# Lower Colorado River Multi-Species Conservation Program

*Balancing Resource Use and Conservation*

## Palo Verde Ecological Reserve

## 2018 Annual Report

**February 2020**

**Work conducted under LCR MSCP Work Task E4**

# 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

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Arizona Game and Fish Department
Arizona Power Authority
Central Arizona Water Conservation District
Cibola Valley Irrigation and Drainage District
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City of Lake Havasu City
City of Mesa
City of Somerton
City of Yuma
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Mohave Water Conservation District
North Gila Valley Irrigation and Drainage District
Town of Fredonia
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Town of Wickenburg
Salt River Project Agricultural Improvement and Power District
Unit "B" Irrigation and Drainage District
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Yuma County Water Users' Association
Yuma Irrigation District
Yuma Mesa Irrigation and Drainage District

### Other Interested Parties Participant Group

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Desert Wildlife Unlimited

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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
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The Metropolitan Water District of Southern California

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Nevada Department of Wildlife
Southern Nevada Water Authority
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### 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

## Palo Verde Ecological Reserve

## 2018 Annual Report

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**Lower Colorado River**
**Multi-Species Conservation Program**
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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| CDFW | California Department of Fish and Wildlife |
| FY | fiscal year |
| LCR MSCP | Lower Colorado River Multi-Species Conservation Program |
| lidar | light detection and ranging |
| PVER | Palo Verde Ecological Reserve |
| Reclamation | Bureau of Reclamation |

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# 1.0 INTRODUCTION

This annual report summarizes all activities that have occurred at the Palo Verde Ecological Reserve (PVER) 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 PVER encompasses 1,352 acres of the historical floodplain of the Colorado River near Blythe, California. Formerly, the property was known as the Riverview Ranch and was owned by the Travis family. The ranch was acquired by the Trust for Public Lands in 2004 to offset degradation of wildlife habitat along the lower Colorado River. On September 3, 2004, the property was conveyed to the State of California. California identified up to 1,300 acres of active agricultural lands on this property for habitat restoration under the Lower Colorado River Multi-Species Conservation Program (LCR MSCP), a 50-year multi-partner program administered by Reclamation (LCR MSCP 2004).

The California Department of Fish and Wildlife (CDFW) and the LCR MSCP jointly planned the conversion of portions of the PVER from agricultural crops to a mix of native plant species. Now that planting is completed, the created habitats will be managed for species covered under the LCR MSCP throughout the 50-year life of the program. Existing infrastructure consists primarily of an irrigation system comprised of 9.2 miles of lined and unlined irrigation ditches and associated slide gates, a 100-horsepower electric pump, and approximately 14 miles of access roads. All the acreage had been in agricultural crops—grain, small melons, and alfalfa—since the late 1930s.

# 2.0 CONSERVATION AREA INFORMATION

## 2.1 Purpose

The purpose of the development of the PVER was to convert 1,023 acres of agricultural land to riparian habitat that will be managed for the southwestern willow flycatcher (*Empidonax trailli extimus*) and other LCR MSCP covered species that utilize the cottonwood-willow (*Populus fremontii-Salix* spp.)and honey mesquite (*Prosopis glandulosa*) land cover types.

## 2.2 Location

The PVER is located in Reach 4, in southeastern Riverside County, California, approximately 5 miles north of Blythe, California. It is within the historic floodplain of the lower Colorado River and between River Miles 128 and 134 (figure 1).

