Work Task E4: Palo Verde Ecological Reserve

FY12 Estimate	FY12 Actual Obligations	Cumulative Expenditures Through FY12	FY13 Approved Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate
$1,950,000.00	$1,154,766.77	$7,160,327.80	$990,000	$725,000	$675,000	$650,000

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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, CDFW, 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 is being addressed under F1-F4, Wildlife under D2, D6, D7, D9, D10, and insect populations are being evaluated under C5 and C6.

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 CDFW. Development of the project is intended to satisfy both the LCR MSCP and a portion of the California Endangered Species Act (CESA) Incidental Take Permit No. 2081-2005-008-06.

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. Each year a portion of the active crop acreage is 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 our intent to create 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 non-native 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 FY11, over 750 acres of cottonwood-willow and mesquite land cover types have been established in phases 1-6 and are being managed for the LCR MSCP covered species.

FY12 Accomplishments:

Maintenance/Restoration/Management. At PVER, 226 acres of cottonwood-willow were planted in Phase 7. Prior to planting, an initial application of fertilizer consisting of NO3-N (nitrogen), and PO3-P (phosphorus) was applied.

In March 2012, trees and shrubs were planted in Phase 7, checks 2-13 and 16-28, utilizing mass transplanting. Checks 1, 14, 15, 29 were hand planted with mesquite. Over 417,000 trees and shrubs were planted within a 10-day period. The checks were planted according to the design *(Palo Verde Ecological Reserve: Restoration Development Plan Phase 7, 2011)*. The 2012 planting contained the following averaged percentages of plants and trees: 31.9% cottonwood, 3.5% *Baccharis*, 41.6% Goodding's willow, 21.8% coyote willow, and 0.9% mesquite. The average number was 1,922 plants per acre.

The Palo Verde Ecological Reserve Development & Monitoring Plan: Phase 8 document was reviewed and approved by CDFW.

Two electric 30 cubic feet per second pumps and material (pipe, steel, etc.) were purchased in 2012 and are scheduled to be installed at heading JO2 in 2013. The new irrigation pumps will replace an aging single pump and platform and provide redundancy in the case of pump failure.

Monitoring. Vegetation monitoring plots were surveyed at full intensity at the following sites: PVER1 (8 plots), PVER2 (18 plots), PVER3 (22 plots), and PVER4 (20 plots). The remaining sites were monitored at a reduced effort including, PVER5 (28 plots), and PVER6 (40 plots).

MacNeill's sootywing were surveyed between April and August by walking one random transect in phases 4 and 5 each month. In April, 9 sootywing were observed, 0 in May, 1 in June, 3 in July, and 0 in August. No sootywing were detected in Phase 5.

Cotton rats were captured in Phase 4 and Phase 5 in FY12. The bench along the river below PVER also continues to support a population of Colorado River cotton rats.

Bats were mist-netted at PVER once per month from May to September. Ten yellow bats, 6 red bats and 1 California leaf-nosed bat were captured, making 2012 the third consecutive year yellow and red bats have been captured there. Pregnant, juvenile, and reproductive male yellow bats were captured as well as reproductive male red bats and pregnant female red bats, indicating PVER is being used as a maternity site for both species.

Surveys for SWFL were conducted five times in phases 2 and 3. No breeding or resident SWFL were detected, but migrants were detected in May and June.

General avian surveys of habitat creation sites with more than two years growth were conducted using an intensive area search method. Five Sonoran yellow warbler pairs were confirmed breeding in PVER 4 and 5, and Arizona Bell's vireos were detected, but not confirmed breeding. PVER had a total of 322 confirmed breeding pairs comprised of 22 territorial species (MSCP and non-MSCP species combined).

Five surveys for yellow-billed cuckoos were conducted in each of PVER phases 1-5 between 17 June and 24 August 2012. Cuckoos nested in all five areas, with results as follows: PVER 1 (1 nest), PVER 2 (3 nests), PVER3 (2 nests), PVER 4 (10 nests), and PVER 5 (6 nests). These 22 nests produced 20 fledglings. Capture and banding results will be detailed in the 2012 YBCU report once it is final.

FY13 Activities:

Maintenance/Restoration/Management. The development of Phase 8 (36 acres) is the focus in FY13. The ground will be prepared for Phase 8 planting, which includes disking, laser leveling, and plowing as needed for mass transplanting the trees and shrubs. Mass transplanting and hand planting techniques will be utilized to plant approximately 36 acres of upland species (approximately 150,000 of alkali sacaton and 7,700 honey mesquites). Spacing will be 2-foot in-line with 40 inches between rows for alkali sacaton and 15 feet on center for mesquite.

The two (30 cfs) electric fixed irrigation pumps, delivery pipes, electrical upgrade, and pump stand will be installed in 2013. Irrigation will continue on the same schedule until data become available that indicate adjustments are needed.

Since development will now be complete, the management plan for the entire Conservation Area will be drafted in 2013 and is expected to be finalized in 2015.

Monitoring. Vegetation monitoring for FY13 was conducted between October and December 2012. The same plots were monitored in 2012 as in 2011. The only change to note was that PVER5 was surveyed at full intensity instead of reduced effort. Two new sites were added to monitoring at PVER in FY13, PVER1 (nursery) and PVER7.

A second Anabat station will be set up in early 2013 in either Phase 5 or 6 to evaluate whether multiple stations are needed to assess covered species occupancy across a large (greater than 800 acre) conservation area. SWFL surveys will be conducted in PVER 2,

3, 4, and 5 and yellow-billed cuckoos will be surveyed in all appropriate habitat. All other monitoring conducted in FY12 will be continued in FY13.

Proposed FY14 Activities:

Maintenance/Restoration/Management. With the final planting of Phase 8 in 2013, the entire Conservation Area is now fully developed and is transitioning from the development stage and into the maintenance and monitoring stage. Water for irrigation of the trees and to simulate historical river flooding is provided by Palo Verde Irrigation District. A local farmer is utilized to divert and irrigate the various phases based on site conditions and species planted. The farmer provides local knowledge of weather and farming practices, which are applied to the maintenance of the Conservation Area. The farmer and his employees are an on-site presence and provide early recognition of issues or concerns. The farmer is also responsible for assessing the water needs of the trees, and in coordination with the district and the LCR MSCP, orders and delivers the water. Maintenance activities include grading access roads, maintaining field borders, irrigation canals, invasive plant control including hand removal and application of herbicides, and physically opening and closing irrigation gates for over 1,000 acres of established land cover types. Annual costs associated with operating within the district, such as water tax, water tolls, electrical power utility bills, and assessments for district operation are included in the annual maintenance costs.

Monitoring. Species, vegetation, microclimate, and abiotic monitoring conducted in FY13 will be continued in FY14.

Pertinent Reports: *The Palo Verde Ecological Reserve Restoration Development and Monitoring Plan: Phase 8,* which described the restoration activities planned for FY13, is posted on the LCR MSCP website. The *2012 Palo Verde Ecological Reserve Annual Report*, which summarizes any planting conducted, site management, results of monitoring, and any recommendations for future adaptive management will be posted after integration of data collected throughout the calendar year.