
EXECUTIVE SUMMARY

Florida’s mangroves are home to 6 bird taxa that occur nowhere else in North America: White-crowned Pigeon, Gray Kingbird, Mangrove Cuckoo, and Black-whiskered Vireo, and endemic subspecies of Yellow Warbler and Prairie Warbler. We know very little about any of these birds. Basic patterns of distribution and abundance remain unknown, as do habitat requirements. Effective conservation measures cannot be implemented absent this information. To address these gaps in our knowledge, we initiated a study with the goal of developing a better understanding of the assemblage of birds breeding in the mangroves. We focused on three objectives. We generated estimates of abundance and distribution, quantified habitat associations, and tested and developed a series of protocols for conducting long-term population monitoring of these birds to help inform future conservation efforts.

We conducted 1,425 surveys, each 10 minutes in length, at 347 points on public land in south Florida between 2008 and 2011. We found that the assemblage of mangrove landbirds was numerically dominated by 4 widespread and common species. Red-bellied Woodpeckers were the most widespread and most abundant, followed by Northern Cardinal, Prairie Warbler, and White-eyed Vireo. Two other mangrove-dependent birds, Black-whiskered Vireo and White-crowned Pigeon, were also relatively abundant, although White-crowned Pigeons had a narrow distribution and were not found outside of the Keys and Florida Bay. Black-whiskered Vireos were relatively widespread. Gray Kingbirds and Yellow Warblers were not common overall but were abundant in the few places that they occurred, primarily the Keys and islands of Florida Bay.

Of the mangrove specialists, Mangrove Cuckoo was by far the rarest species. It occurred most commonly in the Ten Thousand Islands region, on the northern end of Key Largo, in the fringing forests along Biscayne Bay in Biscayne National Park, and along some of the major rivers of the southwest coast in Everglades National Park. We suspect that this species is more common than our surveys indicate because it vocalizes infrequently and is thus difficult to detect even when it is present. In an experiment conducted in 2010 and 2011, we found that the use of recorded vocalization significantly increased the rate of detection for cuckoos. We suggest that future efforts to survey or monitor this species should employ call-playbacks during surveys.

We found few significant relationships between vegetation type and the abundance of any species and found no examples in which a species was limited to any particular type of mangrove forest
or shrubland. However, some of the distributional patterns that we observed were likely related to habitat preferences. For example, Pileated Woodpeckers declined in abundance from north to south, which may reflect a similar latitudinal trend in the availability of large trees suitable as nest sites. White-crowned Pigeons were limited to the far southern portion of the study area, probably by the joint distribution of poisonwood, an important food species, and predator-free islands for nesting. Many other species showed restricted distributions that were not obviously related to habitat. Carolina Wren, American Crow, and White-eyed Vireo were rarely found south of the mainland, even though apparently suitable habitat exists further south. Conversely, Yellow Warbler and Gray Kingbird were found only in the Keys and Florida Bay and did not occupy similar vegetation types further north. Future studies of habitat use among mangrove landbirds should focus on how individual birds use their environment, for example by quantifying vegetation structure at nest sites or on individual territories or home ranges.

Implementing a long-term population-monitoring program for mangrove landbirds would significantly enhance prospects for the conservation of this assemblage. Our results indicate that such a program is feasible. Adequate power to detect biologically important trends could be achieved by sampling approximately 150 point every 5 years, which requires a relatively small commitment of resources. Methodological challenges that we identified included determining an appropriate sampling frame, identifying robust methods for accounting for imperfect detectability of birds during surveys, and incorporating methods to enhance the detectability of Mangrove Cuckoos, which proved difficult to detect using standard point-count methods. Identifying reliable funding sources is the primary logistical challenge that must be overcome to implement a monitoring program.