

Species Status Assessment

Common Name: Short-eared owl

Date Updated: March 15, 2025

Scientific Name: *Asio flammeus* **Updated By:** Abby Valachovic and Amy Mahar

Class: Aves

Family: Strigidae

Species Synopsis *(a short paragraph which describes species taxonomy, distribution, recent trends, and habitat in New York):*

A bird of open areas, the short-eared owl is dependent upon sufficient small mammal populations and will shift its local breeding and wintering distribution accordingly. The nominate race, *A. f. flammeus* occurs in North America and reaches its southern breeding limit in New York. In recent decades, short-eared owls have declined in many areas of North America, but especially in the northeastern United States. This is thought to be due to loss and degradation of grassland and wetland areas, and to contamination from pesticides (Wiggins et al. 2006).

In New York, short-eared owls are considered to be local and uncommon breeders. The second Breeding Bird Atlas documented a continuing decline (-33%) that was earlier noted by Bull (1974), who called this owl a, "local breeder, greatly decreased in recent years." Breeding occurs in grasslands, wetlands, and other open country. There were only four records of confirmed breeding in the state during the second Breeding Bird Atlas (2000-05). Wintering birds are more common in New York and communal roosts can harbor a few dozen individuals.

I. Status

a. Current legal protected Status

i. **Federal:** Not listed **Candidate:** No

ii. **New York:** Endangered

b. Natural Heritage Program

i. **Global:** G5 - Secure

ii. **New York:** S2 - Imperiled **Tracked by NYNHP?:** Yes

Other Ranks:

- Proposed NYS 2025 SGCN status: High Priority Species of Greatest Conservation Need
- IUCN Red List: Least Concern (2021)
- Partners in Flight – Watch List
- USFWS – Bird of Conservation Concern
- Partners in Flight Tier I
- COSEWIC – Special Concern
- Species of Northeast Regional Conservation Concern (Therres 1999)
- Northeast Regional SGCN: Not listed

The short-eared owl is Imperiled in New York and Ontario, Critically Imperiled in Vermont, Massachusetts, Rhode Island, Pennsylvania, New Jersey, and Maine, and Vulnerable in Quebec (NatureServe 2020).

Status Discussion:

The short-eared owl has never been an abundant breeder in the Northeast. It is a local breeder in New York whose numbers have greatly declined in recent years. The small number of owls that breed in New York each year typically occur sporadically at sites where breeding has not been previously reported (Schneider 2003), but regions with a somewhat consistent history of breeding include western Jefferson County, the Lake Champlain Valley, and northern Livingston County (Schneider 2008). The short-eared owl is more common in New York during the winter, when it becomes uncommon to locally fairly common as a migrant and winter visitant (Cooper 1998).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Unknown	1966-2010		Choose an item.
Northeastern US	Yes	Declining	Declining	Since 1950s		No
New York	Yes	Unknown	Unknown		S2	Yes
Connecticut	Yes	Increasing	Unknown	2005-2015	Threatened, SHB, S1N	Yes
Massachusetts	Yes	Declining	Declining		Endangered, S1B, S3N	Yes
New Jersey	Yes	Unknown	Unknown		Endangered, S1B, S3N	Yes
Pennsylvania	Yes	Unknown	Increasing		Endangered, S1B, S3N, S2M	Yes
Vermont	Yes	Unknown	Unknown		S1B, S1N	Yes
Ontario	Yes	Increasing	Increasing		Threatened, S4?B, S2S3N	Choose an item.
Quebec	Yes	Declining	Declining		S3B	Choose an item.

Column options

Present?: Yes; No; Unknown; No data; (blank) or Choose an Item

Abundance and Distribution: Declining; Increasing; Stable; Unknown; Extirpated; N/A; (blank) or Choose an item

SGCN?: Yes; No; Unknown; (blank) or Choose an item

Monitoring in New York (specify any monitoring activities or regular surveys that are conducted in New York):

The NYSDEC conducted winter surveys at 21 sites during 2009-10 and 2010-11, and at four sites in 2011-12 with the goal of establishing survey protocol and frequency to adequately monitor the long-term status of the wintering population in New York. Winter surveys will continue at all twenty-

one sites across the state; they will likely be conducted for two to three-year periods at two to three-year intervals, and are likely to entail stationary roadside observations (as opposed to driving survey routes).

Trapping was also conducted in conjunction with the winter monitoring effort from 2007-2011 to determine local movements, dispersal dates, and migratory patterns. A total of twenty-nine birds were captured during the three-season period and fitted with VHS or satellite radios. Approximately 2/3 of birds monitored from 2007- 2009 were not nomadic, exhibiting foraging and roost site fidelity.

