



# Lower Colorado River Multi-Species Conservation Program

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*Balancing Resource Use and Conservation*

## Cibola National Wildlife Refuge Unit #1 Conservation Area

### 2018 Annual Report



**March 2020**

Work conducted under LCR MSCP Work Task E24

# 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  
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City of Yuma  
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Mohave Water Conservation District  
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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**

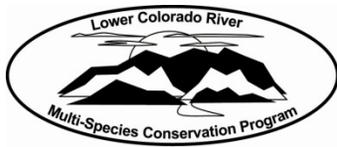
Colorado River Commission of Nevada  
Nevada Department of Wildlife  
Southern Nevada Water Authority  
Colorado River Commission Power Users  
Basic Water Company

## **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



— BUREAU OF —  
RECLAMATION

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

## **Cibola National Wildlife Refuge Unit #1 Conservation Area**

### **2018 Annual Report**

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

**March 2020**

Stegmeier, J., C.J. Ronning, B. Blasius, and J. Knowles. 2020. Cibola National Wildlife Refuge Unit #1 Conservation Area, 2018 Annual Report. Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada.

# ACRONYMS AND ABBREVIATIONS

Cibola NWR	Cibola National Wildlife Refuge
Cibola NWR Unit #1	Cibola National Wildlife Refuge Unit # 1 Conservation Area
FY	fiscal year
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
lidar	light detection and ranging
Reclamation	Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service

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# 1.0 INTRODUCTION

The purpose of this annual report is to summarize all activities, including planning, design, construction, and management, that have occurred at the Cibola National Wildlife Refuge Unit #1 Conservation Area (Cibola NWR Unit #1) from October 1, 2017, through September 30, 2018, which is Federal fiscal year (FY) 2018. Use of Colorado River water is presented for the calendar year, January 1 through December 31, 2018, consistent with the Colorado River Accounting and Water Use Report: Arizona, California, and Nevada (Bureau of Reclamation [Reclamation] 2019).

## 1.1 Background

The Cibola National Wildlife Refuge (Cibola NWR) consists of about 16,600 acres of land located along approximately 12 miles of the lower Colorado River in Arizona and California. The Cibola NWR was established in 1964 as a refuge and breeding ground for migratory birds and other wildlife. The refuge and Reclamation have agreed to convert approximately 950 acres of agricultural ground within Cibola NWR Unit #1 to a mosaic of Fremont cottonwood-Goodding's willow (*Populus fremontii-Salix gooddingii*) (hereafter cottonwood-willow) and honey mesquite (*Prosopis glandulosa*).

