Design and Implementation of Secretive Marsh-bird Monitoring Program in Iowa

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Student Investigator: To be recruited spring 2009
Collaborators: Iowa Department of Natural Resources
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Goals and Objectives:

- Refine existing methodology for surveying secretive marsh birds in Iowa
- Design and implement a survey for estimating the abundance of secretive marsh birds (bitterns and rails) in Iowa and suggest how this could be used as a long-term monitoring tool
- Assess general habitat associations of secretive marsh birds in Iowa relative to wetland characteristics

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Introduction:

Many North American marsh birds have undergone recent population declines and have been the focus of increased efforts to monitor population trends (Conway and Gibbs 2005). Some species are state or federally listed (e.g., Clapper and Black rails) while others are game species (e.g., Virginia Rail and Sora), creating a wide array of reasons for initiating a national monitoring program. Traditional bird monitoring programs such as the Breeding Bird Survey do not adequately sample many marsh birds, so a more specialized protocol is necessary (Gibbs and Melvin 1997). This was the motivation behind the development of the National Marsh-Bird Monitoring Program in 2005 (Conway and Timmermans 2005; see http://ag.arizona.edu/srnr/research/coop/azfwru/NationalMarshBird/index.htm, which has a goal of measuring population changes in marsh birds in general and rails and bitterns in particular. The program also emphasizes methodological improvements including comparisons between passive and call-broadcast surveys, variation in calling probability, and comparing observer bias between survey techniques. It advocates the use of aural techniques to monitor marsh birds because many are seldom seen and remain concealed in wetland vegetation. Call-broadcast techniques are employed to increase response rates because these birds infrequently vocalize on their own. Survey data are often suitable for analyses in program Distance (Buckland et al. 2001) and the resulting density estimates can be applied to a suite of questions about their management and long-term conservation.

Nowhere is the need for a marsh-bird monitoring program greater than in the Midwest where the few remaining wetlands are typically small and isolated. Iowa's pre-settlement landscape included vast wetland complexes that were home to a diverse aquatic bird community. Between the late 1800s and the mid-1900s more than 90% of these wetlands were lost when land was converted to agriculture, a pattern that is mirrored on a national scale (Dahl 1990). Additional losses during the last century resulted in a cumulative loss of >99% of Iowa's wetlands. Concurrent with these wetland losses was a decline in native wildlife, including many wetland birds. Today, 23% of Iowa's breeding birds in need of conservation action are dependent on wetlands . Many of these species receive regional and national conservation attention and are classified as Species of Greatest Conservation Need (Zohrer 2006).

The current breeding status of each of these species in Iowa is unknown. Both bitterns are thought to have stable breeding populations in Iowa, but this conclusion is not based on formal studies. Studies of breeding rails took place in northwest Iowa as recently as the 1980s, and comparisons with historical work indicate most species have probably declined (Bennett and Hendrickson 1939, Tanner and Hendrickson 1956a,b). The paucity of recent research on these six species highlights the need for a study that will examine basic components of their life-history and provide guidance on future survey techniques and long-term monitoring. Such a study would integrate nicely with national efforts to better understand this group of birds because many are thought to be declining, some are game species, and effective monitoring methods are still being developed.

Progress:

Currently in the process of recruiting M.S. student to work on the project.

Future Plans:

M.S. student will be recruited by March 2009. This winter we will organize a field effort for summer 2009 and this will be continued into summer 2010.