (fuels) - Hazards are defined as the fuels and topography of an area where dangerous fuel load conditions or dangerous fire potential may be present. The hazards criteria are defined as low, medium and high potentials.

Annual Grass, Low Desert (sparse fuels)	Low
Annual Grass, Low Desert slope <30%	Medium
Desert Shrubs, slope <30%	Medium
Perennial Grass, slope <30%	Medium
Brush/Riparian, slope <30%	Medium
Perennial Grass, slope >30%	High
Desert Shrubs, slope >30%	High
Brush/Riparian, slope >30%	High
Chaparral	High

Light, flashy grass-type fuels are the primary carriers for fire within the zone. The fuel's volume and continuity can change in a very short period of time due to an increase or decrease in annual precipitation. Periods following above-average precipitation can dramatically increase the fuel load which can increase the fuel hazard to urban interface areas considerably. Periods of drought will likely cause a decrease in new vegetation growth but the older fuel may take years to diminish and disappear.

Some urban interface areas within the zone are exposed to dense, continuous stands of chaparral. The fire regime and return interval of chaparral vegetation historically results in conditions that allow for fire to occur irrespective of varying amounts of precipitation. Therefore the potential threat to those interface areas remains consistent.

2. Priority Areas – Priority areas are determined by utilizing previous community assessments and continually assessing urban interface areas throughout the zone. Priority areas will begin with those areas identified as having the greatest risk. Working with urban interface areas will then proceed from high-risk areas to low-risk areas.

3. Plan - The most effective mitigation actions are public education, public contacts, signing, patrolling, developing collaborative working relationships with communities and groups and hazardous fuel reduction. Developing strong partnerships with community stakeholders is key to mitigating wildfire risks and keeping those risks to minimal levels. Developing plans and projects with citizen driven solutions to reduce hazardous conditions is a critical and an important part in implementing the National Fire Plan.

4. Strategies – The necessary funding required to implement the most effective Prevention, Education and Mitigation Program is listed on the cost spread sheet provided in this document. Adequate funding will provide the needed dollars to meet the goals and objectives outlined in this FMP and also identified in the "Risk Assessment and Mitigation Strategies" (RAMS) program that was completed for the Phoenix/Kingman Fire Management Zone.

5. Rural Fire Assistance (RFA) - The zone fire prevention officers will assist communities in applying for and implementing fire assistance grants. RFA and other grants will greatly increase the opportunity to get projects completed, provide needed equipment and expedite the process of reducing risks.

There are three communities; Pine Lakes, Pinyon Pine and Mayer, within the FPU that are listed in the Federal Register as communities at risk. None of these communities has completed a Community Risk and Action Plan. The communities have held several public meetings to address the WUI situation but fully collaborative planning efforts have not yet begun. Appendix J contains a RAMS report listing WUI communities and their respective risk ratings. Through the RAMS assessment, action plans and fuel treatments will be developed and implemented over the next three to seven years.

A hazard mitigation plan has been completed for the communities of Pine Lakes and Black Canyon City. Full implementation of projects to reduce the risk to priority communities should be completed by FY 2009.

The Rural Fire Assistance Program was a new initiative in 2001 under National Fire Plan. The Rural Fire Assistance Program improves the local fire capability by assisting rural fire departments in meeting basic needs for wildland fire equipment, training, organization and prevention activities. Of greater importance, the safety of both rural and federal firefighters is enhanced when local departments are fully equipped with proper wildland safety equipment, updated radios, well-rounded training curriculum, and other essential tools for wildland firefighting.

BLM has built the Rural Fire Assistance program around interagency cooperation and collaboration with the state, local fire departments, and other federal wildland agencies.

Through collaboration, a one stop process has been established for both Department of Agriculture and Department of Interior Rural Fire Assistance grants. One application is sent out and made available on the web to fire departments.

- An interagency panel made up of federal, state, state fire marshal and rural fire district association representatives review and make selections for grants.
- BLM established an agreement with Arizona State Land Department to collectively manage the award of RFA grants. Arizona State Lands Department administers the grants for the BLM.
- This provides needed funding to ASLD, reduces BLM's workload and ensures funding for grants are carried out.

Arizona BLM has averaged 35 grant awards per year to rural fire departments. About 12 rural fire departments within the PKFZ have received RFA grants each year. To date, Arizona BLM has awarded $1.9 million to fire departments.

V. Budget and Organization

a) Budget and Organization

The Program Labor Plan for the Phoenix/Kingman Zone is shown in the tables below and was developed in accordance with the statewide and field office Workforce Plan. Personnel who are funded for the entire year through fire/fuels program dollars are considered base staff.

Base funding is allocated annually to the pre-suppression (2810), hazardous fuels – wildland (2823), and WUI (2824) sub-activity management codes. Project-funded personnel are staff positions which receive fire/fuels funding for part of the work year. This level of funding for fire/fuels projects is required for specific project planning and implementation and is measured in work months. The tables below outline current and necessary future positions to accomplish the mission of the Fire Management Program. Full budget will be determined in the

FPA process. Appendix A reflects the Peak Fire Organization per IM OF&A No. 2004-028. Appendix B reflects the desired future organization. The fire organization will be determined by FPA, scheduled for release in October 2004 to be completed by Fiscal Year 2007.

Budget and Organization

Resource	Current Staffing 98 FMP + NFP	Desired Staffing *Based on the outcome of FPA	Normal Activation	Sub-activity	Cost Desired Staffing 98 FMP + NFP 2004 planned WM cost inflated at 5% equals 2005 WMC	Cost Based on the outcome of FPA
FMO	1 PFT	1 PFT	Yearly	2810	100,740	TBD
AFMO PFO	1 PFT	1 PFT	Yearly	2810	84,336	TBD
AFMO KFO	1 PFT	1 PFT	Yearly	2810	84,336	TBD
Dispatch						
Dispatch Coordinator (AIFC)	1 PFT	1 PFT	Yearly	2810/2824/ 2823/MLR	71,760	TBD
Lead Dispatcher (AIFC)	1 PFT	1 PFT	Yearly	2810/2824/ 2823/MLR	55,320	TBD
Dispatcher (AIFC)	1 PFT	1 PFT	Yearly	2810/2824/ 2823/MLR	50,556	TBD
Dispatcher (AIFC)	1 TEMP	1 TEMP	May-Sept	2810	12,720	TBD
CWZ Zone Lead Dispatcher	1 PFT	1 PFT	Yearly	2810/2830	55,320	TBD
Helitack						
Helitack Lead	1 PFT	1 PFT	Yearly	2810/2824/ 2823/MLR	71,760	TBD
Helitack assistant	1 PFT	1 PFT	Yearly	2810/2824/ 2823/MLR	61,260	TBD
Helitack Leadcrew	1 CSLT	1 CSLT	Yearly**	2810/2824/ 2823/MLR	50,710	TBD
Helitack crew	6 TEMPS	6 TEMPS	Mar-Sept	2810	93,696	TBD
Heavy Engine PFO						
Engine Lead	1 PFT	1 PFT	Yearly	2810/2824/ 2823/MLR	55,320	TBD
Engine Operator	1 CSLT	1 CSLT	Yearly**	2810/2824/ 2823/MLR	46,343	TBD
FFTR	5 TEMPS	5 TEMPS	Mar-Sept	2810	78,384	TBD
Heavy Engine KFO						
Engine Lead	1 PFT		Yearly	2810/2824/ 2823/MLR	55,320	TBD
Engine Operator	1 CSLT	1 CSLT	Yearly**	2810/2824/ 2823/MLR	46,343	TBD
FFTR	5 TEMP	5 TEMP	Mar-Sept	2810	78,384	TBD

Resource	Current Staffing 98 FMP + NFP	Desired Staffing *Based on the outcome of FPA	Normal Activation	Sub-activity	Cost Desired Staffing 98 FMP + NFP 2004 planned WM cost inflated at 5% equals 2005 WMC	Cost Based on the outcome of FPA
Light Engine PFO						
Engine Lead	1 PFT	1 PFT	Yearly	2810/2824/ 2823/MLR	55,320	TBD
Engine Operator	1 CSLT	1 CSLT	Yearly**	2810/2824/ 2823/MLR	46,343	TBD
FFTR	3 TEMP	3 TEMP	Mar-Sept	2810	63,072	TBD
Light Engine KFO						
Engine Lead	1 PFT	1 PFT	Yearly	2810/2824/ 2823/MLR	55,320	TBD
Engine Operator	1 CSLT	1 CSLT	Yearly**	2810/2824/ 2823/MLR	46,343	TBD
FFTR	3 TEMP	3 TEMP	Mar-Sept	2810	63,072	TBD
Water Tender Op	1 TEMP	1 CSLT	Mar-Sept	2810	15,312	TBD
SEAT Manager	1 CSLT	1 CSLT	Mar-Sept	2810	32,270	TBD
EFF Handcrew						
EFF Crew Boss	1 PFT	1 PFT	Yearly	2810/2824/ 2823/MLR	61,260	TBD
FFTR-GS (FFT1)	0 PFT	3 PFT	Mar-Sept	2810	0	TBD
FFTR - AD	10 AD	16AD	May-Aug	2810	19,836	TBD
Fuels Specialist	1 PFT	1 PFT	Yearly	2824/2823	84,336	TBD
Fuels Technician	1 PFT	2 PFT	Yearly	2824/2823	71,760	TBD
Mitigation KFO	1 PFT	1 PFT Change to Mitigation Spec GS 9	Yearly	2824	55,320	TBD
Mitigation PFO	1 PFT	1 PFT Change to Mitigation Spec GS 9	Yearly	2824	55,320	TBD
FUELS NEPA	1 PFT	1 PFT	Yearly	2823/2824	84,336	TBD
FUELS ARCH	1 PFT	1 PFT	Yearly	2823/2824	84,336	TBD
FUELS BIO	1 PFT	1 PFT	Yearly	2823/2824	84,336	TBD

Resource	Current Staffing 98 FMP + NFP	Desired Staffing *Based on the outcome of FPA	Normal Activation	Subactivity	Cost Desired Staffing 98 FMP + NFP	Cost Based on the outcome of FPA
Fuels Module/ Fire Use Module						
Fuels / Fire Use Module Lead	1 PFT	1 PFT	Yearly	2823/2824	55,320	TBD
Fuels / Fire Use Module Assistant	1 CSLT	1 CSLT	Yearly**	2823/2824	46,343	TBD
Fuels / Fire Use Module crew	4 TEMP	4 TEMP	Sept-Mar	2823/2824	61,248	TBD

* Proposed TBD by FPA and Workforce Plan
** CSLT personnel are employed 6 work months in fire/fuels and up to 11.5 work months based on additional workload identified in the AWP.

Annually no more than 10% of the pre-suppression allocation is held for administrative support. Historically a percentage of these dollars are distributed to the field for admin support of fire and fuels at the field office level. These funds and operational dollars have been utilized since 2000 to fund an administrative support position primarily for fire at the Phoenix Field Office which provides that support to both the Phoenix and Kingman fire and fuels staff. Due to the large amount of administrative support required by the fire staff it is essential to continue this funding as indicated for the position below.

