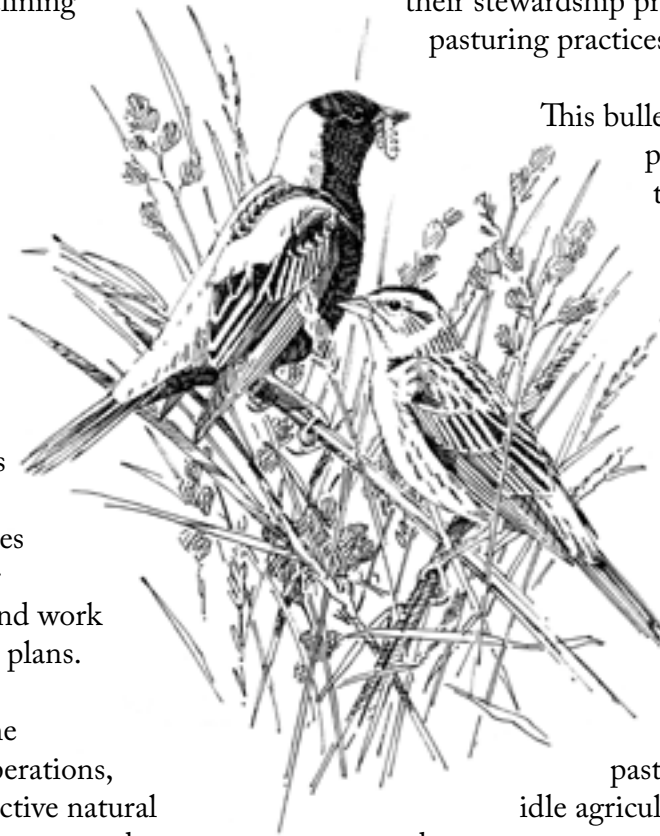


# Enhancing Pastures for Grassland Bird Habitat

**G**rassland birds are declining significantly in the Northeast due to the loss of suitable habitat. Livestock pastures can serve as a replacement habitat for these birds and possibly stabilize or even increase their populations, while still meeting farm needs for profitability, forage quality, and overall productivity. To achieve all these goals, graziers will need to modify some habits, learn how active pastures provide a surrogate habitat for long-gone native grasslands, and work birds into their overall pasture plans.

“Productive conservation” is the combination of agricultural operations, habitat enhancement, and effective natural resource management. Farm income and ecological features are maintained cooperatively in productive conservation projects. Conscientious farmers have an opportunity to make the most of

their stewardship principles by fine-tuning current pasturing practices to benefit grassland birds.



This bulletin provides details about pasture management practices that enhance grassland bird habitat. Very little grassland habitat exists on public land, and the potential to increase and enhance habitats on private farmland is significant. Grazing farmers in particular are well aware of the general ecological benefits of their farming techniques. These guidelines will help ensure that the proper seasonal habitats are available for grassland songbirds in livestock pastures. Of course, hayfields and idle agricultural land can also present adequate surrogate grassland habitats.

Grassland birds are species that require distinct grassland habitats during their breeding cycles,

## How is grassland bird conservation similar to good pasture management?

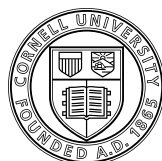
Pasture management goals are compatible in many ways with grassland bird habitat development:

### Pasture management

- Livestock access grass and legume forages with adequate nutritional value
- Grazing system minimizes human labor to move livestock and fencing
- Grazing pressure (head/acre and head/day) is controlled to minimize undergrazing or overgrazing
- Vegetation height is variable according to patterns and system of grazing

### Grassland bird habitat management

- Maintaining large continuous blocks (20+ acres) of open grassland ranging 4 – 30 inches in height
- Minimal or no woody vegetation (shrubs/saplings)
- Grass structure remains substantially undisturbed through breeding season (early May through mid-July)
- Reduced use of broad-spectrum herbicides for weed control.



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*Upland Sandpiper*

nesting, and feeding. In New York, species of particular interest include Eastern Meadowlark, Grasshopper Sparrow, Savannah Sparrow, Henslow's Sparrow, Bobolink, Vesper Sparrow, American Kestrel, Horned Lark, and Upland Sandpiper. Many other birds use grasslands during some portion of their life cycle, like Ring-necked Pheasant, Red-winged Blackbird, Tree Swallow, Eastern Bluebird, and Song Sparrow. Efforts to help create habitat for grassland birds, will help there more generalist species as well.

