



SCOPING DOCUMENT
ARIZONA FIRE DISTRICT FIRE MANAGEMENT PLAN
AND ENVIRONMENTAL ASSESSMENT
U.S. FISH AND WILDLIFE SERVICE REGION 2

December 2014

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INTRODUCTION

1. The Department of the Interior United States Fish and Wildlife Service (FWS) requires that every area with burnable vegetation have an approved Fire Management Plan (FMP) that describes actions to prepare for and respond to a wildfire (fire suppression), to plan and conduct prescribed fires, and to complete other fire management business. The FMP must meet the policy and direction of the *National Fire Plan* by emphasizing the primary goals of the *10-Year Comprehensive Strategy and Cohesive Strategy for Protecting People and Sustaining Natural Resources*. Among other policies, the FMP will also incorporate and adhere to the Department of the Interior policy stated in 620 Department Manual 1 by giving full consideration to the use of wildland fire as a natural process and tool during the land management planning process.

Planning Process for the FMP Environmental Assessment

The FWS has begun the planning process to prepare a Fire Management Plan and Environmental Assessment (FMP/EA) that will analyze various treatment methods (such as prescribed fire, mechanical, and chemical) to achieve fire management objectives for the following nine FWS units located in the state of Arizona:

1. Buenos Aires National Wildlife Refuge
2. San Bernardino National Wildlife Refuge
3. Leslie Canyon National Wildlife Refuge
4. Cabeza Prieta National Wildlife Refuge
5. Kofa National Wildlife Refuge
6. Imperial National Wildlife Refuge
7. Cibola National Wildlife Refuge
8. Bill Williams River National Wildlife Refuge
9. Havasu National Wildlife Refuge

The environmental assessment process will be conducted in accordance with Council on Environmental Quality (CEQ) regulations for implementing the *National Environmental Policy Act* (NEPA; 40 Code of Federal Regulations [CFR] 1500).

Public Scoping Process

The scoping process is an opportunity for people to read about the proposed alternatives that will be analyzed in the FMP/EA and to provide feedback about any concerns or suggestions for the FMP/EA. The scoping process helps identify relevant issues that could influence the scope of the environmental analysis, including alternative development, and guide the planning process.

This Scoping Document describes the purpose and need for the proposed fire management actions and presents four preliminary alternatives for implementing the Arizona Fire District FMP. You are encouraged to submit comments about the information contained in this Scoping Document. Please be as specific as possible when commenting because specific details about what concerns you are most useful to the planning and environmental analysis process.

This Scoping Document also lists some preliminary planning issues identified by FWS personnel. These issues will be added to public issues to help finalize the purpose and need and alternatives that will be carried forward for analysis in the FMP/EA.

Once the FMP/EA is finalized and an alternative is chosen, that selected alternative will become the final Arizona Fire District FMP for the nine FWS units. The FMP will be reviewed annually to ensure that it contains the most current information based on monitoring and evaluation by the FWS.

Submitting Comments

There are two ways to submit comments after your review of this Scoping Document.

Email

R2fireplanning@fws.gov

U.S. Postal Service

Arizona Fire District FM/EA
c/o Buenos Aires NWR
P. O. Box 109
Sasabe, AZ 85633

The scoping period begins on December 1 2014, and will end on January 6, 2015 (37 days), so please submit your comments by January 6, 2015.

FMP/EA Mailing List

If you want to remain on the mailing list for the Arizona District FMP/EA, please visit the online comment page and enter your name and address and state “please keep me on the mailing list.” If we do not hear back from you by the close of the scoping comment period, which is January 6, 2015, we will remove your name from the mailing list. However, we do hope to hear from you and encourage you to submit comments. If you submit a comment, you will automatically remain on the mailing list.

OVERVIEW OF THE NWRs

This section provides a brief overview for each of the nine NWRs in the state of Arizona. Figure 1 shows the locations of these FWS units.

Figure 1. Locations of the NWRs in Arizona



Bill Williams National Wildlife Refuge

Initially, 1,748 acres of the present Refuge (in the lake and river delta area) were part of Havasu NWR established in 1941 by Executive Order 8647. In October of 1977, 1,575 acres were purchased from the Arizona Ranch and Metals Co. through The Nature Conservancy as an addition to the Refuge. An additional 2,781 acres of desert upland and wash, located adjacent to and up-slope from the river bottoms, were withdrawn from the BLM and added to the Refuge in 1981. The Bill Williams River National Wildlife Refuge (BWRNWR) has a diverse array of habitats present and, uniquely along the Lower Colorado River, most of those habitats are still controlled predominantly by natural processes which make the refuge a truly remarkable area. The Bill Williams River arm of Lake Havasu includes approximately 500 acres of open water and generally rocky shoreline. A dense, narrow fringe of vegetation dominated by Salt Cedar, Honey Mesquite and Arrowweed is present. Conservation targets for this area include maintenance populations of adult endangered Razorback Suckers and Bonytail; foraging areas for Clark's grebe, a species of conservation concern; and small populations (averaging 100-300 individuals based on refuge monitoring data) of wintering waterfowl of predominantly diving species. It is occasionally visited by endangered Brown Pelicans as well as Bald Eagles.

Buenos Aires National Wildlife Refuge

The Buenos Aires National Wildlife Refuge (BANWR) is located in the Altar Valley of south-central Pima County, Arizona. The northern boundary of the refuge is approximately 45 miles southwest of Tucson and the southern boundary borders Mexico. The refuge is 8 miles wide at the north end and 12 miles at its widest point. Elevation of refuge ranges from 3005 ft at the north end to 5942 feet in Brown Canyon.

