

## Work Task F1: Habitat Monitoring

FY10 Estimates	FY10 Actual	Cumulative Accomplishment Through FY10	FY11 Approved Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate
\$350,000	\$394,781.36	\$1,722,924.62	\$350,000	\$425,000	\$425,000	\$425,000

**Contact:** Dianne Bangle, (702) 293-8220, [dbangle@usbr.gov](mailto:dbangle@usbr.gov)

**Start Date:** FY05

**Expected Duration:** FY55

**Long-term Goal:** 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; Imperial Ponds, Imperial NWR, 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 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 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.

**FY10 Accomplishments:** Habitat monitoring was implemented at Beal Lake, Cibola National Wildlife Refuge Unit #1, Cibola Valley Conservation Area, and Palo Verde Ecological Reserve using newly developed monitoring protocols. Target tree species density was collected within 2,020 rapid plots (10 by 10 m) that were systematically placed throughout each phase (or field at Beal). Data including density, species richness, vegetation structure, ground cover, canopy closure, distance to nearest standing water,

and distance to nearest open space were collected at 450 intensive plots randomly selected from rapid plots.

Temperature and relative humidity data were collected at 90 locations across the four habitat creation sites. A rain gauge was installed at both PVER and Cibola Unit 1 sites. Data in FY10 will be used to establish a baseline for future habitat monitoring.

**Proposed FY11 Activities:** A reduced number of plots will be sampled based on data received in FY10 to optimize the sampling. New phases will be monitored annually for 3 years and then every other year in subsequent years. All existing phases/fields were monitored in 2010 and will also be monitored in 2011 followed by monitoring phases on a rotational basis every other year. Data collection occurs from September through November. Soil moisture and soils monitoring will be added to determine percent of stand with either standing water or moist soils throughout the breeding season.

Marsh monitoring will occur in 2011 at Hart Mine Marsh and Imperial NWR fields 16 and 18. Abiotic monitoring will continue in 2011 and will include temperature, relative humidity, soil moisture, and rainfall monitoring.

**Proposed FY12 Activities:** Habitat monitoring including vegetation and microclimate monitoring will continue in 2012 at habitat creation sites. Soil quality and moisture monitoring is targeted for implementation in 2012 and will include physical, chemical, and biological components.

Habitat monitoring plots will be conducted at the Bill Williams River NWR to assess habitats occupied by covered species, establish baseline conditions prior to potential creation efforts at Planet Ranch, and use as a reference site for direct comparisons of habitat parameters between habitat creation sites and existing habitat that supports LCR MSCP covered species.

**Pertinent Reports:** Monitoring methods are described in restoration annual reports and site development plans for CVCA, PVER, Beal Lake, and Cibola Unit #1 and will be posted on the LCR MSCP website. Vegetation monitoring protocols are available upon request.