Fire Admin Specialist **(Under 10% Admin)**	1 PFT	1 PFT	Yearly	2810/2823/ 2824	55,320	TBD

Operational Costs

Phoenix / Kingman Zone Operations Summary				
Description	**Comments**	**2810**	**2823**	**2824**
Travel		70,000	24,000	26,000
Vehicles		100,000	40,000	40,000
Contracts / Lease	Kingman Airport Lease	7,000		
SEAT (Held at the National Office)	70 days @ $1200	84,000		
Helicopter (Held at the National Office)	120 days @ $1200	144,000		
Utilities	Kingman Aviation Facility and Wickenburg Fire Station	20,000		
Facilities Maintenance (2813 deferred Maintenance)		20,000		
Supplies and Materials		40,000	17,000	17,000
Equipment		30,000	4,000	4,000
Phones		10,000	2,000	2,000
Proficiency flights and training		6,000		
Fuels Projects	Fuels projects are projected average cost and acres treated for years 2005, 2005, 2007. Fuels projects estimates include all additional labor cost, travel, overtime, other support vehicle mileage and contracts. App. Acres – 2823 = 6,500 2824 = 4,350		240,000	260,000

b). Assistance Agreements and Intra/Interagency Agreements

Cooperation and coordination between other federal and state fire agencies is vital in attaining fire management program objectives. The PKFMZ is a cooperative party and participates in the following local agreements.

Joint Powers Agreement

The Joint Powers Agreement between the state of Arizona and various federal agencies. This agreement provides mutual wildland fire suppression assistance and cooperation between the state forester, as the agent of all cooperating state agencies, and federal fire agencies.

Joint Powers Operating Agreement

This plan, updated yearly, establishes SLD fiscal operational procedures, including suppression billings, methods and contracts.

Arizona Interagency Fire Center Line Management Oversite Board Charter

It provides the authority from the BLM Phoenix and Kingman field office managers and the ASLD Fire Management division director to establish an Interagency Fire Dispatch Center. It establishes general policy and direction for an operations group.

Central West Interagency Zone Memorandum of Understanding

This agreement allows for the interagency management and operation of fire management activities among Central West Zone fire agencies. These agencies are the Bureau of Land Management – (Phoenix, Kingman, Yuma, Lake Havasu field offices), Tonto National Forest, Prescott National Forest, National Park Service Southern Arizona Group, the Bureau of Indian Affairs (Pima, Salt River, Fort Yuma, Colorado River, Agencies), Western Regional Office, USFWS Bill Williams National Wildlife Refuge, Cibola National Wildlife Refuge, Havasu National Wildlife Refuge, Imperial National Wildlife Refuge, Kofa National Wildlife Refuge and the Arizona State Land Department Fire Management Division - Phoenix District.

Central West Zone Annual Operating Plan

This plan, updated yearly, establishes operational procedures and guidelines to facilitate the fire management program of all participating agencies.

Central West Zone DOI Dispatcher Agreement

This is an interagency agreement between the BLM, BIA and NPS to provide a PFT DOI dispatcher at the Central West Zone Dispatch Center.

Phoenix District BLM and Barry M.Goldwater Air Force Range Memorandum of Understanding

On October 14, 1990, the BLM Phoenix District entered into a MOU with the U.S. Air Force for natural resource management of 1,089,000 acres of public lands withdrawn by the Air Force for military use. Regarding fire management, the BLM shall suppress wildfires resulting from non-military uses on the bombing range and provide assistance in suppressing fires resulting from military use of the range upon request from the Air Force. The Air Force shall transfer funds, as appropriate, to the BLM as compensation for such assistance. The BLM and Air Force are currently reviewing and revising the MOU and Operation Plan.

Mohave County Hualapai Mountains Contingency Fire Plan

This is a joint effort of the BLM, Arizona State Land Department Fire Management Division Flagstaff, Arizona Department of Public Safety, Mohave County Office of Emergency Services, Mohave County Sheriff, Mohave County Parks, Pine Lake, Pinion Pine Fire Departments. The purpose of the plan is to allow for cooperative assistance among the BLM and county and state agencies in the event a wildfire threatens life and/or property in the Hualapai Mountains, the communities of Pine Lake Estates, Pinion Pine Estates, Atherton Acres or Cedar Hills Ranch, Hualapai Mountain County Park facilities or the Hualapai Mountain Boy and Girl Scout Camps.

BLM Kingman Field Office and Pine Lake Fire Department MOU

This agreement allows for the BLM to utilize the facilities of the Pine Lake Fire Department. The purpose of using these facilities would be for fire management activities, such as pre-positioning fire crews during the day for initial attack, prevention patrols, etc. Utilizing these fire department facilities reduces the response time for BLM initial attack resources to the north half of the Hualapai Mountains which is identified as a high-risk area for wildfires.

MOU between Arizona and Montana BLM

This MOU establishes management guidelines to be used for the sharing of an exclusive use contract type-3 (light) helicopter between the Phoenix/Kingman Fire Zone and Lewistown Field Office. The BLM National Office and Office of Aircraft Services provides a 130-day exclusive use type-3 helicopter contract beginning on May 1 in Phoenix and ending on September 7 in Lewistown. This MOU is currently being analyzed for efficiencies and cost effectiveness.

MOU between Arizona and The Nature Conservancy

This MOU establishes the framework of cooperation and coordination between the BLM and NTC in Arizona concerning (a) management of public lands of mutual interest to both parties, including conservation and protection of resource values and maintenance and restoration of biological diversity, and (b) identifying, evaluating and protecting private lands that have exceptional natural resource values by placing in public ownership or other appropriate status.

c. Equipment Rental Agreements (ERAs)

The PKFMZ has access to ERAs through the Arizona Interagency Fire Center (AIFC). At the AIFC, BLM and ASLD ERAs are utilized by each agency. ERAs are used for rental of equipment (i.e., dozers, water tenders, engines etc). ERAs are used by the ASLD through cooperative agreements with local fire departments to respond to wildland fires in conjunction with BLM and other federal resources. The Resource Ordering Status System (ROSS) can also be used to utilize other agencies' ERAs.

d. Contract Suppression and Prescribed Fire Resources

The PKFMZ contract suppression resources are a helicopter and SEAT. The helicopter (130-day contract shared between Arizona and Montana) is located at Wickenburg and one single engine air tanker (70-day contract) is located at Kingman. No other fire suppression resources are contracted. Offices of Aircraft Services Rental Agreements are utilized to supplement helicopter resources.

An example of a prescribed fire contract resources utilized for prescribed burns are helicopters. Offices of Aircraft Service (OAS) rental agreements are utilized to order helicopter resources outside of the contract period. The helicopter is used for aerial reconnaissance and firing (helitorch and plastic sphere dispenser (PSD). Indefinite quantity/indefinite delivery contracts

are utilized for mechanical treatments where applicable. No other prescribed fire resources are contracted.

VI. Monitoring and Evaluation

Monitoring and evaluating of the fire program will occur to determine if the program and associated projects are meeting the various resource plans directions and to determine if the costs of implementing the fire program and management effects are occurring as predicted.

Monitoring related to wildland fire or fire-related projects falls under the general monitoring and evaluation guidelines outlined in the Resource Management Plan. Site specific monitoring needs are identified in analysis for individual fire-related projects. Project-level plans will be evaluated to ensure that the treatments/actions meet the resource objectives for the project.

FMPs describe fire management forces, equipment, and support and administrative personnel and associated budgets needed to manage the fire program. FMPs do not make new decisions or Land Use Allocations and do not qualify as documents constituting discretionary Federal actions. Whenever implementation level plans (fuels management plans, fire use plans, etc.) are prepared additional environmental analysis and documentation would be required. Environmental analysis of site-specific projects at the watershed or FPA-wide programmatic level may analyze multiple fire management projects. Section 7 consultation for multiple projects planned over a three- to five-year period would be batched together or done on a case-by-case basis. Appendix I contains a list of conversation measures. Section 106 cultural consultation will be implemented according to IB 2004-112.

The PKFMP is a working reference for wildland fire management and hazardous fuels treatments within the Phoenix and Kingman Field Offices. It will be reviewed annually and revised as needed to ensure that the strategic guidance provided in the plan is assisting the Phoenix and Kingman Field Offices in meeting its resource management and fire management goals and objectives incorporated into the FMP.

Any major changes may require amending the FMP. The review will also ensure that the fire program is being implemented in a safe, cost effective manner and as directed in this fire management plan. As national wildland fire performance measures are issued, monitoring and evaluation protocols will be developed to meet those requirements and follow department and bureau guidelines.

VII. Appendices

Appendix A. 2004 Peak Fire Organization

Bureau of Land Management Implemented Fire Resources - Attachment 1
Office:

Resources	Quantity	Number of Personnel	Total Work Months
Number of Engines:	4	16	112
Number of Water tenders:	1	0	0
Number of Dozers:	0	0	0
Number of Tractors / plows:	0	0	0
Number of Fire Boats:	0	0	0
Number of Type 1 Crews:	0	0	0
Number of Helitack Crews:	1	7	55
Number of Fuels Crews:	1	5	38 (2823/2824)
Number of Type 2 Crews sponsored:	1		22
Number of Smokejumpers (AK & NIFC only):	0		0
Number of Fire Management Officers:	1		12
Number of Assistant FMOs / FCOs:	2		24
Number of Fire Operations Specialists:	0		0
Number of Dispatchers:	4		31
Number of Other Aviation Staff (Aviation Mgr., Seat Mgr, etc.):	1		6
Number of Mitigation/Education/Prevention Specialists / Techs:	2		24 (2824)
Number of Resource Specialists:	3		36 (2823/2824)
Number of Fuels Specialists:	2		24 (2823/2824)
Number of Other Fire Staff:	1		12 (2810/2823/2824)
Number of PFT funded by Preparedness:	11		
Number of Career Seasonals funded by Preparedness:	6		
Number of Temporaries funded by Preparedness:	13		
Number of PFT funded by Fuels:	8		
Number of Career Seasonals funded by Fuels:	1		
Number of Temporaries funded by Fuels:	3		

* In completing this table, only include Preparedness resource numbers funded by Fire Preparedness (2810) and reflect the peak fire organization resources for the year. Do not include resources funded under severity. The fuels related resources numbers are to include the resource funded by the non-WUI (2823) and WUI (2824) programs.

Appendix B. Desired Future Organization and Budget

The future fire organization will be determined by FPA, scheduled for release in October 2004. This will determine the desired organization for suppression by Fiscal Year 2007, the additional positions indicated below are proposed based on the outcome of FPA. The aviation manager position was proposed in the 2001 and 1998 National Review of the Phoenix/Kingman Zone based on the complexities of the aviation program across fire, wild horse and burro, and resource use and protection. The fire operations specialist is proposed to provide supervision and oversight at the Wickenburg Fire Station as well as providing for additional type-3 incident commanders for fireline supervision.