Trends Discussion (*insert map of North American/regional distribution and status*):

Clark (1975), who studied breeding ecology in Manitoba and wintering ecology in New York, showed that short-eared owls respond to spatial and temporal variation in small mammal abundance by shifting breeding and wintering sites, and by adjusting the timing of breeding and fecundity in accordance with local prey abundance. The population status of short-eared owl is difficult to assess because of this nomadic nature and because of annual fluctuations in numbers; also contributing to difficulties in monitoring are their crepuscular habits and overall low abundance. Severity of winter weather, including snow depth and snow/ice crust, can also impact abundance and distribution of these owls in winter months, as these factors affect prey availability.

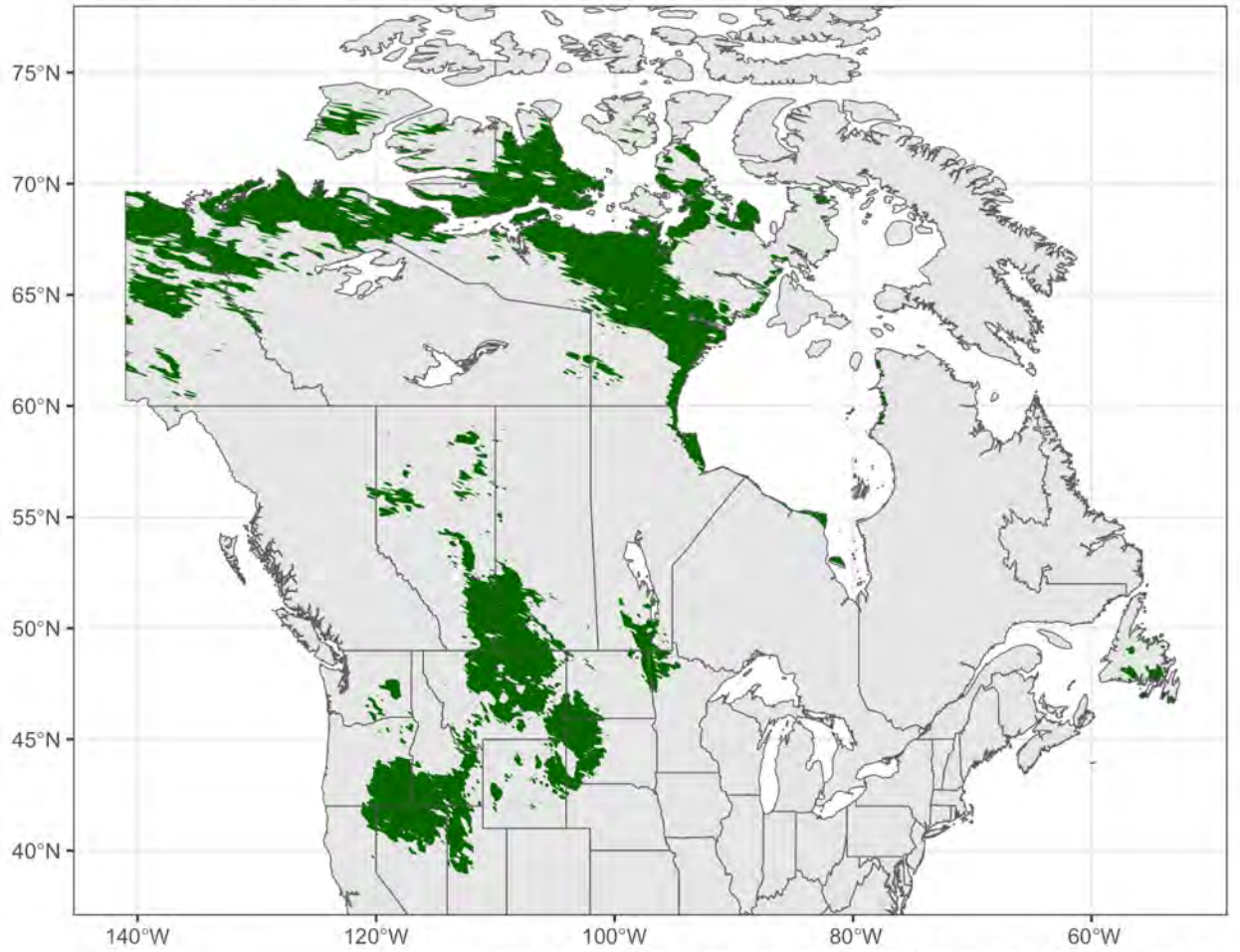
Only two areas show significant BBS trends for short-eared owl: the Prairie Pothole region and the North American distribution as a whole, though each area is still in a category that denotes a deficiency in the data. Given that caveat, the long-term (1966-2010) trend for North America shows a decline trend of -2.5% per year, while the trends for the Prairie Pothole region are -4.7% per year for 1966-2010 and -11% per year for 2000-2010.

