



# Lower Colorado River Multi-Species Conservation Program

*Balancing Resource Use and Conservation*

## Yuma East Wetlands

## 2015 Annual Report



October 2018

Work conducted under LCR MSCP Work Task E28

# 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  
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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  
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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**

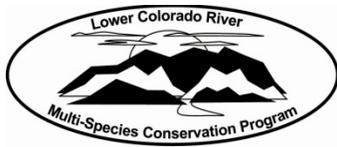
Colorado River Commission of Nevada  
Nevada Department of Wildlife  
Southern Nevada Water Authority  
Colorado River Commission Power Users  
Basic Water Company

## **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

## Yuma East Wetlands

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October 2018

Brooks, J., C. Dodge, and B. Blasius. 2018. Yuma East Wetlands, 2015 Annual Report. Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada.

# ACRONYMS AND ABBREVIATIONS

DPOC4	Drainage Pump Outlet Channel #4
FY	fiscal year
Heritage	Yuma Crossing National Heritage Area
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
lidar	light detection and ranging
Quechan Tribe	Quechan Tribe of the Fort Yuma Indian Reservation
Reclamation	Bureau of Reclamation
YEW	Yuma East Wetlands

## **Symbols**

%	percent
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# 1.0 INTRODUCTION

The purpose of this annual report is to summarize all activities that have occurred at Yuma East Wetlands (YEW) from October 1, 2014, through September 30, 2015, which is Federal fiscal year (FY) 2015. Water usage is presented for the calendar year, January 1 through December 31, 2015, consistent with the Colorado River Accounting and Water Use Report: Arizona, California, and Nevada, Calendar Year 2015 (Bureau of Reclamation [Reclamation] 2016).

## 1.1 Background

In 2000, the city of Yuma and the Quechan Tribe of the Fort Yuma Indian Reservation (Quechan Tribe) collaborated to analyze the potential of restoring YEW, which was a historic wetland in the Yuma community. During project planning, the site contained vast amounts non-native plant species, makeshift camps, and illegal dumping. Between 2001 and 2013, non-native vegetation was removed, and a mosaic of marsh, Fremont cottonwood-Goodding's willow (*Populus fremontii-Salix gooddingii*) (hereafter cottonwood-willow) and honey mesquite (*Prosopis glandulosa*) was established.

The Yuma Crossing National Heritage Area (Heritage) manages the day-to-day operation of YEW. In 2013, the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) entered into partnership with the Quechan Tribe, city of Yuma, Arizona Game and Fish Commission, and Heritage to support the long-term management of the conservation area. The LCR MSCP contributes toward maintaining existing habitat and adaptive management actions that will benefit species covered under the program. The Colorado River divides the project from east to west. North of the Colorado River is known as North Channel, and south of the river is known as South Channel.

# 2.0 CONSERVATION AREA INFORMATION

## 2.1 Purpose

The LCR MSCP's purpose of the development of YEW was to convert 380 acres of undeveloped land, primarily saltcedar (*Tamarix* spp.) to a mosaic of native riparian and marsh habitats that will be managed for southwestern willow flycatchers (*Empidonax traillii extimus*), yellow-billed cuckoos (*Coccyzus americanus occidentalis*), and other terrestrial wildlife species covered by the LCR MSCP. The marsh land cover types created will be managed for California black rails (*Laterallus jamaicensis coturniculus*), western least bitterns (*Ixobrychus exilis hesperis*), and Yuma clapper rails (*Rallus longirostris*

*yumanensis* [also known as Yuma Ridgway's rail = *R. obsoletus yumanensis*]). Riparian areas with grassy understory would be managed for Yuma hispid cotton rats (*Sigmodon hispidus eremicus*).

## **2.2 Location**

YEW is located Reach 6, in Yuma County, Arizona, between River Miles 31 and 32 (figure 1).

## **2.3 Landownership**

YEW owned by the Quechan Tribe, city of Yuma, and the Arizona Game and Fish Commission. Figure 2 depicts the approximate landownership boundaries of YEW.

## **2.4 Water**

YEW receives water from two water entitlements. The city of Yuma will be charged for the diversions and uses on YEW lands administered or owned by the city. The Arizona entitlement of the Quechan Tribe will be charged for consumptive use of water on lands administered or owned by the Quechan Tribe.

