

Bird population declines across North America

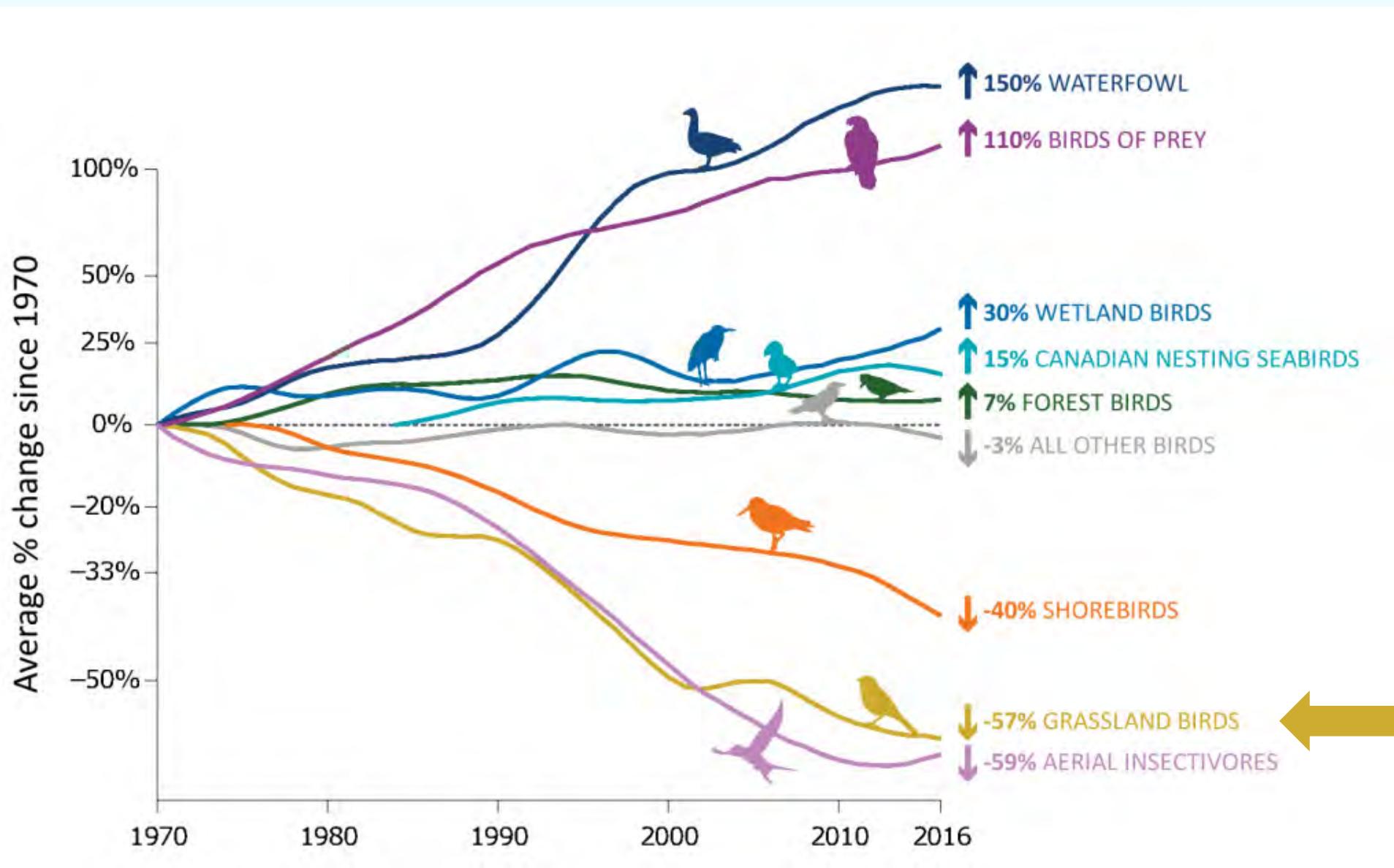
- 29% population decline for all birds since 1970
- Loss of 3 billion birds

Grassland birds declined more than birds in any other biome



Rosenberg, K. V. et al. 2019. Decline of the North American Avifauna. *Science* 365(6461)

The State of Canada's Birds 2019



Farms provide diverse habitat

woodland



mature trees



wetland



buildings



fencerows

grassland

Grassland is important habitat for many species

- Substantial biodiversity exists in grasslands
- Many birds use grasslands during
 - Migration
 - Nesting
 - Post-breeding
- Some birds depend on grasslands



Grassland birds

- Grassland obligates
- Entire life cycle dependent on grassland
- Migratory
- Nest on the ground in hayfields and pastures
- Steep population declines