2 Type 6 Engines New **1 KFO, 1PFO**	0 PFT 0 CSLT 0 TEMPS	2 PFT 2 CSLT 8 TEMPS	Yearly Yearly** Mar-Sept	2810/2823/ 2824/MLR 2810 Temps	0	TBD
Aviation Manager	0 PFT	1 PFT	Yearly		0	TBD
Fire Operation Spec	0 PFT	2 PFT	Yearly		0	TBD

Appendix C. Applicable Land Use Planning Documents

Plans Referenced

Kingman

Cerbat Black Mountain Final EIS 1978
Black Mountain Ecosystem Management Plan and Environmental Assessment 1996
Kingman Resource management Plan 1995
Hualapuai Aquarius Final Grazing EIS 1981

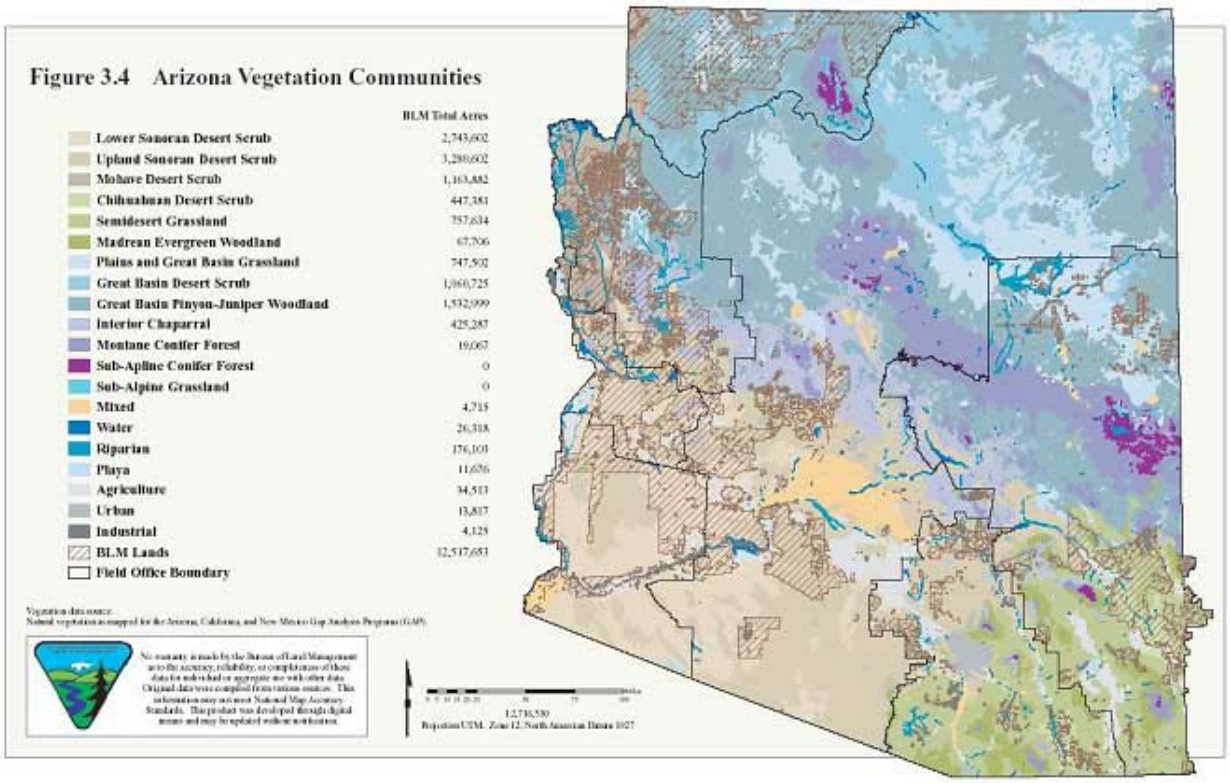
Aubery Peak Wilderness Management Plan 1987
Wabayuma Peak and Mt. Tipton Wilderness Management Plan 1995
Warm Springs Wilderness Management Plan 1996
Tres Alamos Wilderness Management Plan 2000
Upper Burro Creek Wilderness Management Plan Draft 2004

Phoenix

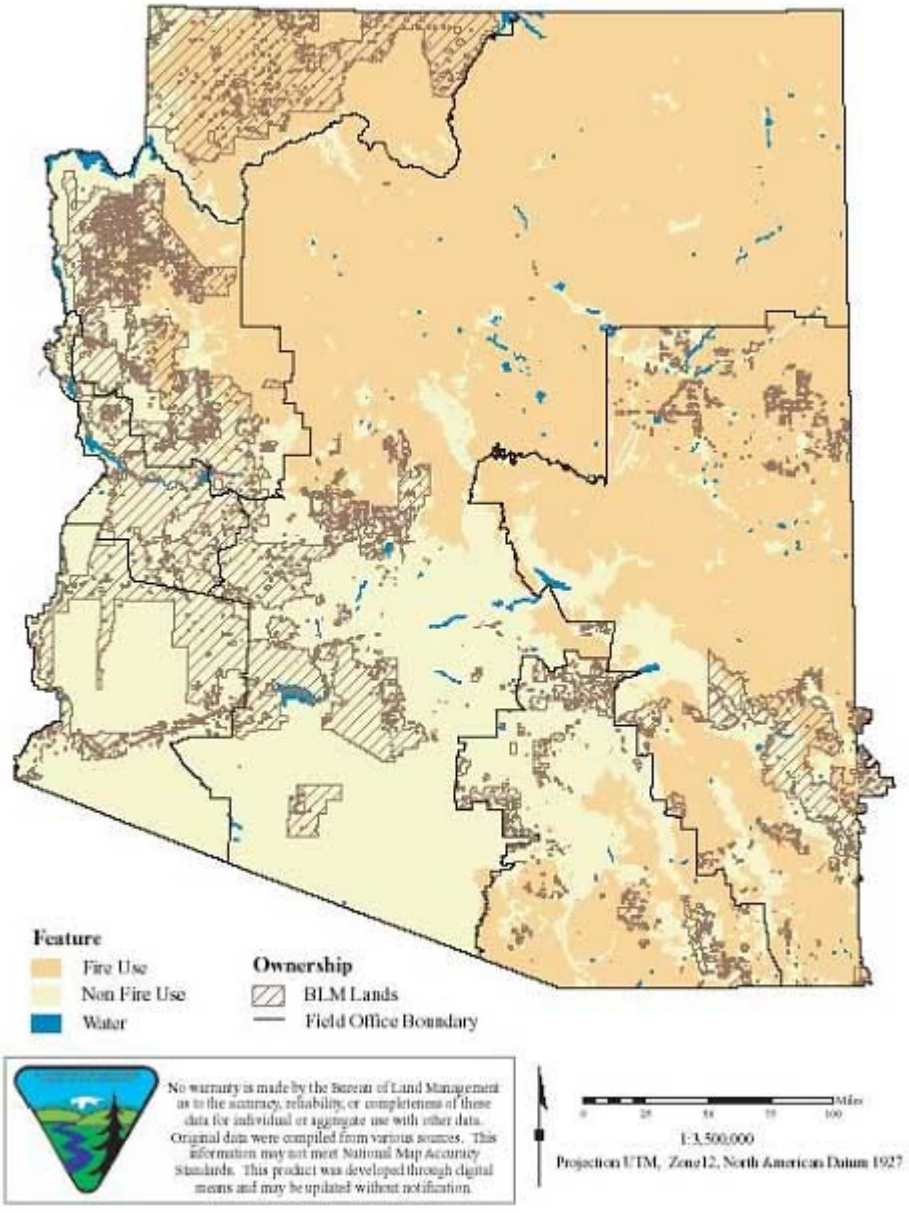
Phoenix RMP 1988
Lower Gila South RMP 1985
Hells Canyon Wilderness Management Plan 1995
Hassayampa River Canyon Wilderness Management Plan 1996
Woolsey Peak Wilderness and Signal Peak Mountain Wilderness
Management Plan 2003
Maricopa Complex Wilderness Management Plan 1995
Phoenix District Interim Guidance For Fire Suppression in Wilderness 1991
Modification to Interim Guidance For Wilderness Fires 2004

Arizona Statewide Land Use Plan Amendment for Fire, Fuels and Air Quality Management 2004

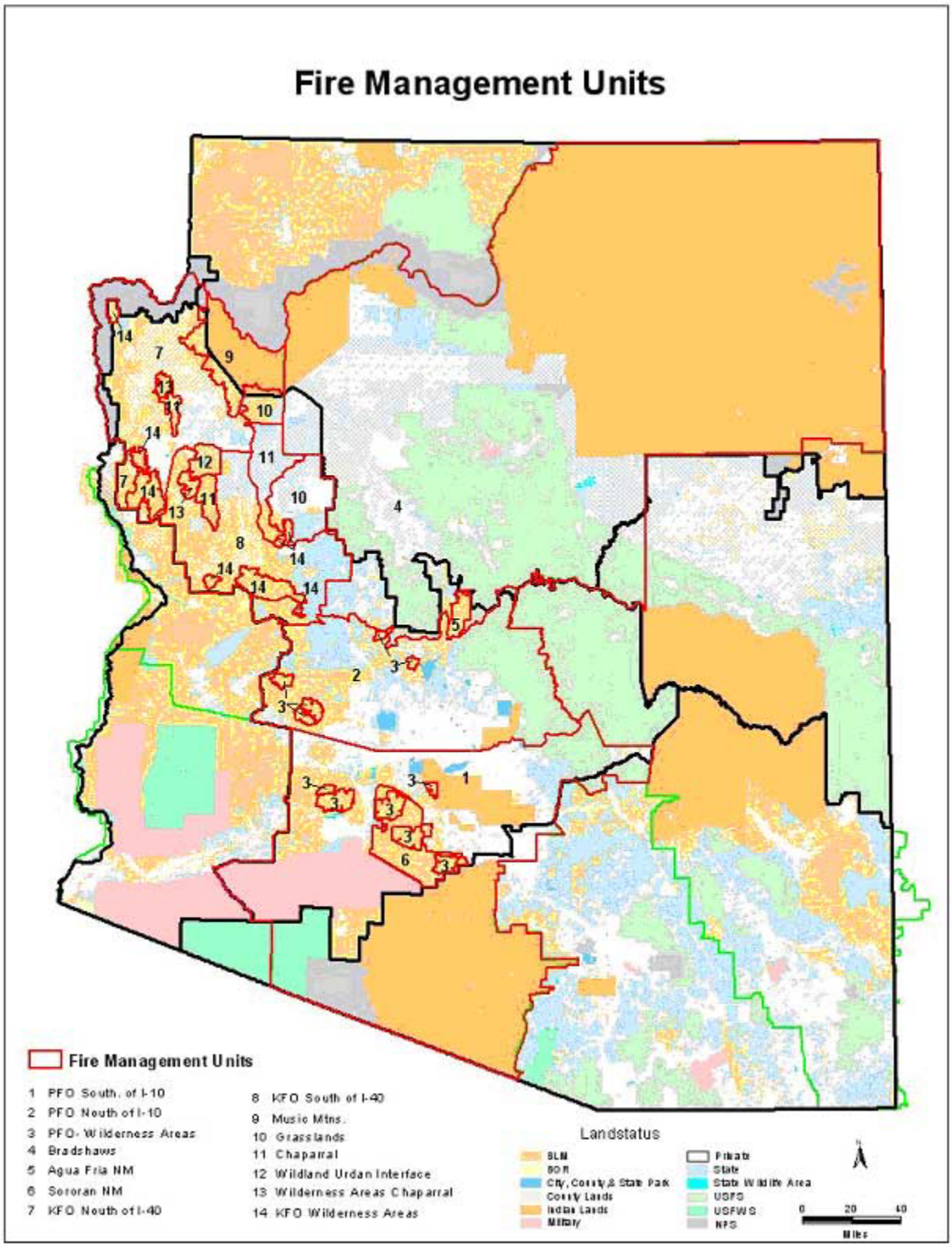
Appendix D. Statewide Map of Vegetative Communities



