Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Yuma East Wetlands

2018 Annual Report

February 2020

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
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
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Southern Nevada Water Authority
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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
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Yuma East Wetlands

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Lower Colorado River
Multi-Species Conservation Program
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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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Tables

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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, 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, Calendar Year 2018 (Bureau of Reclamation [Reclamation] 2019).

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 a partnership with the Quechan Tribe, city of Yuma, Arizona Game and Fish Commission, and the 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.) and phragmites (*Phragmites* 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. 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 is owned by the Quechan Tribe, the city of Yuma, and the Arizona Game and Fish Commission. Figures 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 Tribe.

2.5 Agreements

A Land Use Agreement was signed and executed in 2013 between the Quechan Tribe, the Arizona Game and Fish Commission, the 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 FY19 Yuma East Wetlands Annual Management Plan was developed and approved by all stakeholders.

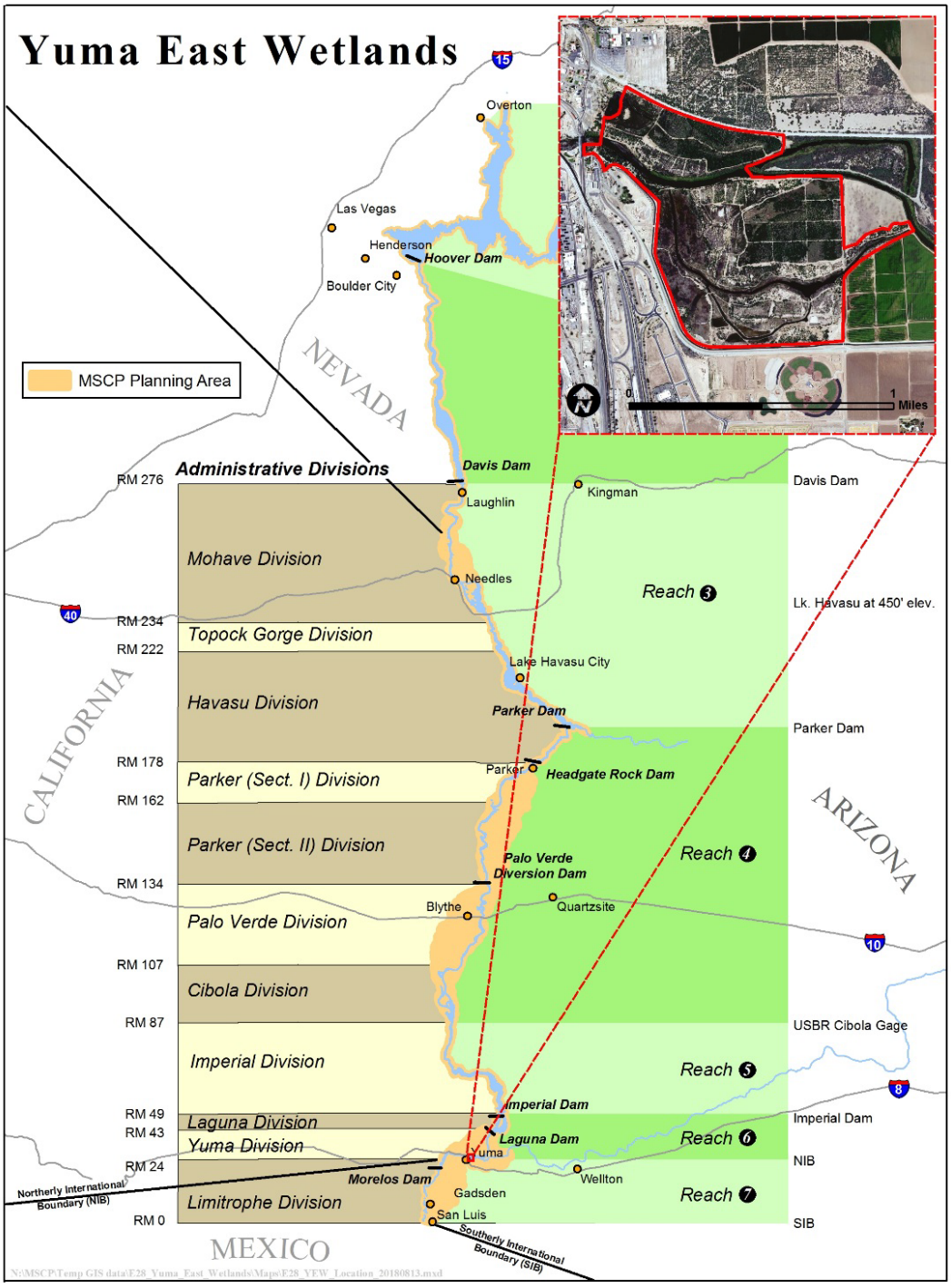


Figure 1.—LCR MSCP planning area with YEW (inset).