## **2.5 Agreements**

A Land Use Agreement was signed and executed in 2013 between the Quechan Tribe, Arizona Game and Fish Commission, city of Yuma, the Heritage, and Reclamation to secure land and water for YEW 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. Reclamation will provide 70% of the funds required to manage and maintain YEW, and the Heritage, city of Yuma, and the Quechan Tribe will provide the remaining 30% through cost-shared funding and in-kind maintenance services for YEW. An FY16 Yuma East Wetlands Annual Management Plan was developed and approved by all stakeholders.

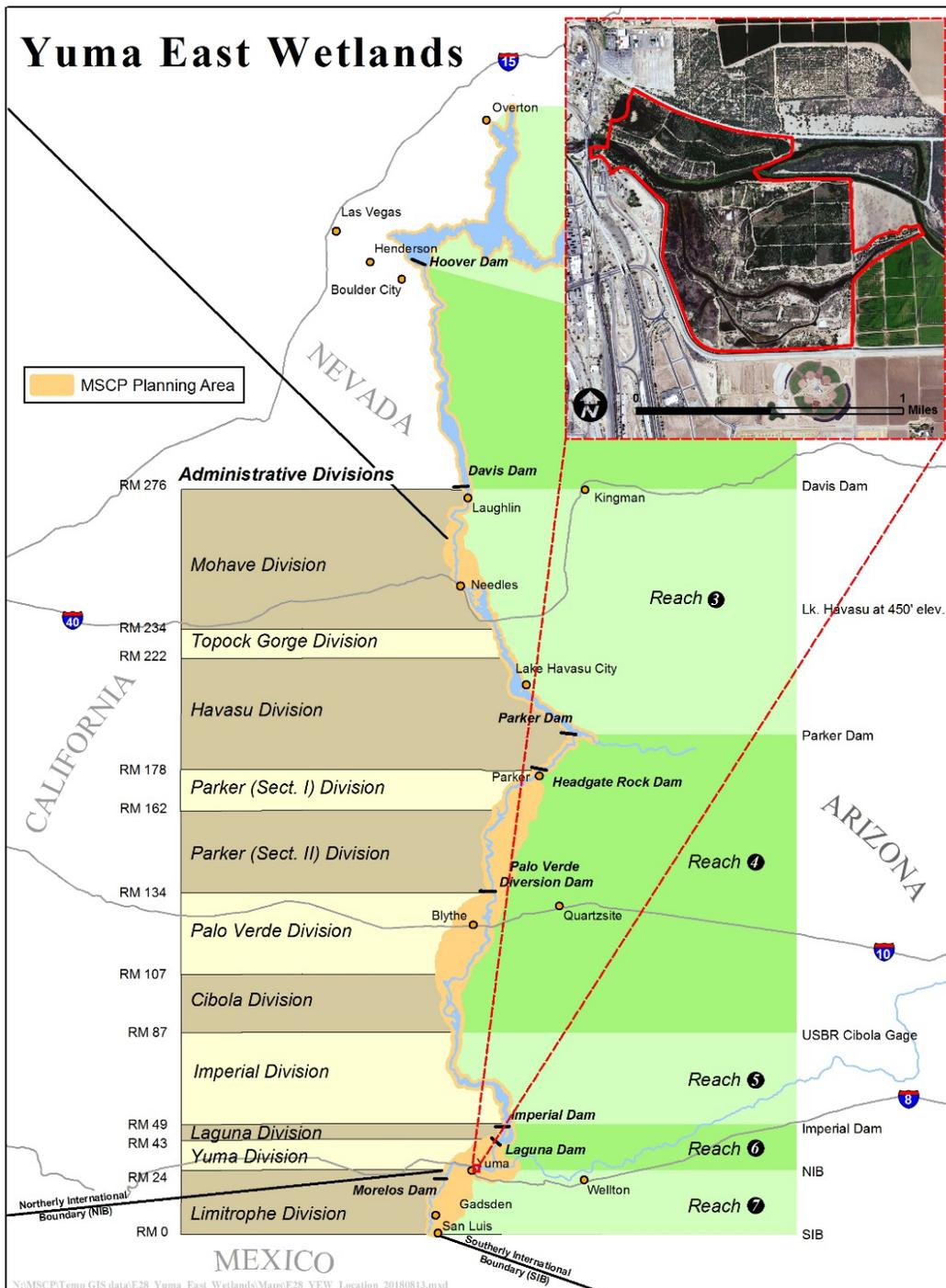


Figure 1.—LCR MSCP planning area with YEW (inset).

