Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Beal Lake Restoration Area
LCR MSCP Conservation Area Specific Fire Management and Law Enforcement Strategy

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

January 2010

Lower Colorado River Multi-Species Conservation Program
Steering Committee Members

Federal Participant Group

Bureau of Reclamation
U.S. Fish and Wildlife Service
National Park Service
Bureau of Land Management
Bureau of Indian Affairs
Western Area Power Administration

Arizona Participant Group

Arizona Department of Water Resources
Arizona Electric Power Cooperative, Inc.
Arizona Game and Fish Department
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Lower Colorado River
Multi-Species Conservation Program

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Lower Colorado River
Multi-Species Conservation Program
Bureau of Reclamation
Lower Colorado Region
Boulder City, Nevada
http://www.lcrmscp.gov

January 2010

EXECUTIVE SUMMARY

Fire Management and Law Enforcement Strategy
Beal Lake Restoration Area

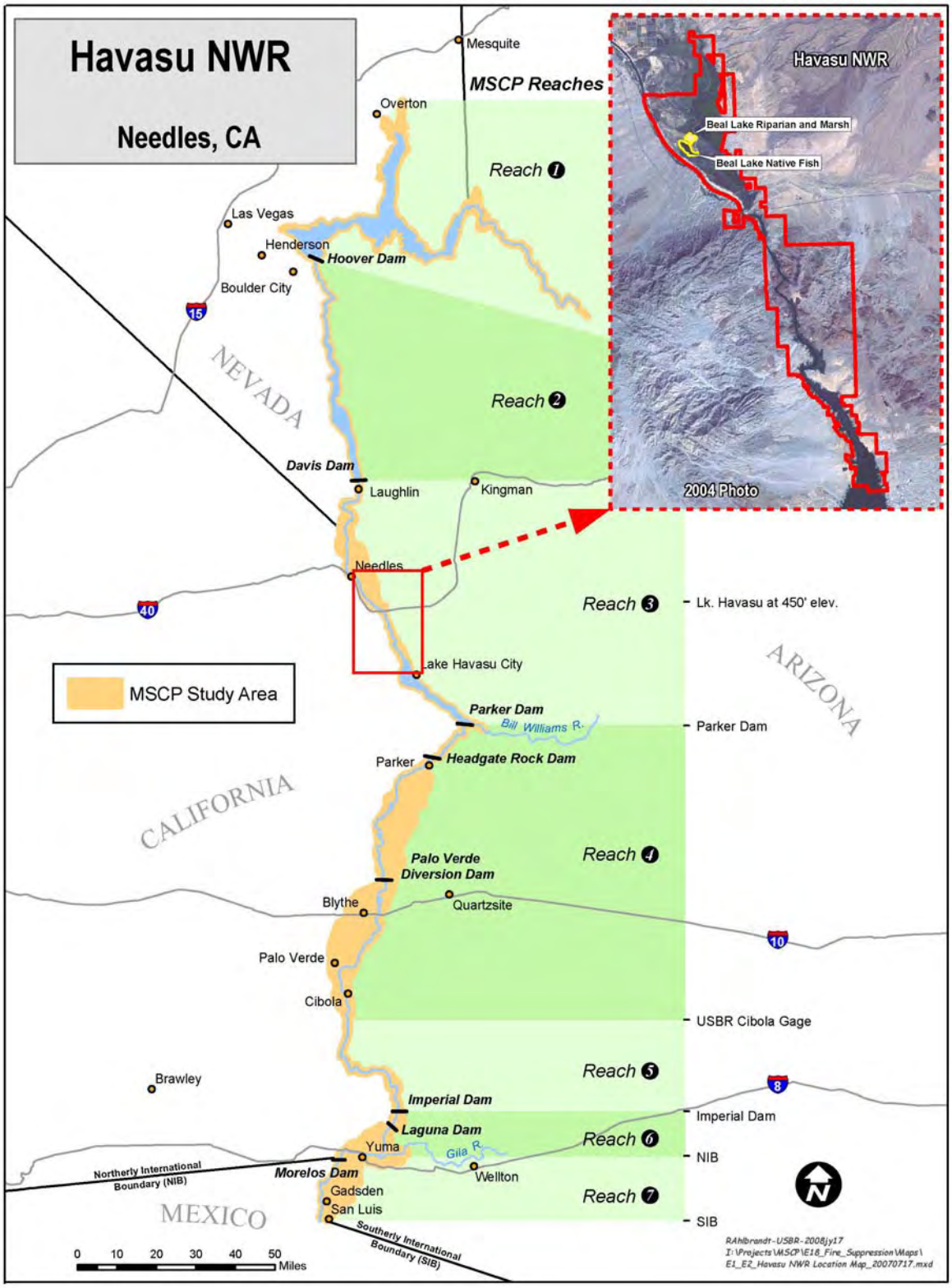
This document provides an overview of fire management and law enforcement strategies for the Beal Lake Restoration Area on the Havasu National Wildlife Refuge. Law enforcement authorities and agreements are discussed, as are fuel conditions, recommended suppression responses, safety considerations, and the like. For both law enforcement and wildland fire management, contact information for appropriate land managers and cooperators is provided. Short term and long term recommendations are provided for fire management operations.