In New York, the second Breeding Bird Atlas documented a -33% change in occupancy from 1980-85 to 2000-05.

Currently, it appears that populations are continuing to decline, although it may be difficult to determine trends due to the lack of precise location data from historical records (Schneider 2003). During the first Breeding Bird Atlas (1980-1985), there were five confirmed breeding records, nine probable breeding records, and 22 possible breeding records (Andrle and Carroll 1988). Data from the second Breeding Bird Atlas seems to indicate a decline with four blocks with confirmed breeding, nine blocks with probable breeding, and 11 blocks with possible breeding (McGowan and Corwin 2008). This represents a 33% decline (Corwin 2012). During the first atlas, Short-eared Owls were recorded in nine blocks on Long Island, compared to one block during the second Atlas (Schneider 2008). Breeding may no longer occur in the lower Hudson Valley as well as a number of other historically known breeding sites in the state. Some records may be a single breeding event in an area with unusually high rodent populations. Overall, the distribution in New York is largely unchanged except for the reduction of reports on Long Island (Schneider 2008). Breeding Bird Survey data is too sparse in New York to determine trends. Wintering populations are variable depending on snow cover and rodent populations. It is difficult to determine winter population trends as few sites are surveyed on a regular basis.

NY Heritage long term trends: During the early 20th century, Eaton (1914) reported Short-eared Owls as one of our most common owls outnumbering all other owls found in lowlands and marshes, especially in the winter. Approximately 60 years later, Bull (1974) described short-eared owl populations as declining with localized breeding reported.