For centuries, grassland birds used grassy clearings as habitat. Their habitat increased during the 1800's, induced by widespread deforestation created by ubiquitous family farms and associated hayfields and croplands. With natural reforestation, increasing field

cropping, and changes in hayfield management in recent decades, grassland bird breeding habitat has declined in the Northeast significantly. Compounding the problem is the loss of wintering habitat in southern climates. Species like Eastern Meadowlark and Upland Sandpiper have declined by 85 to 90 percent in the last 30 years.

Livestock pastures provide extensive, undeveloped, grassland environments that grassland birds can find suitable for breeding. A 2005 pasture inventory in South Central New York found 27 species of grassland birds present and probably breeding on 24 livestock pastures, including three New York species of concern and at least one New York threatened species. There are probably additional species in other parts of the State that use managed pastures, subject to further research.



*Active livestock pastures often include surrogate habitat for grassland birds.*

### Grassland Birds of Management Concern in New York State

- Northern Harrier (*Circus cyaneus*)
- Upland Sandpiper (*Bartramia longicauda*)
- Horned Lark (*Eremophila alpestris*)
- Sedge Wren (*Cistothorus platensis*)
- Eastern Bluebird (*Sialia sialis*)
- Clay-colored Sparrow (*Spizella pallida*)
- Vesper Sparrow (*Pooecetes gramineus*)
- Savannah Sparrow (*Passerculus sandwichensis*)
- Grasshopper Sparrow (*Ammodramus savannarum*)
- Henslow's Sparrow (*Ammodramus henslowii*)
- Dickcissel (*Spiza americana*)
- Bobolink (*Dolichonyx oryzivorus*)
- Eastern Meadowlark (*Sturnella magna*)

Several special features make livestock pastures a potential refuge for grassland species due to the following favorable conditions:

- Proximity to hayfields that extend grassland-type habitat around or next to pastures in large blocks.
- Landowners who tend to view wildlife habitat as an important part of their landownership objectives.
- Research evidence that livestock are not typically drawn to disturb bird eggs or nests, though sporadic intentional nest disturbance has been documented.
- Structures like fence posts and wire that provide song perches.
- Increasing amount of pasture acreage statewide, particularly for organic dairy production.
- Electric fencing and farm infrastructure that may reduce predation by raccoons, coyotes, and hawks.

## Pasturing practices that can reduce grassland bird breeding

Several common pasture management practices are incompatible with grassland bird conservation. One of the more detrimental practices is mowing or clipping pastures during the peak breeding season (mid-May through late June). Although mowing may be needed to re-establish a rotational system, or to trim refusal areas, it can disrupt nests, increase nest predation, reduce food sources, and discourage breeding pairs of most grassland birds from remaining on the site. Overgrazed pastures are similarly unfavorable for most grassland bird species by eliminating the more lengthy grass structure these birds require. Stocking rates in the pasture must be controlled to maintain a perpetually protective density during the breeding period.

## What good is grassland bird conservation for the farm?

Farmers that are aware of ecological relationships will appreciate how their pastures can become home for an even greater diversity of wildlife, especially habitat-sensitive grassland birds. These birds may benefit farms by reducing populations of potentially harmful insects like caterpillars, weevils, cutworms, beetles, and flies. Also, engaging in grassland bird conservation practices can help convince the public that farmers are good stewards of natural resources. Graziers who include appropriate bird conservation principles in their farm operations have gained a new selling point for grass-fed meats and dairy products (similar to the surge in popularity of “bird friendly” coffee). Additionally, adoption of these practices can position farms better for the increasing availability of technical assistance and cost-share funds for grassland maintenance and habitat conservation.

## Assessing the suitability of a particular pasture for grassland bird habitat

Very few grazing farms currently manage their pastures intentionally for grassland birds. Any livestock species (dairy cattle, beef cattle, horse, sheep, bison, goat, poultry, etc.) raised on pasture is compatible with grassland bird habitat conservation. Several factors can increase the suitability of the site for grassland bird conservation. As a base, the pasture

area should comprise at least 10–15 continuous acres where grass species are dominant, woody brush is nearly absent, and large forbs like thistle and goldenrod are sparse. In addition to such an area, the following elements foster even better conditions for grassland birds:



*Eastern Meadowlark*

- 1) Landscape around the pastures is dominated by similar grassland structure, including hayfields, idle fields, meadows, and even mown lawns.
- 2) Transition zone between pasture and adjacent woodlots has an intermediate area of low brush, as opposed to a flat “wall” of trees.
- 3) Barns, homes, and other farm structures comprise a small part of overall landscape scene.

