

References

Appendix 1

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Glossary

Appendix 2

Area-sensitive species: animals that require large areas of suitable habitat to meet their life history needs and support viable populations.

Biological diversity (or biodiversity): the variety of living organisms, including the ecosystems and natural processes on which they depend; a natural system of all species, their habitats, and the landscape.

Biomass energy crops: plant-derived materials (such as harvested woody or herbaceous crops) that supply useful energy either by direct combustion or by conversion into liquid or gaseous fuels.

Buffer or buffer zone: any area that serves to protect natural areas from human alteration. Often used in reference to streams and wetlands.

Cool-season grass: any grass species that reaches its peak growth and photosynthetic activity in the relatively cool weather of spring and fall. These grasses usually flower before July 15th. The plant goes dormant or growth slows in the heat and dryness of summer. These grasses include both native and non-native species; the majority, however, are non-native.

Conservation: planned action or non-action to protect, manage, restore, or enhance natural resources for future generations.

Conservation Reserve Program (CRP): A U.S. Department of Agriculture program that takes highly erodible or environmentally sensitive cropland out of production for 10-15 years. Farmers receive an annual rental payment in return. Most enrolled land is planted to perennial grasses and grass/legume mixtures. Some land is planted to trees.

Conservation tillage: a set of practices in which varying degrees of crop residue remain on the soil surface before and after planting agricultural crops.

Conservation target: ecosystems, natural communities and species identified as priorities for protection.

Corridor: a patch of habitat that connects otherwise isolated larger habitat patches and differs from the adjacent land on both sides.

Disturbance: natural or anthropogenic event that changes a local environment by disrupting, removing or adding organisms, soil, or rock, or by subjecting the environment to other disruptions such as pollution by substances, noise, or light.

Disturbance-dependent ecosystem: an ecosystem that without disturbance, would naturally succeed into a later successional stage. In the context of this guidebook, grasslands without management (mowing, grazing) would succeed into forest.

Early successional habitat: in this guidebook, refers to grassland habitats, including wet meadows, that will turn to forest over time if not managed as grasslands.

Ecosystem: a dynamic and interrelating complex of plant and animal communities and their associated non-living environment (soil, water, and air) and the natural cycles that sustain them (nutrient and hydrological).

Endangered: Any native species in imminent danger of extinction or extirpation in New York State.

Environmental services: refers to the environmental functions from which humans derive benefit. Includes goods (e.g. food and medicine) and services (climate regulations, water purifications, flood control, etc.).

Extinct: species no longer living or existing.

Extirpated: Any species that is not extinct, but no longer occurs in a wild state within some portion of its former range (New York State, for example), or no longer exhibits patterns of use traditional for that species in New York (e.g., historical breeders no longer breeding here).

Forb: non-grass, non-woody vegetation characterized by broad leaves and flowers; includes thistle, goldenrod, teasel, daisies and asters, buttercup, knapweed, bedstraw and other leafy non-grass plants.

Fragmentation: the process where large, contiguous landscapes are broken into smaller, more isolated fragments surrounded by human-modified environments.

Grassland: areas dominated by grasses with little to no woody vegetation (shrubs or trees). In the context of this guidebook, grasslands can include old fields, non-forested open space such as parks and large lawns, as well as productive lands such as pasture, hayfields, or active farms.

Habitat: the area where a plant or animal lives that provides all the necessary elements it needs to survive (e.g., food source, water, cover, breeding grounds, etc.).

Habitat patch: a relatively homogenous type of habitat that is spatially separated from other similar habitat and differs from its surroundings.

Habitat Management Plan: A Habitat Management Plan (HMP), for the purposes of the Greene Land Trust's Grassland Landowner Stewardship Project, is a site-specific written plan developed in partnership with the Greene Land Trust and the landowner to establish grassland management practices that the landowner can voluntarily follow to maintain and/or improve the property's suitability for grassland bird habitat.

Habitat specialist: a species that can survive and breed in only one habitat type and would not thrive if that habitat's characteristics were altered.

Invasive species: a species (usually, but not always, non-native) that is able to exploit the landscape, into which it was introduced, out-competing other species due to lack of natural predators and competitors (see also native, non-native).

Landscape: a large, diverse land area consisting of a cluster of interacting ecosystems repeated in a similar form (e.g., forested landscape, grassland landscape, etc.).

Land use: the purpose to which land is used by humans (e.g. protected areas, agriculture, residential, commercial, industrial), vs. land cover which is the dominant feature of the land (e.g. forest, meadow, pavement, etc.).

Marsh: a type of wetland that is frequently or continually inundated with water and is characterized by soft-stemmed emergent herbaceous vegetation.

Native species: an animal or plant species that has grown in the region since the last glaciation and occurred before European settlement.

Non-native species: an animal or plant species that has been introduced to an area that is not a part of its range.

New York State Endangered Species: any native animal listed by the New York State Department of Environmental Conservation as being in imminent danger of extinction or extirpation from New York State.

New York State Species of Special Concern: any native animal listed by the New York State Department of Environmental Conservation as being likely to become a threatened species within the foreseeable future in New York State.

New York State Threatened Species: any native animal listed by the New York State Department of Environmental Conservation as being likely to become an endangered species within the foreseeable future in New York State.

Open space: lands that are not fully developed. Open space can mean natural areas, farmland, scenic areas, etc.

Restoration: the practice of restoring degraded or altered lands to a state of higher natural functioning or other desired condition, typically the condition that was present prior to the disturbance that altered the previous natural condition.

Riparian area: the aquatic system and the portions of the adjacent terrestrial ecosystem that directly affect or are affected by the aquatic environment (i.e., the land area adjacent to a water body – stream, river, lake, etc).

Shrub: woody vegetation usually greater than 3 feet but less than 20 feet tall, including multi-stemmed, bushy shrubs and small trees and saplings.

Succession: the natural, sequential change in the composition of a plant community over time. In New York, the natural tendency of plant communities is to turn into forest.

Suitable grassland habitat: (used in reference to grassland bird habitat) refers to habitats that are high quality (e.g., habitats that typically attract high densities of at least some grassland bird species and have relatively high nesting productivity) or that at a minimum, do not have significant negative impacts on grassland birds.

Surrogate grasslands: grasslands that have developed as a result of human activities since settlement by people of European descent in New York State. These grasslands are typically dominated by non-native, cool-season grasses such as quackgrass, timothy and redtop; and include old fields, hayfields, pasture, and cropland.

Stewardship (land): to care for and manage natural land in a way that maintains its ecological integrity for the benefit of present and future generations.

Threatened: Any native species likely to become an endangered species within the foreseeable future in a specified area.

Warm-season grass: any grass species that reaches its peak growth and photosynthetic activity during the warm summer months – typically between June 15th and August 30th. These grasses usually flower after July 1st to July 15th. Warm-season grasses tend to be native to this area, but are easily out-competed by cool-season grasses and therefore tend to be difficult to establish.

Wet meadow: an area of land that becomes inundated periodically or seasonally with water for long enough to support hydrophytic (water-loving) plants and/or the development of hydric soils (soils deficient of oxygen due to water saturation).

Wetland: an area that is inundated or saturated with water to the surface for a sufficient time to foster the growth of hydrophytic (water-loving) plants and/or the development of hydric soils (soils deficient of oxygen due to water saturation).

Wildlife-friendly fencing: fencing which allows harm-free passage for wildlife. Type of fencing depends on the property circumstances and locations of uses. Common wildlife-friendly fencing to keep domestic animals in (cows, horses, goats, sheep, etc.) includes simple wire strands on posts using from 1 to 6 wires, with spacing between wires exceeding 10 inches, generally from 4 to 6 feet high. The bottom wire should be smooth to prevent scratching or puncture of wildlife that pass underneath. Additional guidelines can be found at:
<http://www.nswg.org/april05fencing.htm>



Cocksackie Creek Grassland Preserve

Appendix 3

The Coxsackie Creek Grassland Preserve

The Coxsackie Creek Grassland Preserve (the Preserve) encompasses an assemblage of over 300 acres of protected grasslands located primarily in Coxsackie with the potential to extend into New Baltimore and Athens in Greene County, New York. The land is owned and managed by the Greene Land Trust through a long-term dedicated fund.

In both the winter and summer months, NYS threatened and endangered grassland birds, as well as grassland birds of special concern, can be found on these protected grasslands. Short-eared Owls, Northern Harriers, Bobolinks, Grasshopper Sparrows and Eastern Meadowlarks can be seen and heard as they hunt for food and make their nests in the Preserve's grasslands. The Preserve, although predominately grasslands, also contains important woodlands and wetland areas, as well as a beautiful stretch of the Coxsackie Creek – a tributary of the Hudson River.



The Preserve was established in 2004 through a collaborative effort. With a goal of protecting threatened grassland birds from pending developments, a unique partnership was created among the Greene County Soil and Water Conservation District (GCSWCD), the Greene County Industrial Development Association (GIDA) and a local Greene County Habitat Advisory Committee (which includes representation from Northern



Savannah Sparrow © Larry Federman

Catskill Audubon, Sierra Club, Scenic Hudson, Hudsonia, the NYS Department of Environmental Conservation, local birders and local municipalities). This diverse group of stakeholders succeeded in fostering both economic development and environmental conservation in their communities. Through precedent-setting cooperation with developers, instead of losing habitat to development, land was permanently conserved as the Preserve, with the Greene Land Trust established to provide management and stewardship for this important grassland habitat.

Currently, public access to the Preserve is only at viewing points in various locations around the Preserve's perimeter. Planning is underway for public recreation trails in the future. Please visit the Greene Land Trust website at www.greenelandtrust.org for information about public education events in the Preserve when groups are allowed access for educational purposes. The land may be used for hunting during the appropriate seasons (go to www.greenelandtrust.org for hunting use agreement information and rules).



Birdwatchers at a 2010 Greene Land Trust event in the Cocksackie Creek Grassland Preserve, "Summer Songbird Celebration".

APPENDIX 4

Common Invasive Species in Grasslands and Wet Meadows

Invasive, or exotic, plant species can negatively impact grasslands and wet meadows by creating a monoculture and out-competing native plant species. A grassland with a dominance of invasive species will not be suitable habitat for grassland birds. The most effective control for invasive species is early detection and rapid response. Be aware of these species and look for them in your grasslands and wet meadow areas. If you find them, contact the Greene Land Trust or other resource professional (listed below) to ask about the best method of control or removal.

Invasive plant species of New York grasslands



Pale Swallow-wort (*Cynanchum rossicum*)

A member of the milk-weed family and related to the black swallow-wort, pale or European swallow-wort is a long-lived perennial vine. The leaves are oval-shaped with pointed tips, 3-4 inches long and occur in pairs along the stem. The small five-petaled, star-shaped flowers are pink to reddish brown and grow in clusters. Plants tend to grow in clumps forming extensive patches and affecting grassland bird habitat. A New York study suggests that as coverage by

pale swallow-wort increases, grassland bird presence declines. (Note: there are native species of *Cynanchum*, including honeyvine, which has white flowers and its leaves have a distinct heart-shaped base.) (Photo copyright John M. Randall, TNC)



Black Swallow-wort (*Cynanchum louiseae*)

Black or Louis' swallow-wort, a member of the milk-weed family, and related to the pale swallow-wort, is a long-lived perennial vine. The leaves and flowers are the same shape as the pale swallow-wort, but the flowers of the black swallow-wort are dark purple to almost black with white hairs. The black swallow-wort also differs from the pale swallow-wort in that it has rhizomes (underground stems) that sprout new plants, making them more difficult to control. Grassland habitats can be replaced almost exclusively by black swallow-wort, completely changing their physical structure and compromising or destroying

habitat for grassland birds. Black swallow-wort escaped from horticultural gardens in the mid-1800's in the Cambridge, Massachusetts area. (photo by Jennifer Forman Orth, Invasive Plants in Massachusetts)

Mugwort (*Artemisia vulgaris*):

Mugwort is a perennial weed with persistent rhizomes that may be spread or transported by cultivation equipment or in burlaped nursery stock infested with rhizomes. Stems may reach 5 feet in height and may have a purplish hue, leaves are 2-4 inches long, 1-3 inches wide and have a distinctive aroma. Undersides of leaves are covered with white hairs, while upper leaf surfaces may be smooth to slightly hairy. Flowers are inconspicuous and occur in clusters at the top of the plants. Plants spread underground and are difficult to remove by pulling. This plant has a history in Europe and Asia as a medicinal herb. (photo by Virginia Tech Weed Identification Guide)



Spotted Knapweed (*Centaurea stoebe* L. *ssp. micranthos*):

There are six species of knapweed in New York that are considered invasive and can have a detrimental effect on grasslands. Spotted knapweed, a good example of knapweeds in this area, is a biennial or short-lived perennial. Flowers are purple to pink with 25-35 flowers per head, blooming from June to October. Stems are erect and can grow from 8 to 50 inches tall. Spotted knapweed was originally introduced to North America from Eurasia as a contaminant in alfalfa and clover seed and through discarded soil used as ship ballast. (photo by Washington State Noxious Weed Control Board)



Autumn Olive (*Elaeagnus umbellata*) and Russian Olive (*Elaeagnus angustifolia*):

Autumn olive (photo to left) is a deciduous shrub widely spread from Maine to Virginia and west through Wisconsin. It is drought tolerant and thrives in a variety of soil and moisture conditions and creates a dense shade, crowding out native plant species.

This shrub can grow 20 feet in height. Its stems, buds and leaves have a dense covering of silvery to rusty scales. Leaves are egg or lance-shaped with silver-white scales on the underside. Small, light-yellow aromatic flowers appear in June. Fruits are small, round, pink to reddish and dotted with scales. Russian Olive's (photo to right) leaves are narrower and longer and dull green. It has yellow flowers and dry yellow mealy fruits. Silver scales occur on the undersides of leaves of both species. Russian olive twigs are typically covered with thorns. Autumn Olive was introduced to the U.S. in 1830 and planted as an ornamental and as windbreaks. Russian Olive, also used as an ornamental, is originally from Europe and Asia, introduced to the U.S. in the early 1900's. (above photo by USDA- NRCS; photo to right by Wisconsin DNR)



Honeysuckles (*Lonicera* spp.):

Exotic honeysuckles, of which there are several species, have been used for many years as ornamentals. Honeysuckles out-compete and displace native plants, decrease light availability and deplete soil. Exotic honeysuckles compete with native plants for pollinators, resulting in reduced seed for native species. The fruits of exotic honeysuckles are carbohydrate-rich and

do not provide migratory birds with the high-fat content needed for long flights. Honeysuckles are relatively shade-intolerant and are found in open fields and open, disturbed areas. Honeysuckles can grow up to 6-15 feet in height. Leaves are 1-2.5 inches, egg-shaped and are opposite along the stem. Flowers are fragrant and tubular with colors varying from creamy white to crimson in some varieties. Fruits

are red or orange. Exotic honeysuckles can be differentiated from native honeysuckles by looking at the stem. Exotic honeysuckle stems are hollow, native honeysuckle stems are solid. (photo by John M. Randall, TNC)



Multiflora Rose (*Rosa multiflora*):

Multiflora rose is a thorny, perennial shrub with arching stems and leaves divided into five to eleven sharply toothed leaflets. Fragrant white to pink clusters of flowers appear in May or June. In summer the plant bears bright red fruits, or rose hips, that remain on the plant through winter. Multiflora rose was introduced to the east coast from Japan in the late 1800's as

ornamental roses and has been used as "living fences" to control livestock. (photo by John M. Randall, TNC)



Common Buckthorn (*Rhamnus cathartica* L.) and Glossy Buckthorn (*Frangula alnus*):

Common buckthorn (photo left), introduced to North America as an ornamental plant for gardens, is a shrub or small tree that can grow to 22 feet in height. In spring, clusters of 2-6 yellow-green, 4-petaled flowers emerge. Small black fruits about ¼ inch in cross-section form in the fall. Leaves are oval with jagged edges and appear dark and glossy green. Leaves stay green late into the fall after other deciduous leaves have fallen. Twigs often end in sharp, stout thorns. (photo by John M.

Randall,

TNC) Glossy Buckthorn (photo right) can grow up to 30 feet and has dark green leaves with prominent veins curving down toward the tip of the leaf. Twigs of Glossy Buckthorn do not end in thorns. The leaves of both shrubs appear in early spring and stay green late into the fall (photo by Robert H. Mohlenbrock, USDA-NRCS).



Invasive species of New York wetlands and wet meadows



Purple loosestrife (*Lythrum salicaria*):

Purple loosestrife is an erect perennial herb with a square, woody stem and opposite leaves that are rounded at the base. Plants are usually covered with a downy pubescence (appear hairy). Plants grow from 4-10 feet high and produce a showy display of magenta-colored flower spikes throughout much of the summer. Purple loosestrife adapts readily to natural and disturbed wetlands and easily outcompetes native grasses, sedges and other flowering plants that provide a higher source of nutrition for wildlife. Purple loosestrife forms dense, homogenous stands that are difficult to eradicate. Purple loosestrife was introduced to northeastern U.S. and Canada in the 1800's for ornamental

purposes, and is still sold around the country. Currently its sale and distribution is prohibited in Wisconsin, Illinois and Minnesota. (photo by Barry Rice, TNC)

Common Reed (*Phragmites australis*):

The common reed is characterized by its towering height of up to 14 feet and its stiff, wide leaves and hollow stem. Its feathery and drooping inflorescence (clusters of tiny flowers) are purplish when flowering in July through October and turn white, grey or brown in the fruit stage during the fall. Common reed is often seen in large stands in disturbed areas such as along roads and in wetlands near residential and commercial areas. Common reed is a colonial plant that spreads by rhizomes (underground stems) and is capable of forming large colonies from just one seed or plant. (photo by www.massinvaders.com)



Reed Canary Grass (*Phalaris arundinacea*):

Although Reed Canary Grass can be preferred by the Sedge Wren when it grows in smaller patches, this plant is detrimental to grasslands when it dominates an entire field. Reed canary grass is a large, coarse perennial wetland grass that reaches 2-9 feet in height and has an erect stem. Blades are flat and have a rough texture on both the top and underside. Single flowers occur in dense clusters in May to mid-June and are green to purple at first and change to beige over time.