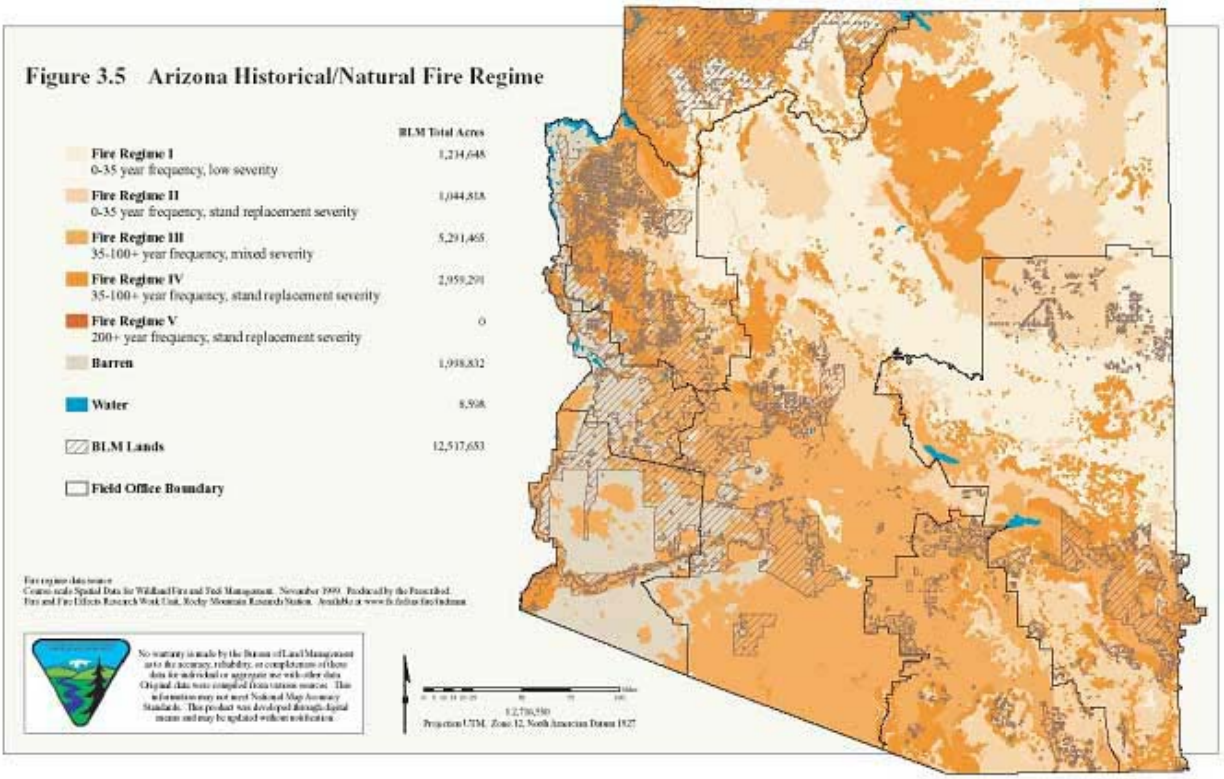
Appendix E. Land Use Allocations



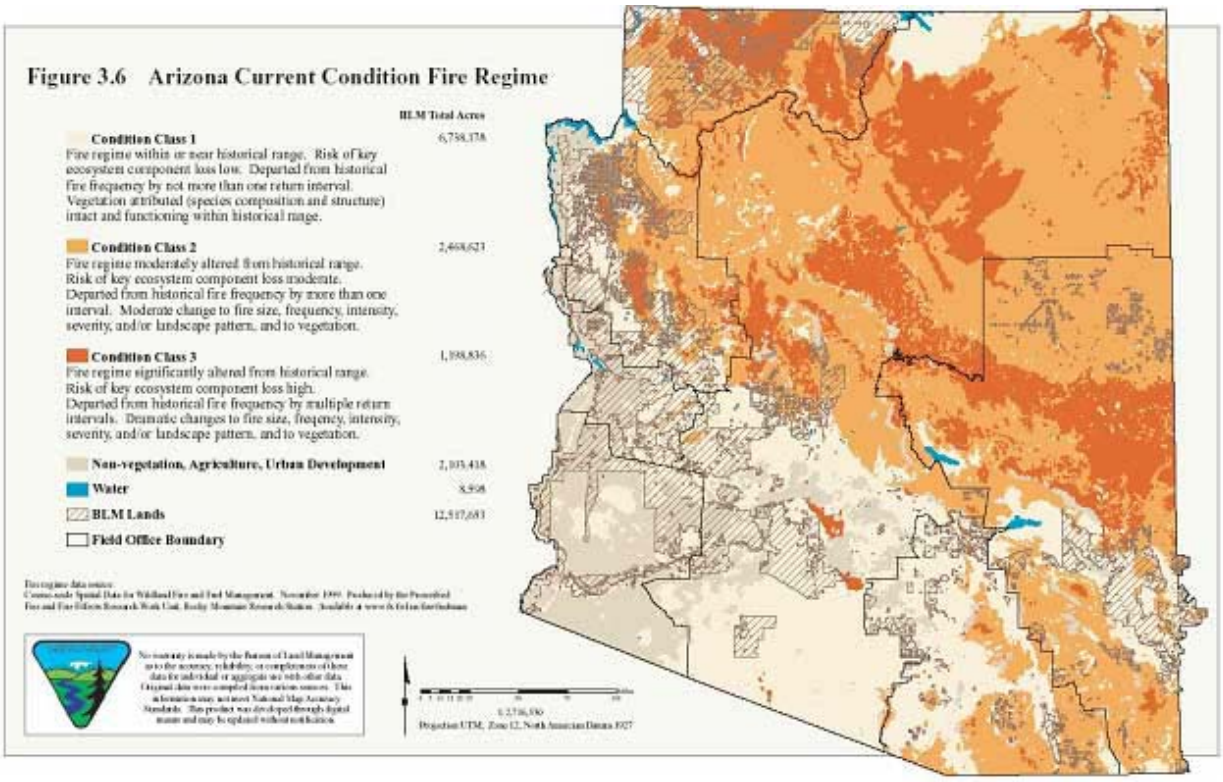
Appendix F. Phoenix/Kingman Zone Fire Management Units



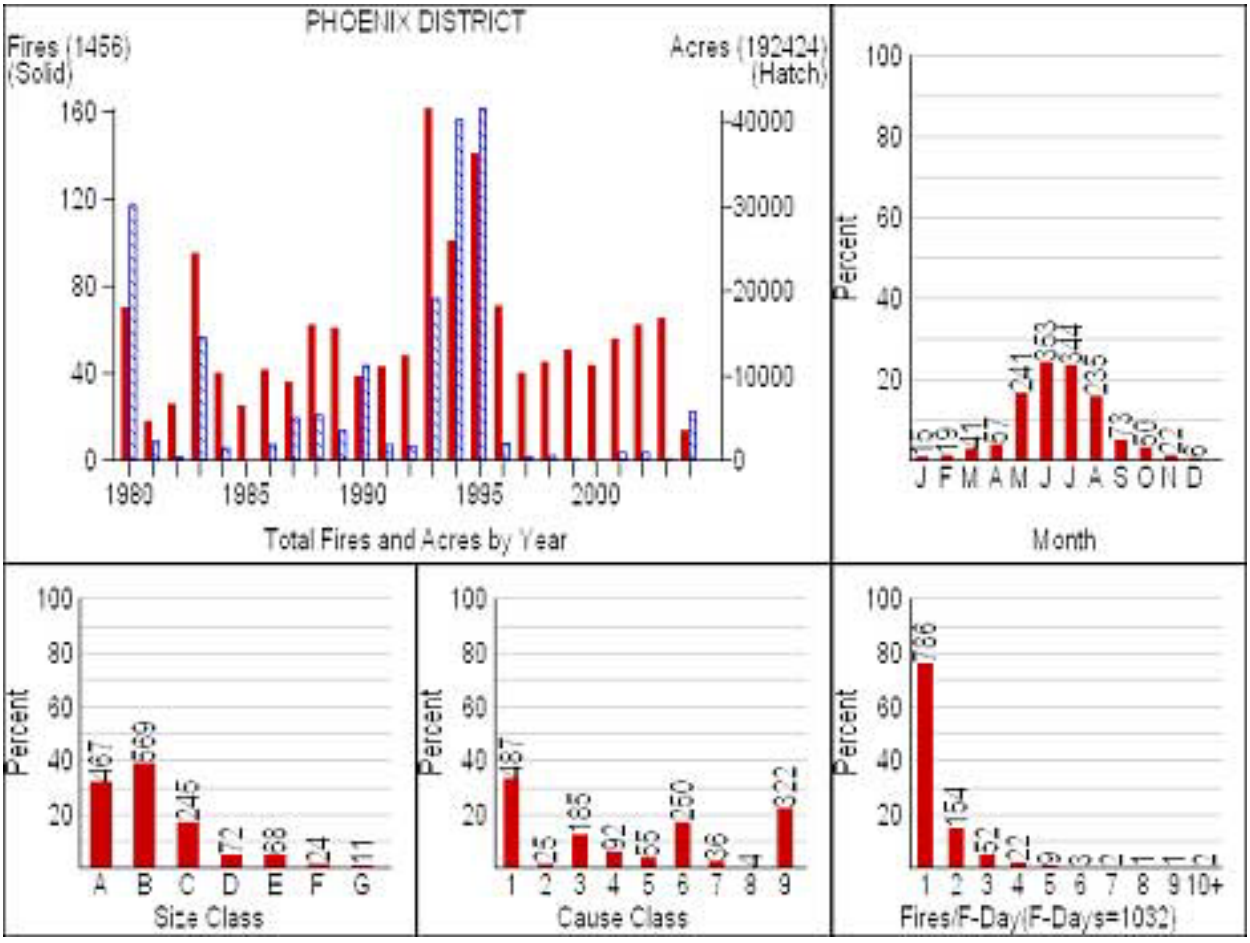
Appendix G. Statewide Fire Regimes



Appendix H. Statewide Fire Condition Class



Appendix I. Phoenix/Kingman Zone Fire History Graphs



Size Classes		Cause Class	
A	0 - .25 acres	1	Lightning
B	.26 - 9.9 acres	2	Campfires
C	10 - 99.9 acres	3	Smoking
D	100 - 299.9 acres	4	Fire Use
E	300 - 999.9 acres	5	Incendiary
F	1000 - 4999.9 acres	6	Equipment
G	5000 + acres	7	Railroads
		8	Juveniles
		9	Miscellaneous

Appendix J. RAMS Report Summaries

The Phoenix/Kingman Fire Management Zone Fuels Program includes the following Projects, listed by Fiscal Year:

Fiscal Year: 2005

Pinion Pine Piles05 (WUI), 55 acres. Q0 Total Cost: $10040.
Pine Lake Piles (WUI), 25 acres. Q0 Total Cost: $13125.
Truxton Piles05 (WUI), 650 acres. Q0 Total Cost: $19750.
Blue Tank (WUI), 1575 acres. Q0 Total Cost: $39375.
Timber (WUI), 70 acres. Q0 Total Cost: $17850.
Pine Lake South05 (WUI), 275 acres. Q0 Total Cost: $38975.
Black canyon mechanical (WUI), 50 acres. Q0 Total Cost: $5350.
Hassayampa Mechanical (WUI), 30 acres. Q0 Total Cost: $13000.
Pinion Pine Mechanical05 (WUI), 35 acres. Q0 Total Cost: $18425.
Black Canyon Chipping (WUI), 10 acres. Q0 Total Cost: $910.
Dewey/Mayer (WUI), 20 acres. Q0 Total Cost: $4800.
Yarnell Chipping (WUI), 25 acres. Q0 Total Cost: $5800.
Carrow (WUI), 5 acres. Q0 Total Cost: $1245.
Pine Lake Thinning05 (WUI), 75 acres. Q0 Total Cost: $18125.
Ash Creek Pile, 150 acres. Q0 Total Cost: $12250.
Beecher1, 1850 acres. Q0 Total Cost: $49200.
Weaver RX05, 2000 acres. Q0 Total Cost: $55200.
Basin, 2100 acres. Q0 Total Cost: $29400.
sycamore pile, 230 acres. Q0 Total Cost: $83300.
sycamore pile, 230 acres. Q0 Total Cost: $83300.

