



Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Cibola Valley Conservation Area

2012 Annual Report



January 2013

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Lower Colorado River Multi-Species Conservation Program

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ACRONYMS AND ABBREVIATIONS

AGFD	Arizona Game and Fish Department
CVCA	Cibola Valley Conservation Area
HCP	Habitat Conservation Plan
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
MCWA	Mohave County Water Authority
Reclamation	Bureau of Reclamation

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EXECUTIVE SUMMARY

The purpose of this annual report is to summarize all activities, including planning, designing, constructing, restoring, monitoring, and adaptive management, that have occurred at the Cibola Valley Conservation Area (CVCA) from October 1, 2011, through September 30, 2012. This document also contains sections describing the general background of the site, land and water ownership, current agreements, and constructed habitat areas as well as the past management of established land cover types. In addition, projected activities for fiscal year (FY) 2013, in terms of future development, management, and monitoring will also be identified in this report. Adaptive management is expected to be a larger part of subsequent annual reports for this conservation area as more data regarding the effectiveness of management techniques and performance of the habitat become available.

Background

In 2002, the Bureau of Reclamation (Reclamation) secured 1,309 acres of land within the Cibola Valley Irrigation and Drainage District in southwestern Arizona and established the CVCA. In September 2007, the property was conveyed to the Arizona Game and Fish Department (AGFD) through an agreement among the AGFD, Reclamation, the Mohave County Water Authority, and The Conservation Fund. Under the agreement, the AGFD retains title to the property and leases the land and water rights to Reclamation until April 5, 2055, as part of the Lower Colorado River Multi-Species Conservation Program (LCR MSCP).

In September 2008, a Memorandum of Understanding (MOU) was signed between Reclamation and the AGFD that assures availability of land and water resources for the 50-year term of the LCR MSCP. This MOU changed the name to the Cibola Valley Conservation and Wildlife Area. However, to maintain consistency with prior reports and documents, the CVCA will continue to be used.

Large habitat restoration sites such as the CVCA are developed over a number of years, with restoration activities divided into phases. The report, Cibola Valley Conservation Area Restoration Development Plan: Overview, provides a summary of site and projected phase implementation.

In FY06, Reclamation planted Phase 1, consisting of a 22-acre native plant nursery and approximately 69 managed acres of cottonwood-willow habitat. Phase 2 was originally scheduled for implementation in the early spring of FY07, as reported in the CVCA Restoration Development Plan: Phase 2 report, but was delayed for 1 year in an attempt to eradicate the invasive plant, morning glory's seed bank. Phase 3, consisting of 103 managed acres, was planted in FY07 as reported in the CVCA Restoration Development Plan: Phase 3 report. Phase 2, a

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71-acre parcel, was planted in March 2008 with approximately 160,000 coyote willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), and Fremont cottonwood (*Populus fremontii*), in accordance with the CVCA Restoration Development Plan: Phase 2 report. Phase 4, consisting of two separate locations –58 managed acres north of Phase 3 and 187 managed acres west of Phase 1 – were planted in FY09 with approximately 25,000 honey mesquite trees and 18,000 *Atriplex* plants in accordance with the CVCA Restoration Development and Monitoring Plan: Phase 4 report. Phase 5, consisting of 71 managed acres, was planted in FY10 as reported in the CVCA Restoration Development Plan: Phase 5 report. Phase 6, which consists of 89 managed acres, was planted in the spring of FY11 with approximately 14,000 honey mesquites. These development plans, as well as additional information on design, planting, and monitoring of the CVCA site, can be found on the LCR MSCP Web site (<http://www.lcrmscp.gov>).

Future planting of phases within the CVCA has been postponed until FY15, when riparian planting will resume. A development plan for Phase 7 will be prepared prior to planting.

This report documents the development and management of land cover types through October 2012, presents the results of monitoring, determines habitat credit, and makes recommendations for future adaptive management of lands within the CVCA.

