

# Farming with Grassland Birds

*A guide to making your hay  
and pasture bird friendly*





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## Acknowledgements

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August, 2016.

### **Species at Risk Partnerships on Agricultural Lands**

This workbook was funded through the Species at Risk Partnerships on Agricultural Lands (SARPAL) program, an Environment and Climate Change Canada initiative focused on working with farmers to support the recovery of species at risk on agricultural land. SARPAL funds priority conservation actions currently focused in Ontario on supporting the Bobolink and the American Badger. Visit [www.ontariosoilcrop.org](http://www.ontariosoilcrop.org) for more information.

*The views expressed herein are solely those of the Ontario Soil and Crop Improvement Association.*

*This project was undertaken with the financial support of the Government of Canada.*

*Ce projet a été réalisé avec l'appui financier du gouvernement du Canada.*

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Bobolink

## Introduction

Birds and farmers have always coexisted, sharing the land. Pastures and hayfields provide feed for livestock as well as attracting many types of wildlife, including grassland birds. In fact, the conversion of forest in Ontario to pasture and forage crops in the 1700s and 1800s greatly benefited grassland birds.

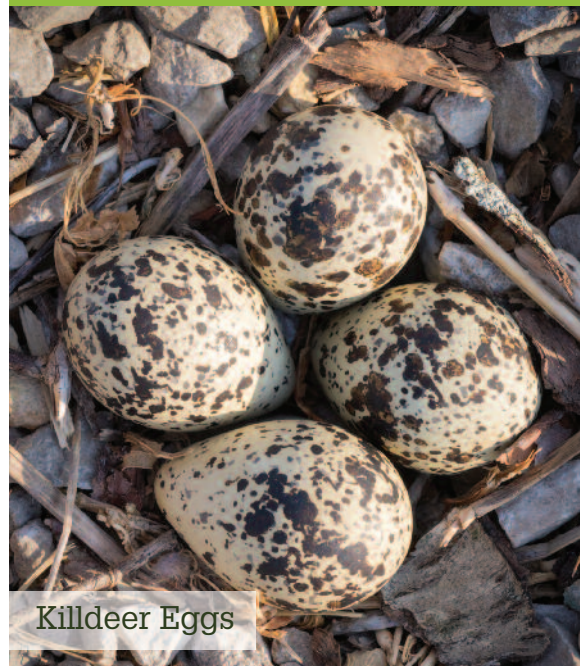
If your farm operation includes hay or pasture, you are likely aware of the recent focus on grassland birds, especially those that have been designated as at risk under Ontario's Endangered Species Act. While agricultural operations have been granted an exemption under the Act with respect to Bobolink and Eastern Meadowlark until 2025, populations of many grassland birds are rapidly declining. Farmers and other rural landowners are being asked to do their part to help these birds regain healthy populations.

Managing your lands for grassland birds versus managing for agricultural productivity does not have to be an either-or situation. Many farmers already have healthy populations of birds in their hayfields and pastures. In fact, Ontario's grassland birds depend on these farmland habitats for their survival. In general, good pasture management is also good for many bird species. While forage production may be more difficult to integrate with grassland bird reproduction, this guide offers several suggestions on how this can be accomplished.

Maintaining a viable forage or grazing program that considers the needs of both birds and livestock producers is critical. Otherwise, there are two likely alternatives: the land will be converted to annual row crops, or abandoned and overtaken by shrubs and trees, resulting in lost habitat. Finding a system that allows for coexistence is the most desirable outcome for farmers and grassland birds.

This workbook is designed to:

- i) Introduce the needs and characteristics of common grassland species;
- ii) Assist you in evaluating the suitability of your hay and pasture fields as grassland bird habitat;
- iii) Present a series of potential Best Management Practices (BMPs) that you could consider for your operation; and
- iv) Guide you in developing a management plan that encompasses your overall farm goals as well as accommodation of nesting grassland birds.



Killdeer Eggs

## Funding Opportunities

The Species at Risk Partnerships on Agricultural Lands (SARPAL) program offers financial support for management actions that improve grassland habitat and benefit grassland birds at risk. For more information on this and other landowner incentive programs delivered by the Ontario Soil and Crop Improvement Association, visit [www.ontariosoilcrop.org](http://www.ontariosoilcrop.org).

## Grasslands

The term "grasslands" is used throughout this workbook to refer to any type of forage crop (hay) or livestock pasture, with the exception of fields planted for the production of biomass.



Jen Hoesen



## Grassland Birds in Trouble

**Endangered:** Very few breeding pairs remain; on the edge of extinction in Ontario

- Loggerhead Shrike
- Henslow's Sparrow
- Barn Owl

**Threatened:** At risk of becoming endangered due to low populations, limited range, or rapid rate of decline

- Bobolink
- Eastern Meadowlark
- Barn Swallow
- Common Nighthawk

**Special Concern:** Sensitive to human activities; usually declining populations

- Grasshopper Sparrow
- Short-eared Owl

# Why the Concern About Grassland Birds?

In Ontario, about 30 species are included in the guild of grassland birds, ranging from hawks like the Northern Harrier and American Kestrel to native sparrows that spend most of their time hidden among the grasses. Nearly all of them were present in small numbers prior to European settlement, making use of prairie openings, beaver meadows, and First Nation's farming lands. As forests were cleared for agriculture, populations of these grassland species exploded, and they were joined by a few prairie species that moved east to take advantage of this new habitat.

Over the past several decades, grassland birds have experienced the fastest population declines in eastern North America. Populations of Bobolinks, for example, have decreased by 88% over the past 40 years. Eastern Meadowlarks, Savannah Sparrows, and Barn Swallows are down nearly 70%. Loggerhead Shrike and Henslow's Sparrow, once widespread, are now on the edge of extinction in Ontario.

Some of this decline may be a normal response to the gradual re-establishment of forests in southern Ontario. Some is linked to losses on

their wintering grounds, although they migrate to a diverse set of habitats in many countries. But these factors only account for a small part of this long-term decline.