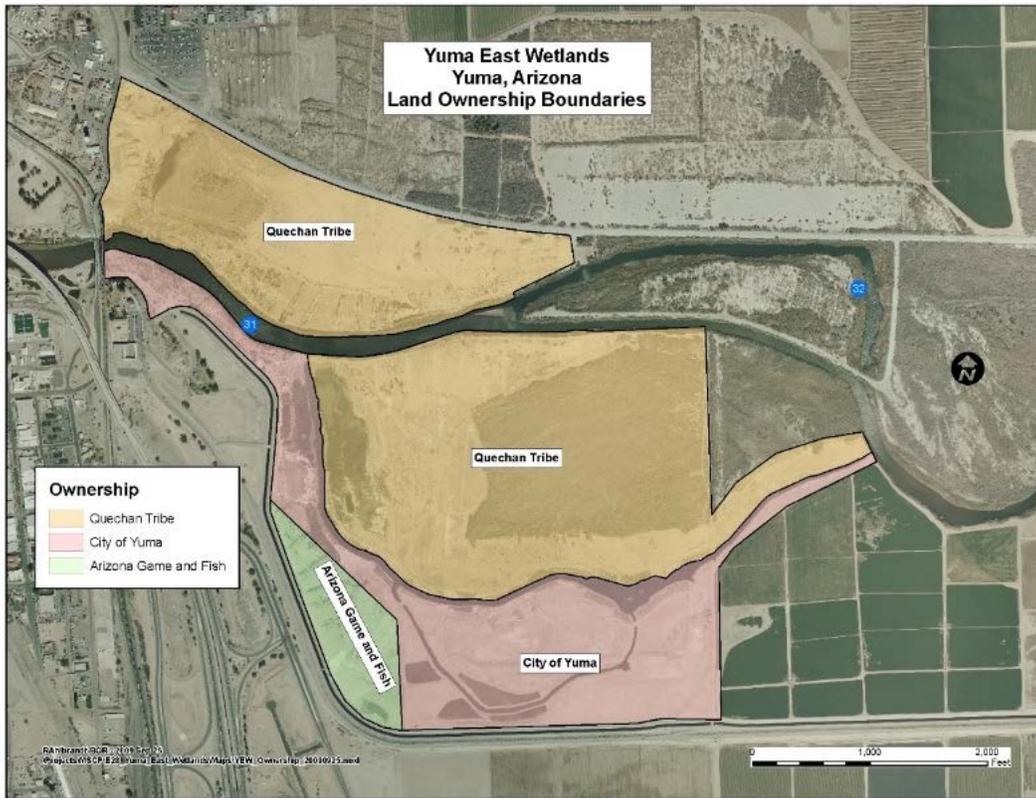


Figure 2.—Landownership within YEW.

## 2.6 Public Use

Public use of YEW is regulated and determined by YEW stakeholders. Public use is limited to passive recreation activities such as hiking on the conservation area and park trails, swimming in the Colorado River, fishing, and boating.

## 2.7 Law Enforcement

Law enforcement activities at YEW are performed by the City of Yuma Police Department, Yuma County Sheriff's Office, Quechan Tribal Police, Quechan Tribal Game Warden, Bureau of Land Management law enforcement rangers, and the Arizona Game and Fish Department.

## 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**

A mosaic of the marsh, cottonwood-willow, and honey mesquite land cover types was created at YEW from 2001 to 2014; it is now being managed for LCR MSCP covered species (figure 3).

### **3.1 Planting**

No planting activities occurred at YEW in 2015.

