

## Work Task C28: Nest Predation Effects on Riparian Bird Species

FY10 Estimates	FY10 Actual	Cumulative Accomplishment Through FY10	FY11 Approved Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate
\$25,000	\$26,392.77	\$157,132.04	\$0	\$0	\$0	\$0

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**Start Date:** FY09

**Expected Duration:** Closed in FY10

**Long-term Goal:** To determine the effects of nest predation on susceptible bird species, such as the southwestern willow flycatcher, yellow warbler, and Arizona Bell's vireo, and develop potential management actions to lessen these effects.

**Conservation Measures:** MRM1, MRM2 (WIFL, YBCU, VEFL, BEVI, YWAR, SUTI).

**Location:** LCR SWFL life history study sites (D2), including: Topock Marsh, Arizona; Mesquite, Nevada; Pahrangat NWR, Nevada; and areas where larger populations of open cup nesters currently exist, such as Bill Williams River NWR, Arizona.

**Purpose:** Predation on open-cup nesting passerines is one of the main reasons for nest failure. The purpose of this study is to verify identity of nest predators of open cup passerines (such as the SWFL, BEVI, and YWAR), determine habitat and nest microclimate variables that are related to nest predation, and determine how nest microclimate influences nest predation in order to develop tools for managing restoration areas that would deter predators and create nest sites necessary for maintaining productive LCR MSCP covered bird populations.

**Connections with Other Work Tasks (past and future):** The first year of this work task was completed under G3.

**Project Description:** This study will gather information pertaining to relative nest predation pressures and predator communities by determining identity of nest predators at real and artificial nests, determining interaction between patch size, surrounding landscape matrix, and potential for nest predation, linking female behavior and nest microclimate with nest predation, and evaluating the potential for nest predation to be offset if nest microclimate can be manipulated to reduce predation pressure. Nest predator communities will be assessed by documenting predator visits to real nests of species such as the SWFL, BEVI, and YWAR by utilizing nest cameras. In addition, artificial nests with cameras will be placed at sites differing in size and landscape

characteristics. An additional set of artificial nests with plasticine (clay eggs) and quail eggs, but without cameras, will be used to determine whether relative nest predation rate differs among areas that differ in size and broader habitat context. Utilizing both real and artificial nests will not only be able to economically cover more areas, but will also test the validity of utilizing artificial nest technique. Nest cameras will record both nest predation events as well as female behavior associated with nesting (such as time incubating, time off nest). Nest microclimate will be measured utilizing temperature/humidity data loggers once the nests have been vacated. Three habitat types will be compared for predator pressure.

**Previous Activities:** Video cameras were installed at natural and artificial nests to determine predator composition of nests of LCR open cup nesting passerines. Cameras were camouflaged to reduce visual impact, and utilized infrared to detect night predators. Artificial nests contained plasticine eggs to retain distinctive tooth or beak marks that allowed identity of potential nest predators. Nests were monitored in several areas of the three habitat types. Microclimate was measured at each nest utilizing temperature/humidity data loggers directly below the nest once it has been vacated, either due to predation, abandonment, or successful fledging. Cameras were also utilized to determine female behavior at nest. Results indicate nests placed in mesquite trees had higher rates of nest predation by rodents than those placed in tamarisk, cottonwood or willow. Brown-headed Cowbirds and yellow-breasted chats were the two most common species recorded at artificial nests, followed by Bewick's wrens and Bullock's orioles. The overlap in nest predators recorded at artificial and real nests indicates that artificial nests may be an effective rapid-assessment technique that could be used to assess potential nest predators at sites of management interest.

**FY10 Accomplishments:** This project was originally scheduled to be closed by the beginning of FY10 but was extended for a third summer, and the final report is due in 2011. In conversations with the USFWS, it was determined that a third year of recordings of nest predation events would benefit both Reclamation and the USFWS. The USFWS contributed to the third year.

Cameras were placed at 17 nests in Pahrnagat National Wildlife Refuge, at 14 nests in Key-Pittman Wildlife Area, and at 15 nests in Mesquite, Nevada. At Pahrnagat, cameras were placed on 11 willow flycatcher nests, 2 song sparrow nests, 2 yellow-breasted chat nests, 1 yellow warbler nest, and 1 Bell's vireo nest; there were 8 nest predation events recorded. At Key-Pittman, cameras were placed on 13 willow flycatcher nests and 1 yellow warbler nest; there were 3 nest predation events recorded. At Mesquite, cameras were placed on 5 willow flycatcher nests, 1 yellow-breasted chat nest, 1 song sparrow nest, and 8 yellow warbler nests; there was 1 predation event recorded involving a king snake.

**FY11 Activities:** Due to the efficiency of the study, this work will continue for one more summer using FY10 funds. No additional funding is needed in FY11. A final report will be completed at the end of FY11.

**Proposed FY12 Activities:** Closed in FY10.

**Pertinent Reports:** The annual report summarizing the first two years of the nest predation study, *Real and Artificial Nest Predation along the Colorado River*, and the final report will be posted on the LCR MSCP website when available. The study plan is available upon request.