

## Work Task F4: Post-Development Monitoring of Covered Bat Species

FY09 Estimates	FY09 Actual	Cumulative Accomplishment Through FY09	FY10 Approved Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate
\$90,000	\$92,697.58	\$255,740.71	\$110,000	\$110,000	\$110,000	\$110,000

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**Start Date:** FY07

**Expected Duration:** FY55

**Long-term Goal:** Pre- and post-development monitoring of covered bat species.

**Conservation Measures:** MRM1, MRM2 (WRBA, WYBA, CLNB, PTBB), WRBA1, WYBA1

**Location:** Beal Lake, Havasu NWR; ‘Ahakhav Tribal Preserve, CRIT; PVER, California; CVCA, Cibola NWR Unit 1, Cibola, Arizona; Imperial Ponds, Imperial NWR, Arizona; Laguna Conservation Area, Arizona.

**Purpose:** Monitor bat use of habitat creation sites to provide data for the adaptive management process and develop management guidelines for created habitat sites. Pre- and post-development monitoring for the presence/absence of covered bat species will be conducted following a new study design developed in 2008. Information obtained through this work task, in conjunction with D9, will help determine the distribution of these species.

**Connections with Other Work Tasks (past and future):** Post-development bat monitoring will be conducted at habitat creation sites listed in Section E. In addition, information obtained from this work task may be used to provide data to D9.

**Project Description:** Post-development monitoring will utilize a study design developed in 2008 that will compare bat activity between five habitat types (agricultural fields, saltcedar stands, mesquite created habitat, sapling cottonwood-willow created habitat, and intermediate cottonwood-willow created habitat). Acoustic monitoring will be conducted at habitat creation sites, including ‘Ahakhav, CVCA, PVER, Cibola NWR Unit #1, Beal Lake, and Imperial Ponds. These surveys will utilize either active or stationary Anabat systems to record bat echolocation calls for presence/absence surveys. A capture program will also be used in at least four of the above-mentioned sites to acquire reference acoustic calls and determine age, sex, and reproductive status of covered bat species. These surveys will provide data on foraging habitat and use by

covered species. Bat surveys will be conducted before and after habitat creation utilizing Anabat, Sonobat, infrared cameras, stationary detection equipment, and mist netting, where appropriate.

**Previous Activities:** All sites were monitored in FY07 using both acoustic and capture techniques.

**FY09 Accomplishments:** Quarterly post-development bat monitoring was conducted utilizing Anabat bat detectors in seven LCR MSCP habitat creation areas, including Beal Lake Habitat Restoration, 'Ahakhav Tribal Preserve, Palo Verde Ecological Reserve, Cibola Valley Wildlife and Conservation Area, Cibola NWR Unit #1 Conservation Area, Pratt Restoration, and the Imperial Ponds Conservation Area. The principal goal of this monitoring is to assess seasonal use of the restoration sites by the two covered bat species (western red bat and western yellow bat), and the two evaluation species (pale Townsend's big-eared bat and California leaf-nosed bat).

The new study design that was established in 2008 was continued successfully in 2009. Monitoring was conducted in October 2008, and in January, April, and July 2009. A total of 3,611 minutes of bat activity were recorded at the Beal Restoration site, and all four LCR MSCP species were recorded. A total of 11,823 minutes of bat activity were recorded at the 'Ahakhav Tribal Preserve, and all four LCR MSCP species were recorded. A total of 2,265 minutes of bat activity were recorded at PVER, and all four LCR MSCP species were recorded in low numbers. A total of 1,866 minutes of bat activity were recorded at CVCA, and three of the four LCR MSCP species (western red bat, western yellow bat, and California leaf-nosed bat) were recorded. A total of 5,726 minutes of bat activity were recorded at Cibola NWR, and all four LCR MSCP species were recorded. A total of 4,223 minutes of bat activity was recorded at Imperial NWR, and three of the four LCR MSCP species (western red bat, western yellow bat, and California leaf-nosed bat) were recorded. A total of 1,268 minutes of bat activity were recorded at Pratt, and yellow bat activity and California leaf-nosed bat activity were recorded.

The Beal permanent acoustic station has continued operating with minimal problems. A second permanent bat acoustic station was established at 'Ahakhav Tribal Preserve in April using a new bat detector that collects acoustic data using full spectrum .wav files. These data will be analyzed using Sonobat software that will be automated in the future.

A bat capture program utilizing mist nets and harp traps was conducted between February and September. Four habitat creation areas were sampled, including 'Ahakhav Tribal Preserve, CVCA, Cibola NWR Unit #1, and Pratt. A total of 526 individual bats from 12 species were captured among the four sites. Three LCR MSCP target species (western red bat, western yellow bat, and California leaf-nosed bat) were captured. The western red bat was first captured at 'Ahakhav in February to confirm the species' presence from acoustic data taken in February. Additional red bats were captured at 'Ahakhav and CVCA in late summer. Yellow bats were captured at 'Ahakhav, CVCA, and Pratt. California leaf-nosed bats were captured at all four sites. The Arizona myotis (*Myotis*

*occultus*) was also captured at 'Ahakhav and was confirmed using genetic sampling. This is the first record of the Arizona myotis since 1945 along the LCR, where this species was presumed extirpated.

**FY10 Activities:** Acoustic surveys will continue at all sites sampled in 2009. Pre-development acoustic surveys will begin at the Laguna Conservation Area. Capture surveys will continue at 'Ahakhav, CVCA, and Cibola Unit #1. The Pratt site will be replaced by PVER due to the success at the similar CVCA. The two permanent stations will continue to collect data and the new Sonobat software will be purchased.

**Proposed FY11 Activities:** Once FY10 acoustic data is analyzed, it will be determined whether enough data has been collected to infer habitat preferences for covered species. If so, the acoustic surveys may focus more on permanent acoustic stations at each site rather than quarterly short-term monitoring. Capture surveys will continue and will also be used to capture red and yellow bats for the upcoming telemetry project (C35) and to better determine seasonal use of habitat creation areas on a finer scale.

**Pertinent Reports:** *Post-Development Bat Monitoring of Habitat Creation Areas along the Lower Colorado River – 2009 Acoustic Surveys* will be posted on the LCR MSCP Web site. *Post-Development Bat Monitoring of Habitat Creation Areas along the Lower Colorado River – 2009 Capture Surveys* will be posted on the LCR MSCP Web site.