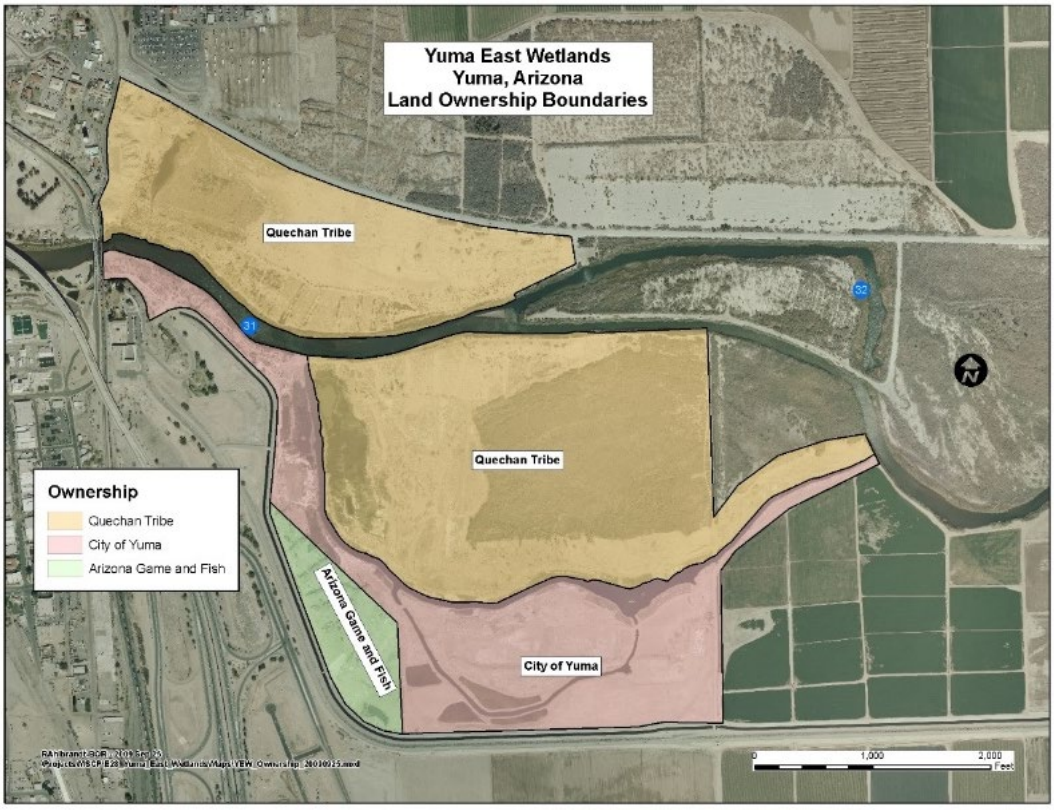


Figure 2.—Landownership within YEW.

2.6 Public Use

Public use of YEW is regulated and determined by YEW stakeholders. Public use is limited to passive recreational 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).

The Prison Hill Fire occurred near/at YEW on May 20, 2018, and while 60 acres were burned adjacent to the site, less than 1/10 of an acre was burned at YEW. The irrigation pumps onsite were used to extinguish and prevent the spread of the fire. This fire was determined by fire investigators to be caused by migrants camping at the site. No replanting or additional restoration is required.