Reed canary grass is one of the first to sprout in the spring and forms a thick rhizome (underground stem) system that spreads aggressively and easily dominates an area. Reed canary grass is mostly found in open, wet areas (marshes, wet meadows, wetlands, stream banks), but can also persist in upland areas. Reed canary grass has been planted throughout the U.S. for forage and erosion control. (photo by Wisconsin Department of Natural Resources)

Websites for additional information about invasive species:

- Capital-Mohawk PRISM (Partnership for Regional Invasive Species Management): Plan regional invasive species management, develop early detection and rapid response capacity, deliver education and outreach, implement eradication projects and more.
Contact: Peg Sauer
Phone: 518-765-2237
Email: psauer13@yahoo.com
http://nyis.info/PRISM/Regional_Partnerships.aspx
- New York State Department of Environmental Conservation:
<http://www.dec.ny.gov/animals/265.html>
- Invasive Plant Council of New York State (Note the IPC has disbanded and “passes on the baton” to regional PRISMs. However, there is still some useful information on the site): www.ipcnys.org
- Center for Invasive Species and Ecosystem Health: www.invasive.org
- Plant Conservation Alliance, Alien Plan Working Group:
www.nps.gov/plants/alien.htm

Appendix 5

Grassland Bird Factsheet

Selected Factsheets from:

“Bird Conservation in the Hudson River Valley”

Audubon NY

http://ny.audubon.org/BirdSci_HudsonRiverValleyConservation.html

The American Kestrel is a declining breeder in the Hudson River Valley and is fairly common in winter. It is often seen perched on fence posts and overhead wires in open areas.

Conservation Status

Breeding Bird Survey data for New York indicate a continuing decline in American Kestrel populations. Partners in Flight lists it as a Regional Concern in Bird Conservation Region 13. Results from the second NYS Breeding Bird Atlas indicate that the kestrel's distribution is declining statewide, including in the Hudson Valley. Causes of decline appear to be loss of suitable habitat, primarily due to suburban development and reforestation.

Identification

This small falcon is about the size of a robin. The male has a rusty back, blue-gray wings and crown with a rusty cap, 2 distinctive black facial stripes, and lightly spotted underparts. The female is similar, with a rusty back, wings, and breast streaking, but it does not have the blue-gray markings of the male. This species vocalizes frequently, with a loud, repeated “killy killy killy” when excited or alarmed.

Habitat

Kestrels prefer a variety of semi-open habitats, including meadows, grassy fields, pastures, early old field successional communities, open parkland, agricultural fields, as well as highway and power line rights-of-way. They inhabit both urban and suburban areas. Woodland edges, widely scattered trees, snags, and perches in the form of trees, shrubs, utility wires or telephone poles are essential components of the kestrel's habitat.

Food

Kestrels hunt mostly from perches, frequently from utility wires along roadsides, but also by hovering, especially when suitable perches are lacking. Their main food in the summer is large insects, in particular grasshoppers and crickets. The young are fed primarily grasshoppers. Wintering birds readily eat small mammals such as mice and voles as well as sparrow-size birds.

Nesting

This falcon nests in woodpecker-excavated and other natural cavities in large trees, crevices in rocks, and nooks in buildings and other structures. It prefers cavities surrounded by large open areas covered with short ground vegetation with adequate hunting perches nearby. It will use nest boxes, but competition from non-native European Starlings is a problem. See recommendations on next page on how discourage this.



Ideal American Kestrel habitat contains open fields with scattered perches.

Threats

- Habitat loss due to reforestation.
- Habitat loss due to suburban development.

Management Recommendations

The American Kestrel must have all the following habitat elements in close proximity to nest successfully: open vegetation, perches, food supply, and available nest sites. The following recommendations address these requirements:

- Maintain grassy and open field areas by mowing and/or managed grazing.
- Preserve snags and widely scattered trees and other perches close to open fields.
- Preserve large live and dead-standing hardwood and softwood trees conducive to natural cavities in and adjacent to open field areas.
- Preserve snags and building structures conducive to nesting cavities.
- Install nest boxes in open field areas. Leave them standing year-round. See the reference USDA 1999 for excellent nest box plans.
- Place nest boxes a good distance from buildings and human habitations, orient them with a southern exposure and monitor them to help prevent starlings from using them.



Grassland habitat in NY

This management summary was adapted from Smallwood and Bird 2002 and USDA 1999.

For additional information, see the following reference:

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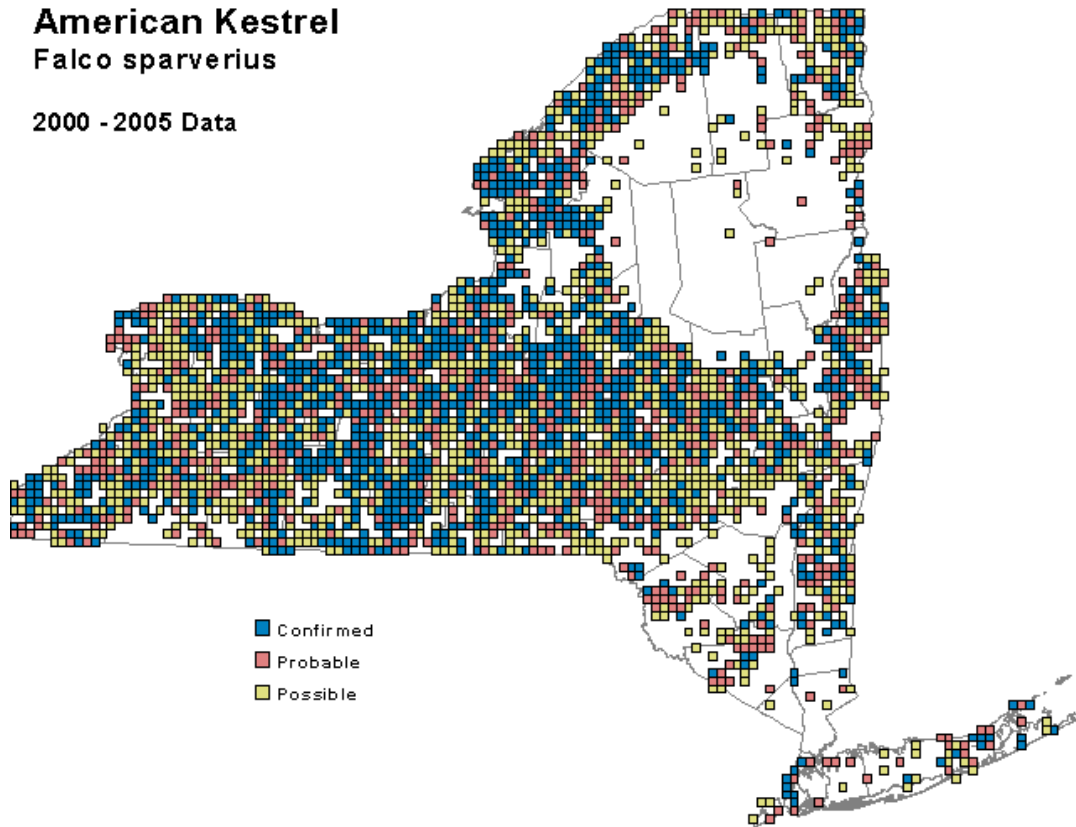
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NYS BREEDING BIRD ATLAS COMPARATIVE DATA

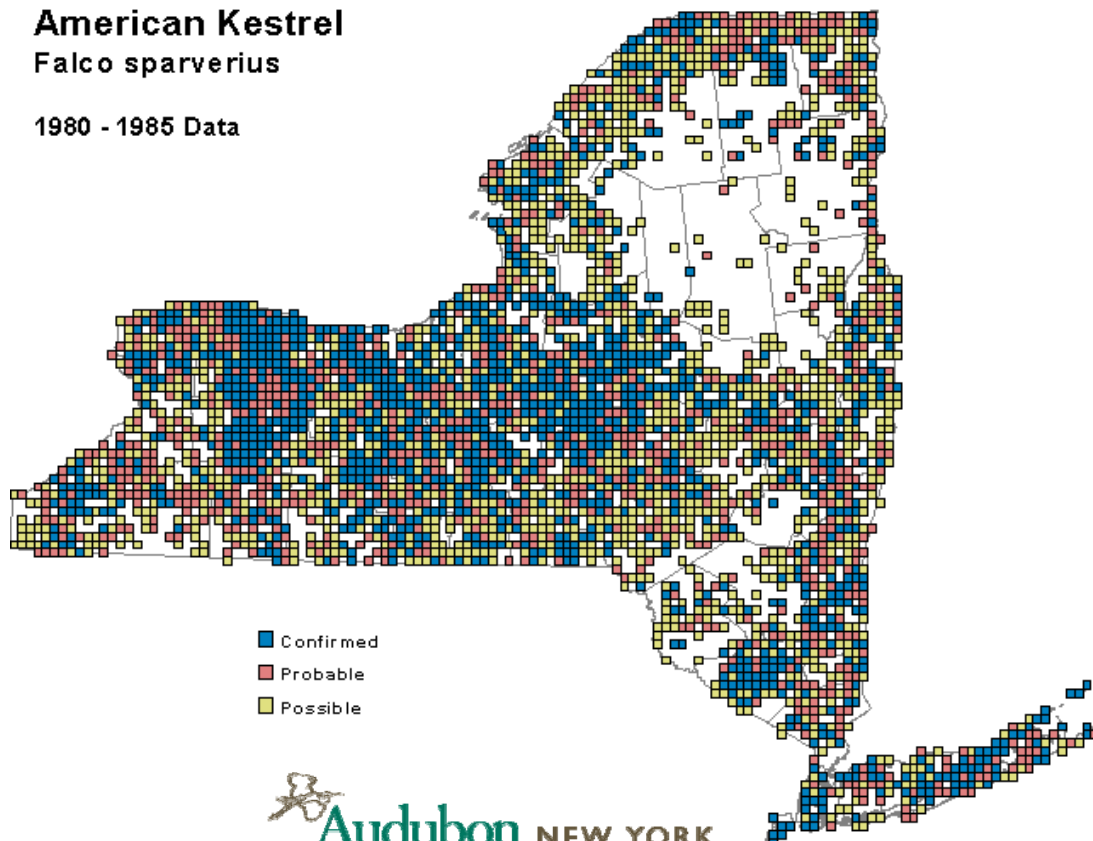
American Kestrel *Falco sparverius*

2000 - 2005 Data



American Kestrel *Falco sparverius*

1980 - 1985 Data



The Bobolink is a common but declining breeder and common migrant in hayfields and meadows in the Hudson River Valley.

Conservation Status

Breeding Bird Survey data show a continuing decline in Bobolink populations in New York since 1966. Partners in Flight list it as a Species of Regional Concern in Bird Conservation Region 13. NYS Breeding Bird Atlas data show a reduced distribution in the Hudson River Valley, particularly in the southern part of the valley.



The distinctive black and white color of the Bobolink is hard to miss.

Identification

The Bobolink is a distinctive, easy-to-recognize bird that somewhat resembles a large, colorful sparrow. The male is a white and black bird with a black head, wings, tail, and underparts, with a buff nape, and distinct white wing patches and rump. The female is smaller than the male, and is brownish-buff with a streaked appearance. Both have a short, heavy, pointed bill.

Habitat

This species is found in open grasslands, old hayfields with a mix of grass and broad-leaved forbs, wet meadows, and fallow fields. It is more abundant in fields with a high proportion of grass and deep litter cover. Approximate minimum size requirement for a breeding field is 5-10 acres.

Food

During the breeding season, Bobolinks eat seeds and a variety of larval and adult insects, spiders, and harvestmen. During migration and winter it feeds on small grains, corn tassels, weed seeds, and occasionally insects. It feeds as it walks slowly on the ground or as it climbs onto vegetation, perching near the top, and carefully extracting and eating the seeds.

Nesting

Bobolinks nest on the ground in a small hollow containing a thin, shallow cup of dead grass and weed stem lined with finer grasses. Birds are semi-colonial. Territory size is 1-6 acres.

Threats

- Habitat loss, particularly from development.
- Reforestation of agricultural lands.
- Conversion of agricultural lands from hayfields and pastures to row-crops.
- Nest destruction or abandonment because of early or more frequent mowing.
- Trampling of nests by deer and livestock.

Management Recommendations

- Create large habitat patches (greater than 20 acres) and minimize woody edges whenever possible. Suitable habitat includes grasslands of moderate height (8-12") and density, with adequate litter.
- Protect nesting habitat from disturbance during the breeding season (early May to August 1) by postponing haying, burning, and moderate or heavy grazing.
- Perform management activities in early spring, several weeks prior to the arrival of adults on the breeding grounds, or in the late summer or fall after the breeding season.
- Use a rotating management schedule on several nearby grassland fragments to provide a variety of habitat conditions. Adjacent patches of similar habitat provide refuge for fledglings to escape from mowed areas and for late-nesting females.
- Create or maintain patches of relatively sparse, grass-dominated vegetation resembling old hayfields (more than 8 years since planted).
- Encourage scattered forbs, such as clover, for nest-site cover and also for seeds and host plants for various invertebrates, which are critical for feeding rapidly growing nestlings.
- Mow or burn patches every 2-3 years to prevent development of woody vegetation.
- Avoid disturbance of suitable habitat (e.g., mowing) during the breeding season, May 1 to August 1.



Grassland habitat in NY

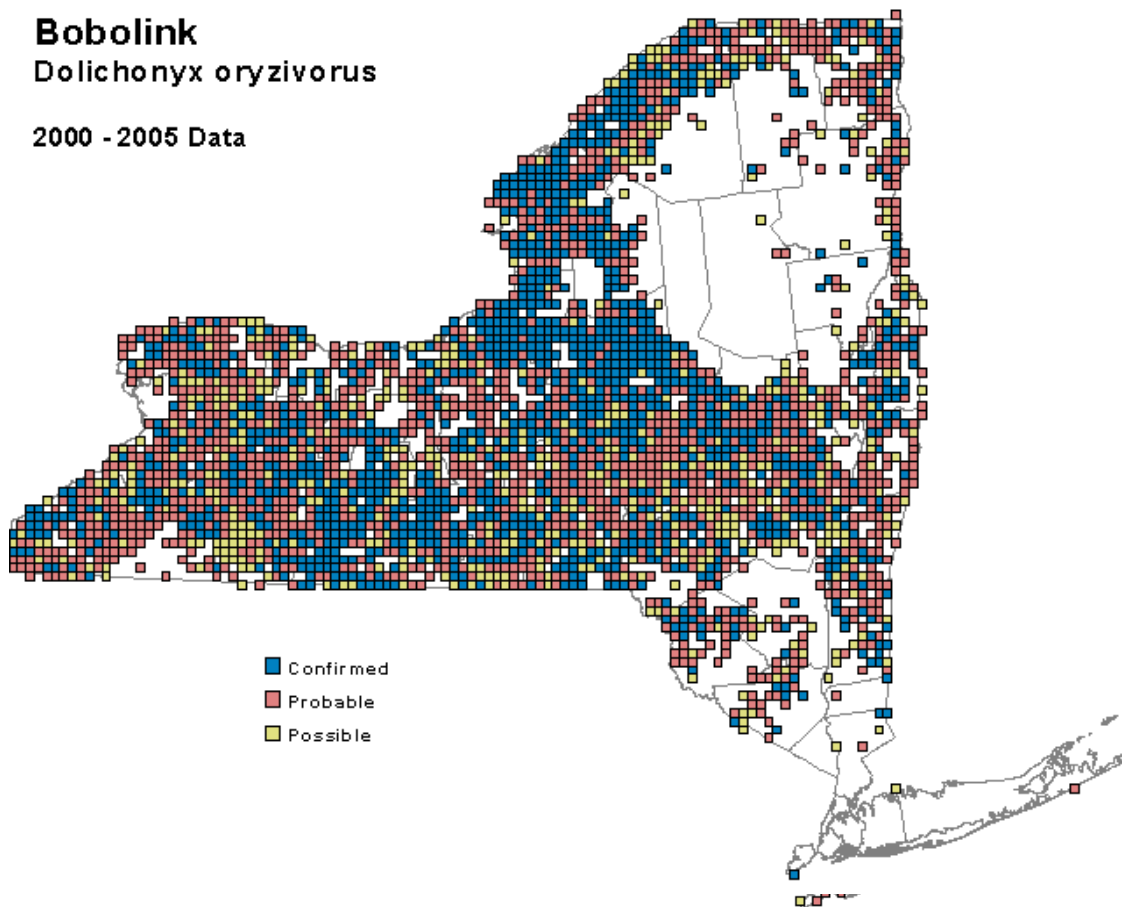
This management summary was adapted from Martin and Gavin 1995 and NatureServe 2008.