Three critical points should be emphasized in the arena of fire management.

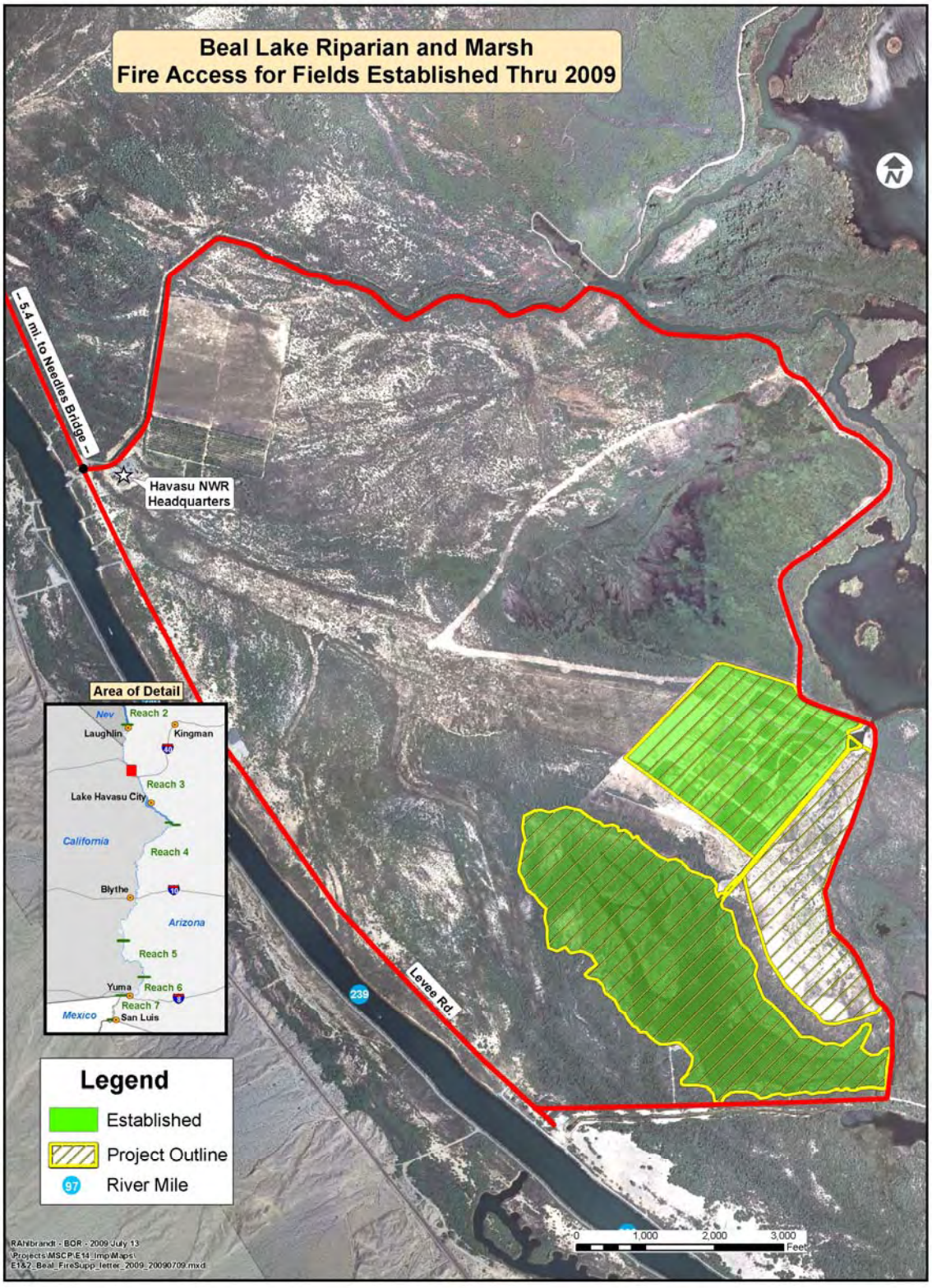
1. The greatest threat to the LCR MSCP habitat units at the Havasu National Wildlife Refuge is wildfire itself. Given the potential fuel conditions, extreme weather conditions (e.g. red flag days), and an ignition, wildfire could sweep through the habitat units before initial attack resources could even arrive at the refuge. Several recommendations are made for fuels management which would reduce the potential for wildfire of this intensity.

2. With less severe burning conditions, initial attack resources may arrive in time to conduct suppression activities. The second greatest threat to the LCR MSCP habitat units is the damage which might be inflicted unintentionally by the activity of suppression resources. Several recommendations are made, some of which are common industry standards, of ways to reduce the potential adverse impact of suppression operations.