3.0 HABITAT DEVELOPMENT AND MANAGEMENT

A mosaic of 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

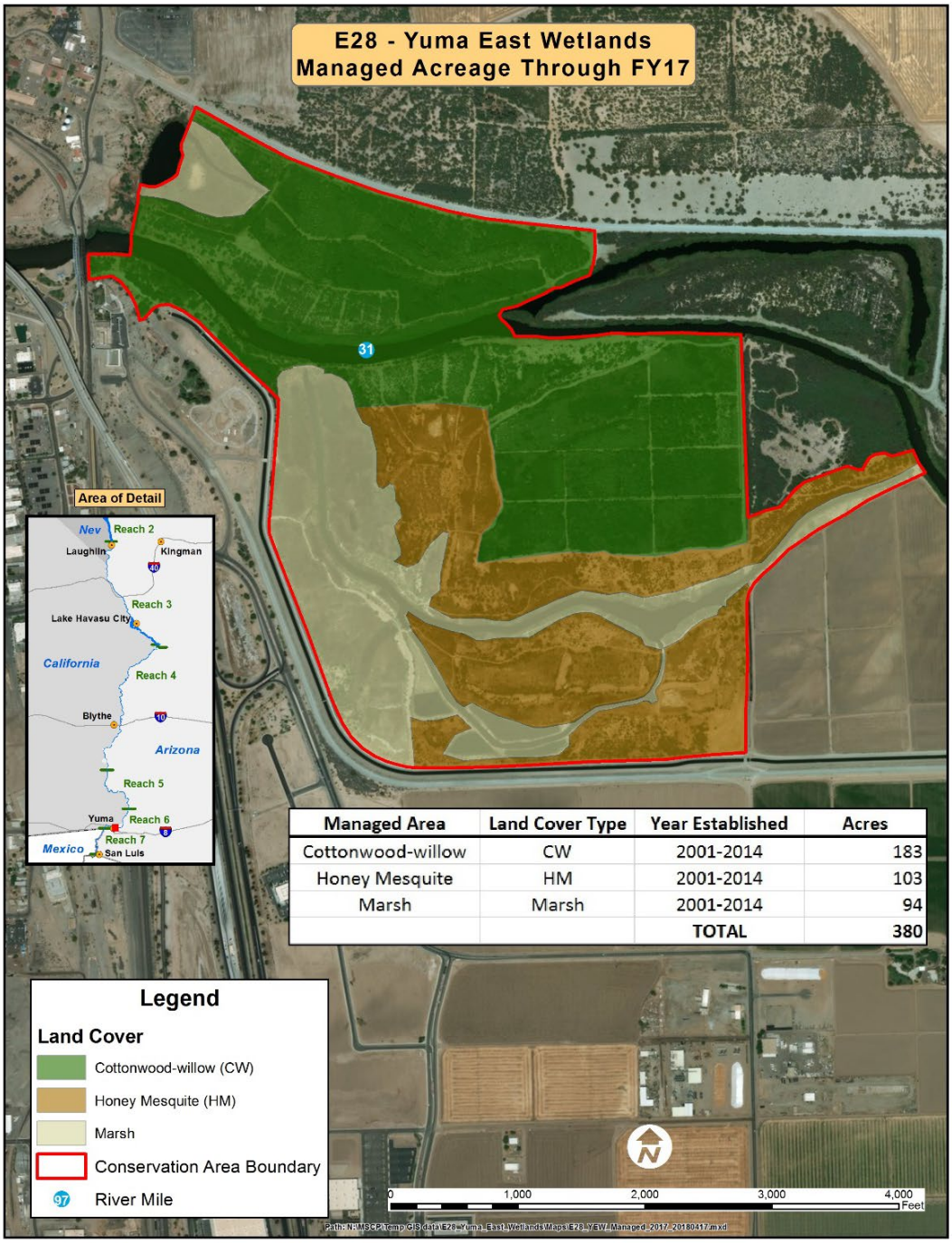
No planting activities occurred at YEW in 2017.

3.2 Irrigation

Site irrigation was performed in accordance with the work identified in the FY18 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 2018 were 366 acre-feet for the city of Yuma and 1,212 acre-feet for the Quechan Tribe, for a total diversion of 1,578 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.



Managed Area	Land Cover Type	Year Established	Acres
Cottonwood-willow	CW	2001-2014	183
Honey Mesquite	HM	2001-2014	103
Marsh	Marsh	2001-2014	94
		TOTAL	380

Figure 3.—YEW managed acreage through FY17.

The North Channel Pump failed and has been replaced or rebuilt on a number of occasions. A portable cristafulli pump was loaned for temporary use at the site during the FY17 and FY18 irrigation seasons to assess its function in this location. This pump did not fail and better met the needs of the site. A permanent replacement for the temporary pump was acquired in FY18 and will be installed for the FY19 irrigation season.

