

# **Appendix L – Fire Management Units**

## **Description of Wildland Fire Management Strategies by Fire Management Unit**

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.

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.

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 Map 3-17 for a depiction of 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

## **FMU #2 Description- PD 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<sub>10</sub>, 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** – Agua 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      | 6) Phoenix      |
| 2) Circle City | 7) Skull Valley |
| 3) Gila Bend   | 8) Wickenburg   |
| 4) Hillside    | 9) Wittmann     |
| 5) Morristown  |                 |

Moderate Risk:

- |              |            |
|--------------|------------|
| 1) Congress  | 3) Stanton |
| 2) New River |            |

High Risk:

- |                      |                 |
|----------------------|-----------------|
| 1) Black Canyon City | 2) Rock Springs |
|----------------------|-----------------|

## 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.

## 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 FILs.

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, permittees and other groups to assist communities in reducing the risk from wildfire.

## **FMU # 3 Description- PD 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 District 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

### **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 District 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 Mountains and Hassayampa River 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 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.

## **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

## **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.

#### 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 District 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.

### **FMU # 4 Description- PD 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             | 4) Peeples Valley |
| 2) Humboldt          | 5) Wilhoit        |
| 3) Kirkland Junction |                   |

High Risk:

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

## 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 District 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 District 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.

## **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 to 15 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. This 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, permittees and other groups to assist communities in reducing the risk from wildfire.

## **FMU # 5 Description- PD 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 thought 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.

## **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.

## **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 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 continuous 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**

Wildland 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.