3. Given the probable short duration of fires in the LCR MSCP conservation areas, the most effective means of ensuring consideration of stakeholder concerns and constraints in fire suppression operations is to convey those concerns and recommended constraints to the land managing agency, USFWS, and subsequently to fire management and law enforcement first responders.



VICINITY MAP – BEAL LAKE RESTORATION AREA



BEAL LAKE RESTORATION AREA – LCR MSCP HABITAT AREA

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1.0 INTRODUCTION

The Lower Colorado River Multi-Species Conservation Program (LCR MSCP) is a multi-stakeholder, federal and non-federal partnership responding to the need to balance the use of lower Colorado River (LCR) water resources and the conservation of native species and their habitats in compliance with the Endangered Species Act. The LCR MSCP is a long-term (50-year) plan to conserve at least 26 species along the LCR from Lake Mead to the southerly International Boundary with Mexico through the implementation of a Habitat Conservation Plan (HCP). Most covered species are State and/or federally-listed special status species. The Bureau of Reclamation (Reclamation) is the entity responsible for implementing the LCR MSCP over the 50-year term of the program.

According to the LCR MSCP Final Habitat Conservation Plan (HCP, December 2004), this document supports conservation measure CMM1: "Reduce risk of loss of created habitat to wildfire". The intent is for Conservation Areas to identify protection measures to supplement the fire management plan(s) and directive(s) of affected local, State, Tribal, and federal agencies. The Conservation Areas will also supplement existing management plans with information that supports the containment of wildfire and facilitates rapid response to suppress fires (ref: HCP, Section 5.6.3).

The purpose of the Conservation Area Specific Fire and Law Enforcement Strategy is to provide information that will contribute to protection of the functions and values of created covered species habitats over the term of the LCR MSCP. Further, the strategy identifies and describes local law and wildland fire contacts, roles and responsibilities, infrastructure, and techniques and measures for the specific area. The specific strategy will provide information regarding law enforcement jurisdictions, generally accepted fire management practices, and operational recommendations that would support the management efforts of the USFWS and associated jurisdictional authorities involved with the Beal Lake Riparian Restoration Area.

1.1 Location, Reach, and Ownership

The Beal Lake Restoration Area is located in Reach 3, between Beal Lake and lower Topock Marsh on the Havasu National Wildlife Refuge (NWR) near Needles, California. It is also located within the historic floodplain of the LCR, 0.5 miles east of river miles 238 and 239 in Arizona. The habitat area landowner is the U.S. Fish and Wildlife Service, Havasu NWR.

1.2 Project Description, Purpose, and Status

Through a partnership established between BOR and the USFWS, the Beal Lake Riparian Restoration Area began in 2001. Following a year of dredging and distribution of material, subsequent riparian habitat work spanned approximately 3 years (2002-2005). The LCR MSCP area work focused on demonstrating restoration and management that involved various techniques designed to prepare, plant, irrigate, monitor, and maintain over 100 acres of cottonwood, willow, and honey mesquite cover types. The purpose of this project, aside from its demonstration values, is to determine from monitoring how effective this type of habitat will serve the needs of covered species—particularly the southwestern willow flycatcher and the yellow-billed cuckoo.

Overall survival rates for all tree species since planting began are at 60% or higher. Some areas exhibit over 100% survival due to volunteer mesquite emerging between and near planted sites. Woody understory consists of arroweed, dead vegetation, saltcedar, coyote willow, Goodding's willow, and Fremont cottonwood branchwood and litter. Ground cover consists of approximately 57% bare ground and 27% leaf litter; the remainder is mostly Bermudagrass with lesser amounts of grama, Russian thistle, salt heliotrope, inland grasses, and fanleaf crinklemat. However, the herbaceous layer is lacking over much of the area.

Future management of any created habitat for targeted species may include increasing irrigation to specific areas and cutting and clearing to re-establish and maintain high vegetation density.

2.0 LAW ENFORCEMENT AUTHORITIES, STRATEGIES AND CONTACT INFORMATION

2.1 Authorities

Reclamation Lands: Real property administered by the Secretary, acting through the Commissioner of Reclamation, including acquired and withdrawn land and water surface areas under the jurisdiction of the Bureau of Reclamation (16 USC 4601-32(1)).

Reclamation Projects: Any water supply or water delivery project constructed or administered by the Bureau of Reclamation under the Federal Reclamation laws, and Acts supplementary thereto and amendatory thereof (16 USC 4601 § 32(1)).

Law Enforcement Authority at Bureau of Reclamation of 2001: Public Law 107-69, 115 Stat. 593: P.L. 107-69 amended the Reclamation Recreation Management Act of 1992 in order to provide for the security of dams, facilities, and resources under the jurisdiction of Reclamation.