### Learn Bird Songs by Their Phrasings:

**Bobolink:** plink, plink or a complex song: “Pu-puck pi deedla ehah eeee-ew d-t-d-t dee”

**Clay-colored sparrow:** zzzzzgd zzzzzgd zzzzzgd (harsh & artificial-sounding)

**Dickcissel:** ziek, ziek ziek, zid-zid-zzz

**Eastern meadowlark:** eas-tern mead-ow-lark (musical) or “spring-of-the-year”

**Field sparrow:** notes like a ping-pong ball dropped onto a table – increasing in rate and pitch

**Grasshopper sparrow:** pee-trip-treee (last syllable a raspy trill)

**Henslow’s sparrow:** tsip-a-tik (non-musical, repeated occasionally)

**Horned lark:** high pitched – tee-seep

**Savannah sparrow:** zit-zit-zit-zeeee-zaaay (burry-raspy)

**Sedge Wren:** chip, chip or chip, chip, chrrrrr-rrr

**Upland sandpiper:** wolf-whistle (long, drawn-out)

**Vesper sparrow:** listen to my evening sing-ing-ing-ing (slow and melodic)

- 4) Existing pasture shaped as a squared or rounded block, rather than a long rectangular strip (disregarding paddock fencing in rotational grazing systems).
- 5) Presence of wet diversions and other unmown or ungrazed areas that increase insect availability as food.

A pasture meeting at least three of these additional conditions can become prime grassland bird habitat while still being used as productive livestock pasture.

In short, grassland birds seek a habitat of extensive grasslands of variable heights during the breeding season (May, June, July). When you look out at your pasture with grassland birds in mind, you should see some areas with taller stems (16 – 20+ inches), medium height stems (10 – 16 inches), and shorter, recently grazed stems (5 – 10 inches) with little bare ground. Some birds prefer very short grass, and others prefer the taller structure. It is unlikely you can provide optimal habitat for every species, so that's why pastures are considered "replacement habitat." Many grassland birds will find them suitable enough for most parts of their life cycle.

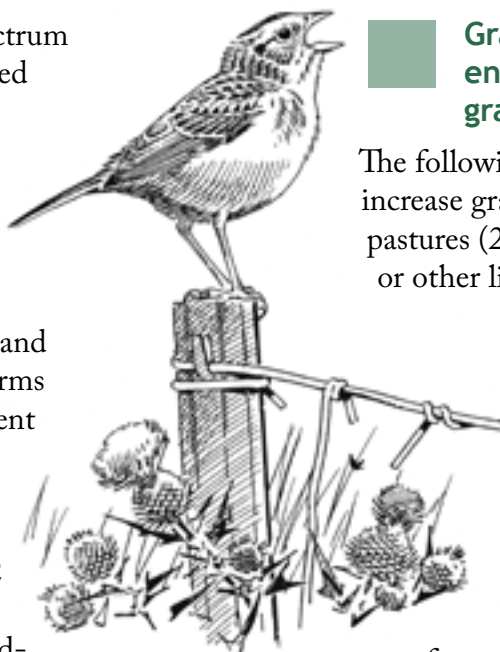
### How to know if grassland birds are present

Some birds that use grasslands, like Eastern Meadowlark, Eastern Bluebird, Bobolink, Tree Swallow and Barn Swallow are conspicuous due to their easily-recognizable size and markings, clear songs, and tendency to perch and fly in full view. However, most grassland-obligate bird species are much less noticeable and rather unfamiliar. Their small size, brown colorings, and reclusive nature make them hard to detect, even to an experienced birder. Nonetheless, the songs of all grassland birds are distinct enough to provide important clues to their identity. Farm operators curious to know which birds are already using their pastures should solicit the assistance of a knowledgeable birdwatcher, study the mnemonic phrases that imitate the actual song, or obtain an audio guide to bird songs of the Eastern United States. In the spring and early summer, birds will be singing in the habitat daily. It is best to walk slowly through a pasture in the morning, listening carefully and taking note of the different songs. Binoculars can help to observe field marks on some birds, but they should not be necessary in many cases.

## Pasturing Systems and Grassland Bird Habitat Development

**G**razing farms use a wide spectrum of pasturing techniques, based on location, farm history, personal habits, livestock species, farm resources, and knowledge of forage development. Woodland grazing, high stocking rates, low stocking rates, multi-species grazing, intensive rotational grazing, and everything in between are used on farms in New York State. To provide coherent recommendations, we will consider three basic classes of pasturing practices:

- a) Continuous pasturing on 1 or 2 large blocks of pasture
- b) Managed rotation on 3 to 5 mid-sized paddocks
- c) Intense rotation on 6 or more paddocks



### Grassland bird habitat enhancement in continuously grazed pastures

The following recommendations should increase grassland bird habitat across large pastures (20 – 50+ acres) where cattle, horses, or other livestock freely roam:

- 1) **Maintain stocking rate so pasture grasses are lightly to moderately grazed** in spring through mid-summer; at least 50% of the grass should be 10 inches or higher with very little bare ground. The actual number of animals per acre will vary from

farm to farm and year to year due to weather and soil productivity. Generally, the stocking rate will be up to 1 head of mature cattle per acre to

achieve light to moderate grazing. Grazing pressure can increase after mid-July as conditions and farm plans allow.

