Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Hunters Hole

2016 Annual Report

August 2019

Work conducted under LCR MSCP Work Task E31

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
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Nevada Department of Wildlife
Southern Nevada Water Authority
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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

Hunters Hole

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ACRONYMS AND ABBREVIATIONS

AWPF	Arizona Water Protection Fund
Border Patrol	U.S. Border Patrol
FY	fiscal year
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
lidar	light detection and ranging
Reclamation	Bureau of Reclamation

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1.0 INTRODUCTION

This annual report summarizes all activities that have occurred at Hunters Hole from October 1, 2015, through September 31, 2016, which is Federal fiscal year (FY) 2016. Water usage is presented for the calendar year, January 1 through December 31, 2016, consistent with the Colorado River Accounting and Water Use Report: Arizona, California, and Nevada, Calendar Year 2016 (Bureau of Reclamation [Reclamation] 2017).

1.1 Background

Hunters Hole, 44 acres in size, is located in Arizona just south of Yuma and north of San Luis. In the 1950s, flood events formed a series of interconnected ponds with adjacent marsh areas and Fremont cottonwood-Goodding's willow (*Populus fremontii-Salix gooddingii*) (hereafter cottonwood-willow) stands. Water levels were subsequently maintained by groundwater, irrigation drain flows, and a connecting channel to the main river channel. Over time, the habitat became degraded due to reduced flows, which isolated the area from the main stem of the river. Most of the habitat was eventually lost due to declining groundwater levels and wildfires.

In 2001, local officials from State, Tribal, and Federal agencies worked together to develop a plan to restore wildlife habitat in the area as well as to increase public safety and border security. The restoration concept, including site drawings and the implementation schedule, were reviewed with the U.S. Border Patrol (Border Patrol) to ensure compatibility with international border security concerns.

In 2010, the Yuma Crossing National Heritage Area Corporation, a 501(c)3 non-profit organization, restored 44 acres at Hunters Hole. The Arizona Water Protection Fund (AWPF), in cooperation with the Lower Colorado River Multi-Species Conservation Program (LCR MSCP), funded the Hunters Hole restoration project. The AWPF-provided funding was used to clear non-native vegetation and to contour the site. The LCR MSCP provided funding for rehabilitation of the existing groundwater well and fabrication of the irrigation system manifold to allow for automation in the future. The restored site consisted of riparian and dry upland habitats. Restoration activities included selective clearing of invasive reeds (giant reed [*Arundo donax*] and common reed [*Phragmites australis*]) and saltcedar (*Tamarix* spp.), installation of infrastructure to allow for managed flooding, and the planting of cottonwood-willow and honey mesquite (*Prosopis glandulosa*).

After the project was completed in 2013, the LCR MSCP agreed to manage the site as a conservation area and provide funding for its long-term operation and maintenance. The LCR MSCP is responsible for the long-term maintenance costs of Hunters Hole through 2055 (the life of the program).

2.0 CONSERVATION AREA INFORMATION

2.1 Purpose

The purpose of Hunters Hole is to create 44 acres of riparian habitat that will be managed for southwestern willow flycatchers (*Empidonax traillii extimus*) and other LCR MSCP covered species that utilize the cottonwood-willow and honey mesquite land cover types.

2.2 Location

Hunters Hole is located in Arizona in Reach 7 of the LCR MSCP planning area at River Mile 3 (figure 1). The total project footprint is 44 contiguous acres (figure 2).

2.3 Landownership

Hunters Hole is owned and managed by Reclamation and is on Reclamation withdrawn lands.

2.4 Water

Hunters Hole does not have a Colorado River water entitlement. The Arizona Water Resources Department governs the use of Arizona State groundwater. When Hunters Hole was approved for development, up to 3,000 acre-feet of Arizona groundwater was allocated for irrigation of native habitat. Irrigation water is pumped from the existing groundwater well; a flow meter was installed to track usage.

2.5 Agreements

Hunters Hole is located on lands owned and managed by Reclamation; therefore, no agreements with other parties have been signed.