Prior to the establishment of the refuge, the area was a cattle ranch and had been so since the mid-1860s. Ranching practices had affected the native grasslands which had once flourished in the region. Drought, in combination with over-grazing and planting of exotic species, had permanently altered the terrain. The Sonoran semi-desert grassland was invaded by velvet mesquite (*Prosopis velutina*) and native grasses were out-competed by the exotic Lehmann's lovegrass (*Eragrostis lehmanniana*). Because the masked bobwhite quail requires diverse native grasslands with short shrub cover, the species had disappeared from Arizona by the early 1900s (USFWS 2003).

In the 1978 Recovery Plan for the Masked Bobwhite Quail (U.S. Fish and Wildlife Service 1978) it was recommended that the Buenos Aires Ranch be purchased for the reestablishment of the species. Congress approved the \$4,900,000 needed to purchase the central part of the ranch under the authority of the Endangered Species Act of 1973 and the Fish and Wildlife Act of 1956. Since the ranch owners would only sell the entire ranch, an additional \$4,000,000 was approved in 1984. The purchase was finalized in August, 1985 when Buenos Aires National Wildlife Refuge was officially established in the Altar Valley of Pima County, Arizona. Approximately 21,000 acres were received in fee title and 90,000 acres were in state leases. Additional parcels were later acquired including land along Arivaca Creek and in Brown Canyon. The total acreage currently stands at 118,000 acres.

By focusing on the health and integrity of habitats, it will benefit a wide variety of species including numerous threatened and endangered and trust resources. Among these, most obvious are the federally listed species. These include the masked bobwhite, southwestern willow flycatcher (*Empidonax traillii extimus*), western yellow-billed cuckoo (candidate species), jaguar (*Panthera onca*), Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuena*), Gila topminnow, Chiricahua leopard frog, Pima pineapple cactus, and Kearny's bluestar (*Amsonia kearneyana*). These also include the Northern Mexican gartersnake (*Thamnophis eques megalops*) which is a candidate species as well as a variety of important species which have been designated by the Partners in Flight program.

Cabeza Prieta NWR

The Cabeza Prieta NWR (CPNWR) encompasses 860,000 acres and was originally established as a "Game Range" by Executive Order 8038 signed by President Franklin D. Roosevelt on January 25, 1939. This Range was established primarily to assist in the recovery of the desert bighorn sheep, and partially in response to public demand generated by the Boy Scouts of America, Arizona Game Protective Association, and the Audubon Society.

Though it officially became a national wildlife refuge in 1975, this landscape has been managed for the benefit of wildlife since 1939. Today, the refuge's management priorities are primarily focused on the endangered Sonoran pronghorn, bighorn sheep and lesser long-nosed bat.

Far from a barren desert, Cabeza Prieta National Wildlife Refuge harbors nearly 400 plant species. For thousands of years, runoff from the mountains during summer monsoons and winter rains eroded into the valleys below bringing sand, silt and gravel. These soils support the plant community known as the creosote bursage flats, broad flats on gently sloping hillsides that support creosote bushes, white bursage, mesquite, palo verde, ironwood, ocotillo and an abundance of cacti, including cholla, and saguaro.

Cibola National Wildlife Refuge

Cibola NWR (CNWR) was established on August 21, 1964, by Public Land Order 3442. Land within the Cibola NWR boundary was acquired by both fee simple and through withdrawal from the Public Domain. The Refuge consists of approximately 18,444 acres.

There are 297 acres leased from the State of California for a 49-year period, ending July 31, 2031. The Continental Telephone Company of California maintains two easements across Refuge land. One is in California and the other is along the eastern boundary of the Refuge in Arizona. Two adjacent farms maintain irrigation easements across Refuge land; the easements were granted by the Bureau of Reclamation during the acquisition of private land for establishment of the Refuge.

Generally, land uses surrounding Cibola NWR in the area of concern are either owned by Indian tribes, other Federal agencies (BLM, Bureau of Reclamation, or the Department of Defense), or by agencies of the States of Arizona or California. There is little privately owned

land directly adjacent to the Colorado River National Wildlife Refuges. Most of the private holdings are used primarily for agriculture in the Cibola and Palo Verde Valleys.

Havasu National Wildlife Refuge

Havasu National Wildlife Refuge (HNWR) was established by Executive Order 8647 on January 22, 1941, "...as a refuge and breeding ground for migratory birds and other wildlife." This refuge was created by President F.D. Roosevelt to provide migratory bird habitat. Assuring excellent habitat for wintering migratory birds is a primary goal of the HNWR.

Havasu NWR currently consists of 38,427 acres. The Service owns most of the land within the defined boundaries of HNWR, as a result of Public Land Orders that overlaid the Refuge on Bureau of Reclamation acquired lands. The Refuge adjoins acreage belonging to the Fort Mojave Indian Tribe, the BLM, and the Chemehuevi Indian Tribe. The Havasu Refuge (excluding the Bill Williams River NWR acreage) as established encompassed 41,252 acres and was enlarged to 44,013 acres in 1949. With the founding of Lake Havasu City in 1964, the Refuge was reduced to 20,259 acres under the Colorado River Land Use Plan. In 1968, the Needles Peaks area was added to the Refuge, bringing the total acreage to 39,747. In 1974, 420 acres were deleted and returned to the Chemehuevi Indian Tribe. In 1987, an extensive land exchange took place between the BLM and the Fish and Wildlife Service, with involvement from the State of Arizona. The exchange allowed the Service to acquire previously leased lands at the Buenos Aires NWR, southwest of Tucson, Arizona. As a result of the transaction, the Havasu NWR relinquished 900 acres. The transaction was part of the Fort McDowell Indian Water Rights Settlement and the Santa Rita exchange. Refuge boundaries were affected on the north and east; much of the acreage to the east of State Highway 95 is now owned by the State of Arizona or is in private ownership. As a result of these most recent transactions, Havasu NWR now has 38,427 total acres.

