

Work Task E4: Palo Verde Ecological Reserve

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
\$1,950,000.00	\$1,483,727.80	\$5,471,988.26	\$1,950,000	\$990,000	\$830,000	\$900,000

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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, CDFG, river miles 129-133, California.

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 are being evaluated under C5 and C7.

Project Description: The Palo Verde Ecological Reserve (PVER) encompasses more than 1,300 acres. This property (formerly known as the Travis Ranch) has been made available to the LCR MSCP for habitat restoration activities by CDFG.

The eastern boundary of the property (more than 4 miles) is adjacent to the Colorado River; the western boundary is adjacent to active agricultural fields. The PVER has an extensive infrastructure consisting of miles of lined irrigation ditches, roads, and a pump. Currently, the acreage is leased to a contract farmer and is planted with crops of alfalfa and wheat. Each year a portion of the active crop acreage will be taken out of production to develop the next phase of native habitat. The intent is to create as much riparian habitat as practical. Generally, all phases at PVER are targeted for SWFL, YBCU, and other covered species. Palo Verde Irrigation District provides water to PVER. The costs associated with irrigation, electricity, and water is proportional to the amount of acreage that has been converted to habitat.

It is essential to have a mosaic of habitats that contain areas of riparian species (including mesquite), and ground covers or open areas. Ground cover is an effective method of controlling nonnative species and provides another layer of vegetation for habitat. Ground covers are planted with transplants or by seed; costs vary with the methods of planting used. Mesquite trees are

generally planted by a tree planter or auger. Typically, mesquite costs are based on a 1-gallon planted tree.

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 standing water or saturated soil areas for covered species.

Previous Activities: Through FY10, 750 acres of cottonwood-willow and mesquite land cover types have been established in phases 1-5 and are being managed for the LCR MSCP covered species.

FY11 Accomplishments:

Maintenance/Restoration/Management. At PVER, 211 acres of cottonwood-willow were planted. Prior to planting, an initial application of fertilizer consisting of NO₃-N (nitrogen), and PO₃-P (phosphorus) was applied. An application of 10-34-0 was added in a later irrigation cycle.

In March, 2011, trees and shrubs were planted in Phase 6, Checks 2-12 and 16-26, utilizing mass transplanting. Checks 1, 14, 15, 28 were hand planted with mesquite. Over 340,000 trees and shrubs were planted within an 11-day period. The checks were planted according to the design (*Palo Verde Ecological Reserve: Restoration Development Plan Phase 6, 2010*). The 2011 planting contained the following averaged percentages of plants and trees: 18.9% cottonwood, 5.2% *Baccharis*, 43% Goodding's willow, and 31.1% coyote willow and 0.05% mesquite. The average number was 1,659 plants per acre. Checks 13 and 27 were left fallow and will be planted in March of 2012.

The Palo Verde Ecological Reserve Development Plan: Phase 7 document was reviewed and approved by CDFG.

A study on the implications of plant genetic diversity and vegetation density on habitat elements within southwestern willow flycatcher habitat was completed at PVER.

Monitoring. Vegetation data is collected each year in the fall after the completion of the breeding season for avian species. Data from Fall of 2010 (beginning of FY11) indicates that average tree heights for PVER 2 was 9.5 meters, PVER 3 was 8.7 m, PVER 4 was 5.1 m, and PVER 5 was 1.4 m. Average canopy closure was 79.9% for PVER 2, 61.6% for PVER 3, 64.8% for PVER 4, and 2.6% for PVER 5.

Three plots at Palo Verde Ecological Reserve (PVER), totaling 35 acres, were sampled for MacNeill's Sootywing in PVER 3, 4, and 5. Results indicate low numbers of adults in 2011. Eight sootywings were seen at Phase 4, one at Phase 5, and none at Phase 3. Sootywings are rare or absent within *Atriplex* plots at PVER.

During fall 2010 and spring 2011, three Colorado River cotton rats and one desert pocket mouse were captured in PVER 4; none were captured in PVER 5. The bench along the river below

PVER continues to support a population of Colorado River cotton rats; 20 rats were captured during the fall 2010 trapping effort.