# 2.0 CONSERVATION AREA INFORMATION

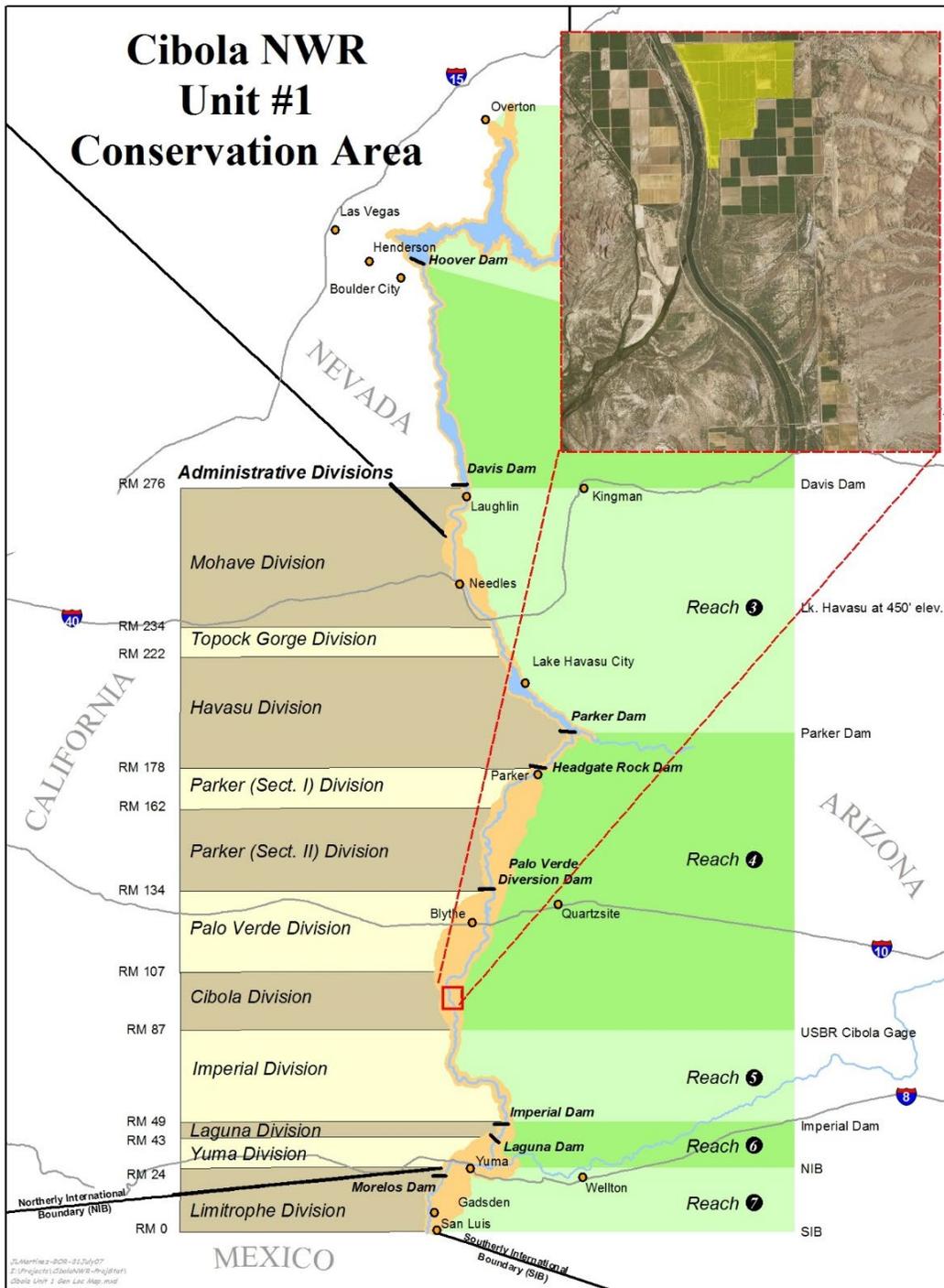
## 2.1 Purpose

The cottonwood-willow land cover created within Cibola NWR Unit #1 will be managed for the southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and other terrestrial wildlife species covered by the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). The riparian restoration area of Cibola NWR Unit #1 provides habitat for a variety of avian and small mammal species and also provides creditable land cover type acreage to the program. Irrigation cycles for the riparian restoration area are evaluated annually to determine if conditions are appropriate for the species targeted by the LCR MSCP, specifically the southwestern willow flycatcher.

## 2.2 Location

Cibola NWR Unit #1 is located in Reach 4, within the Cibola NWR, in Cibola, Arizona. It is within the historic floodplain of the lower Colorado River and between River Miles 97 and 99 (figure 1).

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**Figure 1.—The location of Cibola NWR Unit #1.**

## **2.3 Landownership**

The conservation area is located on the Cibola NWR, which is owned and managed by the U.S. Fish and Wildlife Service (USFWS).

## **2.4 Water**

Cibola NWR Unit #1 receives water from the Cibola NWR's 2<sup>nd</sup> priority water entitlement provided by the 1964 Supreme Court Decree in *Arizona v. California* and by U.S. Department of the Interior Secretarial reservation. The Cibola NWR has a diversionary entitlement of 27,000 acre-feet per year, a consumptive use entitlement (diversion minus return flow) of 16,793 acre-feet per year, and a circulatory (circulation water with minimum consumptive use) water right of 7,500 acre-feet per year. A maximum of 5,400 acre-feet per year (6 acre-feet per acre, per year) of that water is available for irrigating the conservation area when it has been fully developed.

## **2.5 Agreements**

A Land Use Agreement was signed in 2007 by Reclamation and the USFWS to secure land and water for Cibola NWR Unit #1 for the remainder of the 50-year term of the LCR MSCP. The agreement outlines the rights and responsibilities of each partner in the project's development and maintenance. Reclamation and the USFWS modified the existing Land Use Agreement to allow for restoration at Cibola NWR Unit #1 to expand an additional 1,200 acres.

