Work Task E5: Cibola Valley Conservation Area

FY09 Estimates	FY09 Actual	Cumulative Accomplishment Through FY09	FY10 Approved Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate
$1,000,000	$789,905.06	$9,209,864.66	$900,000	$1,100,000	$1,100,000	$1,100,000

Contact: Bill Singleton, (702) 293-8159, wsingleton@usbr.gov

Start Date: FY05

Expected Duration: FY55

Long-term Goal: Habitat creation

Conservation Measures: WIFL1, WRBA2, WYBA3, YBCU1, ELOW1, GIFL1, GIWO1, VEFL1, BEVI1, YWAR1, SUTA1, MNSW2, CLMB2, PTBB2

Location: Reach 4, AGFD, river miles 99-104, Arizona

Purpose: Create and manage a mosaic of native land cover types for LCR MSCP covered species.

Connections with Other Work Tasks (past and future): Vegetation and species monitoring are being addressed under F1-F4. Insect populations may be investigated as described in C5.

Project Description: In 2007, Reclamation secured 1,309 acres of land serviced by the Cibola Valley Irrigation and Drainage District and established the Cibola Valley Conservation Area (CVCA). The Arizona Game and Fish Department (AGFD) acquired the CVCA in September 2007 through a multi-organizational agreement involving the AGFD, Reclamation, the Mohave County Water Authority, The Conservation Fund, and the Hopi Tribe. Through these agreements, AGFD acquired CVCA fee title and water entitlements and agreed to manage the site.

Cibola Valley Conservation Area is located in southwestern La Paz County, Arizona, about 15 miles south of Blythe, California. The 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). It is currently farmed for cotton and alfalfa. The area is bordered to the south by Cibola NWR 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.

Reclamation has secured 1,300 acre feet of irrigation water per year for the AGFD and 1,419 acre feet per year of the Hopi Tribe's fourth priority Colorado River water entitlement. In addition, Reclamation already maintains a fourth-priority entitlement of 118.94 ac-ft per year at CVCA. The irrigation water will be used for establishment and maintenance of land cover types throughout the life of the program. Agricultural areas have irrigation systems in place that are conducive for water management of riparian species. Checks, which are small borders placed within a given field, allow for flooding of only a portion of a field. This provides additional flexibility to create and maintain saturated soil areas for covered species.

Previous Activities: Through FY08, 265 acres of cottonwood-willow and honey mesquite land cover types have been established in phases 1-3 and are being managed for LCR MSCP covered species. A Memorandum of Understanding was signed in September 2008 between Reclamation and AGFD that assures availability of land and water resources for the 50-year term of the program. Additionally, 1,419 acre-feet of water was purchased from the Hopi Tribe for the site. Reclamation and AGFD continued joint planning for development and creation of habitat on CVCA.

Ivyleaf morning-glory is present at various levels throughout all of CVCA. Working with our Farm Advisory Board and local contract farmer, many different techniques were used to control or minimize the spread of this invasive non-native species. Through this successful partnership, morning-glory, although still present, is not significantly affecting growth or survivorship of planted native land cover types.

FY09 Accomplishments:

Maintenance/Restoration/Management. Phase 4, consisting of 245 acres, was planted in March 2009 in accordance with the restoration development plan. This planting established approximately 25,000 honey mesquite and 18,000 *Atriplex*. Phase 4 actually consists of two locations; one site (58 acres) is located due north of Phase 3. The other site consisting of 187 acres is located west of phases 1 and 2. Approximately 80 acres of this site was planted with a mix of native seeds and irrigated in an effort to eliminate blowing dust and stabilize the ground. This seed mix consisted of quailbush, needle grama, curley mesquite, desert bluebells, and desert Indian wheat. A sprinkler system was rented for four months to provide irrigation water for initial plant germination. This mixture requires less than 4 inches of annual rainfall to survive.

The remaining portion of Phase 4 was planted in furrows approximately 2-feet deep with a 20-foot separation between the rows. This wide furrow spacing saves irrigation water and provides adequate room for a tractor to disk invasive saltcedar and volunteer cotton, which grows between the planted furrows.

Ivyleaf morning-glory was present again in the fields of phases 1 and 2, and to a smaller degree, in Phase 3. The incursion was not as widespread as in the previous year. In an attempt to control the morning-glory, a trial application of Harrell's granular herbicide 75 was aerially applied in field B-2 (5 acres) in Phase 1 and fields 2-5 (6.5 acres) in Phase 2.

The manufacturer recommended two separate applications on each field. The two treatments did not noticeably affect the morning-glory's growth.

Field crews continued to control morning-glory, volunteer cotton, and saltcedar with hand tools. This method of using crews proved to be an effective method of controlling invasive plants as they germinate. The crews remove invasive plants from the fields twice a year, in the spring and in the fall.

An agronomist continued taking soil samples, recommending fertilizer applications, and providing soil moisture monitoring information. The agronomist conducted inspections focusing on general plant health, evidence of disease, over-irrigation, under-irrigation, water drainage, general nutrition, and insect problems. All reports were forwarded to Reclamation with recommendations for treatment.