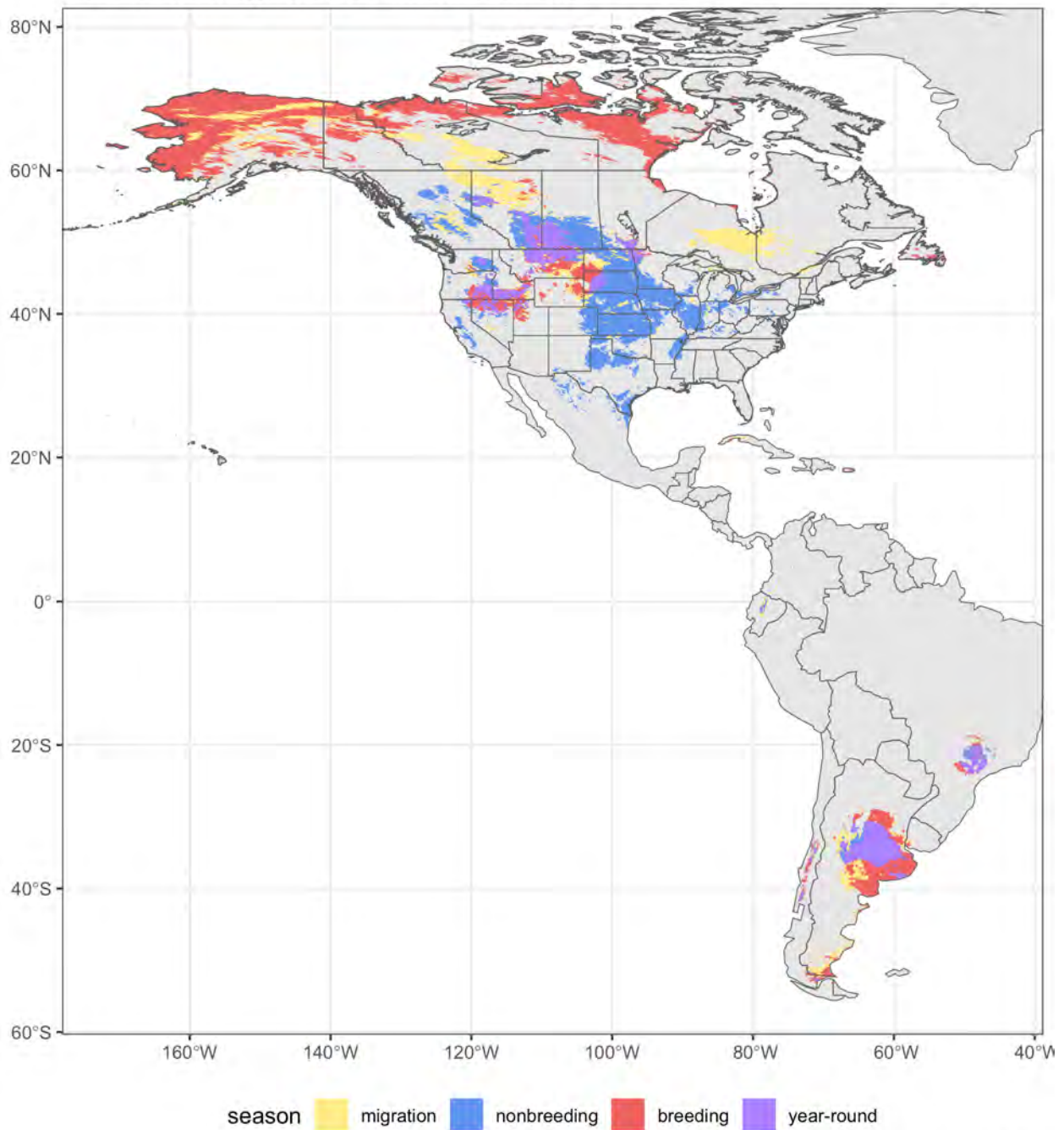
Breeding range map for Short-eared Owl



Range map data from eBird Status and Trends, Data Version: 2022; Released: 2023

Figure 11: Breeding range of short-eared owl (eBird).

Year-round range map for Short-eared Owl



Range map data from eBird Status and Trends, Data Version: 2022; Released: 2023

Figure 22: Full (year-round) range of short-eared owl (eBird).

