

## Work Task D12: Lowland Leopard Frog and Colorado River Toad Surveys

FY16 Estimate	FY16 Actual Obligations	Cumulative Expenditures Through FY16	FY17 Approved Estimate	FY18 Proposed Estimate	FY19 Proposed Estimate	FY20 Proposed Estimate
\$35,000	\$31,285.23	\$468,420.78	\$35,000	\$0	\$0	\$0

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**Start Date:** FY10

**Expected Duration:** FY17

**Long-Term Goal:** To document the existing populations of lowland leopard frogs (*Rana yavapaiensis* = *Lithobates yavapaiensis*) and Colorado River toads (*Bufo alvarius* = *Incilius alvarius*) along the lower Colorado River (LCR) and understand their habitat requirements

**Conservation Measures:** CRT01 and LLFR1

**Location:** Within Reaches 3–7 of the LCR MSCP planning area and the Bill Williams River

**Purpose:** To better define the distribution, habitat requirements, and factors limiting the distribution of lowland leopard frogs and Colorado River toads using a system-wide monitoring approach

**Connections with Other Work Tasks (Past and Future):** Populations that are found during system-wide surveys may be included in the habitat study conducted under Work Task C62.

**Project Description:** System-wide surveys for lowland leopard frogs and Colorado River toads will be conducted along the LCR and the Bill Williams River. It is unknown if any populations still exist along the LCR. Lowland leopard frogs have been observed on the Bill Williams River, and surveys will help determine the distribution of this population. Habitat characteristics will also be gathered in conjunction with surveys where the presence of either species is confirmed.

**Previous Activities:** In FY11, 139 locations along the LCR and the Bill Williams River were surveyed. Neither species was documented on the main stem LCR. No lowland leopard frogs were found at Planet Ranch, but six Colorado River toads were found. Lowland leopard frogs and Colorado River

toads were found on the Bill Williams River, east of Planet Ranch, in FY12 and FY13. In FY14, a survey methodology study was implemented to evaluate different survey methods: visual encounter surveys, visual encounter surveys with an audio broadcast call/response component, funnel trap arrays, environmental deoxyribonucleic acid (eDNA) sampling, and digital automated recorder recordings. Analyses to compare the detection rates of each survey method are ongoing. A cost-corrected detection probability was developed to account for both the amount of effort required to survey and the probability of detecting an animal. Based on those two criteria, the detection probability suggested that the visual encounter survey with an audio broadcast call/response component was the most cost-effective method for detecting lowland leopard frogs. This method was also the most cost effective for detecting Colorado River toads, but other concerns, such as labor needs and equipment costs, will determine which method is the best for a given application.

**FY16 Accomplishments:** Surveys were implemented in February to compare the effectiveness of methods. In July, during surveys for Colorado River toads, no surface water or indications of recent flow were observed, and it was apparent that no significant monsoon events had reached the areas of the Bill Williams River monitored. All audio recording devices were checked monthly and removed in the first week of October. Analyses of audio files from all calling amphibians are ongoing. Results of eDNA collection conducted in February along the Bill Williams River were received in September and indicated the presence of lowland leopard frog and Colorado River toad deoxyribonucleic acid (DNA) in the majority of the samples.

**Proposed FY17 Activities:** Data analyses and the final report will be completed. The final report will include an analysis of the effectiveness of the monitoring methods and costs of detecting lowland leopard frogs and Colorado River toads using these methods.

This work task will be closed in FY17.

**Proposed FY18 Activities:** This work task was closed in FY17.

**Pertinent Reports:** The FY15 and FY16 annual report will be posted on the LCR MSCP Web site upon completion.