

## SPECIES ACCOUNT

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### Species Data

Common Name: Grasshopper Sparrow  
Scientific Name: *Ammodramus savannarum*  
Species Code: B-GRSP  
BC Status: Red-listed  
Identified Wildlife Status: Volume II  
COSEWIC Status:

### Project Data

Project Name: Bella Vista / Goose Range Sensitive Ecosystems Inventory  
Project Type: Terrestrial Ecosystem Mapping  
Area: North Okanagan  
Ecoprovince: Southern Interior  
Ecoregions: Thompson-Okanagan Plateau  
Ecosections: Northern Okanagan Basin (NOB)  
BGC Units: IDFxh1  
Map Scale: 1:20 000

### Distribution

#### ***Provincial Range***

In BC, Grasshopper Sparrows are generally restricted to the Okanagan (particularly the north and south ends) and lower Similkameen valleys (Cannings 1995), but also occur near Cache Creek, in the Fraser Canyon south of Williams Lake, in the Nicola Valley, and possibly in the extreme southern Rocky Mtn. Trench (Fraser *et al.* 1999).

#### ***Elevation Range***

In BC, breeding generally occurs between 300 and 500 m, but nests have been found up to 1160 m (Campbell *et al.* 2001).

#### ***Distribution in the Project Area***

Occurs regularly at two sites in the North Okanagan: Mt. Middleton and Goose Lake (Campbell *et al.* 2001). Known to breed (or did breed) regularly at Goose Lake (Siddle 1993).

## Ecology and Habitat Requirements

Grasshopper Sparrows arrive in BC in spring from early to mid-May and depart in the fall from September to mid-October (Cannings *et al.* 1987).

Nesting territories range from 0.4 to 1.3 ha in size (BC Environment 1996), but large tracts of grassland are preferred. Nest construction begins in late May and egg laying begins early June (BC Environment 1996, Smith undated). Nests are built on the ground, usually at the base of a clump of grass or shrub, and are covered with a dome of overhanging grasses with a side entrance (Fraser *et al.* 1999). Second clutches are frequent in the species, but are smaller than first clutches which contain three to six eggs (Paczek 2002a). Renesting has not been recorded in BC (Campbell *et al.* 2001).

Grasshopper Sparrows occur in grasslands, with generally sparse shrub and grass cover, and patches of bare ground (Campbell *et al.* 2001). They prefer large expanses of grassland. Sites with surrounding coniferous or deciduous forest tend to be avoided, and they are highly correlated with the amount of shrub-steppe within a 2 km radius (Paczek 2002a).

Grasshopper Sparrows forage on the ground in open unvegetated areas for seeds, forbs and insects (Wiens 1973; Cannings 1995; BC Environment 1996). Insects comprise the majority of the diet, particularly of young, including grasshoppers, beetles and caterpillars (Paczek 2002a).

Predators of Grasshopper Sparrows include Red Fox, Raccoon, Striped Skunk, weasels, ground squirrels, hawks, Loggerhead Shrikes and snakes (Paczek 2002a). Trampling by cattle is also a concern (Campbell *et al.* 2001).

## General Living during Growing Season

### Security/Thermal Habitat and Food

Grasshopper Sparrows tend to avoid areas of dense shrub cover, although scattered shrubs are an important component of its habitat (Paczek 2002a). Grasshopper Sparrows are absent in fields where 35% of area is covered in shrubs, and prefer grasslands composed of short to middle height (20 to 60 cm) grass cover (Cannings 1995, Siddle 1993). During the breeding season, areas with lower grass cover, less litter and greater forb height and variability are occupied more than areas occupied during the non-breeding season (Wiens, 1973).

Birds have been found in bluebunch wheatgrass, bunchgrass-sagebrush, rabbitbrush, crested wheatgrass and occasionally in very disturbed sites dominated by Russian thistle (Cannings 1995). In sagebrush habitats, they most commonly occurred in sites with sparse sagebrush, an abundance of cheatgrass and pasture sage, and needle-and-thread grass as the dominant perennial grass (Paczek 2002b). They will breed in areas of non-native grasses, but the structure must be similar to healthy native grasslands; they are not found in early seral stages of forests following clearing or fires (Cannings 1995).

Grasshopper Sparrows prefer lightly grazed or ungrazed grassland (Cannings 1995, BC Environment 1996). In tall and mixed grass communities of the prairies they respond positively to grazing, but in shorter grasslands and in shrub-steppe habitats they likely respond negatively due to increased shrub cover (Bock *et al.* 1992). However, in eastern Washington they were most abundant in sites with deep, loamy soil in fair range condition, or shallow soil in poor condition (Vander Haegen *et al.* 2000).

Although they have been positively associated with native perennial grasses (Vander Haegen *et al.* 2000), they were positively associated with cheatgrass and pasture sage, both weedy species, in sagebrush habitats of the south Okanagan (Paczek 2002b). Grasshopper Sparrows have also been more abundant in areas with abundant Eurasian weeds in other studies, but may be responding more to structure than floristics, or to increased insect populations (e.g. grasshoppers) in weedy areas (Paczek 2002b).

Grasshopper Sparrows showed a negative correlation with north aspects (Paczek 2002b).

## Ratings

This model employs a 4-class rating scheme because there is insufficient knowledge of habitat requirements to use a 6-class scheme yet there is sufficient knowledge to go beyond a 2-class rating scheme. This complies with the recommended rating scheme in the RIC standards manual (1999).

