

Work Task F1: Habitat Monitoring of Conservation Areas

FY12 Estimate	FY12 Actual Obligations	Cumulative Expenditures Through FY12	FY13 Approved Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate
\$425,000	\$754,927.68	\$2,570,356.04	\$650,000	\$650,000	\$650,000	\$650,000

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Start Date: FY05

Expected Duration: FY55

Long-term Goal: Pre- and Post-development monitoring.

Conservation Measures: MRM2 (CLRA, WIFL, WRBA, WYBA, CRCR, YHCR, LEBI, BLRA, YBCU, ELOW, GIFL, GIWO, VEFL, BEVI, YWAR, SUTA, MNSW).

Location: Beal Lake, Havasu NWR, Arizona; Bill Williams River NWR, Arizona; PVER, California; CVCA, Arizona; Cibola Unit 1, Cibola NWR, Cibola, Arizona; Hart Mine Marsh, Cibola NWR, Cibola, Arizona, Imperial Ponds, Imperial NWR, Arizona; LDCA, Yuma, Arizona.

Purpose: Post-development monitoring is necessary to assess the effectiveness of each habitat creation and restoration sites plus management activities. Specifically, monitoring will include biotic components and abiotic components. Habitat monitoring data will guide management decisions throughout the life of the LCR MSCP.

Connections with Other Work Tasks (past and future): Post-development habitat monitoring will be conducted at habitat creation sites detailed in Section E.

Project Description: Post-development monitoring will assess change in habitat characteristics (such as vegetation growth and density, microclimate, and soil moisture and nutrients) over time and will attempt to determine the causes of said change. Monitoring data will be used to document progress towards achieving the biological goals and minimum habitat requirements for covered species, and document the number of acreage by land cover type (riparian, mesquite, marsh) each year.

Previous Activities: Five habitat creation sites were monitored in FY09 using pilot year monitoring protocols. In FY10 and FY11, the new double sampling protocol was used to monitor habitats and included density, species richness, vegetation structure, ground cover, canopy closure, distance to nearest standing water, and distance to nearest open space. Temperature and relative humidity were also collected.

FY12 Accomplishments: Habitat monitoring continued in FY12 at Beal Lake Conservation Area, Cibola National Wildlife Refuge Unit #1, Cibola Valley

Conservation Area, Palo Verde Ecological Reserve, and Bill Williams River NWR using 2010 monitoring protocols. Data were collected at 362 intensive plots in 2012; data included density, species richness, vegetation structure, ground cover, canopy closure, distance to nearest standing water, and distance to nearest open space within 30 meters of plot center. Temperature and relative humidity data were collected at 90 locations across the four habitat creation sites.

A soil moisture pilot study was initiated to determine the appropriate instrumentation for data collection. Instrumentation was installed at PVER in June FY12 and vegetation density surveys and soil sampling were conducted at each sensor location. Since June, the distribution of continuous monitoring instrumentation has recorded data on irrigation and soil moisture gradients from the irrigation gates to the end of each irrigation check, the effects of soil texture on moisture and overall irrigation distribution.

Vegetation mapping of the LCR MSCP project area began in FY12 Under G3. The purpose of the project was to update the 2004 vegetation classification maps in order to identify survey areas for several MSCP covered bird species and to identify potential areas for the habitat maintenance fund.

Funds were pre-obligated in FY12 for work expected in FY13, thus FY13 obligations should decrease.

FY13 Activities: Post-development monitoring continued at the four Conservation Areas plus Bill Williams River. Monitoring includes vegetation, microclimate, and soil moisture. A total of 405 plots were monitored. Immature sites (year 1 and 2 after planting) and mesquite sites were monitored at a reduced effort per vegetation protocols; including, CVCA 5, CVCA6, PVER6, PVER 7, and CVCA4E. Temperature and relative humidity data will be collected at 90 locations at four habitat creation sites in FY13.

The soil moisture pilot study was extended through FY13 to collect sufficient data across an entire bird breeding season. Instrumentation will remain in place, data will be collected and analyzed, and a report will be written with recommendations for an effective, efficient, and comprehensive soil moisture monitoring protocol and instrumentation at conservation areas.

Vegetation mapping that began in FY12 under G3 will continue under this work task. Draft maps of LCR MSCP priority areas were completed in November 2012. Draft maps of non-priority areas will be completed in FY13. Ground truthing and final maps will also be completed in 2013.

Proposed FY14 Activities: Habitat monitoring including, vegetation, microclimate, and soil moisture monitoring will continue in FY14 at habitat creation sites and the Bill Williams River. Soil moisture monitoring (currently only at PVER2) will be implemented at additional habitat creation sites after results are analyzed and recommendations made from the soil moisture pilot study. Marsh monitoring will take place in FY14 at Hart Mine Marsh and Imperial NWR Field18.

Pertinent Reports: Results from 2010 vegetation monitoring can be found in the report, *2010 Vegetation Monitoring results – MSCP Habitat Creation Sites*. The 2011 vegetation monitoring report (FY12 field season) is in prep.