

Lower Colorado River Multi-Species Conservation Program



Balancing Resource Use and Conservation

Palo Verde Ecological Reserve LCR MSCP Conservation Area Specific Fire Management and Law Enforcement Strategy



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
Arizona Power Authority
Central Arizona Water Conservation District
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City of Lake Havasu City
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Mohave Water Conservation District
North Gila Valley Irrigation and Drainage District
Town of Fredonia
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Unit "B" Irrigation and Drainage District
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Yuma County Water Users' Association
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Other Interested Parties Participant Group

QuadState County Government Coalition
Desert Wildlife Unlimited

California Participant Group

California Department of Fish and Game
City of Needles
Coachella Valley Water District
Colorado River Board of California
Bard Water District
Imperial Irrigation District
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Southern Nevada Water Authority
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Hualapai Tribe
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The Cocopah Indian Tribe

Conservation Participant Group

Ducks Unlimited
Lower Colorado River RC&D Area, Inc.



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

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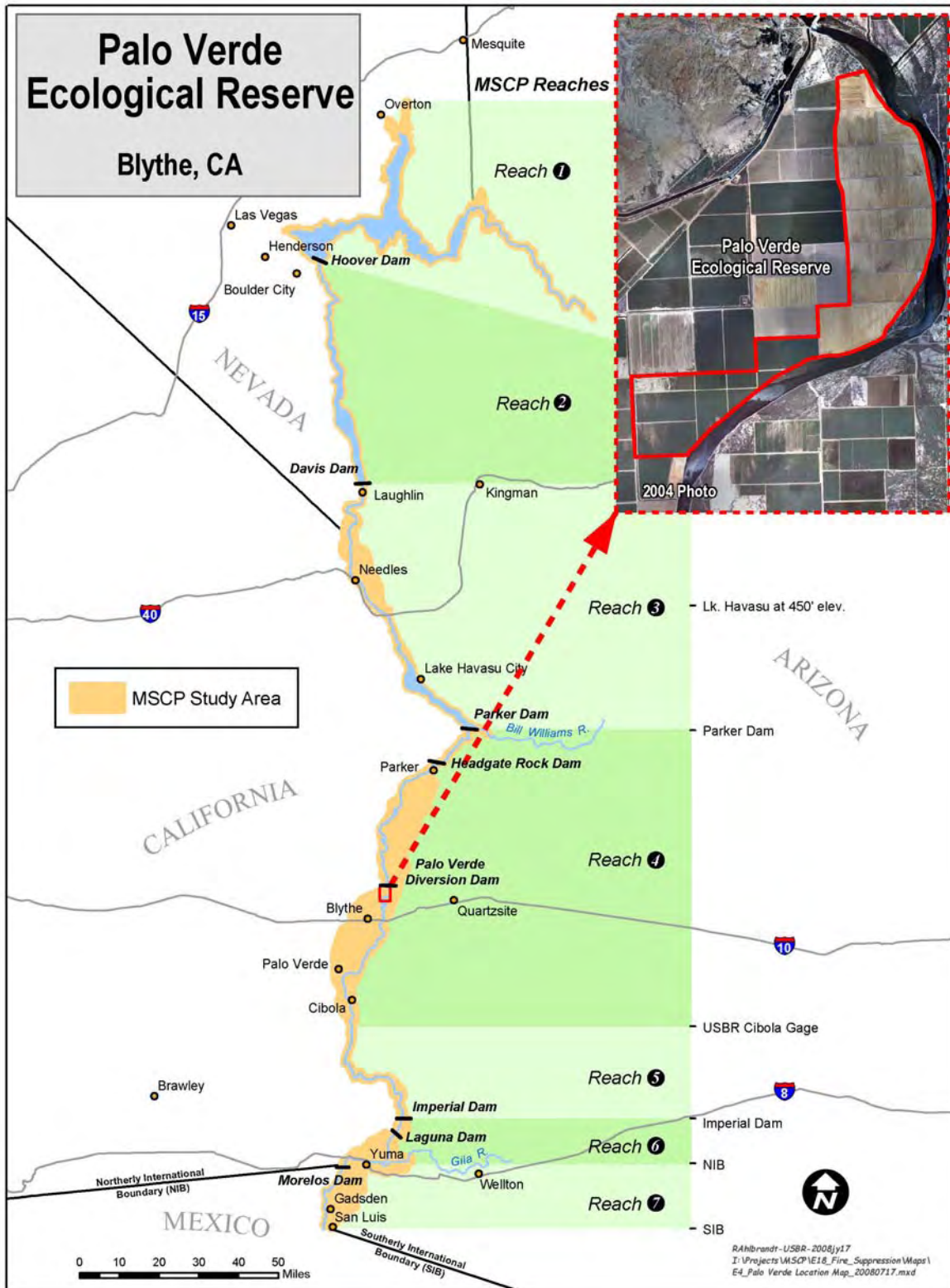
EXECUTIVE SUMMARY