Anabat bat acoustic detectors were deployed across the site quarterly to determine bat activity across habitat types and acoustic surveys were also conducted during a driving survey. A long term acoustic monitoring station was constructed in 2010. Data in FY11 was collected from Oct 1-May 24, June 22-August 5, August 23-September 24. PVER was mist-netted for bats once per month during the summer season from May-September. LCR MSCP species captured included Western Yellow Bat (9), Western Red Bat (5), and California Leaf-Nosed Bat (5).

General avian surveys of habitat creation sites with more than two years growth were conducted using an intensive area search method. Eight Sonoran yellow warbler (*Dendroica petechia sonorana*) pairs were confirmed breeding.

Five surveys for yellow-billed cuckoos were conducted in each of PVER phases 1, 2, 3, and 4 in appropriate habitat between 17 June and 8 August 2011. Cuckoos were detected in all four areas, with breeding occurring in PVER 2 (3 nests), PVER 3 (2 nests), and PVER4 (6 nests). A total of nine nestlings were banded prior to fledging.

Willow flycatchers were detected in phases 2 and 3 in 2011. One bird detected on 9 June was confirmed as a southwestern willow flycatcher; it was color banded previously in Southern Nevada. This is the first confirmed southwestern willow flycatcher detected at PVER. The bird was not detected or re-sighted again after 9 June and other birds detected in Phase 3 were assumed to be migrants.

FY12 Activities:

Maintenance/Restoration/Management. The development of Phase 7 (241 acres) is the focus in FY12. The ground will be prepared for Phase 7 planting, which includes disking, laser leveling, and plowing as needed for mass transplanting the trees and shrubs. Soil samples will be taken, analyzed for fertilizer needs and applied prior to planting. Since the dense matting of cover crop was successful with reducing weed infestations in Phase 2, 3, 4, 5 and 6, this method will continue to be utilized in Phase 7. In the checks planted with cottonwood-willow land cover types, crops of alfalfa and rye will be seeded, while in the checks of mesquite, a native seed mix will be used. Mass transplanting of approximately 221 acres of riparian species (approximately 400,000 of cottonwood, willows, and *Baccharis*) will take place in March. Spacing will be 6-foot inline with 40 inches between rows to reduce cost and still provide the structural density required by the species. Mesquite will also be hand planted on the remaining 21 acres. The planting will integrate three different percentages of Goodding's willow and coyote willow, and cottonwood. Open areas will be incorporated along the borders, allowing for the flexibility to rework the borders, if needed, without disturbing the trees and shrubs.

Weeds will be managed with the application of a pre-emergent herbicide, manual removal where possible and target herbicides. Visual monitoring for destructive insects will continue. When applicable, pesticides may be used.

Irrigation will continue on the same schedule until data become available that indicate adjustments are needed.

The plan and design for Phase 8, development of approximately 38 acres, will be drafted and is expected to establish this phase with honey mesquite.

Monitoring. All monitoring that was conducted in FY11 are being conducted in FY12.

Proposed FY13 Activities: Field preparation and planting of Phase 8 will be conducted to create as much mesquite habitat as practical. Previous phases will be monitored and adaptively managed for the targeted species. Site preparation for hand planting of mesquite trees on approximately 38 acres will be conducted. Monitoring will continue in FY13.

Pertinent Reports: The *Palo Verde Ecological Reserve Restoration Development Plan: Overview*, which outlines the general development of the property, the *Palo Verde Ecological Reserve Restoration Development Plan: Phase 1*, which described the restoration activities planned for FY06, *Palo Verde Ecological Reserve Restoration Development Plan: Phase 2*, which described the restoration activities planned for FY07, the *Palo Verde Ecological Reserve Restoration Development Plan: Phase 3*, the *Palo Verde Ecological Reserve Restoration Development Plan: Phase 4*, *Palo Verde Ecological Reserve Restoration Development Plan: Phase 5*, *Palo Verde Ecological Reserve Restoration Development Plan: Phase 6*, and the *Palo Verde Ecological Reserve Restoration Development Plan: Phase 7*, which described the restoration activities planned for FY12 are posted on the LCR MSCP website.