

CONSERVING BIRDS IN THE FLORIDA MANGROVES

By some estimates, it would require approximately 1.12 million mosquito bites to drain every drop of blood from the body of an average adult human. It has also been suggested that the best place to verify this estimate is in the mangrove forests of southern Florida. Here, during those brief periods when mosquitoes are idle, legions of no-see-ums and other biting flies take their place. South Florida's mangrove forests are also home to other larger, living hazards: American crocodiles, American alligators, several species of sharks, and Burmese pythons, to name a few. Add to these the fact that travel within the mangroves is difficult at best, often requiring a boat and keen navigation skills to negotiate the maze of tidal creeks that drain these wetlands.

These and other features, while daunting to humans, have kept many aspects of this beautiful and remarkably wild ecosystem clouded in mystery. Two bird species that occur in the mangroves of Florida, Mangrove Cuckoo and Black-whiskered Vireo, are found nowhere else in North America. Mangroves also harbor two distinct subspecies restricted to this habitat: the Florida Prairie Warbler and Cuban Yellow Warbler. All four of these birds are virtually unstudied in North America. Contrast that with Bicknell's Thrush, which has been the focus of nearly 20 peer-reviewed scientific publications in the last decade alone! We know almost nothing of the specific habitat requirements or population sizes of any mangrove-dependent bird species, and little about their life history, breeding biology, or distribution.

Our ignorance about mangrove birds is especially problematic given the array of threats facing this unique habitat. Nearly all remaining mangroves occur on public land, mostly in Everglades National Park, but even these protected forests are at risk from rising sea levels, the spread of exotic plants and animals, and increasingly destructive hurricanes. Efforts to better understand, predict, and perhaps lessen the consequences of impending changes for mangrove avifauna hinge on our ability to better understand their needs. Further, the mangrove bird community may act as an early-warning system, alerting us to changes in the health of this ecosystem.



Red Mangrove (*Rhizophora mangle*) in bloom.

With all of this in mind, I and my colleague Gary Slater, of Ecostudies Institute, initiated a study that spans nearly all the remaining mangroves in Florida. With support from the Florida Fish and Wildlife Conservation Commission, the National Park Service, and the US Fish and Wildlife Service, we are conducting the first-ever comprehensive survey of mangrove avifauna. Since 2008, we have collected data on the abundance, distribution, and habitat use of birds in mangroves. Our short-term goals are to estimate population size and determine habitat requirements of birds breeding in these forests. Ultimately, we will establish protocols for long-term bird monitoring in mangrove habitats.

Results from our 2008 field season revealed preliminary details about the structure and composition of this unique avian assemblage. We found that the mangrove bird community is dominated by several relatively abundant and widespread species: Northern Cardinal, White-eyed Vireo, and Red-bellied Woodpecker. A second group of species, including American Crow, Florida Prairie Warbler, and Great-crested Flycatcher, occur at more moderate abundances, with detections at approximately 50% of our survey points. The remaining species are rare and patchily distributed. Cuban Yellow Warblers appear to be expanding northward, but are still found only on the Florida Keys and the smaller back keys scattered across Florida Bay. What, if anything, prevents them from colonizing the mainland remains unclear. We rarely detected Black-whiskered Vireos, but they occurred in nearly every type of mangrove forest. Mangrove Cuckoos are perhaps the most enigmatic mangrove-dependent species. We detected only a handful, all along the fringes of Biscayne Bay in southeastern Florida. They almost certainly occur elsewhere, but their secretive behavior may

demand more intensive survey methods if we are to unravel the elusive details of their life history.

Our work in mangroves, slated to continue for several more years, is an important first step, but much remains to be learned. Unfortunately, time is not on our side. Although we hope the scientific community will focus greater efforts on this ecosystem and its birds, amateur ornithologists can play an invaluable role. Answers to the myriad of remaining questions can be gained simply by having more keen observers afield. Are Mangrove Cuckoos migratory—as is currently thought—or resident year-round in Florida’s mangroves? They are rarely found in winter, but this may be because they escape detection when not singing. When do Florida Prairie Warblers begin breeding? We time our surveys based on studies conducted in the Keys (where the species breeds in April and May), yet individuals can be heard singing during January in Everglades National Park. Which, if any, migratory species overwinter in the mangroves of Florida? The breeding season of mangrove-dependent species is thought to be shaped in part by competition from migrants that visit these forests in winter, but we know very little about composition of the bird community inhabiting mangroves outside of the breeding season. Mosquitoes and alligators? No problem. The risks they pose are far outweighed by the many natural history wonders that await visitors to the mangrove forest. Now you can add citizen science among the reasons for your next birding trip to south Florida.

—John Lloyd, Mountain Birdwatch Director (VCE)
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Aerial view of the intricate weave of a mangrove swamp in Everglades National Park.

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