Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Palo Verde Ecological Reserve

2015 Annual Report

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

July 2018

Work conducted under LCR MSCP Work Task E4

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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City of Yuma
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Golden Shores Water Conservation District
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Mohave Valley Irrigation and Drainage District
Mohave Water Conservation District
North Gila Valley Irrigation and Drainage District
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Town of Thatcher
Town of Wickenburg
Salt River Project Agricultural Improvement and Power District
Unit "B" Irrigation and Drainage District
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Yuma County Water Users' Association
Yuma Irrigation District
Yuma Mesa Irrigation and Drainage District

Other Interested Parties Participant Group

QuadState Local Governments Authority
Desert Wildlife Unlimited

California Participant Group

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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
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Native American Participant Group

Hualapai Tribe
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Ducks Unlimited
Lower Colorado River RC&D Area, Inc.
The Nature Conservancy

Lower Colorado River
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Lower Colorado River
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ACRONYMS AND ABBREVIATIONS

CDFW	California Department of Fish and Wildlife
FY	fiscal year
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
lidar	light detection and ranging
PVER	Palo Verde Ecological Reserve
PVID	Palo Verde Irrigation District
Reclamation	Bureau of Reclamation

CONTENTS

Page

Tables

Figures

1.0 INTRODUCTION

This annual report summarizes all activities that have occurred at the Palo Verde Ecological Reserve (PVER) from October 1, 2014, through September 30, 2015, which is Federal fiscal year (FY) 2015, and projected activities for FY16. Water usage is presented for the calendar year, January 1 through December 31, 2015, consistent with water accounting reporting.

1.1 Background

The PVER encompasses 1,352 acres of the historical flood plain of the Colorado River 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 2004 to offset degradation of wildlife habitat along the lower Colorado River. On September 3, 2004, the property was conveyed to the State of California. California identified up to 1,023 acres of active agricultural lands on this property for habitat restoration under the Lower Colorado River Multi-Species Conservation Program (LCR MSCP), a 50-year multi-partner program administered by the Bureau of Reclamation (Reclamation) (LCR MSCP 2004).