1.0 CONSERVATION AREA INFORMATION

1.1 Purpose

Cottonwood-willow land cover created within the Cibola Valley Conservation Area (CVCA) will be managed for the southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and other species covered under the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). As part of habitat creation, native plant communities are established and managed to meet performance standards for integrating seral stages of vegetation, moist soil, standing water, and open areas into mosaics of riparian habitat.

1.2 Location

The 1,309-acre CVCA (figure 1) is located in southwestern La Paz County, Arizona, which is approximately 15 miles south of Blythe, California. Cibola Valley encompasses the land inside an engineered bend of the lower Colorado River and a remnant oxbow on the west side of the river (Palo Verde Oxbow). Farmed primarily for cotton and alfalfa, the CVCA is bordered to the south by Cibola National Wildlife Refuge and on the east by unimproved land under the jurisdiction of the Bureau of Land Management. The river forms the north and west boundaries, except for the Palo Verde Oxbow, from River Miles 98.8 to 104.9.

1.3 Landownership

The Arizona Game and Fish Department (AGFD) acquired CVCA land and water rights in 2007 and 2008 through multiple agreements involving the AGFD, Bureau of Reclamation (Reclamation), Mohave County Water Authority (MCWA), The Conservation Fund, and the Hopi Tribe. Through these agreements, the AGFD acquired CVCA fee title and water entitlements and agreed to manage the site. The entitlements are subject to an existing long-term lease of the land and water rights to Reclamation through April 5, 2055, as part of the LCR MSCP. Short-term leases of the land to farmers for crop production also exist on portions of the acquired land.

1.4 Water Availability

For the long term, a 2,838 acre-foot per year diversionary right of 4th priority Colorado River water is available, which includes a Reclamation 4th priority entitlement for 118.94 acre-feet per year.

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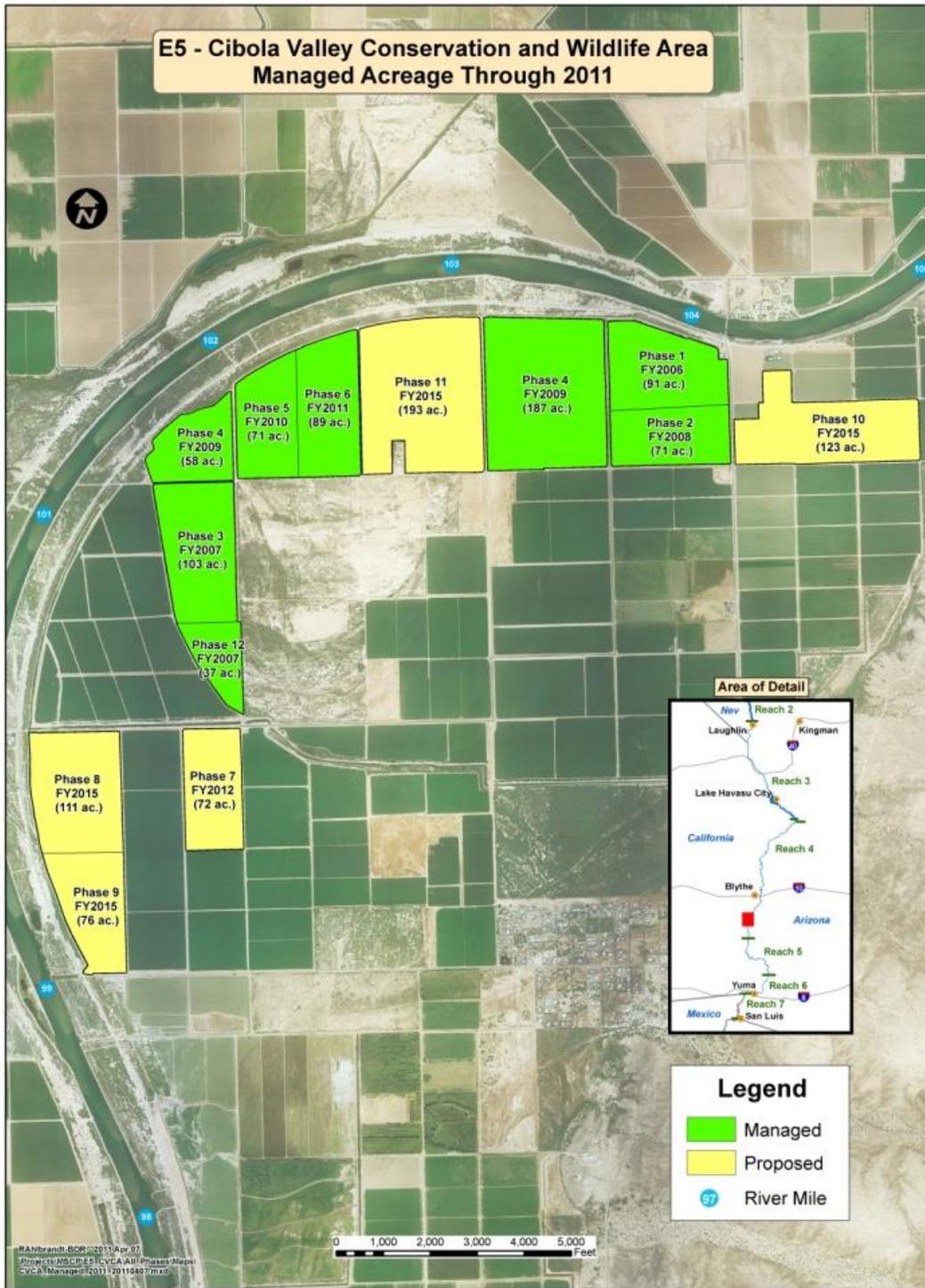


