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Heath M. Hagy
Department of Biological Sciences, NDSU

George M. Linz
USDA/APHIS/WS National Wildlife Research Center, george_m_linz@yahoo.com

William J. Bleier
Department of Biological Sciences, NDSU

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Heath M. Hagy[1], George M. Linz[2], William J. Bleier[1]
1. Department of Biological Sciences, NDSU, Fargo, ND 58105
2. USDA, Wildlife Services, National Wildlife Research Center, Bismarck, ND 58501

Introduction

North Dakota and South Dakota produce about 70% of the sunflower grown in the United States. Blackbird depredation, particularly in the Prairie Pothole Region (PPR), can be a major problem that results in some producers abandoning sunflower. Reduced acreage of an otherwise profitable crop is important economically and might harm migratory bird populations relying on the shrub-like habitat in sunflower fields for food and cover.

In 2004 in an effort to reduce blackbird damage, USDA Wildlife Services provided funds to growers to plant Wildlife Conservation Sunflower Plots (WCSP). Growers were instructed to plant 8-ha units of oilseed sunflower near shelterbelts and cattail-choked wetlands to decoy blackbirds from commercial sunflower fields.

Our study area spanned more than 12,600 km^2 of the east-central North Dakota PPR. The close proximity of cattail marshes, shelter belts, and large acreages of crops makes this region an attractive stopover spot for birds during the fall migration. In this study, we compare the relative numbers of foraging birds in sunflower, small grains, and corn.

Methods

From mid-August to mid-October 2004, we used point counts to survey 14 study sites for avian abundance, density, and richness. Each study site included one WCSP, one commercial sunflower field, and one other grain crop field located within 2.4 km of the WCSP. Each field was divided into 1-ha cells, and point counts were conducted in 15% of those cells. Counts were conducted from 15 minutes after sunrise until each field was surveyed.

Results

We observed 651 (23%) nonblackbirds within the WCSP, 1152 (41%) in surrounding commercial sunflower, and 996 (36%) in other grain fields. We observed 56,000 blackbirds during the study, with 38% counted in WCSP, 61% in commercial sunflower, and less than 1% in all other grain crops. Red-winged Blackbirds accounted for 69% of total blackbirds, followed by Common Grackles (25%) and Yellow-headed Blackbirds (6%). The nonblackbird group consisted of 65% granivores and 21% insectivores (Figure 1).

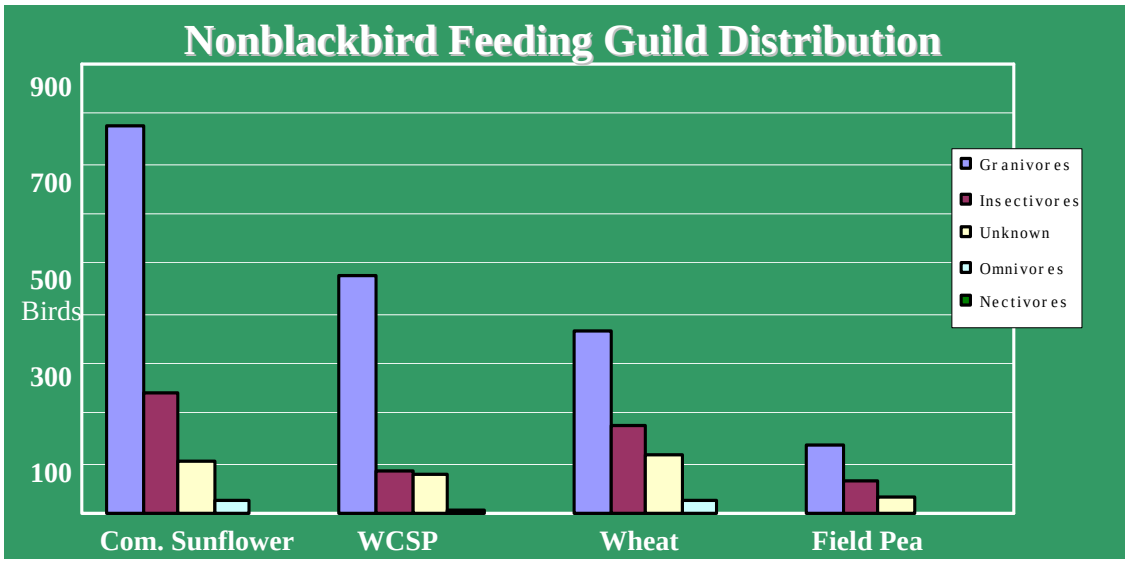

Figure 1. Abundance of Nonblackbirds differentiated by feeding guilds across four field types.

