



Research Synthesis for Resource Managers

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Can oak savanna restorations for other species benefit bird communities?

Jeffrey D. Brawn. 2006. *Effects of restoring oak savannas on bird communities and populations. Conservation Biology* 20:460-469.

Eric M. Wood, Anna M. Pidgeon, Claudio Grattion, Timothy T. Wilder. 2011. *Effects of oak barrens habitat management for Karner blue butterfly (Lycaeides samuelis) on the avian community. Biological Conservation* 144:3117-3126.

Restoration of oak savannas in the Midwest often requires structural manipulations and application of prescribed fire. Depending upon the site and objectives, restoration activities may also be targeted at specific species, such as the federally listed Karner blue butterfly. These two studies examined how bird communities respond to restoration activities that were not specifically designed to benefit bird communities.

The restored sites sampled in both studies were managed, in part, by prescribed fire. Brawn (2006) compared bird communities in restored oak savanna and closed canopy forest in northern Illinois. Wood and colleagues (2011) compared bird communities across five community types in southwest Wisconsin, one of which was sites restored to support Karner blue butterfly populations. In both studies, point counts were used to determine the presence and abundance of bird species.

The observed bird communities differed slightly between the two studies. However, **both found species of concern to be more abundant in sites that had an open canopy structure compared to forested habitats** (e.g., Red-headed

Management Implications

- Use of prescribed fire to restore oak savannas and barrens maintains habitat for birds, like the Red-headed Woodpecker, that are species of concern
- Management activities focused on Karner blue butterflies can also benefit avian species of concern
- Small restored patches can benefit bird communities, especially when located close to existing oak savanna and barren patches

woodpecker). Also, Brawn (2006) found three species — Northern Bobwhites, Red-headed Woodpeckers, and Summer Tanagers — that only occurred in restored sites (i.e., those maintained with prescribed fire).

Brawn also points out that **the bird community found in restored sites had a greater diversity of nesting and foraging behaviors compared to birds in the closed canopy community**. Brawn observed species abundant in both habitat types (e.g., Blue Jay, American Robin) had greater nest success in the restored sites when compared to closed canopy forest. While the reason for this increased nest success is not clear, the author suggests the density of small mammals, which can prey on eggs, may be lower in restored savannas.

Wood et al. observed two distinct groups of bird species: “barren species” (Field Sparrow, Baltimore Oriole, Chipping Sparrow, Eastern

Bluebird, House Wren); and “woodland species” (Eastern Wood-Pewee, Ovenbird, Rose-breasted Grosbeak, and Scarlet Tanager). Barren species were more likely to occur in sites managed for Karner blues as well as in the naturally occurring oak barrens surveyed. With this potential benefit to avian species, **managers should consider broadening their monitoring** to better understand the impacts of single species restorations on other species, such as birds.

There was little influence of “patch size” on the avian communities observed in either study. However, the nearby habitat did influence bird communities, such that species of concern were more likely to occur in sites managed for Karner blues that were adjacent to existing barrens. This suggests **restoration of small sites can benefit oak savanna specialists within the region**, especially if targeted sites are in close proximity to existing natural or restored savannas.

Suggestions for additional reading

Mark A. Davis, David W. Peterson, Peter B. Reich, Michelle Crozier, Toby Query, Elliot Mitchell, Josh Huntington, Paul Bazakas. 2000. Restoring savanna using fire: Impact on the breeding bird community. Restoration Ecology 8:30-40.

J.D. Brawn, S.K. Robinson, F.R. Thompson, III. 2001. The role of disturbance in the ecology and conservation of birds. Annual Review of Ecology and Systematics 32:251-271.