**2) Clip or mow portions of the pasture after mid-July** as needed to retain forage quality or to improve areas of forage refusal for livestock. Where possible, leave central blocks of the pasture unmown for 1 – 2 years to increase the litter content desired by some grassland bird species.

**3) Maintain a variety of perennial grasses.** One known way to rejuvenate pastures is to use a high proportion of cool-season grasses (65–90%) and a low proportion of legumes and other forbs (10–30%). The grass component should include a mix of three or more grass species such as fescues, bluegrass, perennial rye, orchardgrass, and timothy. Avoid planting dense monocultures of cool season grasses, or mixtures that grow to more than three feet tall by late May. Although under some circumstances warm season grasses may benefit grassland birds, dense plantings of warm season grasses such as switchgrass and big bluestem do not provide suitable habitat for grassland birds. Because warm season grasses do not seem to be an essential pasture habitat element for grassland birds in New York State, and their usefulness as a pasture forage is atypical, they are not highly recommended in pastures at this time.

**4) Minimize woody vegetation** in the midst of grassy areas, especially honeysuckle, autumn olive, and buckthorn. Some shrubs in waterways and thickets on edges of pastures are acceptable, as they do not interfere with grassland bird life cycles. Reduce such vegetation by mowing in late summer, pulling, or appropriate use of herbicides that target brushy vegetation.

In addition to these measures, managers of continuously-grazed pastures can learn grassland bird songs to monitor the abundance and diversity of grassland birds. Nest boxes designed for use by Eastern Bluebird, Tree Swallow, and House Wren will provide additional habitat diversity at the edges of pastures appropriate for these birds. Barn cats, a potentially significant predator of grassland birds, should be discouraged from hunting in pastures, at least during the breeding season.

## Grassland bird habitat enhancement on 3 to 5 mid-sized rotational paddocks

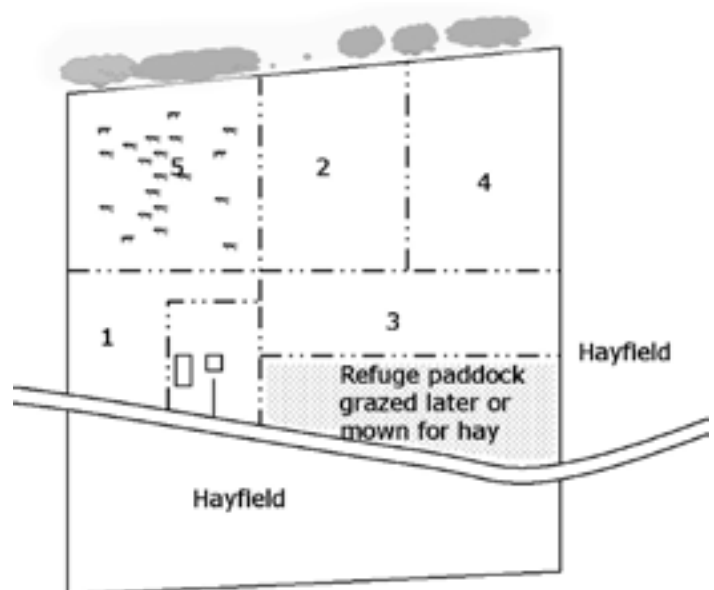
The following recommendations should increase grassland bird habitat in sectioned pastures where livestock are rotated through several mid-sized paddocks:

**1) Rotate livestock to spend 3 – 5 days of light to moderate grazing per paddock.** Grassy vegetation can be browsed in any one paddock down to 5 inches to maintain forage quality and provide adequate cover for grassland birds.

**2) During the rotation pattern, skip a paddock** when moving livestock to reduce browse in adjacent paddocks, therefore increasing nesting cover on any one bird's territory.

**3) Leave a paddock centrally located in the pasture ungrazed** through late June as a refuge area. This paddock may be mown for hay or clipped to refresh vegetative growth for late season grazing. The rested paddock should be far from trees, buildings, or other brush rows.