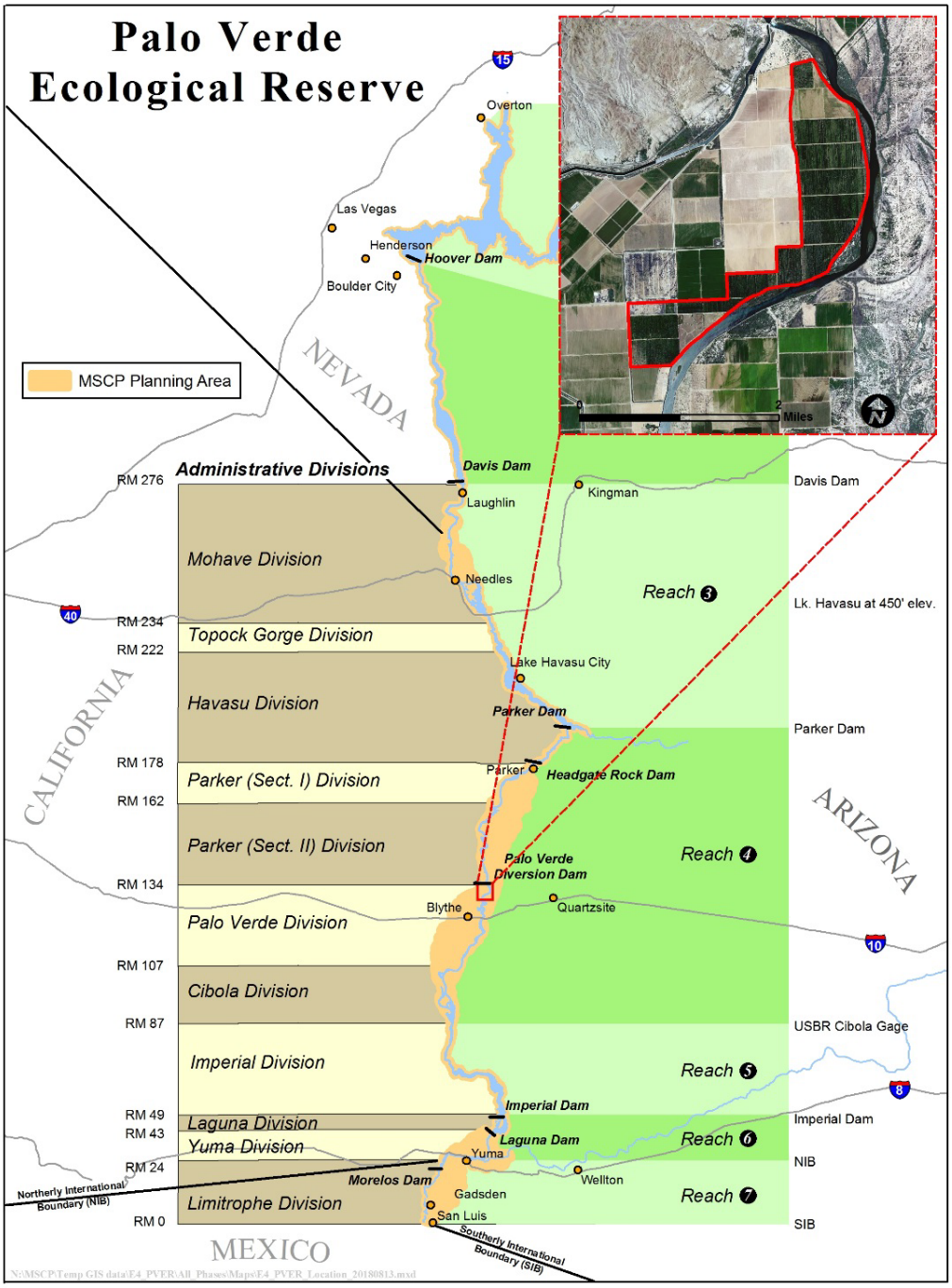


**Figure 1.—Location of the PVER.**

## 2.3 Landownership

The PVER is owned by the CDFW, which has dedicated 1,023 acres for the restoration and maintenance of native land cover types by the LCR MSCP. The CDFW manages two parcels for migratory waterfowl and upland game.

## 2.4 Water

The Palo Verde Irrigation District has an entitlement to Colorado River water for use on up to 104,500 acres of land within the PVID pursuant to a contract between the United States and the PVID dated February 7, 1933. The CDFW, as a landowner within the PVID, has the right to order Colorado River water from the PVID for pumping through the PVID canal system to its fields. The CDFW has made Colorado River water available for irrigation of the native plants.

## 2.5 Agreements

Reclamation has signed an Agreement for Restoration Activities Consistent With the Lower Colorado River Multi-Species Conservation Program, Palo Verde Ecological Reserve, Contract No. 06-07-30-LO633, for the development and long-term management of the PVER.

## 2.6 Public Use

The CDFW has the authority, and is the lead, to regulate hunting and recreation uses pursuant to CDFW statutes, regulations, and policies at the PVER. In cooperation with Reclamation, the CDFW 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 PVER; however, these uses may be regulated depending on future occupation of the habitat by listed species.

## 2.7 Law Enforcement

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

## 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

Riparian land cover types were created at the PVER, from 2006 to 2013, and are being managed for LCR MSCP covered species (figure 2).

## 3.1 Planting

No planting occurred at the PVER in 2018.