The HNWR also has designated Wilderness. The Arizona Refuge Wilderness Act of 1990 designated 14,606 acres of Wilderness at the HNWR, and then the California Desert Act added another 3,195 acres. These 17,801 acres also have wilderness as a purpose in conjunction with the establishing purpose.

Imperial National Wildlife Refuge

Imperial National Wildlife Refuge (INWR) stretches for approximately thirty miles along the Lower Colorado River, with the southern boundary starting at Martinez Lake, Arizona, and the northern boundary bordering Cibola National Wildlife Refuge. The headquarters building is located just north of Martinez Lake, which is approximately 35 miles north of Yuma, Arizona, the closest metropolitan area to the refuge. The refuge occupies both sides of the river, and is therefore located in Arizona and California. The refuge is relatively long and narrow, with its eastern and western boundaries varying from approximately a quarter mile to two miles distant from the main channel of the river. The refuge is largely surrounded by federal and state owned land to the east and west, consisting of the Yuma Proving Ground (YPG) on the Arizona side, and BLM, California State Parks, and California Department of Fish and Game lands on the western side. The YPG is a large military installation where weapons are developed and

specialized training takes place, and little public access is available. Large portions of BLM land are designated wilderness, with only a few primitive roads reaching the refuge's western boundary. Picacho State Recreation Area provides the only major access point along the California side, via a gravel road.

Kofa National Wildlife Refuge

Kofa NWR (KNWR) was established from public lands on January 25, 1939 by Executive Order 8039 and was "reserved and set apart for the conservation and development of natural wildlife resources." The Fish and Wildlife Service and the Bureau of Land Management (BLM) managed the Kofa Game Range (as it was originally known) jointly until February 27, 1976. At that time an amendment to the National Wildlife Refuge Administration Act (P.L. 94-223) awarded sole jurisdiction to the Fish and Wildlife Service and changed the name to Kofa National Wildlife Refuge.

The refuge is located in Yuma and La Paz Counties in southwest Arizona and is a roughly rectangular-shaped area that measures approximately 40 miles north to south and 27 miles east to west. The Kofa NWR is bounded on the south and east by the U.S. Army Yuma Proving Ground (YPG) and on the west and north by public land managed by the Bureau of Land Management (BLM).

Due to The Arizona Desert Wilderness Act of 1990, 5,400 acres of public land (BLM) added to the refuge, bringing the total refuge acreage to 665,400 and designating 547,719 acres of that as wilderness.

The area where the refuge is located has a long history of human use. Archeological materials located on the refuge date back to 9000 B.C. Early Spanish explorers visited this part of Arizona by 1540. During the late 1800s and early 1900s, several gold and silver mines were active in the area that is now the refuge. The effects of mining activities on the natural environment are still apparent. The name of the refuge is derived from the King of Arizona gold mine; KOFA is an acronym of that name.

Two major mountain ranges, the Kofa Mountains and Castle Dome Mountains, dominate the refuge landscape. These rugged mountains are typified by extensive exposures of bedrock, sparse vegetative cover, lack of soil development, and narrow side canyons. Bajadas or alluvial fans slope down from the base of the mountains toward the valley floor and are cut by many deep gullies or washes. Elevation varies from 680 feet mean sea level (msl) in King Valley to 4,877 feet atop Signal Peak.

The refuge is located in the Sonoran Desert climatic zone that is characterized by long, hot summers; short, mild winters; and low annual rainfall (averaging 4-8 inches). The climate pattern consists of winter precipitation followed by spring drought and summer precipitation followed by fall drought.

San Bernardino and Leslie Canyon National Wildlife Refuge

The San Bernardino NWR (SBNWR) was established in 1982 and Leslie Canyon NWR in 1988 under the Endangered Species Act of 1973 and the Fish and Wildlife Act of 1956. San Bernardino and Leslie Canyon National Wildlife Refuges are located in the Southeast Arizona, Cochise County. The San Bernardino NWR is located adjacent to the republic of Mexico, 16 miles east of Douglas Arizona along Geronimo Trail Road. Leslie Canyon NWR is located on the edge of the Swisshelm Mountains, 16 miles north of Douglas, Arizona on Leslie Canyon Road.

The 2,963 acre San Bernardino NWR and the 2,765 acre Leslie Canyon NWR lie within the Rio' Yaqui River Basin, a major river system which drains parts of Cochise County Arizona, Hidalgo County New Mexico, and the western Chihuahua and eastern Sonora, Mexico. San Bernardino and Leslie Canyon NWR offer an oasis within the surrounding desert grasslands, providing resting, breeding, and year round habitat for a significant number and diversity of animals.

FMP/EA GOAL AND DISTRICT-WIDE MANAGEMENT OBJECTIVES

Environmental Assessment Goal

The overall goal of the FMP/EA is to present an ecosystem-based approach (an environmental management approach that recognizes the full array of interactions within an ecosystem, including humans, rather than considering single issues, species, or ecosystem services in isolation) for protecting resources at the nine NWRs that make up the Arizona Fire District. Once the FMP/EA is finalized and a Finding of No Significant Impacts is approved, the management actions contained in the selected alternative will become the Arizona Fire District FMP for the nine FWS units. The FMP will be reviewed annually to ensure that it contains the most current information based on monitoring and evaluation by the FWS.

Importance of Defining Objectives and Final Decision

Objectives are specific statements of purpose that support the goals an alternative must meet, to a large degree, for the planning and environmental analysis process to be considered a success. Meeting objectives to a large degree is part of what makes an alternative "reasonable." Objectives also help resolve the need for action.

