

## Work Task F1: Habitat Monitoring

FY09 Estimates	FY09 Actual	Cumulative Accomplishment Through FY09	FY10 Approved Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate
\$350,000	\$360,842.17	\$1,328,143.26	\$350,000	\$350,000	\$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; 'Ahakhav Tribal Preserve, Arizona; PVER, California; CVCA, Arizona; Cibola Unit #1, Cibola NWR, Cibola, Arizona; Imperial Ponds, Imperial NWR, Arizona.

**Purpose:** Monitor habitat creation to determine whether necessary habitat components have been provided to qualify as habitat as described in the LCR MSCP. Monitor the biotic components (vegetation) and abiotic components (e.g., ambient temperature, relative humidity, rainfall, soil moisture) to provide data to incorporate into future habitat creation efforts.

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

**Project Description:** Habitat creation projects will be monitored for successional changes over time to determine whether habitat acreage goals are met. To evaluate habitat, a monitoring plan will be written prior to project implementation, and pre-development monitoring may occur (if necessary) to document baseline conditions to evaluate change in site conditions. Post-development monitoring will occur through the LCR MSCP time period, and the data will be used to manage the habitat creation sites and to plan future projects through the adaptive management process. Monitoring successional changes will occur on a periodic basis over time, with the interval dependent on the age of each stand.

**Previous Activities:** Habitat restoration demonstration sites were monitored using established protocols, including Beal Lake, Cibola Nature Trail, and Pratt Restoration. Survival and growth rates were recorded at each site. Survival and growth rates were

dependent on a number of factors, including planting technique. Results were summarized and evaluated for each demonstration site. Additional monitoring plans were written for habitat creation projects including CVCA, PVER, Imperial Ponds, Beal Lake, and 'Ahakhav Tribal Preserve. A post-development vegetation monitoring pilot study was conducted at Beal Lake, Cibola Nature Trail, CVCA, and PVER in 2007 and 2008.

**FY09 Accomplishments:** Modifications were made to the pilot year study and a final protocol was developed and implemented in 2008 at Beal Lake, 'Ahakhav Tribal Preserve, Cibola NWR Unit #1, CVCA, and PVER. Data were recorded at 117 established plots including tree/shrub height and DBH, ground cover, percent canopy closure, and foliage height diversity. The plots were randomly stratified by habitat type including cottonwood, willow, cottonwood-willow mix, and mesquite. Data were compiled by habitat type and by site. Project summaries were prepared and posted on the LCR MSCP Web site.

**FY10 Activities:** Post-development monitoring continued at existing restoration sites, including Beal Lake, Cibola Nature Trail, Imperial Ponds, CVCA, 'Ahakhav, and PVER. A total of 167 vegetation plots were monitored in the fall of 2009 (beginning in FY10) including 50 additional plots located in newly developed phases at PVER, CVCA, and Cibola Unit #1.

**Proposed FY11 Activities:** Monitoring protocols will be implemented based on evaluation of existing experimental design and project data. The monitoring protocols will be implemented at the existing restoration sites, including Beal Lake, Cibola Nature Trail, Imperial Ponds, CVCA, 'Ahakhav, and PVER.

**Pertinent Reports:** The monitoring plans for the 2008-2009 seasons are included in the restoration development plans and are available for CVCA, PVER, Beal Lake, Cibola Unit #1, and 'Ahakhav Tribal Preserve. Annual reports for 2009 for Beal Lake, 'Ahakhav Tribal Preserve, Cibola Unit #1, CVCA, and PVER will be posted on the LCR MSCP Web site.