

Nyberg 2000). Although it has been widely recommended that grassland managers control or eliminate woody vegetation, data regarding bird response to such activities are presently scarce. Here I report on a study that documents breeding bird response to a linear tree row removal project that was part of a large grassland restoration project in northeastern Illinois.

METHOD

The study was conducted at Bartel Grasslands (41° 32' N, 87° 45' W), a site owned by the Cook County Forest Preserve District. Bartel Grasslands lies approximately 50 km southwest of the city of Chicago and is the subject of a large restoration project, sustained through a partnership consisting of the Cook County Forest Preserve District, Audubon-Chicago Region,

CorLands, the U.S. Army Corps of Engineers, Thorn Creek Audubon and the Bartel Grassland Volunteers. The grassland portion of the Bartel site is approximately 150 ha and at the time of the study was dominated by non-native cool-season grasses.

Removal of interior woody tree lines is one of the major restoration activities focused on the site and following the 2001 breeding season, and prior to the 2002 breeding season, nearly 4-km of interior fence row trees were removed from the study area (Figure 1). An additional 1.5 km of tree lines were removed between the 2002 and 2003 breeding seasons (Figure 1). The tree lines that were removed in 2001 were all single tree width rows that occurred in four distinct lines crisscrossing the area in a checkerboard fashion (Figure 1).

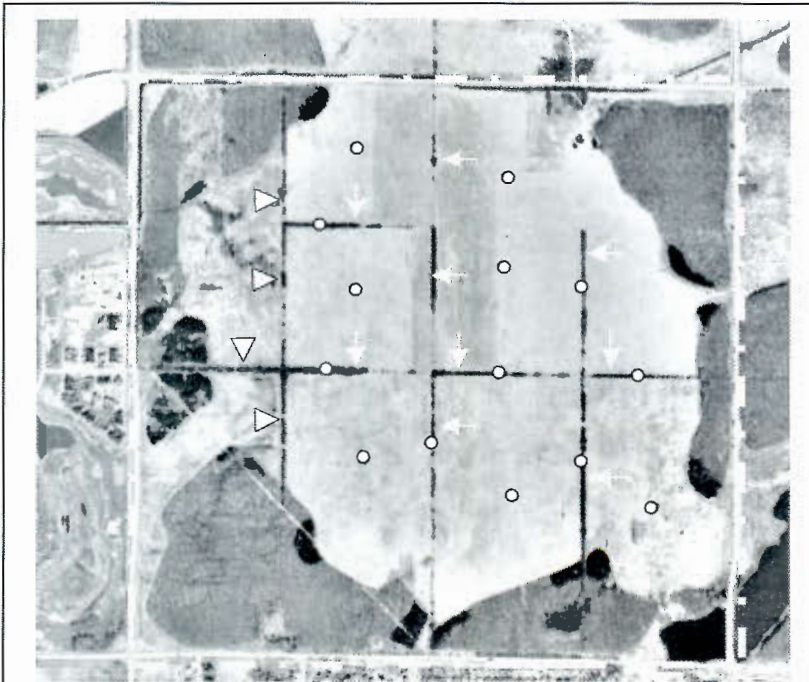


Figure 1. Aerial view of the 150 ha Bartel Grassland site prior to tree row removal. The white dashed line shows the property boundaries and the white arrows show the locations of the nearly 4 km of interior fence row trees that were removed between the 2001 and 2002 breeding seasons. An additional 1.5 km of tree lines, shown with white triangles, were removed between the 2002 and 2003 breeding seasons. White circles show the approximate locations of the 14 breeding bird census points used in the study, seven of which were initially located on tree lines and seven in open areas of the site away from any tree lines.

To evaluate the impact of tree removal on breeding bird populations at the site, bird populations at the site were surveyed using point counts in 2001, 2002 and 2003. All counts were conducted in June, followed standard methods (Ralph et al. 1993), and consisted of 100-m fixed-radius surveys in which all birds seen or heard within 100 meters of the point center were tallied during a 5-minute period. In 2001, census points were established both along the interior tree lines targeted for removal and in open areas of the site (see Figure 1). Points along the tree lines were initially located so as to maximize the number that could be fit into the area while maintaining a spacing of at least 250 m between points. Seven tree line points were all that could be fit into the area. A comparable number of seven reference points (i.e., no trees present or removed from within the point count circles) also were established. In 2001, prior to the tree removal at the Bartel site, points on tree lines were sampled as two 100 m radius half-circle sub-samples on either side of the tree line in order to minimize the risk of tree lines obstructing bird detections. Birds using the tree line also were mapped to minimize the risk of double counting birds using the tree line. After tree row removal, the former tree line points were sampled the same as all other points as a single point with 100 m radius. Bird population response to tree removal was assessed by comparing site-level changes in bird populations before (2001) and after (2002 and 2003) initial treeline removal and by also comparing population changes at the tree line points with changes observed at the reference points located in open areas of the site.

RESULTS

A total of 20 species were recorded at the 14 Bartel Grasslands census points between 2001-2003, including 19 species in 2001, 11 species in 2002 and 10 species in 2003 (Table 1). Nine species were recorded in all three years, two species in two of the three years, and