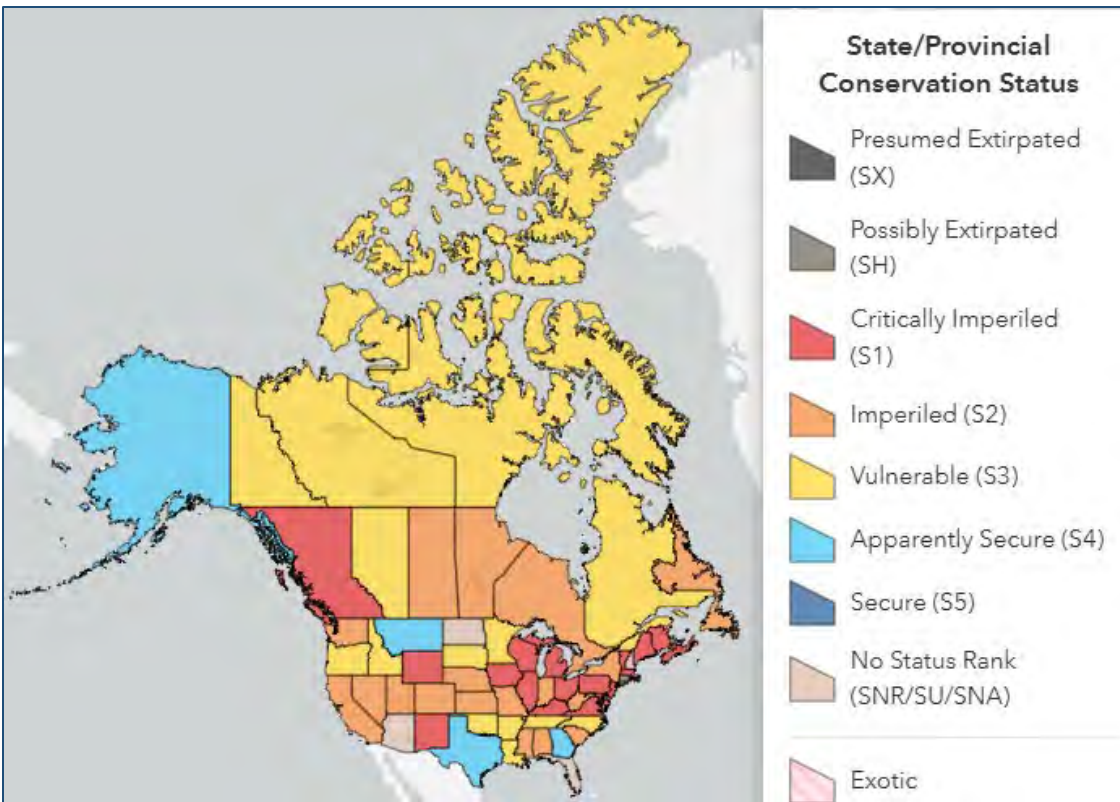


Figure 3: Short-eared owl conservation status by state. NatureServe 2025

III. New York Rarity (provide map, numbers, and percent of state occupied)

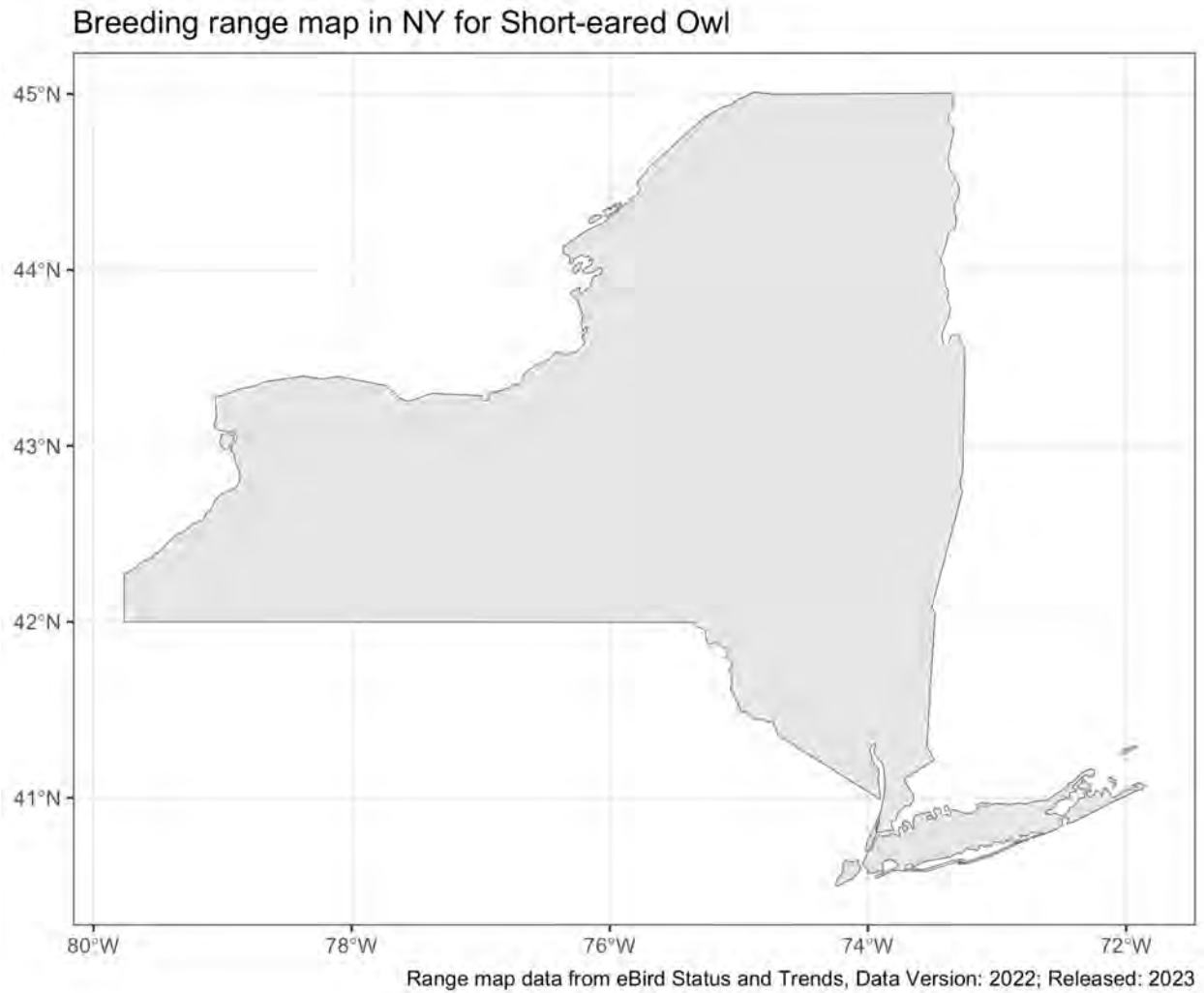


Figure 43: NYS breeding range of short-eared owl (eBird).

