Work Task D10: System Monitoring of Rodent Populations

FY12 Estimate	FY12 Actual Obligations	Cumulative Expenditures Through FY12	FY13 Approved Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate
$40,000	$20,104.65	$105,594.36	$40,000	$40,000	$40,000	$40,000

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Start Date: FY11

Expected Duration: FY55

Long-term Goal: System monitoring to document presence of possible source populations of LCR MSCP covered rodents along the LCR.

Conservation Measures: AMM1, AMM6, MRM2, DPMO1, CRCR1, CRCR2, YHCR1, and YHCR2.

Location: System-wide along the lower Colorado River, including the Bill Williams River.

Purpose: Implement presence/absence sampling for system monitoring of LCR MSCP covered and evaluation rodent species. This survey is being conducted to determine the extent of the geographic range limits of the covered and evaluation rodent species: Yuma hispid cotton rat, the Colorado River cotton rat, and the desert pocket mouse. Another goal of this survey is to document all possible source populations of immigrants to restoration sites, to the extent practicable. Surveys under this work task are only at non MSCP habitat creation areas. Surveys at MSCP habitat creation areas are conducted under work task F3.

Connections with Other Work Tasks (past and future): System monitoring will be used in conjunction with post-development monitoring (F3) and small mammal research (C27) to determine habitat needs and likely source populations for covered rodent species. Data will be used in future habitat creation project design under Section E.

Project Description: This survey is designed to detect the presence the Colorado River cotton rat and the Yuma hispid cotton rat in an attempt to document populations on or near the LCR. Furthermore, Reclamation will conduct surveys to locate desert pocket mouse habitat that could be affected by LCR MSCP habitat creation-related activities to determine whether the habitat is occupied by this species.

Ecological niche models (ENM) for each of the species will be developed using historic collection data and museum locality information. Ground, boat, and aerial surveys for potential habitat followed by presence/absence trapping will be concentrated in the core predicted areas from the ENM. Surveys will also be conducted in the extreme edges of

each species' range in an attempt to document the outer limits of their respective distributions within the LCR MSCP planning area. Particular attention will be given to the area surrounding the proposed barrier between the two cotton rat species, the Trigo and Chocolate Mountains, to determine if the species are in fact geographically isolated by this barrier. Potential site surveys will be based on the ENM, habitat availability in the area, and expert knowledge. Because cotton rat populations are known to experience extreme cycles, multiple sampling occasions across different years and seasons will be conducted before determining that a species is absent from a particular site. Potential genetic analyses, including karyotyping (genetic analysis) and DNA sequencing, are being investigated to better understand direction and extent of dispersal of *Sigmodon* to the LCR and to clarify the distribution of DPMO.

Previous Activities: Surveys have been conducted in potential Colorado River and Yuma hispid cotton rat habitat within the LCR MSCP program area to determine each species range and collect genetic samples.

FY12 Accomplishments: Surveys were conducted within previously known locations to determine the stability of those populations. Areas surveyed included potential habitat near Yuma, Cibola, Blythe, Needles, and Laughlin. CRCR was found for the first time at the Big Bend Conservation Area along the transition area between marsh, grassland, and shrub habitat. This was the first record in Nevada in over 50 years. CRCR have continued to have been found at Pintail Slough at Havasu NWR, and the PVER accretion bench as well as within most habitat creation areas. Surveys were conducted for the Yuma Hispid Cotton Rat near Yuma East Wetlands. A new location for YHCR was found along the Gila River just east of highway 95.

FY13 Activities: System-wide rodent surveys for covered species will continue. Emphasis will be on aerial and ground surveys for YHCR habitat from the Trigo and Chocolate mountains south to the Mexican border. Other surveys may include the Bill Williams, Gila River, Laughlin area, and northern Lake Mead.

Proposed FY14 Activities: Surveying areas throughout the LCR system to determine the extent of each species' range will continue and potential source populations for colonization of habitat creation areas will be evaluated. Focus this year will be on improving the knowledge of the range and distribution of the Yuma hispid cotton rat. Only a few isolated small populations have been found compared to the Colorado River cotton rat further north. A long-term monitoring plan that is being designed under work task C27 will be finalized and will be implemented in this work task.

Pertinent Reports: Annual reports will be posted on the LCR MSCP website.