

THE BAIRD'S SPARROW: STATUS RESOLVED

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The loss and degradation of native prairie habitat has likely caused grassland birds to decline more than any other bird guild in North America.¹⁴ Subsequently, many grassland bird species have been identified as species of concern in Canada and the United States. One such species, the Baird's Sparrow, was listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a threatened species in 1989.¹² It was assumed that the Baird's Sparrow had "suffered declines proportional to the demise of North America's native grassland" since settlement⁹ was based on information that indicated that the Baird's Sparrow was a native prairie specialist.^{2,18,29} Subsequent to its listing as a threatened species, a recovery plan was prepared for the Baird's Sparrow with the disclaimer that the species' status was "currently in question" and that "additional information on numbers and distribution may be sufficient to resolve its status."¹² The Saskatchewan Wetland Conservation Corporation responded to this need by initiating studies to determine the distribution, abundance, and habitat preferences of Baird's Sparrows in southern Saskatchewan, the heart of the species' breeding range. These studies indicated that the species' population in Saskatchewan was much greater than previously thought and that Baird's Sparrows were not restricted to native prairie habitat (see below). Subsequently the Baird's Sparrow was de-listed in the spring of 1996.

In 1994 we conducted grassland songbird surveys which covered most of the agricultural zone of Saskatchewan (Fig. 1). Observers recorded birds on 1739 point counts along 93 routes. Seventy-six routes were chosen by randomly selecting township air-photo mosaics with each random route comprised of approximately 80% grassland habitat. Because we were dealing with a threatened, and presumably uncommon species, an additional 17 routes were chosen based on information from Saskatchewan birders and biologists as to where high Baird's Sparrow densities might be located. Road- and trail-side surveys were patterned after Breeding Bird Surveys (BBS) with stops spaced 0.8 km (0.5 mi) apart, but with listening periods of 5 min. rather than 3 min.

Distribution

Baird's Sparrows were recorded in virtually all parts of the Mixed and Moist-mixed Grassland ecoregions and were detected in 5 of 11 routes in the Aspen Parkland ecoregion (Fig. 1). The highest densities of Baird's Sparrows occurred along the border of the Mixed and Moist-mixed Grassland ecoregions in the Missouri Coteau, similar to the distribution found in North Dakota.²⁵

Relative Abundance

Baird's Sparrows were the fifth most abundant songbird we recorded on random native grassland routes in our 1994 survey (Table 1).

