

Appendix 1. Breeding habitat classifications.

Table A1.1. Breeding habitat classifications and rationale for the 15 grassland songbirds considered in this study (continued on next two pages).

Common Name	Scientific Name	Habitat†	Rationale
Baird's Sparrow	<i>Ammodramus bairdii</i>	G	This species occupies native mixed-grass and fescue prairie habitat and seeded pasture and hay. ^{1, 2, 3} Its breeding success can be poor in non-native habitats, but it is more tolerant of agriculture than other grassland obligates. ⁴ It is not observed breeding in cropland. ⁵
Bobolink	<i>Dolichonyx oryzivorus</i>	G	This species occupies tall-grass or mixed-grass prairie habitat. ⁶ It is not abundant in row crops and transitions from forage crops to row crops have been identified as a contributing factor to this species' recent decline. ⁷
Brewer's Sparrow	<i>Spizella breweri</i>	G	This species typically occupies native shrubsteppe habitats dominated by big sagebrush (<i>Artemisia tridentata</i>) that are uncommon in Alberta and is rarely observed in cropland or other agricultural habitat. ⁸ We included it in our analysis because of occurrence records from the Dry Mixedgrass region of southeastern Alberta. ⁹
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	G	This species occupies short-grass and mixed-grass prairie habitat. ^{10, 11} It exhibits some preference for native over seeded pasture, but occurs in both. ^{12, 13} It does not typically nest in cultivated fields. ^{5, 14}
Clay-colored Sparrow	<i>Spizella pallida</i>	G	This species uses both native and tame pastures for nesting. ^{12, 15, 16} Cropland is not used for breeding, and occurrence in cropland is lower than in pasture. ^{2, 16}

†Habitat: Native and tame grassland/pasture and hay (G); Annual cropland (C).

¹Green et al. (2002), ²McMaster and Davis (2001), ³Davis et al. (1999), ⁴COSEWIC (2012), ⁵Martin and Forsyth (2003), ⁶Martin and Gavin (1995), ⁷COSEWIC (2010a), ⁸Rotenberry et al. (1999), ⁹ABMI (2014), ¹⁰Hill and Gould (1997), ¹¹COSEWIC (2009), ¹²Davis and Duncan (1999), ¹³Lloyd and Martin (2005), ¹⁴Owens and Myres (1973), ¹⁵Grant and Knapton (2012), ¹⁶Dechant et al. (2002a).

Table A1.1 continued (completed on next page).

Grasshopper Sparrow	<i>Ammodramus savannarum</i>	G	This species breeds in moderately open grassland habitat and both native and tame pastures are used. ^{17, 18} It occasionally occupies cropland, but at very low density. ^{2, 18}
Horned Lark	<i>Eremophila alpestris</i>	G/C	This species is common and widespread in open habitats, especially with some bare ground and short grasses, and frequently occupies cropland habitats. ^{2, 14, 19}
Lark Bunting	<i>Calamospiza melanocorys</i>	G	This species occupies grassland and shrub-steppe habitats, and breeds in native and tame pastures and cultivated hayfields. ^{20, 21} It occasionally uses cropland but is much more commonly found in tame pasture. ²¹
Lark Sparrow	<i>Chondestes grammacus</i>	G	This species occupies structurally open habitats, including native and tame vegetation, with a preference for ecotones between grassland and shrub or forested habitats. ^{22, 23} Cropland use by this species is uncommon because of the absence of woody vegetation in cropland habitat. ^{22, 23}
Le Conte's Sparrow	<i>Ammodramus leconteii</i>	G	This species occupies open uplands and lowlands, including in prairie and aspen parkland. ²⁴ It typically nests in hayland, tame pasture or native vegetation and is generally not detected in cropland. ²⁵
McCown's Longspur	<i>Rhynchophanes mccownii</i>	G	This species occupies native short-grass and mixed-grass prairie and tame pasture. ^{26, 27} Cropland use has appeared since the 1990s, but is associated with low productivity and may be an ecological trap. ^{2, 5, 28}
Savannah Sparrow	<i>Passerculus sandwichensis</i>	G/C	This species uses a variety of tame pasture and native grassland habitats and successfully breeds in cropland. ^{5, 29}
Sprague's Pipit	<i>Anthus spragueii</i>	G	This species is closely associated with grazed native mixed-grass prairie in good condition. ³⁰ It occurs and nests in low numbers in tame pasture and is rarely recorded in cropland. ^{30, 31}

¹⁷Vickery (1996), ¹⁸Dechant et al. (2002b), ¹⁹Beason (1995), ²⁰Shane (2000), ²¹Dechant et al. (2002c), ²²Dechant et al. (2003a), ²³Martin and Parrish (2000), ²⁴Lowther (2005), ²⁵Dechant et al. (2003b), ²⁶With (2010), ²⁷Dechant et al. (2002d), ²⁸COSEWIC (2006), ²⁹Wheelwright and Rising (2008), ³⁰Davis et al. (2014), ³¹COSEWIC (2010b).

Table A1.1 completed.

Vesper Sparrow	<i>Poocetes gramineus</i>	G/C	This species occupies a broad range of grassland habitat types, including native and tame pasture and cultivated cropland. ^{2,12,32}
Western Meadowlark	<i>Sturnella neglecta</i>	G	This species is most common in native grasslands and perennial grassland cover and is uncommon in cropland. ^{2,14,33}

³²Jones and Cornely (2002), ³³Davis and Lanyon (2008).

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