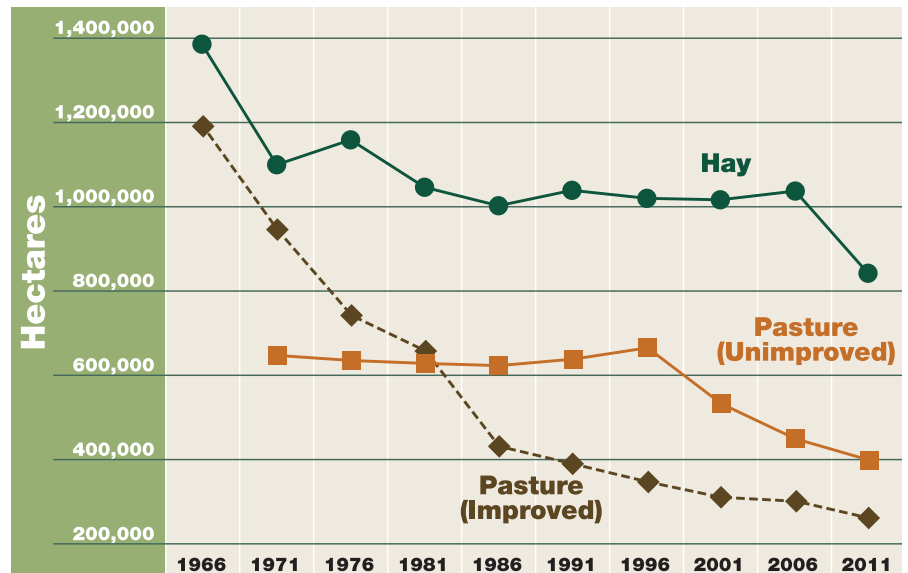
A more important contributor to their decline is the loss of grassland breeding habitat in eastern North America, either to row crops or to various forms of development. The rapid decline of the beef cattle population in Ontario, linked to the loss of hayfields and pastures sustained by this industry, appears to be an especially key element in the decline of grassland birds.

Scientists may claim that the dwindling populations of grassland birds are a sign that all is not well in the rural Ontario landscape; others note their importance as natural pest control agents. But for many of us, including many farmers, the loss of these birds touches a more personal chord. Who would not miss the joyous burble of Bobolinks over a dewy morning meadow, or the sweet piping of a Meadowlark from a fencepost? Who among us could argue that the countryside is not a poorer place without its rich diversity of grassland birds?



Common Nighthawk

### Hay and pasture acreage in Ontario (1966 to 2011)



# What You Need to Know:

## Basic Grassland Bird Ecology

Understanding some of the basic science about the ecology of grassland birds is an essential step in protecting and managing their habitats. Some key factors include:

- **In general, bigger is better, and square or circular field shapes are better than long and narrow ones.** Many grassland birds are “area-sensitive”, meaning they seldom nest in fields smaller than 4 hectares (10 acres), or with a minimum width of less than 200 metres. Species such as Bobolink and Upland Sandpiper prefer open landscapes, so a field surrounded by other grasslands, or even grain crops, will be preferred over one surrounded by woodland or heavy hedgerows.
- **Many grassland species avoid field edges when selecting their nest sites.** While birds often forage for food in all parts of a grassland, the greatest number of nests are found in the central part of a field. Some studies suggest that this helps them avoid nest predators such as skunks, raccoons and foxes, which tend to hunt close to wooded edges.
- **Grassland birds exhibit considerable diversity in their preferred habitat.** Bobolinks and Meadowlarks, for example, prefer to nest in areas with relatively tall grasses; Vesper Sparrows like shorter, less dense cover. Loggerhead Shrikes need very short pasture areas with scattered hawthorns or red cedars. Eastern Kingbirds choose to nest in shrubby areas along field edges. Most species avoid alfalfa-dominated fields, although Barn Swallows will readily forage over alfalfa to snatch flying insects. This diversity means that not all grassland species are likely to occur on any one farm, and that each producer can target only a few key species for management.
- **For many species, adult birds return to the same areas to nest year after year, over a life span of roughly five years.** Bobolinks usually nest within 300 metres of past sites. If a field has been tilled, for example as part of a crop rotation, these birds will look for a nearby grassland to occupy. First-year birds (those born the previous year) are usually pushed into less favourable or new habitats.
- **Some grassland birds such as Eastern Meadowlarks will nest twice in a season, especially if their first nesting is a failure.** This species, and most others, also set up individual territories. The notable exception is Bobolinks, which usually nest in loose colonies of 5 to 10 pairs, and very seldom re-nest. Barn Swallows also nest in colonies, although their nests are attached to nearby buildings.

### Grassland Birds in Ontario

Species	Common	Uncommon	Rare	At Risk in Ontario*
<b>Birds that prefer short grass (&lt;4 inches)</b>				
Killdeer	•			
Horned Lark		•		
Common Nighthawk		•		•
Loggerhead Shrike			•	•
Vesper Sparrow		•		
<b>Birds that prefer medium-height grass (4 to 12 inches)</b>				
Upland Sandpiper		•		
American Kestrel		•		
Barn Owl (feeding)			•	•
Savannah Sparrow	•			
Grasshopper Sparrow			•	•
Eastern Bluebird		•		
Barn Swallow (feeding)	•			•
American Goldfinch	•			
Brown-headed Cowbird	•			
<b>Birds that prefer tall grass (&gt;12 inches)</b>				
Bobolink		•		•
Eastern Meadowlark		•		•
Northern Harrier		•		
Short-eared Owl			•	•
Henslow's Sparrow			•	•
Red-winged Blackbird	•			
Eastern Kingbird	•			

\*Designated as at risk under Ontario's Endangered Species Act as of June 2016.

- **Male birds usually return from migration a week or two earlier than females. During that period they select and begin to defend their territory for nesting.** It is not yet clear exactly how territories are chosen, although past history and an early flush of healthy grass are thought to be important factors. Territories are defended against trespass by other males of the same species by singing and flight displays, often from perches around the edges of the territory.
- **Grassland birds are vulnerable to being led into “ecological traps” where they cannot successfully reproduce.** A productive hayfield is likely to green up early and attract populations of grassland birds, but early harvest destroys their nests. Unfortunately, it appears that these birds don't learn from their mistakes, and will often return to the same fields the next year.





American Kestrel

## Forage and Pasture in Ontario

Forage and pasture are a significant part of the Ontario agricultural land base, with more acres in forage and pasture than any other crop. Over the past 25 years or more, the acreage of forage has been steadily declining and the acreage of pasture land has seen dramatic declines. Some of this land has been lost to non-agricultural use and forest re-growth, but a large portion of the decline is the result of the shift to annual grain and oilseed crops.

At the same time, there has been an increased realization that the best quality forage is harvested just before or as the forage plants start flowering. This happens in early to mid-June, during critical grassland bird nesting times. If the forage is not harvested at this time its optimal feed quality, as measured by protein, energy and digestibility levels, drops significantly. By the time grassland birds have fledged in late June or early July, the forage quality has dropped to levels that can impact its ability to support livestock lactation, growth or reproduction, and may need to be supplemented with high energy and protein feed sources.

