

Bobolink numbers increased after removal of woody vegetation at Bartel Grassland.

Emil Martinec took this photo of a male Bobolink at Rollins Savanna, Lake County on 29 May 2006.



also increased in abundance at the removal points (Table 1). Other grassland species that have been shown to avoid woody edges include Henslow's Sparrow (O'Leary and Nyberg 2000, Winter et al. 2000) and Dickcissel (Hughes et al. 1999, Jensen and Finck 2004). Both of these species showed small increases in abundance at Bartel following tree removal (Table 1).

Assessments of potential benefits of woody tree removal from within grassland areas must also consider the negative effects that these activities might have on non-target species. Eight species encountered at the Bartel Grasslands site in 2001, prior to the tree removal, were not observed in either of the two years of post-removal monitoring. All of these species are typically associated with woody vegetation in grassland areas, and their decline following tree removal was consistent with their known habitat preferences. Data from the North American Breeding Bird Survey (Sauer et al. 2004), indicate that statewide population trends for the species that decreased at Bartel Grasslands following tree removal have tended to be positive, with seven of these 11 species showing long-term positive population trends within Illinois (Table 1). In contrast, eight of the nine bird species (89%) that increased at Bartel Grasslands following tree removal have shown long-term population declines in Illinois (Table 1). This group includes the Bobolink, Grasshopper Sparrow, and Savannah Sparrow, which are among the fastest declining songbirds in Illinois. Thus

based on population trends, tree line removal at Bartel Grasslands tended to increase the local abundance of several species of grassland birds showing large statewide declines, and reduced the local abundance of species that were generally stable or increasing elsewhere within the state.

This study shows that populations of some grassland birds increase within grasslands in which tree lines have been removed, and suggests that tree line removal may be an effective way to increase local populations of declining grassland birds. However this study was based on a relatively small number of survey points all from a single study area. Therefore, additional research with more robust experimental designs (i.e., more removal points and multiple sites) is needed to confirm that the benefits to grassland birds observed at the Bartel site can be replicated at other sites where tree removal is being conducted to restore grassland areas.

Acknowledgements

I am very grateful to the Cook County Forest Preserve District for allowing me to conduct this research on their property. Judy Pollock, Dick Riner, Marianne Hahn, Debbie Antlitz, and Joe Roth provided helpful comments on an earlier draft of this manuscript.

Literature Cited

- Bollinger, E.K., and T.A. Gavin. 2004. Responses of nesting bobolinks (*Dolichonyx oryzivorus*) to habitat edges. *Auk* 121:767-776.
- Delisle, J.M., and J.A. Savidge. 1996. Reproductive success of grasshopper sparrows in relation to edge. *Prairie Naturalist* 28(3):107-113.
- Fletcher, R.J., and R.R. Koford. 2003. Spatial responses of Bobolinks (*Dolichonyx oryzivorus*) near different types of edges in northern Iowa. *Auk* 120:799-810.
- Helzer, C.J. 1996. The effects of wet meadow fragmentation on grassland birds. M.S. Thesis. University of Nebraska, Lincoln, Nebraska. 65 pp.
- Hughes, J.P., R.J. Robel, K.E. Kemp, and J.L. Zimmerman. 1999. Effects of habitat on dickcissel abundance and nest success in conservation reserve program fields in Kansas. *Journal of Wildlife Management* 63:523-529.
- Jensen, W.E., and E.J. Finck. 2004. Edge effects on nesting dickcissels (*Spiza americana*) in relation to edge type of remnant tallgrass prairie in Kansas. *American Midland Naturalist* 151:192-199.
- Johnson, R.G., and S.A. Temple. 1986. Assessing habitat quality for birds nesting in fragmented tallgrass prairies. Pp. 245-250 in Verner, J.A., M.L. Morrison, and C.J. Ralph, (eds). *Wildlife 2000*. University of Wisconsin Press. Madison.