

BIRDS OF GRAZED AND UNGRAZED GRASSLANDS IN SASKATCHEWAN

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Densities of song birds breeding on grazed and ungrazed grasslands at the north end of Last Mountain Lake, Saskatchewan, were determined in 1980 and 1981 as part of a study of bird habitat relationships.³ Species using the area, but breeding in other habitats, and non-passerine breeding species were also noted but their densities were not determined.

Two plots (see Table 1 for plot descriptions) in the Canadian Wildlife Service Wildlife Management Unit at Last Mountain Lake and one in the adjacent Wreford Community Pasture were censused in May, June and July of 1980 using the mapping method.¹² In 1981 four plots in the Management Unit were censused in May and June with the mapping method modified to allow prolonged observation or flushing of individual birds as encountered.^{9 17}

Densities of breeding passerine birds in 1980 and 1981 are presented in Table 2. The most common breeding species were Horned Lark (with a 2-year average of 25 pairs/100 ha), Sprague's Pipit (46 pr/100ha), Clay-colored Sparrow (30 pr/100ha), Savannah Sparrow (52 pr/100 ha), Baird's Sparrow (39 pr/100 ha), Chestnut-collared Longspur (31 pr/100 ha), Western Meadowlark (16 pr/100 ha) and Brown-headed Cowbird (21 pr/100 ha). Horned Larks and Chestnut-collared Longspurs occurred only in grazed plots. Clay-colored Sparrows appeared in greater numbers in grazed situations. Western Meadowlark and Brown-headed Cowbird numbers showed no response to grazing. Sprague's Pipit numbers declined with grazing and Savannah and Baird's

Sparrows were virtually eliminated by grazing during the dry summers of 1980 and 1981. In 1982, after a moist winter and spring, the plots at Last Mountain Lake supported growths of grass that appeared to be about twice the height of dead stems from previous seasons. Savannah Sparrows were heard giving territorial song on one of the grazed plots (1B) and Baird's were singing on both the grazed plots (1B and 3) when the study area was visited 3 July 1982.

The species encountered in this study were consistent with previous surveys of Canadian grassland avifauna.^{1 10 11 16 18} Some different or additional species were seen in the other studies: Brewer's Sparrow⁸, Lark Bunting,^{1 8 16} Grasshopper Sparrow,⁸ and McCown's Longspur.¹⁰ Last Mountain Lake is outside the normal range of all these species although single Lark Buntings and Grasshopper Sparrows have been seen within the Management Unit.^{6 15 2}

A greater number of species used the grazed over the ungrazed plots for feeding, but nested elsewhere. Eastern Kingbirds bred near the grazed plots (1A and 3) in 1980 and on plot 3 in 1981. Tree and Barn Swallows fed over grazed and ungrazed plots in 1980 but did not visit the plots in 1981. Chestnut-collared Longspurs foraged in a grazed plot(3) in 1980. Brewer's Blackbirds bred near and foraged on grazed plot 1A in 1980. A group of Brewer's Blackbirds remained on plot 3 for a period in 1981 but did not remain to breed.

More non-passerine species bred in the grazed than in the undisturbed

Table 1. DESCRIPTION OF STUDY PLOTS.

Plot number	Size	Legal description	Years studied	Regime	Common plant species of the most common lifeforms.
1A	9 ha	NE ¼ Sec 35 T28-R23-W2	1980	Grazed June to October annually.	Grasses: <i>Bouteloua gracilis</i> Dwarfshrubs: <i>Selaginella densa</i> Semi-shrubs: <i>Artemisia frigida</i> Shrubs: <i>Symphoricarpos occidentalis</i> <i>Elaeagnus commutata</i> <i>Rosa</i> sp.
1B	9 ha	NE ¼ Sec 11 T28-R24-W2	1981	Grazed two months per year (Aug. & Sept.)	Grasses: <i>Poa canbyi</i> <i>Carex praegracilis</i> <i>Hordeum jubatum</i>
2	9 ha	SW ¼ Sec 27 T28-R23-W2	1981	Last grazed in 1976	Grasses: <i>Poa canbyi</i> <i>Carex praegracilis</i> <i>Hordeum jubatum</i> <i>Bromus inermis</i> Shrubs: <i>Symphoricarpos occidentalis</i>
3	9 ha	SE ¼ Sec 29 T27-R23-W2	1980, 1981	Grazed May to Sept. annually	Grasses: <i>Bouteloua gracilis</i> Dwarfshrubs: <i>Selaginella densa</i> Semi-shrubs: <i>Artemisia frigida</i> Shrubs: <i>Symphoricarpos occidentalis</i> <i>Rosa</i> sp.
4	8 ha	SW ¼ Sec 3 T29-R23-W2	1980, 1981	Last grazed in 1975	Grasses: <i>Poa canbyi</i> <i>Carex praegracilis</i> <i>Hordeum jubatum</i> Shrubs: <i>Symphoricarpos occidentalis</i>

plots. Mallards and Killdeer bred on a grazed plot (3) in both years. Willets bred on grazed plots (1A and 3) in 1980 and on a grazed (1B) and an ungrazed (2) in 1981. Upland Sandpipers bred only on grazed plots (1A and 3 in 1980, 1B in 1981). Marbled Godwits bred on all the plots except plot 3.

The number of passerine pairs was consistently higher in undisturbed plots as compared to those subjected to grazing. The trend was similar in the Hand Hills of Alberta but the converse applied at Matador, Saskatchewan and in North Dakota.^{11 10 7} The effects of

grazing on avifauna are apparently not uniform and vary with locale and grazing intensity.²⁰

The overall mean density of breeding pairs was higher in 1981 (275 pairs/100 ha) than in 1980 (262 pairs/100 ha). This is a minor change compared to cases of large annual fluctuation in prairie passerines that have been documented.^{4 5 10 13 14} The population fluctuation observed here may be a sampling artifact. In areas with stable populations, densities derived from individual samples fluctuate annually due to territories shifting into or out of the sample site.^{19 20}

Table 2. PAIRS OF BREEDING PASSERINE SPECIES IN 1980 and 1981.

Plot: Year:	<i>Grazed</i>				<i>Ungrazed</i>		
	1A 1980	1B 1981	3 1980	3 1981	2 1981	4 1980	4 1981
Eastern Kingbird	0	0	0	1	0	0	0
Horned Lark	4	4	3	4	0	0	0
Sprague's Pipit	1	3	2	1	8	5	8
Clay-colored Sparrow	4	0	3	7	1	0	3
Vesper Sparrow	0	0	0	1	0	0	0
Savannah Sparrow	0	0	0	0	7	14	11
Baird's Sparrow	1	0	0	0	8	9	6
Chestnut-collared Longspur	8	10	0	1	0	0	0
Western Meadowlark	1	1	2	2	1	1	2
Brewer's Blackbird	0	0	6	0	0	0	0
Brown-headed Cowbird	1	3	2	2	2	1	2
Total Pairs	20	21	18	19	27	30	32
Total Species	7	5	6	8	6	5	6

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Savannah Sparrow.

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