These competing demands present a challenge: grassland birds need habitat to nest and reproduce, and agricultural producers need quality forage for livestock.

If producers switch their crop production away from forages and pasture, this results in habitat loss for grassland birds. It also impacts soil conservation, as grasslands provide excellent ground cover to stabilize the soil and protect against wind and water erosion. In a crop rotation program, grain and oilseed crops benefit from improved soil structure following a few years of a forage crop.

## Principles of Forage and Pasture Management

There are five essential principles of forage and pasture management:

1. Balance the livestock needs and the forage supply; maintain productive stands.
2. Harvest best fields at late bud early flower stage for high quality hay; leave lower quality/quantity fields until last.
3. Manage livestock distribution effectively and minimize field traffic.
4. Balance grazing periods with sufficient rest periods to allow plants to recover and regrow.
5. Avoid grazing during sensitive periods, including when fields are flooded, soils are saturated, under drought conditions and during wildlife nesting.



Christine Schmalz



# Grassland Birds in Grazing Systems

There are a number of different ways to manage grazing that, with minor modification, can accommodate an effective co-existence of livestock and grassland birds in the pasture. Understanding different grazing and forage harvest systems is helpful in recognizing how your operation may be impacting grassland birds, and what opportunities for modification may exist.

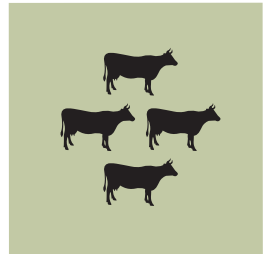
## Continuous Grazing

A continuous grazing management system provides livestock with unrestricted access to the pasture for most or all of the grazing season. This grazing system by necessity has low stocking density, especially on large unimproved pastures on marginal soils. This results in uneven grazing across the pasture, as livestock graze their preferred species more heavily and return to areas of new growth on a frequent basis.

This system does not require cross fencing within pastures and is the easiest to manage. However, it is also the least productive. Ideally, water, salt and minerals are moved occasionally to encourage grazing across the entire pasture, but most often the water is in a set location. Livestock often do a considerable amount of walking across the pasture in this grazing system.

Continuous grazing systems have advantages for grassland birds. Areas receiving less grazing pressure will have longer grass for nesting. Based on studies from western Canada, the risk of nest trampling with this grazing system is relatively low, provided that livestock densities are also relatively low. High stocking rates are also likely to damage plant growth and vigour in preferred livestock areas, since there is no rest period to allow for their recovery.

**Within Continuous Grazing systems, review the use of BMPs 1 to 4 and 8 to 11 (see page 8).**



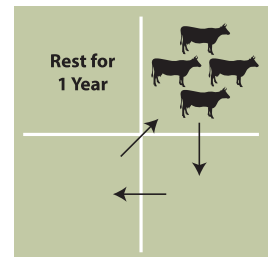
## Deferred Rotational Grazing

A deferred rotational grazing system can leave one pasture field ungrazed for a year to allow plants to rest and rebuild their root systems. Another variation of deferred grazing is to exclude livestock from the central part of a field until all birds have finished nesting, likely around mid-July. With careful observation it is possible to graze parts of the field around the outside perimeter during the spring/early summer period, leaving the interior portion of the field – where most nests are located – ungrazed. This system requires some planning to determine what areas are high potential nesting sites and which areas would benefit from an extended growth period. It may also require adjustments to fencing and water sources.

This system provides grassland birds with a sufficient period of time to nest and fledge without disturbance. It also provides the benefit of an extended spring growth period and results in some mature pasture being available for grazing later in the season. Using a very high stocking density in the deferred area will see the tall grass eaten or trampled in the first pass. The intensive grazing will stimulate new growth to strengthen pasture plants and at the same time add increased organic matter to the soil. This is an opportunity to use “mob grazing” for a few days in your pasture management system.

While this system does take some extra commitment on the part of the pasture manager, it can be an effective way of supporting grassland bird nesting with limited impact on the pasture productivity.

**Within Deferred Rotational Grazing systems, review the use of BMPs 1 to 6 and 8 to 11.**



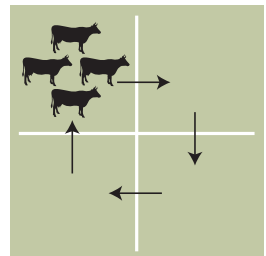
Jen Hoesen





## Simple Rotational Grazing

A simple rotational grazing system has 4 to 6 paddocks, with livestock moved from paddock to paddock after about half of the available forage has been grazed. Ideally, the forage is evenly grazed to about half of its original height rather than half of the forage eaten to the ground and half left untouched. Simple rotational grazing increases forage production and improves pasture condition, providing greater productivity. It does require a moderate amount of active management, as well as investment in fencing and watering systems.

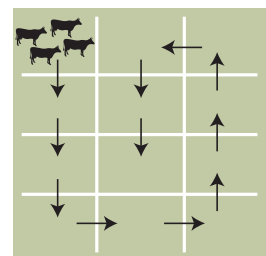


The order of rotation through the paddocks can be adjusted to avoid grazing areas that have high concentrations of nesting birds, for example, by leaving the centre of fields until later in the season. Otherwise, research in eastern Ontario suggests that nest trampling may be high with this system. It may be possible to graze a high potential nesting paddock very early in the grazing season and then leave that paddock until the birds have fledged. Care must be taken with this strategy to leave a high residual amount of grass for when birds arrive in early May.

**Within Simple Rotational Grazing systems, review the use of BMPs 1 to 3, 6, and 8 to 11.**

## Intensive Rotational Grazing

Intensive rotational grazing involves a large number of paddocks – at least 12 and preferably more than 30 – so that the grazing duration on any one paddock is very short (1 to 2 days). In a 25 paddock system, any one paddock will only contain grazing livestock for 4% of the time, or 6 days in a 150-day grazing season and never more than 2 days at a time. This system allows for the optimum rest and recovery time for forage species and will provide the highest quality pasture for livestock (energy, protein and digestibility) as most of the grazed forage will have grown in the previous 30 to 40 days. Intensive rotational grazing also helps forage plants out-compete weeds, and with frequent grazing most weeds will be in a vegetative state and therefore more likely to be consumed by livestock.



Livestock are the most content with this grazing system and spend less time wandering, as they know that fresh feed will be on offer within the next day. One of the habits of pastured livestock is a tendency to wander about the area that they have access to – in a large paddock they will do more walking, which uses up energy and may trample bird nests. In intensive rotational grazing systems, it is most desirable to have a water trough in each paddock, or close to each paddock, to reduce the amount of time spent walking.