Bobolink

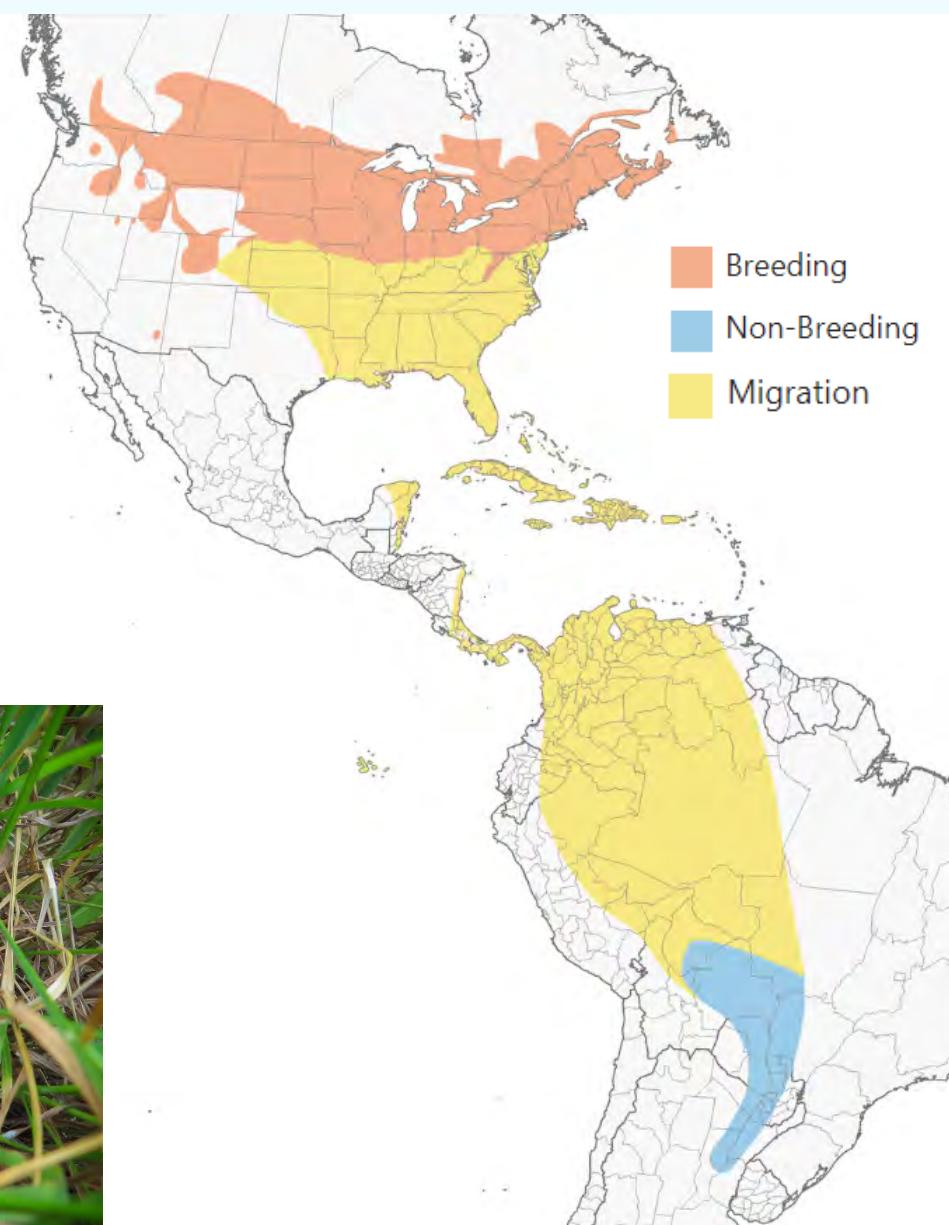
- Common in Ontario
- Male easily identifiable by black and white plumage
- Sexual dimorphism in breeding season
- Males and females look alike in non-breeding season

Song: long and bubbly, R2D2-like
Calls: large variety



Bobolink

- 20,000 km annual migration
- Nests in lush grassland from May to ~mid-July
- Attempts 1 brood only
- Often > 1 female nesting in a territory





Eastern meadowlark

- Males and females look alike
- Bright yellow underparts
- Black, V-shaped necklace on chest
- White outer tail feathers often visible in flight

Song: pure, flute-like notes
“see-you see-yeeeer”
Calls: Rattle and “Dzert”



Eastern meadowlark

- 1st grassland bird to arrive in spring
- Large territories span multiple fields
- Nests in moderately-dense grassland from April to August
- Often > 1 female nesting in a territory

Each female attempts 2 broods



Drawing by J. Zickefoose
The Cornell Lab of Ornithology Birds of the World

Grasshopper sparrow

- Smallest sparrow in North America
- Relatively uncommon in Ontario
- Brown and tan, no streaking on breast
- Short tail and large head
- Small yellow mark above eye and yellow edge of wing
- Male and female look alike

2 songs:

- Insect-like buzz: "tsick, tsick, tsurrrrrrrr"
- Warble

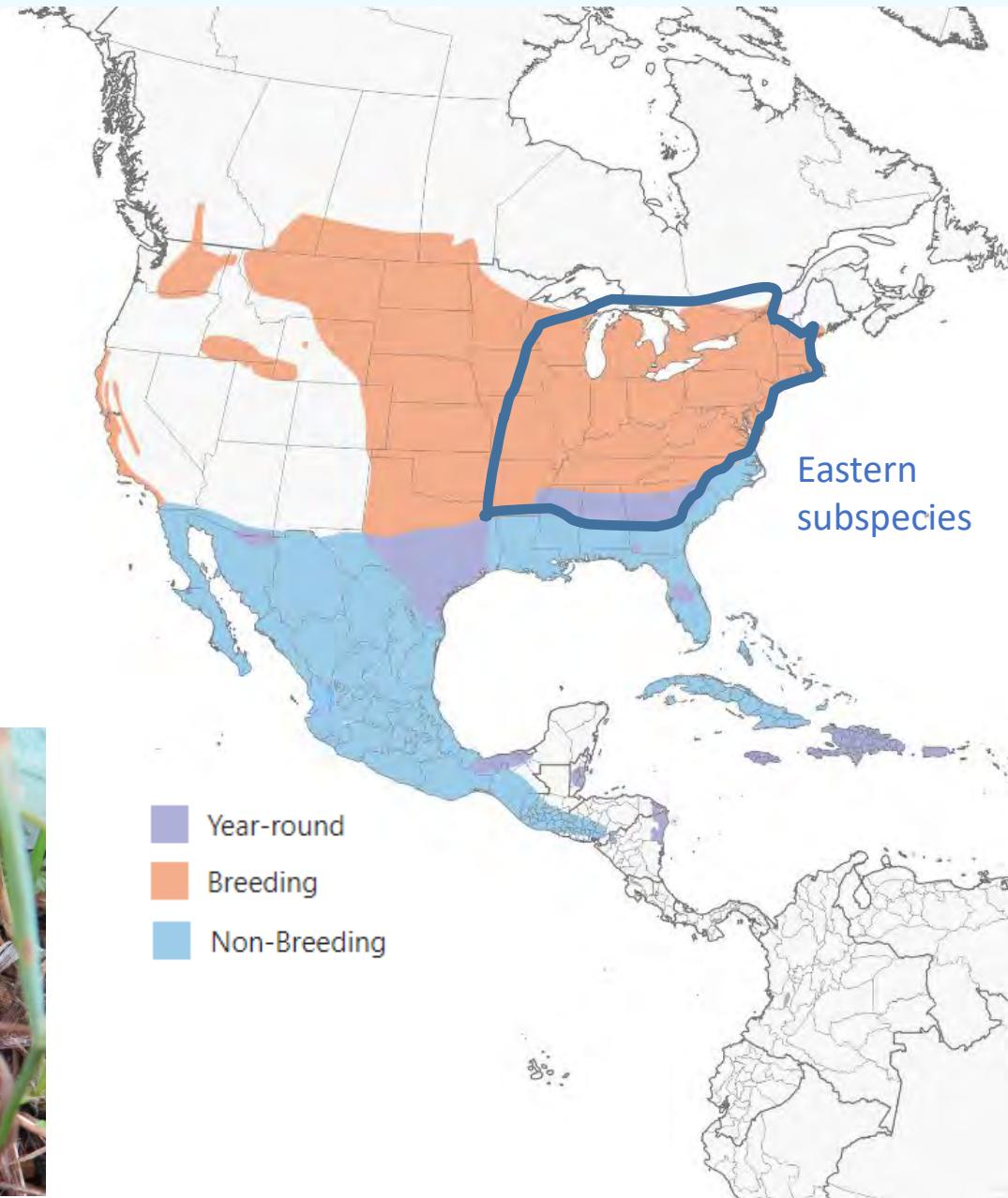
Call: quiet "*chi-ip*"