Activities Associated with Enforcing Federal Law: Enforcement of federal law on Reclamation lands and water bodies is governed by P.L. 107-69, Law Enforcement Authority at Bureau of Reclamation Facilities, and 43 CFR Part 422, Law Enforcement Authority at Bureau of Reclamation Projects. The Reclamation Law Enforcement Administrator and Regional Special Agent will be involved in determining when additional law enforcement resources are necessary to enforce federal laws on lands or water bodies under Reclamation jurisdiction. An interagency agreement between the Bureaus in the Department of the Interior provides for cross designation of Department law enforcement officers to provide law enforcement and investigative support in areas under their responsibility or control. Reclamation may enter into additional agreements to more fully detail the scope, objectives, and the range of responsibilities. Reclamation's Regional Special Agent and Regional Security Officer will be involved in planning and implementation of contracts, interagency agreements, and cooperative agreements for law enforcement services. The Law Enforcement Administrator is the Reclamation official authorized to enter into agreements that allow law enforcement personnel of any other federal agency with law enforcement authority (with the exception of the Department of Defense) or law enforcement personnel of any State or local government, including an Indian tribe, when deemed economical and in the public interest, through cooperative agreement or contract, to act as law enforcement officers to enforce

federal laws and regulations within a Reclamation project or on Reclamation lands, with such enforcement powers as may be so assigned to them by the Secretary of the Interior. The length of term for these law enforcement agreements is limited to three (3) years. Generally, the closest available resource will be requested.

Activities Associated with Enforcing State and Local Law: In most instances, responsibilities for enforcing State and local laws are the responsibility of the recreation managing partner and are addressed in the long-term management agreement. However, if Reclamation and its managing partner determine that additional resources are necessary to enforce State and local laws on Reclamation lands or water bodies, Reclamation will request those services from State, county, or local law enforcement agencies. In both instances, Reclamation's Regional Special Agent will be involved in planning and implementation of any contracts or agreements. Any such contracts or agreements shall also be coordinated with the Regional Security Officer to ensure efficiency and consistency with contracts and agreements that have been made with the same entity for security of Reclamation facilities. These types of law enforcement contracts and agreements will be limited to not more than five years and may require some type of financial commitment by Reclamation or its partner. If additional law enforcement resources are necessary, Reclamation may assist in providing funding. Procurement contracts are the only instruments that can transfer funds to a State, county, or local law enforcement agency.

2.2 Jurisdiction and Agreements in Effect:

U.S. Fish and Wildlife Service Refuge System: Pursuant to the Department of the Interior (DOI) Interagency Agreement for the Cross Designation of DOI Law Enforcement Officers, dated July, 2007, and through other approved operating agreements between the USFWS and BOR, BOR law enforcement authority may specify USFWS-designated enforcement officers (Refuge Officers and Special Agents) to conduct routine law enforcement and to perform investigations and response as required and appropriate on Reclamation lands and projects. Additionally, USFWS special agents and refuge officers have existing authority to enforce federal and State regulations on refuge lands. Refuge officers have proprietary jurisdiction on refuges in Arizona and California. In addition, local law enforcement agreements are in place with BLM, NPS and BOR.

2.3 Local Law Enforcement Contact Information

Beal Lake Restoration Area

- Location: Havasu National Wildlife Refuge, Needles, California; LCR MSCP Reach 3
- Refuge Manager: 760-326-3853
- Land Owner: U.S. Fish and Wildlife Service
- Law Enforcement Contact: Wayne Dingman, Refuge Officer, 760-326-3853; Dale Enlow, 928-0680-0414; Lake Havasu, AZ, 24-Hour Dispatch Operation: 800-637-9152

Additional Law Enforcement Assistance

- Arizona Department of Game and Fish, Courtney Fitzgerald, 928-814-9500
- Mojave County Sheriff's Office; Mohave Valley Sub-Station, 928-768-7055
- Bureau of Land Management (BLM), Rubin Conde, District Ranger, Yuma, Arizona; 928-317-3257

- Bureau of Reclamation, Tom Lobkowicz, Special Agent, 702-293-8052 (o), 702-249-0292 (c); tlobkowicz@usbr.gov

(Pursuant to the Department of the Interior (DOI) Interagency Agreement for the Cross Designation of DOI Law Enforcement Officers, dated July, 2007, and through approved Operating Agreements, BOR law enforcement authority to specify BLM or NPS designated enforcement officers (Rangers and Special Agents) to conduct routine law enforcement and perform investigations and response as required and appropriate on Reclamation lands and projects. DOI cross designation of law enforcement authority allows BLM and NPS law enforcement officers to enforce rules and regulations on other DOI managed lands.)