Fire Management and Law Enforcement Strategy Palo Verde Ecological Reserve

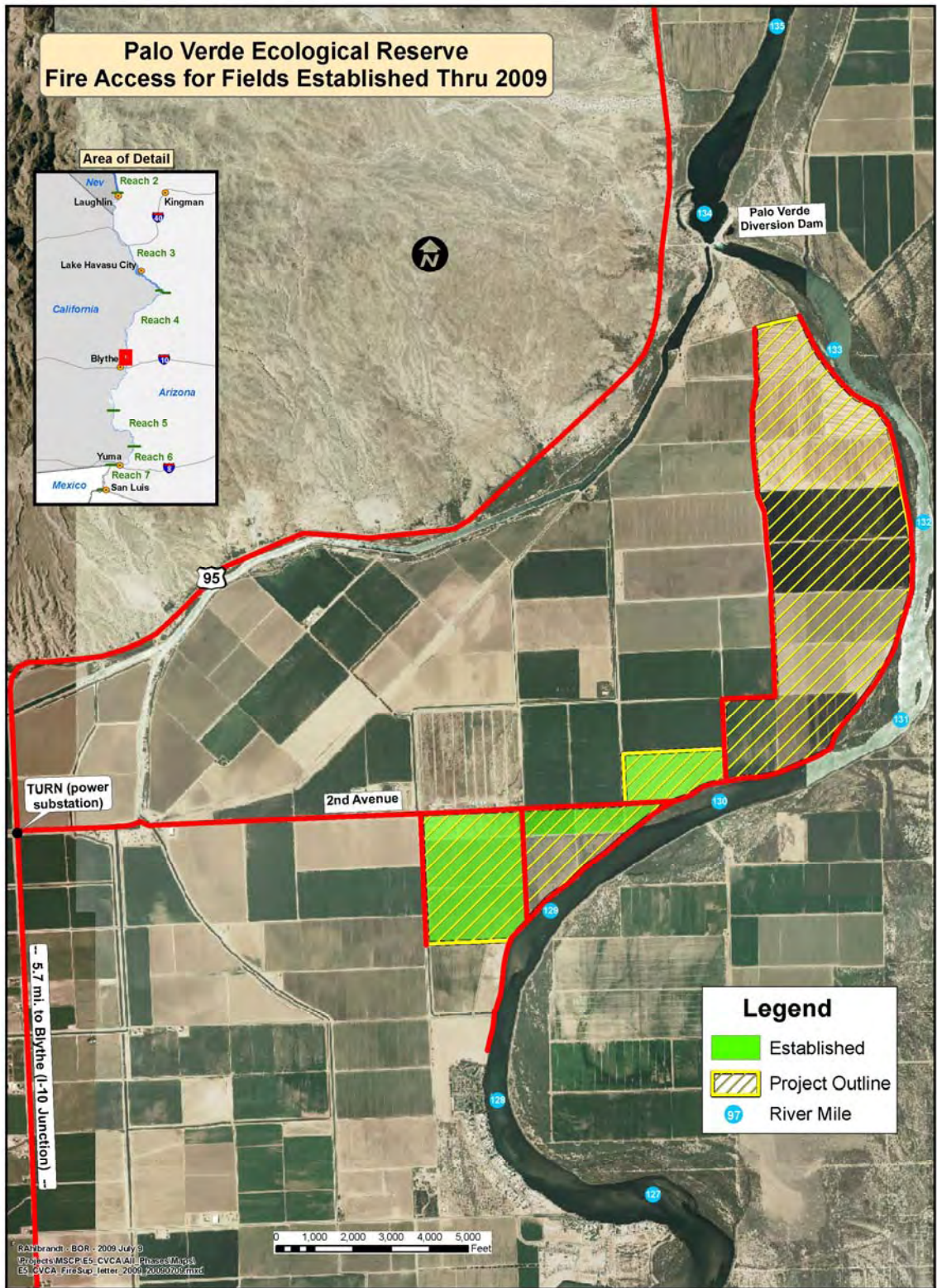
This document provides an overview of fire management and law enforcement strategies for the Palo Verde Conservation Area on the Palo Verde Ecological Reserve. Law enforcement authorities and agreements are discussed, as are fuel conditions, recommended suppression responses, safety considerations, and 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 Palo Verde Ecological Reserve is wildfire. 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 Reserve. 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 area, 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, California Department of Fish and Game, and subsequently to fire management and law enforcement first responders.