For additional information, see the following references:

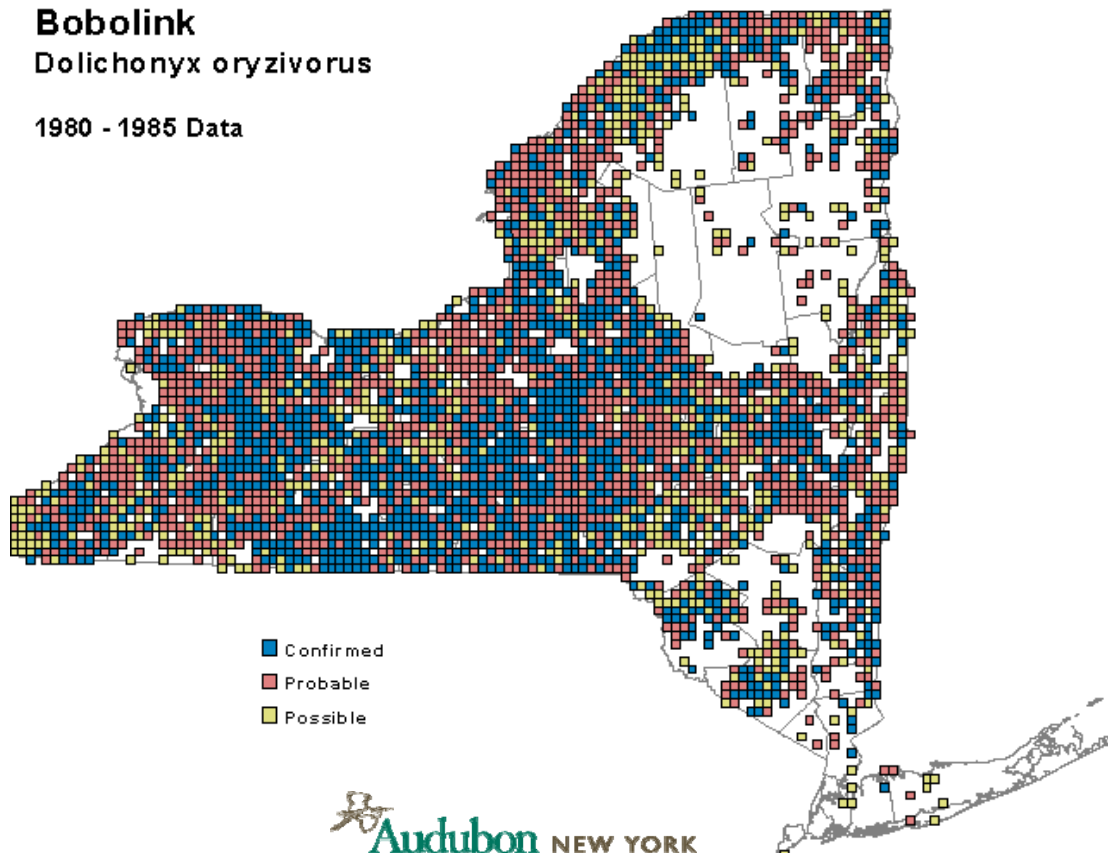
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- Throgmartin, W. E., M. G. Knutson, and J. R. Sauer. 2006. Predicting regional abundance of rare grassland birds with a hierarchical spatial count model. *Condor* 108:25-46.

NYS BREEDING BIRD ATLAS COMPARATIVE DATA**Bobolink***Dolichonyx oryzivorus*

2000 - 2005 Data

**Bobolink***Dolichonyx oryzivorus*

1980 - 1985 Data



EASTERN MEADOWLARK (*Sturnella magna*) GUIDANCE FOR CONSERVATION

The Eastern Meadowlark is a declining breeder and uncommon migrant in hayfields and grasslands in the Hudson River Valley.

Conservation Status

Breeding Bird Survey data indicate a drastic decline in Eastern Meadowlark populations in New York since 1966. Partners in Flight lists this species as Regional Concern in Bird Conservation Regions 13 and 28. New York Breeding Bird Atlas data show a significant reduction in distribution in the Hudson River Valley, particularly in the south.

Identification

This species, a member of the blackbird family, is a stocky, medium-sized bird, with a short tail. It has bright yellow underparts, a black v-shaped breast band, streaky brown upperparts, white outer tail feathers, long pinkish legs and a long, sharp-looking bill. It has a beautiful song consisting of a series of 2–8 pure, flutelike whistles, often slurred together and descending in pitch.



Eastern Meadowlarks use elevated perches for singing.

Habitat

It is most common in moderately tall grasslands and pastures, but also in hay and alfalfa fields, weedy borders of croplands, roadsides, orchards, golf courses, airports, shrubby overgrown fields, or other open areas. It must have elevated song perches, such as small trees, shrubs, or fence posts.

Food

It feeds mainly on insects and invertebrates including crickets, grasshoppers and worms, but it also eats berries and seeds. It forages on the ground, among vegetation, and by probing beneath the soil.

Nesting

The female starts several nests before choosing one to finish. The nest is situated in a small scrape on the ground or in a shallow depression and is well-hidden in dense vegetation. It is a cup with a dome-shaped roof interwoven with adjoining grasses with a side entrance. Nests are found in pastures, meadows, hay fields, or other grassland habitat, less often in cultivated fields.

Threats

- Loss of habitat due to development.
- Loss of habitat due to reforestation or succession from abandoned farmland into woodlots.
- Destruction of nests, young, and incubating adults due to mowing of hayfields during the breeding season and spring surface tillage for weed-control.
- Trampling of nests by livestock.
- Depredation of eggs and nestlings by foxes, domestic cats and dogs, coyotes, snakes, skunks, raccoons, or other small mammals.
- Although uncommon in the northeast, parasitization of nests by Brown-headed Cowbirds is a concern.

EASTERN MEADOWLARK (*Sturnella magna*) GUIDANCE FOR CONSERVATION

Management Recommendations

- Increase acreage of pasture, hay fields, and grasslands (50 acres or more is ideal), rather than several smaller fields, as predation by mammals and snakes and parasitism by Brown-headed Cowbirds are lower in large fields with more interior habitat than in small fields.
- Avoid disturbance of suitable habitat (e.g., mowing) during the breeding season, April 1 to end of July; ideally mowing should be done every 3–5 years.
- Maintain a variety of cover heights for feeding, loafing, roosting, and nesting; a rotational system of low intensity grazing helps to maintain diversity of cover height and density.
- Do not intensively graze, which tramples nests and vegetation and removes the vegetative cover hiding nests and discourages nesting and foraging (e.g., graze no more than 1 cow/per acres, and not rotationally).
- Limit the encroachment of woody vegetation into pastures, hayfields and other grasslands. Remove woody vegetation within and along the periphery of grassland fragments to discourage predators from using the woody vegetation as travel corridors and to enlarge the amount of interior grassland.
- Maintain a complex of burned and unburned habitats to provide a variety of grassland habitat types.
- Conduct prescribed burns in late spring on warm-season grasses to eliminate or reduce competition by cool-season grasses and weeds.



Grassland habitat in NY

Adapted from Lanyon 1995 and NatureServe 2008.

For additional information, see the following references:

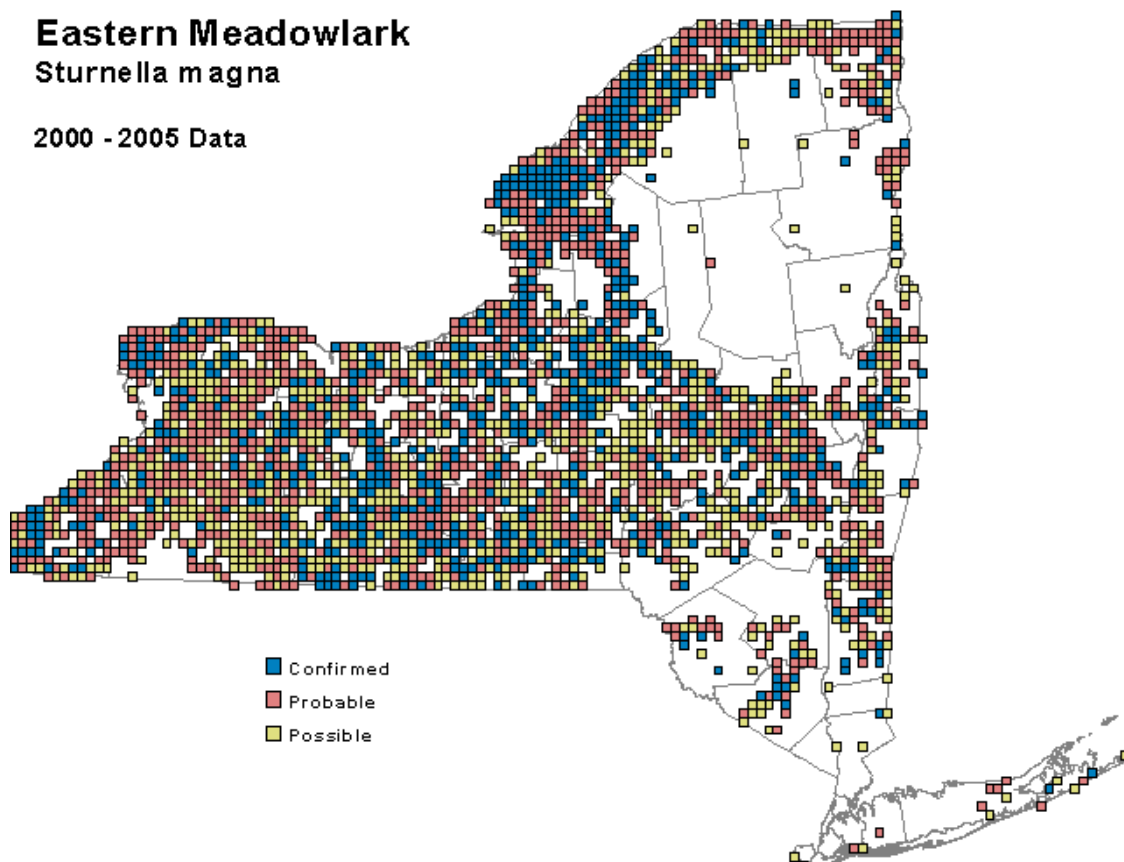
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NYS BREEDING BIRD ATLAS COMPARATIVE DATA

Eastern Meadowlark

Sturnella magna

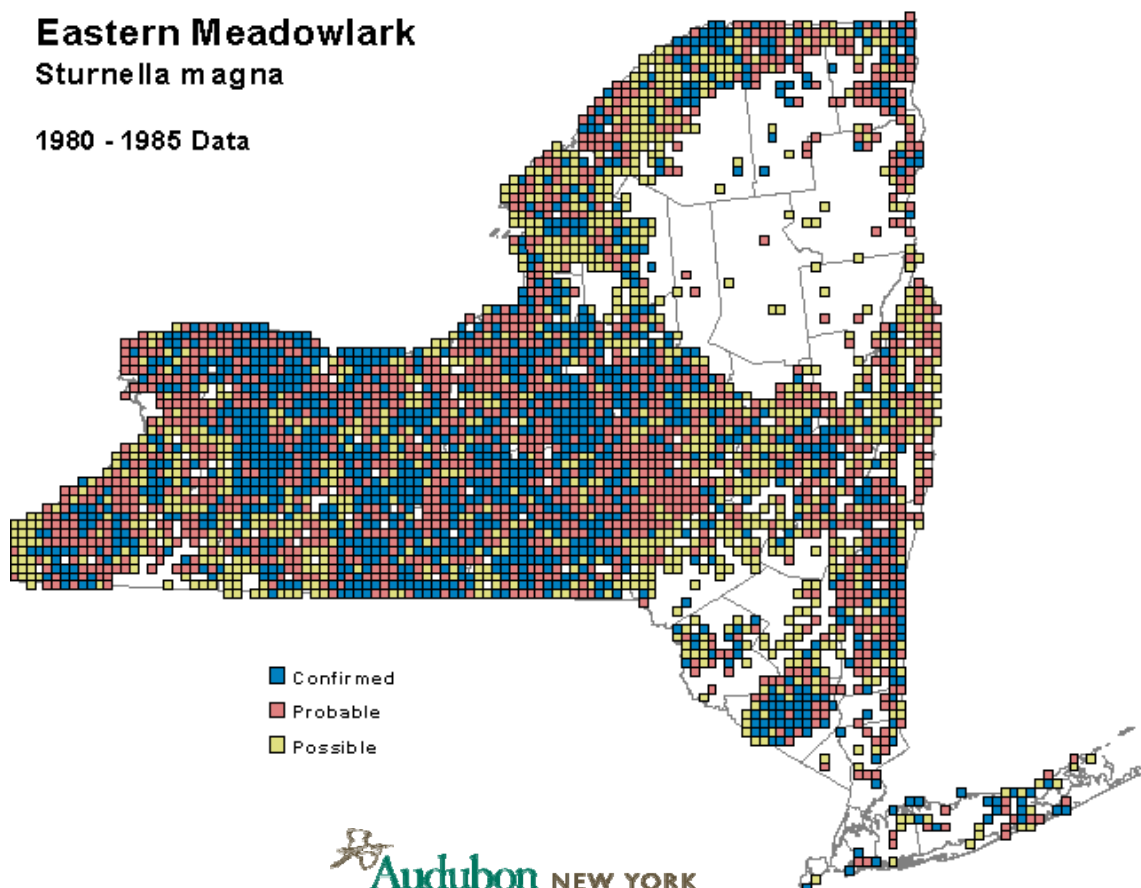
2000 - 2005 Data



Eastern Meadowlark

Sturnella magna

1980 - 1985 Data



GRASSHOPPER SPARROW

GUIDANCE FOR CONSERVATION

(*Ammodramus savannarum*)

The Grasshopper Sparrow is an uncommon to rare breeder in the Hudson River Valley.

Conservation Status

The Grasshopper Sparrow is a Species of Greatest Conservation Need in New York and is state-listed as a Species of Special Concern. Breeding Bird Survey data indicate a drastic decline in its population in the state in the past four decades. It has never been common in the Hudson River Valley, and the NYS Breeding Bird Atlas data show a decline in occupied blocks between the two atlas periods. Partners in Flight list this bird as Regional Concern in Bird Conservation Regions 28 and 30.

Identification

This small but stocky, with a flat-headed appearance and a short tail, is the only grassland sparrow without streaks on its breast. It has a dark crown with a pale central stripe, a narrow, white eye ring, a yellowish spot in front of the eye and a buffy breast and sides. Males and females look alike. Its name refers to its song, a high-pitched dry buzzy insect-like trill preceded by two short notes, which it sings from the top of a grass stem.

Habitat

This species prefers moderately open grasslands of intermediate height (4-12") and are often associated with clumped vegetation evenly interspersed with small patches of bare ground. Other habitat requirements include small amounts of litter and sparse coverage of woody vegetation (e.g., tall forbs or short shrubs). Grasshopper Sparrows are much more likely to occupy large tracts of habitat (e.g., more than 30 acres) than small fragments.

Food

The Grasshopper Sparrow eats mostly insects, grasshoppers, and some seeds. It forages exclusively on exposed bare ground.

Nesting

The nest is built by the female and is a cup made of grass stems and blades domed with overhanging grasses with a side entrance. It is placed in a shallow depression, with the rim level or slightly above the ground. The inside of the nest is lined with fine grasses, sedge, and sometimes hair. Grasshopper Sparrows nest in loose colonies, with an average individual territory size of 2-4 acres.

Threats

- Loss of habitat from development.
- Reforestation of grasslands and pastures.
- Conversion of grasslands and pastures to row crops.
- Nest destruction due to early mowing.
- Application of pesticides and insecticides reducing prey availability.
- Predation by mammals, including skunks, weasels, foxes, and feral cats, also birds such as Northern Harriers and Sharp-shinned Hawks.



The Grasshopper Sparrow uses elevated perches for singing.

(*Ammodramus savannarum*)

Management Recommendations

- Provide areas of suitable habitat large enough to support breeding populations by creating patches from 25-40 acres whenever possible.
- Treat portions of large areas on a rotational schedule to provide a mosaic of successional stages.
- Treat small, isolated areas as part of a larger mosaic, ensuring a variety of successional stages.
- Avoid disturbing nesting habitat during the breeding season, approximately end of April to beginning of August. Treatments or management that cause disturbance should be done in early spring (several weeks prior to the arrival of adults on the breeding grounds) or in the fall after the breeding season.
- Maintain open grassland by prescribed burning once every 2-4 years. This disturbance should occur prior to or following the breeding season.
- Mowing prior to arrival in spring can improve habitat and may be preferable to prescribed burning.
- Encourage light to moderate grazing in hayfields.



Grassland habitat in NY

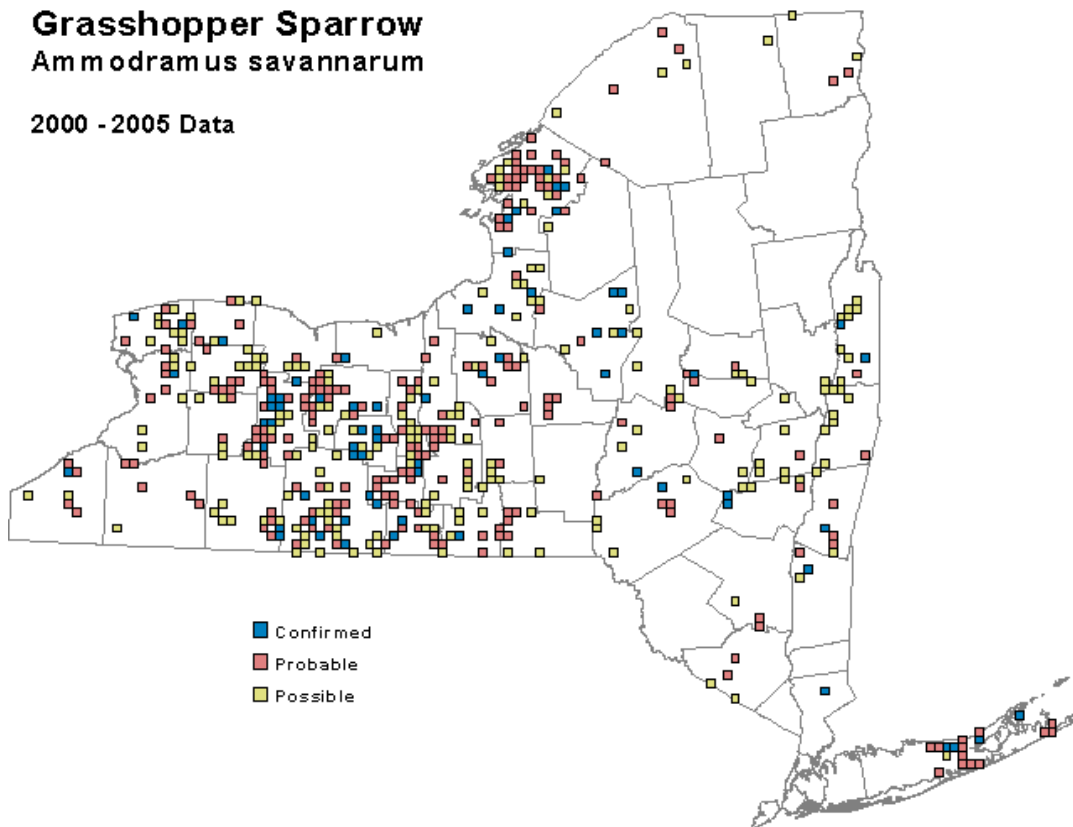
This management summary is adapted from Dechant et al. 2003, NatureServe 2008 and Vickery 1996.

