University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

USDA National Wildlife Research Center - Staff Publications | Wildlife Damage Management, Internet Center for

1-1-2009

Bird Damage to Corn and Sunflower in North Dakota

George M. Linz
USDA, Wildlife Services, National Wildlife Research Center, Bismarck, ND

Anthony A. Slowik
USDA, Wildlife Services, National Wildlife Research Center, Bismarck, ND

Linda B. Penry
USDA, Wildlife Services, National Wildlife Research Center, Bismarck, ND

H. Jeffrey Homan
USDA, Wildlife Services, National Wildlife Research Center, Bismarck, ND

Follow this and additional works at: http://digitalcommons.unl.edu/icwdm_usdanwrc

Part of the Environmental Sciences Commons

Linz, George M.; Slowik, Anthony A.; Penry, Linda B.; and Homan, H. Jeffrey, "Bird Damage to Corn and Sunflower in North Dakota" (2009). *USDA National Wildlife Research Center - Staff Publications.* Paper 932.
http://digitalcommons.unl.edu/icwdm_usdanwrc/932

This Article is brought to you for free and open access by the Wildlife Damage Management, Internet Center for at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in USDA National Wildlife Research Center - Staff Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Bird Damage to Corn and Sunflower in North Dakota

George M. Linz, Anthony A. Slowik, Linda B. Penry, and H. Jeffrey Homan
USDA, Wildlife Services, National Wildlife Research Center, Bismarck, ND

Introduction

The last comprehensive field surveys of bird damage to sunflower in North Dakota were conducted in 1979 and 1980. Average economic damage across years was slightly over US $5.0 million. Sunflower prices have appreciably increased since these monetary losses were calculated.

As corn acreages in North Dakota have increased, so have complaints from growers about blackbird damage to corn. Quantitative surveys of blackbird damage to corn, however, have never been conducted in North Dakota.

The goal of our multi-year study is to quantify blackbird damage to sunflower and corn crops in the Prairie Pothole Region, the principal corn and sunflower growing area in North Dakota (Fig. 1).

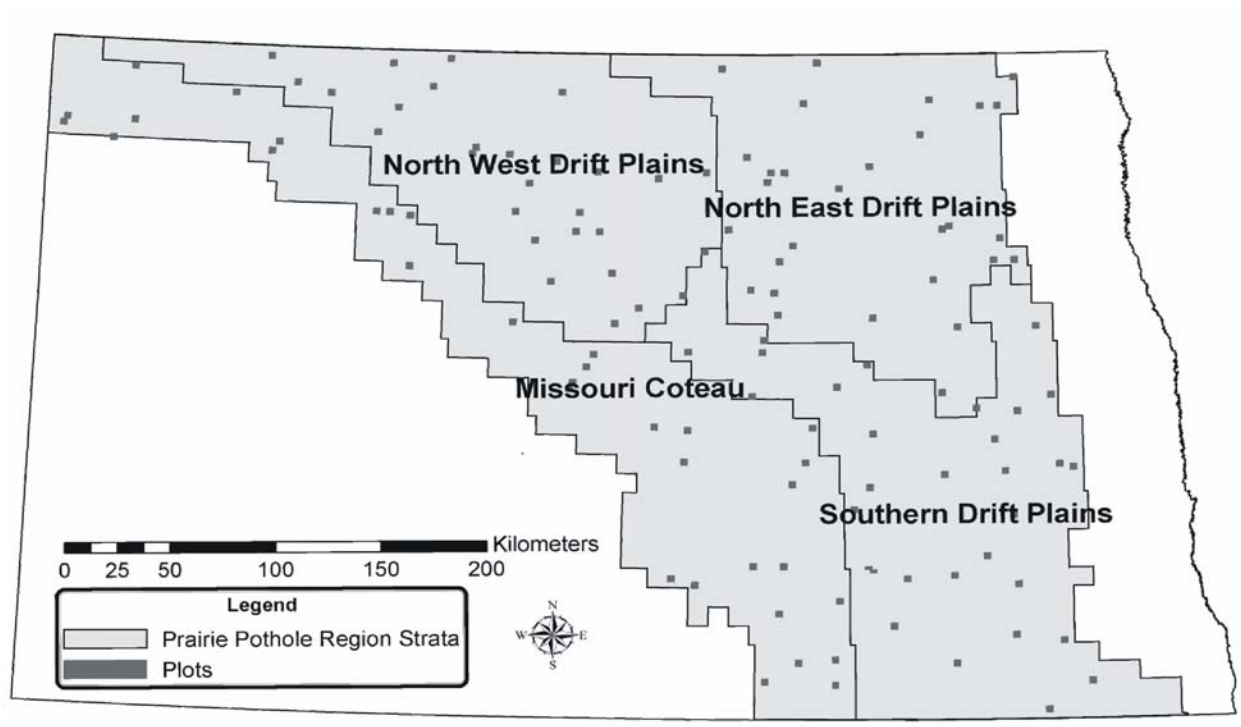

Figure 1. North Dakota Prairie Pothole Region, stratified into four physiographic regions, with 120 random selected sample units.

This article is a U.S. government work, and is not subject to copyright in the United States.

Methods

Our study area (37,000 mi^2) is the Prairie Pothole Region (PPR) in North Dakota.

In a previous study, the PPR was stratified into four strata known as the Missouri Coteau, Northwest Drift Plains, Northeast Drift Plains, and Southern Drift Plains. We proportionally allocated 120 2 x 2-mi sample plots to the four strata. We estimated bird damage in all corn and sunflower fields in a 1-mi^2 quadrat placed in the center of each 2 x 2-mi plot.