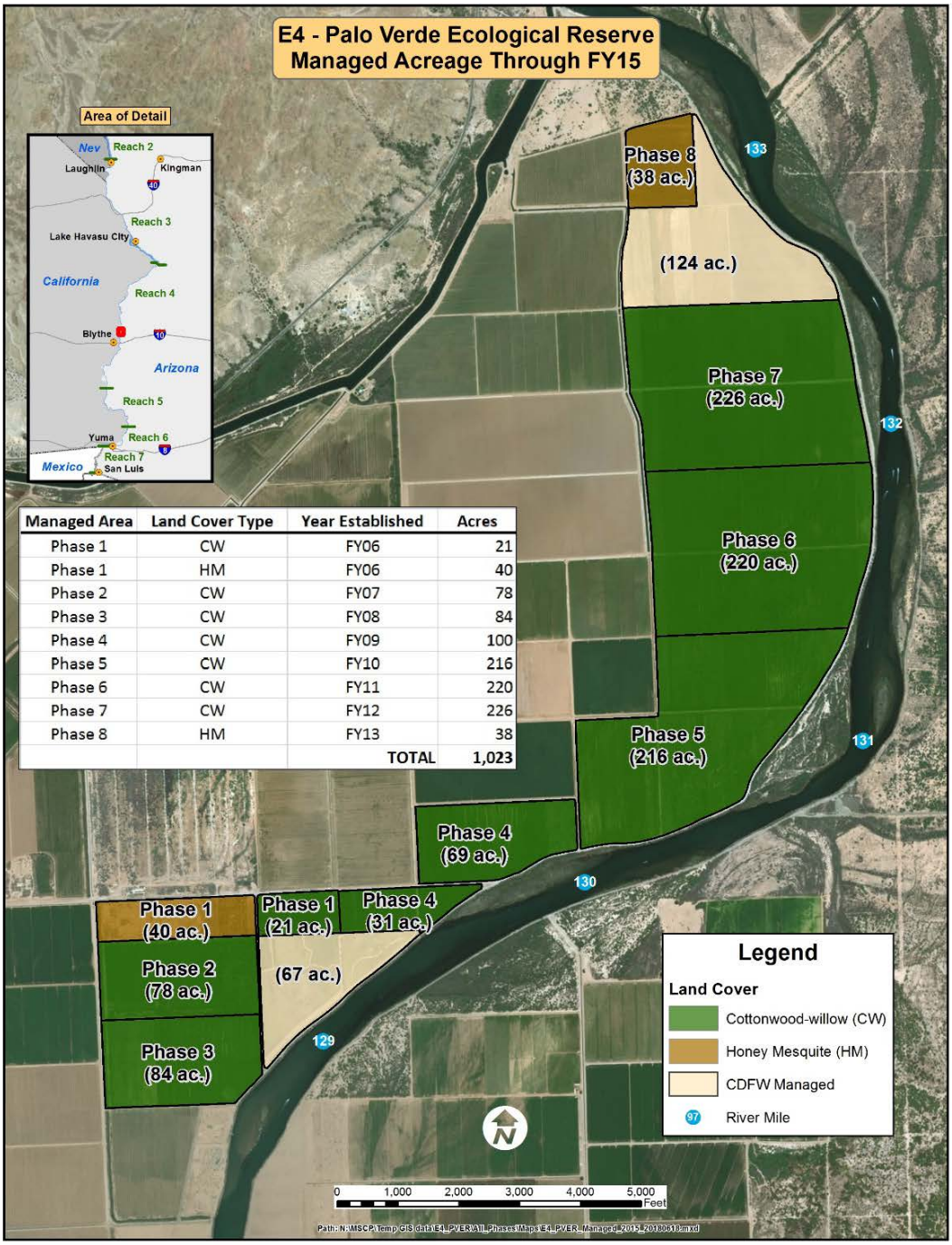
The California Department of Fish and Wildlife (CDFW) and the LCR MSCP jointly planned the conversion of portions of the PVER from agricultural crops to a mix of native plant species. Now that planting is completed, the created habitats will be managed for species covered under the LCR MSCP throughout the 50-year life of the program. Existing infrastructure consists primarily of an irrigation system comprised of 9.2 miles of lined and unlined irrigation ditches and associated slide gates, a 100-horsepower electric pump, and approximately 14 miles of access roads. All the acreage had been in agricultural crops—grain, small melons, and alfalfa—since the late 1930s.

The project was developed using a phased approach over an 8-year period (figure 1), with final planting completed in 2013. An overview restoration development plan for the entire site was completed in 2006 (LCR MSCP 2007) and modified in 2009.

2.0 CONSERVATION AREA INFORMATION

2.1 Purpose

The purpose of the development of the PVER is to convert 1,023 acres of agricultural land to riparian habitat that will be managed for southwestern willow flycatchers (*Empidonax trailli extimus*) and other LCR MSCP covered



Managed Area	Land Cover Type	Year Established	Acres
Phase 1	CW	FY06	21
Phase 1	HM	FY06	40
Phase 2	CW	FY07	78
Phase 3	CW	FY08	84
Phase 4	CW	FY09	100
Phase 5	CW	FY10	216
Phase 6	CW	FY11	220
Phase 7	CW	FY12	226
Phase 8	HM	FY13	38
		TOTAL	1,023

Figure 1.—PVER managed acreage through FY15.

species that utilize the Fremont cottonwood-Goodding's willow (*Populus fremontii-Salix gooddingii*) (hereafter cottonwood-willow) and honey mesquite (*Prosopis glandulosa*) land cover types.

2.2 Location

The PVER is located in Reach 4, in southeastern Riverside County, California, approximately 5 miles north of Blythe. It is within the historic flood plain of the lower Colorado River and between River Miles 128 and 134 (see figure 1).

2.3 Landownership

The PVER is owned by the CDFW, which has dedicated 1,023 acres for the restoration and maintenance of native land cover types by the LCR MSCP. The CDFW manages two parcels for migratory waterfowl and upland game.

