



# Lower Colorado River Multi-Species Conservation Program

*Balancing Resource Needs*

## Palo Verde Ecological Reserve Restoration Development Plan: Phase 1



December 2006

# Lower Colorado River Multi-Species Conservation Program Implementation Steering Committee Members

## **Federal Participant Group**

Bureau of Reclamation  
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  
Cibola Valley Irrigation and Drainage District  
City of Bullhead City  
City of Lake Havasu City  
City of Mesa  
City of Somerton  
City of Yuma  
Electrical District No. 3, Pinal County, Arizona  
Golden Shores Water Conservation District  
Mohave County Water Authority  
Mohave Valley Irrigation and Drainage District  
Mohave Water Conservation District  
North Gila Valley Irrigation and Drainage District  
Town of Fredonia  
Town of Thatcher  
Town of Wickenburg  
Salt River Project Agricultural Improvement and Power District  
Unit "B" Irrigation and Drainage District  
Wellton-Mohawk Irrigation and Drainage District  
Yuma County Water Users' Association  
Yuma Irrigation District  
Yuma Mesa Irrigation and Drainage District

## **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  
Los Angeles Department of Water and Power  
Palo Verde Irrigation District  
San Diego County Water Authority  
Southern California Edison Company  
Southern California Public Power Authority  
The Metropolitan Water District of Southern California

## **Nevada Participant Group**

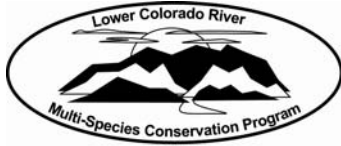
Colorado River Commission of Nevada  
Nevada Department of Wildlife  
Southern Nevada Water Authority  
Colorado River Commission Power Users  
Basic Water Company

## **Native American Participant Group**

Hualapai Tribe  
Colorado River Indian Tribes  
The Cocopah Indian Tribe

## **Conservation Participant Group**

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



# **Lower Colorado River Multi-Species Conservation Program**

## **Palo Verde Ecological Reserve Restoration Development Plan: Phase 1**

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

**December 2006**

# Contents

	Page
<b>Background .....</b>	<b>1</b>
<b>1.0 Purpose/Need.....</b>	<b>1</b>
<b>2.0 Design/Planting Plan.....</b>	<b>4</b>
Planting Techniques.....	4
Grading .....	5
Irrigation .....	5
<b>3.0 Monitoring.....</b>	<b>5</b>
<b>Literature Cited .....</b>	<b>6</b>

## Figures

Figure 1: Proposed Phasing Map .....	2
Figure 2: Phase 1 Nursery Planting Plan .....	3

## Table

Table 1: Phase 1 Irrigation Schedule .....	5
--	---

# Acronyms and Abbreviations

CDFG California Department of Fish and Game

LCR MSCP Lower Colorado River Multi-Species Conservation Program

PVER Palo Verde Ecological Reserve

Reclamation Bureau of Reclamation

# Background

Palo Verde Ecological Reserve (PVER) encompasses 1,352 acres of Colorado River historic floodplain near Blythe, California. Formerly, the property was known as the Riverview Ranch and was owned by the Travis family. The ranch was acquired by the Trust for Public Lands in the beginning of 2004. On September 3, 2004 the property was conveyed to the State of California. California has identified up to approximately 1,100 acres of active agricultural lands on this property for habitat restoration for the Lower Colorado River Multi-Species Conservation Program (LCR MSCP).

As part of the LCR MSCP, the California Department of Fish and Game (CDFG) and the Bureau of Reclamation (Reclamation) are jointly planning the conversion of portions of PVER from agricultural crops to a mix of native plant species. After planting is complete, the created habitats are then managed for species covered under the LCR MSCP throughout the 50-year life of the program.

The proposed development of the property is shown in Figure 1. Additional site information can be found on the LCR MSCP website under a report entitled “*Palo Verde Ecological Reserve Restoration Development Plan: Overview.*”

## 1.0 Purpose/Need

The purpose of Phase 1 is to plant a riparian nursery to provide plant material for future riparian restoration efforts at PVER. The vegetation species propagated and maintained in the nursery are those used by the endangered and threatened species along the lower Colorado River. When planted, these species provide riparian habitats which include a mosaic of vegetation species including ground covers, trees and shrubs. The native plant nursery includes 20 acres in Field A (planted mainly with cottonwood-willow) and 10 acres in Field B (planted mainly with upland species) for a total of 30 acres. (Figure 2).