Figure 1.—Phase map of the CVCA.

Additionally, a 7,747 acre-foot diversionary right of combined 4th, 5th, and 6th priority Colorado River water is currently available for lease each year from the MCWA to the LCR MSCP to accommodate the higher water diversions required to establish habitat.

1.5 Agreements

A Land Use Agreement was signed in 2007 between Reclamation and the AGFD that assures availability of land and water resources for the 50-year term of the LCR MSCP.

1.6 Public Use

The AGFD has the authority, and is the lead, to regulate hunting and recreation uses pursuant to AGFD statutes, regulations, and policies at the CVCA. In cooperation with Reclamation, the AGFD coordinates its public use and related activities so they are consistent with and do not adversely affect restoration activities at the CVCA.

1.7 Law Enforcement

The AGFD is responsible for law enforcement at the CVCA. Reclamation continues to work with the CVCA to ensure these activities do not conflict with the LCR MSCP Habitat Conservation Plan (HCP).

1.8 Wildfire Management

A LCR MSCP Conservation Area Specific Fire Management and Law Enforcement Strategy has been finalized for the CVCA and is posted on our Web site. The LCR MSCP will continue to work with local State and Federal fire agencies to reduce the risk of wildland fires and maintain clear lines of communication among agencies.

2.0 HABITAT DEVELOPMENT AND MANAGEMENT

2.1 Planting

During 2012, the only restoration activities at the CVCA consisted of irrigation, maintenance, and monitoring activities. Future planting of phases within the CVCA have been postponed until FY15, when riparian planting will resume.

2.2 Irrigation

2.2.1 Method

Flood irrigation methods are used to provide water to each field. Irrigation amounts applied in each phase were based on monthly invoices received by the Cibola Valley Irrigation and Drainage District. Irrigation scheduling was determined by the contract farmer along with input from Reclamation.

2.2.2 Water Applied

Table 1 depicts the number of acre-feet of water applied to each phase in calendar year 2012.