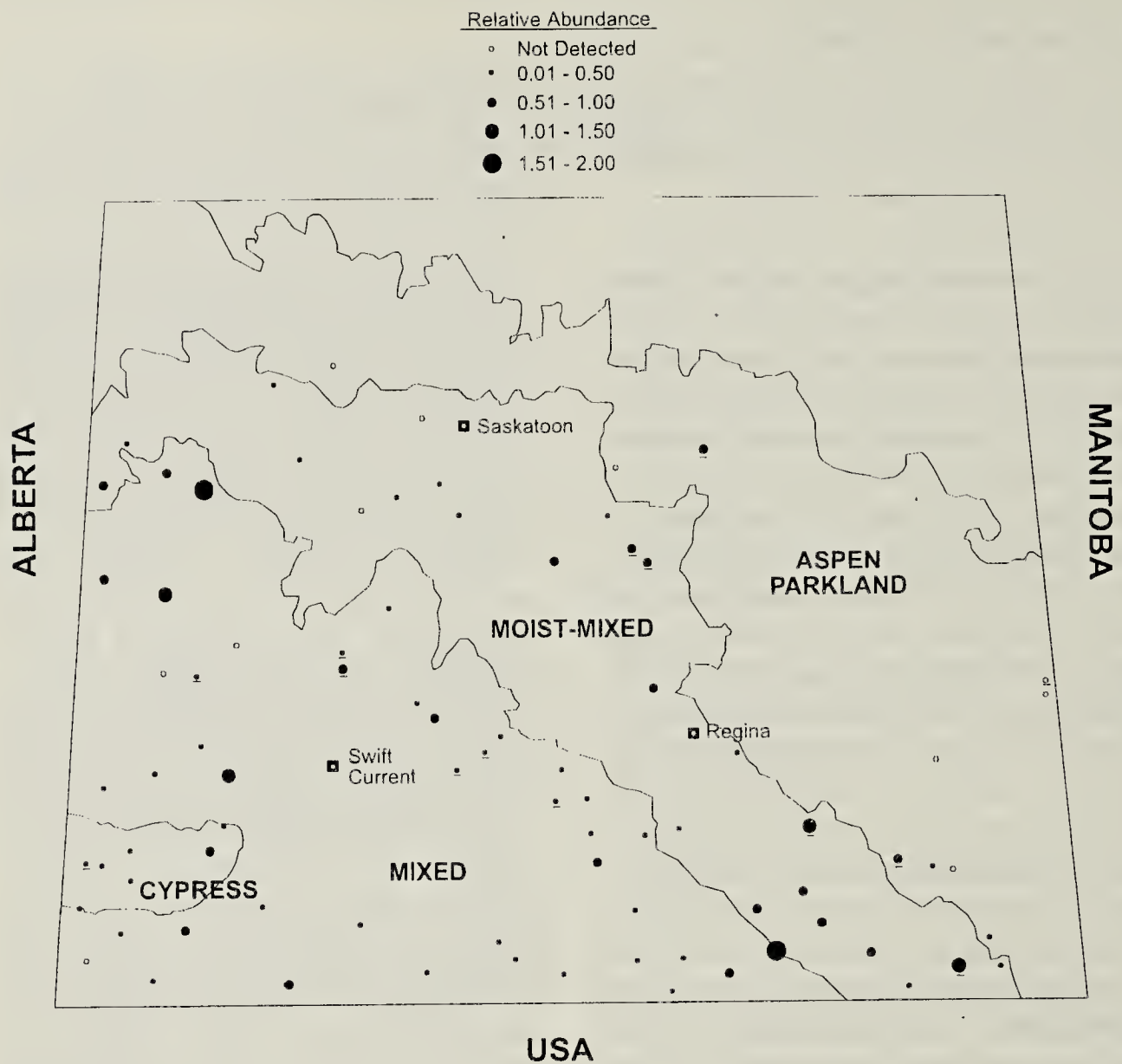


Figure 1. Distribution and relative abundance (x no. of singing males/route) of Baird's Sparrow in native prairie in the Aspen Parkland, Mixed and Moist-mixed Grassland and Cypress Upland ecoregions of southern Saskatchewan.

Table 1. NUMBER OF SINGING MALES DETECTED AND FREQUENCY OF OCCURRENCE OF SEVEN OF THE MOST ABUNDANT GRASSLAND SONGBIRD SPECIES RECORDED ON RANDOM, NATIVE GRASSLAND ROUTES IN SOUTHERN SASKATCHEWAN, 1994 (adapted from Skeel et al.²³)

Species	Number of Singing Males Detected (n=1911) ¹	Frequency of Occurrence (%) ²
Western Meadowlark	1853	61
Horned Lark	1156	41
Clay-colored Sparrow	1134	40
Vesper Sparrow	1018	39
Baird's Sparrow	1014	34
Sprague's Pipit	768	34
Chestnut-collared Longspur	842	23

¹Singing males recorded inside 100-m radius circles in a five-minute period.

²Proportion of circles in which the species was detected.

Table 2. MEAN NUMBER (\pm SE) OF SINGING MALES DETECTED AND THE FREQUENCY OF OCCURRENCE OF SEVEN OF THE MOST ABUNDANT GRASSLAND SONGBIRD SPECIES RECORDED ON NATIVE AND CRESTED WHEATGRASS PASTURES IN SOUTHERN SASKATCHEWAN, 1995 (adapted from Davis and Duncan⁶)

Species	Crested Wheatgrass (n=203) ¹		Native (n=192)		Total (n=395)	
	Males Detected ²	Frequency of Occurrence (%) ³	Males Detected	Frequency of Occurrence (%)	Males Detected	Frequency of Occurrence (%)
Baird's Sparrow	0.88 \pm 0.05	65	0.66 \pm 0.05	53	0.77 \pm 0.04	59
Chestnut-collared Longspur	0.59 \pm 0.06	40	0.90 \pm 0.07	60	0.74 \pm 0.05	50
Horned Lark	0.63 \pm 0.05	46	0.60 \pm 0.05	45	0.62 \pm 0.04	46
Brown-headed Cowbird	0.38 \pm 0.06	26	0.55 \pm 0.06	36	0.47 \pm 0.05	31
Clay-colored Sparrow	0.13 \pm 0.03	10	0.54 \pm 0.05	42	0.33 \pm 0.03	26
Western Meadowlark	0.29 \pm 0.04	25	0.21 \pm 0.03	20	0.25 \pm 0.02	23
Sprague's Pipit	0.15 \pm 0.03	13	0.33 \pm 0.04	32	0.24 \pm 0.02	23

¹Number of 100-m radius circles
²Singing males recorded inside 100-m radius circles
³Proportion of circles in which the species was detected.