The decision maker for the Arizona Fire District FMP/EA and Finding of No Significant Impact will be Regional Director Dr. Benjamin Tuggle. Dr. Tuggle will use the proposal objectives, together with potential environmental effects, as evaluation criteria to select the alternative that best fulfills the proposal's objectives and satisfactorily meets environmental guidelines. Once the FMP/EA is finalized and a Finding of No Significant Impacts is approved, the management actions contained in the selected alternative will become the Arizona Districts FMP for the nine FWS units. The FMP will be reviewed annually to make sure it contains the most current information based on monitoring and evaluation by the FWS.

Purpose and Need for Fire Management Actions

There are two district-wide objectives for the FWS Arizona Fire District Region 2. These two objectives are presented for fire management actions at the nine NWRs based on the purpose and need for the FMP and FWS direction. The following objectives guided the development of four proposed alternatives:

1. Protect life, property, human improvements, and cultural resources from the threat of wildland fire through prevention, education, mitigation, and restoration actions on and adjacent to the National Wildlife Refuges (NWR).
2. Protect, restore, and maintain the ecological integrity of native biological communities by using prescribed fire (planned ignitions), and wildfire (unplanned ignitions), mechanical and chemical treatment methods to support a diversity of wildlife occurring on and near the NWRs.

The following section summarizes the need for action (based on existing conditions) to demonstrate the link between those conditions and the purpose (objectives) of fire management actions at the NWRs.

OBJECTIVE 1. Protect life, property, human improvements, and cultural resources from the threat of wildland fire through prevention, education, mitigation, and restoration actions on and adjacent to the NWRs.

Need Based on Existing Conditions. The FWS has a responsibility to provide for the prevention and suppression of wildfire, which can cause adverse effects on refuge infrastructure and neighboring properties. Assets of the FWS and its neighbors need to be protected, and in order to do so, there must be proactive management of the hazardous fuels to reduce the behavior and intensity of wildfires, which threaten lives and property.

There is a need to protect NWR neighbors by implementing hazardous fuel reduction treatments in the Wildland Urban Interface and in areas with heavy fuel loads. A variety of treatment methods are needed to reduce unwanted fuel loading and reduce the spread and intensity of wildfire, while increasing the ability to quickly suppress the fire. Significant increases in nonnative invasive species have worsened the problem, specifically along riparian areas where *Tamarisk* spp. has become established. The removal of these fuels by mechanical, chemical, and prescribed fire is instrumental in meeting this objective.

Additionally, the FWS needs to prepare for climate conditions that can increase the potential for a devastating wildfire on FWS lands or from a fire off FWS property that could spread to the NWRs. In annual terms, the average fire danger rating is low. The fire danger rating in spring and fall mostly varies from low to moderate, with some days high, very high, or extreme — usually when windy on top of other conditions such as lack of precipitation, low

humidity, and higher temperatures. For example, the drought conditions experienced during the summer of 2010 can extend and amplify the fire season and danger rating. The conditions the NWRs need to prepare for are referred to as “90th percentile weather conditions.” These conditions are described as the highest 10 percent of fire weather days where fuel moisture, temperature, relative humidity, and wind speed are only exceeded 10 percent of the time based on historical periods of weather observations.

There is a need to prepare for potential wildfires. Preparation includes measures such as reducing or removing excessive ground and ladder fuels, providing access, creating fire breaks and defensible space, reducing potential for unplanned fires to start, and making sure that properly trained and equipped personnel are prepared to respond.

There is a need to protect significant values at the nine NWRs. The estimated replacement cost of government-owned facilities is listed in Table 1. The replacement costs include such assets as buildings (including furnishing and fixtures), storage shed (including the equipment inside), fences, information kiosks, signs, water control structures and water diversion structures, irrigation wells, pedestrian boardwalks and bridges, observation decks, parking areas, public use comfort stations, and utilities (gas and electric—piping, wiring, poles). This list is just a very small sampling of the type of FWS assets that could be at risk from a potentially devastating wildfire.

Table 1. Estimated Replacement Costs of government-owned facilities

National Wildlife Refuge	Estimated Replacement Cost
Bill Williams River NWR	\$2,200,000.00
Buenos Aires NWR	\$27,100,000.00
Cabeza Prieta NWR	\$3,500,000.00
Cibola NWR	\$15,000,000.00
Havasu NWR	\$9,500,000.00
Imperial NWR	\$9,200,000.00
Kofa NWR	\$8,300,000.00
San Bernardino and	\$2,416,000.00
Leslie Canyon NWR	\$1,007,000.000

OBJECTIVE 2. Protect, restore, and maintain the ecological integrity of native biological communities by using prescribed fire (planned ignitions), and wildfire

(unplanned ignitions), mechanical and chemical treatment methods to support a diversity of wildlife occurring on and near the NWRs and NFHs–FTCs.

Need Based on Existing Conditions. There is a need to reintroduce or apply fire to refuge lands. Fire has affected terrestrial ecosystems since ancient times. Historically, fire was the primary disturbance regime that affected vegetation composition and structure (Collins and Gibson 1990). Fire is considered a significant ecological factor, and ecosystems have become adapted to frequent fires (Odum 1971). Fire suppression has had an effect on vegetation that would have existed historically or ordinarily in the presence of fire. According to Odum (1971) “the failure to recognize that ecosystems may be fire adapted has resulted in a great deal of mismanagement of man’s natural resources.”

There is a need to treat areas that have become infested with invasive plant species, some of which are flammable and increase the risk of high-severity wildfire. Treatment actions are needed because invasive nonnative (also referred to as exotic or alien) plants are out-competing native vegetation for resources (sunlight, soil moisture, and nutrients) and displacing native plants and changing species composition, vegetation structure, and soil chemistry. Invasive plants have taken over to a degree that they are the dominant vegetation in some areas at the NWRs. This has created a monoculture (plants of only one species in a particular area) in some areas rather than an ecosystem that supports plant and animal diversity. The replacement of native plants with nonnative plants is causing adverse effects because native insects, birds, and animals are adapted to living and reproducing along with native plants. Native insects, birds, and animals sometimes readily feed or reproduce on nonnative plants, leading one to think that this is beneficial. However, this can negatively affect their diet, lead to mortality or reproductive failure, make them vulnerable to pests and predators, or prevent the pollination or seed dispersal of native plants.

