Work Task C28: Nest Predation Effects on Riparian Bird Species

FY09 Estimates	FY09 Actual	Cumulative Accomplishment Through FY09	FY10 Approved Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate
$145,000	$130,739.27	$130,739.27	$25,000	$0	$0	$0

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Start Date: FY09

Expected Duration: 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, Pahranagut 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: 1) determining identity of nest predators at real and artificial nests, 2) determining interaction between patch size, surrounding landscape matrix, and potential for nest predation, 3) linking female behavior and nest microclimate with nest predation, and 4) 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 allow this study to economically cover more areas, but will also test the validity of utilizing artifical nest technique. Nest cameras will record 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: This was a new start in FY08 under G3.

FY09 Accomplishments: Video cameras were installed at natural and artificial nests to determine predator composition on 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 designed to retain distinctive tooth or beak marks, allowing identification 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 was vacated, either due to predation, abandonment, or successful fledging. Cameras were also utilized to determine female behavior at the nest.

Results indicate that 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 Activities: A final report is due in 2010.

Proposed FY11 Activities: Closed in FY10.

Pertinent Reports: The final report will be posted on the LCR MSCP Web site. The study plan is available upon request.