2.4 Applicable Legal Documents, Rules, and Regulations

- 16 USC 431-433
- 16 USC 470
- 16 USC 4601
- 43 USC 373b [P.L. 107-69]
- DM 413
- 50 CFR [USFWS]
- 43 CFR 422-423 [BOR]
- 43 CFR [BLM]
- AZ Revised Statues Title 17 (Game & Fish)

3.0 EXISTING HABITAT AND WILDLAND FIRE RISK

3.1 Existing Habitat

The Bureau of Reclamation and U.S. Fish and Wildlife Service have partnered to establish riparian restoration plantings on the Beal Lake Restoration Area on Havasu National Wildlife Refuge. Phases 1 and 2 consisted of planting Fremont cottonwood, Goodding's willow, and coyote willow on 107 acres. These areas are supported by irrigation. Phase 3 consists of 80 acres and is occupied by screwbean mesquite and other more xeric species.

The habitat area is bounded on two sides by water and marshland, on the east by tamarisk stands and on the west by the dike road and additional tamarisk stands. Phases 1 and 2 combined are separated from Phase 3 by an irrigation canal. Numerous roads and other narrow bare strips divide Phases 1 and 2 into about 30 plots.

Overstory vegetation within the Phase 1 and 2 plots consists of Fremont cottonwood, willows, and some mesquite in varying proportions, with stand height of cottonwood (the dominant) equaling or exceeding 20 feet in many blocks. Stand density is usually quite high and, unlike many LCR MSCP plantings, there is little in the way of a live herbaceous understory.

3.2 Wildland Fire Hazard/Risk

The 13 Northern Forest Fire Laboratory (NFFL) Fuel Models (FM) were developed in the early 1980s to predict fire behavior during the peak of the fire season when wildfires pose greater control problems. The Standard (40) Fuel Models were developed in 2005 to improve the accuracy of fire behavior predictions outside of the severe period of the fire season, such as prescribed fire and fire use applications. Both are stylized mathematical models which consider characteristics such as fuel load, bulk density, fuel particle size, heat content, and moisture of extinction. Both assume homogeneous fuel beds and, when combined with weather and topographic inputs, yield fire behavior predictions for surface fires.

Neither the 13 NFFL Fuel Models nor the Standard (40) Fire Behavior Fuel Models developed by the Rocky Mountain Research Station closely fit these artificial created habitats. However, Fuel Model 8 describes cottonwood stands consisting of larger trees where the herbaceous understory has been largely shaded out and replaced by leaf litter. Though the plantings have some appearances of shrub fuel models, they contain a substantial live fuel component; Fuel Model 6 may be the closest model. In the context of the Rocky Mountain models, GR2 (a grass model) or GS2 (grass-shrub model) would best fit those units with a robust grass/forb understory; TL6 (timber litter model) would seem to fit cottonwood-willow stands with understories consisting primarily of hardwood leaf litter.

Adjacent fuels which could constitute a hazard to the habitat areas are tamarisk stands. NFFL FM6 or Standard FM SH5, both shrub models, best described these fuels. Intense wildfire in these stands could result in fire spotting into the habitat areas.

Local firefighter experience may have identified other fire behavior models or appropriate modifications of standard models which better predict wildfire behavior is these riparian fuels. If so, it would be prudent to give preference to these local adaptations over stylized fuel models.

The habitat units—at this stage with high stand density, primarily live fuels, little to no herbaceous understory, and frequent irrigation—would appear to be relatively impervious to wildfire. Wildland fire in the habitat units during periods of plant dormancy would likely exhibit low flame lengths and low rates of spread.

Values at risk include the habitat units themselves. Other developments in the area consist almost entirely of irrigation-related structures. Water is readily available for suppression purposes, both from the irrigation system and from open water bodies.

There is no fire history within the habitat units. There is potential for fire to spread into the habitat units from adjacent areas occupied by tamarisk stands. Road widths would not be sufficient to preclude either spotting into the habitat units or convective/radiant heating of the stands. That said, the primary tamarisk stands from which fires could build intensity are also quite isolated from other fuels and not susceptible to fire spread from other areas. Because visitor use is restricted in the Beal Lake area, potential ignition would primarily be from lightning or sparking from machinery. All in all, though ignitions may occur, it appears that fire would not readily

spread through these habitat units. The exception here is cattail and bulrush stands which could exhibit extreme fire behavior under high wind and low relative humidity conditions.

4.0 FIRE MANAGEMENT

4.1 Fire Management Goals and Objectives

- Safeguard public and firefighter safety.
- Utilize a variety of fuels management strategies to achieve management objectives.
- Avoid unacceptable effects of wildfire and suppression activities.
- Work closely with surrounding fire agencies to implement the fire and law enforcement strategy.

4.2 Suppression Response

The Fish and Wildlife Service (who is the land owner) will provide an appropriate management response on all wildfires that occur within the Beal Lake Restoration Area. The full range of suppression strategies is available to managers provided that selected options do not compromise firefighter and public safety, cost-effectiveness, benefits, and values to be protected.