Details of historic and current occurrence:

Eaton (1914) reported short-eared owls breeding in a total of 16 counties. Historical records show nesting on Long Island and on the Lake Ontario plains, with breeding most common in marshes north and south of Montezuma and east of Lake Ontario (Schneider 2003). Schneider (2003) examined all available sources of short-eared owl records and identified 48 breeding season records since 1980; they were at 36 sites in 19 counties.

The first Breeding Bird Atlas (1980-85) documented occupancy in 36 survey blocks statewide (<1%) but breeding was Confirmed in only five survey blocks. Four of those confirmations were on Long Island, with Possible records in three nearby blocks.

The second Breeding Bird Atlas (2000-05) documented occupancy in 36 survey blocks statewide (<1%), a decline of 33%. Breeding was Confirmed in only four survey blocks: two in Jefferson County, one in Clinton County, one in Madison County. Only one survey block on Long Island had any short-eared owl breeding activity (Probable).

The third BBA (2020-25) is currently underway and utilizes a different number and layout of survey blocks across New York, making direct comparison with the first two Atlases difficult. There were 5,333 blocks in the first and second BBAs, and there are 5,710 blocks in the current BBA, of which 1,815 are considered priority blocks. To date, short-eared owl has been documented in 30 priority blocks, 0.7% of all priority blocks statewide during the third BBA (NY BBA III Overview, 2024).

New York’s Contribution to Species North American Range:

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Core	

Column options

Percent of North American Range in NY: 100% (endemic); 76-99%; 51-75%; 26-50%; 1-25%; 0%; Choose an item

Classification of NY Range: Core; Peripheral; Disjunct; (blank) or Choose an item

IV. Primary Habitat or Community Type (from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):

NatureServe broad habitat types: Tundra, Old field, Savanna, Grassland/herbaceous, Cropland/hedgerow, HERBACEOUS WETLAND, Bog/fen, Herbaceous wetland

NY Natural Heritage Communities: Cropland/field crops, Successional old field, High salt marsh, Low salt marsh, Pastureland, Successional northern sandplain grassland, Dwarf shrub bog, Successional blueberry heath, Successional fern meadow, Salt panne

1. Pasture/Hay
2. Freshwater Marsh
3. Old Field Managed Grasslands
4. Cultivated Crops
5. Estuarine, Brackish Intertidal, Tidal Wetland
6. Maritime Dunes
7. Wet Meadow/Shrub Swamp

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/Community Trend	Time frame of Decline/Increase
Yes	No	Declining	Since 1960s

Column options

Habitat Specialist and Indicator Species: Yes; No; Unknown; (blank) or Choose an item

Habitat/Community Trend: Declining; Stable; Increasing; Unknown; (blank) or Choose an item

Habitat Discussion:

Short-eared owls use a variety of open habitats for breeding and wintering, including wet meadows, fresh and saltwater marshes, grasslands, shrublands, and agricultural areas where small mammal populations—especially meadow vole (*Microtus pennsylvanicus*)—are adequate. Extensive blocks of habitat are essential for this owl (Wiggins et al. 2006). In the northeastern United States, breeding territory size generally decreased with increasing vole densities (Clark 1975).

Schneider (2003) reported habitat use in New York: Short-eared owls are most frequently found breeding in salt marshes, hayfields, fallow farm fields, and pastures. Breeding territories are frequently among ridges and valleys with low-lying wet areas between, though some are adjacent to wetlands or rivers. Wintering birds roost communally near feeding areas.

V. Species Demographic, and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/Catadromous?
Yes	Yes	No	Yes	Yes	Choose an item.

Species Demographics and Life History Discussion (include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):

There are few data on age at first breeding but short-eared owls appear to breed early, at one year. The number of young hatched per nest averaged 4.8 in New Jersey (Urner 1925) and 3.4 in Massachusetts (Holt and Melvin 1986). No more than one brood per season has been reported for any pair in New York, though two broods have been reported elsewhere in the range (Schneider 2003).

Besides predation, annual fluctuations in prey density, habitat changes, and catastrophic events (poor weather) may all contribute to the wide variation in reproductive success. Short-eared owls apparently colonize new areas readily (Clark 1975) and have also demonstrated site fidelity in choice of nest sites. Tate (1992) reported a female brooding young just 98m from her natal site, and Wiggins et al. (2006) reported a female found dead 4.8 km from where it was banded as a nestling 740 days earlier. Winter trapping and telemetry studies in New York have shown site fidelity to wintering areas (G. Hewitt, pers. comm.)