## 3.2 Irrigation

The fields at the PVER are flood irrigated. Water usage for the PVER for the calendar year is reported from the Palo Verde Irrigation District's Water Order System. During 2018, 16,546.48 acre-feet (16.17 acre-feet per acre per year) of water was applied to the fields at the PVER. The water usage reported by the PVID does not reflect consumptive use or unmeasured return.

## 3.3 Site Management

Normal road maintenance, such as grading and gravel road base replacement, was done as needed.

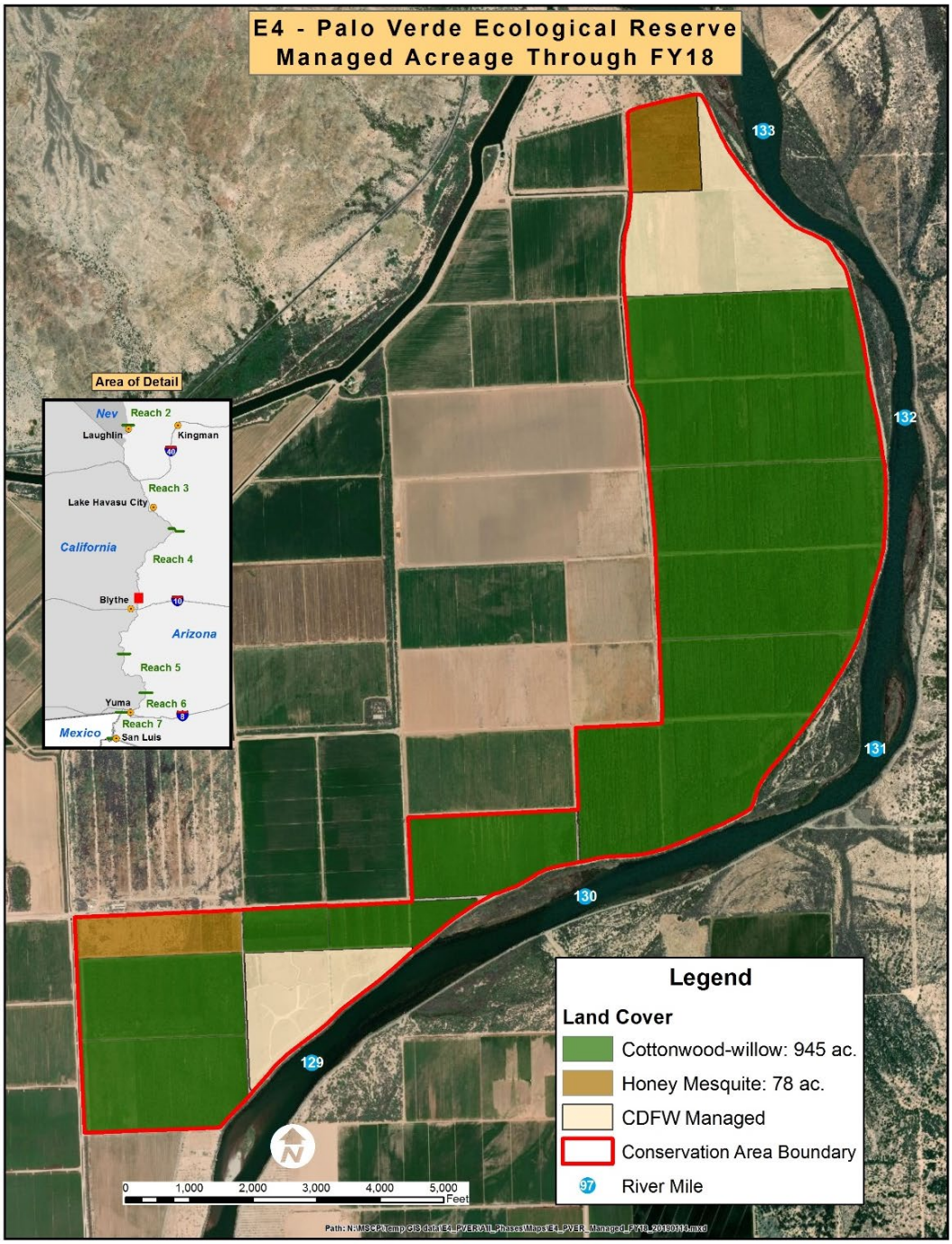


**Figure 2.—PVER managed acreage through FY18.**

### 3.3.1 Weed Management

Invasive weeds and plant material were removed adjacent to the irrigation ditches to protect the integrity of the ditch. Disking was done quarterly along the levee road. The disking extended 50 feet into the fields in order to protect the integrity of the levee road and reduce the risk of fire.

