

Work Task C36: Elf Owl Detectability Study

FY12 Estimate	FY12 Actual Obligations	Cumulative Expenditures Through FY12	FY13 Approved Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate
\$20,000	\$13,383.19	\$251,868.95	\$0	\$0	\$0	\$0

Contact: Beth Sabin, (702) 293-8435, lsabin@usbr.gov

Start Date: FY09

Expected Duration: FY12

Long-term Goal: To develop a long-term elf owl monitoring field protocol for the LCR MSCP.

Conservation Measures: MRM1 (ELOW).

Location: Bill Williams River.

Purpose: To conduct a detectability study on a known population of elf owls that breed in riparian habitat.

Connections with Other Work Tasks (past and future): This study will be used to modify the survey protocol used for system-wide (D13) and post-development (F2) presence/absence elf owl surveys.

Project Description: Data to support the current tape-playback presence/absence elf owl survey protocol are lacking. A detectability study will be conducted on a known population of elf owls that breed in riparian habitat along the Bill Williams River.

The objectives of this study are to: 1) systematically test how varying the parameters of call-broadcast surveys (distance to owl, time of night, decibel level of call playback, habituation, duration of call playback) affects the response type and response time of elf owls in known locations, 2) recommend survey protocols that optimize detectability, and recommend the number of seasonal surveys and amount of long-term survey effort required for effective population monitoring, and 3) quantify the likelihood of detection if the recommended methods are implemented. Data from this study may be used to modify the existing elf owl presence/absence survey protocol.

Previous Activities: The study design for the elf owl detectability study was completed in FY10. Field work was conducted at the Bill Williams River NWR from 1 March to 2 June in 2010 and 2011. Passive listening and call-playback surveys were conducted along survey routes in the interior and along the edges of the riparian habitat to inventory elf owls and determine their nesting sites and/or activity centers. Seven territories were

detected in 2010 and eight territories were detected in 2011. Five of the territories were in the same location in 2010 and 2011.

Capturing and radio tagging of the elf owls occurred in 2010 and 2011 opportunistically. Capturing the elf owls was around 50% successful. For the detectability trials radio telemetry was not a requirement.

Detectability experiments were conducted on seven pairs in 2010 and five pairs in 2011 from 9 April to 21 June. Parameters tested were distance and time. Three different call-playback distances were tested (100 m, 250 m, and 450 m) and three different times of night (Dusk: 30 minutes after sunset until 12 a.m., Midnight: 12 a.m. to 3 a.m., and Predawn: 3 a.m. until 30 minutes before sunrise) were tested. In 2011, tests were conducted within open upland habitat and dense riparian habitat. Responsiveness of elf owls was highest at dusk (78%) at the 100 m distance (77%) and in low and intermediate illumination (63% and 65%, respectively). The majority of elf owls (85%) responded within two minutes of the start of the call-broadcast. Elf owls exhibited some movement in response to call-broadcast; however, movement patterns differed greatly between the individual owls.

In 2011, digital recordings of elf owl vocalizations were obtained. A peeper cam was used to locate and visually examine the contents of three different elf owl nest cavities and to photograph owls in the nest cavities. On the same date, breeding stage was different among the three territories, ranging from presence of eggs to presence of feathered nestlings.

A draft final report incorporating both years of data was prepared (2010 and 2011). A draft recommended call-broadcast survey protocol was prepared giving recommended distance between points, call-broadcast listening time at each point, illumination levels, time of night surveys shall be conducted, decibel level of call-broadcast, time of year surveys shall take place, and number of surveys in a season. A likelihood of detection of 95% was calculated for the recommended survey protocol.

FY12 Activities: The study report and the recommended elf owl survey protocol were reviewed and finalized. All deliverables such as tabular and spatial data, metadata, photographs, and digital recordings were received. The final project report and protocol was peer reviewed. The elf owl monitoring protocol for system-wide monitoring within the LCR MSCP planning area has been finalized and is ready to use for surveys.

FY13 Activities: Closed in FY12. The data and survey protocol created through this project will be used in FY 14 for the Elf Owl Habitat Modeling project that is part of the C24 work task.

Pertinent Reports: The report, *Elf Owl Detectability Study Report 2010 and 2011*, is posted on the LCR MSCP website. The study plan is available upon request.