

Species are variably affected by parasitism. Kentucky Warblers, White-eyed Vireos, and Acadian Flycatchers are not heavily affected by cowbirds. The different habitat requirements and nesting styles complicate researchers' work: what causes one species to decline may not affect another. The graduate students working under Robinson's guidance are currently working on six master's and two doctoral theses. Their research may help answer some of the basic demographic questions and may in turn tell us just how much fragmentation forest species can stand. For example, they are finding that Wood Thrushes may live longer than was formerly supposed.

Overall, the issue of fragmentation has become fairly clear. Fragmentation of forests leads to a decline in the abundance of many species that can-

not tolerate cowbird parasitism and elevated levels of nest predation. To support a healthy population of Wood Thrushes, Scarlet Tanagers, Hooded Warblers, and other parasitism-susceptible species, a forest must have enough "interior" that cowbirds will not go there. That is not the case in the Shawnee, where clear-cutting has been a volatile political issue for several years.

Tropical deforestation remains "a very great threat in the long run," said Robinson, adding that "loss of wintering grounds will likely lead to a steady whittling away of the breeding population." With a lower base population to face the threats of nest predation and parasitism, the margin of survival will be that much thinner. What has become most clear is that conservation efforts need to be focused in a number of places if our

forests are to remain vibrant and alive with birds. ♪

### Tanager Survey

The Cornell Laboratory of Ornithology is seeking volunteer birders and bird clubs to conduct tanager surveys. Tanagers are among the most visible of the neotropical migrant species susceptible to forest fragmentation. The Laboratory began its "Tanagers in Forest Fragments" program in 1992 to document breeding success in woodlands of various sizes in New York. Now, it is being expanded to include the whole country, and all four species of tanagers that breed north of Mexico. To help, or for more information, contact Margaret Barker at 607-254-2427.

## The Influence of Two Centuries of Habitat Change on Grassland Bird Populations in Illinois

by James R. Herkert, Illinois Endangered Species Protection Board

The landscape of Illinois has changed considerably over the last 200 years. The once extensive, unbroken stretches of prairie have given way to agricultural crops, and this shift has had a substantial impact on the state's bird fauna. The aim of this paper is to examine how the grassland bird fauna of Illinois has responded to changes in the state's landscape.

Prior to European settlement, prairie occupied approximately 21 million acres in Illinois, covering nearly two-thirds of the state (Anderson 1970). Prairie occupied over 1.5 times as much area as forests, which at approximately 13.5 million acres was the next most abundant habitat type (Graber and Graber 1963). The com-

position of the pre-settlement bird fauna in Illinois is not well known. Current data, however, show that prairies support relatively low densities of breeding birds. Bird densities in tallgrass habitat average 7.5 pairs per 10 acres (Cody 1985). Comparable average density for eastern deciduous forests is 35.2 pairs per 10 acres (obtained from 87 breeding bird studies published in American Birds Volumes 37 and 38). Because of the low density of birds in prairie habitat, Graber and Graber (1963) estimated that only 35 - 40 percent of the pre-settlement bird fauna of Illinois was composed of grassland birds; forest birds, on the other hand, may have accounted for as much as 55 - 60 percent of the pre-settlement fauna.

### Early Investigations of Grassland Birds

By the time much of Illinois' early ornithological work was conducted (1850 - 1900), considerable losses of prairie habitat had already occurred. By 1850 prairie habitat had been reduced to 5 million acres (Graber and Graber 1963), a reduction of approximately 75 percent or roughly 3.5 percent per year since 1810. We can therefore reasonably assume that some changes in the grassland bird fauna of Illinois occurred prior to any detailed study. Nevertheless, the works of Ridgway (1873, 1889, 1895) for central and southern Illinois and Nelson (1876) for northern Illinois

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