### **3.2 Irrigation**

Site irrigation was performed in accordance with the work identified in the FY15 Yuma East Wetlands Annual Management Plan. A variety of tools to irrigate the marsh and riparian areas are found onsite and include diesel-driven flood irrigation pumps, backflows from a nearby treatment facility, and discharges from groundwater dewatering wells. Diversions in 2016 were 371 acre-feet for the city of Yuma and 1,244 acre-feet for the Quechan Tribe, for a total diversion of 1,615 acre-feet to YEW. The following briefly describes each of the currently available irrigation methods.

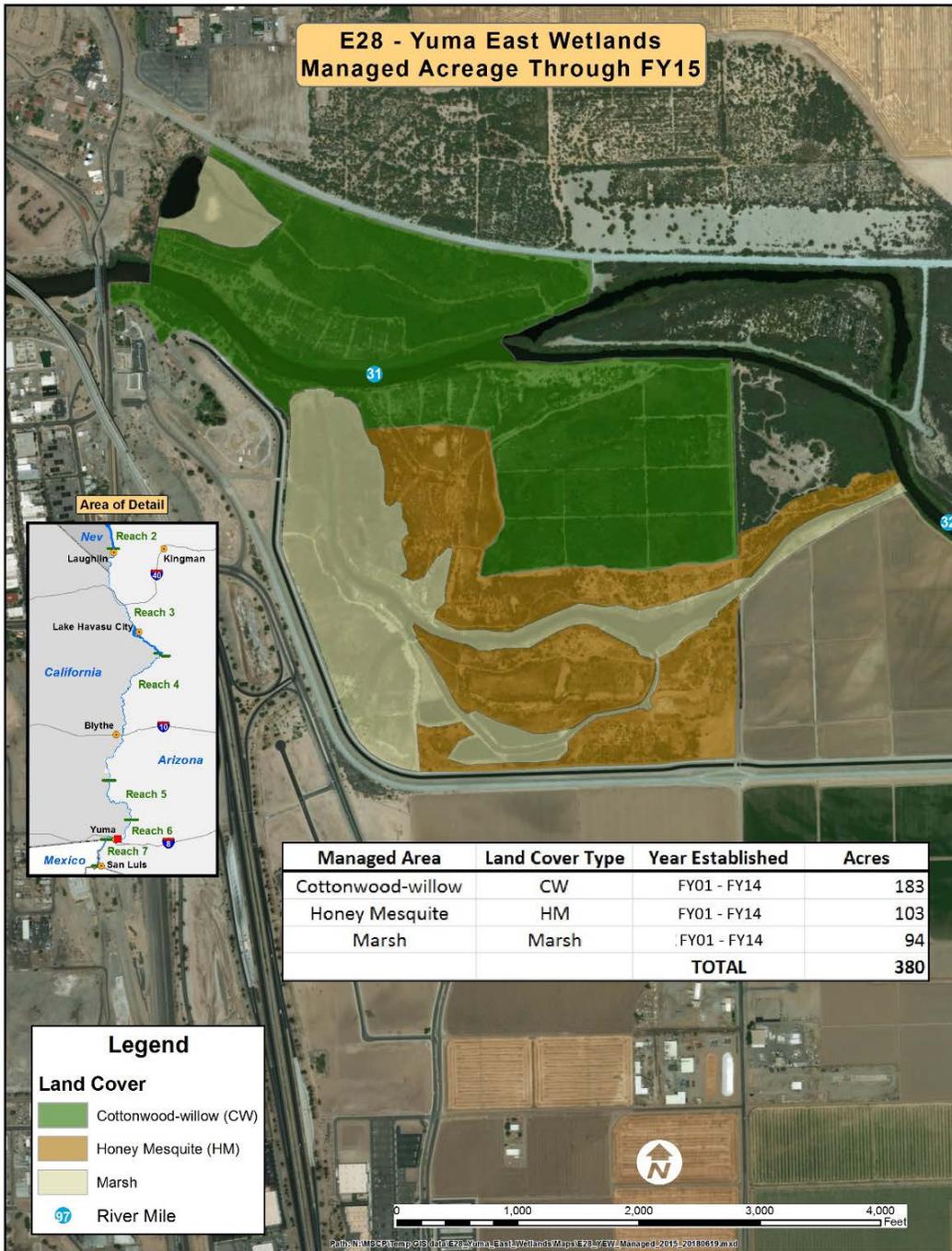
#### **3.2.1 Flood Irrigation Pumps and Canals**

Two diesel-driven irrigation pumps service YEW's two largest riparian areas, Zones I and J. From these pumps, Colorado River water is diverted into concrete-lined canals and delivered to the zones.

