**Outline for grassland bird fact sheet**

2024.01.24

**Goal:** Create a concise fact sheet about grassland bird species at risk in southern Ontario to provide farmers and landowners with basic information about habitat use, population declines, reasons for population declines, and beneficial stewardship actions

**Content:**

1. Why are we interested in grassland birds (i.e., birds that nest on the ground in grassland only) in Ontario
   1. Multiple species listed as at risk by government
      1. Bobolink and eastern meadowlark listed as Threatened in Canada and Ontario
      2. Grasshopper sparrow listed as Special Concern in Canada and Ontario
   2. Species largely listed as at risk because of population declines
      1. More broadly, grassland bird populations decreased by 53% in North America between 1970 and 2017, more than birds in any other biome (Rosenberg et al. 2019)
      2. Population declines in Ontario 1970-2021 from BBS data (<https://wildlife-species.canada.ca/breeding-bird-survey-results/P002/A001/?lang=e>)
         1. BOBO: 80%
         2. EAME: 84%
         3. GRSP: 79%
         4. SAVS: 79% (not listed as at risk)
         5. These are migratory birds that nest in Canada and the US in spring and summer and spend the rest of the year, depending on the species, in parts of the US, central and south America
         6. There are several other species that nest on or near the ground in grasslands and that are often seen in hayfields and pastures during the breeding season (Savannah sparrow, red-winged blackbird, Wilson’s snipe, etc.)
   3. Why are populations declining
      1. Historically, populations of these species would have been restricted to fairly small areas of grassland in eastern north America (east of the Great Plains)
      2. Clearing and draining of land for farming enabled creation of agricultural grasslands (i.e., hayfield, pasture) that increased grassland bird populations
      3. Populations have been declining for 50-100 years for various reasons. On breeding grounds, changes in agriculture are contributing to population declines (e.g., conversion from agricultural grassland to annual row crops [habitat loss], earlier and more frequent hay cuts during the nesting season). Loss of nesting habitat is also occurring for other reasons (e.g., development, reforestation)
2. Connection between grassland birds and agricultural grassland
   1. Most nesting habitat for grassland birds in Ontario occurs in grass-dominated hayfields and pastures. Little other grassland exists in the province.
   2. Grasslands in southern Ontario are important for grassland birds. E.g., high abundance of bobolink (~10% of the bobolink population breeds in Ontario [https://pif.birdconservancy.org/population-estimate-database-scores/]).
3. Unfortunately, there are often inadvertent negative impacts of agricultural activity in hayfields and pastures on nesting grassland birds (a critical time when birds are raising young to sustain the population)
   1. Impacts vary depending on farm practices and depending on species
   2. In general, there are various reasons nests fail, most commonly because predators eat eggs or young
   3. Agricultural activity (e.g., hay harvest, grazing) causes additional nest failure
      1. Cutting hay in ~mid-June, which is peak nesting season, directly or indirectly (through exposure) destroys nearly all nests present in a field
      2. Most bobolink nests are trampled (cattle step or lay on nests) in pastures grazed at the typical stocking rates for beef cattle we’ve observed in the Ottawa Valley, and Grey and Dufferin County area (Campomizzi et al. 2019)
      3. A study we published analyzing 463 bobolink nests found trampling, not predation, was the main cause of nest failure in rotationally-grazed pastures (Fromberger et al. 2020)
4. There are also opportunities for grassland birds to nest successfully in agricultural grasslands
   1. To understand the impact of various stewardship actions, it’s important to be aware of differences among these 3 bird species at risk (habitat use, timing, # of broods, response to grazing)
      1. BOBO
         1. Typically nest in lush, grassy hayfields and pastures (prefer tall, dense vegetation)
         2. Have short nesting season: mid-May to late July
         3. Attempt to raise 1 brood of young
         4. Nesting cycle ~28 days (not including nest building)
         5. Polygamous (often >1 nesting female in each territory)
      2. EAME
         1. Typically use sparser vegetation than BOBO
         2. Start breeding early and have a long nesting season: mid-April to mid-August (arrive in March)
         3. Attempt to raise 2 broods
         4. Nesting cycle ~30 days (not including nest building)
         5. Polygynous (often >1 nesting female in each territory)
      3. GRSP
         1. Found in sparsest, shortest vegetation of these 3 species
         2. Moderately long nesting season: Mid-May to mid-August
         3. Attempt to raise 2 broods
         4. Nesting cycle ~24 days (not including nest building)
         5. Monogamous
      4. Habitat requirements do overlap and sometimes all 3 species occur in the same field, but in lush dense hayfields, we typically wouldn’t find GRSP and few if any EAME.
      5. BOBO typically disperse from pastures rotationally grazed at normal cattle stocking rates because remaining vegetation is too short. However, EAME and GRSP typically stay because they can nest in shorter vegetation
   2. Stewardship practices (to give birds time and space to raise young)
      1. The best scenario for the birds is no disturbance during the nesting season, which, of course, is not practical on farms
      2. Target hayfields and pastures for stewardship that have many nesting birds to benefit as many nests as possible and have minimal impacts on forage production
      3. Hayfields
         1. Delayed hay harvest
            1. Cut hayfields with the most nesting birds late or last if farm has many fields to cut
         2. Cut perimeter, delay cut of interior
            1. Cut perimeter of fields at best time for forage quality and delay cut of interior to allow birds time to raise young because grassland birds tend to avoid nesting near field edges
         3. Cut vegetation high to leave more vegetation uncut
            1. Nests will be destroyed during cut, but some species (GRSP, SAVS) may build new nests in fields cut in June or early July
            2. Fields need to remain undisturbed for long enough after cut to allow enough time for birds to raise young
      4. Pastures (rotational grazing provides management opportunities that can benefit breeding grassland birds because cattle grazing is spatially and temporally controlled across paddocks and some areas can be targeted for bird stewardship actions)
         1. Delayed grazing (nesting refuge)
            1. Graze pastures with the most nesting birds late or last in the rotation