The suppression strategy on the Beal Lake Restoration Area in the Havasu National Wildlife Refuge would usually be to minimize fire size. That strategy may utilize a range of tactics including direct attack, parallel attack, and indirect attack with handcrews, engines, aircraft, and/or heavy equipment. Burning out fire lines, enhancing a defensible boundary, backfiring from strategic barriers, using existing natural barriers or constructed barriers, cold-trailing, and other activities may accompany the more standard tactics. An initial action may be simply monitoring fire behavior while deciding which tactics would be most effective. All of these actions are employed with the intention of safely suppressing the wildfire with minimal overall costs and damage to resources.

The first initial attack response to a wildfire in or threatening this habitat unit may be to open the irrigation gates or valves and allow water to flood the unit.

4.3 Interagency Cooperation

Federal and State agencies in Arizona have entered into Wildland Fire Management Joint Powers Master Agreements whereby they agreed to work cooperatively to improve efficiency by facilitating the coordination and exchange of personnel, equipment, supplies, services, and funds among the agencies for management of wildland fires, presidential declared emergencies, and disasters or other emergencies under the Federal Emergency Management Agency's authority. The State of Arizona has agreements in place with the federal agencies. These agreements are located on the SWA Web site at:
http://gacc.nifc.gov/swcc/administrative/incident_business/incident_business.htm.

Chapter 40—Cooperation—of the Southwest Area Mobilization Guide can be found on the Internet at:
http://gacc.nifc.gov/swcc/dispatch_logistics/dispatch/mobguide_non_secure/pdf_files/2009/MOB%2009%20Chapter%2040.pdf

4.4 Local Wildland Fire Resources

U.S. Fish and Wildlife Service

The USFWS has primary responsibility for all land management actions on the refuge, including wildland fire management. The Engine Module that is responsible for initial attack fire suppression operations on refuge lands is stationed in Yuma, Arizona, and consists of an engine foreman and three firefighters. Transfer of command from initial attack resources to the engine foreman, who is ICT3 qualified, would occur as soon as possible after ICT3 arrives on the scene.

The engine foreman is supervised by a Zone FMO for the USFWS stationed at Buenos Aires National Wildlife Refuge, Sasabe, Arizona (520-823-4292). Generally, the Zone FMO is dispatched to all fires occurring on the refuge that exceed the suppression capability of local forces to suppress.

The USFWS is developing a fire management plan for all the refuges located on the Lower Colorado River. The plan is expected to be released in 2009. The plan will contain more detailed information about all elements of wildland fire management within each refuge.

The USFWS fire suppression resources are linked to the 911 system. The non-emergency number for the USFWS in Yuma is 928-783-3371. Other contact information is as follows:

Land Manager: Refuge Manager, 760-326-3853 x22
Fire: Butch Wilson, USFWS FMO based at the Buenos Aires Refuge; Tucson, AZ; 520-823-4292 x101 (o), 520-349-1095 (c); butch_c_wilson@fws.gov
Russ Babiak (USFWS Prescribed Fire Specialist based at the Buenos Aires Refuge, Tucson, AZ; 520-823-4292 x102, russ_babiak@fws.gov

Arizona Interagency Dispatch Center

The Arizona Interagency Dispatch Center (AIDC) is located in Phoenix, Arizona. As the name implies, AIDC is an interagency dispatch center managed by the Arizona State Forest Service. AIDC is the focal point for mobilizing firefighting resources among units within the dispatch area responsibility, coordinating incoming resources into the dispatch area, dispatching resources mobilized out of the dispatch area, and collecting and disseminating fire intelligence information within dispatch area and with the Southwest Coordination Center in Albuquerque, New Mexico.

An interagency agreement is in place that states that the closest available forces will be dispatched to a wildland fire. The AIDC processes all requests for air resources and other fire suppression forces, including Incident Management Teams, for the Lower Colorado River.

AIDC is linked to the 911 system. The non-emergency number for AIDC is 800-309-7081.

Mohave Valley Fire Department

The Mohave Valley Fire Department provides fire and emergency medical services to the residents of Mohave Valley, Arizona, and is the designated primary responder for wildland fires occurring in their response area. Generally, Mohave Valley Fire Department suppression resources are the first responders and will remain on duty until relieved or released. The Mohave Valley Fire Department is linked to the 911 system. The non-emergency number for main station (Bob Kemp, Division Chief, ICT3) is 928-768-9113.

Department of the Interior Agencies

Firefighters assigned to the BLM Colorado River District located in Lake Havasu City, Arizona, are responsible for fire management activities on BLM-administered lands in portions of western Arizona. The BLM is linked to the 911 system. The non-emergency number for the BLM fire management office is 928-505-1234.

The BIA maintains a fire suppression force at Fort Yuma and Parker, Arizona, which are dispatched through AIDC. The Fire Duty Officer for the Fort Yuma station can be contacted at 928-782-1202. The non-emergency number for the CRIT Wildland Land Fire Department located in Parker, Arizona, is 928-669-7161.