## **2.6 Public Use**

Cibola NWR Unit #1 is in an area that had public access limited by the USFWS prior to becoming a conservation area, and public access will remain limited. Vehicular access is restricted to a driving trail referred to as "Goose Loop." Low-impact public uses, such as wildlife watching, sport fishing, and education/outreach, are expected at Cibola NWR Unit #1; however, these uses may be regulated depending on future occupation of the habitat by listed species.

## **2.7 Law Enforcement**

Law enforcement activities at Cibola NWR Unit #1 are performed primarily by the USFWS's law enforcement officer under the LCR MSCP's site-specific Fire Management & Law Enforcement Strategy (LCR MSCP 2010). Additional local

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law enforcement assistance is available through the Arizona Game and Fish Department's Yuma Office, the Yuma County Sheriff's Office, and the Bureau of Land Management's Yuma Office.

## **2.8 Wildfire Management**

Federal, State, and local fire agencies, either by existing management agreements or mutual aid agreements, provide wildland fire suppression, incident dispatch, fire investigation, fuels reduction, and potential fire restrictions. The full range of suppression strategies are available to managers provided that selected options do not compromise firefighter or public safety, are cost effective, consider the benefits of suppression and the values to be protected, and are consistent with resource objectives (LCR MSCP 2010).

## **3.0 HABITAT DEVELOPMENT AND MANAGEMENT**

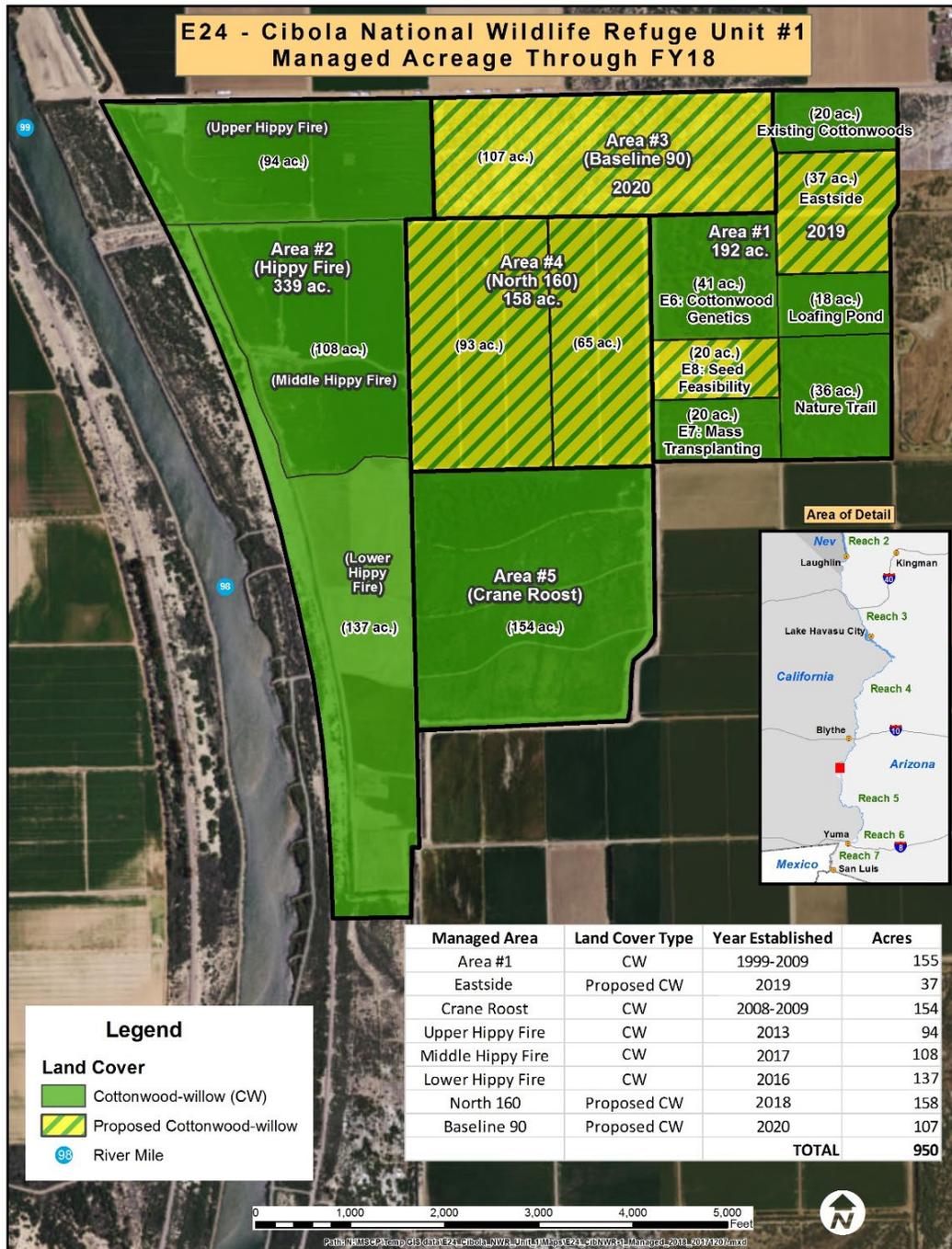
Established land cover types that are being managed for LCR MSCP covered species are shown on figure 2.

