

Response of Forest Birds to Changes in Land Use/Land Cover in the Driftless Area of Northeastern Iowa

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Goals and Objectives:

- Establish a suite of study sites on public lands using a stratified approach based on local habitat conditions (i.e. forest structure/composition) and landscape position (i.e. cross-boundary land uses, proximity to other forested habitat, reserve size).
 - Quantify the relationship between habitat use by forest birds (as measured by species occurrence/density) and forest structure/composition.
 - Quantify the influence of the surrounding landscape matrix on habitat use by forest birds once variation due to local habitat conditions has been explained.
 - Measure changes over time regarding shifts in the avian community and in forest structure/composition since the surveys of 1996/1997 (Norris 1999).
 - Estimate nest success for common forest bird species and relate variation in nest success to local habitat conditions and landscape context.
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Progress:

In the spring and summer of 2006, we established study sites in northeastern Iowa in Allamakee, Clayton, Dubuque, and Delaware counties. These sites include some of the public lands surveyed by Norris in 1995–1996, including Fish Farm Mounds Wildlife Management Area (WMA), Yellow River State Forest, Waukon Junction WMA, Clear Creek WMA, and Iverson Bottoms WMA (Allamakee County); Bloody Run WMA, and Pikes Peak State Park (Clayton County); White Pine Hollow WMA (Dubuque County); and Ram Hollow/Hoffman WMA and Backbone State Park (Delaware County). In addition to these sites surveyed by Norris, additional sites included Lansing Wildlife Management Area and Effigy Mounds National Monument (Allamakee County). We detected a total of 812 individual birds and 42 species on our survey plots between May 30 and July 18, 2006. The Red-eyed Vireo (*Vireo olivaceus*) was ranked as the most abundant and most frequently encountered species, accounting for 9% of the total occurrences and present at all of the 13 sites. A total of seven species of concern were detected at our sites in 2006, including the Acadian Flycatcher (*Empidonax vireescens*), Blue-winged Warbler (*Vermivora pinus*), Cerulean Warbler (*Dendroica cerulean*), Eastern Towhee (*Pipilo erythrophthalmus*), Veery (*Catharus fuscescens*), Wood Thrush (*Hylocichla mustelina*) and Yellow-billed Cuckoo (*Coccyzus americanus*). Their percent total occurrence ranged from <1% to 3%.

To assess the effect of local habitat conditions on reproductive success, we conducted a pilot study from mid-May through July on two sites at Yellow River State Forest. Each study site was approximately 170 ha in size. Both study sites were similar in landscape context, but differed in the amount of invasive vegetation. A total of 33 nests from 9 different species were located and monitored at these sites during the 2006 breeding season. Two of the nine species were ground nesters (Ovenbird [*Seiurus aurocapilla*] and Eastern Towhee) and seven of the nine were shrub/tree nesters (Acadian Flycatcher, American Robin [*Turdus migratorius*], Common Yellowthroat [*Geothlypis trichas*], Indigo Bunting [*Passerina cyanea*], Northern Cardinal [*Cardinalis cardinalis*], Red-eyed Vireo, and Wood Thrush). Although sample sizes were low, there was a dramatic difference in nest success at the two sites: 5/11 vs. 2/22.

Future Plans:

Currently, we are digitizing land cover in the areas surrounding our study sites and we plan to continue this through the coming year. We also plan to do preliminary analyses comparing our data with those collected by Norris. Lastly, in 2007, we plan to add additional survey plots on both public and private lands and identify additional sites for conducting nest searches, focusing on the Ovenbird and Wood Thrush.