

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

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
\$110,000	\$119,649.91	\$489,153.16	\$100,000	\$125,000	\$125,000	\$125,000

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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; PVER, California; CVCA, Cibola NWR Unit 1, Cibola, Arizona; Imperial Ponds, Imperial NWR, Arizona; Laguna Conservation Area, Arizona.

Purpose: 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 (Townsend’s big-eared bat and California leaf-nosed bat). 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 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 includes both acoustic and capture methods. Acoustic monitoring will be conducted at habitat creation and demonstration sites, including CVCA, PVER, Cibola NWR Unit #1, Beal Lake, and Imperial Ponds. These surveys will utilize either active or passive Anabat systems to record bat echolocation calls for presence/absence surveys. A capture program will also be used in 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: Sites were monitored from FY07 to FY10 using acoustic and/or capture techniques.

FY11 Accomplishments: Acoustic surveys were modified in 2011 to switch from the habitat comparison study to more wide-scale sampling using driving transects, in addition to adding long-term stations at CVCA and Cibola NWR. Driving transects were conducted three times (May, July, and September) at each site. These driving transects were not statistically robust and were therefore discontinued after the FY11 field season.

Pre-development acoustic surveys were conducted at Laguna Conservation Area using six Anabat bat detectors deployed across the site during three different survey periods (January 24-31, May 18-31, and August 19-September 8) for a total of 43 nights. The four long-term acoustic stations at Beal, PVER, CVCA, and Cibola NWR all had some technical malfunctions at different times throughout the year. All issues appear to be resolved. Acoustic data is still in the process of being analyzed.

Capture surveys were conducted at three LCR MSCP habitat creation areas (PVER, CVCA, and Cibola NWR), and also at the 'Ahakhav Tribal Preserve because of the high diversity of bats found at the site. A total of 737 bats of 13 species were captured across the four sites. Western red bats, western yellow bats, and California leaf-nosed bats were captured at PVER and CVCA. Western yellow, California leaf-nosed bats, and one Townsend's big-eared bat were captured at 'Ahakhav. California leaf-nosed bats were the only LCR MSCP species captured at Cibola NWR. This was the first year that the Townsend's big-eared bat has been captured at a habitat creation site. Some of the red and yellow bats captured under this work task were radio-tracked for the roosting characteristics study under C35.

FY12 Activities: The two types of detectors being used in long term stations will continue to be evaluated while awaiting a southwestern regional version of Sonobat 3, which promises to automate much of the analysis process. Capture surveys will also continue with the possible addition of PIT tagging all red and yellow bats captured.

Proposed FY13 Activities: An alternate broadscale acoustic survey will be developed and tested. The two types of detectors used for the long term stations will also be evaluated. If the full spectrum detector that uses Sonobat 3 proves to reduce analyzing time, the other stations may be converted to the full spectrum detector. Additional long term stations will be added to new conservation areas as needed. Capture surveys will also continue.

Pertinent Reports: *Post-Development Bat Monitoring of Habitat Creation Areas along the Lower Colorado River – 2011 Acoustic Surveys*, and *Post-Development Bat Monitoring of Habitat Creation Areas along the Lower Colorado River – 2011 Capture Surveys* will be posted on the LCR MSCP website.