### **Provincial Benchmark**

Ecosection	<ul style="list-style-type: none"> <li>• NOB, STU, SOB, OKR (BC Environment 1996)</li> </ul>
Biogeoclimatic Zones	<ul style="list-style-type: none"> <li>• BG, PP, IDF</li> </ul>
Habitats	<ul style="list-style-type: none"> <li>• Open grasslands</li> </ul>

### **Map Themes**

Habitat Use	Life Requisite	Season	Rating Code	Ecosystem Attributes
Living	Security/ Thermal, Food	Growing season	LIG	<ul style="list-style-type: none"> <li>• open grasslands</li> </ul>

### **Ratings Assumptions**

<b>Living during growing season – Security/Thermal, Food (LIG)</b>	
Site Series	<ul style="list-style-type: none"> <li>• Grasslands rated up to High and shrub-steppe rated up to Moderate</li> </ul>
Structural Stage	<ul style="list-style-type: none"> <li>• No effect on rating</li> </ul>
Shrub Density	<ul style="list-style-type: none"> <li>• Moderate (&gt;30%) rated Low, dense (&gt;50%) rated Nil</li> </ul>
Range Condition	<ul style="list-style-type: none"> <li>• Very poor (lack of bunchgrass) rated up to Low</li> </ul>
Aspect	<ul style="list-style-type: none"> <li>• Cool rated down 1</li> </ul>
Slope	<ul style="list-style-type: none"> <li>• Steep rated down 1</li> </ul>
Soil Texture	<ul style="list-style-type: none"> <li>• No effect on rating</li> </ul>
Soil Depth	<ul style="list-style-type: none"> <li>• No effect on rating</li> </ul>

## Map Interpretation

This model generates one map theme: general living during the growing season (LIG), which includes nesting and foraging areas. The dot density method is used to display ratings, which applies dot of various shades (darker =higher suitability), randomly within the polygon, based on the percent area of the polygon receiving that rating.

The size of contiguous suitable habitats should be considered when interpreting the map. Grasshopper Sparrows prefer large expanses of grassland, and tend to avoid areas with surrounding forest. Small, isolated areas of potentially suitable habitat are less likely to be used.

## Literature Cited

- BC Environment. 1996. Managing Identified Wildlife Guidebook 1.0, Kamloops Forest Region. Ministry of Environment, Lands and Parks and Ministry of Forests. Internal Government Review Draft.
- Bock, C.E., V.A. Saab, T.D. Rich and D.S. Dobkin. 1992. Effects of livestock grazing on neotropical migratory landbirds in western North America. In Status and Management of Neotropical Migratory Birds. USDA, Forest Service, Rocky Mountain Forest and Range Experiment Station, Colorado. Gen.Tech.Rep. RM-229.
- Bryan, A. and L. Mulholland. 1992. Draft. Species Notes and Management Options for Fifty-four Wildlife Species of Management Concern in the South Okanagan. Ministry of Environment Lands and Parks, Penticton, B.C.
- Cannings, R.J. 1995. Status of the Grasshopper Sparrow in British Columbia. Wildlife Branch. Ministry of Environment Lands and Parks, Victoria, B.C.
- Cannings, R.A., R.J. Cannings and S.G. Cannings. 1987. Birds of the Okanagan Valley, British Columbia. Royal British Columbia Museum.
- Hlady, D.A. 1990. South Okanagan Conservation Strategy. Ministry of Environment Lands and Parks, Victoria, B.C.
- Paczek, S. 2002a. Grasshopper Sparrow (*Ammodramus savannarum perpallidus*). In Standards for managing identified wildlife, Version 2. K. Paige ed. Min. of Water, Land and Air Protection. Victoria, BC.
- Paczek, S. 2002b. Effects of fine scale and landscape level habitats features on sagebrush breeding birds of the south Okanagan and Similkameen valleys, BC. Unpubl. MSc. Thesis, UBC, Vancouver, BC.
- Siddle, C. 1993. The Grasshopper Sparrow in the North Okanagan. Ministry of Environment Lands and Parks, Penticton, B.C.
- Smith, R.L. undated. *Ammodramus savannarum*: Grasshopper Sparrow. U.S. National Museum Bulletin 237. Plate 41.
- Stevens, V. 1995. Database for wildlife diversity in British Columbia: distribution and habitat use of amphibians, reptiles, birds and mammals in biogeoclimatic zones. Res. Br., B.C. Min. For., Hab. Protect. Br., B.C. Environment, Victoria, B.C. Work. Paper 05/1995.
- Vander Haegen, W.M., F.C. Dobler and D.J. Pierce. 2000. Shrub-steppe bird response to habitat and landscape variables in Eastern Washington, USA. *Conservation Biology* 14(4): 1145-1160.
- Vickery, P.D. 1996. Grasshopper Sparrow (*Ammodramus savannarum*). In A. Poole and F. Gill, eds. The Birds of North America No. 239. Acad. Nat. Sci., Philadelphia, PA and Am. Ornithol. Union, Washington, DC.
- Weins, J.A. 1973. Interterritorial Habitat Variation in Grasshopper and Savannah Sparrows. *Ecology* 54(4): 877-884.
- Whitmore, R.C. 1981. Structural characteristics of grasshopper sparrow habitat. *Short Communications. J. Wildl. Manage.* 45(3).

# Grasshopper Sparrow Suitability Map