VICINITY MAP—PALO VERDE ECOLOGICAL RESERVE



PALO VERDE ECOLOGICAL RESERVE –
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 wild-fire”. 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 California Department of Fish and Game and associated jurisdictional authorities involved with the Palo Verde Ecological Reserve.

1.1 Location, Reach, and Ownership

The location of the Palo Verde Ecological Reserve (PVER) is in Reach 4, river miles 129-133, California. This property, previously known as the Travis Ranch, is owned by the California Department of Fish and Game (CDFG).

1.2 Project Description, Purpose, and Status

This project encompasses more than 1,100 acres (of the 1,211-acre reserve) that is planted and maintained in crops that will be developed over time into native habitat. Palo Verde Irrigation District provides irrigation water to PVER through an extensive infrastructure of lined ditches, roads, and pumps.

The purpose of this project is to create and manage riparian habitat in a mosaic of land cover types for LCR MSCP covered species.

Coyote willow, Goodding's willow, Fremont cottonwood, and *Bacharis*, along with cover crops of ryegrass and alfalfa were established; additionally, mesquite and *Atriplex* were planted during various phases of the project, with herbicide applications used for weed control when necessary. Expansion of riparian habitat creation is also part of the overall project.

The cottonwood-willow plantings provide habitat for the southwestern willow flycatcher. All phases of the project are monitored and adaptively managed for the targeted species.

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, and includes 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 (*See P.L. 107-69, Appendix*): 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

California Fish and Game: The California Department of Fish and Game maintains native fish, wildlife, plant species and natural communities for their intrinsic and ecological value and their benefits to people. This includes habitat protection and maintenance in a sufficient amount and quality to ensure the survival of all species and natural communities. The Department is also responsible for the diversified use of fish and wildlife including recreational, commercial, scientific, and educational uses. The mission of the Law Enforcement Division is to protect California's natural resources and provide public safety through effective and responsive law enforcement. California Fish and Game wardens have broad law enforcement authority throughout the State and are the primary authority responsible for enforcement actions on lands within Palo Verde Ecological Reserve.

2.3 Local Law Enforcement Contact Information

Palo Verde Ecological Reserve

- Location: Blythe, California, LCR MSCP Reach 4
- Land Manager: California Department of Fish and Game, 760-922-1738 (o)
- Land Owner: California Department of Fish and Game
- Law Enforcement Contact: Jason Green, Game Warden (Blythe), 760-702-0086 (c); Greg VerBrugge, Game Warden (Lake Havasu, AZ), 928-505-0239 (o), 760-485-1651 (c), gverbrugge@dfg.ca.gov

Additional Law Enforcement Assistance

- Riverside County Sheriff's Office-Colorado River Station, Captain James Carney, 760-921-7900
- California Highway Patrol, Blythe, CA, 760-922-6141

2.4 Applicable Legal Documents, Rules, and Regulations

- CA Fish & Game Code 1-16541
- DM 413

3.0 EXISTING HABITAT AND WILDLAND FIRE RISK

3.1 Existing Habitat

Up to about 1,100 acres of the 1,211-acre Palo Verde Ecological Reserve will be developed for habitat restoration under the LCR MSCP. The purpose of this LCR MSCP conservation area is to provide riparian habitat for southwestern willow flycatcher and yellow-billed cuckoo.

About 160 acres have been planted to riparian species. A nursery area of cottonwood trees occupies about 31 acres; its purpose is to provide cuttings for future plantings. All other portions of the LCR MSCP remain fallow or in agricultural production. Additional plantings will be completed annually through 2014 at which time the entire LCR MSCP parcel will be planted with cottonwood, willow, and mesquite.

The eastern boundary of the property is adjacent to the Colorado River; the western boundary is adjacent to active agricultural fields.

3.2 Wildland Fire Hazard/Risk

The 13 Northern Forest Fire Laboratory (NFFL) Fuel Models 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, the existing cottonwood nursery plantings can be best described NFFL Fuel Model 8. Fuel Model 8 describes cottonwood stands consisting of larger trees where the herbaceous understory has been largely shaded out and replaced by leaf litter.