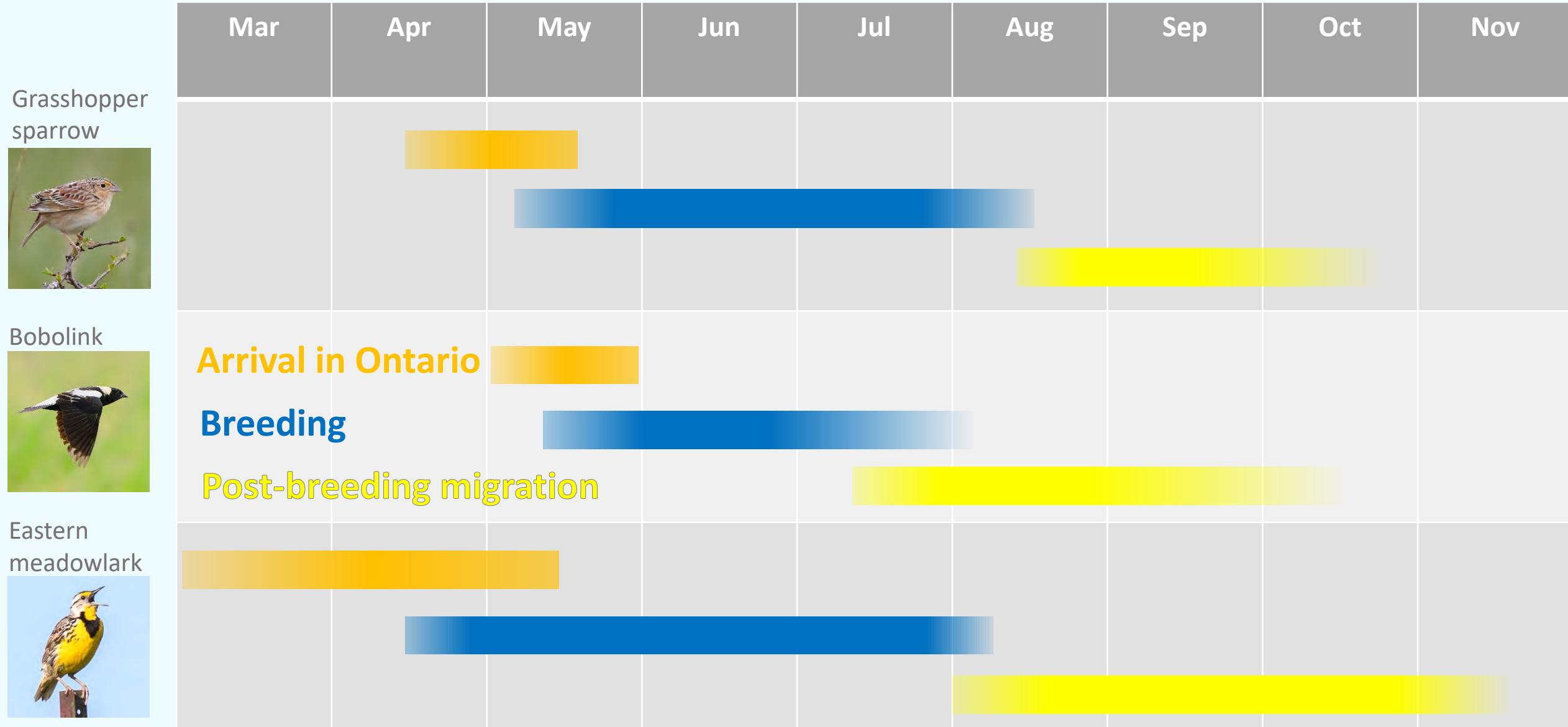
Photo: John Reaume

Grasshopper sparrow

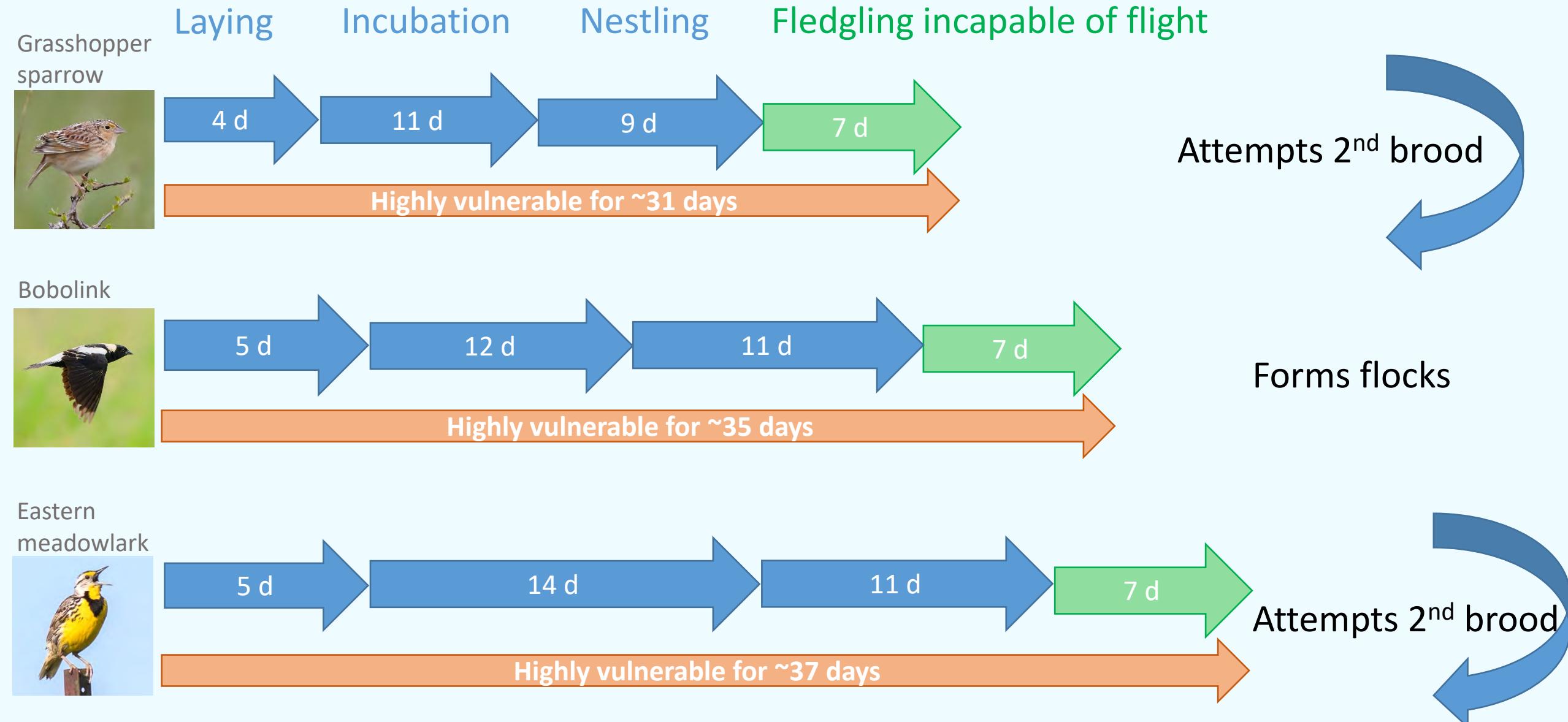
- Eastern subspecies
- Nests in low-moderate density vegetation
- Nests from May to mid-August
- Monogamous
- Attempts 2 broods