2.4 Water

The Palo Verde Irrigation District (PVID) has an entitlement to Colorado River water for use on up to 104,500 acres of land within the PVID pursuant to a contract between the United States and the PVID dated February 7, 1933. The CDFW, as a landowner within the PVID, has the right to order Colorado River water from the PVID for pumping through the PVID canal system to its fields. The CDFW has made Colorado River water available for irrigation of the native plants.

2.5 Agreements

A Land Use Agreement was signed in 2007 by Reclamation and the CDFW to secure land and water for the PVER for the remainder of the 50-year LCR MSCP. The agreement outlines the rights and responsibilities of each partner in the project's development and maintenance.

2.6 Public Use

The CDFW has the authority and is the lead to regulate hunting and recreation uses pursuant to CDFW statutes, regulations, and policies at the PVER. In cooperation with Reclamation, the CDFW coordinates its public use and related activities so they are compatible with management of the site for LCR MSCP.

Low-impact public uses, such as wildlife watching, sport fishing, and education/outreach, are expected at the PVER. However, these uses may be regulated depending on future occupation of the habitat by listed species.

2.7 Law Enforcement

The CDFW is responsible for law enforcement at the PVER. A LCR MSCP Conservation Area Specific Fire Management & Law Enforcement Strategy was finalized for the PVER (LCR MSCP 2010).

2.8 Wildfire Management

A Fire Management & Law Enforcement Strategy has been finalized for the PVER (LCR MSCP 2010). The LCR MSCP will continue to work with local State and Federal fire agencies to reduce the risk of wildland fire and to maintain clear lines of communication among agencies.

3.0 HABITAT DEVELOPMENT AND MANAGEMENT

At this time, all the available acreage at the PVER was planted with riparian species. The site was planted in phases starting in 2006, with a native nursery, and every following year until Phase 8 was planted in 2013. The entire conservation area is now fully developed.

3.1 Planting

3.1.1 Phases 1–8

Planting at the PVER was conducted in phases from 2006 to 2013 (see figure 1).

3.2 Irrigation

3.2.1 Irrigation Management

Two (30-cubic-feet-per-second) electric pumps were installed on a new platform to provide redundancy of irrigation. The pump stand is approximately 75 feet away from the existing structure. The fields at the PVER are flood irrigated. Water usage for the PVER for the calendar year is reported from the Palo Verde Irrigation District's Water Order System. During 2015, 24,574 acre-feet

(24.0 acre-feet per acre, per year) of water was applied to the fields at the PVER. The water usage reported by the PVID does not reflect consumptive use or unmeasured return.

3.3 Site Management

Normal road maintenance, such as grading and gravel road base replacement, was done as needed.

3.3.1 Weed Management

Invasive weeds and plant material were removed adjacent to the irrigation ditches to protect their integrity. Disking was done quarterly along the levee road. The disking extended 50 feet into the fields to protect the integrity of the levee road and reduce the risk of fire.

3.3.2 Pest Management

No pest management was needed this year.

3.3.3 Nursery Management

Plant material was collected from the nursery in November (2014) through January (2015) for planting at other LCR MSCP conservation areas.

4.0 MONITORING

4.1 Avian Monitoring

Avian monitoring in FY15 included surveys for southwestern willow flycatchers, yellow-billed cuckoos (*Coccyzus americanus occidentalis*), and riparian breeding birds.

4.1.1 Southwestern Willow Flycatcher Surveys

Surveys to detect the presence of southwestern willow flycatchers were conducted five times during FY15 in cottonwood-willow habitat. One resident southwestern willow flycatcher was detected from May 31 to June 14. This individual was detected in the same area for more than 14 days and is, therefore, considered a resident; it is also considered to be a southwestern willow flycatcher. Migrant willow flycatchers (*Empidonax trailli*) were detected in May and June. Most birds detected after June 24 or individuals detected repeatedly before June 24

are considered to be southwestern willow flycatchers. Birds detected before June 24 and those detected only once after June 24 are considered migrant willow flycatchers (McLeod and Pellegrini 2017).

