



Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Palo Verde Ecological Reserve

2014 Annual Report



June 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

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Arizona Game and Fish Department
Arizona Power Authority
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Mohave Valley Irrigation and Drainage District
Mohave Water Conservation District
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Other Interested Parties Participant Group

QuadState Local Governments Authority
Desert Wildlife Unlimited

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Los Angeles Department of Water and Power
Palo Verde Irrigation District
San Diego County Water Authority
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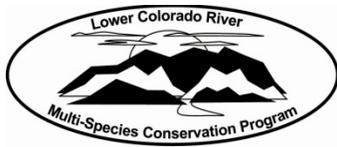
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Native American Participant Group

Hualapai Tribe
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Conservation Participant Group

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



Lower Colorado River Multi-Species Conservation Program

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ACRONYMS AND ABBREVIATIONS

CDFW	California Department of Fish and Wildlife
COB	confirmed breeding territory
FY	fiscal year
HCP	Habitat Conservation Plan
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
m	meter(s)
POS	possible breeding territory
PRB	probable breeding territory
PVER	Palo Verde Ecological Reserve
PVID	Palo Verde Irrigation District
Reclamation	Bureau of Reclamation

Symbols

%	percent
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1.0 INTRODUCTION

The purpose of this annual report is to summarize all activities that have occurred at the Palo Verde Ecological Reserve (PVER) from October 1, 2013, through September 30, 2014, which is Federal fiscal year (FY) 2014, and projected activities for FY15. Water usage is presented for the calendar year, January 1 through December 31, 2014, 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 1,300 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 the southwestern willow flycatcher (*Empidonax traillii extimus*) and other LCR MSCP covered

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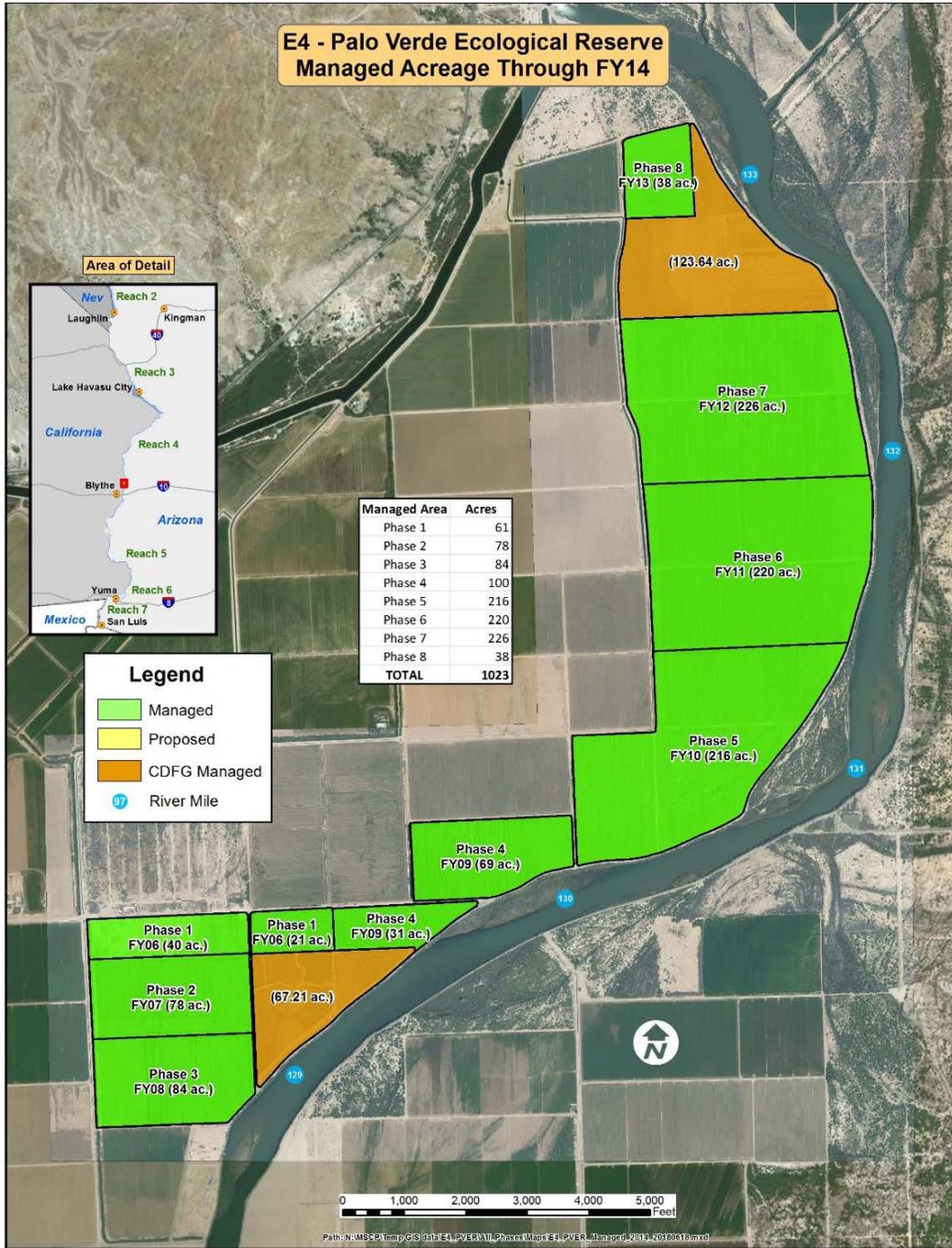


