

LOCATING SPRING BLACKBIRD ROOSTS IN THE NORTHERN GREAT PLAINS: USING GIS TO EXPAND BLACKBIRD MANAGEMENT

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Introduction

Mixed-species flocks of blackbirds, commonly including red-winged blackbirds (*Agelaius phoeniceus*), common grackles (*Quiscalus quiscula*), and yellow-headed blackbirds (*Xanthocephalus xanthocephalus*), are known for damaging crops such as rice, corn, and sunflower. In the northern Great Plains, blackbird damage to sunflower has intensified as the production of commercial sunflower has increased (Linz and Hanzel 1997). In an effort to reduce damage, biologists have been attempting to manage regional blackbird populations by applying a rice-based avicide (DRC-1339) to feeding areas around spring blackbird roosts. Expansion of this program is contingent upon finding additional spring roost locations. Maps depicting the distribution and abundance of suitable wetlands can be used as tools to guide search efforts. These tools can reduce the amount of time and effort necessary to locate unknown spring blackbird roosts and expand current management programs.

Methods

Aerial photographs and field observations from eight east-central South Dakota wetlands were used to characterize spring blackbird roosts in 1998 and 1999. Based on these observations, selection criteria concerning wetland size (>19ha) and classification (Cowardin et al. 1979) were developed. Arc/Info GIS and National Wetland Inventory (NWI) data were used to identify regions in North and South Dakota (east of the Missouri River) containing high densities of wetlands with similar characteristics as known spring blackbird roosts. Finally, the GIS was used to produce a map depicting regions with high densities of potential roost marshes.

Results

The selection criteria reduced the number of potential roost wetlands from approximately 750,000 (all the NWI polygon wetlands in the region) to 2,749. The majority of these wetlands will not support spring blackbird roosts because of a paucity of emergent vegetation. The highest densities of potential roost wetlands are located in the Prairie Coteau and Missouri Coteau ecoregions (Bryce et al. 1998). Additional high-density regions are located in the Glacial Outwash and Glacial Lake Deltas ecoregions (Figure 1). Larger roosts are likely to be located in the Prairie Coteau ecoregion because of general migration patterns and the availability of ideal habitat (Knittle et al. 1996). Land use, which was not considered in this study, may also play an important role in determining the location of spring blackbird roosts.

Conclusions

The Prairie Coteau and Missouri Coteau ecoregions contain high densities of wetlands that are physically and biologically similar to known blackbird roosts. Managers attempting to locate additional roosts should begin by searching these areas. Large roosts are more likely to be located in the Prairie Coteau. Other high probability areas should also be considered when searching.

Acknowledgements

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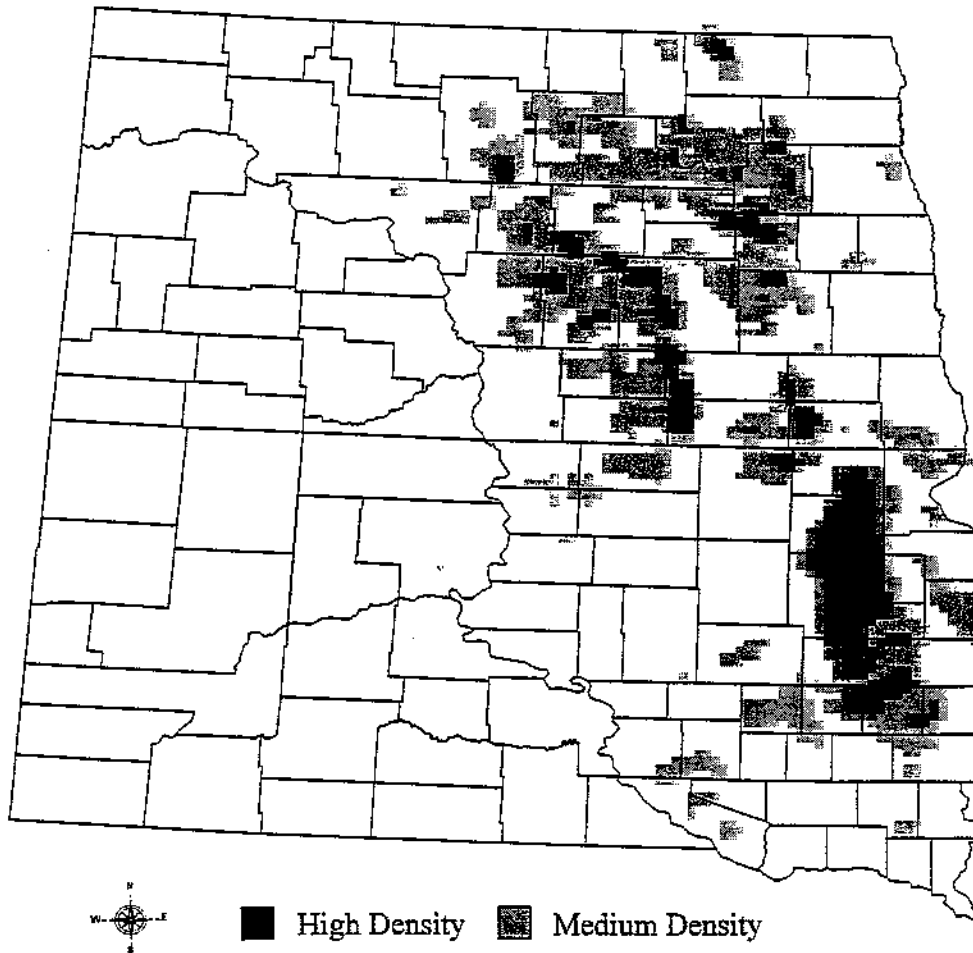


Figure 1. Regions of North and South Dakota (east of the Missouri River) containing high and medium densities of wetlands similar to wetlands used as spring blackbird roosts.

The 1999 Sunflower Research Workshop, sponsored by the National Sunflower Association, took place on January 18 and 19, 2000, at the Ramada Plaza Suites, Fargo, ND. The workshop was very well attended and received by public and private researchers from the United States and Canada, as well as other interested parties.

This volume contains nearly all the presentations given at the 1999 workshop. Some of the papers are summarized or abstract form.

The National Sunflower Association would like to extend its appreciation to those presenting papers/posters at this annual Sunflower Research Workshop and to those who participated by their

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