A separate study conducted in 1995 using off-road 100-m point counts (n=395) in the Missouri Coteau found that Baird's Sparrows were the first and second most common species recorded on Crested Wheatgrass (*Agropyron cristatum*) and native pastures, respectively (Table 2). Comparisons between species, however, may be confounded by different detectabilities among species (Grasshopper Sparrows are more difficult to hear than Western Meadowlarks, for example, and thus may be detected less often) and the influence of a roadside bias (unpublished data collected by the author shows that Vesper Sparrows are attracted to roadside habitat, for example, whereas Baird's Sparrows avoid this habitat). Despite the inherent problems in comparing species, our counts clearly show that Baird's Sparrows are one of the more common grassland birds in Saskatchewan, particularly along the border of the Mixed and Moist-mixed Grassland ecoregions.

Population Size

We conservatively estimated that the 1994 population of Baird's Sparrows in Saskatchewan was 960,000

singing males.²³ Estimates of the population in North Dakota range from 376,000 singing males in 1967,²⁶ to 171,000 in 1992 and 279,000 singing males in 1993.³⁰ Because these estimates include only singing males, the actual population sizes would be double if a 50:50 sex ratio in the populations is assumed. Although Baird's Sparrows can be erratic in occurrence from year to year in a given area, these provincial and state population estimates indicate that this species is abundant and not on the brink of extinction, especially considering that these estimates do not include populations from Montana, Alberta, Manitoba and South Dakota.

Population Trend

Although there is little direct evidence, Baird's Sparrows and many other grassland birds have undoubtedly declined in the past century due to intensive agriculture and the subsequent loss of grassland habitat. Davis et al.,⁷ for example, found that seven of eight grassland songbirds, including Baird's Sparrow, occurred less frequently in cropland compared to native grassland. In Manitoba, the Baird's Sparrow was

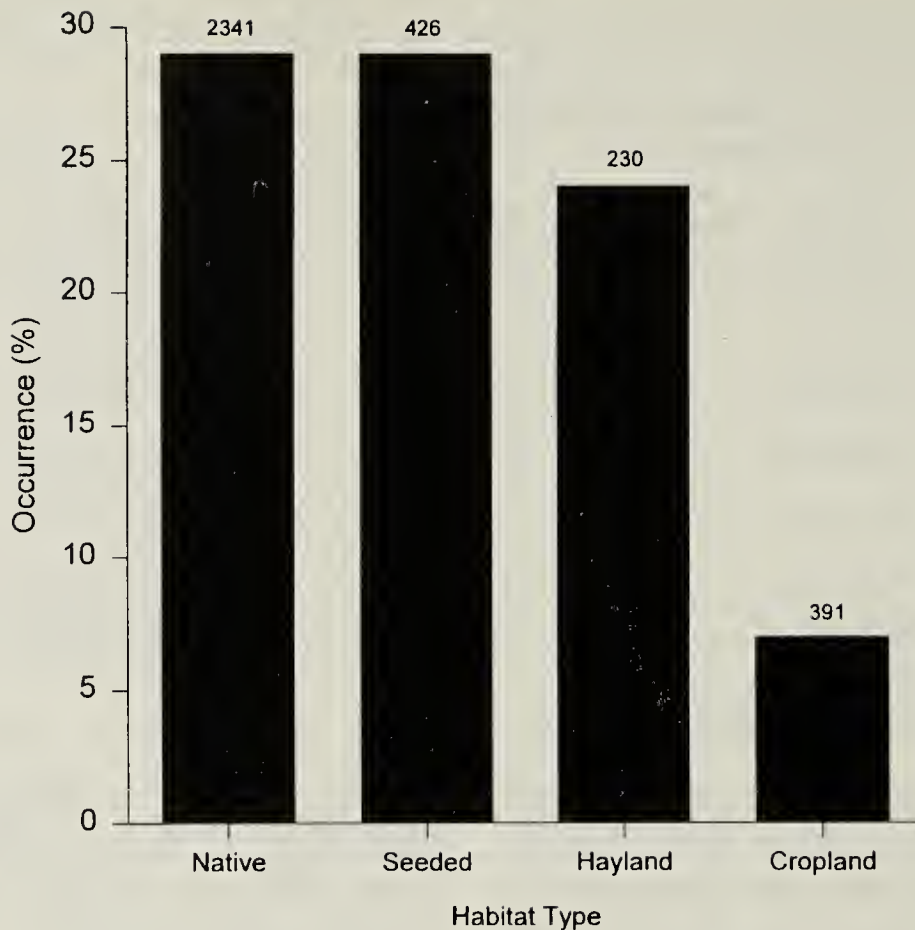


Figure 2. Percent frequency of occurrence of singing males detected in native grassland, seeded pasture, cropland, and hayland in southern Saskatchewan (adapted from Davis et al. ⁷). Number of sampling points given above each bar.

