



# Lower Colorado River Multi-Species Conservation Program

*Balancing Resource Use and Conservation*

## Cibola Valley Conservation Area

### 2014 Annual Report



June 2018

Work conducted under LCR MSCP Work Task E5

# 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  
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 Local Governments Authority  
Desert Wildlife Unlimited

## **California Participant Group**

California Department of Fish and Wildlife  
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**

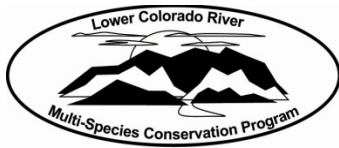
Colorado River Commission of Nevada  
Nevada Department of Wildlife  
Southern Nevada Water Authority  
Colorado River Commission Power Users  
Basic Water Company

## **Native American Participant Group**

Hualapai Tribe  
Colorado River Indian Tribes  
Chemehuevi Indian Tribe

## **Conservation Participant Group**

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



# Lower Colorado River Multi-Species Conservation Program

## Cibola Valley Conservation Area

## 2014 Annual Report

*Prepared by:*

Jessie Stegmeier, Restoration Group

Chris Dodge and Barbara Raulston, Wildlife Group

Sonja Kokos and Beck Blasius, Adaptive Management Group

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

June 2018

Stegmeier, J., C. Dodge, B. Raulston, S. Kokos, and B. Blasius. 2018. Cibola Valley Conservation Area, 2014 Annual Report. Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada.

# ACRONYMS AND ABBREVIATIONS

AGFD	Arizona Game and Fish Department
COB	confirmed breeding territory
CVCA	Cibola Valley Conservation Area
FY	fiscal year
HCP	Habitat Conservation Plan
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
m	meter(s)
MCWA	Mohave County Water Authority
PRB	probable breeding territory
POS	possible breeding territory
Reclamation	Bureau of Reclamation

## **Symbols**

%	percent
---	---------

# CONTENTS

	Page
1.0 Introduction.....	1
1.1 Background.....	1
2.0 Conservation Area Information .....	1
2.1 Purpose.....	1
2.2 Location .....	3
2.3 Landownership.....	3
2.4 Water.....	3
2.5 Agreements .....	4
2.6 Public Use .....	4
2.7 Law Enforcement.....	4
2.8 Wildfire Management .....	5
3.0 Habitat Development .....	5
3.1 Planting .....	5
3.2 Irrigation .....	5
3.3 Site Management .....	5
3.3.1 Weed Management .....	5
3.3.2 Nursery Management.....	6
4.0 Monitoring .....	6
4.1 Avian Monitoring.....	6
4.1.1 Southwestern Willow Flycatcher Surveys .....	6
4.1.2 Yellow-billed Cuckoo Surveys .....	7
4.1.3 General Bird Surveys.....	7
4.2 Small Mammal Monitoring.....	7
4.2.1 Bat Monitoring.....	7
4.2.2 Rodent Monitoring.....	8
4.2 MacNeill’s Sootywing Skipper Monitoring.....	9
5.0 Habitat Creation and Conservation Measure Accomplishment.....	9
5.1 Vegetation Monitoring.....	9
5.2 Evaluation of Conservation Area Habitat .....	9
6.0 Adaptive Management Recommendations .....	10
Literature Cited .....	11

## Tables

Table	Page
1 Phases 1–6 planted acres.....	3
2 Water entitlement and priority .....	4
3 Irrigation water applied in 2014.....	6
4 LCR MSCP bat detections by month at the CVCA, FY14.....	8
5 Species-specific habitat creation conservation measure total acres for 2014.....	10

## Figures

Figure	Page
1 Current phase map of the CVCA and managed acreage through FY14. ....	2

# 1.0 INTRODUCTION

The purpose of this annual report is to summarize all activities that have occurred at the Cibola Valley Conservation Area (CVCA) 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

In 2002, the Bureau of Reclamation (Reclamation) secured 1,309 acres of land within the Cibola Valley Irrigation and Drainage District in southwestern Arizona and established the CVCA. In September 2007, the property was conveyed to the Arizona Game and Fish Department (AGFD) through an agreement among the AGFD, Reclamation, the Mohave County Water Authority (MCWA), the Hopi Tribe, and The Conservation Fund. Under the agreement, the AGFD retains title to the property and leases the land and water rights to Reclamation until April 5, 2055, as part of the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). In September 2008, a memorandum of understanding was signed between Reclamation and the AGFD that assures availability of land and water resources for the 50-year term of the program.