Fiscal Year: 2006

Pine Lake Piles (WUI), 100 acres. Q0 Total Cost: $24900.
Sam3 (WUI), 1950 acres. Q0 Total Cost: $41700.
MgGarrys (WUI), 325 acres. Q0 Total Cost: $39325.
Pine Lake South (WUI), 250 acres. Q0 Total Cost: $37750.
Pinion Pine Mechanical (WUI), 50 acres. Q0 Total Cost: $25500.
Black canyon mechanical (WUI), 30 acres. Q0 Total Cost: $3130.
Hassayampa Mechanical (WUI), 25 acres. Q0 Total Cost: $4375.
Dewey/Mayer (WUI), 20 acres. Q0 Total Cost: $2300.
Black Canyon Chipping (WUI), 30 acres. Q0 Total Cost: $3130.
Yarnell (WUI), 25 acres. Q0 Total Cost: $3825.
Robbins Butte (WUI), 80 acres (planning only). Q0 Total Cost: $4000.
Pine Lake Thinning (WUI), 50 acres. Q0 Total Cost: $12000.
Wildcow (WUI), 50 acres. Q0 Total Cost: $9000.
Richardson (WUI), 5 acres. Q0 Total Cost: $1245.
Flag Mine (WUI), 85 acres. Q0 Total Cost: $15090.
sycamore pile, 230 acres. Q0 Total Cost: $8400.
Ash Creek Pile, 150 acres. Q0 Total Cost: $5550.

Antelope, 2500 acres. Q0 Total Cost: $32500.
Brushy Basin, 1700 acres. Q0 Total Cost: $47600.
Weaver RX05, 1850 acres. Q0 Total Cost: $48100.
Joes Hill, 2500 acres. Q0 Total Cost: $65500.
sycamore pile, 250 acres. Q0 Total Cost: $88750.

Fiscal Year: 2007

Pine Lake Piles (WUI), 125 acres. Q0 Total Cost: $29175.
Merlo (WUI), 1950 acres. Q0 Total Cost: $52900.
Flag Mine (WUI), 85 acres. Q0 Total Cost: $13685.
Pine Lake South (WUI), 250 acres. Q0 Total Cost: $35000.
MgGarrys (WUI), 325 acres. Q0 Total Cost: $35750.
Wildcow (WUI), 50 acres. Q0 Total Cost: $9850.
Bottleneck (WUI), 150 acres. Q0 Total Cost: $32250.
Hassayampa Mechanical (WUI), 20 acres. Q0 Total Cost: $7000.
Pinion Pine Mechanical (WUI), 50 acres. Q0 Total Cost: $16000.
Black Canyon Chipping (WUI), 10 acres (planning only). Q0 Total Cost: $500.
Dewey/Mayer (WUI), 15 acres (planning only). Q0 Total Cost: $1500.
Yarnell (WUI), 15 acres. Q0 Total Cost: $2670.
Robbins Butte Mechanical (WUI), 80 acres. Q0 Total Cost: $41500.
Palmerita (WUI), 5 acres. Q0 Total Cost: $1245.
Pine Lake Thinning (WUI), 50 acres. Q0 Total Cost: $12450.
Double Tank, 4000 acres. Q0 Total Cost: $44000.
Johnson Flat, 1200 acres. Q0 Total Cost: $36000.
Weaver , 1900 acres. Q0 Total Cost: $49400.
Hells Canyon, 1550 acres. Q0 Total Cost: $46500.

Appendix J continued – Communities at Risk.

Comp	Name	Total	Hazard	Ign Risk	Values	Protectn	Cat Potnl	Fire Hist
8	Dolan Sprin	HIGH	MODERATE	HIGH	HIGH	HIGH	MODERATE	HIGH
17	Pine Lake	HIGH	HIGH	MODERATE	HIGH	MODERATE	HIGH	HIGH
14	Wikieup	HIGH	MODERATE	MODERATE	HIGH	HIGH	MODERATE	HIGH
20	Black Canyo	HIGH	MODERATE	HIGH	HIGH	MODERATE	MODERATE	HIGH
1	Pinion Pine	HIGH	HIGH	MODERATE	MODERATE	MODERATE	MODERATE	HIGH
3	Kingman*	HIGH	MODERATE	HIGH	HIGH	MODERATE	MODERATE	MODERATE
9	Golden Vall	HIGH	MODERATE	HIGH	MODERATE	MODERATE	MODERATE	HIGH
15	Bagdad	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE	MODERATE
5	Hackberry	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	HIGH
10	Chloride	MODERATE	MODERATE	MODERATE	HIGH	MODERATE	MODERATE	MODERATE
22	Buckeye	MODERATE	MODERATE	HIGH	MODERATE	MODERATE	MODERATE	MODERATE
16	Truxton	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	HIGH
11	Oatman	MODERATE	MODERATE	MODERATE	HIGH	MODERATE	MODERATE	MODERATE
19	Wickenburg	MODERATE	MODERATE	HIGH	HIGH	MODERATE	MODERATE	LOW
21	Mayer	MODERATE	HIGH	MODERATE	MODERATE	HIGH	MODERATE	LOW
7	Meadview	MODERATE	MODERATE	MODERATE	MODERATE	HIGH	MODERATE	MODERATE
18	Yarnell	LOW	MODERATE	MODERATE	MODERATE	HIGH	MODERATE	LOW
2	Lazy YU	LOW	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
6	Valentine	LOW	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
12	Hualapai Va	LOW	MODERATE	HIGH	MODERATE	MODERATE	MODERATE	LOW
13	Yucca	LOW	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	LOW
4	Valley Vist	LOW	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	LOW
23	Phoenix	LOW	MODERATE	MODERATE	MODERATE	MODERATE	N/A	LOW

Appendix K. Conservation Measures

For fire suppression activities, a protocol for consultation has been developed as a part of the Biological Opinion. This programmatic consultation contains conservation measures and prescriptions for use in fire suppression activities. Emergency consultation should only be needed in the future if suppression actions fall outside of these prescriptions/measures. The BO will outline coordination needs for emergency response actions that may affect a listed/proposed species and/or critical habitat. The following protocol will apply:

BLM will contact the appropriate USFWS biologist as soon as practical once a wildfire starts and a determination is made that a Federally protected species and/or its habitat could be affected by the fire and/or fire suppression activities. USFWS will work with BLM during the emergency response to apply the appropriate Conservation Measures. If Conservation Measures cannot be applied during the suppression activities, BLM will need to consult after the fact on any suppression actions that may have affected the Federally protected species or its habitat. If Conservation Measures are adhered to, then BLM will report on the actions taken and effects to the species and its habitat following the fire, but no further consultation on that incident will be required.

Conservation Measures for Fire Management Activities

Wildland Fire Suppression (FS)

The following Conservation Measures will be implemented during fire suppression operations, unless firefighter or public safety, or the protection of property, improvements, or natural resources, render them infeasible during a particular operation. Each Conservation Measure has been given an alphanumerical 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. Minimum Impact Suppression Tactics (M.I.S.T.) will be followed in all areas with known Federally protected species or habitat [Appendix U, *Interagency Standards for Fire and Aviation Operations 2003*, or updates].

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 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 siting 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 lands 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 AGFD. Revise future fire suppression plans and tactical applications as needed and as practical.

7.1.2 Fuels Treatments (prescribed burning and other fuels management) (FT)

The following Conservation Measures **are mandatory** when implementing wildland fire use, 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 protection of 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 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 fuelbreaks 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.

7.1.3 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 short-term and 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 fuelbreaks 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 (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 AGFD. 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.

7.2 Conservation Measures For Fire Management Activities In Riparian and Aquatic Habitats (RA)

7.2.1 Wildland Fire Suppression and Rehabilitation

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 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. The BLM's 1987 policy statement on riparian area management defines a riparian area as "an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks 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."

RA-1 During wildfire suppression, apply M.I.S.T. within riparian areas. Fire suppression actions in riparian areas should be prioritized to minimize damage to stands of native vegetation from wildfire 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 will be coordinated with the Resource Advisor or qualified biologist approved by BLM.

RA-3 Site-specific implementation 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 areas, use natural barriers or openings in riparian vegetation where possible as the easiest, safest method to manage a riparian wildfire. Where possible and practical, use wet firebreaks in sandy overflow channels rather than constructing firelines by hand or with heavy equipment.

RA-5 Construction or development of a crossing for motorized vehicles across a perennial stream 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-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. 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 If water is drafted from a stock tank or other body of water for fire suppression, it will not be refilled with water from another tank, lakes, or other water sources that may support non-native fishes, bullfrogs, crayfish, or salamanders.

RA-10 Use of containment systems for portable pumps to avoid fuel spills in riparian or aquatic systems will be required.

7.2.2 Fuels Treatments (prescribed fire; mechanical, chemical, and biological treatments)

The following Conservation Measures **are mandatory** when implementing wildland fire use, prescribed fires, and the proposed vegetation treatments (mechanical, chemical, biological) within riparian, wetland, or aquatic habitats.

RA-12 All Conservation Measures for wildland fire suppression (**RA-1 to RA-11, Section 2.1**) also apply to fuels treatment activities (prescribed fire; mechanical, chemical, and biological treatments) in riparian, wetland, and aquatic habitats.

RA-13 Fire management treatments within or adjacent to riparian and aquatic habitats will be designed to provide long-term benefits to aquatic and riparian resources 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, BLM biologists and other resource specialists, as appropriate, in coordination with USFWS and AGFD, 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.1

If agreement cannot be reached or treatment will not meet fuel reduction objectives, BLM will re-initiate consultation. Our authority to make these types of changes is in the regulations at 43 CFR 4110.3-3(b).

7.3 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 wildfire suppression to the 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.

7.3.1 Amphibians [Chiricahua leopard frog (FT); Relict leopard frog (FC)]

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

---

1 The Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook, Exhibit 4-2 ,BLM supplemental guidance, page 5 of 9 (http://fire.r9.fws.gov/ifcc/ESR/handbook/4PolicyGuidance.htm) establishes the following policy for livestock exclusion following burns:

> Exclusion of livestock is critical for the recovery of burned vegetation or establishment and maintenance of new seedings and use of these areas should not be permitted until the vegetation recovers or is established. Both re-vegetated and, burned but not re-vegetated areas, will be closed to livestock grazing for at least two growing seasons following the season in which the wildfire occurred to promote recovery of burned perennial plants and/or facilitate the establishment of seeded species. Livestock permittees must be informed of the closure early during the plan preparation process, and livestock closures will be made a condition or term on the grazing license or permit through the issuance of grazing decision (see 43 CFR 4160). Livestock closures for less than two growing seasons may be justified on a case-by-case basis based on sound resource data and experience. Livestock management following seedling establishment and/ or burned area recovery should maintain both non-native and/or native species to meet land use (including Standards for Rangeland Health and Guidelines for Grazing Management) or activity plan objectives.