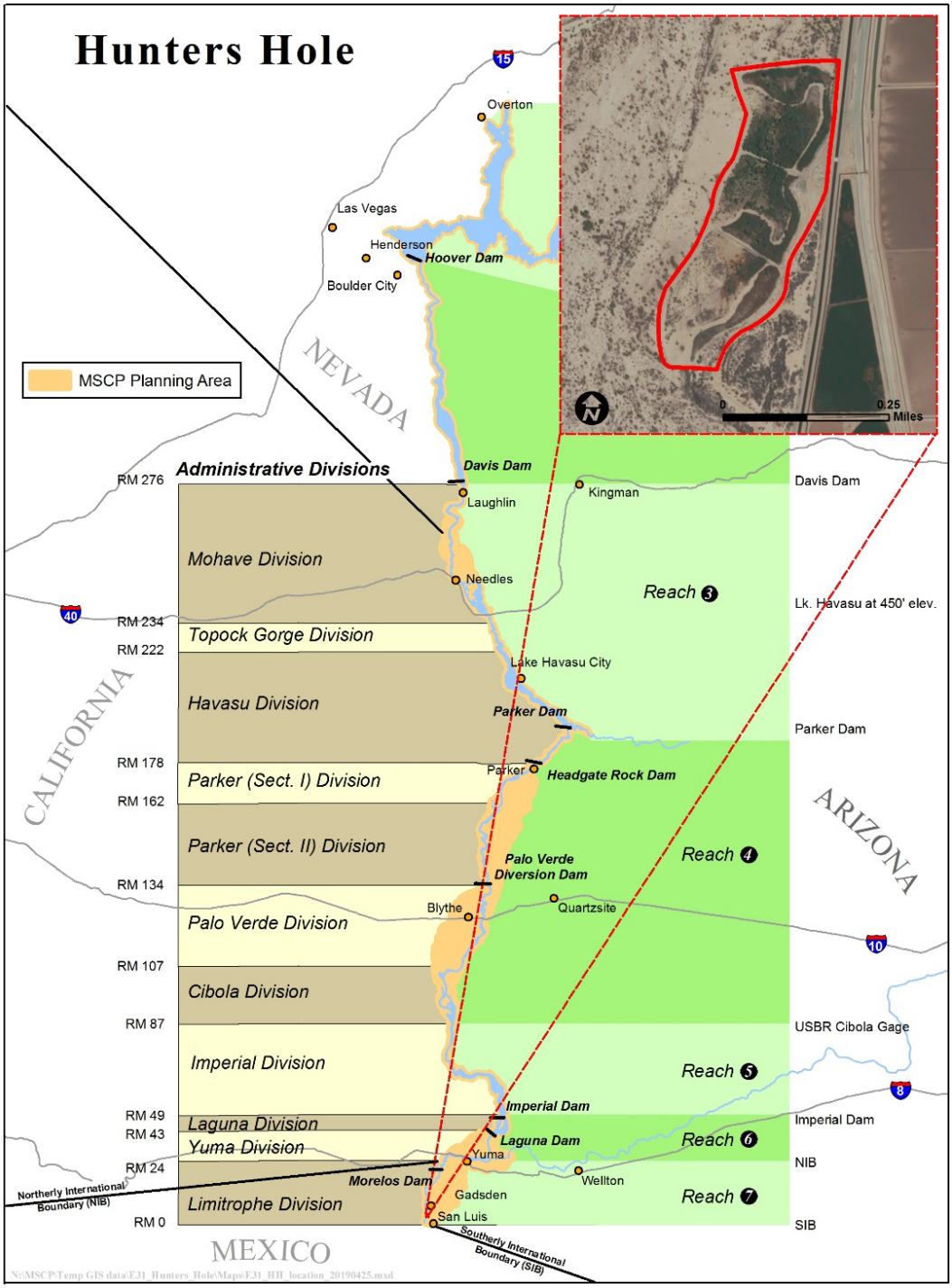
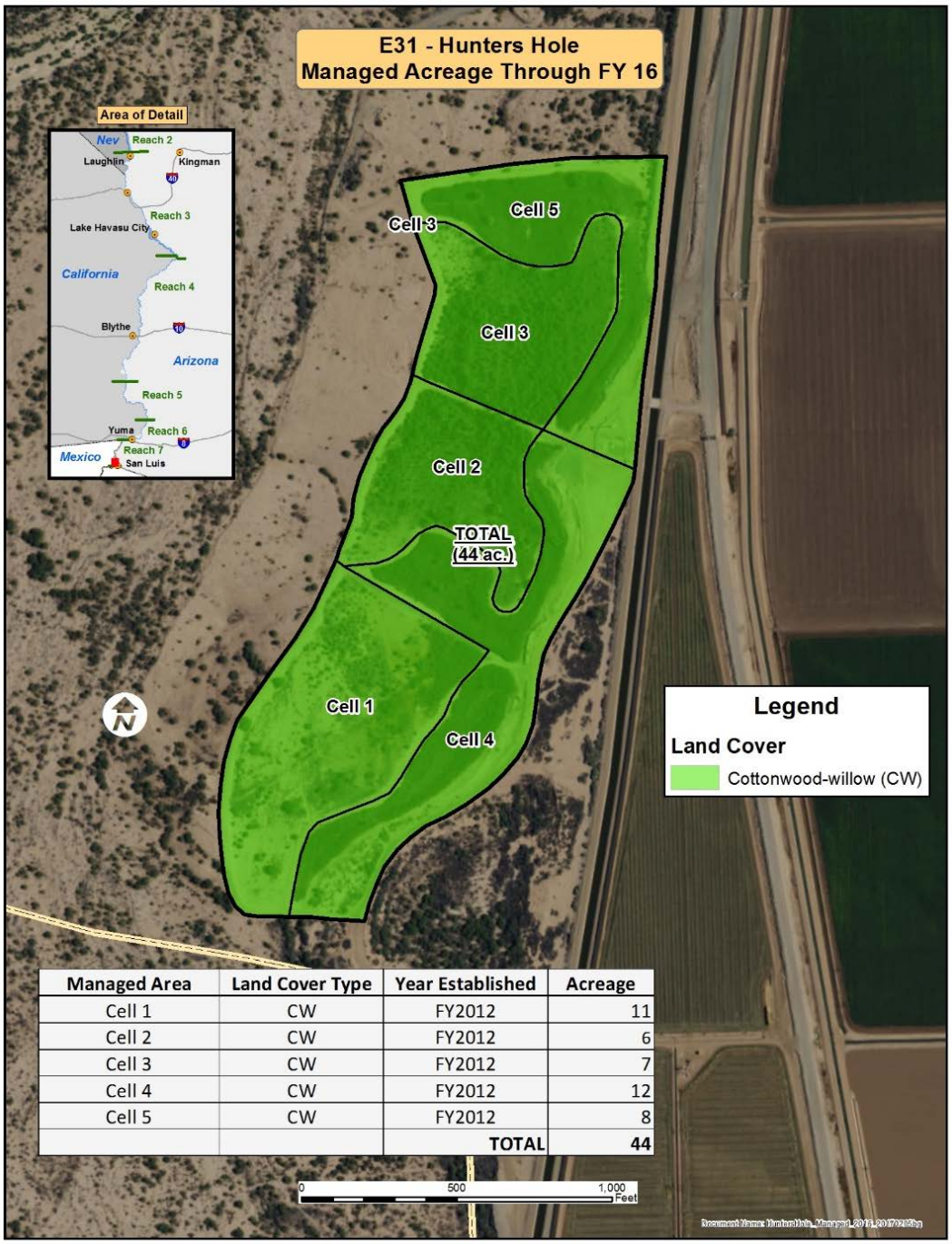