Native habitats occurring on refuges in Arizona have been affected by overgrazing of nonnative herbivores, nonnative and native invasive plant species, and a decrease in the historical scope and occurrence of fire on the landscape. In addition, long-term climate changes, alterations to the hydrology of river and riparian systems, and agricultural practices have affected species diversity and composition.

There is a need to restore native vegetation to the type that would normally be found at the NWRs. Prior to the establishment of the NWRs, past land use practices altered vegetation from its original conditions. The loss of native vegetation has occurred over the years, primarily from grazing. The loss of native vegetation has also been the result of fire exclusion.

THE PROPOSED ALTERNATIVES

The CEQ regulations for implementing NEPA require federal agencies to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). The four preliminary alternatives described in this Scoping Document are

Alternative A: No Action—Continue Current Level of Fire Management (Prescribed Fire, Chemical and Mechanical Treatments, and Suppression)

Alternative B: Suppression Only

Alternative C: Prescribed Fire Treatments and Suppression

Alternative D: Chemical and Mechanical Treatments and Suppression

Prioritization of Treatments

Treatment priority, in general, is based on values at risk, both on- and off-refuge values, such as structures and property, and natural values such as critical habitat. High-priority projects are those that involve the reduction of wildfire threat to infrastructure on and adjacent to refuges. The treatments generally involve the reduction of hazardous fuels through mechanical, chemical, and prescribed fire and the creation of firebreaks. Other high-priority projects would involve the protection or restoration of critical habitat, especially in circumstances where federally listed (threatened and endangered) plant or wildlife species are or may be present.

Treatments may be prioritized based on refuge management objectives, availability of resources and funding, and current climatic and vegetative conditions.

Treatment Objectives

The use of prescribed fire, mechanical, and/or chemical treatments is based on the management objective for the area, costs, availability of workforce, and time to implement as well as several other local factors that may be involved. In general, prescribed fire is used as a natural mechanism of disturbance that the native vegetative and faunal communities evolved with and need to maintain a naturally functioning system. Prescribed fire may also be used to reduce hazardous fuel loadings either singly or in conjunction with mechanical projects to remove debris. Mechanical treatments provide a means of removing large amounts of fuel loading that would either be unfeasible to accomplish with fire alone, due to the severity and inability to control such a fire, or because of environmental constraints with protecting other species within the project area from fire. Chemical treatments are often used as follow-up treatments to mechanical or prescribed fire projects to treat remaining vegetation or to treat site specific areas where mechanical treatment is unwarranted.

Proposed Management Actions by FWS Unit

All or only some of the following proposed management actions would be continued or implemented, depending on which alternative is selected by the FWS. The FWS is proposing four alternatives, which are described below.

Bill Williams National Wildlife Refuge

Proposed Management Actions to Meet District-wide Objectives

1. All wildland fires originating on refuge lands will be suppressed.
2. Fires that threaten private property or present a significant threat to unique natural resources or health and safety for the public, will be suppressed.

Buenos Aires National Wildlife Refuge

Proposed Management Actions to Meet District-wide Objectives

1. All wild fires will be controlled. The direct attack of wildfires will receive less emphasis than in the past. Rather, the Refuge will employ the extensive system of roads, trails, and larger sand washes as control features from which to burn out. This strategy will be used especially in those areas where access is limited or slow because of terrain. In normal years, using this strategy will negate the use of retardants in initial response, reducing costs. It will not expose firefighters to as many direct attack conditions, making this a safer approach to fire control.
2. To improve the effectiveness of the above burnout strategy, fifty five miles of roads have been identified to serve as dependable fuel breaks. These roads vary in width from 10 to 25 feet, with the average being 15 feet. Improvements needed are annual grading to the existing width, installing water control features, and removing all brush and trees within 25 feet on both sides of the road. Brush and tree removal will be accomplished manually (saw crews) over a period of years. Roadsides will be inspected every three years and woody regrowth removed.
3. In areas identified by Refuge biologists as being of particular importance for wildlife resources, near structures, and along the more fragile riparian belts, the appropriate management response will be direct attack.
4. Preparedness activities will include developing and maintaining a defensive space around residences and structures. These buildings are grouped at several sites. Some are close enough together to be protected as a group. Others are located farther apart and will need individual attention. The FWS may coordinate with neighboring agencies and landowners to apply prescribed fire, mechanical, and chemical treatments across jurisdictional boundaries to reduce the threat and severity of wildfire and improve habitat conditions.
5. Prescribed fire may be used in identified burn cycle to manipulate existing vegetation to meet broad biological goals and specific species needs.

Cabeza Prieta National Wildlife Refuge

Proposed Management Actions to Meet District-wide Objectives

1. Protect human life and property within the Refuge.
2. Employ strategies to suppress all wildland fires within Refuge boundaries that minimize costs and resource damage consistent with values at risk. The wildland fire management program options for Cabeza Prieta NWR are suppression of all wildfires whether lightning- or human-caused, using the appropriate management response (AMR). The AMR may be passive or aggressive in nature dependent upon values at risk, fire conditions, weather, season, resource availability and cost constraints.