For additional information, see the following references:

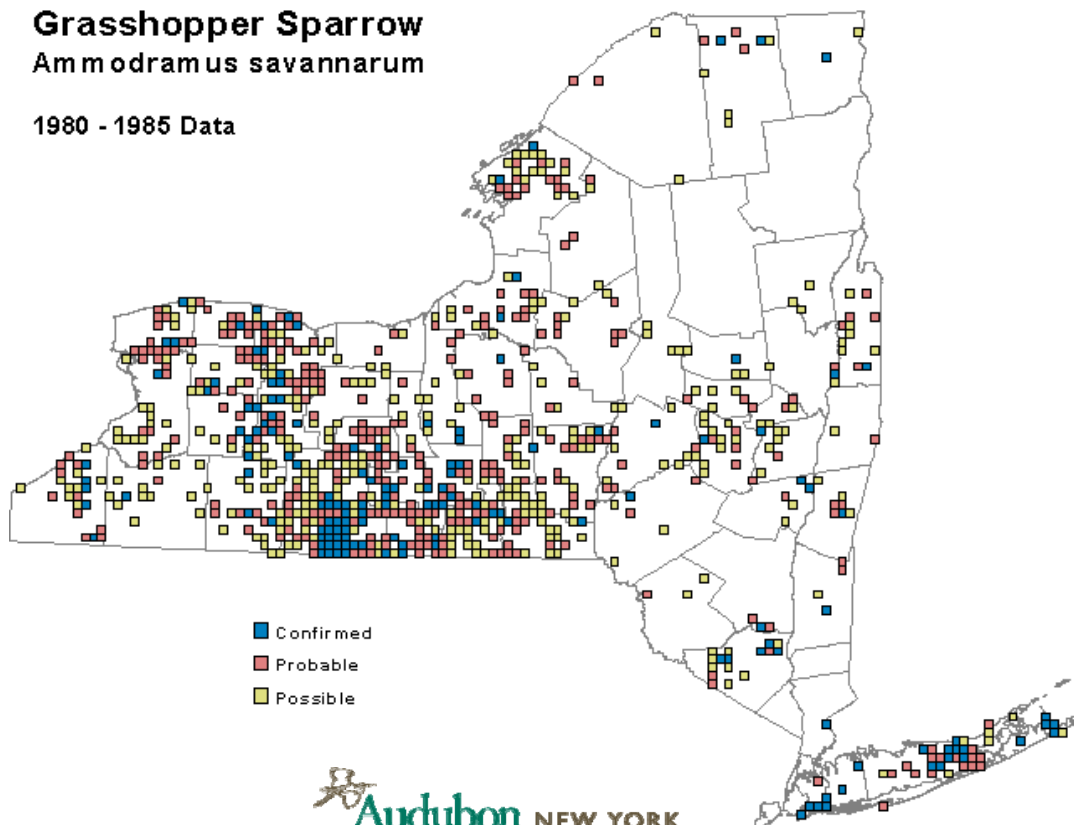
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*(Ammodramus savannarum)***NYS BREEDING BIRD ATLAS COMPARATIVE DATA****Grasshopper Sparrow***Ammodramus savannarum*

2000 - 2005 Data

**Grasshopper Sparrow***Ammodramus savannarum*

1980 - 1985 Data



The Horned Lark is a rare breeder, but a common wintering bird in the Hudson River Valley.

Conservation Status

This bird is listed as a Species of Greatest Conservation Need and is state-listed Threatened in New York. Breeding Bird Survey data indicate a severe decline in New York's population in the last four decades. NYS Breeding Bird Atlas data also indicate a state-wide reduction in its distribution in the past twenty years, and already low populations in the Hudson River Valley fell even further.

Identification

The male has small black “horns” and a black line under his eye extending from bill to “cheek.” It has a yellow to white face, a pale throat, dull brown upperparts with a black breast band, and a dark tail with white outer tail feathers. The female is similar to the male, but has slightly duller-plumaged.



Ideal American Kestrel habitat contains open fields with scattered perches.

Habitat

This species is found in open, treeless habitats, including cropland, herbaceous fencerows, road rights-of-way, pastures, recently cut hayfields, athletic fields, cemeteries, and airfields. It avoids wooded areas. In the winter it is found in similar habitats and concentrates along roadsides when the ground is snow-covered.

Food

This bird eats mainly grass and weed seeds, in addition to insects during the breeding season. It prefers to forage in exposed agricultural fields and short vegetation, but during heavy snow cover, feeds in fields and places where manure and waste grain are spread. Feeds mainly from the ground.

Nesting

The nest is a shallow depression in the ground often paved with pebbles on the rim. It usually nests on bare ground, including plowed or fall-planted fields. The female constructs the nest,, which is placed in the open or next to a tuft of grass, a rock, or clump of sod.

Threats

- Destruction of nests due to early mowing or haying.
- Conversion of habitat to non-habitat by development or changes in agriculture practices.

Management Recommendations

- Use burning, mowing, or grazing to maintain short, sparse vegetation and to reduce woody species.
- When pest management is required, use only rapidly degrading chemicals of low toxicity to non-target organisms and apply at the lowest application rates possible.
- Avoid disturbance of suitable habitat (e.g., mowing) during the breeding season, April 15 to August 15.



Grassland habitat in NY

This management summary was adapted from DeGraaf and Yamasaki 2001, Dinkins et al. 2003 and NatureServe 2008.

For additional information, see the following reference:

Beason, R. C. 1995. Horned Lark (*Eremophila alpestris*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bnaproxy.birds.cornell.edu/bna/species/195>

DeGraaf, R. M., and M. Yamasaki. 2001. New England Wildlife: Habitat, Natural History, and Distribution. Univ. Press of New England, Hanover, NH.

Dinkins, M. F., A. L. Zimmerman, J. A. Dechant, B. D. Parkin, D. H. Johnson, L. D. Igl, C. M. Goldade, and B. R. Euliss. 2003. Effects of Management Practices on Grassland Birds: Horned Lark. Northern Prairie Wildlife Research Center, Jamestown, ND. Northern Prairie Wildlife Research Center Online. <http://www.npwrc.usgs.gov/resource/literatr/grasbird/hola/hola.htm> (

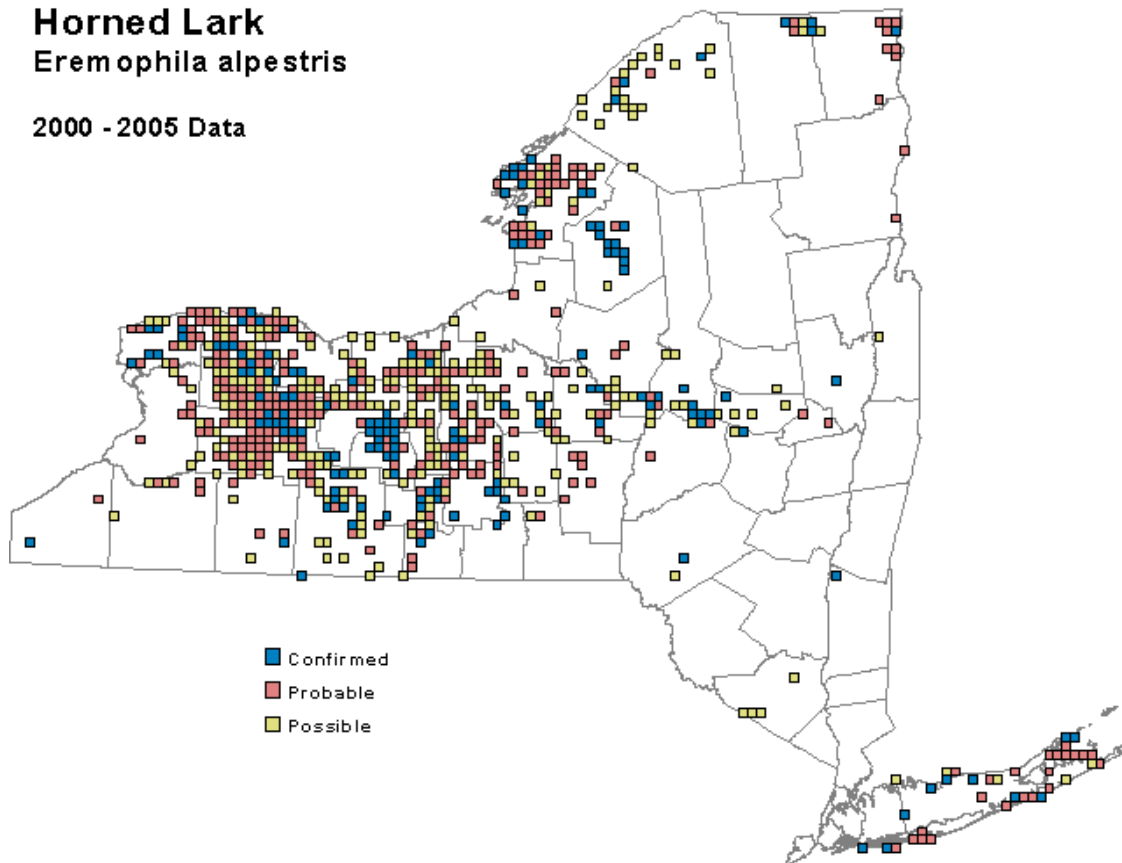
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NYS BREEDING BIRD ATLAS COMPARATIVE DATA

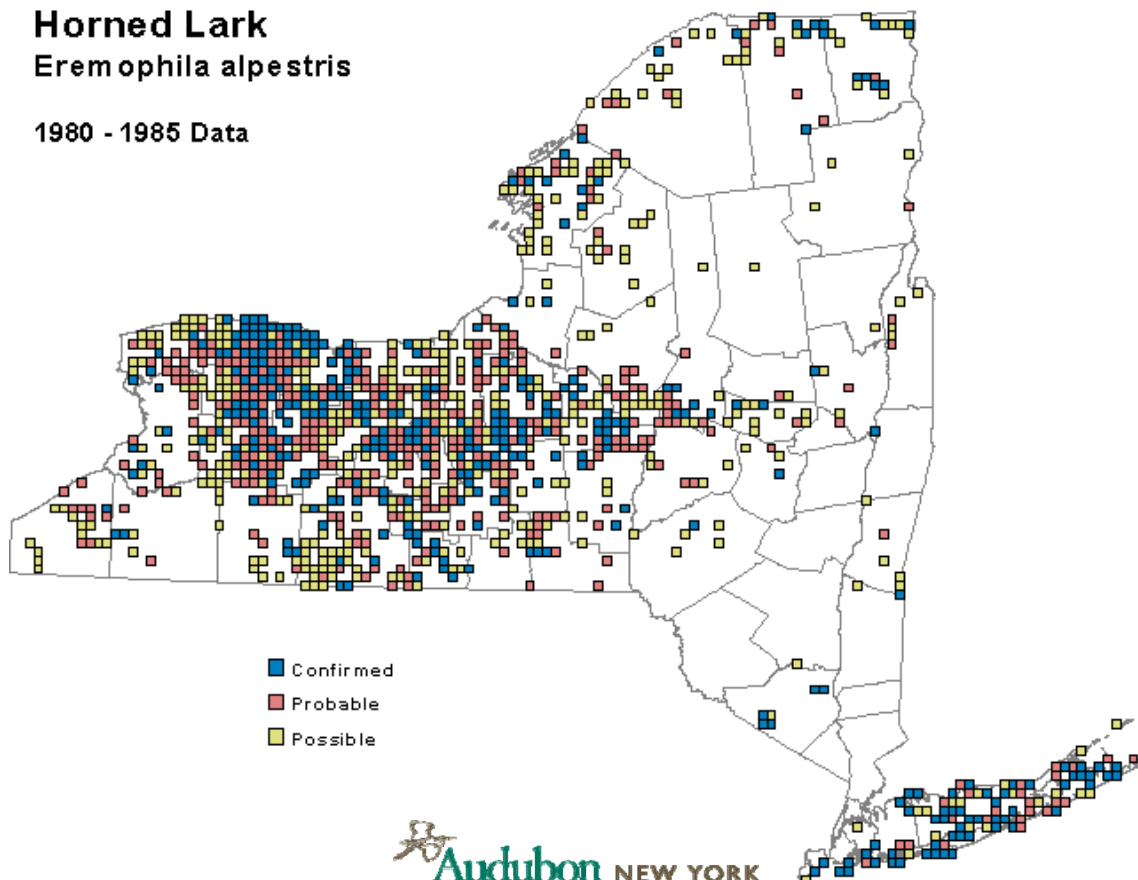
Horned Lark *Eremophila alpestris*

2000 - 2005 Data



Horned Lark *Eremophila alpestris*

1980 - 1985 Data



The Northern Harrier, formerly called the Marsh Hawk, is a rare breeder and uncommon migratory and wintering species in the Hudson River Valley.

Conservation Status

This hawk is listed as a Species of Greatest Conservation Need and as Threatened in New York State, and as a species of Regional Concern by Partners in Flight in Bird Conservation Region 13. Breeding Bird Atlas data indicate a slight increase in breeding areas in the Hudson River Valley in the past 20 years.



The Northern Harrier flies low over fields searching for food.

Identification

This slim, medium-sized hawk has long, broad wings and a long, barred tail. Females are larger than males. The adult male is pale gray above and white below with reddish spots on the underparts and wingtips edged with black. The adult female is dark brown above and buffy below, with some streaking on the underparts. The immature harrier is similar to the adult female. The call given by adult and immature harriers when they are alarmed or excited has been described as a "rapid chattering," "ke-ke-ke," or "chek-ek-chek-ek." This hawk is easily identified as it glides tipsily low along the ground, hunting for prey in generally open terrain. It roosts on the ground and perches on low objects such as fence posts or tree stumps.

Habitat

This species breeds and hunts in marshy meadows, wet, lightly grazed pastures and old fields, as well as freshwater and brackish marshes, and open habitats dominated by thick vegetation growth. During spring and fall migration, it can be seen in both open wetlands and old fields. In the winter, it can be found in a variety of open habitats dominated by herbaceous cover, including coastal sand dunes, pasturelands, croplands, upland and lowland grasslands, old fields, estuaries, open-habitat flood plains, and salt- and freshwater marshes.

Food

This bird may hunt throughout the day, but generally is active in the early morning and late afternoon. It hunts over open land or marshes, usually flying low, capturing prey on the ground. Depending on availability, the Northern Harrier eats small mammals, especially voles, small and medium-size birds, reptiles, amphibians, large insects, and carrion. During the breeding season, young are fed primarily small mammals and birds.

Nesting

The nest is on the ground in open habitats, including drained wetlands and nesting success may be higher with increasing soil moisture content. Most nests are built in patches of dense, tall, vegetation in undisturbed areas such as abandoned fields, wet hayfields, salt marshes, and cattail marshes. The nest is constructed of reeds, grasses, forbs, weeds, and water plants, usually with a base of thick-stalked plants such as cattails, alder, and willow. In general, nests built over the water are deeper, thicker, and bulkier than nests on dry ground.

Threats

- Loss of habitat from development.
- Destruction of wetlands.
- Reforestation of agricultural lands.
- Conversion of pasture and grasslands to row-crops.
- Nest destruction or abandonment because of human activities such as mowing.
- Predation of eggs and young by skunks, raccoons, feral cats and dogs, as well as other raptor species.
- Trampling of nests by deer and livestock.
- Reduction of prey availability due to the widespread use of insecticides and rodenticides.

Management Recommendations

- Maintain fields in early successional stages, including planted grass and legume species.
- Use prescribed burning, grazing, and mowing to maintain an old field/grassland state.
- Avoid disturbance of suitable habitat (e.g., mowing) during the breeding season, April 1 to late July.
- Preserve of wetlands and wet meadows.
- Protect nests from disturbance by recreational activities, such as off-road vehicle use and agricultural operations such as mowing and plowing.
- Create buffer zones around nest sites where human-related disturbance is likely to occur. An exact size for a buffer is not known, but nesting success is relatively high in fields 75 acres or more in size.
- Maintain prey base by decreasing use of insecticides and rodenticides.
- Maintain patches of undisturbed vegetation.

This management summary was adapted from Macwhirter and Bildstein 1996, NatureServe 2008, and NYNHP 2008.

For additional information, see the following references:

Illinois Natural History Survey. 2008. Northern Harrier.

<http://www.inhs.uiuc.edu/chf/pub/ifwis/birds/northern-harrier.html>.

Macwhirter, R. Bruce and Keith L. Bildstein. 1996. Northern Harrier (*Circus cyaneus*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/210>.

NatureServe. 2008. NatureServe Explorer: an Online Encyclopedia of Life [web application]. Version 7.0. NatureServe, Arlington, VA. . <http://www.natureserve.org/explorer>.

(NYNHP) New York Natural Heritage Program. 2008. Online Conservation Guide for *Circus cyaneus*. Available from: <http://acris.nynhp.org/guide.php?id=6812>. Accessed April 25th, 2008.