The 2008 cottonwood-willow planting can currently be described as a shrub model (perhaps FM 4 though none of the shrub models closely described this young planting) trending into a Fuel Model 2. Fuel Model 2 is a tree overstory with herbaceous understory. 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. As the cot-

tonwood and willow trees grow, they will shade out the alfalfa understory over a period of 3-5 years. This pattern will continue as additional plantings are made.

Adjacent fuels which could constitute a hazard to the habitat areas are tamarisk stands. These fuels are best described by shrub models NFFL FM6 or Standard FM SH5. 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 in these riparian fuels. If so, it would be prudent to give preference to these local adaptations over stylized fuel models.

Fire would spread readily through the habitat units with robust fine fuel understories, though the location of these habitat units—adjacent to cultivated fields and the river—make them quite secure from rapid fire spread from adjacent areas. Fire would likely exhibit low flame lengths and low rates of spread in cottonwood leaf litter.

Values at risk include the plantings and a subdivision to the south (downriver). There is also a residence adjacent to the easternmost boundary. Water is readily available from the river and irrigation facilities.

There is no fire history within the habitat units. Virtually all fires in the local area are human-caused. The potential for fire spread into the habitat units from adjacent areas is very low due to the near absence of combustible fuels on immediately adjacent areas. Potential ignition sources include spotting from fires in tamarisk stands along the river or point ignitions from lightning, agricultural machinery, or discarded smoking materials.

4.0 FIRE MANAGEMENT

4.1 Fire management goals and objectives

- Safeguard public and firefighter safety.
- Utilize a variety of fuels management strategies, including prescribed fire and non-fire treatments, to achieve management objectives.
- Avoid unacceptable effects of wildland fire and suppression.
- Work closely with surrounding fire agencies to implement the fire management strategy.

4.2 Suppression Response

The CALFIRE/Riverside County Fire Department will provide an appropriate management response on all wildfires that occur within the Palo Verde Ecological Reserve. 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 Palo Verde Ecological Reserve 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.

4.3 Interagency Cooperation

Federal and State agencies in California 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 California has agreements in place with the federal agencies. These agreements are located on the Web site at: <http://gacc.nifc.gov/>

Chapter 40—Cooperation—of the Southwest Area Mobilization Guide, which has detailed information related to dispatching resources located in Arizona to California using the closest available resources concept, can be found on the Internet at:

http://gacc.nifc.gov/swcc/dispatch_logistics/dispatch/mobguide_non_secure/pdf_files/2009/MOB%202009%20Chapter%2040.pdf.

4.4 Local Wildland Fire Resources

CALFIRE/Riverside County Fire Department

The CALFIRE/Riverside County Fire Department provides fire and emergency medical services to the residents of Riverside County on a contract basis and is the designated primary responder for wildland fires occurring in their response area. CALFIRE/Riverside County Fire Department is linked to the 911 system. The non-emergency number for Blythe Station 43 is 760-921-7822.

Ehrenberg Fire Department

The Ehrenberg Fire Department provides fire and emergency medical services to the residents of Ehrenberg, Arizona, and portions of central La Paz County, Arizona. Many of the firefighters within the department meet NWCG training and fitness standards and have been issued red cards. The Ehrenberg Fire Department and CALFIRE have entered into a mutual aid agreement, which permits mutual aid responses. The Ehrenberg Fire Department is linked to the 911 system. The non-emergency number for the Ehrenberg station is 928-923-8033.

CRIT and the Bureau of Indian Affairs

The CRIT Wildland Fire Department's response station is located at 12143 Roosevelt Street, Parker, AZ. The CRIT Wildland Fire Department is responsible for fire management activities on BIA-administered lands in Arizona, Nevada, and California. The non-emergency number for the CRIT Wildland Fire Department located in Parker, Arizona is 928-669-7161.

Dispatch of BIA initial attack resources within the Lower Colorado River Zone is handled by the Interagency Dispatch Center in Yuma, Arizona, using the concept of closest available resources. Response time for the initial attack resources will vary with the distance required to travel. Generally, in consideration of time and distance, the BIA suppression forces are the secondary responders.

California Department of Fish and Game

California Department of Fish and Game has no fire response authority for the reserve. However, the current Wildlife Biologist, as the land manager, should be contacted to serve as a resource advisor. The local California Department of Fish and Game office number is: 760-922-1738 (o).

4.5 Suppression Constraints specific to the Palo Verde Conservation 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 wildfire within or threatening the Palo Verde Ecological Reserve.