4.1.2 Yellow-billed Cuckoo Surveys

Five surveys for yellow-billed cuckoos were conducted within the riparian portion of the PVER. During the first survey period (June 18–25), there were 34 detections. Surveys during the second survey period (June 29 – July 9) resulted in 51 detections. During the third surveys period (July 13–22), there were 59 detections. There were 54 detections during the fourth survey period (July 28 – August 5) and 25 detections during the fifth survey period (August 10–20).

Breeding was confirmed at the PVER in FY15. Due to the behavior of this species, detections alone do not indicate the number of cuckoos present, nor do detections confirm breeding. The number, timing, and location of detections, along with behaviors observed, may be used to estimate abundance, distribution, and/or breeding status. The confirmed (COB), probable (PRB), and possible (POS) counts were used to estimate the number of breeding territories and not the number of breeding pairs. Territory estimates represent two adults associated with a single nest. There were 41 COB territories, 16 PRB territories, and 23 POS territories breeding at the PVER in FY15. A total of 33 nests were found incidental to surveys (Parametrix, Inc., and Southern Sierra Research Station 2016).

4.1.3 General Bird Surveys

Bird surveys were conducted to detect breeding LCR MSCP riparian bird species and other territorial riparian bird species. Surveys were conducted within areas of the cottonwood-willow and honey mesquite land cover types that were of adequate growth to support breeding birds. General bird surveys resulted in the detection of 26 species (589.5 territories) of birds breeding within the surveyed plots. Gila woodpeckers (*Melanerpes uropygialis*), Sonoran yellow warblers (*Dendroica petechia sonorana = Setophaga petechia sonorana*), and vermilion flycatchers (*Pyrocephalus rubinus*) were confirmed breeding (Great Basin Bird Observatory 2015).

Table 1 shows the number of breeding territories of LCR MSCP covered species at the PVER in FY15 (Great Basin Bird Observatory 2015).

Table 1.—Number of breeding territories per LCR MSCP covered species[1] at the PVER, FY15

LCR MSCP covered species	Number of confirmed breeding pairs
Gila woodpecker	0.25
Sonoran yellow warbler	7.0
Vermilion flycatcher	0.5

[1] Number of breeding territories refers to the number of territories that are within the sampled area for pairs that were confirmed breeding. Partial territories are possible, as the amount of each territory within the sampled area was estimated to 0.25, 0.5, 0.75, or 1.0.

4.2 Small Mammal Monitoring

4.2.1 Bat Monitoring

Acoustic and capture survey methods were used to monitor bats in order to document the presence of species using the PVER and to determine the age, sex, and reproductive status of bats that were captured.

4.2.1.1 Acoustic Surveys

Two long-term monitoring stations were operated at the PVER during June, July, and August 2015. Western red bats (*Lasiurus blossevillii)* and western yellow bats (*Lasiurus xanthinus*) were detected (table 2). Table 2 summarizes the total number of nights the four LCR MSCP species were detected in FY15 (Mixan and Diamond 2018).

Table 2.—LCR MSCP bat detections by month at the PVER, FY15

Month	Number of nights recorded (PVER 1/ PVER 2)	Total nights detected							
		Western red bat		Western yellow bat		California leaf-nosed bat		Pale Townsend's big-eared bat[1]	
		PVER 1	PVER 2	PVER 1	PVER 2	PVER 1	PVER 2	PVER 1	PVER 2
June	30/23	13	1	6	3	0	0	0	0
July	31/0	26	0	30	0	0	0	0	0
August	31/3	27	0	27	1	0	0	0	0

[1] Genetic analyses on the pale Townsend's big-eared bat indicate that the lower Colorado River is likely in the range of the Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*) rather than the pale Townsend's big-eared bat (Piaggio and Perkins 2005). The bats recorded along the lower Colorado River will be referred to as pale Townsend's big-eared bats in this report, as the nomenclature change has not yet been verified by the U.S. Fish and Wildlife Service.

4.2.1.2 Capture Surveys

Bats were captured with mist nets at the PVER 1 night per month in February and from June to September 2015. Twenty-two western yellow bats and five California leaf-nosed bats (*Macrotus californicus*) were captured (Calvert 2016).