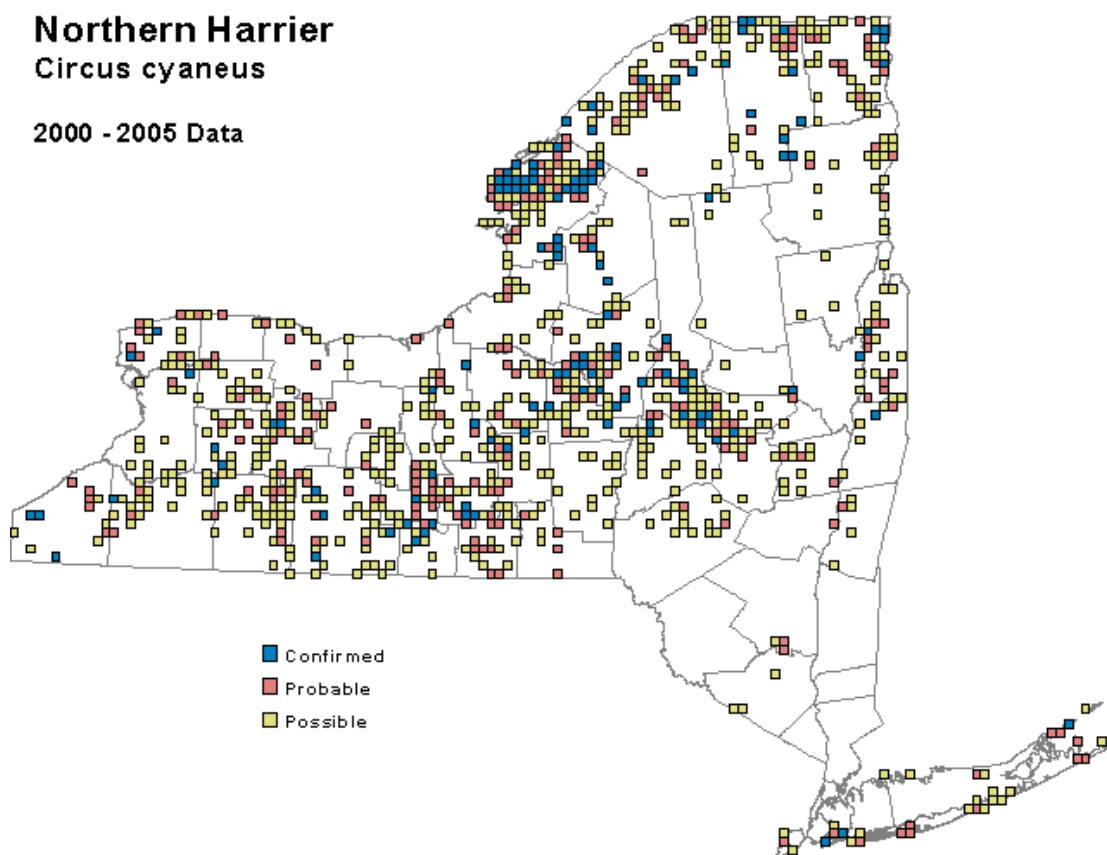
Serrentino, P. 1992. Northern Harrier, *Circus cyaneus*. Pages. 89–117 in Migratory Nongame Birds of Management Concern in the Northeast (K. J. Schneider and D. M. Pence, eds.). U.S. Fish and Wildlife Service, Newton Corner, MA.

Serrentino, P, with revisions by K. Schneider, G. Hammerson, M. Koenen, and D.W. Mehlman. 2001 Species Management Abstract for Northern Harrier. Nature Conservancy, Arlington, VA. <http://conserveonline.org/docs.2001/05/noha.doc>.

NYS BREEDING BIRD ATLAS COMPARATIVE DATA

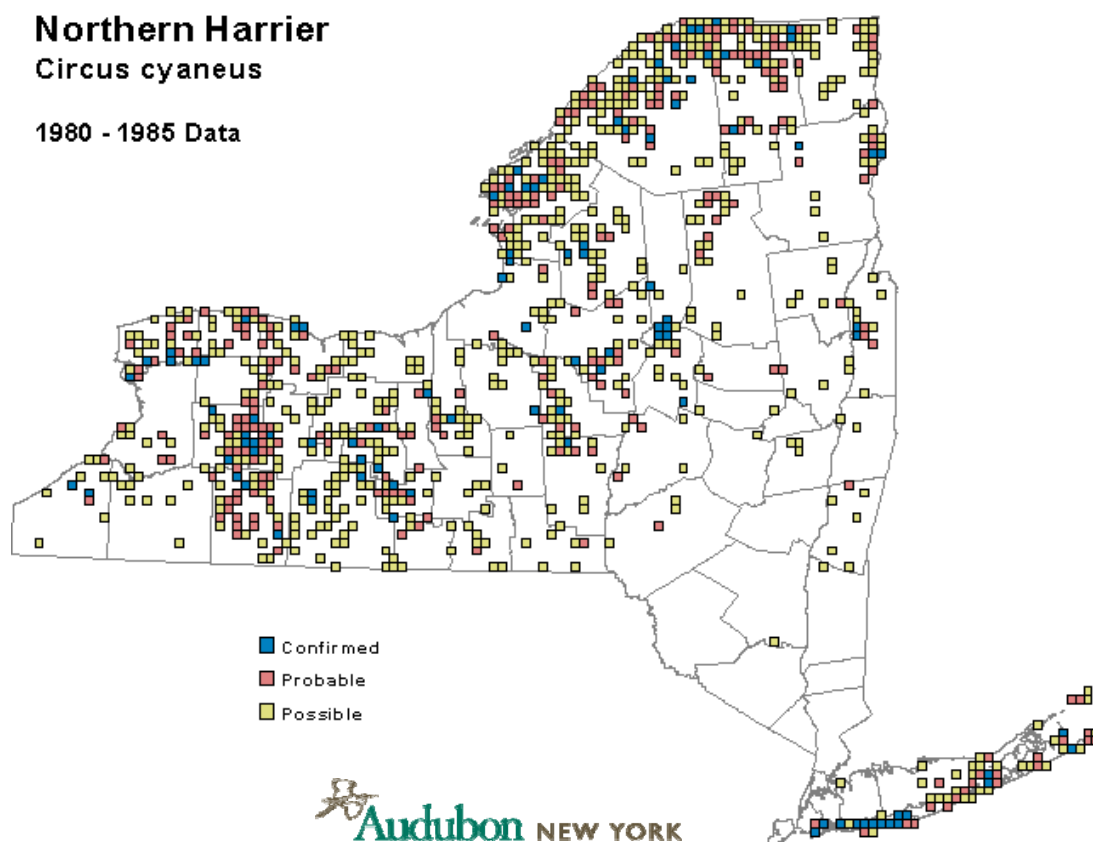
Northern Harrier *Circus cyaneus*

2000 - 2005 Data



Northern Harrier *Circus cyaneus*

1980 - 1985 Data



(Passerculus sandwichensis)

The Savannah Sparrow is a common breeder in grasslands in the northern part of the Hudson River Valley and less common in the south.

Conservation Status

Breeding Bird Survey data indicate a significant decline in New York's Savannah Sparrow population since 1966. However, the NYS Breeding Bird Atlas reflect a stable distribution in the Hudson River Valley. Partners in Flight lists the Savannah Sparrow as a Species of Regional Concern in Bird Conservation Region 13.

Identification

This species is small, with a short, notched tail. It has streaked, light brown upperparts and whitish underparts with streaking on the breast and sides. Its face has a yellow patch in front of and above the eye. Its bill is pale and its legs are pinkish. The song starts with two to five sharp "chip" notes, followed by two buzzing trills of different pitches, the first being longer, high-pitched and insect-like.



Savannah Sparrows do best in fields great than 20 acres.

Habitat

This bird breeds in open habitat with short to intermediate vegetation height (1-25"), intermediate vegetation density, and a well developed litter layer. This includes grasslands, lightly grazed pastures, cultivated fields (especially alfalfa), and moist sedge and grass meadows. It avoids areas with extensive tree cover, but often occurs in fields with some herbaceous plants or weeds. This species is highly sensitive to habitat fragmentation and needs fields from 20-40 acres in size.

Food

It feeds mainly on insects, such as beetles, grasshoppers, caterpillars, flies, and spiders. It also eats grass and weed seeds and some berries.

Nesting

The nest is located on the ground and is well-hidden among grass or weeds or placed under matted dead plants or a canopy of dead grasses and herbs. It is an open cup made of grass that is approached through a tunnel from the side. Preferred nest sites include shallow depressions formed by birds in grass clumps or occurring naturally in the ground among goldenrods or at the base of low woody shrubs such as blueberry, raspberry, blackberry or wild rose. A pair's territory size is 1-2 acres.

(*Passerculus sandwichensis*)

Threats

- Loss of habitat from suburban development.
- Reforestation of grasslands and pastures.
- Conversion of grasslands and pastures to row crops.
- Nest destruction due to early mowing.
- Nest parasitism by Brown-headed Cowbirds.
- Predation by snakes, skunks, raccoons, and feral cats.

Management Recommendations

- Promote management or enhancement activities that increase the amount of contiguous grassland habitat.
- Remove woody vegetation along the edges of grassland fragments to discourage predators that may use woody vegetation as travel corridors
- Maintain grassy and open field areas by conducting rotational mowing or managed grazing.
- Avoid disturbance of suitable habitat during the breeding season, April 1 to August 15.



Grassland habitat in NY

This management summary was adapted from Swainson 2003 and Wheelwright and Rising 1993.

For additional information, see the following references:

NatureServe. 2008. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, VA. <http://www.natureserve.org/explorer>.

Swainson, D. A. 2003. Effects of Management Practices on Grassland Birds: Savannah Sparrow. Northern Prairie Wildlife Research Center, James, ND. Northern Prairie Wildlife Research Center Online: <http://www.npwrc.usgs.gov/resource/litertr/grasbird/savs/savs.htm>.

Wheelwright, N. T. and J. D. Rising. 1993. Savannah Sparrow (*Passerculus sandwichensis*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/045>

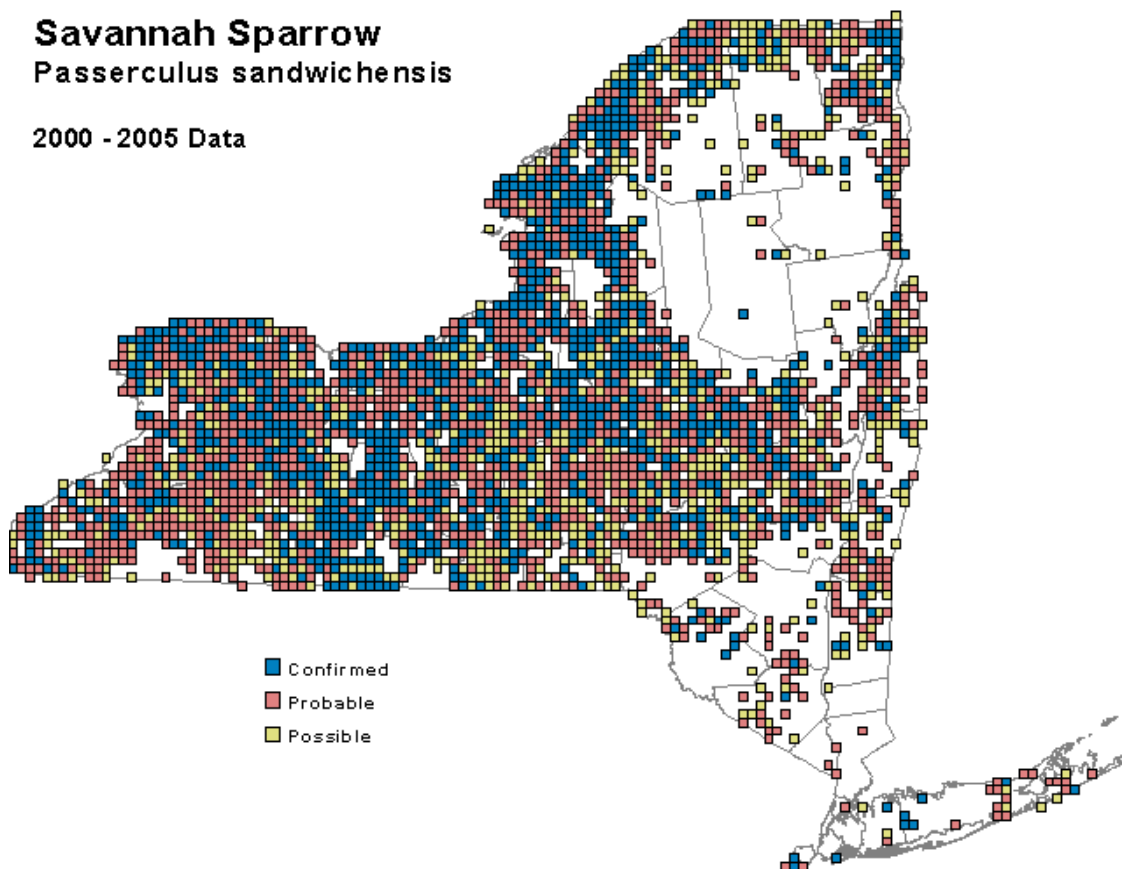
(*Passerculus sandwichensis*)

NYS BREEDING BIRD ATLAS COMPARATIVE DATA

Savannah Sparrow

Passerculus sandwichensis

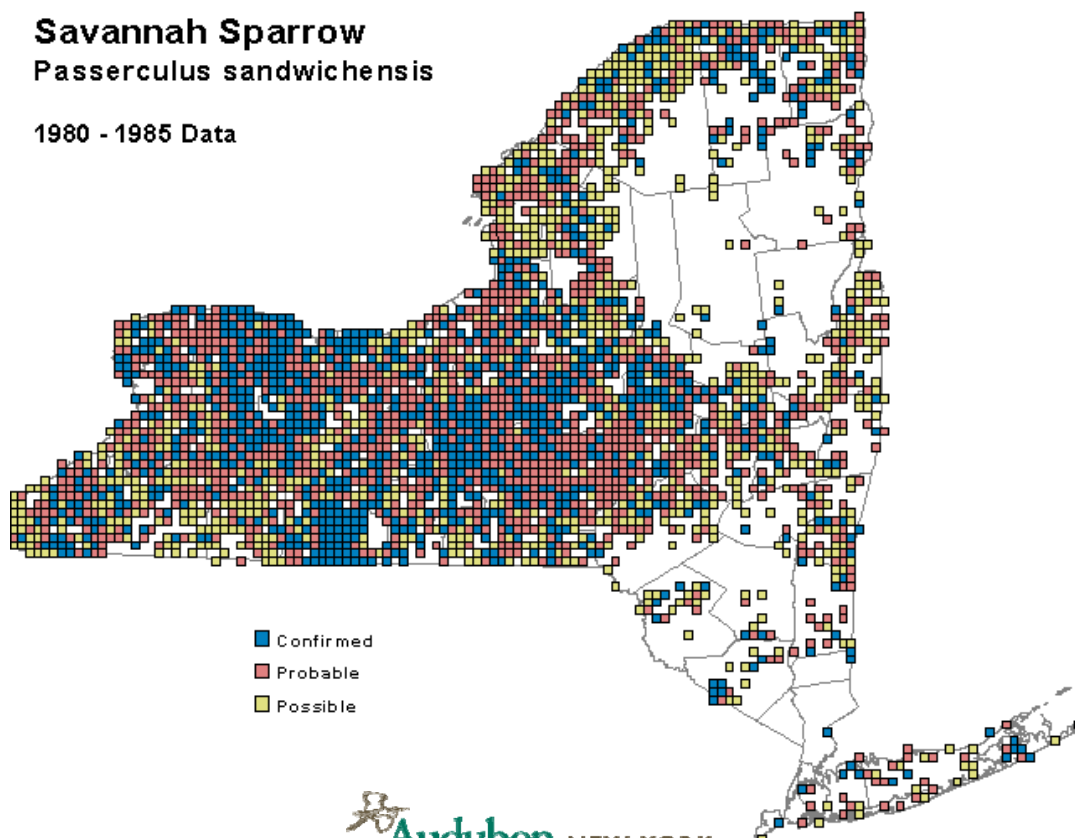
2000 - 2005 Data



Savannah Sparrow

Passerculus sandwichensis

1980 - 1985 Data



The Short-eared Owl is an uncommon wintering species in the Hudson River Valley.

Conservation Status

This species is listed as a Species of Greatest Conservation Need and as Endangered in New York, as a Species of Continental Concern by Partners in Flight in Bird Conservation Region 13, and receives a “Yellow” designation from the National Audubon Society as a species of national conservation concern.

Identification

This crow-sized bird has barely visible ear tufts and a whitish facial disk with a dark area around a bright yellow eye. The upperparts are orange-brown to buff colored with some streaking. The underparts are much lighter with bold vertical streaking on the breast and a pale belly that is lightly streaked. The wings are long and the legs and feet are feathered. The sexes are similar. It flies low over grasslands or marshes and its flight is described as “moth or bat-like.”



Blocks of habitat greater than 250 acres are essential for Short-eared Owls.

Habitat

It inhabits open areas such as grasslands, hayfields, fallow farm fields, and pastures, as well as fresh and salt water marshes. Day roosts are typically on the ground, but also may be under low shrubs, in conifers, or low open perches such as fence posts. Large blocks of habitat greater than 250 acres are essential for Short-eared Owls. In the winter they commonly roost communally in sheltered sites close to their feeding grounds. They are attracted to areas with large population of meadow voles.

Food

The primary prey of Short-eared Owls is the meadow vole. They hunt predominantly by flying low over open areas in coursing flights much like the Northern Harrier. Upon detecting prey, the owl drops or pounces, sometimes briefly hovering beforehand. They may also hunt from a perch and dive directly on prey. At times they also hunt using a hovering flight similar to American Kestrels.

Threats

- Habitat loss due to development
- Succession of pastures and hayfield to forest
- Loss of wetlands
- Changes in farming practices such as conversion of hayfields to row crops
- Risk of predation by domestic or feral cats and dogs in developed areas
- Decline of prey base in areas where humans are attempting to control rodent populations by poisoning

Management Recommendations

The preferred habitat for Short-eared Owls requires management or it will transition to a less desirable habitat. Management efforts that target traditional wintering areas and roost sites may be more successful than other areas.