Cibola National Wildlife Refuge

Proposed Management Actions to Meet District-wide Objectives

1. All wildland fires originating on refuge lands will be suppressed. However, safety of the public and fire crews will remain the foremost objective in all operations. Where possible, suppression in a direct attack mode is preferred in an effort to reduce the loss of habitat. Indirect attack may be utilized where fire intensity or spread has already exceeded the capability of the suppression forces for direct attack.
2. Fuel breaks north of Cibola Lake and west of Hart Mine Marsh Restoration to thin salt cedar.

Havasu National Wildlife Refuge

Proposed Management Actions to Meet District-wide Objectives

1. Prescribe burn decadent stands of emergent vegetation to invigorate plant species and improve nutrition of vegetation to be used by wildlife and minimize the cost and impact of suppression activities.
2. All wildland fires will be suppressed. However, safety for the public and crews will remain the foremost objective in all tactical assignments. Where possible direct attack is strongly preferred as the means to minimize loss of habitat in this environment. Indirect attack in the form of burn out operations may be considered where fire intensity or spread has already exceeded the capability of suppression forces for direct attack.

Imperial National Wildlife Refuge

Proposed Management Actions to Meet District-wide Objectives

1. Prescribe burn decadent stands of emergent vegetation to invigorate plant species and improve nutrition of vegetation to be used by wildlife and minimize the cost and impact of suppression activities.
2. Maintain constructed fuel breaks.
3. All wildland fires will be suppressed. However, safety for the public and crews will remain the foremost objective in all tactical assignments. Where possible direct attack is strongly preferred as the means to minimize loss of habitat in this environment. Indirect attack in the form of burn out operations may be considered where fire intensity or spread has already exceeded the capability of suppression forces for direct attack.

Kofa National Wildlife Refuge

Proposed Management Actions to Meet District-wide Objectives

1. Managing fire to maintain the areas natural values.
2. Reported fires will be monitored by air with minimum altitudes of 1000 feet above ground level, or by foot access. In the New Waters, fire that exceed or are expected to exceed or are expected to exceed a 5 chain per hour rate of spread will be suppressed. Kofa fires that threaten private property, have other than a low potential for spreading beyond the planning area, or present a significant threat to unique natural resources (i.e. native palms), or health and safety for the public, will be suppressed. The use of non-motorized hand tools for suppression activities within wilderness portions of the planning area. Complete the rehabilitation of disturbances caused by fire suppression activities in accordance with BLM Manual 8560.35 and refuge Manual 6 RM8.8C, before suppression forces are released.

San Bernardino and Leslie Canyon

Proposed Management Actions to Meet District-wide Objectives

1. Enhance habitat diversity by restoring native habitats to their natural conditions. Implement special projects to include prescribed burns to stimulate native grass growth and mechanical control to remove or open up dense stands of woody, invader vegetation.
2. All wildland fires originating on refuge lands will be suppressed. However, safety of the public and fire crews will remain the foremost objective in all operations. Where possible, suppression in a direct attack mode is preferred in an effort to reduce the loss of habitat.

Description of the Proposed Alternatives

The following alternatives are described as “preliminary” because they have not been subjected to public review and comment during the scoping process. If, during scoping, public comments present issues concerning the alternatives or components of the alternatives, the FWS will consider if the issues are significant enough to warrant changes to the alternatives. Sometimes public comments are responsible for an agency developing an additional alternative if implementation is feasible and if it would meet management objectives.

The draft FMP/EA will include an analysis of a no-action alternative, which complies with the Council on Environment Quality regulations for implementing the National Environmental Policy Act at 40 CFR 1502.14(d). The no-action alternative for the draft FMP/EA is described as continuation of the current level of management.

Alternative A: No Action—Continue Current Level of Fire Management

Current Treatment Methods That Would Continue Under Alternative A

Prescribed Fire. Prescribed fire is a management tool used to manipulate vegetation. Prescribed fires may be loosely classified as broadcast, in which fire is applied across the landscape, or as debris burning as with pile or ditch burning. Historically, the treatment size and number of burns conducted on refuges within the Arizona Fire District has varied considerably by unit to meet both habitat management and fuel reduction needs. Broadcast burns may range from as little as 5 acres to 14,000 acres dependent on the size of the refuge and management objectives. Burning may be conducted year-round, again depending on the desired objectives of the burn to achieve specific results.

Broadcast burning may be used to restore native biological communities to provide optimum feeding, breeding, and wintering habitat for a diversity of grass and shrub-land dependent migratory birds, migratory waterfowl, native herbivores, native pollinating invertebrates, and other native wildlife that are present. Broadcast burning may also be used as a management tool in wetlands and moist soil units to reduce invasive species such as cattail. Prescribed fire also provides a needed mechanism of disturbance across all habitats that have evolved with fire.

Debris burning is used to remove vegetative material produced from mechanical treatments such as piles, or to remove a buildup of decadent vegetation from ditches and canals to improve the flow of water.

Natural ignitions are non-human caused fires. Within the Arizona Fire District, they may be managed for resource benefit in wilderness study areas, designated wilderness, and areas with little to no threat of loss to structures or developed assets on and off the refuge. These areas are located at Havasu NWR, Cabeza Prieta NWR and Kofa NWR. Non-human caused ignitions on these sites will be evaluated for potential to cross jurisdictional boundaries and the potential for damage or loss to refuge infrastructure or private property. This management option will reduce the potential for negative effects created during suppression operations such as the mechanical construction of fire line and allow for the natural role of fire in these environments.

Mechanical Treatments. Mechanical treatments are implemented using hand-held tools, chain saws, bull dozers, tractors, masticators, excavators, forestry cutters, chippers, and other specialty equipment. Mechanical treatments have ranged from less than 1 acre to 1,000 acres or more on refuges in Arizona. Mechanical treatment methods are generally used to remove heavy concentrations of fuel or invasive species that may not be treated by prescribed fire or chemical treatments due to the size and amount of material needing to be removed. Mechanical treatments may also be used in conjunction with chemical and prescribed fire treatments as part of the overall treatment process.