In New York, winter mortality results from shooting; collisions with cars, fences, and guy wires; starvation; and roost predation by great horned owl (*Bubo virginianus*) (Schneider 2003). Winter site fidelity was documented for two birds in New York during a three-year survey of radioed adults (T. Swenson, pers. comm.).

VI. Threats (from NY 2015 SWAP or newly described):

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
1. Residential and Commercial	1.1 Housing & Urban Areas	1.1.2 Low-density housing areas	Small	Serious	Near-term	Intensifying	Choose an item.
2. Agriculture & Aquaculture	2.1 Annual & Perennial Non-Timber Crops	2.1.1 Annual cropping systems (field crops)	Large	Moderate	Near-term	Stable and ongoing	Choose an item.
1. Residential and Commercial	1.2 Commercial & Industrial Areas	1.2.1 Commercial & industrial areas	Small	Serious	Near-term	Intensifying	Choose an item.
3. Energy Production & Mining	3.3 Renewable Energy	3.3.4 Solar farms	Restricted	Serious	Long-term	Intensifying	Choose an item.
4. Transportation & Service Corridors	4.1 Roads & Railroads	4.1.1 Roads	Restricted	Serious	Immediate	Stable and ongoing	Choose an item.
7. Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession	Large	Moderate	Near-term	Stable and ongoing	Choose an item.
8. Invasive & Other Problematic Species	8.2 Problematic Native Plants & Animals	8.2.8 Interspecific competition with a favored species	Restricted	Moderate	Immediate	Stable and ongoing	Choose an item.
8. Invasive & Other Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens	Small	Slight	Immediate	Unknown	Choose an item.
9. Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Pervasive	Moderate	Near-term	Stable and ongoing	Choose an item.
3. Energy Production & Mining	3.3 Renewable Energy	3.3.2 Wind farms	Small	Moderate	Near-term	Intensifying	Choose an item.
7. Natural System Modifications	7.2 Dams & Water Management/Use	7.2.4 Drainage in agricultural environments	Small	Moderate	Long-term	Stable and ongoing	Choose an item.
8. Invasive & Other Problematic Species	8.1 Invasive Non-Native Plants & Animals	8.1.2 Terrestrial plants	Large	Moderate	Long-term	Intensifying	Choose an item.

Table 1. Threats to short-eared owl

Habitat loss owing to human activities appears to be the major cause of population declines. Short-eared owls appear particularly sensitive to habitat loss and fragmentation, as they require relatively large tracts of grassland and are ground nesters, making them susceptible to the increased predation pressure that is typical within fragmented habitats and near rural developments. Along coastal areas, which include many wintering sites, recreational use and land development have caused losses of nearshore marsh and old field habitats (Wiggins et al. 2006).

Short-eared owls are occasionally hit by cars and airplanes. In New York, train collisions have also been reported (Wiggins et al. 2006).

Interspecific competition with barn owls (*Tyto alba*) may also occur; successful nest box programs to attract barn owls have coincided with the decline of the short-eared owl on Martha's Vineyard and Nantucket Island, Massachusetts (Wiggins et al. 2006).

A study led by a Canadian toxicologist identified acutely toxic pesticides as the most likely leading cause of the widespread decline in grassland bird numbers in the United States. The 23-year assessment, which looked at five other causes of grassland bird decline besides lethal pesticide risk, including change in cropped pasture such as hay or alfalfa production, farming intensity or the proportion of agricultural land that is actively cropped, herbicide use, overall insecticide use, and change in permanent pasture and rangeland, concluded that lethal pesticides were nearly four times more likely to be associated with population declines than the next most likely contributor, changes in cropped pasture (Mineau and Whiteside 2013).

Are there regulatory mechanisms that protect the species or its habitat in New York?

Yes: ü

No: _____

Unknown: _____

If yes, describe mechanism and whether adequate to protect species/habitat:

The short-eared owl is listed as an endangered species in New York and is protected by Environmental Conservation Law (ECL) section 11-0535 and the New York Code of Rules and Regulations (6 NYCRR Part 182). A permit is required for any proposed project that may result in a take of a species listed as Threatened or Endangered, including, but not limited to, actions that may kill or harm individual animals or result in the adverse modification, degradation or destruction of habitat occupied by the listed species.

The short-eared owl is protected under the Migratory Bird Treaty Act of 1918. Two of the extensive grassland areas where they winter are partially protected: Fort Edward Grasslands Important Bird Area, Shawangunk Grasslands National Wildlife Refuge, as well as extensive marsh habitat at Montezuma WMA where some owls also winter.