Potential management practices include the following:

- Periodic burning, mowing and plowing of fields in seasons when the owls are not present. Care must be taken to allow for adequate build-up of the litter layer that provides habitat for microtine rodents. Microtus populations require adequate overhead cover in the form of thatch and dense grasses for several aspects of their ecology. Maintenance of an adequate prey base is essential, since distribution and abundance seems to be tied to prey density.
- Maintain large areas of open habitat so that wintering areas can be maintained.
- Monitor wintering areas and roost sites each winter.
- Avoid disturbance of suitable habitat during the breeding season, April 15 to August 15.



Grassland habitat in NY

This management summary was adapted from NatureServe 2008, NYNHP 2008 and Schneider 2003.

For additional information, see the following references:

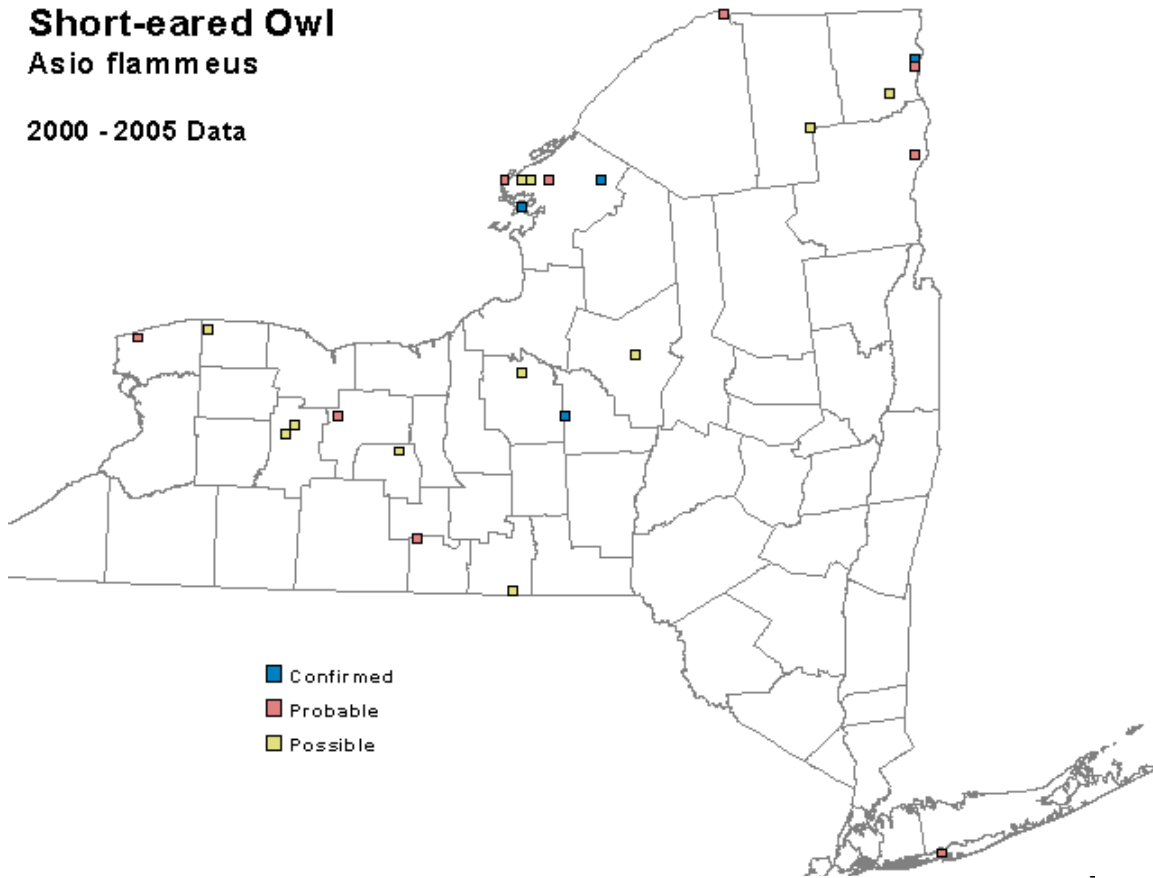
- Clark, R. J. 1975. A field study of the Short-eared Owl, *Asio flammeus* (Pontoppidan) in North America. Wildlife Monographs 47:1-67.
- NatureServe. 2008. NatureServe Explorer: an Online Encyclopedia of Life [web application]. NatureServe, Arlington, VA. <http://www.natureserve.org/explorer>.
- (NYNHP) New York Natural Heritage Program. 2008. Online Conservation Guide for *Asio flammeus*. Available from: <http://acris.nynhp.org/guide.php?id=6949>. Accessed April 23rd, 2008.
- Schneider, K. J..2003. Status and ecology of the Short-eared Owl (*Asio flammeus*) in New York State. Kingbird 53:313-330.
- Tate, G. R.. 1992. Short-eared Owl (*Asio flammeus*). Pages. 171–189 in Migratory nongame birds of management concern in the northeast (K. J. Schneider and D. M. Pence, eds.). U.S. Fish and Wildlife Service, Newton Corner, MA.
- Wiggins, D. A., D. W. Holt and S. M. Leasure. 2006. Short-eared Owl (*Asio flammeus*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/062>

NYS BREEDING BIRD ATLAS COMPARATIVE DATA

Short-eared Owl

Asio flammeus

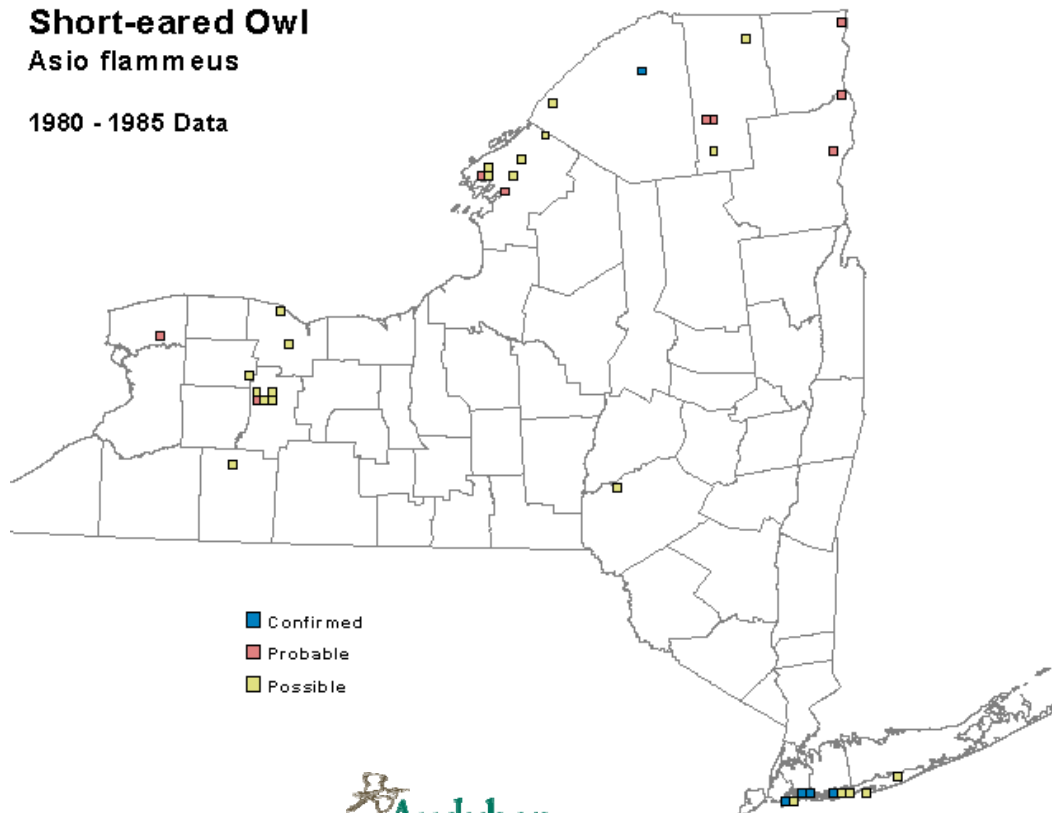
2000 - 2005 Data



Short-eared Owl

Asio flammeus

1980 - 1985 Data



The Upland Sandpiper is a rare breeder in the Hudson River Valley. It can be seen during spring and fall migration in low grassy areas, such as turf farms.

Conservation Status

The Upland Sandpiper is listed as a Species of Greatest Conservation Need and Threatened in New York. It is also considered a Species of High Concern by the Northern Atlantic Regional Shorebird Plan. Breeding Bird Survey data show a drastic population decline in NY since 1966. NY Breeding Bird Atlas maps also show reduction in distribution in the Hudson River Valley.

Identification

This species has a long neck, large eyes, small dovelike head, and characteristic "wolf whistle" call, which make it easy to identify. It is about 12" high, with a wing span of about 26," a scaly-brown back, streaked breast and neck, and a white belly. The bill is about the same length as the head. Upland Sandpipers can often be seen perched on fence posts.



Ideal American Kestrel habitat contains open fields with scattered perches.

Habitat

The Upland Sandpiper needs large open areas of short grass for feeding and courtship, interspersed with taller grasses for nesting and brood cover. At a minimum, they need about 150 acres of open habitat. Typical habitats include grazed pastures, meadows, hayfields, airfields, and open grassy areas. A pair's territory size is about 20-30 acres.

Food

This bird eats mainly insects such as grasshoppers and crickets, but will also pick up seeds. It looks like a robin when it feeds, running along the ground and then pausing if it detects something edible.

Nesting

Their nest is a shallow depression in the ground lined with dry grass. Nests are usually well hidden, frequently by vegetation that hangs over the nest, hiding it from above.

Threats

- Changes in farming practices, including earlier and more frequent mowing and increased cultivation of row crops.
- Loss and fragmentation of grasslands due to increased suburban development.
- Natural forest succession of abandoned farmlands.
- Degradation of grassland bird habitat due to increased use of pesticides and removal of hedgerows.

Management Recommendations

- Avoid disturbance of suitable habitat (e.g., mowing) during the breeding season, April 1 to August 15.
- Nesting fields should be mowed every 1-3 years, to provide grass that is 6-8" tall at time of spring arrival.
- To prevent succession, fields should be burned or cut back every 5-10 years after September 1 or before May 1.
- Reducing or eliminating the use of pesticides can increase insect prey base.



Grassland habitat in NY

This management summary was adapted from Houston and Bowen 2001, NYNHP 2008 and NatureServe 2008.

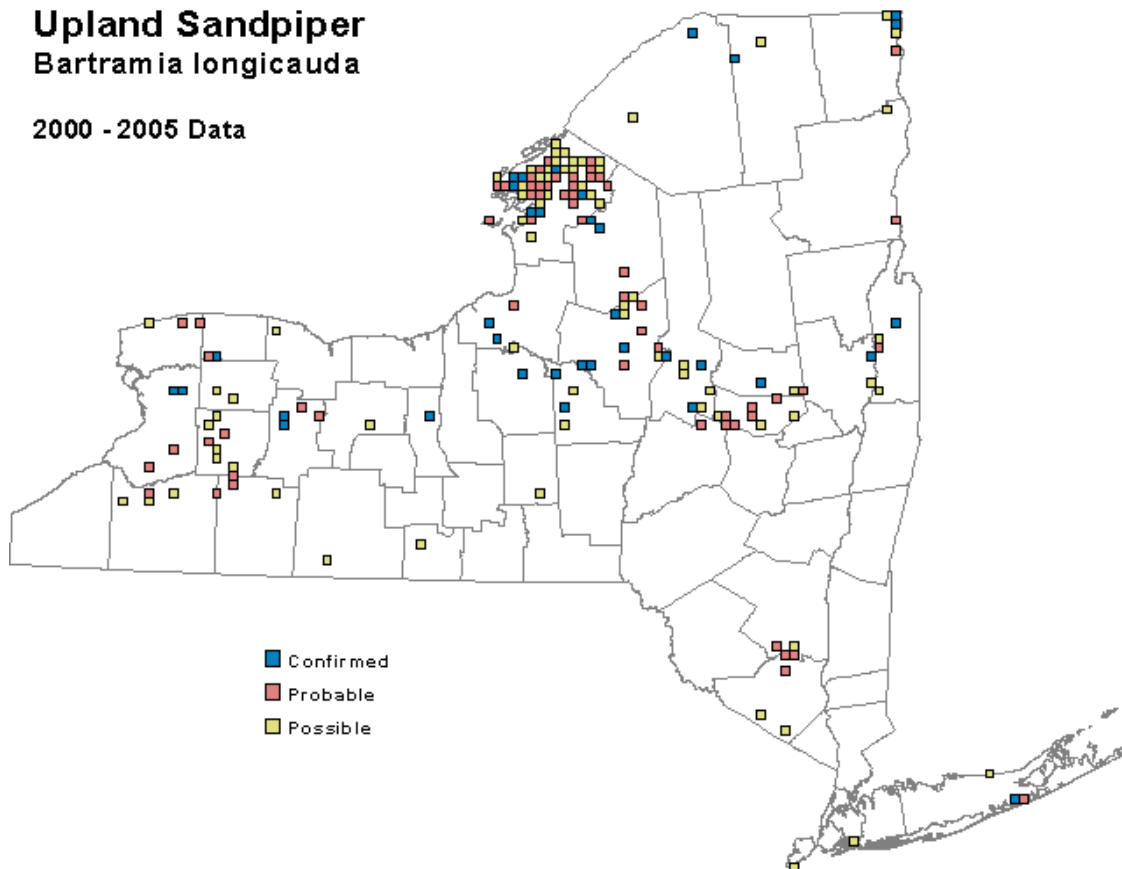
For additional information, see the following references:

- Askins, R. A., F. Chavez-Ramirez, B. C. Dale, C. A. Haas, J. R. Herkert, F. L. Knopf, and P. D. Vickery. 2007. Conservation of Grassland Birds in North America: Understanding Ecological Processes in Different Regions. Ornithological Monographs no. 64. American Ornithologists' Union, Washington, DC.
- Bollinger, E.K. 1995. Successional changes and habitat selection in hayfield bird communities. *Auk* 112:720-730. <http://elibrary.unm.edu/sora/Auk/v112n03/p0720-p0730.pdf>.
- Carter, J. W. 1992. Upland Sandpiper, *Bartramia longicauda*. Pages 235–252 in *Migratory Nongame Birds of Management Concern in the Northeast* (K. J. Schneider and D. M. Pence, eds.). U.S. Fish and Wildlife Service, Newton, MA.
- Dechant, J. A., M. F. Dinkins, D. H. Johnson, L. D. Igl, C. M. Goldade. 1999. Effects of management practices on grassland birds: Upland Sandpiper. Northern Prairie Wildl. Res. Center, Jamestown, ND. <http://www.npwrc.usgs.gov/resource/literatr/grasbird/grasbird.html>.
- Houston, C. Stuart and Daniel E. Bowen, Jr. 2001. Upland Sandpiper (*Bartramia longicauda*), *The Birds of North America Online* (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/580>.
- NatureServe. 2008. NatureServe Explorer: an online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington VA. <http://www.natureserve.org/explorer/servlet/NatureServe?searchName=BARTRAMIA+LONGICAUDA>.
- Morgan, M. and M. Burger. 2007. A Plan for Conserving Grassland Birds in New York. Audubon New York. Audubon NY, Ithaca, NY.
- (NYNHP) New York Natural Heritage Program. 2008. Online Conservation Guide for *Bartramia longicauda*. Available from: <http://www.acris.nynhp.org/guide.php?id=6861>. Accessed March 16th, 2008.
- Norment, C. 2002. On grassland bird conservation in the northeast. *Auk* 119:271-279.
- Norment, C. J., C. D. Ardizzone, and K. Hartman. 1999. Habitat relations and breeding biology of grassland birds in western New York. *Studies in Avian Biology* no. 19:112–121.
- Throgmartin, W. E., M. G. Knutson, and J. R. Sauer. 2006. Predicting regional abundance of rare grassland birds with a hierarchical spatial count model. *Condor* 108:25-46.
- Wells, J. V., K. V. Rosenberg. 1999. Grassland bird conservation in northeastern North America. *Studies in Avian Biology* no. 19:72–80.
- Winter, M., D.H. Johnson, J.A. Shaffer, T.M. Donovan, and W.D. Svedarsky. 2006. Patch size and landscape effects on density and nesting success of grassland birds. *Journal of Wildlife Management* 70:158-172.