Tamarisk has become well established throughout the riparian corridors of the Colorado River refuges, resulting in the displacement of native species. As a result, the fire danger and severity of wildfires has increased due to the high rate of spread and resistance to control exhibited in this fuel type. Mechanical reduction of these dense, large volumes of highly flammable fuels is currently accomplished through the use of an excavator to either pull the trees from the ground or by a dozer to push the trees into piles. Follow-up treatment of root raking with heavy equipment is recommended to remove the remaining roots to prevent root sprouting. Restoration of native species following Tamarisk removal reduces the fire hazard by restoring native species that produce a much lower fire behavior and are less resistant to control.

Mechanical treatments have also been conducted using chainsaws and specialty equipment to remove mesquite and other species that have become established on grasslands. Mechanical treatments are often used prior to or in conjunction with prescribed fire to both remove the cut material and prevent sapling trees from encroaching onto the treated site. These types of treatments would continue in order to prevent the further encroachment of grassland and savanna habitats and to manage stand density and diversity of grass and forb species.

Firebreaks are generally created and maintained with mechanical treatments through the use of heavy equipment to remove heavy fuel concentrations, mow “green” fire breaks, grade two-track roads to remove vegetation, and to remove single or small groups of trees by hand.

Chemical Treatments. Five of the nine refuges in the Arizona Fire District use chemicals to treat invasive plant species, federally and state-listed noxious plant species and to restore and maintain native habitats. All units of the FWS that implement chemical treatments must prepare an annual Pesticide Use Proposal (PUP) that describes the chemical (for example, herbicide, insecticide, or rodenticide) that is proposed for use. Chemical use varies by unit as shown in Tables 2 and 3. The effects analysis for use of chemical treatments will be included in the FMP/EA.

Wildfire Suppression. Suppression actions may include the construction of fireline by firefighters using hand tools, engines, heavy equipment (such as dozers), and aircraft. Some suppression actions using heavy equipment or aircraft may be restricted based on the presence of cultural sites, riparian habitat, waterways, and critical habitat. Tactics such as burning out from roadways or allowing the fire to burn into areas of natural confinement may be appropriate as well. Some refuges may have special constraints regarding suppression actions such as the presence of Unexploded Ordnance (UXO). As stated in the Federal Wildland Fire Policy above,

fire managers have the latitude to determine and implement the appropriate suppression response based upon the current and expected conditions.

Treatment Implementation

The number of all treatment that could be implemented may vary widely on an annual basis. This variation is based, in part, on specific habitat management and fuels-reduction objectives, availability of funding and resources, and current and long-term weather and fuel conditions. Some grasslands may only need to be burned once every 8 to 15 years or more while other areas require more frequent fire to maintain habitat conditions. Fuels reduction and the creation and maintenance of fire breaks would most likely require more frequent treatments.

Alternative B: Suppression Only

U.S. Fish and Wildlife Service Manual (621 FW 1.1) states, in part, that each refuge will maintain a wildland fire suppression program to “ensure that refuge resources, including staff, the general public and private property receive adequate protection from potential wildland fire. Suppression only as an alternative would provide for limited protection of refuge assets and neighboring property. Suppression efforts may be adversely affected by the increase in hazardous fuel loading and the absence of fire breaks in strategic locations.

Revised Guidance for Implementation of NWCG Federal Wildland Fire Management Policy (2009) defines two kinds of wildland fire; prescribed fire (planned ignitions), and wildfire (unplanned ignitions). A wildland fire may be concurrently managed for one or more objectives and objectives can change as the fire spreads across the landscape. Objectives are affected by changes in fuels, weather, topography; varying social understanding and tolerance; and involvement of other governmental jurisdictions having different missions and objectives. The revision allows fire managers to manage a wildfire for multiple objectives and increased flexibility to respond to changing incident conditions and firefighting capability, while strengthening strategic and tactical decision implementation that better supports public safety and resource management objectives.

Alternative C: Prescribed Fire and Suppression

Prescribed fire and fire suppression actions would occur as described under Alternative A.

Alternative D: Mechanical and Chemical Treatments with Suppression

The mechanical and chemical treatments and fire suppression actions would be implemented as described under Alternative A.

PRELIMINARY ISSUES

The FWS has identified two preliminary issues that will be analyzed in the FMP/EA. Those are

- The effects of smoke from prescribed fire on air quality.
- The use of prescribed fire during periods of high fire danger.

Table 2. Chemicals (herbicides) used on the NWRs in the Arizona Fire District, FWS Region 2

1. AquaNeat, Diqvat E-Pro 2L	8. Remedy Ultra, Reclaim	15. Prowl H2O
2. Habitat	9. Lineage Clearstand	16. 2,4-D Amine 4 (Helena)
3. Fusilade DX	10. Garlon 3A	17. Polaris AQ
4. Element 4	11. Select 2 EC	18. Roundup Pro, Rodeo (Dow Agro Sciences LLC)
5. Garlon 4 Ultra	12. Raptor	19. Lineage Clearstand
6. Rodeo (Dow Agro Sciences LLC)	13. Pursuit	20. Tahoe E4, Element 4
7. Tahoe 4E	14. Treflan TR-10	21. Velpar L