We divided each sampled field >10.0 acres into two strata, each containing an equal number of rows. One row was randomly selected from the first stratum; we then selected a corresponding row in the same relative position in the other stratum. The location of the first sample plot of five consecutive sunflower heads or corn ears was a randomly selected distance in yards between 0 (i.e., the edge of the field) and 150. After establishing the first plot, we systematically sampled plots of five consecutive sunflower heads or corn ears every 150 yd until the end of the field. We estimated the percentage of damaged sunflower heads with a gridded template and the percentage of damaged ears by measuring the length of the ear damage. For undamaged heads/ears, we simply recorded 0% damage. The percent loss for each field was calculated by averaging the percent loss across both strata. Descriptive statistics were used to summarize blackbird damage to sunflower and corn within each sampled county within the strata.

Results and Discussion

We found that most sunflower fields were planted in the northern counties; whereas, corn fields were more prevalent in southeastern counties. Despite a reduction in planted sunflower acres from 2-3 million acres in 1979-1980 to about 1 million in 2008, the percentage of loss due to bird damage in sunflower was nearly identical between our survey and the 1979-1980 surveys. In 1979-1980 damage averaged 1.4% over ~2.8 million acres; whereas, the 2008 damage averaged 1.2% over ~1 million acres (Fig. 2). Assuming the same number of birds fed on the crop, damage should have been more than 2 times higher in 2008.

We found that birds damaged about 0.7% of the 2.0 million acre corn crop in 2008 (Fig. 3). We speculate corn, which was not commonly available to the blackbirds 30 yrs ago in North Dakota, served as an alternative food source for the birds. Additionally, growers might have benefited from the North Dakota Wildlife Services cattail management program that was implemented in the early 1990's.

Obtaining recent damage data across the entire sunflower and corn growing region of North Dakota will be useful for Wildlife Services when allocating resources toward blackbird damage management efforts.

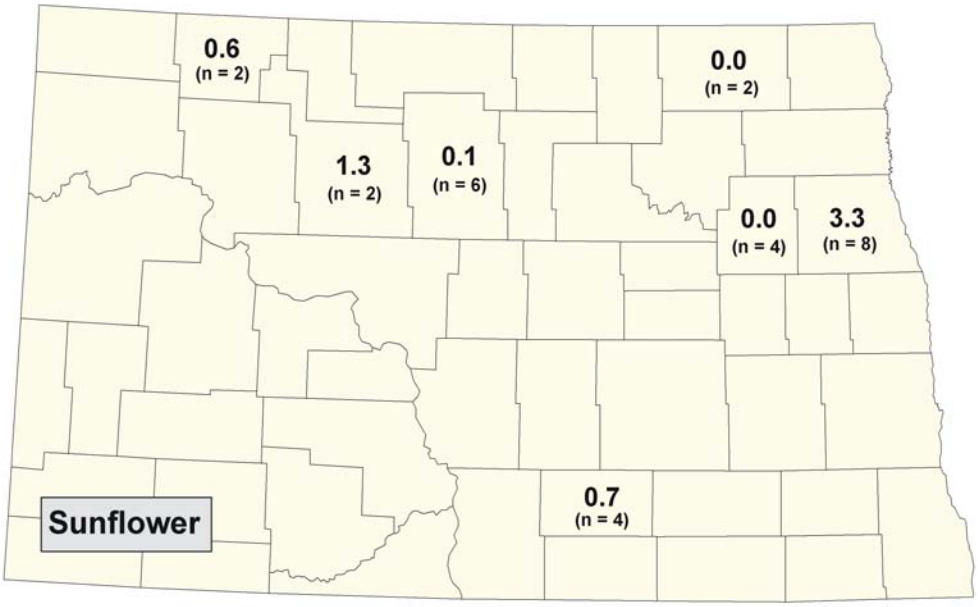

Figure 2. Percent sunflower damage in North Dakota in 2009.

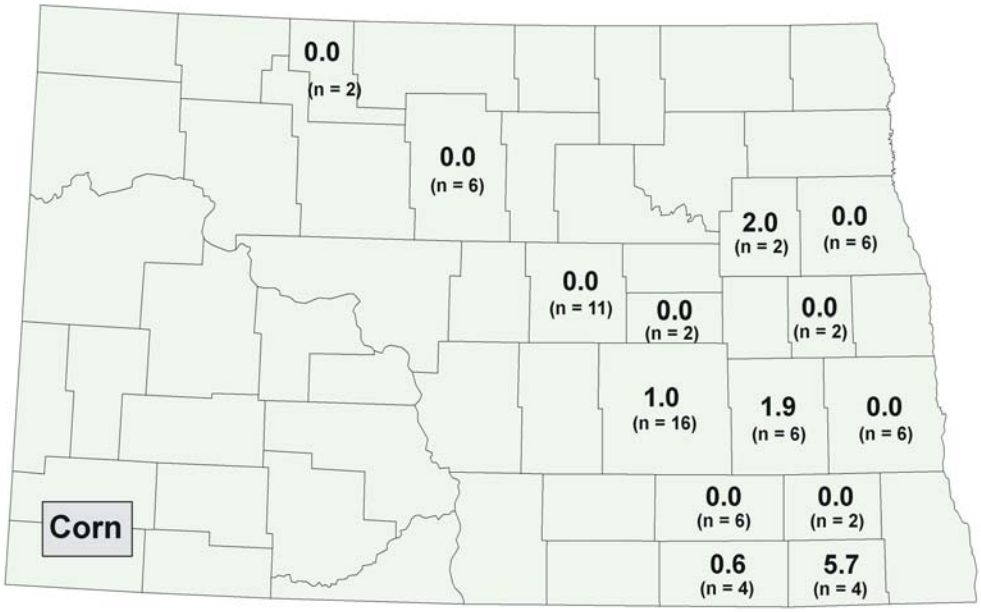

Figure 3. Percent corn damage in North Dakota in 2009.