4.2.2 Rodent Monitoring

Live trapping was conducted in FY15 to determine the presence of the covered rodent species. In November 2014, traps were set on transects in each of the following phases: Phase 2 (40 traps), Phase 3 (40 traps), Phase 4 (60 traps), Phase 5 (120 traps), Phase 6 (60 traps), and Phase 8 (60 traps). Five Colorado River cotton rats (*Sigmodon arizonae plenus*) and four desert pocket mice (*Chaetodipus penicillatus*) were captured in November 2014. The subspecies of the desert pocket mouse was not determined, but it is not expected to be of the *sobrinus* subspecies, as the PVER is south of the subspecies' documented range (Hill and Calvert 2016). Sixty traps were set on transects in each of Phases 4–8 in March 2015. Twenty-six Colorado River cotton rats were captured (Hill 2017).

4.3 MacNeill's Sootywing Skipper Monitoring

Surveys for MacNeill's sootywing skippers (*Pholisora gracielae = Hesperopsis gracielae* [MacNeill]) were conducted in April, June, and July 2015. MacNeill's sootywing skippers were documented in Phases 1, 4, and 6 in the PVER (Nelson et al. 2017).

5.0 HABITAT CREATION AND CONSERVATION MEASURE ACCOMPLISHMENT

5.1 Vegetation Monitoring

Vegetation data were collected in FY15 using light detection and ranging (lidar). Lidar measures the vegetation structure throughout the canopy and provides the ability to identify structural diversity and successional growth stages. Conservation area vegetation will be evaluated on a periodic basis using lidar to ensure the habitat is meeting species' requirements. A procedure to analyze and provide vegetation structure metrics will be developed, and the results will be presented in future reports.

5.2 Evaluation of Conservation Area Habitat

The Final Habitat Creation Conservation Measure Accomplishment Tracking Process was finalized in October 2011 (LCR MSCP 2011). All areas within the PVER were designed to benefit covered species at the landscape level.

To meet species habitat creation requirements, the Habitat Conservation Plan provides goals for habitat creation based on land cover types. These land cover types are described using the Anderson and Ohmart vegetation classification system (Anderson et al. 1976, 1984a and 1984b). Thirteen species with habitat creation goals have creditable acres at the PVER. These species, including their corresponding conservation measure acronyms, are: southwestern willow flycatcher (WIFL1), western red bat (WRBA2), western yellow bat (WYBA3), Colorado River cotton rat (CRCR2), yellow-billed cuckoo (YBCU1), elf owl (*Micrathene whitneyi*) (ELOW1), gilded flicker (*Colaptes chrysoides*) (GIFL1), Gila woodpecker (GIWO1), vermilion flycatcher (VEFL1), Arizona Bell's vireo (*Vireo bellii arizonae*) (BEVI1), Sonoran yellow warbler (YWAR1), summer tanager (*Piranga rubra*) (SUTA1), and MacNeill's sootywing skipper (MNSW2) (table 3).

Table 3.—Species-specific habitat creation conservation measure creditable total acres for 2015

Species-specific habitat creation conservation measure	WIFL1	WRBA2	WYBA3	CRCR2	YBCU1	ELOW1	GIFL1	GIWO1	VEFL1	BEVI1	YWAR1	SUTA1	MNSW2
Creditable acres in 2015	945	0	0	0	0	0	0	0	0	0	0	0	0
Total, including previous years	945	719	719	1,023	945	797	719	945	1,023	1,023	945	499	40

6.0 ADAPTIVE MANAGEMENT RECOMMENDATIONS

Adaptive management relies on the initial receipt of new information, the analysis of that information, and the incorporation of the new information into the design and/or direction of future project work (LCR MSCP 2007). The Adaptive Management Program's role is to ensure habitat creation sites are biologically effective and fulfill the conservation measures outlined in the Habitat Conservation Plan for 26 covered species and if they potentially benefit 5 evaluation species. Post-development monitoring and species research results will be used to adaptively manage habitat creation sites after initial

implementation. Once monitoring data are collected over a few years, and then analyzed for the PVER, recommendations may be made through the adaptive management process for site improvements in the future.

There are no adaptive management recommendations for the PVER at this time.

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