Table 1.—Irrigation water applied in 2012

	2012						
	Phase 1: 86 acres (acre-feet applied) ¹	Phase 2: 70 acres (acre-feet applied) ¹	Phase 3: 101 acres (acre-feet applied) ¹	Phase 4: 60 acres (acre-feet applied) ¹	Phase 4 Ground Stabilization: 175 acres (acre-feet applied) ¹	Phase 5: 61 acres (acre-feet applied) ¹	Phase 6: 89 acres (acre-feet applied) ¹
March	27.30	0.00	93.90	24.70	319.00	41.20	18.80
April	167.30	100.80	100.50	0.00	0.00	0.00	16.70
May	104.10	60.10	95.10	0.00	0.00	0.00	0.00
June	158.40	101.30	205.40	0.00	0.00	0.00	0.00
July	198.40	91.20	227.20	0.00	0.00	0.00	0.00
August	0.00	0.00	0.00	0.00	0.00	0.00	0.00
September	125.00	38.80	86.90	0.00	0.00	0.00	0.00
October	0.00	0.00	0.00	0.00	0.00	0.00	0.00
November	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acre-feet / year	780.50	392.20	809.00	24.70	319.00	41.20	35.50
Acre-feet / acre of phase	9.13	5.64	8.01	0.41	1.83	0.68	0.40

¹ Acre-feet applied represents the quantity of irrigation water in acre-feet applied to each phase.

In 2008, the irrigation system was modified, and it was difficult of to measure the exact volume of water delivered to Phases 1 and 2 individually. The best way to determine the amount applied is to average those two phases.

2.3 Site Maintenance

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

2.4 Management of Existing Land Cover Types and Habitat

2.4.1 Weed Management

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

3.0 MONITORING

3.1 Avian Monitoring

Single species surveys were conducted for the southwestern willow flycatcher and yellow-billed cuckoo as well as marsh birds. General avian surveys were conducted for six LCR MSCP avian covered species and all non-covered avian species, and a Monitoring Avian Productivity and Survivorship Station was operated.

3.1.1 Southwestern Willow Flycatcher Surveys

The CVCA was surveyed five times for southwestern willow flycatchers during 2012. No resident or breeding southwestern willow flycatchers were detected in Phases 1, 2, or 3. Several willow flycatchers detected before June 16 were considered to be migrants and not the covered southwestern (*extimus*) subspecies.

- Phase 1: 6 willow flycatchers were detected on May 23 and 11 on June 6.
- Phase 2: 2 willow flycatchers were detected on May 23 and 8 on June 6.
- Phase 3: 1 willow flycatcher was detected on June 13.

3.1.2 Yellow-billed Cuckoo Surveys

Surveys for western yellow-billed cuckoos were conducted at the CVCA between mid-June and the end of August. In addition to surveys, adult cuckoos were captured and banded, nests were monitored, and the young were banded if possible. A few cuckoos were fitted with radio transmitters for longer term tracking, both during breeding and the following non-breeding season.

Yellow-billed cuckoos were detected in CVCA Phases 1 and 2 during all survey periods except for the last one in August. Phase 3 had a single detection during the first survey period. Four adult yellow-billed cuckoo were captured and banded, and one was recaptured (within same year) in CVCA Phase 1. In CVCA Phase 2, two adult yellow-billed cuckoo were captured and banded, and one was recaptured. The recaptured bird was a 4-year-old male, returning to the CVCA for the 4th consecutive year. Two yellow-billed cuckoo were captured and banded in Phase 3. Two nests were found and monitored in CVCA Phase 1. One nest fledged three chicks; all were banded. The other nest had at least one fledgling, but the nest was too high to band them. The single nest found in CVCA Phase 2 failed after a storm.