We’ve seen some pastures are not grazed until July, which gives the birds time to raise young, except again EAME and GRSP may not have time to raise 2 broods and some BOBO will still be nesting in July

* + - 1. Light spring grazing
         1. Particularly for BOBO: graze from ~20 May (around when birds begin nesting) to first few days of June at low stocking rate (~30-40 cattle-days/ha)
         2. Then, leave pasture ungrazed for at least 1 month (preferably 5 to 6 weeks) to give birds time to raise young
         3. Some nests may be trampled, but birds will have time to build a new nest
         4. Probably also works well For EAME and GRSP, but birds may not be able to raise 2 broods
      2. Light grazing, particularly for BOBO, while most nests in area are active
         1. Low stocking rates of ≤ 40 cattle-days/ha (# cattle x days grazed/ area grazed).
         2. E.g., between 21 May and 30 June, 40 head of cattle graze a 4 ha pasture for 4 days. No other grazing occurs in this 4 ha pasture during this period. Of course, impact on the vegetation and the birds will be different on different farms because of differences in vegetation.
         3. Probably also works for EAME and GRSP, but we do not have the data yet
      3. Lengthen rest period between grazing occasions
         1. After grazing at normal stocking rate in spring, if pasture is rested for at least 40-45 days, then birds have time to raise 1 brood of young

E.g., EAME typically need a few days to build a nest, lay 5 eggs (1 per day) incubate eggs for 14 days, young remain in nest for 11 days after hatching, young walk out of nest and are unable to fly well for about 1 week.

Likely won’t work for BOBOs because they will likely have dispersed from fields

1. Other information to include:
   1. BECO logo
   2. Include year somewhere on sheet
   3. For more information and resources: grasslandbirds.ca
   4. References for statistics included on fact sheet
   5. May need to include funding statements (to be determined):
      1. This project was undertaken with the financial support of the Government of Canada provided through the federal Department of Environment and Climate Change. Ce projet a été réalisé avec l’appui financier du gouvernement du Canada agissant par l’entremise du ministère fédéral de l’Environnement et du Changement climatique.
      2. This project has received funding support from the Government of Ontario. Such support does not indicate endorsement by the Government of Ontario of the contents of this material.