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 (Lookouts, Communications, Escape routes, and Safety zones). The potential fire behavior conditions that exist on the LCR, 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 fire fighter 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 Palo Verde Ecological Reserve include:

- The potential for extreme fire behavior with rapid rates of spread, which may be exacerbated by profuse spotting.
- Smoke management issues on or near the Colorado River and Interstate 10.
- Venomous snakes and insects may be present.
- Boggy and/or uneven ground can contribute to unsure footing.

5.2 Medical Facilities and Ambulance Services

The Palo Verde Hospital is located at 250 N First Street in Blythe, CA. The intensive care facility has the ability to stabilize accident and burn victims not deemed to be in critical condition.

A Level II trauma and burn center is co-located with the Arrowhead Regional Medical Center, 400 N Pepper Avenue, Colton, California. The non-emergency number for the burn center is 909-580-1000.

The Arizona Burn Center and a Level I trauma center and emergency center are part of the Maricopa Medical Center, which cares for a wide range of critical injuries. This facility is the primary destination for critically injured persons. The Arizona Burn Center is located at 2601 Roosevelt Street, Phoenix, AZ. The non-emergency number for the burn center is 602-344-5726.

Careflight, Native Air, and Mercy Air provide air medical transport for critically ill and injured patients. Air medical transport can be requested through the CALFIRE /Riverside County Fire Department by contacting them at 911.

6.0 FUELS MANAGEMENT

6.1 Non-Fire Fuels Management

Fuels management in this LCR MSCP project should consist primarily of reducing fine herbaceous fuels and maintaining fuel discontinuities (i.e. maintaining fuel breaks within and adjacent to the habitat units). Please see recommendations below.

6.2 Prescribed Fire

Prescribed burning with very low severity may be appropriate at some point in (yet to be established) areas where managers are unable to reduce fine fuels by other means.

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.

Palo Verde Ecological Reserve is unique in that there is no dedicated fire management staff available to work with the fire suppression personnel from other areas to develop a formal fire prevention/public outreach program. However, the site is located in an area that would benefit from a program developed by federal and State agencies managing other sites located on the LCR.

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 RECOMMENDATIONS

The following suggested tasks and actions are submitted by Wildland Fire Associates, and are not intended to change or re-direct existing management of the Palo Verde Ecological Reserve.

8.1 Prevention

- Conduct prevention patrols during periods of very high fire danger or elevated human-caused risk (e.g. Fourth of July and fireworks, opening day of dove season).
- Issue press releases and distribute materials, where appropriate, informing the public about the benefits of prescribed fire as opposed to the adverse impacts of wildland fire.
- Participate in fire prevention and safety programs at public schools.
- Engage in outreach programs with adjacent homeowners/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.
- Post appropriate signage during periods of high fire danger.
- Install and maintain a “Smokey Bear” type of wildland fire risk sign in a prominent location in the public use area parking lot.
- Close or reduce visitor use in and near habitat areas when fire danger is extreme.
- Constrain certain types of visitor activities (e.g. campfires, fireworks, shooting) when fire danger is very high or extreme.
- Work with the National Ad Council to air Public Service Announcements featuring Smokey Bear on local radio 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.
- Work with adjacent landowners to maintain boundaries that are free of flammable debris/haystacks which, if ignited, could threaten the adjacent area; focus on bi-annual fuels reduction in irrigation ditches and drains.
- Conduct patrols using a variety of means, including engines, aircraft, and/or boats during periods of extreme fire danger.
- Consider installing a dry hydrant or a means to rapidly fill a tender near the site.

Fuels Management:

- Maintain green or bare ground (fallow) strips where they currently exist along some habitat units. Consider establishing such strips near other 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 the unit.
- A common practice in fuels management is reduction of fine flashy fuels. Where appropriate and permitted, consider use of prescriptive grazing by domestic sheep or mechanical reduction by mowing in new LCR MSCP habitat units to reduce the fine fuels.
- Keep the outer perimeter of vegetation clear of flammable materials.
- Maintain dry fuel breaks within the conservation area.

8.3 Suppression

Constraints:

- Avoid using retardants within 300 feet of open water.
- Avoid using heavy equipment within the Palo Verde Ecological Reserve (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 Palo Verde Ecological Reserve to confine fire, as much as possible, to a single compartment or a few compartments of vegetation.
- Apply Minimum Impact Suppression Tactics (MIST), whereby 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 fire is within a “compartment,” 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 habitat protection objectives during wildland fires.
- Investigate wildfires to determine cause.