#### **3.2.2 City of Yuma Decant Lines**

There are four decant outlet lines that have been installed within the South Channel that discharge approximately 1 acre-foot per day of backflow water from the City of Yuma Water Treatment Plant. The decant line delivers water to portions of Zones A, B, E, and H. These flows assist in maintaining the water surface elevation of the South Channel marsh.

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**Figure 3.—YEW managed acreage through FY15.**

### **3.2.3 Drainage Pump Outlet Channel #4**

Drainage Pump Outlet Channel #4 (DPOC4) pumps groundwater from the Yuma Valley to support agricultural production and to meet International Treaty requirements for salinity levels of the Colorado River. DPOC4 output varies considerably depending on groundwater conditions and Reclamation operations. When operating, DPOC4 production discharges into the 2E drain, which terminates into Zone E via a lined canal.

Water flowing through DPOC4 may pass through the site but must route back to the Colorado River. Outflows from DPOC4 may not be stored within the marsh or used to change the marsh surface water elevation. DPOC4 is operated solely to meet treaty and agricultural requirements; its operation cannot be depended upon, requested, or modified to meet site requirements.

### **3.2.4 Quechan Tribe Dewatering Wells**

Two dewatering wells located on Quechan lands north of YEW discharge flows into the marsh area located in the North Channel. These flows are used as the primary water resource for Zone K. Operation of the wells is at the discretion of the Quechan Tribe.

### **3.2.5 Drip Irrigation**

The fifth source of irrigation is drip irrigation using diesel pumps. The pumps deliver water to small emitters or to a small-diameter line that is placed at the base of the plants. Many of the dry, upland areas and slopes are irrigated using drip irrigation. Plants utilizing drip irrigation were watered once a week during spring, summer, and fall. Irrigation in winter was reduced to once a month or once every 3 weeks. A pump log recorded the total hours the pump was operated and was also used to schedule preventative maintenance. The drip system delivered water to portions of Zones B, C, D, F, and G. Drip irrigation will cease to be supported with LCR MSCP funding in FY16.

## **3.3 Site Management**

Site management activities implemented in each fiscal year are detailed in the Yuma East Wetlands Annual Management Plan, which is developed and concurred to by all partners prior to obligation of LCR MSCP funding. Annual operation and maintenance activities included flood irrigation of Zones I and J, pump maintenance and repair, minor repair of infrastructure, removal of invasive and non-native plant species, and general site maintenance such as road grading.

Additional management activities consisted of administration of the Federal Assistance Agreement, developing the FY16 Yuma East Wetlands Annual

Management Plan, implementing the LCR MSCP vegetation and wildlife monitoring protocols for the habitat, coordinating water accounting data submitted to Reclamation, and coordination meetings with stakeholders.

## **4.0 MONITORING**

### **4.1 Avian Monitoring**

Avian monitoring in FY15 included surveys for southwestern willow flycatchers, yellow-billed cuckoos, riparian breeding birds, and marsh birds.

#### **4.1.1 Southwestern Willow Flycatcher Surveys**

Two surveys were conducted for southwestern willow flycatchers in cottonwood-willow habitat. No resident or breeding southwestern willow flycatchers were detected. Migratory willow flycatchers (*Empidonax traillii*) were detected in May. 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**

Two surveys were conducted for yellow-billed cuckoos within the riparian portion of YEW. No yellow-billed cuckoos were detected (Parametrix, Inc., and Southern Sierra Research Station 2016).

#### **4.1.3 Marsh Bird Surveys**

Presence surveys for California black rails, western least bitterns, Virginia rails (*Rallus limicola*), and Yuma clapper rails were conducted in marsh habitat at YEW in three survey sessions during March and April. Western least bitterns and Yuma clapper rails were detected and presumed to be breeding at the site. One western least bittern was detected during the first survey session (March 24). Two Yuma clapper rails were detected during the second survey session (April 14). Two western least bitterns and two Yuma clapper rails were detected during the third survey session (April 28) (Ronning and Kahl, Jr. 2017).