Timing of breeding seasons in Ontario



Nesting period



Habitat in Ontario

- Large open areas: hayfields and pastures
- Dominated by grasses and forbs, low to moderate legume cover, low shrub cover
- Species have slightly different preferences, but habitats overlap
- All nest on the ground and need protective cover of vegetation: protection from predators and microclimate

- Low-moderate vegetation height and density
- Low-moderately productive grassland



- Lush, tall, dense vegetation
- Highly productive grassland

Habitat suitability: General guidelines

- Grass-based forage crop: perennial >>> annual
- Field size: large > small
- Field shape: wide > narrow
- Wooded edges: open > closed in
- Adjacent fields: grassland > row crops > woodland, urban
- Vegetation cover: grasses > legumes > shrubs

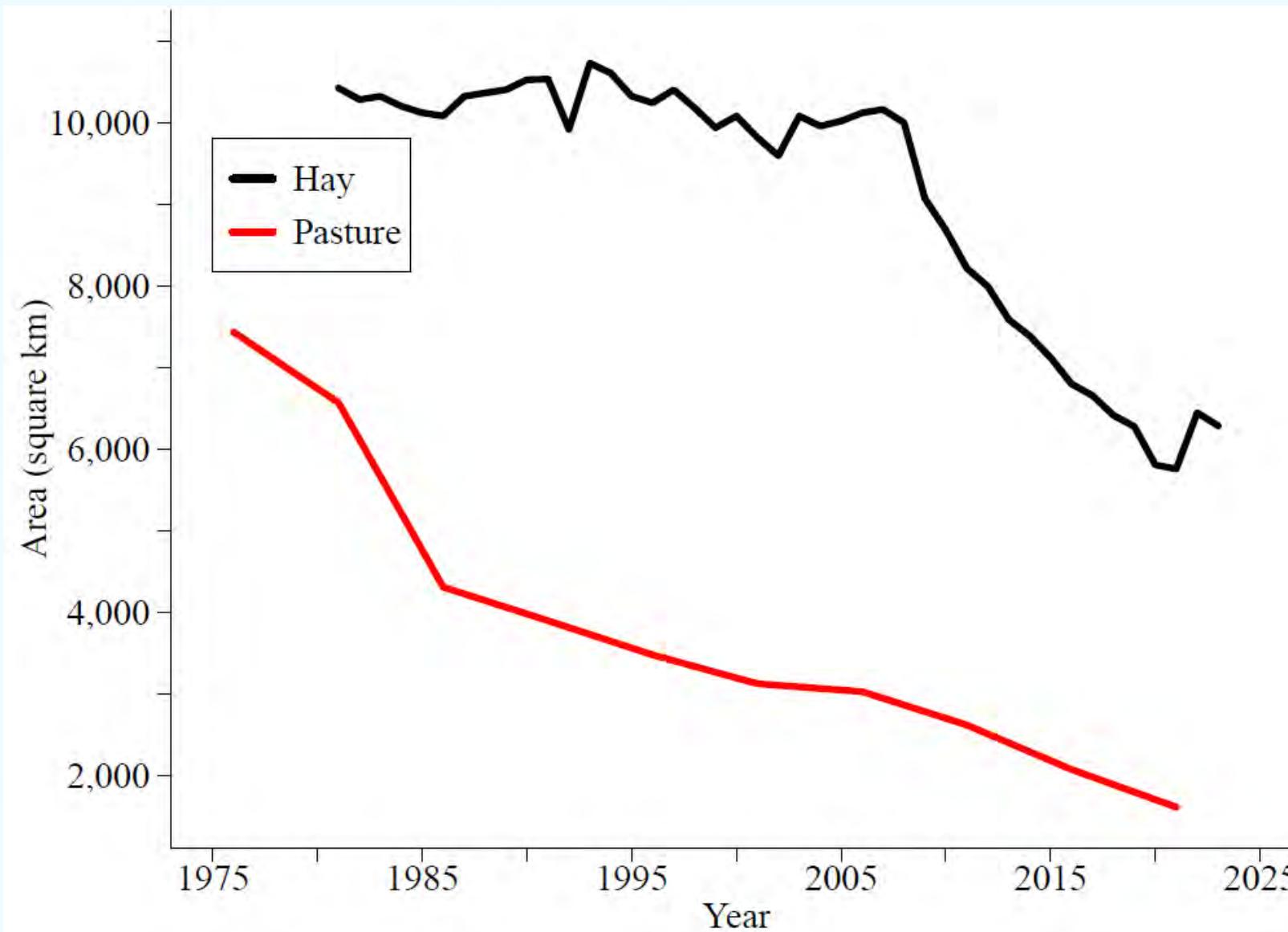


Habitat in Ontario



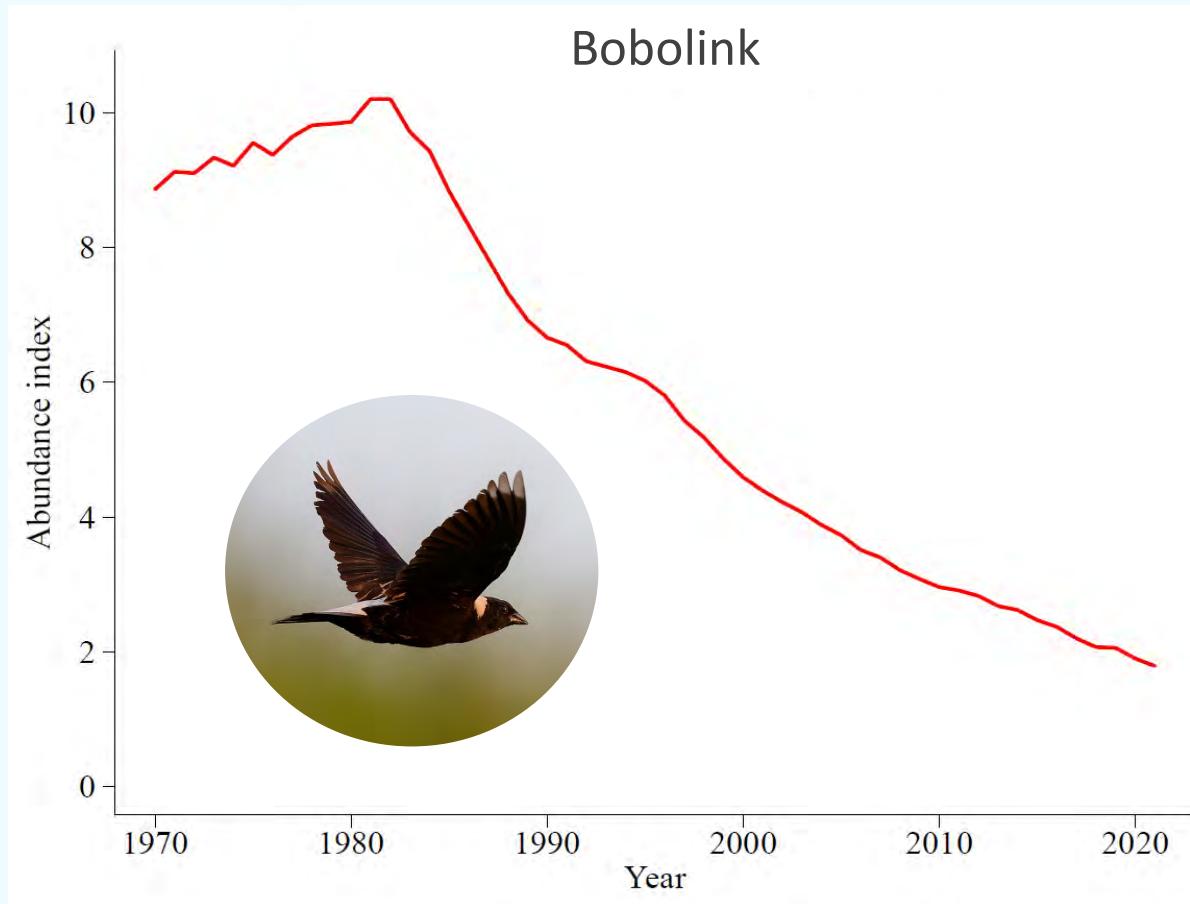
- 18% of grassland lost 2011–2019
- Grassland converted to oilseeds, urban, forest

Decrease in area of hay and pasture in Ontario



- Hay data: OMAFRA
- Pasture data: Statistics Canada

Population declines for grassland birds in Ontario



- Declines of ~80%
- Breeding Bird Survey data

	Ontario	Canada
Bobolink	Threatened	Threatened
Eastern meadowlark	Threatened	Threatened
Grasshopper sparrow	Special Concern	Special Concern
Savannah sparrow	Not listed	Not listed

