

# Potential and Realized Habitat for Area-Sensitive Bird Species on State Preserves

**Principal Investigator:** Rolf R. Koford  
**Student Investigator:** Abel Robles (M.S.)  
**Collaborators:** none  
**Duration:** June 2008 to August 2010  
**Funding Source(s):** Iowa DNR

## Goals and Objectives:

- Quantify relative abundance of breeding birds on State Preserves with a prairie component, with a particular focus on area-sensitive species, and relate prairie size to abundance of area-sensitive species.
  - Inventory breeding birds on Catfish Creek Preserve.
  - Examine the effect of certain landscape characteristics (woody vegetation and amount of grassland) on area sensitivity of grassland birds in southern Iowa.
- 

## Progress:

The first two goals have been achieved and a report was submitted to the State Preserves Advisory Board and the Iowa DNR on June 30, 2009. The third goal was added to supplement the first one and relevant field work was conducted in 2009.

To address the first objective, Iowa State Preserves with a substantial prairie component were selected for inventory. The Catfish Creek Preserve, which is mostly forested, was added because a bird inventory was identified as a priority for the State Preserves system. Two standardized bird surveys were performed at each of fifteen State Preserves (2 - 100 ha). The surveys were performed June 10 to July 11, 2008 and June 25 to July 5, 2009. These surveys can best be described as an "area search," although time constraints did not permit the entire area of the larger Preserves to be searched. The surveys were at two times of the day, and we conducted an early and late one on each Preserve. We recorded as present each species heard or seen in the Preserve. Surveys included times when singing males should be most detectable. Although we did not quantify detectability, the survey effort was substantially relative to the point counts that have been used in many other surveys. Thus, we are fairly confident that rare or area-sensitive species would have been detected.

The number of avian species detected on the fifteen State Preserves ranged from eight to twenty. The four smallest Preserves, under seventeen acres, had ten or fewer bird species. The six largest prairies had twelve or more species, and two thirds of these had over seventeen species.

Among the bird species found in the State Preserves, a substantial number have been shown to be sensitive to area. These area-sensitive bird species are Bobolink (*Dolichonyx oryzivorus*), Upland Sandpiper (*Bartramia longicauda*), Henslow's Sparrow (*Ammodramus henslowii*) which several studies have shown to exhibit high sensitivity to area, Western Meadowlark (*Sturnella neglecta*), Eastern Meadowlark (*Sturnella magna*) and Sedge wren (*Cistothorus platensis*), which have shown moderate area sensitivity. Two bird species that were found in the prairie preserves were not considered grassland bird species but are still area sensitive. The first species was Scarlet Tanager (*Piranga olivacea*), found in two of the prairie preserves, with a substantial amount of forest habitat, Mount Talbot and Five Ridge Prairie. The second species, Hairy Woodpecker (*Picoides villosus*), was found in Kish-ke-kosh Prairie Preserve. The four smallest Preserves had as many as two area-sensitive species and as many as two area-sensitive grassland species. Among the six largest Preserves, the number of area-sensitive species varied greatly, with some Preserves having no more than the smallest Preserves. Four large Preserves, however, had at least three area-sensitive species. When we examine the relations between prairie size and the number of total species found in the preserves, there seems to be a relation between the acreage of the State Preserve and the number of bird species found in the Preserves. The same trend can be observed in the relation between the number of total area sensitive species, and area-sensitive grassland species found in the Preserve, and the size of the State Preserves. These findings are not surprising but suggest that general information about these species does apply to the prairie Preserves. Two large Preserves, Mount Talbot and Five Ridge Prairie, had a single area-sensitive species and no area-sensitive grassland species. Both of these preserves have narrow strips of prairie along ridgetops, bordered by woodland. This suggests that perimeter-to-area ratio might be a better predictor of occupancy by area-sensitive species.

To address the third objective, surveys were conducted in several counties in southern Iowa. A total of 40 sites, with an area of seven to fifteen hectares and different degrees of grassland and woody vegetation in their surrounding landscape, were selected using a Geographic Information System (GIS). One avian survey was conducted in each selected field from June 1 to July 15, 2009. The surveys were performed between 5:30 a.m. and 9:30 a.m. The surveys were done by walking truncated line transects 300 meters long until the complete transect was surveyed. While moving along the transects, the presence/absence of four area-sensitive bird species was recorded. These species were Henslow's Sparrow, Grasshopper Sparrow, Bobolink and Eastern Meadowlark. Vertical vegetation measurements were also taken at the end of the field season with the use of a Robel Pole.

**Future Plans:**

Avian survey and vegetation data will be analyzed, mapping done with the aid of a GIS, and a thesis will be written.