NYS BREEDING BIRD ATLAS COMPARATIVE DATA

Upland Sandpiper *Bartramia longicauda*

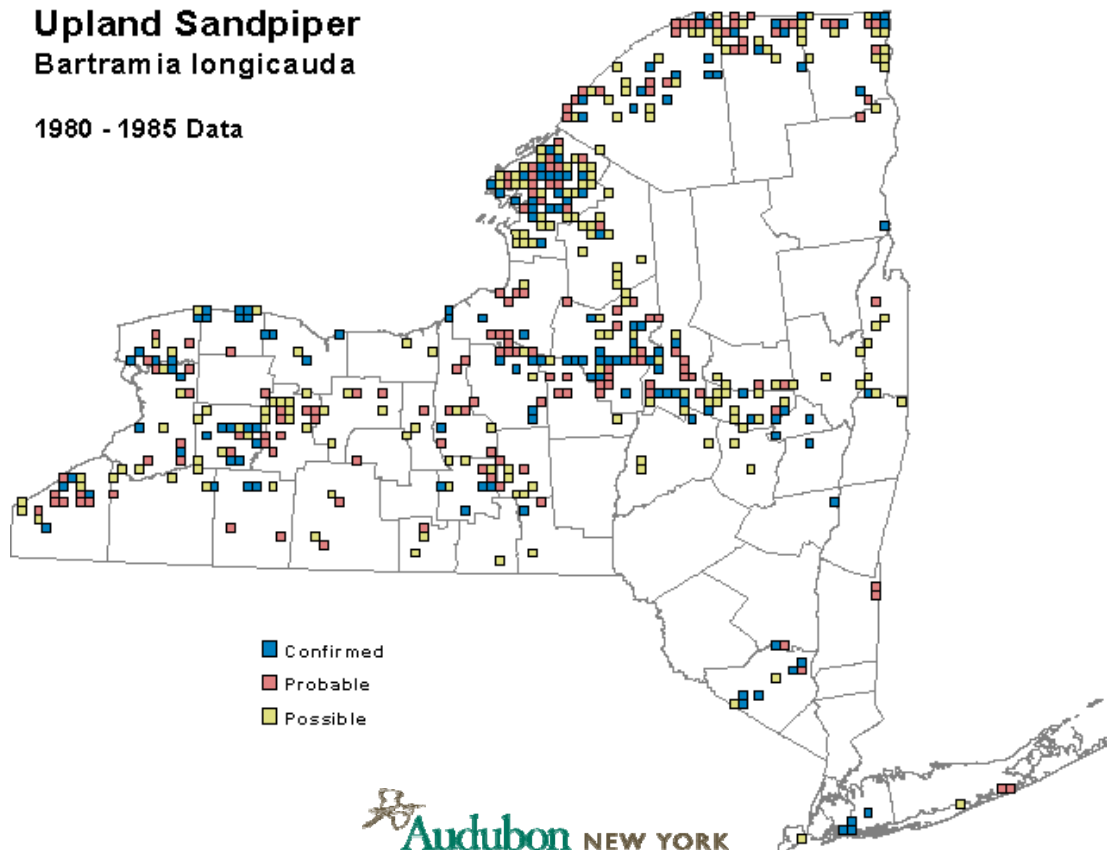
2000 - 2005 Data



■ Confirmed
■ Probable
■ Possible

Upland Sandpiper *Bartramia longicauda*

1980 - 1985 Data



■ Confirmed
■ Probable
■ Possible

Appendix 6

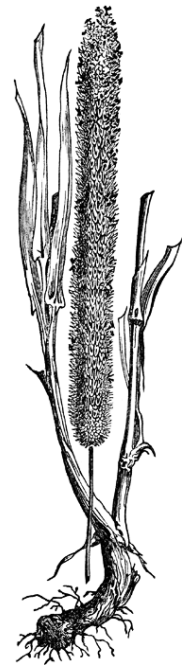
Grass, Legume and Wildflower Species Recommended for Grassland Conservation in New York State



Canada wildrye, Missouri DNR

As discussed in this guidebook, resource managers in New York State recommend cool-season grasses for successful establishment of grasslands for grassland bird conservation in the Northeast. Native warm-season grasses, such as Indiangrass, switchgrass and Little bluestem can be attempted, but are often very difficult to establish. Native cool-season grass species, such as Canada wildrye (photo left), Virginia

wildrye, Fowl bluegrass and Fringed brome grass can be a good option for landowners wishing to encourage native species. Introduced (non-native) cool-season grasses, such as Orchardgrass, Hard fescue and Timothy (drawing right), are also acceptable for grassland bird conservation. Forage legumes, such as red or white clovers and Birdsfoot trefoil can be added to grass seed mixtures as well, if the land it being used for grazing or haying.



Timothy grass, C. L. Flint

The tables below are adapted from several "Plant Materials Technical Notes" available from the New York State Natural Resources Conservation Service. **Table 1.** lists a variety of native, introduced, cool- and warm-season grass species recommended for grassland conservation in New York. It is recommended that seeds be sown utilizing a mixture of three to four species from this list.



Canada Goldenrod,
Wisconsin DNR

Elizabeth J. Czarapata

Several example seed mixtures are shown in **Table 2.** Any seeding rates listed below assume no-till seeding and proper weed control. If a no-till drill is not used, increase the total grass seeding rate by 20%. When seeding native, warm-season grasses, a "native grass drill" is recommended. Examples of native forbs, or wildflowers, recommended for adding to grass seed mixtures are shown in **Table 3.** Including a small mix of native forbs, such as Canada Goldenrod (photo left), in the seed mixture is optional when seeding a grassland for bird conservation. Finally, although introduced (non-native), cool-season grass seeds can be found at any agricultural supply store, **Table 4** lists nurseries that specialize in native grass and wildflower seed.

Table 1. Grass Species Recommended for New York State Grassland Conservation (including legumes)

Grass Seed Species		Soil Drainage Class						
Common name	Scientific name	Excessi vely Well drained soil	Well drain ed soil	Moderatel y well drained soil	Somew hat poorly draine d soil	Poorl y drain ed soil	Native/ Introduced	Warm/ Cool season
Indiangrass	<i>Sorghastrum nutans</i>	X	X				Native	warm
Switchgrass	<i>Panicum virgatum</i>	X	X				Native	warm
Little bluestem	<i>Schizachyrium scoparium</i>	X	X				Native	warm
Canada wildrye	<i>Elymus Canadensis</i> L.	X	X				Native	cool
Big bluestem	<i>Andropogon gerardii</i>		X	X			Native	warm
Eastern gamagrass	<i>Tripsacum dactyloides</i>			X	X		Native	warm
Virginia wildrye	<i>Elumus virginicus</i>			X	X		Native	cool
Deertongue	<i>Panicum clandestinum</i>			X	X		Native	warm
Fowl bluegrass	<i>Poa palustris</i> L.		X	X	X	X	Native	cool
Fringed brome grass	<i>Bromus ciliatus</i> L.		X	X	X	X	Native	cool
Riverbank wildrye	<i>Elymus riparius</i>		X	X	X	X	Native	cool
Bottlebrush	<i>Elymus hystrix</i>		X	X	X		Native	cool
Orchardgrass	<i>Dactylis glomerata</i> L.		X	X			Introduced	cool
Hard Fescue	<i>Festuca trachyphylla</i>		X	X			Introduced	cool
Ladino Clover	<i>Trifolium repens</i>		X	X			Introduced	cool
Red Clover (upright improved varieties)	<i>Trifolium pratense</i> L.		X	X			Introduced	cool
Birdsfoot trefoil (upright varieties, e.e. Pardee, Norcen or Viking)	<i>Lotus corniculatus</i> L.		X	X			Introduced	cool
Timothy	<i>Phleum pratense</i>		X	X	X		Introduced	cool
Red top	<i>Agrostis gigantea</i>		X	X	X	X	Introduced	cool

Table 2. Examples of Recommended Grass Seed Mixtures and Seeding Rates (including legumes)

Seed Mixture	Lbs/ acre	Excessively Well drained soil	Well drained soil	Moderately well drained soil	Somewhat poorly drained soil	Poorly drained soil
Mixtures of native cool-season grasses						
Canada wildrye	5		X	X	X	
Riverbank wildrye	3					
Bottlebrush	2					
Canada wildrye	4		X	X	X	
Virginia wildrye	4					
Riverbank wildrye	4					
Fringed Brome grass	4					
Riverbank wildrye	4				X	X
Virginia wildrye	4					
Fringed brome grass	6					
Fowl bluegrass	0.5					
Mixtures of native warm-season grasses						
Switchgrass	2		X	X	X	X
Deertongue	4					
Eastern gamagrass	5					
Big bluestem	2	X	X			
Indian grass	3					
Little bluestem	3					
Deertongue	2					
Big bluestem	4	X	X	X	X	
Indiangrass	4					
Switchgrass	2					
Big bluestem	3		X	X	X	X
Indiangrass	3					
Deertongue	3					
Switchgrass	2					
Mixtures of introduced cool-season species						
Orchardgrass and	5		X	X		
Hard fescue, PLUS	6					
Ladino Clover, AND	2					
Red Clover, OR	2					
Birdsfoot trefoil	3					
Timothy	3		X	X	X	
Orchardgrass	4					
Bromegrass, PLUS	3					
Ladino clover AND	2					
Red Clover OR	2					
Birdsfoot trefoil	3					
Timothy	3		X	X	X	X
Orchardgrass	4					
Red top, PLUS	0.5					

Ladino clover AND	2					
Red Clover OR	2					
Birdsfoot trefoil	3					
Timothy AND	5		X	X	X	
Orchardgrass, PLUS	5					
Ladino clover AND	2					
Red clover, OR	2					
Birdsfoot trefoil	3					

Table 3. Native Forbes/Wildflowers*
(can be included sparingly in grass seed mixtures)
(select a mixture of five species from list to increase diversity)

Common name	Scientific name	Wetland indicator	Lbs/ac	Soil adaptation
Butterfly milkweed	Asclepias tuberosa	Upland	.0625	MWD-ED
New England aster	Aster novae-angliae	Facw-	.0625	PD-WD
Long leaved aster	Aster umbellatus	Facw	.0313	PD-WD
White heath aster	Aster ericoides	Facu	.0156	MWD-ED
Blue False Indigo	Baptisia australis	Facu	.0625	MWD-ED
Partridgepea (annual)	Chamaecrista fasciculata	Facu	1.000	MWD-ED
Ox-eye sunflower	Heliopsis helianthoides	Upland	.5000	MWD-ED
Purple coneflower	Echinacea purpurea	Upland	.5000	MWD-WD
Joe pyeweed	Eupatorium maculatum	Facw	.0313	PD-MWD
Roundhead lespedeza	Lespedeza capitata	Facu-	.0625	MWD-ED
Spiked gayfeather	Liatris spicata	Facu+	.1250	SPD-WD
Perennial lupine	Lupinus perennis	Facu	.5000	MWD-ED
Wild bergamot	Monarda fistulosa	Upland	.0313	SPD-MWD
Grey headed coneflower	Ratibida pinnata	Upland	.1250	MWD-ED
Blackeyed susan	Rudbeckia hirta	Facu-	.0625	SPD-WD
Canada golden rod	Solidago Canadensis/altissima	Facu	.0156	SPD-ED
Grass leaved golden rod	Euthamia graminifolia	Fac	.0313	SPD-MWD
Boneset	Eupatorium perfoliatum	Facw+	.0313	PD-MWD
Blue vervain	Verbena hastate	Facw+	.0625	PD-MWD
White vervain	Verbena urticifolia	Facu	.0625	SPD-WD
Showy tick trefoil	Desmodium canadense	Fac	.2500	SPD-WD
Golden alexanders	Zizia aurea	Fac	.2500	SPD-WD
Giant sunflower	Helianthus giganteus	facw	.0313	PD-MWD

*Due to the ability of some of these and other plants to colonize the plantings and the cost of the seed, the amount of seed planted is light.

Table 4. Nurseries Specializing in Native Grasses and/or Wildflowers

Name	Address	Phone	Fax/email/web
Ernst Conservation Seeds	9006 Mercer Pike Meadville, PA 16335	800-873-3321	www.ernstseed.com sales@ernstseed.com (specializing in native and naturalized seed, biomass)
Catskill Native Nursery	607 Samsonville Rd Kerhonkson, NY 12446	845-626-2758	www.catskillnativenursery.com
Behn's Best Perennials	689 Albany Turnpike Old Chatham, NY 12136	518-76-9820	
Oligny's Creative Landscapes	390 Wilton-Gansevoort Rd. Gansevoort, NY 12831	518-745-7604	www.olignys.com
Native Landscapes	Quaker Ridge Plaza 991 Route 22 Pawling, NY 12564	845-855-7050	www.nativelandscaping.net
Project Native	342 North Plain Rd. Housatonic, MA 01236	413-274-3464	www.projectnative.org
Native Seeds, Inc (wildflowers only)	14590 Tridelphia Mill Rd. Dayton, MD 21036	301-596-9818	
Pinelands Nursery	323 Island Road Columbus, NJ 08022	609-291-9486	609-298-8939
Prairie Ridge Nursery	9738 Overland Road Mt. Horeb, WI 53572-2832	608-437-5245	608-437-8982
Prairie Nursery	PO Box 306 Westfield, WI 53964	608-296-3679	608-296-2741
Putney Nursery, Inc. (wildflowers only)	Route 5 Putney, VT 05346	802-387-5577	802-387-4491
Thompson & Morgan, Inc. (wildflowers only)	PO Box 1308 Jackson, NJ 08527-0308	1-800-274-7333	888-466-4769
Wild Earth Native Plant Nursery	49 Mead Avenue Freehold, NJ 07728	908-308-9777	

Appendix 7

Grassland Landowner Resource List

Federal Agencies

U.S. Army Corps of Engineers

www.usace.army.mil

New York District

26 Federal Plaza

New York, NY 10278

Phone: 212-264-0100

U.S. Department of Agriculture Natural Resources Conservation Service

www.nrcs.usda.gov

Tie Square Professional Park

652 Route 299, Suite 202

Highland, NY 12528

Phone: 845-883-7162

U.S. Department of the Interior, U.S. Fish and Wildlife Service

www.fws.gov

Northeast Regional Office 5

300 Westgate Center Drive

Hadley, MA 01035

Phone: 413-253-8200

U.S. Department of the Interior, U.S. Geological Survey

www.usgs.gov

Albany District Office

Leo W. O'Brien Federal Building

Albany, NY 12207

Phone: 518-431-4341

U.S. Environmental Protection Agency

www.epa.gov

Region 2

290 Broadway

New York, NY 10007

Phone: 212-637-3000

New York State Agencies and Programs

New York State Department of Environmental Conservation

www.dec.ny.gov

625 Broadway

Albany, NY 12233

Division of Fish, Wildlife, and Marine Resources

Region 4

1130 North Westcott Road

Schenectady, NY 12306

Phone 518-357-2234

New York State Department of State

www.dos.state.ny.us

Division of Coastal Resources

www.dos.state.ny.us/about/coastal.htm

Phone: 518-474-6000

Division of Local Government

www.dos.state.ny.us/lgss/index.htm

Phone 518-473-3355

New York State Office of Parks, Recreation and Historic Preservation

www.nysparks.state.ny.us

Empire State Plaza, Agency Bldg. 1

Albany, NY 12238

Phone 518-474-0456

New York Natural Heritage Program

www.nynhp.org

625 Broadway

Albany, NY 12233

Phone 518-402-8935

New York State Biodiversity Research Institute

www.nysm.nysed.gov/bri

New York State Museum

Cultural Education Center, Rm 3140

Albany, NY 12230

Phone: 518-486-4845

New York State Soil and Water Conservation Committee

www.nys-soilandwater.org

10B Airline Drive

Albany, NY 12235
Phone: 518-457-7076

Regional Nonprofit Organizations

American Farmland Trust, Northeast Regional Office
www.farmland.org
6 Franklin Square, Suite E
Saratoga Springs, NY 12866
Phone: 518-581-0078

Catskill Center for Conservation and Development
www.catskillcenter.org
P.O. Box 504
Arkville, NY 12406
Phone 845-586-2611

Hudsonia, Ltd.
www.hudsonia.org
Bard College
Box 5000
Annandale, NY 12504
Phone: 845-758-7053

Hudson-Mohawk Bird Club
www.hmbc.net
C/o Fiver Rivers Environmental Education Center
Game Farm Road
Delmar, NY 12054
Phone: 518-439-8080

Cary Institute of Ecosystem Studies
www.ecostudies.org
Gifford House Visitor and Education Center
181 Sharon Turnpike
Millbrook, NY 12545
Phone: 845-677-5359

Audubon New York, a state program of the National Audubon Society
www.ny.audubon.org
200 Trillium Lane
Albany, NY 12203
Phone: 518-869-9731

Northern Catskills Audubon Society, Inc.
P.O. Box 68
Palenville, NY 12463
Phone: 518-678-3248

The Nature Conservancy
Eastern New York Conservation Office
www.nature.org
195 New Karner Road, Suite 201
Albany, NY 12205
Phone: 518-690-7878

Open Space Institute
www.osiny.org
1350 Broadway
Suite 201
New York, NY 10018
Phone: 212-629-3981

Pace Land Use Law Center
www.pace.edu/lawschool/landuse
Pace University School of Law
78 North Broadway
White Plains, NY 10603
Phone: 914-422-4262

Scenic Hudson
www.scenichudson.org
One Civic Center Plaza
Poughkeepsie, NY 12601
Phone: 845-473-4440

Sierra Club
<http://newyork.sierraclub.org/hudsonmohawk/index.html>
Hudson-Mohawk Group
P.O. Box 8447
Albany, NY 12208

Greene County Resources

Greene Land Trust
www.greenelandtrust.org
270 Mansion Street
Coxsackie, NY 12051
Phone: 518-731-5544

New Baltimore Conservancy
www.newbaltimoreconservancy.org
PO Box 322
New Baltimore, NY 12124-0322
Phone: 518-436-2955

Cornell Cooperative Extension of Greene County
Agroforestry Resource Center
www.agroforestrycenter.org
6055 New York State Route 23
Acra, NY 12405
Phone: 518-622-9820

Greene County Soil and Water Conservation District
www.gcswcd.com
907 County Office Building
Cairo, NY 12413
Phone: 518-622-3620

Greene Business Alliance
Greene County Industrial Development Association
www.greeneida.com
270 Mansion Street
Coxsackie, NY 12051
Phone: 518-731-5500

Greene County Department of Planning and Economic Development
Greene County Office Bldg.
411 Main Street
Catskill, NY 12414
Phone: 518-719-3290

Local Community Resources

Town of Coxsackie
www.coxsackie.org
16 Reed Street
Coxsackie, NY 12051
Phone: 518-731-2727

Village of Coxsackie
www.villageofcoxsackie.com
119 Mansion Street
Coxsackie, NY 12051

Phone: 518-731-2718

Town of New Baltimore

www.townofnewbaltimore.org

3809 County Route 51

Hannacroix, NY 12087

Phone: 518-756-6671

Village of Athens

www.athensny.org

2 First Street

Athens, NY 12051

Village Phone: 518-945-1551

Town Phone: 518-945-1052

Grassland Birds Found in Greene County, New York



Bobolink: A distinctive bird of open grasslands, the Bobolink is the only American bird that is black underneath and white on its back. This coloring makes the male stand out during the breeding season. After breeding, he changes into a drab, camouflaged plumage to spend the rest of the year. Females have yellowish underparts with brownish tail and wings. The Bobolink feeds on seeds, grains, insects and spiders, eating primarily on the ground or perched on vegetation. Its song in flight is a series of rolling, bubbling notes. Bobolinks have an extraordinary migration distance of 12,500 miles round-trip as it winters south of the equator. Bobolink populations are in decline due to loss of habitat and nest destruction from the mowing of hayfields during the breeding season.