A document titled, *Cibola Valley Conservation Area Restoration Development Plan: Phase 5*, was drafted that includes the design and planting plan for Phase 5, which would be established in FY10. Approximately 71 acres of honey mesquite will be planted.

Monitoring. Post-development vegetation monitoring was conducted at phases 1, 2, 3, and 4. Canopy closure ranged from 0 to 100% with the average of 87% for Phase 1, 81% for Phase 2, and 69% for Phase 3. Average height and DBH for overstory trees in Phase 1 were 12.18 m and 15.35 cm, and for Phase 3 were 9.46 m and 18.41 cm. Phase 2 and Phase 4 contained trees too small to be classified as overstory. Average height and DBH for the intermediate and shrub layer category in Phase 1 were 10.43 m and 9.56 cm; Phase 2 averages were 6.69 m and 9.16 cm; Phase 3 averages were 6.64 m and 9.09 cm; and Phase 4 (planted in 2009) average was 1.6 m. Land classifications consisted of cottonwood-willow types I-IV, and honey mesquite type VI.

MacNeill's sootywings were monitored every 2-3 weeks during April-September 2009. Sootywing numbers ranged from less than 10 adults to over 100 adults. The deep irrigation furrows at Phase 4 have been very effective in establishing host plants (quailbush) and sootywings. Rodent monitoring was conducted at CVCA during 2009, but to date *Sigmodon* have not been captured.

Anabat bat detectors were deployed quarterly across the site in different habitat types to determine bat activity. The western red bat, western yellow bat, and California leaf-nosed bat were all recorded acoustically, with a large increase in red bat activity in 2009. Capture surveys were conducted once per month from May to September. The western red bat, western yellow bat, and California leaf-nosed bat were all captured, and acoustic voucher calls were obtained.

Avian species were surveyed at phases 1 and 3 using an intensive area search method during 2009. There were 163 pairs of birds comprising 17 species that were breeding, including one LCR MSCP covered species, the Sonoran yellow warbler.

Surveys for southwestern willow flycatchers were conducted five times during 2009. Birds detected before June 15 were considered migrants. One willow flycatcher was detected on May 27 in Phase 1. One willow flycatcher was detected on May 16, one on May 27, and two on June 10 in Phase 3.

As many as five yellow-billed cuckoos were present from June 16 to July 16. Two pairs of cuckoos were confirmed breeding. One nest failed and the other nest, containing two eggs, fledged an unknown number of young.

FY10 Activities: Planting and field preparation of Phase 5 is intended to create approximately 71 acres of honey mesquite land cover, which in coordination with earlier and later planting phases, is designed to create a native vegetation mosaic. Phase 5 consists of eight fields, or checks, arranged in size from 8 to 10 acres, that will be planted in east-west rows.

The ground will be prepared for planting by disking, laser leveling, and creating furrows in preparation for hand planting of 1-gallon potted mesquites (10,000). Smaller *Atriplex* plants (7,500) will also be hand-planted between the mesquite. These plants will be planted in furrows with a plant in-line spacing of 15 feet and a furrow row spacing of 20 feet. This wide furrow spacing saves irrigation water and allows for a tractor to disk invasive saltcedar and volunteer cotton that grow between the planted furrows.

Soil samples will be taken prior to planting to provide nutrient availability information. A contracted crop consultant will be utilized to recommend schedules for water and fertilizer applications. During the growing season, the consultant may sample and analyze plant tissue for nitrogen levels and other nutrients as necessary.

A document titled, *Cibola Valley Conservation Area Restoration Development Plan: Phase 6*, will be drafted, which includes design and planting plan of Phase 6 that would be established in FY11. Approximately 89 acres of honey mesquite and *Atriplex* will be planted.

Monitoring activities conducted in 2009 will continue in 2010. Locations of surveys will be adjusted based on the growth and development of the planted phases.

Proposed FY11 Activities: The planting and field preparation of Phase 6, located east of Phase 5, is designed to create 89 acres of honey mesquite land cover. All the previous phases will be developed, maintained, monitored, and adaptively managed riparian habitat for targeted species. Winter wheat will be planted and is anticipated to benefit the dove population. Habitat, avian, small mammal, and bat monitoring will continue.

A document titled, *Cibola Valley Conservation Area Restoration Development Plan: Phase 7*, will be drafted and will include design and planting plans for Phase 7, which will be established in FY12. Approximately 72 acres of cottonwood and willow riparian habitat will be planted.

Monitoring activities will continue in 2011. Locations of surveys will be adjusted based on the growth and development of the planted phases.

Pertinent Reports: *Soil-Plant-Water-Nutrient Relationships of Populus fremontii, Salix gooddingii, and Salix exigua During Native Habitat Restoration*, the study plan from the Department of Soil, Water, and Environmental Science, University of Arizona, is available upon request. *Cibola Valley Conservation Area Restoration Development Plan: Overview; Cibola Valley Conservation Area Restoration Development Plan: Phase 1; Cibola Valley Conservation Area Restoration Development Plan: Phase 2*; *Cibola Valley Conservation Area Restoration Development Plan: Phase 3;* and *Cibola Valley Conservation Area Draft Report for Phase 4* are posted on the LCR MSCP Web site. The *Cibola Valley Conservation Area 2009 Annual Report* will be posted when available.