

Work Task D10: System Monitoring of Rodent Populations

FY10 Estimates	FY10 Actual	Cumulative Accomplishment Through FY10	FY11 Approved Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate
\$0	\$0	\$52,197.81	\$65,000	\$40,000	\$40,000	\$40,000

Contact: Chris Dodge, (702) 293-8115, cdodge@usbr.gov

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. YHCR has been detected at several locations in Reach 6; however, a stable or even consistent population has yet to be identified making habitat analysis difficult.

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 determine the presence of rodents: the Colorado River cotton rat and the Yuma hispid cotton rat in an attempt to document all current and any newly established populations on or near the LCR. Furthermore, Reclamation is interested in the geographic limits of the desert pocket mouse, and how future restoration activities may affect the habitat and distribution of this species in reaches 1-3.

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 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: N/A

FY11 Accomplishments: Several areas are being surveyed to better understand *Sigmodon* populations outside of restoration sites. We identified different habitat types that may help in designing appropriate habitat for CRCR and YHCR. We have yet to locate a large source population for YHCR. Karyotype and genetic analyses are being researched for feasibility in determining dispersal from source populations off of the LCR and to potentially clarify the distribution of DPMO.

Proposed FY12 Activities: Coordinate with state and federal resource agencies and other interested parties to implement system-wide rodent surveys for covered species. Emphasis will be on areal and ground surveys for YHCR habitat from the Trigo and Chocolate mountains south to the Mexican border. Other surveys will include the Bill Williams, Gila River, and northern Lake Mead for DPMO.

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