Grasshopper Sparrow: Small songbird, mostly brownish with an unmarked buffy breast, dark crown with a pale middle stripe, a large head and short tail. This sparrow gets its name not only for its diet, but also for its insect-like song. It makes its nest on the ground creating a cup of grass stems and blades, well-concealed as a dome with overhanging grasses and a side entrance. Habitat loss and fragmentation is causing population to decline.



Savanna Sparrow: Brown overall with streaking on back, breast and flanks with a yellowish eyebrow stripe. This small songbird eats mostly insects, insect larvae and seeds. Its nest is located on the ground with an outside layer of coarse grass with a tightly woven inner cup of finer grasses. The Savanna Sparrow's song consists of several short notes followed by two or more high, long buzzes.



Eastern Meadowlark: The clear, melodious whistles of the Eastern Meadowlark are a familiar and welcome sound across farms and grasslands in North America. The Eastern Meadowlark is a medium-sized, stocky songbird with a short tail; a yellow belly, chest and throat; and a black "V" across its chest. Eating insects, especially grasshoppers and crickets, the female builds her nest on the ground with grasses woven into surrounding vegetation, sometimes with a runway leading to the entrance. The Eastern Meadowlark is declining drastically in its range due to habitat loss.



Northern Harrier: This long-winged, long-tailed hawk is a New York State threatened species and can be found in Greene County year-round. This raptor hunts for prey in open fields by flying slowly and low with wings held in a slight "V". The male is white below with a white rump and light gray back, the female is mottled in browns. The harrier feeds on small mammals, birds, reptiles and frogs. Formerly known as the "marsh hawk", the harrier can be found near wetlands and wet meadows. Populations of the harrier have declined due to loss of wetlands and changes in farming practices.

Grassland Birds Found in Greene County, New York



Horned Lark: The only true lark native to North America, the Horned Lark is a small songbird with a pale brown back, black chest patch, black face patch, yellow throat and small "horns" on the top of its head. Feeding on weed and grass seeds, the adults feed their babies insects. The Horned Lark is a year-round resident in Greene County grasslands and prefers a habitat of mostly bare ground and short grasses. Its nest is a basket woven of fine grass and plant materials, placed in a depression on the ground. The song of the Horned Lark is a series of high, musical tinkling notes, "weet" or "su-weet".



Eastern Bluebird: This marvelously bright bird is a small thrush with a big, rounded head, large eye and plump body. Males are a vivid blue above and rusty on the throat and breast. Females are grayish above with bluish wings and tail and a subdued orange breast. Bluebirds perch on wires, posts and low branches scanning fields for their prey of insects. They also eat berries. Bluebirds commonly nest in old woodpecker holes in trees, but utilize suitable nest boxes. They may use the same nest for multiple years. The Eastern Bluebird song is a fairly low-pitched, warbling song made of several phrases lasting about 2 seconds. Typically, unpaired males will sing from a high perch as they try to attract a mate.



Short-eared Owl (winter only): A New York State endangered species, this medium-sized owl is mottled brown with a large buff wing patch on outer wing visible in flight. This owl spends only winters in Greene County grasslands and is characterized by "floppy" flight patterns as it hunts over large grassland areas for prey such as the meadow vole. The Short-eared Owl hunts day and night, mostly at dawn and dusk in winter, locating prey by ear. The call of the Short-eared owl has been described as a "scratchy barking". Loss of habitat has caused populations of this owl to decline dramatically as it needs large, contiguous patches of field (250 acres or more) as habitat.



American Kestrel: Perhaps the most colorful raptor in the world, the American Kestrel is a small hawk that watches for prey (large insects, small mammals, reptiles, amphibians and birds) from tall perches such as telephone wires and trees. The male has blue-grey wings with black spots and an orange back and rump. The female's wings are rust-colored barred with black with underparts creamy and heavily streaked with brown. This kestrel nests in tree cavities, in buildings and in nest boxes. The call of the American Kestrel is a series of "klee-klee-klee" notes when excited.



Upland Sandpiper: This shorebird inhabits grasslands, not shores, and is identified by a small head, long neck, straight bill, long legs and small eyes. The Upland Sandpiper walks along the ground, feeding on insects including weevils and other beetles, grasshoppers and crickets, as well as some weed seeds. When building a nest, the Upland Sandpiper pairs scrape multiple depressions in the ground, but use only one for their actual nest. Loss of habitat has caused populations to decline dramatically and is listed as a NYS threatened species. Its song is a long series of mellow notes, ending with a descending whistle. Its flight call is a bubbling "quip-ip-ip-ip-ip-ip-ip".



Snow Bunting (winter only): This small songbird is aptly named with lots of white in the plumage, especially in the breeding male. The non-breeding male is white on the head, breast, belly, flanks and rump, but its forehead, crown, nape and face feathers are tipped with brown. Females are white on the head, breast, belly flanks and rump. The Snow Bunting spends its winters in the grassy fields eating grass and weed seeds. In the summer, it flies to the northern Canadian tundra where it builds its nests in rocks on the ground. Its song is a low, husky warbling including a clear "chew", a husky rolling rattle, a short buzz, and a sharp

Appendix 9



Community Grassland Stewardship Project *Grassland Bird Observation Program for Grassland Habitat Stewards*

***INSTRUCTIONS FOR COMPLETING COVER SHEET AND GRASSLAND BIRD OBSERVATION DATA SHEETS ***



Thank you so much for becoming a Grassland Habitat Steward with the Greene Land Trust (GLT) and for your commitment to completing Grassland Bird Observations on your property. Your observations of the grassland birds using your property, including their behaviors, and the number present will help us understand the short and long-term success of the multiple stewardship efforts underway in the county. We understand that you may or may not be skilled at bird identification, but as a participating steward, any observations you make will be useful.

In order to make the best use of your time, we are asking that observers complete eight (8) observation sessions during the year – 4 in the summer months and 4 in the winter months*. With sessions only lasting about 10 minutes, we hope that the time commitment will be realistic at about 2-3 hours per year, including filling out and submitting the forms to the GLT. (*While many grassland bird species use the area for nesting and raising their young in the summer months before migrating south for the winter, other species use the area only, or principally, during the winter months. Observations made throughout both summer and winter seasons are of value.)

Cover Sheet Instructions:

The Cover Sheet for the Grassland Bird Observation Data Sheet will enable us to relate information on your property with observations that you may make. The Cover Sheet need only be completed once, although you may want to add information if a field is mowed or otherwise altered prior to a subsequent observation period.

Choosing an observation location: You will need to choose a location for your grassland bird observations. You may wish to mark your observation point(s) or location(s) with a temporary stake or piece of surveyors flagging to ensure that you are at the same location each time you make observations. Our suggestion is to choose one observation location within your fields and to use these same points for observations each time you observe birds during both the summer breeding season, as well as the winter months.

If you have multiple fields: In most cases, you will observe from just one observation point or location. However, if you have multiple fields under different management schemes, one that is used for hay and one that is being left idle, for example, it would be helpful to have at least one point in each field type. If you do choose to observe from multiple locations, please treat these separately with separate cover sheets and corresponding data sheets. Points should be several hundred feet from one another and ideally located in the middle of the field, although points at the perimeter of a field are ok.

Number of observation sessions per year: We suggest making a total of eight (8) individual observations during the following time periods that cover both the summer and winter seasons.

- **4 observation sessions in summer, during the breeding months:** one during May, two during June at least a week apart, and one during July.
- **4 observation sessions in winter:** one during each of these four months; December, January, February, March.

Information about the fields: Please draw a sketch of the fields on your property in the space provided. Indicate the location of buildings, fence lines, nearby woods, etc. Place an x or a dot on the sketch to indicate the location of the observation point(s) within the fields, and number these points if you are monitoring grassland birds at more than 1 point. Indicate the size(s) and use(s) of the fields that you are monitoring for grassland bird activity. Also indicate the management practices that are in place (i.e. delayed mowing, field left idle, etc.).

Grassland Bird Observation Data Sheet Instructions:

Please complete one Data Sheet for each observation session (e.g., one for May, two for June at least one week apart, and one for July; and then one per each month from December through March for a total of 8 Data Sheets).

Record your name and address (in case the data sheets get separated from your cover sheet). Circle the season during which the observations are being made, indicate the date, weather, and start and end time for the observations.

During each observation period, and for each point where observations are made, stand quietly at your marked point and watch and listen to the birds around you – if your location is in the center of a field, remember to look all around you in the grasslands. The data sheet provides a list of most the grassland bird species of interest. You need not record non-grassland species such as Robin, Blue jay, Crow, etc. Refer to your Grassland Landowner Guidebook (as well as www.greenelandtrust.org and www.allaboutbirds.org) for identification information (including photos, audio and video) on the various grassland birds that may be present on your property.

Observation sessions can be kept to a short time period. We recommend observing quietly for about 10 minutes at each session. (Make sure you indicate the start and end time for your observation period.) The best times of day for observations are during the early morning hours. Avoid observing during the rain and during high winds, as birds will most likely not be present.

Depending on the season and the nature of your fields, some grassland species may be present in numbers while you may have few or no individuals of other species. If you can, provide an estimate of the number of individuals of each species present at each point during the observation period. The table provides a simple range of numbers to aid in this estimation. Record the number range that is most appropriate.

The last column of the bird observation table asks you to record the bird behaviors you observed. Some of these behaviors indicate likely nesting in the area so these may be especially useful to record. There is a row at the bottom of the table for recording notes such as any other species of birds or wildlife you observed during that particular session that you wish to indicate.

At the end of each season (summer and winter), please return both a Cover Sheet and your four (4) Individual Observation Data Sheets for that season to the Greene Land Trust office, Attn: Grassland Bird Monitoring, 270 Mansion Street, Cossack, NY 12051 or fax to: 518-731-5520.

Thank you for your help with grassland bird monitoring! Please call the Greene Land Trust with any questions: 518-731-5544 or email us at info@greenelandtrust.org.



Community Grassland Stewardship Project

Grassland Bird Observation Program for Grassland Habitat Stewards

*** COVER SHEET ***

This data sheet is intended for the recording of first-hand observations of grassland birds made by landowners participating in the Greene County Grassland Habitat Stewardship Project. Your observations will assist us in assessing how grassland birds are responding to stewardship efforts within Greene County - thank you! Please contact the Greene Land Trust at 518-731-5544 with any questions.

Please submit completed data sheets, with one cover sheet, to the Greene Land Trust at the end of each season (summer, by August 1st; and winter, by April 1st to: **Greene Land Trust, Attn: Grassland Bird Monitoring, 270 Mansion Street, Coxsackie, NY 12051 or fax to: 518-731-5520**

Name: _____ **Address:** _____

Phone: _____ **Email:** _____

Property Location (please attach a map, use Google Earth or other if possible):

Drawing of Monitoring Location(s):
(please use the space provided to draw a rough sketch map of the grassland field, including buildings, hedgerows, wetlands, if appropriate, etc.):

Field information:

Approximate field Size (acres): _____

Field Use (circle): idle, hay, pasture, rowcrop, other (please describe) _____

If hayfield, date of most recent mowing: _____

If pasture, number and type of grazing animals present: _____

Grassland Habitat Stewardship management practices in place: _____



Community Grassland Stewardship Project

Grassland Bird Observation Program for Grassland Habitat Stewards

*** GRASSLAND BIRD OBSERVATION DATA SHEET ***

(please submit one sheet per each observation date)

Name: _____ Address: _____

Season (circle): Summer (May, early June, late June, July), Winter (December, January, February, March)

Date of Observations: _____ Start time: _____ End time: _____

Weather at time of observation: _____

Grassland Bird Species and Behaviors Observed

Bird species observed	Number of this bird species*:	List all bird behaviors observed**:
Bobolink		
Eastern Meadowlark		
American Kestrel		
Northern Harrier		
Short-eared Owl (winter only)		
Grasshopper Sparrow		
Eastern Bluebird		
Upland Sandpiper		
Horned Lark		
Savannah Sparrow		
Snow Bunting (winter only)		
Notes:		

*1 bird of this species, 2-4 birds of this species, 5-10 birds of this species, >10 birds of this species

**Behaviors: In flight, Perching, Singing, Entering a bird box or other nest cavity, Carrying food in bill, Carrying nesting material

For bird identification help, see GLT's Grassland Birds of Greene County fact sheet, which can be found online at www.greenelandtrust.org. Also go to www.allaboutbirds.org for photos, sounds, video from Cornell's Lab of Ornithology. Please submit completed data sheets, with a cover sheet, to the Greene Land Trust at the end of each season (summer and winter) to: **Greene Land Trust, Attn: Grassland Bird Monitoring, 270 Mansion Street, Coxsackie, NY 12051** or fax to: **518-731-5520**. Call the GLT with any questions: 518-731-5544 or email at info@greenelandtrust.org. Thank you!

INSERT GRASSLAND BIRDS OF GREENE COUNTY FACT SHEET (IN PUBLISHER – PRINT SEPARATELY) WITH BIRD IMAGES AND IDENTIFICATION INFO ABOUT EACH BIRD.

Appendix 10

Further Reading on Grassland Habitat Management

A Plan for Conserving Grassland Birds in New York: Final Report to the New York State Department of Environmental Conservation.

<http://ny.audubon.org/PDFs/ConservationPlan-GrasslandBirds-NY.pdf>

Morgan, M and Burger, M. 2008., under contract #C005137. Audubon NY, Ithaca, NY.

Wisconsin's Managing Habitat for Grassland Birds – a Guide for Wisconsin

<http://www.npwrc.usgs.gov/resource/birds/wiscbird/index.htm>

Sample, David W., and Micheal J. Mossman. 1997. Wisconsin Department of Natural Resources, Madison, WI, PUBL-SS-925-97. 154 pp. Jamestown, ND: Northern Prairie Wildlife Research Center Online (version 03JUN2002).

Mass Audubon's Grassland Bird Conservation Program

http://www.massaudubon.org/Birds_and_Birding/grassland/

- *Conserving grassland birds: Managing agricultural lands including hayfields, crop fields, and pastures for grassland birds.* Jones, A. J. and P. D. Vickery. 1997a.
- *Conserving grassland birds: Managing large grasslands including conservation lands, airports, and landfills over 75 acres for grassland birds.* Jones, A. J. and P. D. Vickery. 1997a.
- *Conserving grassland birds: Managing small grasslands including conservation lands, corporate headquarters, recreation fields, and small landfills for grassland birds.* Jones, A. J. and P. D. Vickery. 1997a.

South Central New York Agricultural Team's, "Grassland Birds in Fields and on Farms" Bulletins

<http://scnyat.cce.cornell.edu/grassland/>

"Enhancing Pastures for Grassland Bird Habitat"

"Hayfield Management and Grassland Bird Conservation"

"Transforming Fields into Grassland Bird Habitat"

For details and specific questions, contact Jim Ochterski at 607-535-7161 or jao14@cornell.edu

Appendix 11

Get Involved – Join a Local Conservation Group!

Join the Greene Land Trust: The mission of the Greene Land Trust (GLT), established in 2004, is to preserve and protect significant natural and cultural resources in and around Greene County, New York. The GLT owns and manages the 300 acre Coxsackie Creek Grassland Preserve, the 38 acre Coxsackie Creek Wetland, and the historic “Willows at Brandow’s Point”, an historic Dutch farmhouse listed on the National and State Registers of Historic Places. The GLT, accredited with the Land Trust Alliance, can help landowners protect their land by receiving donations of conservation easements, purchasing land, and by other methods. The GLT holds periodic public education events, such as Owl Night Hikes in the winter and Summer Songbird Watches in the summer. To become a member and find out about upcoming events, go to: www.greenelandtrust.org.

Join Northern Catskills Audubon Society and Audubon New York: These National Audubon Society groups manage several wildlife sanctuaries and centers. In Greene County, the RamsHorn-Livingston Sanctuary, located in the Village and Town of Catskill, is 436 acres of tidal marsh and swamp, forests and secondary growth fields. Audubon NY and Scenic Hudson cooperatively own and manage the property. Bird-watching programs are offered regularly with sightings of Bald Eagle, a variety of waterfowl and many other bird species and wildlife. To become a member or to find out about events, call 518-678-3248 or go to http://ny.audubon.org/CentersEdu_RheinstromHill.html.

New Baltimore Conservancy: The Conservancy is dedicated to the appreciation and conservation of the natural, historic and architectural features in the town and hamlet of New Baltimore, New York. Major projects include supporting the Hannacroix Creek Preserve, the Hudson River Interpretive Trail, the New Baltimore Historic District, and an annual scholarship. The Conservancy holds public education events monthly, including bird walks, river clean-ups, and canoeing. To become a member or learn about upcoming events, go to: www.newbaltimoreconservancy.org.

Join the Hudson-Mohawk Bird Club: This club is dedicated to field birding and the appreciation of wild birds. Approximately 400 members of the club span the 11 counties surrounding Albany, New York (defined as Region 8 by the New York State Ornithological Association). Monthly educational programs and numerous field trips are open to the public. The HMBC publishes a bi-monthly newsletter, *Feathers*, for members and has developed a regional field birding checklist. The HMBC also operates a birding hotline at 518-439-8080 where birders can learn about recent sightings as well as report their own observations. For more information about programs or how to join, call 518-439-8080 or go to: www.hmbc.net.