With the high number of paddocks in intensive grazing systems, there is opportunity to restrict early season grazing (before July 1) from those paddocks that have nesting grassland birds or that appear to provide ideal habitat. Otherwise, it appears that the reproductive success of birds within intensive rotational grazing systems is likely to be very low.

**Within Intensive Rotational Grazing systems, review the use of BMPs 1 to 3 and 7.**



# Grassland Birds in Forage Systems

For optimum forage quality and quantity, producers need to harvest fields just as forage plants begin flowering. However, haying takes at least several weeks to complete on most farms. To find a balance that helps the birds while allowing you to make the best quality stored forage possible, you could first harvest fields with the most alfalfa, those smaller than 4 ha (10 ac), and fields with wooded edges. Leave until later any fields with a high grass content or that you know have nesting grassland birds.

## Early Haying

Early haying takes place in southern Ontario from mid-May to about June 10th, often in fields with a high proportion of alfalfa or other legumes. This hay is highly desired by the dairy industry for its optimum levels of protein, nutrients and palatability. Early harvest also allows for a second and third cut from the same fields.

Unfortunately, early haying destroys over 90% of grassland bird nests, either by crushing below machinery or more often by exposing eggs or young birds to predation.

One option that has been tested in New England is to harvest a field very early in the season, before any nesting has begun, and then leave this area undisturbed until after the birds have fledged. However, a test of this strategy conducted in southern Ontario showed limited to no success. Due to the forage species that predominate in Ontario agriculture and the short spring season, there is not enough time for fields to regrow before grassland birds are settling in to nest.

**Early Haying systems provide little opportunity for the use of bird-friendly BMPs.**

## Middle Haying

Middle haying takes place from approximately June 10th to the first few days of July, depending on weather conditions. This is the traditionally common haying time, producing hay near the peak of its quantity with moderate quality, and allowing a second cut in August in many fields. This option would be typical of the hay harvesting time for many beef and sheep producers in Ontario.

However, taking a hay cut in mid to late June is very detrimental to nesting grassland birds. At this time their nests are built and will have eggs or young present. The harvest process results in significant mechanical damage and nests will be left fully exposed to predators – crows, gulls, skunks, foxes and others. The BMPs in this booklet suggest several ways that this conflict can be minimized, but these all require some degree of modification to practices and possible production consequences for the producers involved.

One suggestion is to simply locate and cut around the nests. Unfortunately, grassland bird nests are very difficult to find, since they are well hidden and adult birds often land some distance away to fool predators. In any case, a sizable set-aside of at least several acres for each nest would be needed to provide adequate nest protection and food sources. For some producers who may wish to accomplish this in a practical manner, it may be possible to leave parts of the fields where the most birds are observed for later cutting.

**Within Middle Haying systems, review the use of BMPs 1, 2, and 12 to 16.**

## Late Haying

Late haying, from early July onwards, is sometimes seen on marginal grassy hayfields along the edge of the Canadian Shield or further north. Haying in mid-July is optimal for nesting birds, but it has certain production consequences. Once the forage plants have flowered, the digestibility of the forage drops dramatically in quality. This can impact animal productivity and farm profitability.

In many years, depending on weather conditions, most grassland birds may have completed their nest cycle by the third week of June, but it takes another week before the young birds can take flight. So while July 15 is the officially recognized “safe date” for hay cutting, even a delay to the first few days of July will significantly increase the chances that birds can safely escape. In some years, the nesting cycle starts earlier and delaying haying to early July can give a good percentage of young a successful start in life.

In some cases it may be possible to harvest part of the field at “normal” harvest time and leave the centre of the field for later harvest. Using the example of a 10 ha (25 ac) square field, harvesting the outside 50 m (160 ft) around the perimeter would leave an unharvested area of 5 ha (12 ac) in the centre. This bird refuge area could then be harvested after the birds have fledged. This option may be a suitable practice for some producers on selected fields, but is not practical in all cases.

**Within Late Haying systems, review the use of BMPs 1, 2, and 14 to 16.**

## Best Management Practices

	Best Management Practice	Implications for Birds	Implications for Producers
<b>BMP 1</b>	<p><b>BMP 1: Know which birds are present or could potentially occur on your farm:</b> The ID Guide in this workbook can help you identify common grassland birds and their habitat needs. Stand quietly at field edge especially in morning or early evening to observe activity; note where birds occur in your fields. Consider making a map of your fields and marking the birds at each visit; then look for patterns.</p>	Increases awareness of the species using your fields as habitat.	Allows you to know whether at-risk species occur on your lands, and where within each field.
<b>BMP 2</b>	<p><b>BMP 2: Identify grassland bird priorities for your fields:</b> If you have several species on your lands, look at the needs of endangered or threatened birds first; consider whether you want to actively encourage grassland birds or to simply support those already present.</p>	Focuses management attention on priority species; this may mean that some species decrease because of different habitat needs.	Helps you to decide the amount of effort and resources you are willing to expend for grassland birds.
<b>Grazing Systems</b>			
<b>BMP 3</b>	<p><b>BMP 3: Manage stocking rates so pasture grasses are lightly to moderately grazed in spring and early summer:</b> This could include waiting until grasses have significant growth and ground conditions dry before putting livestock out to pasture.</p>	Longer and heavier grass cover during the nesting period provides cover and food for birds.	Heavier grazing during the summer and fall periods may be needed, and won't harm nesting birds.
<b>BMP 4</b>	<p><b>BMP 4: On unimproved pasture, don't allow livestock to graze shorter than 10-13 cm (4-5 in) on average:</b> Allow grass to green up before introducing livestock in the spring. Unless you are targeting a rare species like Loggerhead Shrike, try to leave a minimum of 10-13 cm (4-5 in) of grass. A patchy pattern with clumps of longer grass is preferred by birds.</p>	In a patchy mosaic of grasses, grassland birds can take advantage of longer clumps as nest sites.	Grazing plants close to ground level reduces their ability to recover and eliminates some plants altogether, reducing the productivity of the pasture.
<b>BMP 5</b>	<p><b>BMP 5: If you have 3 or more pastures, leave one to rest each year:</b> This simple form of "deferred rotational grazing" works well on marginal lands where it is difficult to establish forages. Leaving a different field to rest each year provides a period for plants to recover.</p>	Birds nesting in the rest field have plenty of cover and no risk of nest trampling, so are likely to do well.	A year's rest or even a spring / summer rest can help strengthen a pasture stand, which could be grazed in late summer.
<b>BMP 6</b>	<p><b>BMP 6: Rotate livestock through several fields so that each pasture is grazed only once or twice each season:</b> You need at least three pastures to make this management strategy work. Ideally move livestock out when grass is 10-13 cm (4-5 in) high; move livestock in before grasses go to seed.</p>	Maintains a higher degree of grass cover for birds than continuous grazing. Rest periods with no grazing present reduces trampling risk, although nest trampling rates are very high when cattle are in the paddock.	Works well on both marginal and productive lands, but requires some additional management.
<b>BMP 7</b>	<p><b>BMP 7: With intensive rotational grazing systems on 8 or more paddocks, leave 1 or 2 central paddocks ungrazed until after July 1:</b> Intensive rotational grazing systems are typically located on productive sites, with livestock at high densities and moved frequently. Each paddock receives multiple passes of grazing. Graze paddocks around field edges early in the season; leave central paddocks ungrazed until after birds fledge.</p>	Higher livestock density increases the risk of nest trampling, unless some paddocks are left ungrazed early in the season. Generally not bird friendly except when central paddocks can be left ungrazed.	Intensive rotational grazing increases overall productivity for livestock but requires increased management.
<b>BMP 8</b>	<p><b>BMP 8: Defer clipping of pastures until after July 15:</b> Clipping pasture fields can be used to control weed species and improve forage health. In some cases, a thick build-up of thatch at ground level may also need to be reduced.</p>	Mid-summer (after July 15) clipping does not affect most grassland birds, but clipping during the nesting season could result in nest losses due to crushing or predation.	Clipping prior to seed set, typically in late July, will help reduce the weed population in a pasture and stimulate some new growth in grasses.



