Stewardship for nesting grasshopper sparrows on farms in Ontario

Zoé M. Lebrun-Southcott, Andrew J. Campomizzi

Bird Ecology and Conservation Ontario, Toronto, Ontario

Introduction

- Populations of grassland birds declined by 53% in North America (1970–2017)
- Eastern grasshopper sparrow (*Ammodramus savannarum pratensis*) listed as Special Concern in Canada and Ontario; population declined by 79% in Ontario (1970–2021)
- Nesting habitat in the province primarily occurs in hayfields and pastures on farms, and area is decreasing
- Agricultural activity can inadvertently destroy nests
- Farm practices compatible with breeding success in agricultural grassland are not well understood
- First of 3-year project to implement and monitor impacts of stewardship for nesting grasshopper sparrows

Objectives

- **Bird surveys** in hayfields and pastures on farms to locate grasshopper sparrows
- **Collaborate with farmers to implement stewardship:** use locations of birds and farm management to guide stewardship
- **Monitor breeding success** in fields with and without stewardship

Methods

- Transect surveys on 10 farms in Grey and Huron Counties, Ontario in 2022
- Spot mapping and nest monitoring to determine if young fledged in territories on 8 farms (3 of which were also surveyed)

Results

- Estimated 38 grasshopper sparrow territories on 12 farms (based on transect surveys, spot mapping, and anecdotal observations across 15 farms [314 ha])
- 65% of 31 monitored territories fledged young, 10% of territories fledged 2 broods
- Overall, 58% of nests (*n* = 40) fledged young
- For nests impacted by stewardship, 63% (*n* = 32) fledged young
- 82% (*n* = 11) of nest failure in nests impacted by stewardship was due to predation

Stewardship type	No. grasshopper sparrow nests				
	Fledged	Predated	Trampled	Abandoned	Unknown outcome
Delayed grazing	3	0	0	0	0
Delayed mowing	7	3	1	0	1
Fallow	1	1	0	0	0
Extended rest after grazing	4	4	0	0	0
Light grazing	1	0	0	0	0
Livestock exclusion fencing	2	0	0	0	0
Nest avoidance during mowing	2	1	0	1	0

Table 1. Outcome of grasshopper sparrow nests impacted by various stewardship actions on farms in Ontario in 2022.

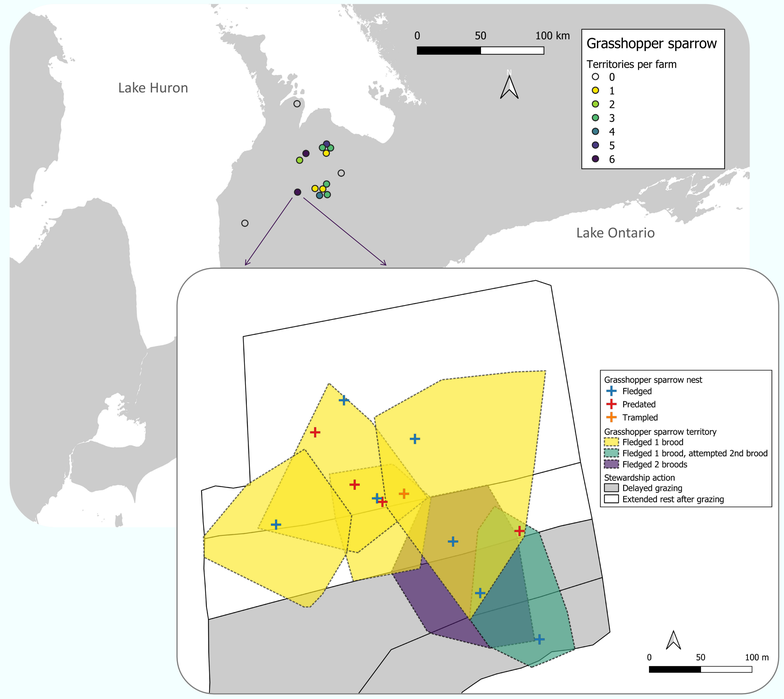
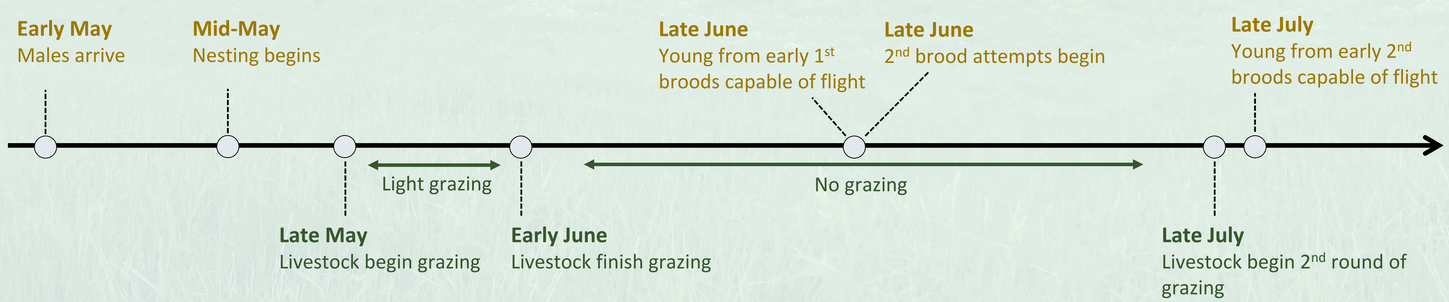


Figure 1. Map of study area and inset map of 1 farm showing grasshopper sparrow territories and nests across 4 fields with 2 stewardship actions. Area of grassland varied across farms (2.9–47.9 ha).

Male grasshopper sparrow displaying. Photo: John Reaume

Grasshopper sparrow nest. Photo: Zoé Lebrun-Southcott

Grasshopper sparrow breeding phenology



Example stewardship: grazing followed by extended rest period

Discussion

- Nests fledged under various conditions, including avoidance or minimization of disturbance during nesting and normal, but not intensive, agricultural activity
- Some stewardship actions have potential for broad application: delayed grazing, delayed mowing, leaving fields fallow, light grazing, and providing a sufficient rest period after grazing
- Providing a sufficient rest period after grazing for birds to raise young has potential for stewardship and acceptance by farmers, but empirical evidence is lacking
- We monitored nesting in 3 fields with sufficient rest periods after grazing: 55, 60, and at least 76 days
- Grasshopper sparrows need ~35 days to raise young: 3 days nest building, 25 days egg laying to fledging, 7 days from fledging until young fly proficiently
- More research is needed to find compatibility between farm practices and grasshopper sparrow breeding success

Acknowledgments

Funders: Government of Canada through the Habitat Stewardship Program for Species at Risk and the Species at Risk Partnerships on Agricultural Lands initiative, Colleges and Institutes Canada's Clean Tech Internship program, The McLean Foundation, Hodgson Family Foundation, K. M. Hunter Charitable Foundation, S. M. Blair Family Foundation, Jackman Foundation, the Government of Canada's Canada Summer Jobs program, and generous donors. Landowners generously provided access to farms. We thank L. Wright Zenkovich and M. McCaughan for assistance collecting field data.

This project was undertaken with the financial support of:
Ce projet a été réalisé avec l'appui financier de :
Environment and Climate Change Canada
Environnement et Changement climatique Canada