once considered to be one of the most common birds on the prairies,²⁸ but its range is now restricted to the extreme southwest portion of the province. On a continental scale, BBS trend data from 1966 to 1995 for North America show no significant population trend, although a slight decline of 1.2% per year is indicated. This suggests either a stable or slowly declining population. Numerous other grassland songbirds such as Sprague's Pipit, Grasshopper Sparrow and Horned Lark show much larger and significant population declines.²¹ Trend analysis for the Baird's Sparrow, however, could be confounded by the species' erratic occurrence in different parts of its range.¹²

Habitat Use

In our 1994 study, we surveyed seeded pasture, hayland and cropland in addition to native prairie. The

results showed that Baird's Sparrows occurred with equal frequency in native grassland, seeded pasture and hayland, and less often in cropland⁷ (Fig. 2). In addition, our 1995 comparison of grassland songbird occurrence in Crested Wheatgrass and native pastures clearly showed that Baird's Sparrows are not native prairie specialists.⁶ In fact, Baird's Sparrows were recorded more frequently in Crested Wheatgrass (65%) than they were in native (53%) pastures (Table 2). Numerous other studies have documented Baird's Sparrows using a variety of non-native habitat types such as seeded pasture, seeded hayland and cropland.^{1,2,5,10,11,15,19,20,22,23,25,27} These results suggest that Baird's Sparrows respond to vegetation structure rather than vegetative species composition, permitting them to inhabit non-native habitat which structurally resembles native prairie (see also ¹⁶).

Baird's Sparrows appear to be influenced by grazing intensity, which alters vegetation structure.^{3,13} Although some studies have found that grazed grasslands supported fewer Baird's Sparrows than idle areas,^{4,17,18} these localized studies were based on small sample sizes and were not designed to examine various levels of grazing intensity as in our study.⁷ In addition the response of Baird's Sparrows to grazing pressure appears to vary geographically.^{13,24} In dryer parts of their range, for example, Baird's Sparrows will not inhabit areas that are not managed through grazing or prescribed burning.¹⁶

Although Baird's Sparrows are present in habitats other than native prairie, their breeding status and productivity in non-native habitats has been questioned. There are, however, clear indications that they do breed in seeded grassland. Davis (unpubl. data) found that 23% of 75 Baird's Sparrow nests were associated with smooth Brome Grass (*Bromus inermis*) in southwestern Manitoba and that 27% of 51 Baird's Sparrow nests in the Prairie Nest Record Scheme for which native or seeded habitats could be discerned, were located in non-native habitats. In addition, Davis⁵ and Davis and Sealy⁸ found that Baird's Sparrows were productive in non-native habitats, although direct comparisons of productivity in seeded and native pastures were not conducted.

Summary

The Baird's Sparrow is widely distributed across the grassland ecoregions of Saskatchewan. It commonly occurs in native and non-native habitats and has been recorded breeding in grasslands invaded with Brome Grass and Crested Wheatgrass as well as

Alfalfa hayfields. Estimates of their population size indicate that they are in no immediate danger of extirpation/extinction although their relatively small breeding and wintering ranges suggest that the global population size is smaller than more widely distributed grassland species. Our results, combined with an examination of available literature, indicate that the de-listing of Baird's Sparrow was justified as the available information was "sufficient enough to resolve its status"¹² after all.

Acknowledgements

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POETRY

A NURSERY RHYME

Sing a song of sixpence
 A pocket full of rye
 Four and twenty blackbirds baked in a pie,
 When the pie was opened the birds began to sing
 Wasn't that a dainty dish to set before the king?

Editor's note: This nursery rhyme from the Middle Ages is based on fact. It was popular amusement at major feasts to bake a pie shell and then seal a group of songbirds inside. In this case they used the abundant Eurasian Blackbird, a black-coloured equivalent of our Robin. When the pie was cut in front of the unsuspecting guests the birds would burst forth, to the startled amusement of all. The practice was short-lived, as the novelty soon wore off.