	Best Management Practice	Implications for Birds	Implications for Producers
<b>BMP 9</b>	<b>BMP 9: Apply fertilizer to forage/pasture fields early in the spring or delay until late summer to avoid damaging any nesting sites.</b>	Reduces the potential for crushing of nests or young birds.	Late summer application will promote good fall growth and strengthen the stand for the next year.
<b>BMP 10</b>	<b>BMP 10: Remove build-up of shrubs, forbs or small trees that are affecting grass cover:</b> Especially on marginal sites with continuous grazing or fields that have been abandoned, pastures tend to become overgrown with coarse forbs like Goldenrod, shrubs such as Buckthorn and Prickly Ash, and tree seedlings. Restoration of these fields to good quality pasture may require fall mowing with a brushhog, late fall/winter grazing, or even the introduction of goats for a limited period.	While grassland birds vary in their sensitivity, as a general guide when over 25% of a field area is overgrown with shrubs and small trees, its value as grassland habitat is lost. Restoration actions are best undertaken in late summer or early fall to avoid harm to nesting birds and to encourage spring regrowth of grasses rather than forbs.	Keeping pastures in active use is beneficial both economically and ecologically, although attention may be needed to renew fencing and water supplies. Fall mowing or other restoration techniques may need to be repeated every 3 to 5 years.
<b>BMP 11</b>	<b>BMP 11: Control invasive plants as much as possible:</b> Pasture areas are vulnerable to heavy infestations of undesirable invasive plants such as Dog-strangling Vine, Spotted Knapweed, and Wild Parsnip. These species quickly crowd out grasses and other desirable species, especially on poor quality soils or overgrazed sites. Control of infestations is very difficult, and may only be holding measures until effective biological controls can be developed.	In most cases, weedy invasive plants are not part of local ecosystems, and they damage grassland bird habitat greatly.	Invasive plants greatly reduce the productivity of pasture areas, since most livestock will not eat them, and they out-compete desired grazing species.
<b>Forage Systems</b>			
<b>BMP 12</b>	<b>BMP 12: Delay first cutting dates, if possible:</b> Ideally for grassland birds, hayfields would not be cut until after all young birds have fledged (are able to fly), which in southern Ontario is always by July 15, and often by July 1. If you see flocks of young birds flying before then, you can go ahead with hay cutting.	Hay removal before fledging often crushes young birds or nests, or exposes them to predators, resulting in over 90% mortality.	Delayed harvest results in decreased protein, digestibility and palatability of hay. Individual producers must decide what can be accommodated in their particular circumstances.
<b>BMP 13</b>	<b>BMP 13: Select fields least likely to have grassland birds to cut first; cut oldest fields last:</b> Because most grassland birds prefer tall grasses rather than alfalfa, chances are they will nest in older fields. If you are not sure where birds are nesting, cut the smallest fields first, especially those surrounded by woodlots and treelines, and those dominated by legumes. Leave the oldest hayfields to cut last.	Bobolinks and Eastern Meadowlarks avoid fields with over 25% alfalfa. Harvesting the older fields dominated by grasses last gives birds their best chance to bring off young.	Allows you to make quality hay from most fields and still accommodate nesting.



Short-eared Owl

## Best Management Practices

**BMP 14**

### Best Management Practice

**BMP 14: Use a partial cut around the perimeter of hayfields and leave central areas for later harvest:**

Many grassland species, especially Bobolinks, tend to locate their nests in the interior of fields. In fields larger than 4 ha (10 ac), you can typically cut 8 to 10 rounds around the edge with minimal disturbance. If you see adult birds flushing in front of your machine and distress calling, you are into a nesting area.

### Implications for Birds

Leaving a substantial area in the field centre for later harvest should allow most grassland birds to fledge young. Leaving very small patches around presumed nest sites typically does not work because it exposes locations to predators.

### Implications for Producers

For example, a square 10 ha (25 ac) field would be 318 m (1043 ft) on each side. By haying the outside 50 m (160 ft), slightly more than half the field has been harvested. This allows you to harvest half of the hay crop in June, and reduces the negative effects of delayed harvest on production.

**BMP 15**

**BMP 15: Consider leaving hayfields for a year or two longer before rotating:**

Livestock producers often rotate older hayfields into pasture or row crops after a few years, both to renew their productivity and as part of a soil management strategy. Because grassland birds often return to the same fields, delaying that rotation will extend the life of prime breeding sites.

Grassland birds at risk often prefer older hayfields with well-established grasses and a lower alfalfa component. In general, experienced breeders on familiar sites do better at producing fledged young.

Older fields may produce a lower quantity or quality of hay/forage, and this approach has to be considered within an overall rotation strategy.

