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Introduction
In the Southern Drift Plains of North Dakota, land put into crop production has increased greatly over the last century. Of the approximately 70,000 square miles of land area in North Dakota, about 32,000 square miles are used for harvested cropland. Because of changes in the landscape, the diversity of habitat available for migrant birds has diminished, and migrants are now limited to choosing habitats that are unfamiliar, and weather is unpredictable.

Methods
Sixty quarter sections located in the Southern Drift Plains of North Dakota were surveyed in the spring of 2003. Field habitat within each of these quarter sections was surveyed in order to assess avian use. Thirty of these fields were harvested sunflower fields (oil or confectionary), and the remaining thirty were harvested non-sunflower fields (soybean, corn, or small grain). Field characteristics, including field type (sunflower (oil), sunflower (non-oil), soybean, small grain, corn, or sorghum), field type (No Till or Tilled) and size were recorded. The species and abundance of birds within the fields were recorded along transects located every 100 meters perpendicular to the shortest axis of the field. Each field was surveyed twice throughout the period from mid-March to the end of April. In addition to bird surveys, habitat within 0.75 miles surrounding the center point of the study field will be estimated using aerial photographs and a non-mapping technique for estimating proportions of several habitat categories. Logarithmic transformations were performed on bird abundance data to adjust for deviations from normality and then back-transformed for presentation in figures. Bird abundance was further analyzed using students’ t-test, analysis of variance, and Duncan’s multiple comparison test to detect if there were any differences among the different field types. All statistical tests were conducted using an alpha level of 0.05.

Results
A total of 10,200 birds were seen throughout the study period. A total of 33 different bird species were seen. The Horned Lark, the Lapland Longspur, and their associations with each other and unknowns, constituted a majority of the observations throughout the study period, with about 67% of the total observations (Fig. 1). Blackbirds, including the Red-winged Blackbird, the Yellow-headed Blackbird, Blackbirds, including the Red-winged Blackbird, the Yellow-headed Blackbird, and the Common Grackle comprised about 17% of the observations (Fig. 1). All other species represented less than 3% of the observations. In survey period 1, we observed a significantly greater number of birds in sunflower than in non-sunflower fields both in untilled and tilled fields (Fig. 2). The number of birds observed was significantly greater in the untilled sunflower fields but not in the tilled sunflower fields in survey period 2. Because there was no difference between till types in either of the survey periods, we pooled the values for untilled and tilled fields. We also compared our numbers of birds seen in the different field types in each of the survey periods (Fig. 3). In the second survey period, many of the study fields were plowed resulting in a decrease in the sample size and a reduction in statistical power.

Conclusions
Based on avian use, Horned Larks, Lapland Longspurs, and their associations with each other and unknowns, are the dominant bird species using harvested crop fields. This may be attributed to the fact that both these species prefer open areas with little or no vegetation. We found a significantly greater number of birds in sunflower fields than non-sunflower fields, which indicates that either there is a greater amount of food, more shelter available surrounding these fields, or that sunflower provides a better food resource than the other crops. Because much of the Southern Drift Plains Region is covered with cropland, harvested fields (especially sunflower) could provide a good source of food and stopover habitat for migrating birds.

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