### 3.3.2 Pest Management

No pest management at the PVER was needed this year.

### 3.3.3 Nursery Management

No plant materials were collected from the nursery.

# 4.0 MONITORING

## 4.1 Avian Monitoring

Avian monitoring in FY18 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 five times during FY18 in cottonwood-willow habitat. No breeding or resident southwestern willow flycatchers were detected. Only migrant willow flycatchers (*Empidonax trailli*) were detected, all prior to June 14. 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 the PVER. During the first survey period (June 15 – June 30), there were 35 cuckoo detections. Two surveys are conducted during the second survey period (approximately July 1 – July 31) and resulted in 90 detections. Between August 1–15, there were 34 detections.

Breeding was confirmed at the PVER 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 were 26 confirmed territories, 8 probable territories, and 17 possible territories breeding at the habitat conservation area in FY18. Eighteen nests were found incidental to surveys (Parametrix, Inc., and Southern Sierra Research Station 2019).

### 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 19 species (201 territories) of birds breeding within the surveyed plots. Sonoran yellow warblers (*Dendroica petechia sonorana* = *Setophaga petechia sonorana*), and summer tanagers (*Piranga rubra*) 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 the PVER, FY18

| LCR MSCP covered species | Number of confirmed Territories |
|---|---|
| Sonoran yellow warbler | 3.25 |
| Summer tanager | 4 |

[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 the PVER. Two long-term monitoring stations were operated at the PVER during June, July, and August 2018. Western red bats (*Lasiurus blossevillii*), western yellow bats (*Lasiurus xanthinus*), and California leaf-nosed bats (*Macrotus californicus*) were detected (table 2). Table 2 summarizes the total 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 PVER at acoustic stations PVER 1 and PVER 2, FY18

| Month | Number of nights recorded (PVER 1 / PVER 2) | Total Nights Detected | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Western red bat | | Western yellow bat | | California leaf-nosed bat | | Pale Townsend's big-eared bat[1] | |
| | | PVER 1 | PVER 2 | PVER 1 | PVER 2 | PVER 1 | PVER 2 | PVER 1 | PVER 2 |
| June | 30/20 | 19 | 2 | 5 | 1 | 4 | 0 | 0 | 0 |
| July | 31/31 | 26 | 7 | 13 | 2 | 5 | 0 | 0 | 0 |
| August | 31/31 | 22 | 10 | 14 | 8 | 2 | 0 | 0 | 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 November 14 and 15, 2017, to determine the presence of the Colorado River cotton rat (*Sigmodon arizonae plenus*) at the PVER. Forty traps were set for 2 nights on transects in three areas of the conservation area with dense grass and scattered shrubs. Two Colorado River cotton rats and four desert pocket mice (*Chaetodipus penicillatus*) were captured (Hill and Lyon 2019). The subspecies of the desert pocket mouse was not determined, but it is not expected to be of the *sobrinus* subspecies, as the PVER is south of the subspecies' documented range.

## 4.3 MacNeill's Sootywing Skipper Monitoring

MacNeill's sootywing skippers (*Pholisora gracielae* = *Hesperopsis gracielae* [MacNeill]) were detected at the PVER during surveys conducted in April, 2018 (Hill and Smith 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 the PVER 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). Thirteen species with habitat creation goals have creditable acres at the PVER. 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 rubin*) (VEFL1), Arizona Bell's vireo (*Vireo bellii arizonae*) (BEVI1), Sonoran yellow warbler (YWAR1), summer tanager (SUTA1), and MacNeill's sootywing skipper (MNSW2) (table 3).

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

| Species-specific habitat creation conservation measure | WIFL1 | WRBA2 | WYBA3 | CRCR2 | YBCU1 | ELOW1 | GIFL1 | GIWO1 | VEFL1 | BEVI1 | YWAR1 | SUTA1 | MNSW2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Creditable acres in 2018 | 0[2] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total, including previous years** | **945** | **1,023** | **1,023** | **1,023** | **945** | **985** | **945** | **945** | **985** | **1,023** | **945** | **945** | **40** |

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

[2] During FY15, hydrologic data were collected at the PVER, and it was determined that the PVER does meet both structure type and moist soils requirements. Once this has been determined at the other conservation areas, they will be evaluated.

# 6.0 ADAPTIVE MANAGEMENT

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 adaptively manage habitat creation sites after initial implementation. Once monitoring data are collected over a few years, and then analyzed for the PVER, recommendations may be made through the adaptive management process for site improvements in the future.

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

[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.

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