

Work Task C6: Insect Population Biology in Riparian Restoration Sites

FY05 Estimate	FY05 Actual	Cumulative Accomplishment Through FY05	FY06 Approved Estimate	FY07 Proposed Estimate	FY08 Proposed Estimate	FY09 Proposed Estimate
\$0	\$0	\$0	\$126,000	\$30,000	\$40,000	\$40,000

Contact: Bill Wiesenborn, (702) 293-8699

Start Date: FY06 **Expected Duration:** FY09

Long-Term Goal: Species Research

Conservation Measures: WIFL1, WIFL2, YBCU1, YBCU2, GIFL1, GIWO1, VEFL1, BEVI1, YWAR1, SUTA1, WRBA2, WYBA3, CLNB2, and PTBB2

Location: Topock Marsh (E17), Beal Lake Riparian and Marsh (E1), Palo Verde Ecological Reserve (E4), Cibola Valley Conservation Area (E5), and AZ/CA.

Purpose: Develop a simple to use monitoring method that is specific to insect species eaten by LCR MSCP covered birds and bats.

Connections with Other Work Tasks (past and future): This Work Task developed from Southwestern Willow Flycatcher Prey Base Study (C20). This previous study, identifies insects and spiders utilized as a food source by the SWFL. Abiotic factors affecting insect populations in riparian restoration sites is being studied under Work Task C5.

Project Description: Eight species of birds (southwestern willow flycatcher, yellow-billed cuckoo, gilded flicker, Gila woodpecker, vermilion flycatcher, Bell's vireo, Sonoran yellow warbler, summer tanager) and four species of bats (western red bat, western yellow bat, California leaf-nosed bat, pale Townsend's big-eared bat) covered in the LCR MSCP consume insects. Creating and maintaining habitat for these species requires providing an adequate supply of insects for food. This may be more difficult at the LCR MSCP habitat creation sites being developed, because riparian vegetation is being planted in non-riparian farmland (i.e. where water tables are lowered, and spring flood flows are absent). Growing plants will not by itself guarantee insect abundances large enough to feed and support bird and bat populations. In addition, earlier work determined riparian birds feed on insects that have emigrated from non-riparian habitats such as marshland. Providing an adequate food supply for riparian birds and bats will require determining insect sources, developing techniques for increasing their abundances, and developing methods for monitoring their populations.

The initial objectives of this project are to:

1. Determine host plant species for insects utilized as a food source by LCR MSCP vertebrates.

2. Recommend activities for increasing their abundances.
3. Develop a method for monitoring their populations.

Sources of insects will be determined by sampling and identifying populations. Activities for increasing their populations will be recommended by locating information on their biological requirements in the literature. A monitoring method will be developed by testing different trap designs at LCR MSCP habitat creation sites.

FY05 Accomplishments: This is a new start in FY06.

FY06 Activities: A preliminary study, comparing trap designs (attractant colors) for monitoring riparian insects in different restored plant communities at Beal Lake (Havasu NWR), has been completed. Reclamation and University of California, Davis are identifying flower-visiting insects eaten by SWFL at Topock Marsh to determine their sources. From these data recommendations will be made for increasing populations of these insect species at Topock Marsh and at LCR MSCP habitat creation sites.

Proposed FY07 Activities: Continue testing of insect-monitoring traps at CVCA. Continue determining (from literature) sources of flower-visiting insects eaten by birds and developing recommendations for increasing their abundances. Additional work determining insects other than those that visit flowers, such as aquatic insects, that are utilized as a food source by birds will also be performed.

Pertinent Reports: Study plan available upon request.