Large habitat conservation areas such as the CVCA are developed over a number of years, with restoration activities divided into phases as shown on figure 1 and table 1. The Cibola Valley Conservation Area Restoration Development Plan: Overview (Reclamation 2007) provides a summary of the site and projected phase implementation.

Future planting of phases within the CVCA have been postponed until FY15, when riparian planting will resume. A development plan for Phase 7 will be prepared prior to planting.

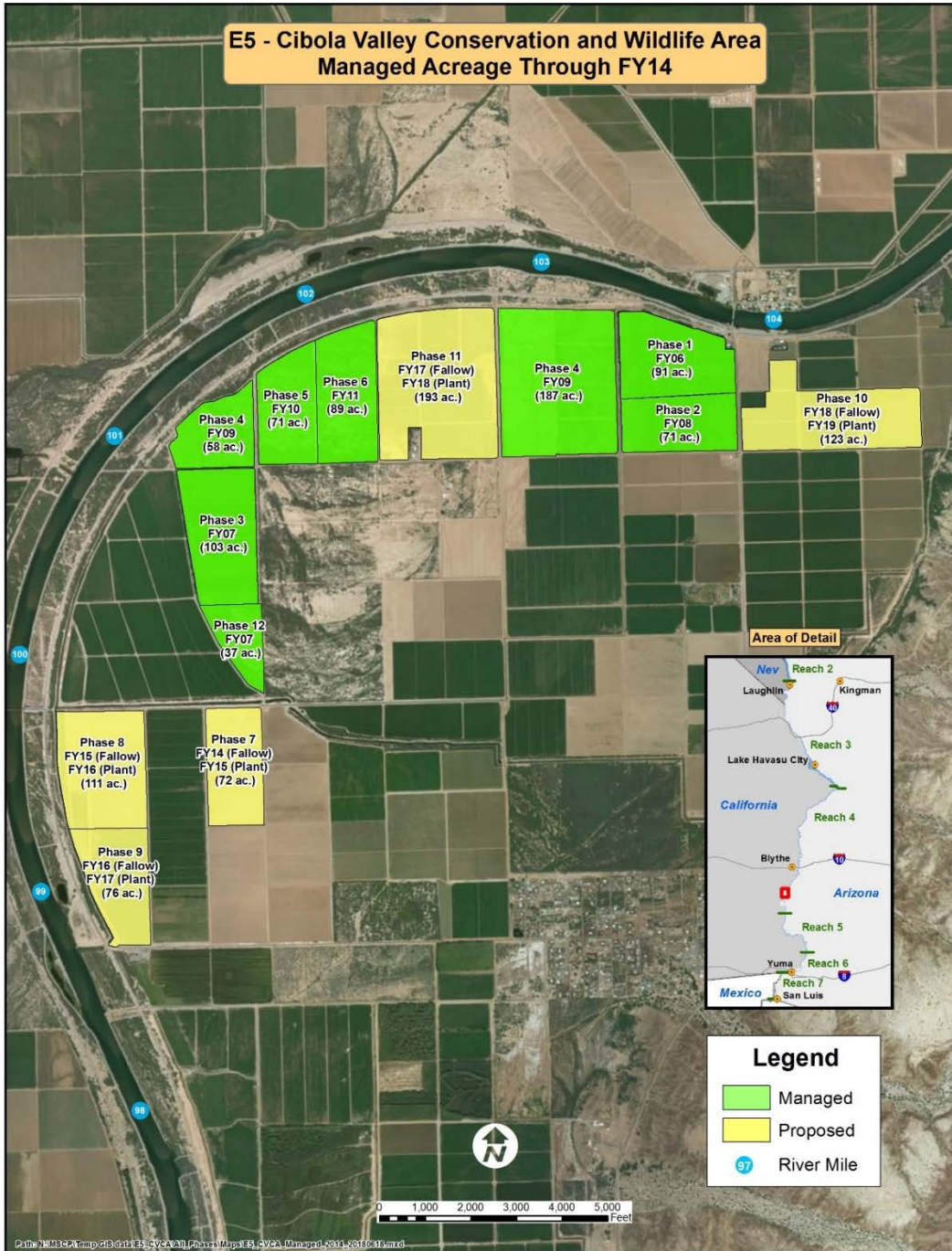
# 2.0 CONSERVATION AREA INFORMATION

## 2.1 Purpose

The Fremont cottonwood-Goodding's willow (*Populus fremontii-Salix gooddingii*) (hereafter cottonwood-willow) and honey mesquite (*Prosopis glandulosa*) land cover types created within the CVCA will be managed for southwestern willow flycatchers (*Empidonax traillii extimus*), yellow-billed cuckoos (*Coccyzus americanus occidentalis*), and other species covered under the LCR MSCP.



**Cibola Valley Conservation Area  
2014 Annual Report**



**Figure 1.—Current phase map of the CVCA and managed acreage through FY14.**

Table 1.—Phases 1–6 planted acres

Phase	Fiscal year	Acres planted	Land cover type	Cumulative total
1	2006	91	Cottonwood-willow	91
2	2008	71	Cottonwood-willow	162
3	2007	103	Cottonwood-willow	265
4	2009	245	Honey mesquite	510
5	2010	71	Honey mesquite	581
6	2011	89	Honey mesquite	670

## 2.2 Location

The CVCA is located in Arizona in Reach 4, within the Cibola Valley Irrigation District, approximately 15 miles south of Blythe, California. It is within the historic flood plain of the lower Colorado River and adjacent to River Miles 99 to 105 on the Arizona side (see figure 1).

