

Identifying Habitat Associations and Management Impacts for Critical Marsh Birds of Indiana: 2018 Progress Report

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Partners

- Audubon Great Lakes
- Dunes-Calumet Audubon Society
- Indiana Audubon Society
- Indiana Department of Natural Resources (IN DNR)
- Indiana University Northwest (Northwest Indiana Restoration Monitoring Inventory)
- Sassafras Audubon Society
- The Nature Conservancy of Indiana



Background and Objectives

Many marsh bird species are experiencing declines throughout their ranges in North America due to rapid loss of suitable wetland habitat. In addition, habitat requirements for marsh bird species and the effects of management activities on their populations in Indiana is poorly known. Therefore, there is a need for a rigorous investigation to elucidate marsh bird abundances and associated habitats throughout the state of Indiana.

The objective of this project is to conduct a marsh bird habitat and management study over three years. This project is building upon past research to identify habitat and landscape characteristics that significantly affect the presence and occupancy of secretive marsh birds. It aims to inform best management practices for marsh birds, so that suitable habitat for marsh birds can be created. This provides land managers throughout Indiana the tools to conserve these species, many of which are of conservation concern. Furthermore, this project will provide the foundation for a larger, more comprehensive monitoring program that will inform statewide population trends of secretive marsh bird species.

Methods

Marsh bird surveys were conducted along survey routes at multiple wetlands across Northwest Indiana. Each survey route was completed on three visits at least ten days apart during three periods (May 1-14; May 15-31; June 1-15) during the spring breeding season. Survey design was adapted from the North American marsh bird monitoring protocol by the U.S. Fish & Wildlife Service. Each survey consisted of five minutes of passive listening followed by six minutes of active audio broadcast of five target species vocalizations. Target species included in the broadcast were King Rail, Least Bittern, Sora (*Porzana Carolina*), Virginia Rail, Common Gallinule, and Pied-billed Grebe (*Podilymbus podiceps*). Surveyors recorded all detections (heard/seen) of eighteen marsh bird species during the 11-minute count period. Focal species that were not included in the broadcast included American Bittern,



American Coot (*Fulica americana*), Black Rail, Black-crowned Night-Heron, Blue-winged Teal (*Anas discors*), Little Blue Heron (*Egretta caerulea*), Marsh Wren, Snowy Egret (*Egretta thula*), Swamp Sparrow (*Melospiza georgiana*), Yellow-crowned Night-Heron (*Nyctanassa violacea*) and Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*).

Habitat data collection included on-the-ground habitat surveys, drone surveys and water level recordings at marsh bird survey points. On-the-ground habitat surveys were conducted in June-July and measured the percent cover of dominant vegetation types and percent cover of open water within 100 meters of each marsh bird point. Drone imagery surveys occurred during May-June at a selection of marsh bird survey points. Water level data were collected by marsh bird monitors at gauges that were installed in open water areas at wetland sites.

Progress to Date

In 2018, 17 bird monitors surveyed 164 points at 20 marsh bird routes for a total of 786 surveys. Eleven bird monitors were volunteers who contributed a total 135 volunteer hours. The other six monitors included partners from The Nature Conservancy and two Audubon Great Lakes contractors. Wetlands were monitored at the following state properties and Indiana Dedicated Nature Preserves: Clark and Pine Nature Preserve, DuPont Natural Area, Gibson Woods & Tolleston Ridges (Lake County Parks), Grand Calumet Tern Site/Seidner Dune and Swale, Indiana Dunes State Park, Ivanhoe Dune and Swale, Pine Station Nature Preserve, Roxana Marsh, Willow Slough Fish & Wildlife Area. In addition, monitoring was conducted at Indiana Dunes National Lakeshore (National Park Service); Highland Heron Rookery, Kankakee Sands (The Nature Conservancy); Wolf Lake (City of Hammond) and wetlands along the Little Calumet River (Little Calumet River Basin Development Commission).

Of eighteen focal species, thirteen were detected in the study area in 2018 including all six species where audio broadcast was used: American Bittern, American Coot, Black-crowned Night-Heron, Blue-winged Teal, Common Gallinule, King Rail, Least Bittern, Marsh Wren, Pied-billed Grebe, Sora, Swamp Sparrow, Virginia Rail and Yellow-headed Blackbird. The most frequent birds detected were Marsh Wren (detected at 40% of survey points; see Figure), followed by Swamp Sparrow (39%), Sora (34%) and Virginia Rail (19.5%). The least frequent species detected were Yellow-headed Blackbird (detected at 1 point), King Rail (2 points) and American Bittern (4 points).

Drone imagery was collected at Indiana Dunes State Park and Goose Pond Fish & Wildlife Area (marsh bird surveys at this site were led by IN DNR).