**BMP 16**

**BMP 16: Plant new hayfields with a mix of at least three medium to tall grasses and no more than 25% alfalfa:**

Grassland birds are well adapted to European cool season grasses such as timothy, brome, and fescues. Including legumes such as trefoil, red clover, or alfalfa to add nitrogen is valuable in small quantities (under 40% legumes; no more than 25% alfalfa). Legume content is not as critical for grassland birds in hayfields planted for early hay, as cutting will prevent successful nesting. High alfalfa content will actually encourage birds to nest elsewhere, preventing nest destruction during early hay harvest.

A diversity of plant species benefits grassland birds by providing a greater range of cover and food sources. Stands dominated by alfalfa are avoided by most birds, but less than 25% is tolerated.

Consider planting a field that is predominately warm season grasses that are later heading, thus enabling later harvest. However, warm season grasses can be difficult to establish, and specialized management is required.



Horned Lark



Eastern Bluebird



Killdeer



# Farming with Grassland Birds

## Producer Workbook

This workbook will help you evaluate the suitability of your hay and pasture fields as habitat for grassland birds at risk, as well as assisting in the selection of Best Management Practices (BMPs) that aim to support the birds while meeting your production goals.

To complete this workbook you will:

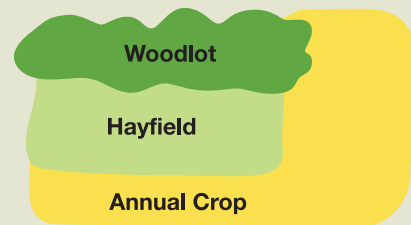
1. Rank hay and pasture fields on your farm properties in terms of nesting habitat.
2. Develop a set of goals for your hay and pasture land, based on your forage requirements.
3. Identify which BMPs could apply in each field.

### Step 1: Which Fields are Most Important for Grassland Birds?

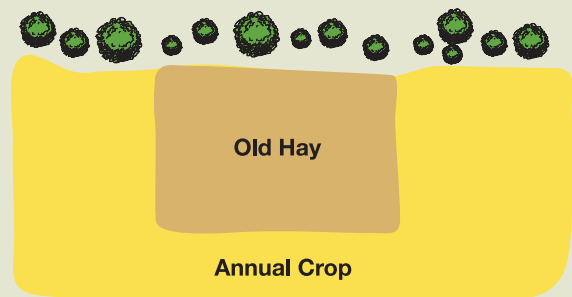
On most properties, some fields are likely to be more attractive to grassland birds than others. This step applies the science of grassland birds' likes and dislikes to the key habitat factors to your fields.

For Example:

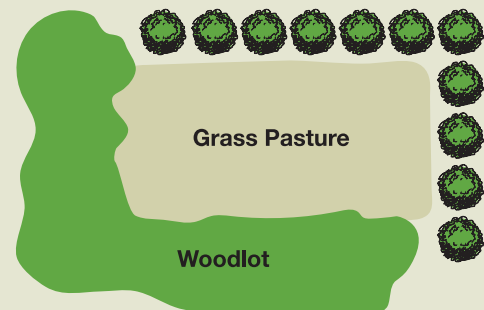
**Field 1:** 3 ha (7.5 ac) new hayfield, long and narrow, treed woodlot on one side. High legume content, ideal for early cut forage, adjacent fields in annual crops (corn, beans, cereals). No grassland birds observed.



**Field 2:** 5 ha (12.5 ac) old square hayfield mostly grasses, some forbs, broken tree line on one side, normally the last cut field each year. Adjacent fields in annual crops. Bobolink has been observed in the field.



**Field 3:** 10 ha (25 ac) older mixed grass pasture with abundant forbs and scattered shrubs, treeline on 2 sides, woodlot on other 2 sides. Field is twice as long as wide. Low stocking density; often the last pasture livestock enter during the grazing season. Unknown if grassland birds are present.



Using the table on the next page, we can rank these fields in terms of nesting habitat.

## Example table

Field Features	Rating for Grassland Birds			Field 1	Field 2	Field 3
	LOW	MEDIUM	HIGH			
<b>Size</b>	<4 ha (10 ac)	4 – 8 ha (10 – 20 ac)	>8 ha (20 ac)	LOW	MED	HIGH
<b>Shape</b>	Narrow (<200 m wide) or irregular	Rectangular	Roughly square	LOW	HIGH	MED
<b>Wooded Edges</b>	Woodlots or heavily wooded fencerows on all sides	Woodlots/wooded fencerows on 1 or 2 sides	No adjacent woodlands; light fencerows	MED	HIGH	LOW
<b>Adjacent Fields</b>	No adjacent fields, young woodlands, urban	Mostly row crops	Mostly hay or pasture	MED	MED	LOW
<b>Vegetation Composition</b>	Hay or pasture with >25% alfalfa OR Pasture dominated by forbs (goldenrod, thistles, knapweed) or with >25% shrub		Hay or pasture with <25% alfalfa, dominated by grasses	LOW	HIGH	LOW
<b>Species at Risk Present (see BMP 1)</b>	No grassland birds at risk present	Unknown if species at risk are present OR Grasshopper Sparrow or Upland Sandpiper present	Bobolink, Eastern Meadowlark, or Loggerhead Shrike present	LOW	HIGH	MED
<b>Overall Grassland Bird Ranking</b>	Four or more Low ratings	Four or more Medium ratings OR Mix of ratings with no clear pattern	Four or more High ratings	LOW	HIGH	MED

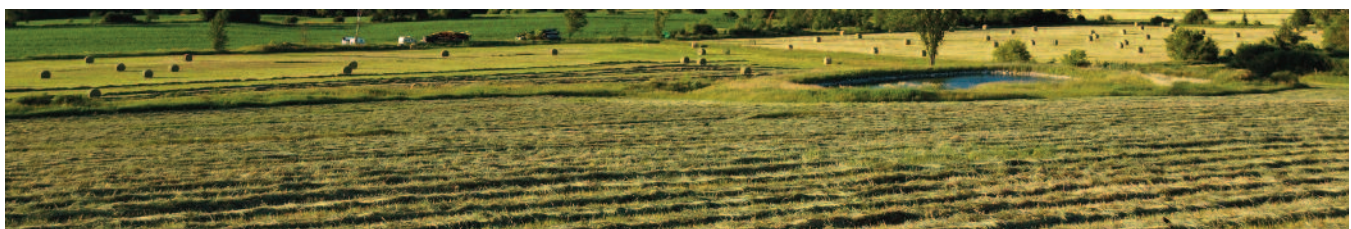
In this example we see that the “best” field for grassland birds would be Field 2 which is an older hayfield that has limited trees along the fencerow and annual crops in adjacent fields.