AM-2 For fire management sites with habitat for the Chiricahua leopard frog, unsurveyed sites will be considered occupied unless surveyed prior to project implementation.

AM-3 Install sediment traps, as determined by a Resource Advisor or qualified biologist approved by 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).

AM-4 All personnel performing fire 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.

AM-5 Except as needed in emergency situations to abate immediate fire threat or loss of life or property, no water will be drafted for fire suppression from bodies of water known to be occupied by the Chiricahua leopard frog.

7.3.2 Birds

7.3.2.1 Cactus ferruginous pygmy-owl (FE, Proposed CH)

FP-1 Treatment of riparian habitat, Sonoran desert/desertscrub, or mesquite-invaded grasslands under 4,000 feet in elevation that may support nesting cactus ferruginous pygmy owls will only occur during the non-nesting season of August 1 to January 31, unless pre-project surveys indicate the area does not support pygmy-owls or mitigation plans approved by the USFWS have alleviated negative consequences.

FP-2 Develop mitigation plans in coordination with the USFWS for fuels treatment projects (prescribed fire; vegetation treatments) that may adversely affect cactus ferruginous pygmy-owls or their habitat. Mitigation plans for prescribed fire shall limit to the extent practicable the possibility that fire would spread to riparian habitats. Mitigation plans will be approved by the USFWS.

FP-3 To the extent possible, maintain habitat features necessary to support breeding populations of the pygmy-owl within their historical range and review ongoing fire management activities for effects on essential habitat features needed by cactus ferruginous pygmy-owls. Modify activities, where necessary, to sustain the overall suitability of the habitat for the owls. Priority will be given to activities in or near occupied or recently (w/in the last 10 years) occupied habitat.

7.3.2.2 California brown pelican (FE)

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

7.3.2.3 California Condor (FE; 10(j) species)

The following Conservation Measures apply to BLM-administered lands within the designated 10(j) area for California condors and outside of the 10(j) area if BLM observes a condor or is informed of a condor in the vicinity of a fire suppression activity.

CC-1 All helicopter dip tanks containing water will be covered when not in use or personnel will be stationed nearby until a cover is in place.

CC-2 Any presence of condors in the project area will be recorded and reported immediately to the Resource Advisor.

CC-3 If condors arrive at any area of human activity associated with fire suppression or fuels treatment projects (wildland fire use, prescribed fire, vegetation treatments), the birds will be avoided. The assigned Resource Advisor or a qualified wildlife biologist approved by BLM will be notified, and only permitted personnel will haze the birds from the area.

CC-4 All camp areas will be kept free from trash.

CC-5 Aircraft use along the Vermilion Cliffs or sites where condors are attempting to breed or roost will be minimized

CC-6 The Resource Advisor will contact the Peregrine Fund daily (at 520-606-5155 or 520-380-4667) to check on locations of condors during fire suppression or fuels treatment activities involving aviation. This information will be communicated to the Incident Commander and aviation personnel.

CC-7 If any fire retardant chemicals must be used in areas where condors are in the vicinity (see **CC-6**), the application area will be surveyed and any contaminated carcasses will be removed as soon as practical to prevent them from becoming condor food sources.

CC-8 Aircraft will remain 400 meters from condors in the air or on the ground unless safety concerns override this restriction. If airborne condors approach aircraft, aircraft will give up airspace to the extent possible, as long as this action does not jeopardize safety.

CC-9 Smoke from wildland fire use and prescribed fire projects will be managed to minimize negative effects to condor breeding. A potential wildland fire use event will not be initiated, or an existing event will be modified or terminated, to prevent or stop significant amounts of smoke, or smoke that will remain in place for an extended period of time, or chronic smoke events, from occurring in area(s) where condors are attempting to breed.

CC-10 BLM will adhere to the air quality standards set by the Arizona Department of Environmental Quality.

7.3.2.4 Northern aplomado falcon (FE)

AF-1 If aplomado falcons are reestablished or are discovered on public lands, and they nest in a fuels management project area, BLM will implement temporary closures to human access and project implementation (wildland fire use, prescribed burning, vegetation treatments) within ½ mile of nest sites during the breeding season. Wildland fire use and prescribed burning will be conducted in a manner to ensure nest sites are more than ½ mile from downwind smoke effects.

7.3.2.5 Southwestern willow flycatcher (FE)

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 Implement activities to reduce hazardous fuels or improve riparian habitats (prescribed burning or vegetation treatments) within occupied or unsurveyed suitable habitat for southwestern willow flycatchers only during the non-breeding season (October 1 to March 31).

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).

WF-7 Vegetation treatment projects adjacent to occupied or unsurveyed suitable habitat will only be conducted when willow flycatchers are not present (October 1 – March 31).

7.3.2.6 Yuma clapper rail (FE)

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

CR-2 Any prescribed fire or vegetation treatment project in occupied or suitable marsh habitat would only occur between September 1 and March 15 to avoid the Yuma clapper rail breeding and molting seasons.

CR-3 Mechanical removal of overstory habitat (*Tamarisk*) could occur as early as August 15, after the breeding season for Yuma clapper rails.

CR-4 Herbicide application would not occur in Yuma clapper rail habitat and drift-inhibiting agents would be used to assure that the herbicide does not enter adjacent marsh areas.

7.3.2.7 Bald eagle (FT)

BE-1 No human activity within ½ mile of known bald eagle nest sites between December 1 and June 30.

BE-2 No tree cutting within ¼ mile of known nest trees.

BE-3 No human activity within ¼ mile of known bald eagle winter roost areas between October 15 and April 15.

BE-4 No tree cutting within the area immediately around winter roost sites as determined by BLM biologists.

BE-5 No helicopter or aircraft activity or aerial retardant application 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 BLM within ½ mile of known nests and roosts of bald eagles Pre-treatment efforets should provide reasonable protection of identified nesting and roosting trees (see Conservation Measure FT-4).

7.3.2.8 Mexican spotted owl (FT, CH)

SO-1 BLM wildlife biologists will be involved early in the decision-making process for fuels management treatments (wildland fire use, prescribed fires, vegetation treatments) that are planned within suitable habitat or designated critical habitat for Mexican spotted owls (MSO).

SO-2 Suitable habitat and designated critical habitat for MSO will be surveyed prior to implementing prescribed fire or vegetation treatment activities on BLM-administered lands to determine MSO presence and breeding status. These fire management activities will only be implemented within suitable or critical 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-3 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-4 Within MSO critical habitat designated on BLM-administered lands:

A) To minimize negative effects on the primary constituent elements of critical habitat, wildland fire use and prescribed fires will be managed primarily as low-intensity fires, with only scattered high-intensity patches. The BLM's objective will be to limit mortality of trees greater than 18 inches dbh to less than 5 percent, occasionally up to 10 percent, within critical habitat.

B) If fireline construction is necessary during fire suppression, wildland fire use, or prescribed fires, BLM will minimize the cutting of trees and snags larger than 18 inches dbh, and no trees or snags larger than 24 inches dbh will be cut unless absolutely necessary for safety reasons.

C) For mechanical vegetation treatments within critical habitat, BLM will minimize the cutting of trees and snags larger than 18 inches dbh, and no trees or snags larger than 24 inches dbh will be cut unless absolutely necessary for safety reasons.

D) Critical habitat disturbed during fire suppression or fuels treatment activities, such as fire lines, crew camps, and staging areas, will be rehabilitated to prevent their use by vehicles or hikers. Fire line rehabilitation will include pulling soil, duff, litter, woody debris, and rocks back onto the line to bring it up to grade and to make it blend in with the surrounding area. Such rehabilitation will be inspected one year after the event to ensure effectiveness.

SO-5 The following measures will be followed in suitable habitat (occupied or 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 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-6 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.

7.3.2.9 Yellow-billed cuckoo (FC)

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

7.3.3 Fish

The following Conservation Measure will be implemented for all Federally protected fish species that may be affected by the Proposed Action during fire suppression to the extent possible, and are mandatory for wildland fire use, prescribed fire, and vegetation treatment activities:

FI-1 BLM will cooperate with other agencies to develop emergency protocols to decrease the impacts of fire suppression and fuels treatment activities on Federally listed fish species. Emergency protocols will include appropriate agency contacts, a list of facilities that can hold fish, sources of equipment needed (e.g., sampling gear, trucks) and how to address human health and safety issues.

In addition to implementing **FI-1**, the following species-specific Conservation Measures will also apply:

7.3.3.1 Bonytail chub (FE,CH)

BC-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats to eliminate adverse effects from fire management activities to available spawning habitat along shorelines *(i.e.*, occupied reaches and critical habitat).

7.3.3.2 Desert pupfish (FE,CH)

DP-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats for occupied reaches and critical habitat.

DP-2 Conduct prescribed burns such that no more than one-half of the watershed of each desert pupfish site is burned in a two-year period (excluding buffers to the streams and/or spring habitats) and repeat treatments at greater than two-year intervals.

DP-3 Monitor, where practical, for fish kill immediately following the first runoff event after prescribed fires in watersheds containing desert pupfish.

DP-4 When considering which creek crossings to use for fire management activities, avoid crossings that are known to be occupied by desert pupfish.

7.3.3.3 Gila topminnow (FE)

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

GT-2 Conduct prescribed burns such that no more than one-half of the watershed of each gila topminnow natural or reintroduction site is burned in a two-year period (excluding buffers to the streams and/or spring habitats) and repeat treatments at greater than two-year intervals.

GT-3 Monitor for fish kill, where practical, immediately following the first runoff event after prescribed fires in the watersheds containing gila topminnows.

GT-4 When considering which creek crossings to use for fire management activities, avoid crossings that are known to be occupied by Gila topminnow, when possible.

GT-5 Develop mitigation plans in coordination with the USFWS for each fuels management project (prescribed fire; vegetation treatments) that may adversely affect the gila topminnow. Mitigation plans for prescribed fire will limit to the extent practicable the possibility that fire would spread to riparian habitats. Mitigation plans will be approved by the USFWS.

GT-6 Cooperate with the USFWS and AGFD to identify site-specific measures, such as prescribed fires in grassland vegetation types to improve watershed conditions (*e.g.*, in the Cienega Creek watershed), to protect populations of gila topminnow from other resource program impacts.

7.3.3.4 Razorback sucker (FE, CH)

RS-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats to minimize adverse effects from fire management activities to available spawning habitat along shorelines (*i.e.,* occupied sites and critical habitat).

RS-2 Project boundaries for fire management activities will avoid or protect sensitive habitats of the razorback sucker.

7.3.3.5 Virgin River chub (FE, CH)

VC-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats for the stretch of the Virgin River within Arizona.

7.3.3.6 Woundfin (FE, CH; Future 10(j) populations)

WM-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats for the stretch of the Virgin River within Arizona.

7.3.3.7 Little Colorado spinedace (FT, CH)

LS-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats to minimize adverse effects from fire management activities on BLM-lands to occupied reaches and critical habitat on adjacent lands.

7.3.3.8 Loach minnow (FT, CH); Spikedace (FT, CH)

LM-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats for occupied reaches and critical habitat.

LM-2 All reasonable efforts shall be made to minimize disturbance within the wetted areas of Aravaipa Creek or tributary channels.

LM-3 No heavy equipment will be used off-road during wildfire suppression and fuels treatment projects within the wetted areas of Aravaipa Creek.

LM-4 All reasonable efforts will be made to ensure that no pollutants, retardants, or chemicals associated with wildfire suppression and fuels treatment projects or activities enter surface waters of reaches occupied by these two fish species.