Table 2.—Cuckoos detected by survey period at the CVCA in 2012

Site name	Site code	Cuckoos detected per survey period					Total survey detections
		1	2	3	4	5	
Cibola Valley Phase 1	CVCA1	2 (6/23)	4 (7/6)	4 (7/17)	2 (7/27)	0 (8/8)	12
Cibola Valley Phase 2	CVCA2	2 (6/23)	6 (7/6)	2 (7/17)	1 (7/27)	0 (8/8)	11
Cibola Valley Phase 3	CVCA3	1 (6/22)	0 (7/5)	0 (7/16)	0 (7/28)	0 (8/10)	1

A comparison of the nests found at the CVCA versus the PVER since 2008 indicates a possible decline in nesting at the CVCA and an increase at the PVER; however, it is still not known if they are the same birds moving or actual increases in the population.

Table 3.—Yellow-billed cuckoo nests at the CVCA and the PVER in 2008–12

Site	2008	2009	2010	2011	2012
CVCA	2	1	6	9	3
PVER	0	2	2	10	22

3.1.3 General Avian Surveys

Surveys of habitat conservation areas with more than 2 years' growth were conducted using a double sampling area search method (rapid and intensive area searches) to determine their use for breeding by other LCR MSCP avian species. Two LCR MSCP covered species were confirmed breeding at the CVCA: four yellow warbler and two summer tanager territorial pairs were found in Phase 1. A total of 256 breeding pairs comprising 23 species were also confirmed at the site.

A bird banding station was operated from May 1 through July 30. In 2012, twelve 12-meter mist nets were operated at the banding station for 10 days. Fourteen species were captured. The following LCR MSCP covered species individuals were captured: four yellow warblers.

3.2 Small Mammal Monitoring

3.2.1 Bat Monitoring

Acoustic and capture survey methods were used to monitor and document the presence of bat species within the CVCA and to determine the age, sex, and reproductive status of the bats that could be captured.

3.2.1.1 Acoustic Surveys

One long-term monitoring Anabat™ station was established at the CVCA on March 31, 2011. In 2012, an extra tall pole was installed in July to increase the height that the microphone is located and to reduce insect noise and associated loss of bat call data. The total height of the pole is 40 feet. The microphone is currently at 25 feet and so far appears to be high enough to remove almost all insect noise.

3.2.1.2 Capture Surveys

Bat capture surveys using mist nets were conducted once per month during the summer season from May – September. Lactating females and juvenile red and yellow bats were confirmed this year. It is likely that female red bats are roosting within the site during the maternity season. Both red and yellow adult bats have been consistently captured at the CVCA across years (table 4.). Further details of methods and results can be found in Broderick (2013).

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Table 4.—2012 CVCA bat captures by month
(LCR MSCP species in bold)

Species	May	June	July	Aug	Sept	Totals
Big brown bat	13	18	19	21	5	76
Yuma myotis	4	5	4	21	3	37
Pallid bat	8	9	7	6	5	35
Cave myotis	2	3	5	6	1	17
California myotis	2	1	0	5	0	8
Western yellow bat	0	1	3	2	1	7
Western red bat	1	1	2	0	0	4
Hoary bat	0	0	0	1	2	3
Mexican free-tailed bat	1	0	0	0	0	1
Totals	31	38	40	62	17	188

Table 5.—CVCA bat captures, 2009–12
(LCR MSCP covered species in bold; LCR MSCP evaluation species in italics)

Species	2009	2010	2011	2012	Totals
Big brown bat	86	101	139	76	402
Yuma myotis	7	37	34	37	115
Pallid bat	9	8	35	35	87
Cave myotis	4	16	17	17	54
Western yellow bat	5	4	14	7	30
California myotis	2	10	9	8	29
Western red bat	3	0	7	4	14
Mexican free-tailed bat	2	0	2	1	5
<i>California leaf-nosed bat</i>	<i>1</i>	<i>0</i>	<i>3</i>	<i>0</i>	<i>4</i>
Hoary bat	1	0	0	3	4
Canyon bat	1	3	0	0	4
Arizona myotis	0	2	0	0	2
Totals	121	181	260	188	750

3.2.2 Rodent Monitoring

Presence/absence surveys were conducted for Colorado River cotton rats. During the spring of 2012, using 165 total traps for all phases, 4 cotton rats were caught in Phase 1, 5 in Phase 2, and 1 in Phase 4. None were caught in Phase 3. In the fall of 2012, with 120 total traps in all phases, 1 cotton rat was caught in both Phases 1 and 2, with none caught in Phases 3 or 4.