## 2.3 Landownership

The AGFD acquired CVCA land and water rights in 2007 and 2008 through multiple agreements involving the AGFD, Reclamation, the MCWA, The Conservation Fund, and the Hopi Tribe. Through these agreements, the AGFD acquired CVCA fee title and water entitlements and agreed to manage the site. The entitlements are subject to an existing long-term lease of the land and water rights to Reclamation through April 5, 2055, as part of the LCR MSCP. Short-term leases of the land to farmers for crop production also exist on portions of the acquired land.

## 2.4 Water

For the long term, a 2,838 acre-foot-per-year diversionary right of 4th priority Colorado River water is available (table 2). Additionally, a 7,747 acre-foot diversionary right of combined 4th, 5th, and 6th priority Colorado River water is currently available for lease each year from the MCWA to the LCR MSCP to accommodate the higher water diversions required to establish habitat.

Table 2.—Water entitlement and priority

<b>Term</b>	<b>Entitlement</b>	<b>Priority</b>
<b>Long term</b>		
AGFD entitlement	2,719 acre-feet/year	4th
Reclamation entitlement	119 acre-feet/year	4th
<b>Long-term total</b>	<b>2,838 acre-feet/year</b>	
<b>Short term</b>		
Multi-year lease from MCWA entitlement	5,997 acre-feet/year	4th
Multi-year lease from MCWA entitlement	750 acre-feet/year	5th
Multi-year lease from MCWA entitlement	1,000 acre-feet/year	6th
<b>Short-term total</b>	<b>7,747 acre-feet/year</b>	

## **2.5 Agreements**

A Land Use Agreement was signed in 2007 by Reclamation and the AGFD to secure land and water for the CVCA 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 AGFD has the authority and is the lead to regulate hunting and recreation uses pursuant to AGFD statutes, regulations, and policies at the CVCA. In cooperation with Reclamation, the AGFD coordinates its public use and related activities so they are compatible with management of the site for the LCR MSCP. Low-impact public uses, such as wildlife watching, sport fishing, and education/outreach are expected at the CVCA. However, these uses may be regulated depending on future occupation of the habitat by listed species.