LM-5 Develop mitigation plans in coordination with the USFWS for each fuels management project (prescribed fire; vegetation treatments) that may adversely affect the loach minnow and spikedace. Mitigation plans for prescribed fire will limit to the extent practicable the possibility that fire would spread to riparian habitats. Mitigation plans will be approved by the USFWS.

LM-6 Cooperate with the USFWS and AGFD to identify site-specific measures, such as prescribed fires in grassland vegetation types to improve watershed conditions (*e.g.*, in the Aravaipa Creek watershed), to protect populations of loach minnow and spikedace from other resource program impacts.

7.3.3.9 Gila chub (PE, Proposed CH)

GC-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats for occupied reaches and proposed critical habitat.

GC-2 When considering which creek crossings to use for fire management activities, avoid crossings that are known to be occupied by Gila chub, when possible.

GC-3 Cooperate with the USFWS and AGFD to identify site-specific measures, such as prescribed fires in grassland vegetation types to improve watershed conditions (*e.g.*, in the Cienega Creek watershed), to protect populations of gila chub from other resource program impacts.

7.3.4 Flowering Plants

The following Conservation Measures for known locations and unsurveyed habitat of all Federally protected plant species within the planning area will be implemented during fire suppression to the extent possible, and are mandatory for wildland fire use, prescribed fire, and vegetation treatment activities:

PL-1 Known locations and potential habitat for plant populations will be mapped to facilitate planning for wildland fire use, prescribed fires, and vegetation treatments, and to ensure protection of these populations during fire suppression.

PL-2 BLM will coordinate with FWS to delineate buffer areas around plant populations prior to prescribed fire and vegetation treatment activities. BLM will coordinate with USFWS during any emergency response and wildland fire use activities to ensure protection of plant populations from fire and fire suppression activities.

PL-3 During fire suppression, wildland fire use, and prescribed fire in habitat occupied by Federally protected plant species, no staging of equipment or personnel will be permitted within 100 meters of identified individuals or 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/crushing from personnel and vehicles.

PL-4 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.

Holmgren milk-vetch (*Astragalus holmgreniorum*), Jones Cycladenia (*Cycladenia humilis* var. *jonesii*), Brady pincushion cactus (*Pediocactus bradyi*), Arizona cliffrose (*Purshia subintegra*), Nichol turk's head (*Echinocactus horizonthalonius* var. *nicholii*), and Peeble's Navajo cactus (*Pediocactus peeblesianus* var. *peeblesianus*) are six (6) native, vegetative T&E species that are comprised of distinct populations inhabiting specific ecological areas within BLM managed lands in Arizona, with historicalally low fire frequencies, and a lack of fine fuel (fine herbaceous vegetation) continuity. No known structures exist within the confines of or immediately adjacent to the habitat locations for each species. The primary reasons for decline/vulnerability for these plant species include off-road vehicle traffic, road construction, urban development, mining activities, and overuse by livestock.

PL-5 The BLM is reasonably certain that in the areas where these six species occur, it is extremely unlikely that fire suppression activity will be necessary for the reasons provided above. Consequently, the specific areas where populations of Holmgren milk-vetch, Jones Cycladenia, Brady pincushion cactus, Arizona cliffrose, Nichol turk's head, and Peeble's Navajo cactus occur on BLM managed land, will be identified, delineated, and avoided by BLM fire suppression crews in the unlikely event that fire suppression activities are required in the immediate region.

There are no additional species-specific conservation measures for the following Federally protected plant species: **Pima Pineapple Cactus** (*Coryphantha scheeri* var. *robustispina*), **Siler Pincushion Cactus** (*Pediocactus sileri*), **Acuña Cactus** (*Echinomastus erectocentrus* var. *acunensis*), **Fickeisen Plains Cactus** (*Pediocactus peeblesianus* var. *fickeiseniae*).

Huachuca Water Umbel (*Lilaeopsis schaffneriana* var. *recurva*) [FE, CH]
In addition to implementing **PL-1** through **PL-4**, the following species-specific Conservation Measures will also apply:

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

7.3.4.2 Kearney's Blue Star (*Amsonia kearneyana*) [FE]

In addition to implementing **PL-1** through **PL-4**, the following species-specific Conservation Measures will also apply:

KB-1 No mechanical or chemical vegetation manipulation will be authorized by BLM, and no planting or seeding of nonnative plants will occur in the Brown Canyon watershed within the Baboquivari allotment.

KB-2 Planning and management for wildfire suppression in the watershed of Brown Canyon will be coordinated with the USFWS.

7.3.5 Mammals

7.3.5.1 Black-footed ferret (FE, 10(j) species)

If black-footed ferrets are discovered or re-established on public lands, then the following Conservation Measures will apply:

BF-1 No heavy equipment operation off of existing roads within ¼ mile of prairie dog towns having documented occurrence of black-footed ferrets.

BF-2 No aerial retardant application within 300 feet of prairie dog towns having documented occurrence of black-footed ferrets.

BF-3 No surface disturbance of prairie dog towns having documented occurrence of black-footed ferrets.

BF-4 In Apache and Navajo counties, prairie dog complexes suitable for black-footed ferrets within ¼ mile of proposed project sites will either be surveyed prior to project implementation or will be protected using measures **BF-1** through **BF-3**, as if ferrets were present.

7.3.5.2 Hualapai Mexican vole (FE)

HV-1 All treatment areas will be surveyed for Hualapai Mexican vole occupancy prior to fuels management treatments (prescribed fire, vegetation treatments) in order to determine project modifications and/or avoidance and protection of occupied areas. Until surveyed, all potential vole habitat is considered occupied. Areas not considered suitable (e.g., areas dominated by thick pine needles and duff) will also be surveyed prior to treatment to protect existing snag habitat for potential future use by Mexican spotted owls.

HV-2 Fuels management treatments (prescribed fire or vegetation treatments), construction of fire breaks, and/or staging areas for fire suppression or fuels management treatments will not be located within a vole use area. Occupied vole sites within proposed burn areas will be protected by firebreaks, precision ignition of fire around such sites, or total avoidance of the area. Fire plans will incorporate site-specific features (*e.g.,* rock outcroppings, game trails, etc.), fire behavior, and professional judgment to determine the most appropriate method to protect occupied vole habitat. Additionally, monitoring of fuel moisture and use of the appropriate minimum impact suppression tactics will be used to reach the desired objective at each site.

HV-3 To minimize impacts to Hualapai Mexican voles during the breeding season, prescribed burns and vegetation treatments in occupied or potential vole habitat will be implemented only between September 1 and March 15. Treatment in chaparral habitat will occur during the latter part of this time frame, in winter and/or early spring. These prescribed fires will follow the summer monsoon period to encourage additional herbaceous growth. Post-monsoon burns would help avoid the dry conditions that could result in extremely hot fires that reduce the recruitment of grasses and forbs. Areas not considered suitable for Hualapai Mexican voles (*e.g.,* dominated by thick pine needles and duff) may be burned prior to September 1, if surveyed prior to treatment.

HV-4 Provide a 75- to 100-foot, minimum, unburned vegetation buffer between fuels treatment sites and riparian and dry wash areas to decrease erosion into and sedimentation of the occupied or potentially occupied vole habitat. Within ponderosa pine treatment sites, use of dry washes as a fire line may be appropriate and result in less disturbance than construction of a cup trench above the wash. Under such circumstances, BLM will prepare the wash as a fire line by raking duff and removing by hand dead branches and other debris.

HV-5 The terms and conditions from the Pine Lake Wildland/Urban Interface Biological Opinion (BLM Kingman Field Office; Consultation No. 2-21-01-F-241) continue to apply to the Pine Lake project.

7.3.5.3 Jaguar (FE)

JA-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats to eliminate adverse effects to jaguars that may occur in dense riparian habitats on BLM-administered lands.

JA-2 Maintain dense, low vegetation in major riparian or xero-riparian corridors on BLM-administered lands in identified locations south of Interstate 10 and Highway 86. Locations will be identified in site-specific fire management plans.

7.3.5.4 Lesser long-nosed bat (FE)

LB-1 Instruct all crew bosses (wildfire suppression, managed wildfire, prescribed fire, and vegetation treatments) in the identification of agave and columnar 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 and saguaros that may be directly affected by fuels management activities.

LB-3 Protect long-nosed bat forage plants -- saguaros and high concentrations of agaves -- from wildfire and fire suppression activities, and 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. Staging areas for fire crews or helicopters will be located in disturbed sites, if possible.

LB-4 No seeding/planting of nonnative plants will occur in any wildfire rehabilitation site or fuels treatment site with paniculate agaves or saguaros.

LB-5 A mitigation plan will be developed by the Bureau in coordination with the USFWS for prescribed fires or fuels management projects (mechanical, chemical, biological treatments) within 0.5 mi of bat roosts or in areas that support paniculate agaves or

saguaros. The mitigation plan will ensure that effects to bat roosts and forage plants are minimized and will include monitoring of effects to forage plants. The plan will be approved by the USFWS.

LB-6 BLM personnel would 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% for *A. schottii).* BLM personnel would determine which significant agave stands are prone to mortality greater than 20 percent (>50% for *A. schottii*) (see Conservation Measures FT-1 and FT-3).

7.3.5.5 Mexican gray wolf (FE; 10(j) species)

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

GW-1 No human disturbance associated with fire management activities will be within one mile of a den site from April1 to June 30.

GW-2 No human disturbance associated with fire management activities will be within one mile of known rendezvous sites from April 1 to June 30.

7.3.5.6 Ocelot (FE)

No species-specific Conservation Measures developed.

7.3.5.7 Sonoran pronghorn (FE)

No species-specific Conservation Measures developed.

7.3.5.8 Black-tailed prairie dog (FC)

If black-tailed prairie dogs are re-established on public lands, then the following Conservation Measures will apply:

PD-1 No heavy equipment operation off of existing roads within ¼ mile of black-tailed prairie dog colonies

PD-2 No aerial retardant application within ¼ mile of black-tailed prairie dog colonies.

PD-3 No surface disturbance of black-tailed prairie dog colonies.

7.3.6 Reptiles

7.3.6.1 Desert tortoise, Mojave population (FT)

DT-1 Take appropriate action to suppress all wildfires in desert tortoise habitat, based on preplanned analysis and consistent with land management objectives, including threats to life and property. Full suppression activities will be initiated within key desert tortoise habitat areas identified in site-specific Fire Management Plans.

DT-2 Suppress all wildfires in desert tortoise habitat with minimum surface disturbance, in accordance with the guidelines in Duck *et al.* (1995) and the 1995 programmatic biological opinion on fire suppression on the Arizona Strip (2-21-95-F-379).

DT-3 Pre-position suppression forces in critical areas during periods of high fire dangers.

DT-4 As soon as practical, all personnel involved in wildfire suppression (firefighters and support personnel) will be briefed and educated about desert tortoises and the importance of protecting habitat and minimizing take, particularly due to vehicle use. Fire crews will be briefed on the desert tortoise in accordance with Appendix II of Duck *et al.* (1995).