Figure 1.—PVER managed acreage through FY14.

species that utilize 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, California. 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 LCR MSCP Conservation Area Specific Fire Management & Law Enforcement Strategy has been finalized for the PVER and is posted on the LCR MSCP Web site. The LCR MSCP will continue to work with local, State, and Federal fire agencies to reduce the risk of wildland fires and to maintain clear lines of communication among agencies.

3.0 HABITAT DEVELOPMENT AND MANAGEMENT

In 2014, 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 over multiple fiscal years (see figure 1). Table 1 provides a description of acreage established by fiscal year and phase. Table 2 summarizes the total number of trees, shrubs, and grasses planted at the PVER.

Table 1.—Phases 1–8 planted acres

Phase	Fiscal year	Acres planted	Land cover type	Cumulative total
1	2006	61	Cottonwood-willow	61
2	2007	78	Cottonwood-willow	139
3	2008	45	Cottonwood-willow	184
	2009	39	Cottonwood-willow	223
4	2009	100	Cottonwood-willow	323
5	2010	216	Cottonwood-willow	539
6	2011	220	Cottonwood-willow	759
7	2012	226	Cottonwood-willow	985
8	2012	38	Honey mesquite	1,023

Table 2.—Total number of trees, shrubs, and grasses planted in Phases 1–8

Year	Cottonwood	Goodding's willow	Coyote willow ¹	Mule fat ² / desert broom ³	Quailbush ⁴	Honey mesquite	Grasses
2006	600	600	600	0	0	600	0
2007	20,592	39,960	41,580	4,620	0	924	20,600
2008	38,010	18,601	68,954	5,600	12,421	1,780	0
2009	31,392	67,536	68,256	15,290	12,000	1,782	0
2010	75,657	188,649	100,657	20,747	24,340	1,825	0
2011	64,169	147,425	105,952	17,750	1,850	3,013	0
2012	133,289	173,720	90,830	14,807	1,000	3,580	0
2013	0	0	0	0	0	4,563	154,400
Total planted per species	363,709	636,491	476,829	78,814	51,611	18,067	175,000
Total plants	1,800,521						

¹ *Salix exigua*.

² *Baccharis salicifolia*.

³ *Baccharis sarothroides*.

⁴ *Atriplex lentiformis*.

3.2 Irrigation

3.2.1 Irrigation Management

Two (30-cubic-feet-per-second) electric pumps were installed on a new platform. The pump stand is approximately 75 feet away from the existing structure. Future electrical upgrades will be needed to allow for the operation of both pumps to run simultaneously. A pump standard operating procedures manual was drafted.

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 the integrity of the ditch. Disking was done quarterly along the levee road. The disking extended in the fields 50 feet to protect the integrity of the levee road and to 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 for planting at other LCR MSCP conservation areas.

4.0 MONITORING

4.1 Avian Monitoring

Avian monitoring in FY14 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 FY14 in cottonwood-willow habitat. No breeding or resident

southwestern willow flycatchers were detected. 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 2015).

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 15–29), there were 31 cuckoo detections. The second survey period (June 30 – July 13) resulted in 56 detections. Between July 14 and July 28 there were 58 detections, between July 29 and August 11 there were 59 detections, and between August 12 and August 25 there were 46 detections.

Breeding was confirmed at the PVER in FY14. 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 the abundance, distribution, and/or breeding status. The possible (POS), probable (PRB), and confirmed (COB) 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 49 COB territories, 9 PRB territories, and 20 POS territories at the habitat conservation area in FY14. Twenty-nine nests were found incidental to surveys (Parametrix Inc., and Southern Sierra Research Station 2015).

4.1.3 General Avian 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 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 24 species (415.5 territories) of birds breeding within the surveyed plots. The Sonoran yellow warbler (*Dendroica petechia sonorana* = *Setophaga petechial sonorana*) was confirmed to be breeding (Great Basin Bird Observatory 2014).

Table 3 shows the number of breeding territories of LCR MSCP covered species at the PVER in FY14 (Great Basin Bird Observatory 2014).

Table 3.—Number of breeding territories per LCR MSCP covered species¹ at the PVER, FY14

LCR MSCP covered species	Number of confirmed breeding pairs
Sonoran yellow warbler	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 in Phases 1 and 2 from October 2013 to September 2014. Western red bats (*Lasiurus blossevillii*), western yellow bats (*Lasiurus xanthinus*), California leaf-nosed bats (*Macrotus californicus*), and pale Townsend’s big-eared bats (*Corynorhinus townsendii pallescens* = *Plecotus townsendii pallescens* = *C. townsendii*¹) were detected (table 4) (Broderick 2016).