### **3.1 Planting**

During FY18, restoration activities at Cibola NWR Unit #1 consisted of irrigation, maintenance, monitoring activities, and planting 158 acres within North 160 (figure 3).

North 160 was planted utilizing a mosaic planting approach. The area was divided into checks and planted with high- or low-density cottonwood-willow and honey mesquite. Planting included 7 species and over 299,000 plants. Planting occurred in March/April and included hand planting and use of a mass transplanter. The areas planted with honey mesquite are in furrows with moderate sinuosity to reduce the amount of irrigation needed by funneling the water directly to the trees as opposed to flooding the entire field. These honey mesquite furrow areas can be blocked off from water after about 2 years, when the mesquite establish, to further reduce water use. Additional information about the planting design can be found in the restoration monitoring and development plan. Future planting of phases within Cibola NWR Unit #1 will continue through FY20 based on the current plan.

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**Figure 2.—Cibola NWR Unit #1 managed acreage through FY18.**

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Figure 3.—North 160 planting design.

## **3.2 Irrigation**

The cottonwood-willow land cover type at Cibola NWR Unit #1 is flood irrigated in accordance with the schedule prepared by Reclamation.

## **3.3 Site Management**

Routine site maintenance, such as road grading, was conducted at Cibola NWR Unit #1. Infrastructure improvements across the conservation area are expected as development of the site moves to subsequent phases.

To maintain healthy stands of trees and to promote growth, flood irrigation was also used on other previously established fields within the conservation area for regular watering. Additional measures were taken, as necessary, to maintain field borders, and herbicide and/or fertilizer were appropriately used.

## **3.4 Major Construction**

Replacement of the existing pump stand and pumps began in FY18 and is projected to be finished in FY19 during the winter months in order to minimize the disruption of water delivery to Cibola NWR Unit #1. The replacement stand and pumping facility includes 2 pumps each with a capacity of 30 cubic feet per second and 900 linear feet of 42-inch high-density polyethylene piping.

# **4.0 MONITORING**

## **4.1 Avian Monitoring**

Avian monitoring in FY18 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 FY18 in cottonwood-willow habitat. No breeding or resident southwestern willow flycatchers were detected. Migrant willow flycatchers (*Empidonax traillii*) were detected in May. Most birds detected after June 24 or

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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 2019).

### **4.1.2 Yellow-billed Cuckoo Surveys**

Four surveys for yellow-billed cuckoos were conducted within the riparian portion of Cibola NWR Unit #1. During the first survey period (June 15 – June 30), there were eight cuckoo detections. Two surveys were conducted during the second survey period (approximately July 1 – July 31) and resulted in 27 detections. Between approximately August 1–15, there were five detections.

Breeding was confirmed at Cibola NWR Unit #1 in FY18. 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 possible, probable, and confirmed 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 two possible, two probable, and five confirmed territories breeding at the habitat conservation area in FY18. Four nests were found incidental to surveys (Parametrix, Inc., and Southern Sierra Research Station 2019).