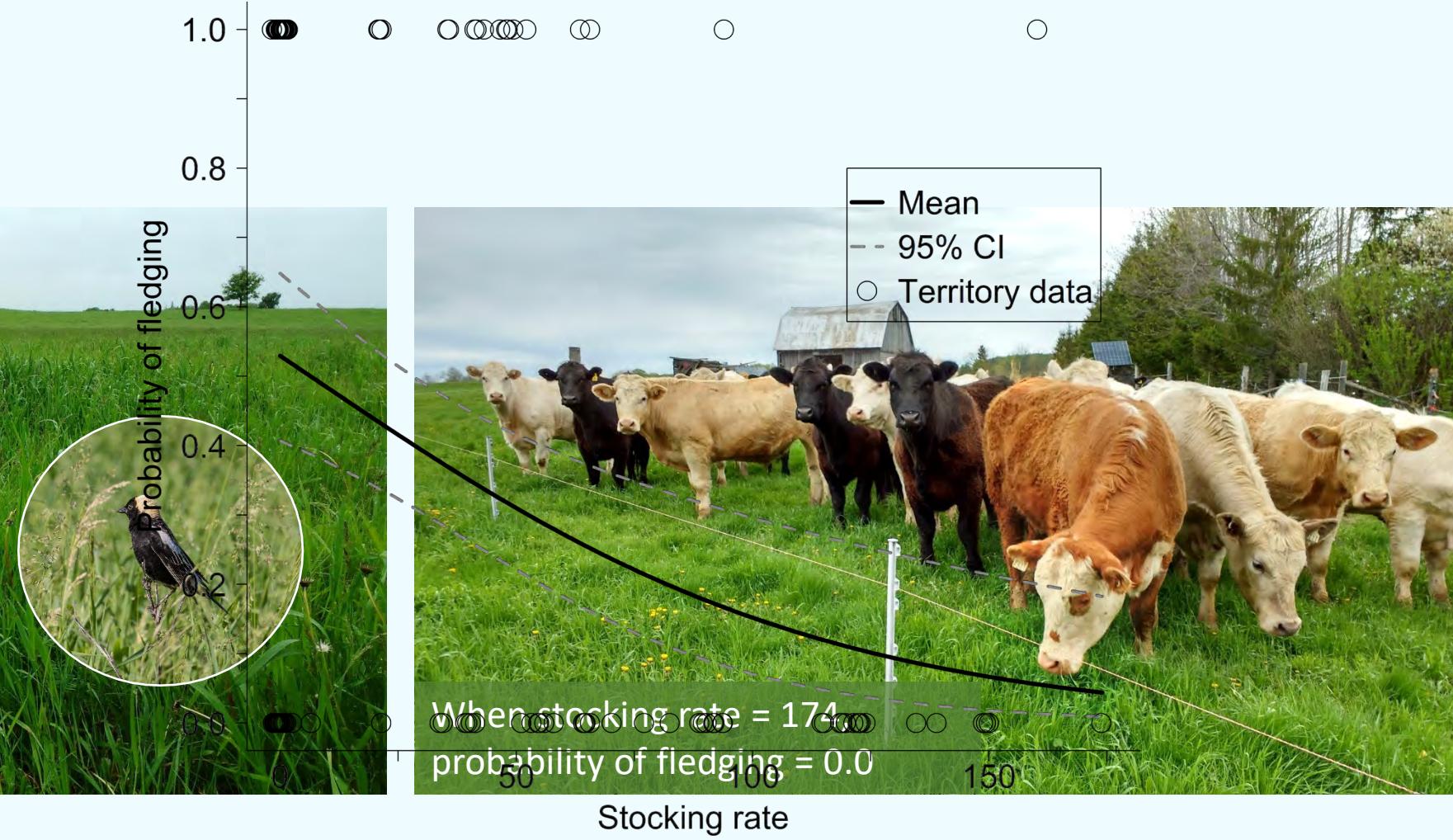
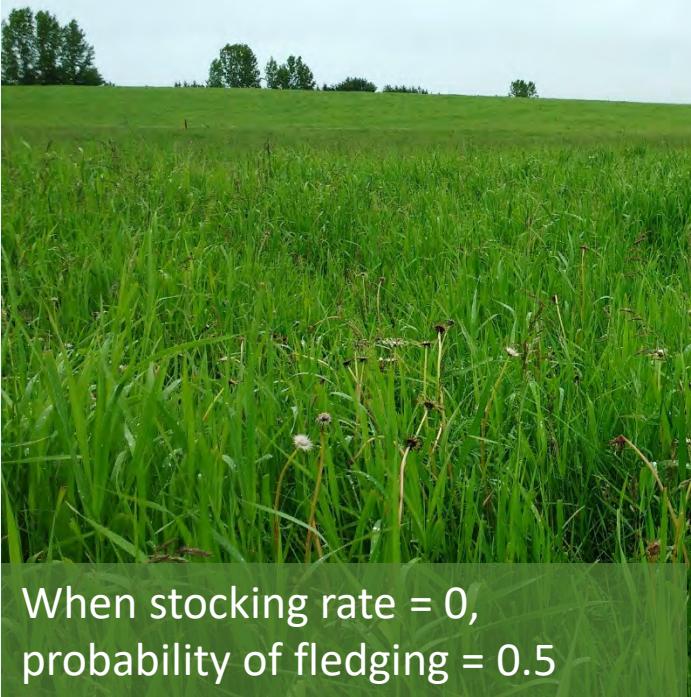
Reasons for grassland bird population decline

