

can be used to estimate grassland bird abundances in Illinois prior to 1900 (Table 1).

Several grassland bird species initially benefited from the conversion of prairie to farmland. Those that benefited most include the Horned Lark, Vesper Sparrow, and Greater Prairie-chicken. The increase in Horned Larks and Vesper Sparrows was largely due to their ability to colonize and breed in cultivated habitats, which by 1900 had become the most abundant habitat type in the state (Graber and Graber 1963).

The initial opening of the prairies and forests to agriculture produced an intermixed pattern of food and cover that was beneficial to many species of upland game, including the Greater Prairie-chicken (Westemeier and Edwards 1987). This shift in habitat coupled perhaps with a reduction in the abundance of predatory animals allowed the Greater Prairie-chicken to reach a peak abundance within Illinois of approximately 10 million birds by 1860 (Westemeier 1986, Westemeier and Edwards 1987). The number is roughly equivalent to 175 birds/square mile throughout the entire state. Prairie-chickens started to decline soon after reaching their peak abundance. Nelson (1876) listed them as once excessively abundant but now rather scarce in the Chicago region, and as less numerous in all the more settled areas of the state due to egg collection by humans, unrestricted hunting, and loss of habitat.

During 1906 - 1909, a systematic survey of the state's birds was conducted by Alfred Gross and Howard Ray of the Illinois State Laboratory of Natural History, now the Illinois Natural History Survey (Forbes 1913, Forbes and Gross 1922). These surveys provided the first quantitative estimates of breeding bird populations within Illinois. A summary of the relative abundances of the most common grassland species encountered by Gross and Ray in ungrazed

grass, mixed-hay, and pasture from the north and central regions of Illinois are shown in Table 1. Gross and Ray found Bobolinks and meadowlarks (eastern and western combined) to be the most common bird species, accounting for over 50 percent of all birds encountered in these grassland habitats. Of the birds listed as abundant or very common by Ridgway (1889, 1895) and Nelson (1876), the Greater Prairie-chicken, Upland Sandpiper, and Henslow's Sparrow apparently experienced the greatest declines between the mid 1800s and the censuses of Gross and Ray. All three of these species were uncommon or rare by 1906.

"The Bobolink may now be the fastest declining songbird in Illinois with an average annual decline of nearly 20 percent per year for the period 1980 - 1989."

In the first paper addressing changes in Illinois bird fauna, Ridgway (1915) discussed changes that had taken place in the half century preceding 1915. He cites three grassland birds, the Greater Prairie-chicken, Upland Sandpiper, and Dickcissel, as experiencing serious declines during this period. The Greater Prairie-chicken and Upland Sandpiper were considered on the verge of elimination within Illinois because of shooting and destruction of nests by dogs and cats. The Dickcissel had also dramatically declined during this period for "unknown reasons" (Ridgway 1915). Ridgway first noted the Dickcissel's decrease around 1885 and stated that

by 1915 this species never reached more than one-fourth and usually less than one-tenth its former numbers. Coincidentally, Fretwell (1986) documented a seven-fold increase in grazing pressure between 1870 and 1884 on the Dickcissel's primary wintering grounds in Venezuela, a factor that he believed could significantly affect winter resources and, in turn, Dickcissel numbers.

In 1956-1958 the census routes of Gross and Ray were repeated by Richard and Jean Graber (1963) of the Illinois Natural History Survey (Table 1). The Grabers believed the Red-winged Blackbird, Horned Lark, and Dickcissel had shown large statewide population increases between 1909 and 1956.

Red-winged Blackbird numbers had almost doubled since the earlier censuses of Gross and Ray due to the ability of this species to invade nearly all terrestrial habitats within the state (Graber and Graber 1963). Ridgway (1889) noted that although very common, Red-winged Blackbird nests were always in or in very close proximity to a marsh or swamp. Gross and Ray found Red-winged Blackbirds in all the grassland habitats they censused in 1906 - 1909, although 60 percent of the state's population still nested in marshes (Graber and Graber 1963). From 1909 to 1956, Red-winged Blackbird densities within grassland habitats in Illinois increased nearly tenfold. Red-winged Blackbirds had become far more common in grasslands than they were in marshes, with individuals inhabiting marshes accounting for less than 3 percent of the state's population (Graber and Graber 1963).

The statewide increase in Horned Larks between 1909 and 1956 corresponded to their shift from primarily grassland to cultivated habitats, especially row-cropped fields. This switch from a rapidly declining to a rapidly increasing habitat greatly benefitted the Horned Lark, which Graber and Graber (1963) recognized