DT-5 If wildfire or suppression activities cannot avoid disturbing a tortoise, the Resource Advisor or monitor will relocate the tortoise, if safety permits. The tortoise will be moved into the closest suitable habitat within two miles of the collection site that will ensure the animal is reasonably safe from death, injury, or collection associated with the wildfire or suppression activities. The qualified biologist will be allowed some discretion to ensure that survival of each relocated tortoise is likely. If the extent or direction of movement of a fire makes sites within two miles of the collection site unsuitable or hazardous to the tortoise or biologists attempting to access the area, the tortoise may be held until a suitable site can be found or habitat is safe to access and not in immediate danger of burning. The Resource Advisor will contact the USFWS Arizona Ecological Services Field Office (AESFO) as soon as possible concerning disposition of any animals held for future release. Desert tortoises will not be placed on lands outside the administration of the Federal government without the written permission of the landowner. Handling procedures for tortoises, including temporary holding facilities and procedures, will adhere to protocols outlined in Desert Tortoise Council (1994).

DT-6 Upon locating a dead, injured, or sick desert tortoise, initial notification must be made to the appropriate USFWS Law Enforcement Office within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph, and any other pertinent information. The notification will be sent to the Law Enforcement Office with a copy to the AESFO

DT-7 Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. If possible, the remains of intact desert tortoises will be placed with educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above will be obtained and the carcass left in place. Arrangements regarding proper disposition of potential museum specimens will be made with the institution prior to implementing the action. Injured animals should be transported to a qualified veterinarian by an authorized biologist. Should any treated

desert tortoise survive, the USFWS should be contacted regarding final disposition of the animal.

DT-8 The Resource Advisor or monitor(s) will maintain a record of all desert tortoises encountered during fire suppression activities. This information will include for each desert tortoise: 1) locations and dates of observation; 2) general condition and health, including injuries and state of healing, and whether animals voided their bladders; 3) location moved from and to; and 4) diagnostic markings (i.e., identification numbers of marked lateral scutes). No notching of scutes or replacement of fluids with a syringe is authorized.

DT-9 Prior to moving a vehicle, personnel will inspect under the vehicle for tortoises. If a tortoise is found under the vehicle, the tortoise will be allowed to move away from the vehicle on its own accord, if possible. Otherwise an individual will move the tortoise to a safe locality in accordance with **FS-2** and **DT-5**.

DT-10 Off-road vehicle activity will be restricted to the minimum necessary to suppress wildfires. Vehicles will be parked as close to roads as possible, and vehicles will use wide spots in roads or disturbed areas to turn around. Whenever possible, a biologist or crewperson trained to recognize tortoises and their shelter sites will precede any vehicle traveling off-road to direct the driver around tortoises and tortoise burrows. Whenever possible, local fire-fighting units should provide direction and leadership during off-road travel because of their expertise and knowledge of area sensitivities.

DT-11 Fire-related vehicles will drive slow enough to ensure that tortoises on roads can be identified and avoided.

DT-12 Fire crews or rehabilitation crews will, to the extent possible, obliterate off-road vehicle tracks made during fire suppression in tortoise habitat, especially those of tracked vehicles, to reduce future use.

DT-13 To the maximum extent practical, campsites, aircraft landing/fueling sites, and equipment staging areas will be located outside of desert tortoise habitat or in previously disturbed areas. If such facilities are located in desert tortoise habitat, 100 percent of the site will be surveyed for desert tortoises by a qualified biologist approved by BLM, whenever feasible. Any tortoises found will be moved to a safe location in accordance with **FS-2** and **DT-5**. All personnel located at these facilities will avoid disturbing active tortoise shelter sites.

DT-14 Elevated predation by common ravens or other predators attributable to fire suppression activities will be reduced to the maximum extent possible. Work areas, including campsites, landing/fueling sites, staging areas, etc. will be maintained in a sanitary condition at all times. Waste materials at those sites will be contained in a manner that will avoid attracting predators of desert tortoises. Waste materials will be disposed of at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

DT-15 Backfiring operations are permitted where necessary in desert tortoise habitat. Burning out patches of identified habitat within or adjacent to burned areas is not permitted as a standard fire suppression measure unless necessary for firefighter or public safety or to protect property, improvements, or natural resources.

DT-16 Use of foam or retardant is authorized within desert tortoise habitat.

DT-17 Rehabilitation of vegetation in tortoise habitat will be considered, including seeding, planting of perennial species, etc.

DT-18 Recovery of vegetation will be monitored, including establishing and monitoring paired plots, inside and outside burned areas in tortoise habitat. Recovery plans will be coordinated with the USFWS and AGFD.

DT-19 The effectiveness of wildfire suppression activities and desert tortoise Conservation Measures will be evaluated after a wildfire. Procedures will be revised as needed.

7.3.6.2 New Mexico ridgenose rattlesnake (FT)

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 lands in the southern Peloncillo 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.

RN-3 All fires that occur outside of prescriptions that will not result in low intensity, low severity burns will be fully suppressed within or near suitable New Mexico ridge-nose rattlesnake habitat

LIST OF ACRONYMS

ACEC	Areas of Critical Environmental Concern
ADEQ	Arizona Department of Environmental Quality
AIFC	Arizona Interagency Fire Center
AMR	Appropriate Management Response
BLM	Bureau of Land Management
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
EA	Environmental Assessment
ERA's	Equipment Rental Agreements
ESA	Endangered Species Act
ESR	Emergency Stabilization and Rehabilitation
FIL	Fire Intensity Level
FLPMA	Federal Land Policy and Management Act of 1976
FMP	Fire Management Plan
FMU	Fire Management Unit
FRCC	Fire Regime Condition Class
FPA	Fire Program Analysis System
FPU	Fire Planning Units
FY	Fiscal Year
HMA	Herd Management Areas
HMP	Habitat Management Plans
HA	Herd Areas
IC	Incident Commander
IMT	Incident Management Team
LUP	Land Use Plans
MFP	Management Framework Plan
MIST	Minimum Impact Suppression Tactics
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
OHV	Off Highway Vehicles
RMP	Resource Management Plans
PKFMZ	Phoenix/Kingman Fire Management Zone
RAMS	Risk Assessment and Mitigation Strategies
ROSS	Resource Ordering Status System
SHPO	State Historic Preservation Office
TE&P	Threatened, endangered, proposed, and candidate
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WFSA	Wildland Fire Situation Analysis
WIMS	Weather Information Management System
WUI	Wildland-Urban Interface
WSA	Wilderness Study Areas

GLOSSARY

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.

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

APPROPRIATE MANAGEMENT RESPONSE: Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

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.

CLEAN AIR ACT: A federal law enacted to ensure that air quality standards are attained and maintained. Initially passed by Congress in 1963, it has been amended several times.

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

Condition Class 1: For the most part, fire regimes in this Fire Condition Class are within historical ranges. Vegetation composition and structures are intact. Thus, the risk of losing key ecosystem components from the occurrence of fire remains relatively low.

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

Condition Class 3: Fire regimes on these lands have been significantly altered from their historical return interval. The risk of losing key ecosystem components from fire is high. Fire frequencies have departed from historical ranges by multiple return intervals. Vegetation composition, structure and diversity have been significantly altered. Consequently, these lands verge on the greatest risk of ecological collapse. (Cohesive Strategy, 2002, in draft)

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, which requires a certain vegetative community (or habitat) type during part of its life cycle.

DESIRED PLANT COMMUNITY: The kind, amount, and proportion of vegetation which best meets land use objectives for a particular site, and which must be within the sites capability to produce through management or a combination of management and land treatment.

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

ENDANGERED SPECIES: Plant or animal species that are in danger of extinction throughout all or a significant part of their range.

ENDANGERED SPECIES ACT of 1973: (as amended) Federal law to ensure that no federal action will jeopardize federally listed or proposed threatened and endangered species of plants and animals.

ENVIRONMENTAL ASSESSMENT (EA): A systematic environmental analysis of a site-specific BLM activity used to determine whether the activity would have a significant effect on the quality of the environment and whether an environmental impact statement is required.

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

FEDERAL LAND POLICY AND MANAGEMENT ACT (FLPMA): Federal Land Policy and Management Act of 1976, (Public Law 94-570, 90 Stat. 2743, 43 USC 1701).

FIRE BEHAVIOR: The manner in which a fire reacts to the influences of fuel, weather, and topography.

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

FIRE MANAGEMENT OBJECTIVE: Planned, measurable result desired from fire protection and use based on land management goals and objectives.

FIRE MANAGEMENT PLAN: Strategic plans that define a program to manage wildland fires based on an approved land management plan. The plan must address a full range of fire

management activities that support ecosystem sustainability, values to be protected, protection of firefighter and public safety, public health, and environmental issues. The plan must be consistent with resource management objectives and the activities of the area.

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 provide soil cover and 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: Prioritize hazardous fuels reduction where the negative impacts of wildland fire are greatest.

INCIDENT COMPLEXITY ANALYSIS: A guide used by IC's, fire managers, and agency administrators to evaluate emerging fires in order to determine the level of management organization required to meet agency objectives. This will assist in identifying resource, safety and strategic issues that will require mitigation.

IGNITION METHOD: The means by which a fire is ignited, such as hand-held drip torch, helitorch, and backpack propane tanks.

IMPRINTING: A mechanical rangeland treatment for seedbed preparation that typically involves a rolling implement behind a bulldozer or other tractor that causes small depressions in the soil surface to allow for rainfall accumulation.

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.

LAND USE PLAN: A plan that provides management direction on future land uses.

LONG-TERM: Ten to twenty years.

MINIMUM IMPACT SUPPRESSION TACTICS: Intent of MIST is to suppress a wildfire with the least impact to the landscape. Fire conditions and good judgment dictate the actions taken. Actions taken are those that are necessary to halt the fire spread and contain it within the fireline or designated perimeter boundary.

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 or resource data to evaluate

progress toward meeting management objectives.

MOSAIC: The intermingling of plant communities and their successional stages in such a manner as to give the impression of an interwoven design.

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 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.

PRESCRIPTION: Measurable criteria that define the conditions under which a prescribed fire will be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

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 Federal resources. 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: The banks and adjacent areas of water bodies, watercourses, seeps, and springs. These waters provide soil moisture sufficiently in excess of the otherwise available locally to provide a moister habitat than that of contiguous flood plains and uplands.

SENSITIVE SPECIES: A list of animal and plant species that were designated by the Arizona Game and Fish.

RESOURCES: 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.

SPECIES COMPOSITION: A term relating 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.

TREATMENT: A procedure whose effect is to be measured and compared with the effect of other procedures. Examples include a fall burned prescribed fire, an unburned "control", or an area burned with a specific ignition method or pattern.

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 aboveground 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, in order to conserve its primeval character and influence for public enjoyment, under primitive conditions, in perpetuity.

WILDERNESS INVENTORY: An evaluation of the public lands in the form of a written description and map showing those lands that meet the wilderness criteria as established under section 603(a) of FLPMA and section 2(c) of the Wilderness Act, which will be referred to as wilderness study areas (WSAs).

WILDERNESS STUDY AREA (WSA) : A roadless area or island that has been inventoried and found to have wilderness characteristics as described in section 603 of FLPMA and section 2(c) of the Wilderness Act of 1964 (78 Stat. 891).

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, powerlines, 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: Wildland fire used to protect, maintain, and enhance resources and, when possible, allowed to function in its natural ecological role. Use of fire will be based on approved Fire Management Plans and will follow specific prescriptions contained in operational plans.

WILDAND FIRE SITUATION ANALYSIS: The WFSA is a decision making decision process in which the agency administrator or representative describes the situation, compares multiple strategies wildand fire management alternatives, establish objectives and constraints for the management of the fire, selects the preferred alternative, and documents the decision. The format and level of detail required depends on the specific incident and its complexity. The key is to document the decision made. A WFSA will be completed whenever a fire escapes initial attack.