Key to herbicide use by unit and invasive plant species treated

Invasive Plants	Bill Williams	Buenos Aires	Cabeza Prieta	Cibola	Havasu	Imperial	Kofa	SB	LC
Athel (<i>Tamarix aphylla</i>)	-	-	-	-	2,4,5	-	-	-	-
Arrowweed (<i>Pluchea sericea</i>)	-	-	-	-	4,5	-	-	-	-
Barnyard grass (<i>Echinochloa crusgalli</i>)	-	-	-	11	-	-	-	-	-
Bermuda grass (<i>Cynodon dactylon</i>)	-	-	-	17,18,19	2,18	19,20	-	-	-
Black mustard (<i>Brassica nigra</i>)	-	-	-	13	-	-	-	-	-
Buffelgrass (<i>Cenchrus ciliaris</i> syn. <i>Pennisetum ciliare</i>)	-	18	-	-	2,18	-	-	-	-
California bulrush (<i>Scirpus Californicus</i>)	-	-	-	-	2	-	-	-	-
Camelthorn (<i>Alhagi maurorum</i> syn. <i>Alhagi pseudalhagi</i>)	-	-	-	-	2	-	-	-	-
Cattail (<i>Typha</i> spp.)	-	6	-	17,18	2,18	20	-	2	-
Cocklebur (<i>Xanthium strumarium</i>)	-	-	-	18	2,18	-	-	-	-
Common reed (<i>Phragmites australis</i> syn. <i>Phragmites communis</i>)	-	-	-	-	2	-	-	-	-
Firehook bassia (<i>Bassia hyssopifolia</i>)	-	-	-	18	-	-	-	-	-
Fountain grass (<i>Pennisetum setaceum</i>)	-	-	-	-	2,18	-	-	-	-
Giant reed (not phragmites) (<i>Arundo donax</i>)	-	-	-	-	-	-	-	2	-
Giant salvinia (<i>Salvinia molesta</i>)	-	-	-	1,18	-	-	-	-	-
Hemp sesbania (<i>Sesbania macrocarpa</i>)	-	-	-	18	-	-	-	-	-
Honey mesquite (<i>Prosopis juliflora</i> (sw.) DC.)	-	-	-	4,8	-	20	-	21	-
Johnson grass (<i>Sorghum halapense</i>)	-	-	-	3,11,15,17,18,19	18	19	-	-	-
Jungle grass (<i>Echinochloa colonum</i>)	-	-	-	14	2	-	-	-	-
Lehmanns lovegrass (<i>Eragrostis lehmanniana</i>)	-	18	-	-	-	-	-	-	-
Natal grass (<i>Rhynchelytrum repens</i> syn. <i>Melina repens</i>)	-	18	-	-	-	-	-	-	-
Parrot feather (<i>Myriophyllum aquaticum</i>)	-	-	-	1	-	-	-	-	-
Phragmites (<i>Phragmites australis</i> syn. <i>Phragmites communis</i>)	-	-	-	17,18	2,6	-	-	-	-
Redroot pigweed (<i>Amaranthus retroflexus</i>)	-	-	-	14	-	-	-	-	-
Russian thistle (<i>Salsola tragus</i> syn. <i>Salsola iberica</i>)	-	-	-	-	18	-	-	-	-
Sahara mustard (<i>Brassica tournefortii</i>)	-	-	-	-	4,5,18	-	-	-	-
Salt cedar (<i>Tamarix ramosissima</i>)	-	5	-	4,7,17,18	18	20	-	-	-
Sandbur (<i>Cenchrus longispinus</i> (Hack) Fern.)	-	-	-	14	-	-	-	-	-
Sesbania (<i>Sesbania exaltata</i>)	-	-	-	15,16	4,18	-	-	-	-
Sow thistle (<i>Sonchus oleraceus</i>)	-	-	-	12	-	-	-	-	-
Sprangletop (<i>Leptochloa fascicularis</i>)	-	-	-	14	-	-	-	-	-
Sunflower (<i>Helianthus annuus</i>)	-	-	-	16	-	-	-	-	-
Tamarisk (<i>Tamarix ramosissima</i>)	-	-	-	2,19,10	2,4,5,6,19	20	-	-	-
Tree of heaven (<i>Ailanthus altissima</i>)	-	6	-	-	-	-	-	-	-
Velvet mesquite (<i>Prosopis velutina</i>)	-	5	-	-	-	20	-	21	-

Table 3. Chemicals (insecticides) used on the NWRs in the Arizona Fire District, FWS Region 2

1. Steward EC	5. Bee Blast	9. Raid Wasp & Hornet Killer 271
2. Success	6. CY-KICK CS	10. Tomcat All-weather Rodent Block
3. Cynthion 8	7. AM DRO Fire Ant bait	11. Bifen I/T
4. Award Fire Ant Bait	8. Amdro Pro	12. Sevin 80C

Key to insecticides use by unit and pests treated

Pest	Bill Williams	Buenos Aires	Cabeza Prieta	Cibola	Havasú	Imperial	Kofa	SB	LC
Egyptian alfalfa weevil (<i>Hypera brunneipennis</i>)	-	-	-	1,12	-	-	-	-	-
Africanized bees	-	5,6,9	-	-	-	-	-	-	-
Fire ants	-	4,7,8	-	-	-	-	-	-	-
Fall armyworm (<i>Spodoptera frugiperda</i>)		-		1					
Harvester ants (<i>Pogonomyrmex spp.</i>)	-	4,7,8	-	-	-	-	-	-	-
Eastern yellow jacket	-	9	-	-	-	-	-	-	-
House mouse	-	10	-	-	-	-	-	-	-
Norway rat	-	10	-	-	-	-	-	-	-
Bark scorpion (<i>Centruroides sculpturatus</i>)	-	11	-	-	-	-	-	-	-
Black widow	-	11	-	-	-	-	-	-	-
Brown recluse	-	11	-	-	-	-	-	-	-
Kissing bug	-	11	-	-	-	-	-	-	-
Beet army worm	-	-	-	2	-	-	-	-	-
Alfalfa weevil (<i>Hypera postica</i>)	-	-	-	3	-	-	-	-	-
Africanized honey bees	-	9	-	-	-	-	-	-	-

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