Wetland Bird Research in Illinois

Several scientists are researching wetland birds in northeastern Illinois to gain the knowledge needed to conserve them. Here I will focus on two such projects, one a detailed study of a single species, the other a study of an entire wetland bird community.

Dr. Charles Paine, of the Max McGraw Wildlife Foundation, has been conducting research on wetland bird populations in northeastern Illinois since 1995. The initial phase of his research was designed to develop methods to measure abundance and nesting productivity of marsh birds, and to provide preliminary information on the status of wetland bird populations in northeast Illinois. Over the past four years, Paine has developed methods of measuring bird abundance using playbacks of tape-recorded wetland bird calls and of locating and monitoring nests of an array of species. Results from the first phase of the study suggest that northeast Illinois wetland birds have high reproductive success compared with bird species nesting in other Illinois habitats (Table 2).

Initially, Paine focused on a relatively small number of high–quality wetlands. His preliminary findings suggest that wetland birds are reproducing well in good habitat, but the findings provide little information on the status of populations across the region. Nor do they tell us why populations appear to be declining. To overcome these shortcomings, Paine initiated a new study in 1998 in cooperation with Nathan Striker who is working on a Ph.D. at Ohio State University. They are measuring wetland bird abundance on 90 northeastern Illinois wetlands, and determining nesting productivity of eight wetland species on a subset of about 25 wetlands. The study design will allow them to test the effects of within–wetland habitat characteristics, wetland size, and wetland isolation on bird abundance and productivity. Because their study sites were randomly selected from an inventory of all wetlands in the region, they will be able to extrapolate beyond their sample of wetlands, and estimate the status of wetland birds across the region. Paine and Stricker are using a relatively new technology called a Geography Information System (GIS). The system uses remotely sensed geographic information usually gathered from satellites to create maps of specific features. This information allows for the analyses of many different features such as drainage, the extent of surrounding development, vegetation, wetland size, the number and size of nearby wetlands, and other components. This quantification enables the scientists to make certain correlations between habitat characteristics and bird abundance and reproductive success.

Some important long–standing questions remain to be answered by Paine and Striker's work: Which is better for the reproduction success of wetland bird species: one large wetland or several small ones? How large does a wetland need to be to provide good reproductive success?

Other questions concerning wetland bird conservation are less easily answered by the kind of study conducted by Paine and Stricker. Marshes are dynamic systems that change drastically with changes in water conditions. A marsh that is productive for wetland birds in a wet year may be unproductive in a dry year, while a deep marsh that provides only marginal habitat for wetland birds in a normal year may be the only remaining refuge in a drought. Marsh birds have adapted to chang-

Table 1.
Wetland Species whose breeding population in Illinois is primarily confined to the northeastern part of the state.

SPECIES	STATE STATUS
Pied–billed Grebe (*Podilymbus podiceps*)*	T
Least Bittern (*Ixobrychus exilis*)*	E
American Bittern (*Botayrys kentiginosus*)	E
King Rail (*Rallus elegans*)^	T
Virginia Rail (*Rallus limicola*)	S
Sora (*Porzana carolina*)	S
Common Moorhen (*Gallinula chloropus*)*	T
American Coot (*Fulica americana*)	N
Sandhill Crane (*Grus canadensis*)	E
Common Snipe (*Gallinago gallinago*)^	S
Common Tern (*Sterna hirundo*)	E
Forster's Tern (*Sterna fosteri*)	E
Black Tern (*Chlidonias niger*)	E
Marsh Wren (*Cistothorus palustris*)+	N
Yellow–headed Blackbird (*Xanthocephalus xanthocephalus*)	E

* Populations occur in other parts of the state but not at the density of the northeastern part of the state.
^ Most recent breeding is at Goose Lake Prairie, which could be considered the periphery of northeastern Illinois
\+ Species common in appropriate habitat across the northern part of the state.
T = threatened
E = Endangered
S = Species of concern/Watch list
N = No state protection