Figure 1: Proposed Phasing Map

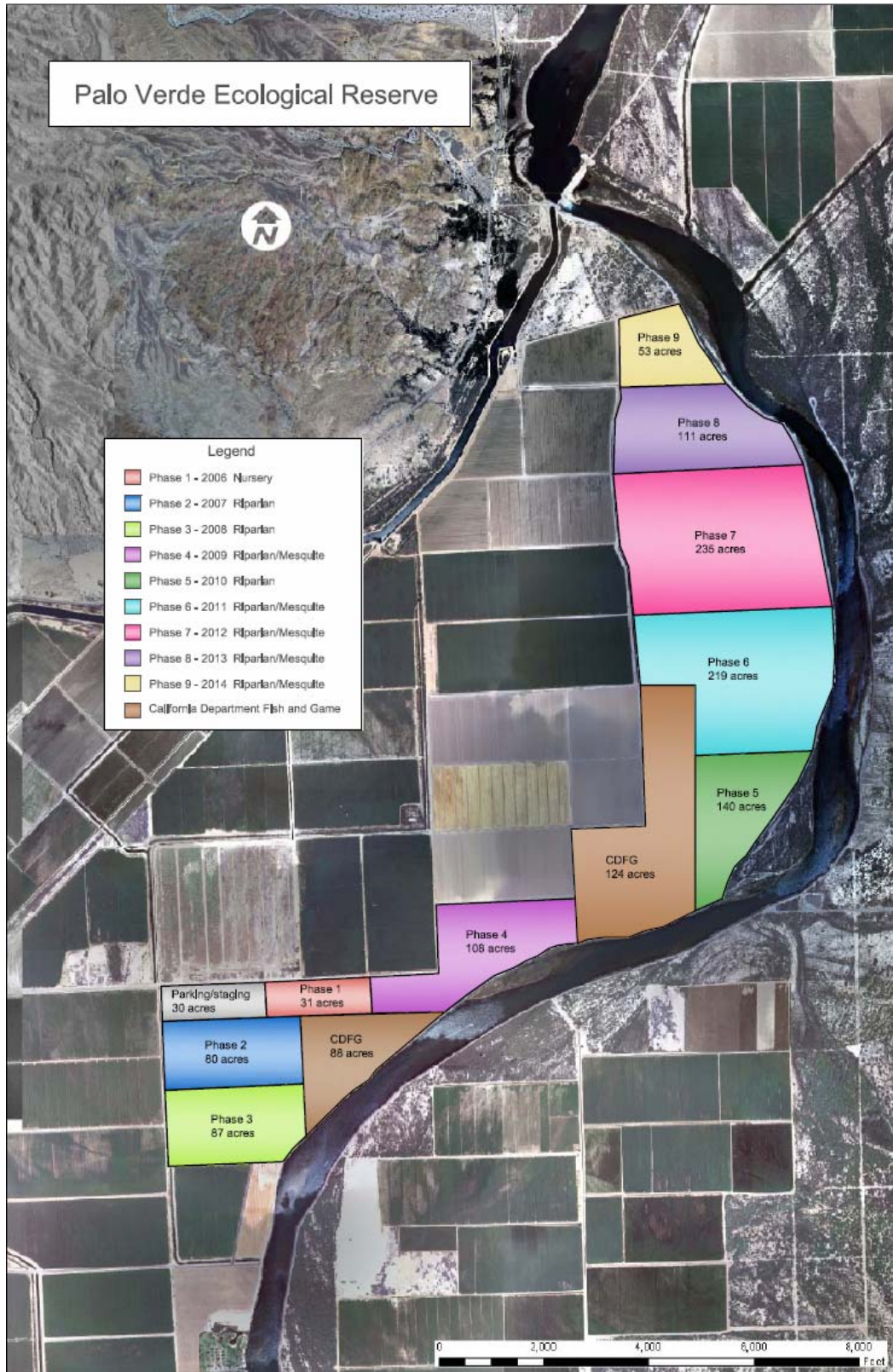
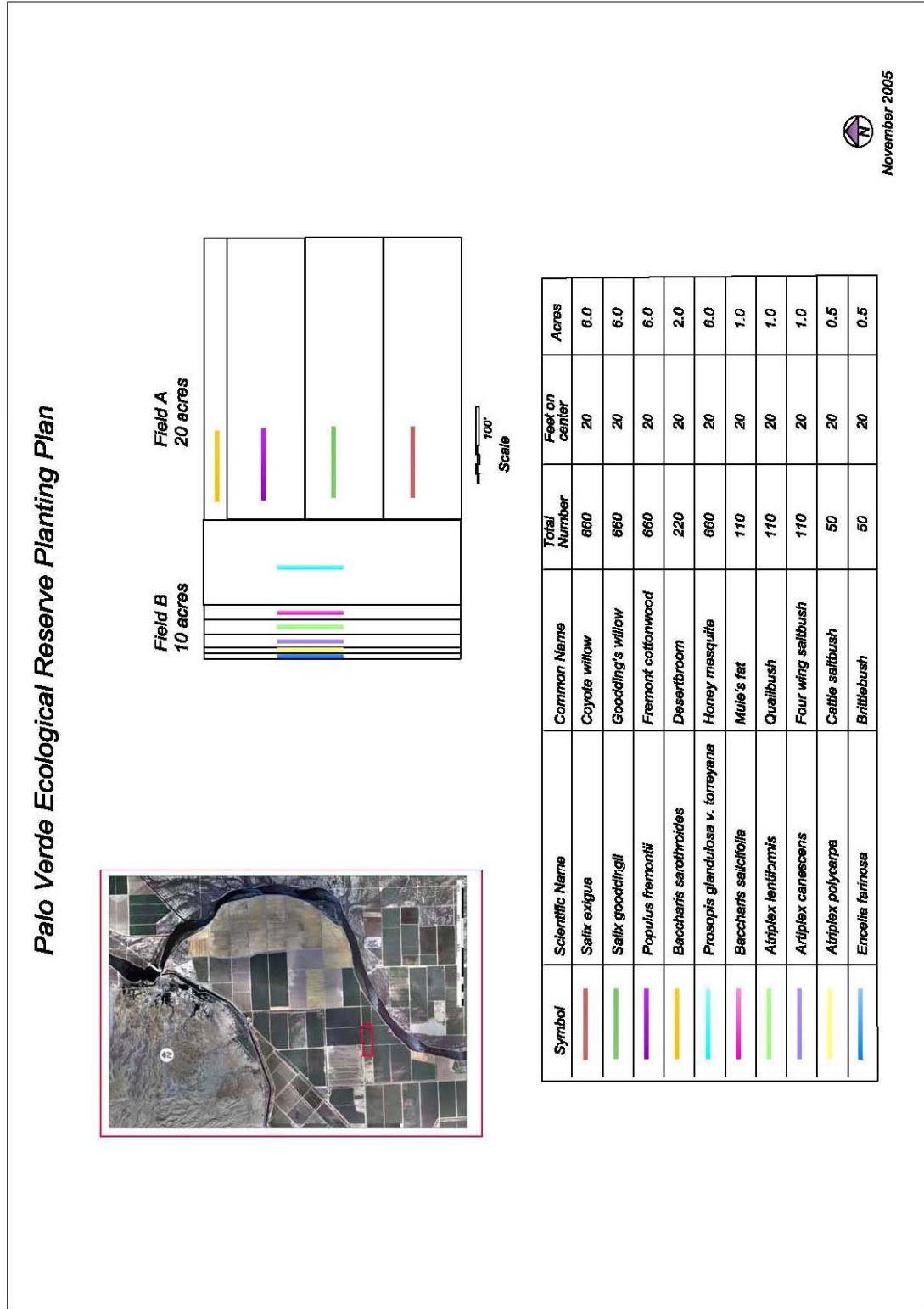


Figure 2: Phase 1 Nursery Planting Plan





## 2.0 Design/Planting Plan

### Field A (20 acres)

Vegetation in Field A is planted 20 foot on center which will be used to allow access to vegetation for collection by trucks and machinery. Field A design will be as follows:

- 6 acres planted with coyote willow (*Salix exigua*) 20' on center for a total of 660 trees
- 6 acres planted with Goodings willow (*Salix gooddingii*) 20' on center for a total of 660 trees
- 6 acres planted with Fremont cottonwood (*Populus fremontii*) 20' on center for a total of 660 trees
- 2 acres planted with Desertbroom (*Baccharis sarothroides*) 20' on center for a total of 220 shrubs

### Field B (10 acres)

Vegetation in Field B is planted 20 foot on center which will allow access to vegetation for collection by trucks and machinery. Field B design will be as follows:

- 6 acres planted with Honey mesquite (*Prosopis glandulosa v. torreyana*) 20' on center for a total of 660 trees
- 1 acre planted with Mule's fat (*Baccharis salicifolia*) 20' on center for a total of 110 shrubs
- 1 acre planted with Quailbush (*Atriplex lentiformis*) 20' on center for a total of 110 shrubs
- 1 acre planted with Four wing saltbush (*Atriplex canescens*) 20' on center for a total of 110 shrubs
- 0.5 acre planted with Cattle saltbush (*Atriplex polycarpa*) 20' on center for a total of 50 shrubs
- 0.5 acre planted with Brittlebush (*Encelia farinosa*) 20' on center for a total of 50 shrubs
- 10 acre understory of inland saltgrass (*Distichlis spicata*) 1' in line spacing with 38" rows.

## Planting Techniques

Inland saltgrass will be planted using automated mass transplanting equipment while the trees and shrubs will be planted using a conventional tree planter.

At the present time Field A is planted in alfalfa. The alfalfa will remain and serve as a ground cover to help discourage the encroachment of non-native species. Approximately 5-foot wide rows, 15 feet apart will be disked through the alfalfa in preparation for planting 1 gallon-sized trees and shrubs. Plantings of native salt

grass will be planted in Field B employing the automated mass planting technique in 1' in-line spacing with row width of 38" between the shrubs and trees of the upland nursery. The salt grass will serve as a cover crop and a seed/plug collection site.

## Grading

To achieve proper grading and contouring, the fields will be laser leveled prior to planting. Three borders will be added for efficient water delivery.

## Irrigation

The anticipated schedule for the riparian nursery, Fields A and B, is shown in Table 1. Irrigation regimes may be modified due to climatic conditions such as rain, wind, and high temperatures, or to ensure vegetation moisture requirements are met.

**Table 1: Phase 1 Irrigation Schedule**

<b>Day/Week/Month</b>	<b>Field A</b>	<b>Field B</b>
Planting day	Immediately post planting	Immediately post planting
Week 1-5 – April, May	Every 5 days	Every 3-4 days
June, July, August	Every 14 days	Every 14 days
September, October	Once a month	Once a month
November, December, January	No irrigation	No irrigation
February, March	Once a month	Once a month

## 3.0 Monitoring

Phase 1 will not be submitted for habitat creation credit at this time. It will be used as a nursery to provide seeds and cuttings, and therefore will not be monitored for covered species. The monitoring plan for Phase 1 includes monitoring initial survivorship of the planted materials. Field A and Field B shall be monitored in the same manner. The inland saltgrass in Field B shall not be monitored, as it will be used as a cover crop.

Survivorship monitoring will be separated into two categories:

- Initial survivorship conducted 4-6 weeks after planting, and
- Over-summer survivorship conducted during the non-growing season (October-January).

A sample of planted trees and shrubs will be identified, counted, and assigned an index of condition. Newly recruited and invasive trees and shrubs will not be counted.

Starting the second year of growth, trees and shrubs will be observationally monitored, and visually assessed after they have been cut for stock in other phases to determine if they are re-growing or not. Currently, there are no plans for additional monitoring of Phase 1.

## **Literature Cited**

Lower Colorado River Multi-Species Conservation Program. 2004. Lower Colorado River Multi-Species Conservation Program Final EIR/EIS, Volume II: Habitat Conservation Plan. Final. December 17. (J&S 00450.00) Sacramento, CA.