### **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 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 14 species (97 territories) of birds breeding within the surveyed plots. No LCR MSCP covered species were detected in FY18 (SWCA Environmental Consultants 2019).

A bird banding station was operated nine times from May 1 through July 30, 2018. One Sonoran yellow warbler (*Dendroica petechia sonorana* = *Setophaga petechia sonorana*) was captured and fitted with color bands. There were no recaptures or resights of LCR MSCP covered species (Dodge and Kahl, Jr., *in press*).

## **4.2 Small Mammal Monitoring**

Bat and rodent monitoring were conducted at Cibola NWR Unit #1 in FY18.

### 4.2.1 Bat Monitoring

Acoustic survey methods were used to monitor bats in order to document the presence of species using Cibola NWR Unit #1. One long-term monitoring station was operated in the Crane Roost phase during June, July, and August 2018. Western red bats (*Lasiurus blossevilli*), western yellow bats (*Lasiurus xanthinus*), and California leaf-nosed bats (*Macrotus californicus*) were detected. Table 1 summarizes the total number of nights the four LCR MSCP species were detected in FY18 (Mixan and Diamond 2019).

Table 1.—LCR MSCP bat detections by month at Cibola NWR Unit #1, FY18

Month	Number of nights recorded	Total nights detected			
		Western red bat	Western yellow bat	California leaf-nosed bat	Pale Townsend's big-eared bat <sup>1</sup>
June	30	6	0	2	0
July	31	7	1	4	0
August	31	7	3	14	0

<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 the USFWS.

### 4.2.2 Rodent Monitoring

Live trapping was conducted in spring to determine the presence of Colorado River cotton rats (*Sigmodon arizonae plenus*). Eighty traps were set on transects at Cibola NWR #1 each night on April 10 and 11. No LCR MSCP covered species were captured (Hill and Lyon 2019).

## 5.0 HABITAT CREATION CONSERVATION MEASURE ACCOMPLISHMENT

### 5.1 Vegetation Monitoring

Vegetation data were collected in FY18 using light detection and ranging (lidar). Lidar measures and evaluates the vegetation structure throughout the canopy, with the ability to identify structural diversity and successional growth stages. Conservation area vegetation will be evaluated on a periodic basis using lidar to

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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 the Conservation Area Habitat**

The Final Habitat Creation Conservation Measure Accomplishment Tracking Process was finalized in October 2011 (LCR MSP 2011). All areas within Cibola NWR Unit #1 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, 1984b). Twelve species with habitat creation goals have creditable acres at Cibola NWR Unit #1. 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*) (BEVI1), Sonoran yellow warbler (YWAR1), and summer tanager (*Piranga rubra*) (SUTA1) (table 2).

Table 2.—Species-specific habitat creation conservation measure creditable total acres for 2018<sup>1</sup>

Species-specific habitat creation conservation measure	WIFL1	WRBA2	WYBA3	CRCR2	YBCU1	ELOW1	GIFL1	GIWO1	VEFL1	BEVI1	YWAR1	SUTA1
Creditable acres in 2018	0 <sup>2</sup>	0	0	0	0	0	0	0	0	0	0	0
<b>Total, including previous years</b>	<b>0</b>	<b>271</b>	<b>271</b>	<b>365</b>	<b>365</b>	<b>270</b>	<b>365</b>	<b>365</b>	<b>365</b>	<b>365</b>	<b>365</b>	<b>271</b>

<sup>1</sup> The habitat creation accomplishment analysis was not performed for FY18 because lidar data were not available.

<sup>2</sup> Although Cibola NWR Unit #1 provides the appropriate structure type (cottonwood-willow I-IV) as defined in WIFL1, the LCR MSCP 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, Cibola NWR Unit #1 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

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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 27<sup>1</sup> covered species and to determine 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 Cibola NWR Unit #1, recommendations may be made through the adaptive management process for site improvements in the future.

There are no adaptive management recommendations for Cibola NWR Unit #1 at this time.

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<sup>1</sup> The northern Mexican gartersnake (*Thamnophis eques megalops*) was added as a covered species by an amendment to the Program Documents on March 5, 2018.

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