## **2.7 Law Enforcement**

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

## **2.8 Wildfire Management**

A LCR MSCP Conservation Area Specific Fire Management & Law Enforcement Strategy has been finalized for the CVCA (LCR MSCP 2010). 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**

### **3.1 Planting**

No planting occurred in 2014; however, winter wheat was planted in Phase 7 for a cover crop and soil stabilization in preparation for planting in FY15. Future planting of phases within the CVCA have been postponed until FY15.

### **3.2 Irrigation**

Flood irrigation methods are used to provide water to each field. Irrigation amounts applied in each phase were based on monthly invoices prepared by the Cibola Valley Irrigation and Drainage District. Irrigation scheduling was recommended by the contract farmer along with input from Reclamation. No irrigation was conducted in January, February, or December 2014. Table 3 depicts the number of acre-feet of water applied to each phase during the 2014 calendar year. The total irrigation amount utilized at the CVCA for calendar year 2015 is 1,201 acre feet.

### **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 adjacent to the irrigation canals were removed to protect the integrity of the concrete lining. Disking was done quarterly along the levee road. The disking extended 50 feet into the fields to reduce the risk of fire.

Table 3.—Irrigation water applied in 2014

Month	2014 – Acre-feet applied		
	Phase 1 (91 acres)	Phase 2 (71 acres)	Phase 3 (103 acres)
March	94.3	63.70	103.7
April	0.0	0.0	0.0
May	95.9	61.6	108.4
June	93.0	60.20	81.8
July	78.10	51.7	124.30
August	0.0	0.0	0.0
September	0.0	0.0	0.0
October	95.7	68.40	7.4
November	0.00	0.00	12.8
Acre-feet/year	457.0	305.6	438.4
Acre-feet/acre	5.0	4.3	4.3

### **3.3.2 Nursery Management**

Coyote willow (*Salix exigua*) poles were collected from the nursery.

## **4.0 MONITORING**

### **4.1 Avian Monitoring**

Avian monitoring in FY14 included surveys for southwestern willow flycatchers, yellow-billed cuckoos, and riparian breeding birds, as well as bird migration monitoring at a Monitoring Avian Productivity and Survivorship station.

#### **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 traillii*) 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 CVCA. During the first survey period (June 15–29), there were no cuckoo detections. Surveys conducted between June 30 and July 13 resulted in six detections. Between July 14 and July 28 there were two detections, between July 29 and August 11 there were three detections, and between August 12 and August 25 there were no detections.

Breeding was confirmed at the CVCA 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 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 was one COB territory, one PRB territory, and one POS territory at the CVCA in FY14. One nest was found incidental to surveys (Parametrix Inc., and Southern Sierra Research Station 2015).

### **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 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 18 species (237 territories) of birds breeding within the surveyed plots. No LCR MSCP covered species were confirmed breeding (Great Basin Bird Observatory 2014).

A bird banding station was operated 10 times from May 1 through July 30, 2014. There were no LCR MSCP species captured (Dodge and Kahl 2017).

## **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 CVCA and to determine the age, sex, and reproductive status of bats captured.

#### **4.2.1.1 Acoustic Surveys**

Two long-term monitoring stations were operated within Phases 1 and 2 year round in FY14. Western red bats (*Lasiurus blossevillii*), western yellow bats (*Lasiurus xanthinus*), California leaf-nosed bats (*Macrotus californicus*) and pale

**Cibola Valley Conservation Area  
2014 Annual Report**

Townsend’s big-eared bats (*Corynorhinus townsendii pallescens* = *Plecotus townsendii pallescens* = *C. townsendii*<sup>1</sup>) were detected in FY14. Table 4 summarizes the total number of nights the four LCR MSCP species were detected in FY14 (Broderick 2016).