Figure 1.—LCR MSCP planning area with Hunters Hole inset.



Managed Area	Land Cover Type	Year Established	Acreage
Cell 1	CW	FY2012	11
Cell 2	CW	FY2012	6
Cell 3	CW	FY2012	7
Cell 4	CW	FY2012	12
Cell 5	CW	FY2012	8
		TOTAL	**44**

Figure 2.—Hunters Hole managed acreage through FY16.

2.6 Public Use

Hunters Hole is open to the public; however, activities may be restricted depending on safety concerns.

2.7 Law Enforcement

The Border Patrol is responsible for all law enforcement at Hunters Hole due to its location along the U.S. border security fence near the Southern International Boundary between Arizona and Mexico. Reclamation continues to work with the Border Patrol regarding security issues and notifies them prior to each site visit using an established visitation protocol.

2.8 Wildfire Management

Federal, State, and local fire agencies, either by existing management agreements or mutual aid agreements, will provide wildland fire suppression, incident dispatch, fire investigation, and potential fire restrictions. The full range of suppression strategies is 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). Reclamation may assist the Bureau of Land Management with fire suppression by activating the electrical groundwater pump located within the security fencing enclosure. The pump can be turned on remotely from Reclamation's Yuma Area Office, or manually onsite, to flood each irrigation cell (see figure 2) using separate valves for each cell.

On May 23, 2016, a small fire burned at the site and consumed 0.6 acre of upland buffer. A Bureau of Land Management fire crew responded to, and suppressed, the fire. No significant resources were damaged.

3.0 HABITAT DEVELOPMENT AND MANAGEMENT

3.1 Planting

No planting occurred at Hunters Hole in FY16.