- Various reasons on non-breeding grounds and migration routes
- Problems for birds on breeding grounds
 - Habitat loss
 - Hay harvest and intensive grazing in June and July inadvertently destroys nests



Impact of grazing on grassland birds

Mid-season grazing:
27 May to 24 June



Opportunities for stewardship

- Providing habitat during nesting season
- Peak nesting: late May – late June
- Providing habitat before migration
- Find stewardship actions that fit with farm management



Stewardship action: Delayed haying

A wide-angle photograph of a rural landscape. In the foreground, there's a field of green grass with a single hay bale on the left. Beyond the field is a line of dark evergreen trees. The sky is blue with some wispy clouds.

Delay until **mid-July** or later

Alternatives:

Perimeters first: Protects many nests in central areas

Fields with high abundance last: Delay until at least early July

Large fields last: Grassland birds prefer large open areas for nesting

Stewardship action: Delayed grazing

Delay until mid-July or later

Alternatives

- Graze fields with high grassland bird abundance last in rotation
- Graze central paddocks last



Stewardship action: Light spring grazing

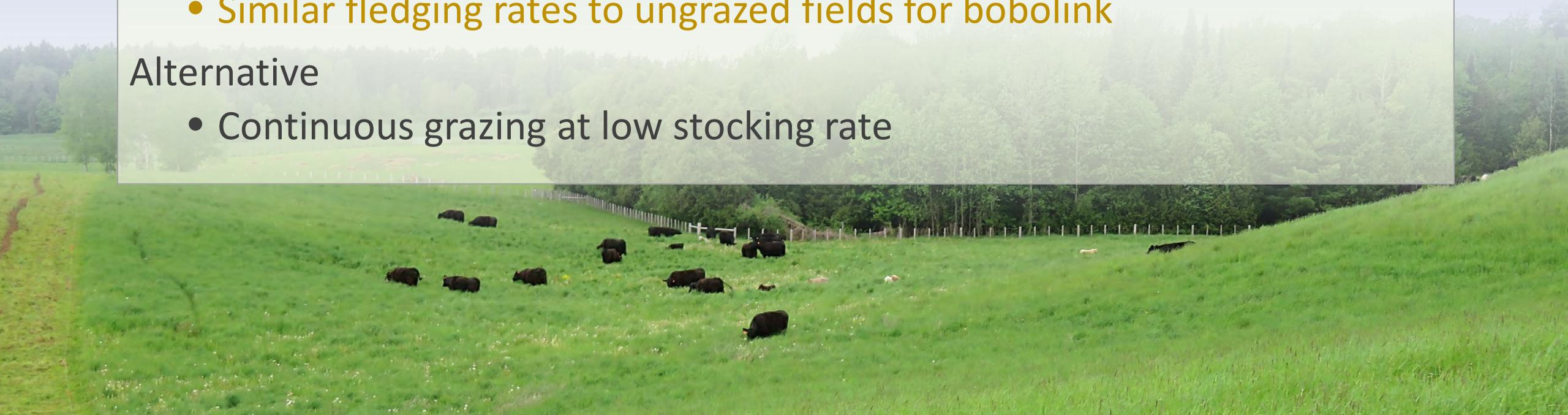
Select paddocks

Graze lightly late May – early June, then rest until mid-July

- Stocking rate of < 50 (stocking rate = # cattle × # days ÷ area [ha])
- Some nests may be trampled
- Vegetation remains suitable for birds to renest after grazing
- Similar fledging rates to ungrazed fields for bobolink

Alternative

- Continuous grazing at low stocking rate



Stewardship action: Refuge paddock

Select paddock

Delay grazing of paddock until birds finish nesting (mid-July or later)

Vegetation in refuge paddock remains undisturbed and grassland birds can raise young



Stewardship action: Extended rest period



Extend time between grazing events

Resting period of 55, 60, and 76 days enabled grasshopper sparrows to
fledge young at 2 farms in 2022

More research is needed

Stewardship action: Managing grassland for birds

- Some fields not being farmed can be left undisturbed during breeding and post-breeding
- Leave grassy fields fallow
- Remove encroaching shrubs and trees
- Plant native prairie
- Avoid management during bird breeding season



Opportunities for stewardship: Recap

- Many stewardship practices exist
 - Delayed hay harvest
 - Delayed grazing
 - Light spring grazing
 - Refuge paddocks
 - Extended resting period
 - Managing grassland for birds
- A combination of stewardship practices may be most suitable