Accounting for area, the WCSP provided a higher density of both blackbirds and nonblackbird species and were nearly as diverse (Figure 2). Of the 43 different species observed during the study, 26 were seen in WCSP, 31 in commercial sunflower, and 21 in all other grain. Nonblackbird density in commercial sunflower was 0.74 birds/ha, whereas WCSP harbored 1.56 birds/ha. Blackbird density was 10.4 birds/ha in commercial sunflower and 90.8 birds/ha in WCSP. Overall grain crop density was 0.47 birds/ha for blackbirds and 0.58 birds/ha for nonblackbirds.

GIS habitat analysis of land use data suggests no correlation with bird use at a 2.4-km buffer zone. However, on a much smaller scale, shelterbelts and CRP grasslands are correlated to blackbird abundance, while shelterbelts, wetlands, and CRP grasslands are correlated to nonblackbird abundance. Given blackbird and nonblackbird densities in WCSP and commercial sunflower compared with land use data, it is likely that growers planted the conservation plots in attractive locations.

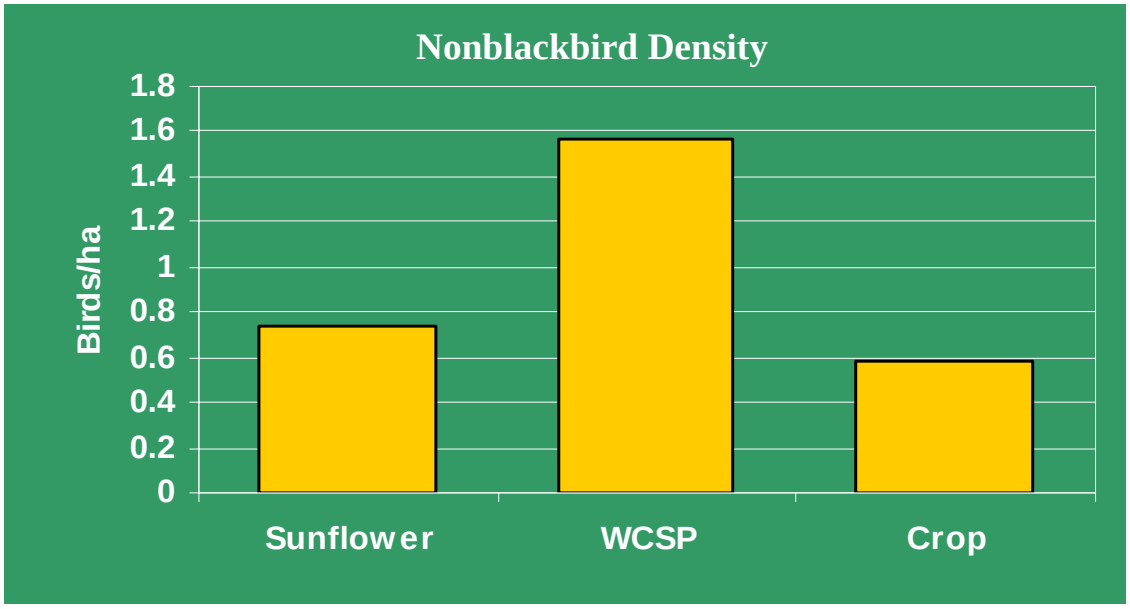

Figure 2. Nonblackbird density across all field types.

Future Research

In 2005, we will continue to test the concept of decoy plantings as an alternative to lethal blackbird control and high-maintenance deterrent measures. We will attempt to account for variation in the numbers of birds among and within study sites by measuring vegetation parameters, mist netting, and analyzing landscape variables. These data will help Wildlife Services to optimize the placement of WCSP to reduce sunflower damage and benefit migrating birds.

Acknowledgements

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