#### **4.1.4 General Avian Surveys**

Bird surveys were conducted in order 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 29 species (190 territories) of birds breeding within the surveyed plots. Gila woodpeckers (*Melanerpes uropygialis*), Sonoran yellow warblers (*Dendroica petechia sonorana* = *Setophaga petechia sonorana*), and summer tanagers (*Piranga rubra*) were confirmed breeding (Great Basin Bird Observatory 2015).

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

Table 1.—Number of breeding territories per LCR MSCP covered species<sup>1</sup> at YEW, FY15

LCR MSCP covered species	Number of confirmed breeding pairs
Gila woodpecker	0.25
Sonoran yellow warbler	0.75
Summer tanager	0.75

<sup>1</sup> 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 YEW and to determine the age, sex, and reproductive status of bats that were captured.

#### 4.2.1.1 Acoustic Surveys

One long-term monitoring acoustic monitoring station was operated at YEW. The LCR MSCP species detected were western red bats (*Lasiurus blossevillii*), western yellow bats (*Lasiurus xanthinus*), and California leaf-nosed bats (*Macrotus californicus*). Table 2 summarizes the total number of nights that LCR MSCP species were detected in FY15 (Mixan and Diamond, *in press*).

#### 4.2.1.2 Capture Surveys

Bats were captured using mist nets at YEW 1 night per month from May to September. Both western yellow bats and California leaf-nosed bats were captured in 2015 (table 3) (Calvert 2016).

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

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	20	0	8	1	0
July	31	6	29	5	0
August	18	1	14	2	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 U.S. Fish and Wildlife Service.

Table 3.—YEW 2015 bat captures by month

Species	May	June	July	August	September	Total
California leaf-nosed bat	0	0	0	0	1	<b>1</b>
Pale Townsend's big-eared bat	0	0	0	0	0	<b>0</b>
Western red bat	0	0	0	0	0	<b>0</b>
Western yellow bat	0	0	5	6	0	<b>11</b>
All other species	11	10	63	12	7	<b>103</b>
<b>Total</b>	<b>11</b>	<b>10</b>	<b>68</b>	<b>18</b>	<b>8</b>	<b>115</b>

#### 4.2.2 Rodent Monitoring

Live trapping was conducted once in fall and once in spring to determine the presence of Yuma hispid cotton rats (*Sigmodon hispidus eremicus*) at YEW. A total of 340 traps were set over 2 nights. Twenty-three Yuma hispid cotton rats were captured in November 2014 and 14 were captured in March 2015 (Hill 2017).

## 5.0 HABITAT CREATION 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 YEW 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). A total of 12 species with habitat creation goals have creditable acres at YEW. These species, including their corresponding conservation measure acronyms, are: Yuma clapper rail (CLRA1), Yuma hispid cotton rat (YHCR2), western least bittern (LEB11), California black rail (BLRA1), yellow-billed cuckoo (YBCU1), elf owl (*Micrathene whitneyi*) (ELOW1), gilded flicker (*Colaptes chrysoides*) (GIFL1), Gila woodpecker (GIWO1), vermilion flycatcher (*Pyrocephalus rubinus*) (VEFL1), Arizona Bell’s vireo (*Vireo bellii arizonae*) (BEVI1), Sonoran yellow warbler (YWAR1), and summer tanager (SUTA1) (table 4).

Table 4.—Species-specific habitat creation conservation measure creditable total acres for 2015

Species-specific habitat creation conservation measure	CLRA1	YHCR2	LEB11	BLRA1	YBCU1	ELOW1	GIFL1	GIWO1	VEFL1	BEVI1	YWAR1	SUTA1
Creditable acres in 2015	0	0	0	0	0	0	0	0	0	0	0	0
Total, including previous years	66	183	66	66	183	314	183	183	314	314	183	183

## 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

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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 YEW, recommendations may be made through the adaptive management process for site improvements in the future.

There are no adaptive management recommendations for YEW at this time.

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