

Refinement of National Survey Protocols for Monitoring Secretive Marsh-birds

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Goals and Objectives:

- Compare responses of secretive marsh-birds to call-broadcasts for morning and evening survey periods in Iowa to determine which survey period produces the greatest response rate.
 - Compare seasonal responses of secretive marsh-birds in Iowa by conducting a second round of call-broadcast surveys in June and July, after the standard monitoring period.
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Progress:

All fieldwork was completed in summer 2010 and work during the last year included the completion of a M.S. thesis, preparation of a final project report, and preparation of manuscripts for submission to peer-reviewed journals. Three papers were submitted in 2011; one has been accepted in *Waterbirds*, one is in review in *Wetlands*, and the third is in a second round of revisions for *Wildlife Society Bulletin*. One additional paper that was not part of the M.S. thesis will be submitted sometime in 2012.

Conclusions and Recommendations:

The North American Marsh Bird Monitoring Program has prompted several research projects examining population and habitat ecology of secretive marsh-birds, as well as ongoing research evaluating the efficacy of call-broadcast surveys for monitoring these birds across the U.S. This study aimed to provide information on the population status and habitat associations of secretive marsh-birds in Iowa. We estimated population density ranged from 0.019 birds/ha for least bitterns to 0.12 birds/ha for pied-billed grebes and concluded that density of each species was different in different areas of the state due to contrasting microhabitat characteristics. We argue that distance sampling is a rigorous method that provides a precise population estimate, although the potential exists for violating the second assumption that birds are detected at their initial location.

Our work also found that wetland size was the single habitat characteristic that positively affected probability of occupancy of all species. Water depth and percent coverage and height of emergent vegetation (specifically cattail) were important characteristics affecting wetland occupancy by marsh-birds. These findings provide valuable information about habitat associations of marsh-birds in Iowa and offer guidance to land managers regarding wetland restoration and management.

Lastly, we determined that response rates of secretive marsh-birds vary between early and late in the survey season. Response rates varied by time of day for pied-billed grebes only, although this variation was only evident late in the survey season. We suggest that marsh-bird surveys in Iowa be conducted from 15 May to 15 June during both morning and evening to obtain adequate detections for estimating site occupancy and density. This recommendation deviates from currently accepted recommendations to complete marsh-bird surveys in Iowa between 15 April and 31 May.

Overall, this study increased our general knowledge about population status and habitat associations of secretive marsh-birds in Iowa. Findings from this study will also be contributed to the national database to establish large-scale population trends of these birds. We hope that information from this study will guide future marsh-bird research and monitoring, as well as wetland restoration and management decisions.