The BIA Fort Yuma and Colorado River Agencies and the BLM Yuma District have a Memorandum of Understanding that establishes how they will cooperatively work within the zone.

Generally, the BLM and/or BIA suppression forces are secondary responders.

4.5 Suppression Constraints specific to the Beal Lake Restoration Area

Suppression constraints would include the following:

- Avoid using retardants within 300 feet of open water.
- Avoid using heavy equipment within the plantings (heavy equipment may do more damage than surface fires).
- Use Minimum Impact Suppression Tactics (MIST) with which the environmental impacts of emergency fire management methods will be no greater than necessary to meet fire management objectives.

5.0 FIREFIGHTER AND PUBLIC SAFETY

5.1 Safety Considerations

Climatic conditions, such as low humidity, high temperatures, and warm, dry winds can combine with heavy dry fuels to produce high intensity wildfires that spread rapidly and are difficult to suppress. Due care and caution must be exercised at all times when taking suppression action on a wildland fire within or threatening the Beal Lake Restoration Area.

Wildland firefighters emphasize the basic tenants of firefighter safety: the 10 Fire Orders, 18 Watch Out Situations, the Common Denominators of Fire Behavior on Tragedy Fires, and LCES

(**L**ookouts, **C**ommunications, **E**scape routes, and **S**afety zones). The potential fire behavior conditions that exist on the Lower Colorado River, particularly the potential for high rates of spread and profuse spotting, make it imperative that firefighters fully understand and embrace all the elements of fireline safety. A complete summary of firefighter safe practices is available in Chapter 5 of the Fireline Handbook (NWCG Handbook, PMS 410-1).

Firefighter and public safety is the first priority of the wildland fire management program. When evaluating an appropriate management response, the Incident Commander should consider risks to public and firefighter safety, recognizing that no natural or cultural resource, home, or item of property is worth a human life. Incident Commanders should develop and establish incident objectives, strategies, and operational tactics that ensure firefighter and public safety.

Site specific safety concerns for the Beal Lake Restoration Area include:

- The potential for extreme fire behavior with rapid rates of spread, which may be exacerbated by medium and long range spotting.
- There is only one route of ingress and egress and that has heavy vegetation on both sides of the road.
- Smoke management issues on or near the Colorado River.
- Venomous snakes and insects may be present.
- The dikes which form the ponds are too narrow and/or soft to allow the safely use engines. Some of the roads that separate the units are narrow, may lack adequate road base, and have no place to turn around at the end.
- Boggy ground or rocky slopes can contribute to unsure footing.

5.2 Medical Facilities and Ambulance Services

The University Medical Center, located in Las Vegas, Nevada, is the closest Level I trauma center, Level II pediatric trauma, and Lions burn care center. The non-emergency number for the trauma center is 702-383-2661.

Non-critical patients are transported to Mohave Valley Medical Center, 1225 Hancock Road, Bullhead City, Arizona. The non-emergency number for the hospital is 928-763-2273. The medical director makes the decision as to where a patient is to be transferred and the method of transport.

6.0 FUELS MANAGEMENT

6.1 Non-Fire Fuels Management

Fuels management in this LCR MSCP area should consist primarily of maintaining fuel discontinuities (i.e. maintaining fuel breaks within and adjacent to the habitat units. If habitat units dominated by mesquite develop robust herbaceous understories, those understories should be reduced before they cure and provide receptive fuel beds (e.g. by mowing or grazing domestic sheep). Please see recommendations below.

6.2 Prescribed Fire

Opportunities to effectively use prescribed fire appear very limited in this restoration area (except perhaps on adjacent marsh cover types).

7.0 WILDLAND FIRE PREVENTION/OUTREACH

Since a majority of all fires that occur on the Colorado River are human caused, any fire management planning effort should emphasize fire prevention. Once fire causes are evaluated, it is possible to determine when, where, and how to implement effective fire prevention programs that fall within one of four broad categories. These categories are:

1. Education—aimed at changing people's behavior by awareness and knowledge.
2. Engineering—reducing or eliminating fire risks and hazards.
3. Enforcement—gaining compliance with fire regulations and ordinances.
4. Administration—planning, budgeting, and training.

The interagency fire community and local fire and emergency management organizations have a good system for determining the level of fire danger and deciding when fire restrictions are necessary. Notices and posters are printed and distributed by all fire management agencies. The Arizona Interagency Fire Prevention and Information Group maintains the following wildfire prevention website available on the Internet at: http://www.azfireinfo.az.gov/.

The sources of ignition are often attributable to visitors recreating outside the habitat area. Traditional means to contact visitors may prove difficult because the many recreational users are focused on the Colorado River and may be entirely unaware of the habitat areas. In consideration of the demographics, the best locations to post fire danger warning signs and fire restriction notifications may in prominent locations where visitors might stop. This would include convenience stores, gas stations, marinas, launch ramps, boat repair shops, and other similar facilities at or near the river.

