

Impacts of habitat restoration on songbirds in Chicago area forest preserves: preliminary results from the 2010 breeding season

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Introduction

The spread of invasive species and their impacts on ecosystem functioning and native diversity have emerged as top conservation issues and a priority in community ecology (Mooney and Hobbs 2000). Exotic plants such as European buckthorn (*Rhamnus cathartica*) and Amur honeysuckle (*Lonicera maackii*) have invaded Midwestern U.S. forests, threatening native biodiversity. Buckthorn has been implicated as the main component of an extensive “invasional meltdown” in North America (Heimpel et al. 2010) and it has decimated populations of native flora (Gourley and Howell 1984). Similarly, the dense understory formed by honeysuckle leads to lowered native plant abundance, richness, and fitness (Gould and Gorchov, 2000). The spread of these nonnative plants is quite extensive throughout the oak woodlands of the Chicago area, and restoration efforts in forest preserves there have focused on the removal of these invasive shrubs and small trees (Heneghan et al. 2004). Management techniques typically involve burning, pulling, cutting, or applying an herbicide (Gale 2000).

While it is well known that invasive shrubs alter the environments they invade, little is known about how exotic plants affect avian communities. A few studies have found that some birds experience increased nest failure as a result of predation when the nests are placed in honeysuckle versus native shrubs (Schmidt and Whelan 1999, Borgman



Eastern Wood-Pewee was one of the most abundant species detected on a survey conducted at Chicago area forest preserves in 2010.

Photo by Dennis Oehmke.

knowledge, this is the first study to examine avian community structure in woodlands that are in different stages of invasive plant management in a highly fragmented landscape.

Research

The initial objectives of our study were to: 1) determine if woodland plots considered to be degraded in terms of vegetation structure and composition support less diverse avian communities than managed plots, 2) assess the relationship between avian community structure and invasive vegetation, and 3) identify local and landscape variables that are strongly correlated with avian community structure within woodland habitats.

Year 1

This research focuses on a suite of 47 one-hectare woodland study plots spread across four counties (Cook, DuPage, McHenry, and Lake) in the Chicago metropolitan area in Northeastern Illinois. These plots were selected to represent a gradient of restoration and have been placed into categories based on their man-

and Rodewald 2004). Schmidt and Whelan (1999) assert that lower nest heights, branch structure, and the absence of sharp thorns on honeysuckle and buckthorn might facilitate nest predation by small mammals, thus creating an ecological trap. Results from this study indicate that restoring native plant communities could benefit local bird communities (Schmidt and Whelan 1999).

Ecologists have called for research that examines the effects of exotic plants on songbirds across a gradient of invasion (Schmidt et al. 2005) and how invasive shrub removal can impact native avifauna in order to help inform the management of woodland habitats (Knight et al. 2007). To our