In general, if a field has four or more High ratings, it should be given an overall ranking of High; with four or more Low ratings, those limitations would give it a Low overall ranking. Where the individual ratings are a mix, such as Field 3 above, a Medium overall ranking is appropriate.



The blank table below is for your use.

Field Features	Rating for Grassland Birds			Field 1	Field 2	Field 3	Field 4	Field 5	Field 6
	LOW	MEDIUM	HIGH						
<b>Size</b>	<4 ha (10 ac)	4 – 8 ha (10 – 20 ac)	>8 ha (20 ac)						
<b>Shape</b>	Narrow (<200 m wide) or irregular	Rectangular	Roughly square						
<b>Wooded Edges</b>	Woodlots or heavily wooded fencerows on all sides	Woodlots/wooded fencerows on 1 or 2 sides	No adjacent woodlands; light fencerows						
<b>Adjacent Fields</b>	No adjacent fields, young woodlands, urban	Mostly row crops	Mostly hay or pasture						
<b>Vegetation Composition</b>	Hay or pasture with >25% alfalfa OR Pasture dominated by forbs (goldenrod, thistles, knapweed) or with >25% shrub		Hay or pasture with <25% alfalfa, dominated by grasses						
<b>Species at Risk Present (see BMP 1)</b>	No grassland birds at risk present	Unknown if species at risk are present OR Grasshopper Sparrow or Upland Sandpiper present	Bobolink, Eastern Meadowlark, or Loggerhead Shrike present						
<b>Overall Grassland Bird Ranking</b>	Four or more Low ratings	Four or more Medium ratings OR Mix of ratings with no clear pattern	Four or more High ratings						



## Step 2: Goal Setting and Action Plan Development

The previous steps should give you a good sense of which fields have the greatest potential to be important to grassland birds, and which fields are priorities. Next, you can develop grassland management goals and an action plan for your operation:

1. Develop grassland management goals that fit with your long-term farm business plan.
2. Prioritize the goals.
3. Assess the implications of each goal and redefine if necessary.
4. Review the BMPs presented in the BMP table – 3 to 11 for pastures; 12 to 16 for hayfields. Some of these BMPs may be relatively easy to incorporate into your farm practices; others will require more of a trade-off in extra time or lower productivity. It's up to you to choose which ones to implement on your farm, and whether you wish to apply for some form of financial support to help you do so.

### An example showing goals, rank and implications:

<b>Goal</b> <i>Harvest high-quality forage sufficient to sustain 75 dairy cows and 50 beef yearlings</i>		
	<b>Rank</b> 1	<b>Fields</b> 1, 3, 5
<b>Actions and Implementations</b> <i>BMP 12: Cut best forage fields (1&amp;5) in early June; leave older hayfield (3) for harvest in early July.</i>		
<b>Expected Results</b> <i>Optimal forage quality for dairy herd with some poorer-quality hay from oldest field to be sold; successful nesting by at least five bobolink pairs and two meadowlark pairs.</i>		
<b>Goal</b> <i>Re-seed 35 acres of hay and pasture to maintain productivity</i>		
	<b>Rank</b> 2	<b>Fields</b> 2
<b>Actions and Implementations</b> <i>BMP 16: Requires crop rotation, seeding 40% legumes (20% alfalfa) as part of seed mix</i>		
<b>Expected Results</b> <i>Renewal of forage quality for future years.</i>		
<b>Goal</b> <i>Minimize impacts on nesting Bobolinks in one hayfield and one pasture field with high rankings</i>		
	<b>Rank</b> 3	<b>Fields</b> 3, 4
<b>Actions and Implementations</b> <i>BMPs 13 &amp; 14: In hayfield 3, cut 8 rounds and leave the interior until early July. BMPs 3, 6, and 9: In pasture field 4, spread manure to fertilize in late April; delay putting cattle on grass to May 15; and move cattle to other fields when grass height is still 4-5" tall, cattle to re-enter field in early July.</i>		
<b>Expected Results</b> <i>Successful nesting of bobolinks and meadowlarks in hayfield 3 and pasture field 4; partial rest year for pasture field 4 will increase health in future years.</i>		



## Your goals, rank and implications

<b>Goal</b>		
	<b>Rank</b>	<b>Fields</b>
<b>Actions and Implementations</b>		
<b>Expected Results</b>		
<b>Goal</b>		
	<b>Rank</b>	<b>Fields</b>
<b>Actions and Implementations</b>		
<b>Expected Results</b>		
<b>Goal</b>		
	<b>Rank</b>	<b>Fields</b>
<b>Actions and Implementations</b>		
<b>Expected Results</b>		
<b>Goal</b>		
	<b>Rank</b>	<b>Fields</b>
<b>Actions and Implementations</b>		
<b>Expected Results</b>		

**Your goals, rank and implications**

<b>Goal</b>		
	<b>Rank</b>	<b>Fields</b>
<b>Actions and Implementations</b>		
<b>Expected Results</b>		
<b>Goal</b>		
	<b>Rank</b>	<b>Fields</b>
<b>Actions and Implementations</b>		
<b>Expected Results</b>		
<b>Goal</b>		
	<b>Rank</b>	<b>Fields</b>
<b>Actions and Implementations</b>		
<b>Expected Results</b>		

*Thank you*

The populations of Bobolinks, Eastern Meadowlarks, and other grassland birds in Ontario depend to a great extent on the voluntary actions of farmers and other rural landowners. Thank you for considering the BMPs set out in this booklet; we hope you find them useful.









Christine Schmalz

## Did you know?

Bobolinks fly up to 20,000 km to and from South America each year. By the end of its life a Bobolink will have traveled the equivalent of 4 to 5 times around the world.



# Common

Appendix:

## Identifying Common Grassland Birds

### Bobolink

- Male Bobolinks are among the showiest of grassland birds, with black underparts, striking black and white patterns on their upperparts, and a pale yellowish hood on the back of their head and neck.
- During nesting season, males often hover above hayfields and pastures, with several males overlapping their complex tinkling/burbling songs with banjo-like twangs; they may also sing from the top of grass stalks or nearby shrubs or fencerows.
- Females and young are a dull yellow-brown colour with stripy heads, and are much less conspicuous.
- Nests are on the ground, often at the base of a coarse forb like goldenrod, with 4 to 6 eggs; seldom re-nests.
- Needs medium to tall grasses as habitat, so prefers older hayfields and pastures.

**Status:** Threatened due to rapid population decline, but still relatively common in suitable habitat, especially on beef farms.