3.2 Irrigation

Irrigation water is pumped using a 100-horsepower electric motor coupled to a groundwater pump. After reaching the surface, irrigation water is routed through an irrigation manifold that delivers water to the five habitat cells. Fifteen irrigation cycles were run during the 2016 calendar year. Staff monitored irrigation cycles, water use, and costs in a continuing effort to run the site as efficiently as possible.

3.3 Site Management

Maintenance activities can be separated into two categories: (1) infrastructure maintenance and (2) habitat maintenance. Infrastructure maintenance includes maintenance of roads, groundwater pumps, outfall structures, and water control valves used to operate and maintain the conservation area. Habitat maintenance includes manual weeding of invasive species and application of herbicides as necessary. Maintenance activities are coordinated with the Border Patrol. No significant management action was taken, and no issue arose at the site during FY16.

4.0 MONITORING

4.1 Avian Monitoring

Avian monitoring in FY16 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 three times during FY16 in cottonwood-willow habitat. No breeding or resident southwestern willow flycatchers were detected. Migrant willow flycatchers (*Empidonax trailli*) were detected before June 24 and were not considered to be 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.

4.1.2 Yellow-billed Cuckoo Surveys

Hunters Hole was surveyed for yellow-billed cuckoos three times using passive survey techniques (no call-playback) in June and July. No birds were detected.

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 land cover type that were of adequate growth to support breeding birds. General bird surveys resulted in the detection of 13 species (19 territories) of birds breeding within the surveyed plots (table 1). A Sonoran yellow warbler (*Dendroica petechia sonorana = Setophaga petechia sonorana*) was confirmed breeding at the site for the first time.

Table 1 shows the number of breeding territories of LCR MSCP covered species and other territorial riparian birds at Hunters Hole in FY16.

Table 1.—Number of breeding territories per species detected at Hunters Hole, FY16 (The LCR MSCP covered species are highlighted in bold.)

Species	Scientific name	Number of pairs
Abert's towhee	*Melozone aberti*	4
Ash-throated flycatcher	*Myiarchus cinerascens*	1
Black phoebe	*Sayornis nigricans*	1
Black-chinned hummingbird	*Archilochus alexandri*	2
Black-tailed gnatcatcher	*Polioptila melanura*	2
Brown-headed cowbird	*Molothrus ater*	1
Blue grosbeak	*Passerina caerulea*	1
House finch	*Haemorhous mexicanus*	1
Ladder-backed woodpecker	*Picoides scalaris*	1
Verdin	*Auriparus flaviceps*	2
Western kingbird	*Tyrannus verticalis*	1
White-winged dove	*Zenaida asiatica*	1
Sonoran yellow warbler	*Dendroica petechia sonorana = Setophaga petechia sonora*	**1**

4.2 Small Mammal Monitoring

4.2.1 Bat Monitoring

4.2.1.1 Acoustic Surveys

One long-term monitoring station was operated at Hunters Hole during June, July, and August of 2016. Two LCR MSCP species were detected: California leaf-nosed bats (*Macrotus californicus*) and western yellow bats (*Lasiurus xanthinus*) (Mixan and Diamond 2018). Table 2 summarizes the total number of nights the four LCR MSCP species were detected in FY16.

Table 2.—LCR MSCP bat detections by month at Hunters Hole, FY16

Month	Number of nights recorded	Total nights detected			
		Western red bat	Western yellow bat	California leaf-nosed bat	Pale Townsend's big-eared bat[1]
June	30	0	6	0	0
July	31	0	13	0	0
August	31	0	9	1	0

[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 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 October 15, 2015, and March 13, 2016, to determine the presence of Yuma hispid cotton rats (*Sigmodon hispidus eremicus*). Sixty traps were set on both nights. One Yuma hispid cotton rat was captured in October (Hill 2017) and two in March (Hill 2018).

5.0 HABITAT CREATION CONSERVATION MEASURE ACCOMPLISHMENT

5.1 Vegetation Monitoring

Vegetation data were collected in FY16 using light detection and ranging (lidar). Lidar measures the vegetation structure 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 process for Habitat Creation Conservation Measure Accomplishment was finalized in October 2011 (LCR MSCP 2011). All areas within Hunters Hole 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). In 2016, there were no species with creditable acres at Hunters Hole.

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). Under the Adaptive Management Program, habitat creation sites will be assessed for biological effectiveness and whether they fulfill the conservation measures outlined in the Habitat Conservation Plan for 26 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 Hunters Hole, recommendations may be made through the adaptive management process for site improvements in the future.

At this time, there are no adaptive management recommendations for Hunters Hole.

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