Table 4.—LCR MSCP bat detections by month at the CVCA, FY14

Month	Number of nights recorded	Total nights detected							
		Western red bat		Western yellow bat		California leaf-nosed bat		Pale Townsend’s big-eared bat	
		CVCA1	CVCA2	CVCA1	CVCA2	CVCA1	CVCA2	CVCA1	CVCA2
Oct	31	26	19	14	0	5	4	1	2
Nov	30	29	10	2	0	4	5	1	0
Dec	31	17	4	0	0	0	0	0	0
Jan	31	13	1	1	0	2	2	0	0
Feb	28	28	0	4	0	1	0	0	0
Mar	31	24	10	11	0	4	5	0	0
Apr	30	25	6	23	6	0	3	5	0
May	31	23	7	23	7	0	1	2	1
June	31	23	3	29	4	0	7	0	0
July	31	27	4	31	21	3	6	0	2
Aug	31	29	15	31	28	2	5	3	0
Sep	30	12	9	27	13	10	2	0	0

**4.2.1.2 Capture Surveys**

Bats were captured using mist nets once per month during the summer season from May to September. Eight western red bats, 12 western yellow bats, and 2 California leaf-nosed bats were captured (Calvert 2016).

**4.2.2 Rodent Monitoring**

Live trapping was conducted during fall 2013 and spring 2014 to determine the presence of Colorado River cotton rats (*Sigmodon arizonae plenus*). Sixty traps

<sup>1</sup> 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 U.S. Fish and Wildlife Service.

were set in Phase 1 in fall and 90 were set in spring. In Phase 2, 60 traps were set in both fall and spring. Ten Colorado River cotton rats and 14 desert pocket mice (*Chaetodipus penicillatus*) were captured (Hill and Calvert 2016). The subspecies of the desert pocket mice was not determined, but they are not expected to be the *sobrinus* subspecies, as the CVCA is south of the subspecies' documented range.

## 4.2 MacNeill's Sootywing Skipper Monitoring

Surveys for MacNeill's sootywing skippers (*Pholisora graciellae* = *Hesperopsis graciellae* [MacNeill]) were conducted May – August 2014. MacNeill's sootywing skippers were documented in CVCA Phase 4 (Nelson et al., *in press*).

# 5.0 HABITAT CREATION AND CONSERVATION MEASURE ACCOMPLISHMENT

## 5.1 Vegetation Monitoring

Vegetation measurements were collected in Phases 1–3 to evaluate the vegetation structure from the ground layer to the upper canopy layer. Parameters included tree and shrub density, tree heights, and canopy closure (Parametrix, Inc., and GeoSystems Analysis, Inc. 2015).

The tree density in cottonwood/willow (cottonwood, Goodding's willow, and coyote willow) ranged from 30–7,015 trees per acre for cottonwoods and Goodding's willows and stems per acre for coyote willows. The shrub density (willow baccharis [*Baccharis salicina*], mule fat [*Baccharis salicifolia*], and saltcedar [*Tamarix* spp.]) per plot ranged from 0–1,308 shrubs per acre. The CVCA had the following maximum and minimum heights in meters (m): cottonwood (23 m, 1.5 m), Goodding's willow (17.5 m, 0.5 m), coyote willow (9.5 m, 1.7 m), and honey and screwbean mesquite (*Prosopis pubescens*) (5.5 m, 0.2 m), respectively. The average canopy closure ranged from 77.6–98.2%.

## 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 CVCA 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 CVCA. 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 (*Melanerpes uropygialis*) (GIWO1), vermilion flycatcher (*Pyrocephalus rubinus*) (VEFL1), Arizona Bell’s vireo (*Vireo bellii arizonae*) (BEV1), Sonoran yellow warbler (*Dendroica petechia sonorana* = *Setophaga petechia sonorana*) (YWAR1), summer tanager (*Piranga rubra*) (SUTA1), and MacNeill’s sootywing skipper (MNSW2) (table 5).