Bobolink (female)



Bobolink (male)



# Grassland Birds



Eastern Meadowlark

## Eastern Meadowlark

- Males and females look similar. From the back, a heavily striped brownish bird about the size of a robin; but from the front, the bright yellow underparts with a black V-shaped collar on the neck are striking.
- A Meadowlark flying away from you shows a flash of white tail feathers, and you may hear a rattling chuckle during its flight. Their territorial song is a slurred whistle in a pattern like “see you at school today”, almost always sung from an exposed perch on a fencepost or shrub. Nests are well-hidden on the ground, usually covered with a dome of grass, hiding 3 to 7 white eggs spotted with brown and purple.
- Arrives earlier than Bobolinks, often in early April; shares similar habitats.

**Status:** Threatened due to rapid population decline, but still fairly common in suitable habitat.



Eastern Meadowlark



# Common



Christine Schmalz

Many rural communities have a local nature club that might be able to suggest someone knowledgeable willing to visit your farm and identify your birds. Ontario Nature has a listing of local nature clubs on their website at [www.ontarionature.org/discover/member\\_groups/member\\_groups.php](http://www.ontarionature.org/discover/member_groups/member_groups.php).

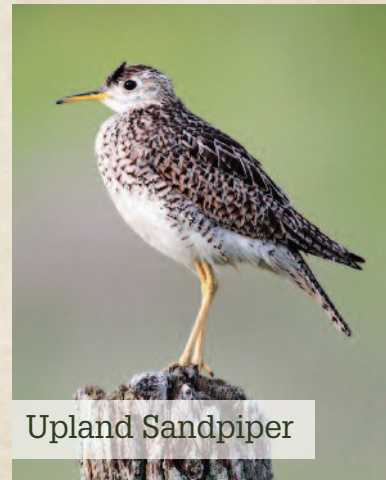


Jen Hoesen

## Upland Sandpiper

- This mottled brown bird has a longish neck, small head, and pale underparts; often perches on fenceposts where you can see its yellow legs.
- Most easily detected by its distinctive call – a drawn-out “wolf whistle” that carries for quite a distance.
- Nests on the ground in older hayfields and pastures with fairly tall grasses, often along the edge of wet areas. Seems to need fairly large habitat areas.
- Like Bobolinks, this species undertakes a long-distance migration to winter in Argentina each year.

**Status:** No formal designation in Ontario at the time of printing, but has significantly declined in numbers and extent of its range in Ontario and elsewhere. Uncommon. Highest remaining populations on Carden Alvar, Prince Edward County, and eastern Ontario.



Upland Sandpiper

## Barn Swallow

- A familiar resident of many farm buildings where it locates a cup-shaped nest made from mud, often in small loose colonies of several pairs.
- Males and females look similar, with a glossy blue back and head, a brownish chest and rusty chin; easily distinguished by its forked tail, which can be seen even in flight.
- Feeds on flying insects, primarily over grasslands but also over ponds or row crops to some extent.
- Song is an energetic and continuous twittering chatter, delivered on the wing.

**Status:** Threatened due to rapid population decline, but still common in some areas.



Barn Swallow



# Grassland Birds

## Eastern Kingbird

- Dark greyish on back and head, with pure white chin and underparts; white tip on tail.
- Voice is a quick loud chatter.
- Very aggressive, often attacking other birds, including crows and hawks, that intrude onto its territory.
- Kingbirds are a field edge species, nesting and spending much of their time in small trees and shrubs along fencerows.
- Feeding habits are typical of the flycatcher family, it ventures out over hay or pasture to snap an insect in the air, and then returns to the same perch.

**Status:** No formal designation in Ontario at the time of printing. While Eastern Kingbird populations have dropped somewhat, its decline has been much less pronounced than many aerial insectivores, and this is still a relatively common bird in rural Ontario.



Eastern Kingbird

## Native sparrows

- About half-a-dozen sparrow species nest in southern Ontario grasslands, either on or near the ground.
- All of these species are small, stripy brown, and difficult for beginners to identify with confidence. Many birders refer to them as LBJs or “little brown jobs” – so don’t feel badly if you can’t tell them apart.
- Most easily identified by their songs, which are quite variable between species, and easily learned.
- These native sparrows (which do not include the English or House Sparrows that are often seen around farm buildings) are voracious consumers of caterpillars and field insects.

**Status:** Only two Ontario sparrows have any kind of formal designation at the time of printing. You are unlikely to encounter a Henslow’s Sparrow, which are Endangered and very rare. Grasshopper Sparrows have a Special Concern status, meaning they are being monitored closely because of declining populations. This species is uncommon in pastures, with an insect-like buzzy trill that reveals its presence.



Grasshopper Sparrow





# Farming with Grassland Birds

*A guide to making your hay  
and pasture bird friendly*

*Killdeer · Horned Lark · Common Nighthawk · Loggerhead Shrike  
Vesper Sparrow · Upland Sandpiper · American Kestrel  
Savannah Sparrow · Grasshopper Sparrow · Eastern Bluebird  
Barn Swallow · American Goldfinch · Brown-headed Cowbird  
Bobolink · Eastern Meadowlark · Northern Harrier · Short-eared Owl  
Henslow's Sparrow · Red-winged Blackbird · Eastern Kingbird*

Loggerhead Shrike

## **Additional Resources for Identifying Birds**

There are a host of field guides to birds that can assist you in confirming which birds are present on your farm. One of the best-known is the **Peterson Field Guide**, which has good illustrations and descriptions. Newer versions of the Peterson guide cover all of North America, which can be confusing as it includes many species that do not occur in Ontario.

The **Lone Pine Birds of Ontario** guide includes Ontario range maps and a more complete text on each species.

Many **websites and apps devoted to bird identification** are excellent resources, especially as this allows you to hear the distinctive songs of each species. A particularly good website is **Dendroica Canada**, [www.natureinstruct.org](http://www.natureinstruct.org), which provides photos and song tracks for each species. There are also apps for smartphones or tablets, such as **iBird** with photos, text and song, [www.ibird.com](http://www.ibird.com) or the free app **Audubon Bird Guide – North America**, [www.audubon.org/apps](http://www.audubon.org/apps).

Finally, many rural communities have a local **nature club** that might be able to suggest someone knowledgeable willing to visit your farm and identify your birds. **Ontario Nature** has a listing of local nature clubs on their website at [www.ontarionature.org/discover/member\\_groups/member\\_groups.php](http://www.ontarionature.org/discover/member_groups/member_groups.php).