**4) Strive for a stocking rate of up to 1 head per acre of pasture.** Of course the stocking density in a particular paddock in use will be much higher, but the rotational pattern will reduce overgrazing and increase grassland bird habitat.



**5) Clip or mow portions of the pasture after mid-July** as needed to retain forage quality or to improve paddock sequencing for livestock. Where possible, leave central blocks of the pasture unmown for 1 – 2 years to increase the litter content desired by some grassland bird species.

**6) Maintain a variety of perennial grasses.** One known way to rejuvenate pastures is to use a high proportion of cool-season grasses (65–90%) and a low proportion of legumes and other forbs (10–30%). The grass component should include a mix of three or more grass species such as fescues, bluegrass, perennial rye, orchardgrass, and timothy. Avoid planting dense monocultures of cool season grasses, or mixtures that grow to more than three feet tall by late May. Although under some circumstances warm season grasses may benefit grassland birds, dense plantings of warm season grasses such as switchgrass and big bluestem do not provide suitable habitat for grassland birds. Because warm season grasses do not seem to be an essential pasture habitat element for grassland birds in New York State, and their usefulness as a pasture forage is atypical, they are not highly recommended in pastures at this time.

In addition to these measures, managers of rotationally-grazed pastures can learn grassland bird songs to monitor the abundance and diversity of grassland birds. Nest boxes designed for use by Eastern Bluebird, Tree Swallow, and House Wren will provide additional habitat diversity at the edges of pastures appropriate for these birds. Barn cats, a potentially significant predator of grassland birds, should be discouraged from hunting in pastures, at least during the breeding season.

### **Grassland bird habitat enhancement on 6 or more intensive grazing system paddocks**

Intensive rotational grazing is a carefully planned and monitored process of moving dairy and other livestock from paddock to paddock daily or several times a week. Animals are rotated out of a paddock before it is overgrazed to recover high forage quality during the 25 – 30 day rest period. This system is compatible with grassland bird conservation in the

rest areas. High stocking densities in any one paddock pose trampling risks to grassland bird nests, so the grazing system will need to incorporate centralized refuge areas and long resting periods (more than 30 days) in paddocks where grassland birds are more likely to nest in. Several species can nest in the same small paddock, though birds of the same species will compete for the most desirable territories.

The following recommendations should increase grassland bird habitat in intensive rotationally grazed pastures involving 6 or more paddocks:

**1) On an aerial photograph or farm map, designate paddocks most likely to contain nesting grassland birds.** These are paddocks furthest from trees, brush rows, and farm buildings (i.e. open pasture surrounded by open pasture.)

**2) Graze refuge paddocks early in the grazing season (until early May) and again starting in mid-summer.** As refuge areas, they will be essentially unused by livestock until young birds have fledged. All other paddocks will continue to serve as essential feeding and flight areas for the birds.

**3) Rotate livestock according to farm plans.** Grassy vegetation can be browsed in any one paddock to down to 5 inches to maintain forage quality and provide adequate cover for grassland birds.

**4) When possible, skip a paddock when moving livestock to reduce browse in adjacent paddocks,** therefore increasing nesting cover on any one bird's territory.

**5) Clip or mow portions of the pasture after mid-July** as needed to retain forage quality or to improve paddock sequencing for livestock. When feasible, leave central blocks of the pasture unmown for 1 – 2 years to increase the litter content desired by some grassland bird species.

**6) Maintain a variety of perennial grasses.** One known way to rejuvenate pastures is to use a high proportion of cool-season grasses (65–90%) and a low proportion of legumes and other forbs (10–30%). The grass component should include a mix of three or

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As with the other pasturing systems, managers of intensively grazed pastures can learn grassland bird songs to monitor the abundance and diversity of grassland birds. Nest boxes designed for use by Eastern Bluebird, Tree Swallow, and House Wren will provide additional habitat diversity at the edges of pastures appropriate for these birds. Barn cats, a potentially significant predator of grassland birds, should be discouraged from hunting in pastures, at least during the breeding season.

Grassland bird conservation on pasture-based farms is as rewarding as it is challenging. Efforts made by many farms in one region or community will eventually attract potentially significant populations of grassland birds. The minor changes in grazing practices described above will augment efforts being made on non-agricultural land, public land, conservation land, corporate parks, and closed landfills. Before long, grassland bird abundance and diversity may increase across the Northeast. As knowledgeable stewards, graziers and other farmers can lead this environmental success story.

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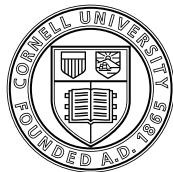
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