Table 6.—*Sigmodon* captured at the CVCA, 2006–12

Year	Number captured
2006–09	0
2010	1
2011	4
2012	12



Figure 2.—Habitat where *Sigmodon arizonae* was captured at the CVCA.

4.0 HABITAT CREATION AND CONSERVATION MEASURE ACCOMPLISHMENT

4.1 Vegetation Monitoring

Vegetation data were collected within several parameters to evaluate the vegetation structure from the ground layer to the upper canopy layer. Parameters included tree and shrub density, tree heights, and canopy closure.

In Phases 1–3, tree density in cottonwood willow (cottonwood, Goodding’s willow, and coyote willow) habitat was 572–17,781 trees per acre. The shrub (quailbush, willow baccharis, desert broom, and saltcedar) density was 764–21,948 shrubs per acre. Cottonwood, Goodding’s willow, and mesquite (Phases 4, 5, and 6) tree height average ranges were from over 1 to over 37 feet. In Phases 1–3, the average canopy closure ranged from 79–91 percent.

4.2 Evaluation of the Cibola Valley Conservation Area

The Final Habitat Creation Conservation Measure Accomplishment Tracking Process was finalized in October 2011 (Reclamation 2011). All areas within the CVCA were designed to benefit covered species at the landscape level.

To meet species habitat creation requirements, the HCP 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 and Ohmart 1976, 1984a, 1984b). In 2012, the CVCA supported 161 acres of cottonwood-willow structure type I, 103 acres of cottonwood-willow structure type II, and 405 acres of honey mesquite structure type III. The HCP also specifies that created land cover types will be designed in an integrated mosaic and managed for more than one covered species, including habitat elements for each species. Table 7 shows how much habitat has been created for each of the targeted covered species at the CVCA. Ten species with habitat creation goals have creditable acres, with four additional species being added this year at the CVCA. These species (including their corresponding conservation measure acronym) are: western red bat (WRBA2), yellow-billed cuckoo (YBCU1), elf owl (ELOW1), gilded flicker (GIFL1), Gila woodpecker (GIWO1), vermilion flycatcher (VEFL1), Arizona Bell’s vireo (BEVI1), Sonoran yellow warbler (YWAR1), summer tanager (SUTA1), and MacNeill’s sootywing (MNSW2).

Table 7.—Species-specific habitat creation conservation measure creditable total acres for 2011

Species-specific habitat creation conservation measure	WIFL1 ¹	WRBA2	WYBA3 ²	CRCR2 ³	YBCU1	ELOW1	GIFL1	GIWO1	VEFL1	BEV1	YWAR1	SUTA1	MNSW2 ⁴
Creditable acres in 2012	0	0	0	0	265	405	0	0	405	405	0	0	405
Total, including previous years	0	265	0	0	265	661	265	265	670	405	265	265	405

¹ Although the CVCA provides the appropriate structure type (cottonwood-willow I–IV) as defined in WIFL1 of the HCP, Reclamation 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, the CVCA will be evaluated.

² Reclamation is in the process of determining foraging and roosting habitat for the western yellow bat. Once this has been determined, the CVCA will be evaluated.

³ The preliminary data suggest the Colorado River cotton rat uses both cottonwood-willow and fringe marsh habitats. Reclamation is in the process of evaluating data collected to determine marsh and cottonwood-willow habitat uses by this species.

5.0 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 (Reclamation 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 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 CVCA, 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 the site.

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