

Work Task C24: Avian Species Habitat Requirements

FY10 Estimates	FY10 Actual	Cumulative Accomplishment Through FY10	FY11 Approved Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate
\$200,000	\$165,079.12	\$629,212.50	\$175,000	\$200,000	\$200,000	\$200,000

Contact: Beth Sabin, (702) 293-8435, lsabin@usbr.gov

Start Date: FY08

Expected Duration: FY16

Long-term Goal: Develop habitat suitability index models for covered avian species.

Conservation Measures: MRM1 (CLRA, LEBI, BLRA, WIFL, YBCU, ELOW, GIFL, GIWO, VEFL, BEVI, YWAR, SUTA).

Location: LCR MSCP project area.

Purpose: Determine habitat requirements for covered marsh and riparian bird species, including Yuma clapper rail (CLRA), least bittern (LEBI), California black rail (BLRA), southwestern willow flycatcher (SWFL), yellow-billed cuckoo (YBCU), elf owl (ELOW), gilded flicker (GIFL), Gila woodpecker (GIWO), vermilion flycatcher (VEFL), Arizona Bell's vireo (BEVI), Sonoran yellow warbler (YWAR), and summer tanager (SUTA).

Connections with Other Work Tasks (past and future): Information gained from this work task will be used to design, create, and maintain marsh and cottonwood-willow habitat described in Section E that targets covered bird species. Information will also be used to maintain existing habitat as described in H1. Data collected in work tasks D2, D3, D5, D6, D7, and F2 will be used to help define habitat requirements.

Project Description: The HCP requires the creation of a minimum of 512 acres of marsh habitat for three covered marsh bird species. All 512 marsh acres should provide habitat for CLRA and LEBI, while 130 acres will provide habitat for BLRA. Studies will be conducted to determine habitat requirements for marsh bird surveys. Created habitats in turn will be designed in a mosaic to provide the characteristics required by each species. In addition, potential limiting factors such as water fluctuation, percent cover by plant species, minimum patch size, and selenium bio-accumulation may be determined.

The HCP also requires the creation of a minimum of 5,940 acres of cottonwood-willow habitat and 1,320 acres of honey mesquite habitat for nine covered riparian obligate bird species. Habitat requirements for these covered species are not fully understood. A study will be conducted to determine habitat requirements for riparian obligate species. Results

from this study may be utilized in created habitats. Riparian obligate LCR MSCP covered birds included in this study are the Sonoran yellow warbler, Arizona Bell's vireo, summer tanager, Gila woodpecker, vermilion flycatcher, and the gilded flicker. Habitat associations for the southwestern willow flycatcher (D2) and the western yellow-billed cuckoo (D7) are covered under other work tasks.

Previous Activities:

Restoration of managed marsh units to benefit black rail and other marsh birds:

Vegetation surveys were conducted in 2009 and water depth data were downloaded from all monitoring wells. Bi-weekly marsh bird surveys were conducted at Imperial NWR in fields 16 and 18 throughout the breeding season in 2009. The locations of all black rails, clapper rail, and least bitterns were mapped in both fields. Black rails were first detected in fields 16 and 18 in April and July of 2009. Yuma clapper rails were consistently detected in Field 16 throughout the summer, with a high of 21 birds. In Field 18, clapper rails were also detected in 2009.

Yellow-billed cuckoo habitat modeling: Two preliminary multivariate models of yellow-billed cuckoo breeding habitat were developed in 2009. This GIS-based model for quantifying occupied yellow-billed cuckoo breeding habitat may help in determining essential factors for landscape level habitat development.

Habitat associations for riparian obligate species: The habitat sampling methods used for this study were developed under System Monitoring for Riparian Obligate Avian Species (D6). Location of each territory and general bird surveys were conducted under D6, but all habitat research and data collection for each territory was conducted under this work task.

Territories per covered species were paired up with non-use sites from the same geographic and habitat type. In 2008, habitat data was gathered at 46 sites. In 2009, habitat data was gathered at an additional 145 sites, for a total of 191 use and non-use sites for the two-year period (2008-2009). Habitat assessments were not conducted for the gilded flicker due to lack of gilded flickers detected in the bird surveys. A combination of landscape variable assessment, basic characterization of the vegetation cover types, and a microhabitat description with a point intercept method were used to assess habitat.

FY10 Accomplishments:

Habitat associations for riparian obligate species: In 2010, habitat data was gathered at additional locations for the summer tanager, Gila woodpecker, and vermilion flycatcher. Overall, habitat association data were collected for the Arizona Bell's vireo, Sonoran yellow warbler, Gila woodpecker, vermilion flycatcher, and summer tanager. A preliminary habitat suitability model was created for these species from the three years of data (2008-2010).

Gila woodpeckers were associated with large trees and snags. Vermilion flycatchers were associated with high canopy cover and areas devoid of upland habitat and saltcedar. Arizona Bell's vireo were associated with high canopy cover and large trees particularly cottonwood, and shrub-sized mesquite, but avoided large patches of upland habitat. Sonoran yellow warblers were associated with overall dense woodland covers, particularly cottonwood and willow, but largely avoided mesquite and patches of upland habitat. Summer tanagers were associated with high canopy cover and large cottonwood and willow trees. Gilded flickers were not detected in the LCR MSCP planning area during the last three years; therefore, no habitat assessments for this species were possible.

Yellow-billed cuckoo habitat modeling: A final report summarizing the results of the GIS habitat model has been submitted for review. The GIS models examined the effects of landscape-scale habitat variables on cuckoo distribution and identified features that constituted high quality cuckoo habitat within the LCR MSCP planning boundaries. Existing data on cuckoo distribution and abundance within the planning area and in both the Verde River and San Pedro River watersheds were used to develop and test the model. A probability map depicting the likelihood of cuckoo habitat was created and tested with a set of known cuckoo locations from 2007. The model was then extrapolated to reaches of the Verde and San Pedro rivers and tested with additional known cuckoo locations. A vegetation type model showed a negative correlation with saltcedar, and a positive correlation with cottonwood-willow vegetation types.

FY11 Activities:

Habitat associations for riparian obligate species: More detailed habitat models for the Sonoran yellow warbler, Gila woodpecker, Arizona Bell's vireo, and summer tanager will be created during this five-year period. These models will add to the preliminary models developed from 2008 to 2010. The methodology of the habitat assessments from 2011 to 2015 will be more detailed than the ones conducted from 2008 to 2010 by including additional vegetation parameters and microclimate data. Fifty use and non-use sites will be conducted per species over the five-year period (10 per year).

FY12 Proposed Activities:

Habitat associations for riparian obligate species: Habitat assessments for the new detailed models (2011-2015) will be continued to be conducted in 2012. Vegetation and microclimate data will continue to be collected for the Sonoran yellow warbler, Gila woodpecker, Arizona Bell's vireo, and summer tanager.

Marsh bird habitat studies: A detailed habitat study will be designed and conducted for the three marsh birds. This study will focus on vegetation and habitat needs for each species and how to incorporate those additional habitat needs into created LCR MSCP marsh habitat.

Pertinent Reports: The *Summary Report on the Lower Colorado River Riparian Bird Surveys, 2008-2010* will be posted on the LCR MSCP website. Final reports for Marsh Bird Habitat Monitoring and Yellow-billed Cuckoo Modeling will be posted when available.