4.2.1.2 Capture Surveys

Bats were captured with mist nets at the PVER 1 night per month from May to September 2014. One western red bat, 15 western yellow bats, and 6 California leaf-nosed bats were captured (Calvert 2016).

4.2.2 Rodent Monitoring

Live trapping was conducted in fall 2013 and spring 2014 to determine the presence of Yuma hispid cotton rats (*Sigmodon hispidus eremicus*). Sixty traps were set for 1 night in Phases 4, 5, and 6 during Fall 2013 and in Phases 4, 5,

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 LCR will be referred to as pale Townsend’s big-eared bats in this report, as the nomenclature change has not yet been verified by U.S. Fish and Wildlife Service.

Table 4.—LCR MSCP bat detections by month at the PVER, FY2014

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	
		PVER 1	PVER 2	PVER 1	PVER 2	PVER 1	PVER 2	PVER 1	PVER 2
Oct	31 / 0	27	-	2	-	3	-	0	-
Nov	30 / 3	20	2	1	0	0	0	0	0
Dec	31 / 13	12	3	0	0	0	0	0	0
Jan	31 / 31	30	8	1	2	0	0	0	0
Feb	28 / 28	26	7	1	1	0	0	2	0
Mar	31 / 7	16	1	1	0	1	0	0	0
Apr	13 / 8	12	6	4	5	0	1	1	0
May	1 / 31	0	15	3	16	0	4	0	1
Jun	1* / 30	0	16	0	19	0	0	0	1
Jul	2* / 31	1	15	0	19	0	3	0	0
Aug	3* / 31	0	5	0	18	0	1	0	0
Sep	1* / 30	0	7	0	8	0	0	0	0

and 8 in spring 2014. Nine Yuma hispid cotton rats and 1 desert pocket mouse (*Chaetodipus penicillatus*) were captured (Hill and Calvert 2016). 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.

4.3 MacNeill's Sootywing Skipper Monitoring

Surveys for MacNeill's sootywing skippers (*Pholisora graciellae* = *Hesperopsis graciellae* [MacNeill]) were conducted in May, June, July, and August 2014. MacNeill's sootywing skippers were documented in Phases 4 and 6 (Nelson et al. *in press*).

5.0 HABITAT CREATION AND CONSERVATION MEASURE ACCOMPLISHMENT

5.1 Vegetation Monitoring

Vegetation data were collected within several parameters to evaluate vegetation structure from the ground layer to the upper canopy layer. Parameters included tree and shrub density, tree heights, and canopy closure.

The tree density in cottonwood/willow (cottonwood, Goodding’s willow, and coyote willow [*Salix exigus*]) ranged from 20–5,720 trees per acre for cottonwoods and Goodding’s willows and stems per acre for coyote willows. The shrub density (willow baccharis [*Baccharis salicina*], desert broom [*Baccharis sarothroides*], and mule fat [*Baccharis salicifolia*], density ranged from 0–378 shrubs per acre. The PVER had the following maximum and minimum heights in meters (m): cottonwood (30 m, 1.7 m), Goodding’s willow (31.5 m, 0.3 m), coyote willow (7.5 m, 2.5 m), and honey and screwbean mesquite (*Prosopis pubescens*) (30 m, 1.7 m), respectively. The average canopy closure ranged from 63.8–99.1%.

5.3 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 (HCP) 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 (*Sigmodon arizonae plenus*) (CRCR2), yellow-billed cuckoo (YBCU1), elf owl (*Micrathene whitneyi*) (ELOW1), gilded flicker (*Colaptes chrysoides*) (GIFL1), Gila woodpecker (*Melanerpes uropygialis*) (GIWO1), vermilion flycatcher (*Pyrocephalus rubinus*) (VEFL1), Arizona Bell’s vireo (*Vireo bellii arizonae*) (BEVI1), Sonoran yellow warbler (YWAR1), summer tanager (*Piranga rubra*) (SUTA1) and MacNeill’s sootywing skipper (MNSW2) (table5).

Table 5.—Species-specific habitat creation conservation measure creditable total acres for 2014

Species-specific habitat creation conservation measure	WIFL1	WRBA2	WYBA3	CRCR2	YBCU1	ELOW1	GIFL1	GIWO1	VEFL1	BEVI1	YWAR1	SUTA1	MNSW2
Creditable acres in 2014	0 ¹	220	719 ²	1,023	446	298	220	10	88	547	0	0	0
Total, including previous years	0	719	719	1,023	945	797	719	945	1,023	1,023	945	499	40

¹ Although the PVER provides the appropriate structure type (cottonwood-willow I–IV) as defined in WIFL1 of the HCP, Reclamation is in the process of gathering the appropriate hydrologic data to determine saturated soils, moist soils, or slow-moving water. Once this has been determined, the PVER will be evaluated.

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 HCP 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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