Attempts should be made to work with local and regional media to call attention to the wildfire threat facing resources along the LCR. The National Wildfire Coordination Group issued a Wildfire Prevention and Media Guide (PMS 458) that is available on the Internet at: http://www.nwcg.gov/pms/docs/wpsandmedia.pdf . This guide provides information and guidance to establish a media program. This tool would best be implemented using an interagency approach.

8.0 FIRE MANAGEMENT RECOMMENDATIONS

The following suggested tasks and actions are submitted by Wildland Fires Associates, and are not intended to change or re-direct existing management of the Beal Lake Restoration Area

8.1 Prevention

- Use existing funding authorities to increase patrols during periods of high fire danger or anticipated heavy visitor use.
- Contact visitors on launch ramps or on the refuge, when practical.
- Work with nearby campground staff and hosts to encourage them to contact visitors to emphasize fire safety and prevention.
- Participate in fire prevention and safety programs at public schools.
- Post fire restrictions and fire danger posters at prominent locations.
- Close or reduce visitor use near the restoration area when fire danger is extreme.
- Constrain certain types of visitor activities (e.g. campfires, fireworks, shooting) in and near the area when fire danger is very high or extreme.
- Public contact should be made through outreach with adjacent landowners to explain the fire management program, to emphasize prevention of human-caused wildfires, and to identify actions that landowners can take to minimize the risk of wildfire on their property.
- Continue to work with the National Ad Council to air Public Service Announcements featuring Smokey Bear on local radio stations, including Spanish language stations and implement a program that calls attention to the impacts of wildfires to resources along the LCR.

8.2 Preparedness (Presuppression)

Administrative:

- Develop a program designed to monitor live fuel moisture on a predetermined schedule and identify a representative fuel type. Live fuel moisture is an important component of modeling the fuel type in the habitat areas.
- Conduct patrols using a variety of means, including engines, aircraft, and/or boats during periods of extreme fire danger.

Fuels Management:

- Maintain green or bare ground (fallow) strips where they currently exist along some habitat units.
- Reduce fine fuels along the perimeter of habitat areas, within habitat areas, and along roadways and irrigation systems. This will reduce the probability of fire entering a habitat unit and reduce fire behavior if a wildfire does establish within a habitat unit.
- Maintain dry fuel breaks within the project area.
- Remove or reduce tamarisk fuels in areas adjacent to habitat areas to reduce radiant/convective heating impinging on plantings and to reduce the number of firebrands produced by fire in tamarisk.
- Periodically clear established firebreaks in nearby tamarisk stands to preserve their usefulness for burning out in advance of a wildfire.
- Establish additional constructed firebreaks in adjacent tamarisk stands. These firebreaks would not of themselves stop fire spread in tamarisk, but they would provide firefighters a tactical position from which to burn out.

- Establish plans for immediate post-fire rehabilitation (e.g. rapid replanting) in cottonwood stands to preclude tamarisk invasion.
- Consider use of prescribed fire to rejuvenate decadent marsh areas.

8.3 Suppression

Constraints:

- Avoid using retardants within 300 feet of open water.
- Avoid using heavy equipment within the area (heavy equipment may do more damage than surface fires).

Strategies and Tactics:

- Utilize roads and dry fuel breaks on the perimeter and interior of the area to confine fire, as much as possible, to a single compartment or a few compartments of vegetation.
- Use Minimum Impact Suppression Tactics (MIST) with which the environmental impacts of emergency fire management methods will be no greater than necessary to meet fire management objectives.
- If fire is within a "compartment" (i.e. a small block separated from other blocks by roads or dry fuel breaks), consider burning out from the perimeter of that compartment to reduce the probability of fire crossing fuel breaks and moving into adjacent compartments. (Better to lose trees within the compartment than to risk losing trees in several compartments.)
- If suitable infrastructure is available and if canals are charged when a fire occurs near or in the area, consider the possibility of immediately flooding that block and adjacent blocks to reduce or stop fire spread.
- In eastern hardwood forests where the primary surface fuel is leaf litter, leaf blowers are commonly used to clear leaf litter to mineral soil or to reduce surface fuels to make handline construction easier. LCR MSCP cottonwood-willow stands, when they mature, will have surface fuels similar to the eastern hardwood forests. Even now, some of the dense cottonwood stands have surface fuels comprised mainly of leaf litter. Rather than constructing traditional "mineral soil" handlines in the interior of these stands, consider use of leaf blowers to create bare ground "firelines" in older cottonwood stands. This technique would not be effective where rooted herbaceous vegetation exists.

8.4 Other

- Provide fireline qualified resource advisors (READs) and/or agency representatives that can provide to Incident Commanders timely information in support of area habitat protection objectives during wildland fires.
- Investigate wildfires to determine cause.