3.2.2 City of Yuma Decant Lines

There are four decant outlet lines that have been installed within the South Channel, which 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.

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.

3.3 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 FY13–FY18 Federal Assistance Agreement, generating the FY19–FY23 Cooperative Agreement, development of the FY19 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 FY18 included surveys for southwestern willow flycatchers, yellow-billed cuckoos, riparian breeding birds, and marsh birds.

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 trailli*) were detected in May and early June, but no birds demonstrated territorial behavior. The site was not considered to be occupied by southwestern willow flycatchers. 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 2019).

4.1.2 Yellow-billed Cuckoo Surveys

Four surveys for yellow-billed cuckoos were conducted within the riparian portion of YEW. Two cuckoos were detected during the first survey period (June 15–30). Two surveys were conducted during the second survey period (approximately July 1–31), and two cuckoos were detected. There were two cuckoos detected during the third survey period (August 1–15).

Breeding was confirmed at YEW 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. There was one confirmed territory at YEW in FY18 with a nest that fledged young (Parametrix, Inc., and Southern Sierra Research Station 2019).

4.1.3 Marsh Bird Surveys

Presence surveys for California black rails, western least bitterns, Virginia rails (*Rallus limicola*), and Yuma clapper rails (*Rallus longirostris yumanensis* [also known as Yuma Ridgway's rail = *R. obsoletus yumanensis*]) were conducted in marsh habitat at YEW in three survey sessions during March, April, and May. Two LCR MSCP covered marsh bird species were detected: western least bitterns and Yuma clapper rails. Two Yuma clapper rails were detected on March 29, five were detected on April 10, and five were detected on April 25. Two western least bitterns were detected on April 10, and one was detected on April 25. (Kahl, Jr. 2018).

4.1.4 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 17 species (106 territories) of birds breeding within the surveyed plots. The Gila woodpecker (*Melanerpes uropygialis*) and Sonoran yellow warbler (*Dendroica petechia sonorana* = *Setophaga petechia sonorana*) were confirmed breeding (SWCA Environmental Consultants 2019). Table 1 shows the number of breeding territories of LCR MSCP covered species in FY18 (SWCA Environmental Consultants 2019).

Table 1.—Number of breeding territories per LCR MSCP covered species[1] at YEW, FY18

LCR MSCP covered species	Number of confirmed breeding pairs
Gila woodpecker	1
Sonoran yellow warbler	1

[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 survey methods were used to monitor bats in order to document the presence of species using YEW. One long-term monitoring station was operated

during June, July, and August 2018. Two LCR MSCP covered species were detected: western red bats (*Lasiurus blossevillii*) and western yellow bats (*Lasiurus xanthinus*). Table 2 summarizes the number of nights the four LCR MSCP species were detected in FY18 (Mixan and Diamond 2019).

Table 2.—LCR MSCP bat detections by month at YEW, FY18

Month	Number of nights recorded	Total nights detected			
		Western red bat	Western yellow bat	California leaf-nosed bat[1]	Pale Townsend's big-eared bat[2]
June	30	10	1	0	0
July	3	0	0	0	0
August	4	0	0	0	0

[1] *Macrotus californicus*.

[2] 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.

4.2.2 Rodent Monitoring

Live trapping was conducted on March 7–8, 2018 to determine the presence of Yuma hispid cotton rats. Eighty traps were set for the 2 nights in the North Channel, and 80 traps were set for 2 nights in the South AC. Three Yuma hispid cotton rats were captured in the North Channel, and four were captured in the South AC (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 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 (LEBI1), 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 (*Piranga rubra*) (SUTA1) (table 3).

Table 3.—Species-specific habitat creation conservation measure creditable total acres for 2018[1]

Species-specific habitat creation conservation measure	CLRA1	YHCR2	LEBI1	BLRA1	YBCU1	ELOW1	GIFL1	GIWO1	VEFL1	BEVI1	YWAR1	SUTA1
Creditable acres in 2018	0	0	0	0	0	0	0	0	0	0	0	0
Total, including previous years	**94**	**183**	**94**	**94**	**183**	**286**	**183**	**183**	**286**	**286**	**183**	**183**

[1] The habitat creation accomplishment analysis was not performed for FY18 due to lidar data not being available.

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 27[1] covered species and to determine if they potentially benefit 5 evaluation species. Post-development monitoring and species research results will be used to

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

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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