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

Species-specific habitat creation conservation measure	WIFL1	WRBA2	WYBA3	CRCR2	YBCU1	ELOW1	GIFL1	GIWO1	VEFL1	BEV1	YWAR1	SUTA1	MNSW2
Creditable acres in 2014	0 <sup>1</sup>	405	670	670	0	0	0	0	0	0	0	0	0
Total, including previous years	0	670	670	670	265	670	265	265	670	405	265	265	405

<sup>1</sup> Although the CVCA 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 CVCA 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 CVCA, recommendations may be made through the adaptive management process for site improvements in the future.

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

## LITERATURE CITED

- Anderson, B.W. and R.D. Ohmart. 1976. Vegetation Type Maps of the Lower Colorado River from Davis Dam to the Southerly International Boundary, Final Report. Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada.
- \_\_\_\_\_. 1984a. Vegetation Management Study for the Enhancement of Wildlife Along the Lower Colorado River, Final Report. Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada.
- \_\_\_\_\_. 1984b. Lower Colorado River Riparian Methods of Quantifying Vegetation Communities to Prepare Type Maps, Final Report. Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada.
- Broderick, S. 2016. Post-Development Acoustic Bat Monitoring, 2012–2014 Results. Annual report submitted to the Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada, by the Bureau of Reclamation, Technical Service Center, Denver, Colorado.
- Bureau of Reclamation (Reclamation). 2007. Cibola Valley Conservation Area Restoration Development Plan: Overview. Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada.
- Calvert, A. 2016. Post-Development Bat Monitoring of Conservation Areas and the ‘Ahakhav Tribal Preserve Along the Lower Colorado River – 2013–2014 Capture Surveys. Annual report prepared by the Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada.
- Dodge, C. and J. Kahl. 2017. Monitoring Avian Productivity and Survivorship and Targeted Bird Banding at LCR MSCP Restoration Sites in 2014 and 2015. Annual report prepared by the Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada.
- Great Basin Bird Observatory. 2014. Lower Colorado River Riparian Bird Surveys, 2014 Annual Report. Submitted to the Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada. November 2014.
- Hill, J. and A. Calvert. 2016. Post-Development and System Monitoring of Rodent Populations: 2012–2014. Annual report prepared by the Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada.

**Cibola Valley Conservation Area  
2014 Annual Report**

Lower Colorado River Multi-Species Conservation Program (LCR MSCP). 2007. Final Science Strategy. Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada.

\_\_\_\_\_. 2010. Lower Colorado River Multi-Species Conservation Program Fire Management & Law Enforcement Strategy. Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada.

\_\_\_\_\_. 2011. Final Habitat Creation Conservation Measure Accomplishment Tracking Process. Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada.

McLeod, M.A. and A. Pellegrini. 2015. Southwestern Willow Flycatcher Surveys, Demography, and Ecology Along the Lower Colorado River and Tributaries, 2014 Annual Report. Submitted to the Bureau of Reclamation, Boulder City, Nevada, by SWCA Environmental Consultants, Flagstaff, Arizona, under contract number GS-10F-0209L. 181 p. + attachments.

Nelson, S.M., R. Wydoski, and J. Keele. *In press*. Monitoring MacNeill's Sootywing (*Hesperopsis graciellae*) and its Habitats, 2014 Annual Report. Annual report submitted to the Bureau of Reclamation, Boulder City, Nevada, by the Bureau of Reclamation Ecological Research and Investigations Group, Technical Services Center, Denver, Colorado.

Parametrix, Inc., and Southern Sierra Research Station. 2015. Yellow-billed Cuckoo Surveys and Population Monitoring on the Lower Colorado River and Tributaries, 2014 Annual Report. Submitted to the Bureau of Reclamation, Boulder City, Nevada. Prepared by S.E. McNeil and D. Tracy, Southern Sierra Research Station, Weldon, California; and J. Lisignoli and T. Hurt, Parametrix, Inc., Albuquerque, New Mexico. March 2015.

Piaggio, A.J. and S.L. Perkins. 2005. Molecular phylogeny of North American long-eared bats (Vespertilionidae: *Corynorhinus*); inter- and intraspecific relationships inferred from mitochondrial and nuclear DNA sequences. *Molecular Phylogenetics and Evolution* 37:762–775.