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

Habitat restoration programs, such as the Conservation and Wetland Reserve Programs, have shown some success in restoring suitable habitat for short-eared owls on private land. Such programs not only provide suitable nesting and wintering habitat, but they may also help to restore small mammal populations, which are the key resource responsible for population fluctuations of owls. However, it is important to note that large blocks of habitat are essential for short-eared owls, and habitat preservation/restoration programs should aim to conserve large blocks of habitat (>100 ha) (Wiggins et al. 2006). Species has benefited indirectly from protection of nesting cover for waterfowl (Larsen 1987); also from reclaimed and replanted strip-mines and dikeland (Tate 1992).

Burning and maintenance of grasslands for gallinaceous birds and waterfowl provides nesting and foraging cover for this owl (Millsap et al. 1987). To prevent mortality or injury from collisions with fences, remove unused fences (Fitzner 1975); increase visibility of fences by hanging pieces of ribbon or foil (Dechant et al. 2001).

The publication, A Plan for Conserving Grassland Birds in New York (Morgan and Burger 2008), identifies focus areas for coordinating grassland bird conservation efforts. Because grassland birds are sensitive to landscape-level factors and funding for conservation activities is limited, the best opportunity for achieving success is to concentrate efforts within regions of the state that support key residual populations of grassland birds. Suitable landcover classification datasets are needed to incorporate habitat availability into the delineation process.

Because the vast majority of remaining grassland habitat is privately owned, private lands incentive programs and educational programs should be a major component of the conservation effort. Protection of existing habitat for threatened and endangered species through enforcement of regulations pertaining to the taking of habitat is also a critical component of the conservation effort for these species (Morgan and Burger 2008).

Morgan and Burger (2008) recommend that further research is needed:

1. Methods and data for modeling distributions and abundance of grassland landcover across the landscape.
2. Impacts of management on productivity of grassland birds, to amplify existing information on grassland bird abundances associated with management.
3. Potential benefits of native grass species as grassland habitat in contrast with demonstrated benefit of non-native cool season grasses.

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.0.0.0 Direct habitat management	Site/Area management for grassland species
A.1 Direct Habitat Management	A.1.1.0.0 Manage plants, animals, fungi, or bacteria	-Invasive/Problematic species control -Manage, maintain and/or expand suitable grassland habitat through plantings, mowing, controlled burns
B.3 Outreach	B.3.1.3 Targeted communication	Communication with landowners about habitat protection and best management strategies
B.3 Outreach	B.3.1.4.0 Public outreach and information	Awareness & Communications
B.5 Economic and Other Incentives	B.5.4.3 Reward the value of ecological services	Reward the value of ecological services through work with grassland habitat landowners and managers
B.5 Economic and Other Incentives	B.5.4. Economic incentives and disincentives	-Secure funding for a landowner incentive stewardship program

Action Category	Action	Description
		-Promote and implement landowner incentive programs to benefit grassland habitat
C.6 Design and Plan Conservation	C.6.2 Conserve specific land or seascapes	Protection through acquisition or easement
C.6 Design and Plan Conservation	C.6.3 Complementary or alternative conservation measures	Protection registry and/or working with local, state, and federal government on issues relating to zoning and development
C.6 Design and Plan Conservation	C.6.5.0.0 Conservation planning	-Site/Area protection -Resource/Habitat Protection
C.6 Design and Plan Conservation	C.6.5.1.3 Develop <u>and Implement</u> a conservation, management, or restoration plan for protected private lands	Habitat/Natural process restoration
C.7 Legislative and Regulatory Framework or Tools	C.7.1.0.0 Create, amend, or influence legislation, regulation, or codes	Policies and Regulations
C.8 Research and Monitoring	C.8.1 Basic research and status monitoring	Monitor wintering population to identify critical habitat and detect trends

Table 2. Recommended conservation actions for short-eared owl

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for grassland birds, which includes short-eared owl.

Easement acquisition:

_____ Identify ownership of grasslands in core focus areas, and focus Landowner Incentive Program (LIP) funding for use in conserving the most important privately-owned grasslands in the state, and distribute \$400,000 per year from LIP to conserve priority grasslands.

Habitat management:

_____ Develop habitat management guidelines and action plans for priority focus grassland bird species.

Habitat research:

_____ Evaluate the effects of specific farming and management practices, such as: timing of mowing, intensity of grazing, frequency of mowing, mowing versus haying versus prescribed fire, and width of buffer strips on productivity of grassland birds.

Other acquisition:

_____ Incorporate priority grassland focus areas into the NYS Open Space Plan.

Other action:

_____ Work with public land managers, including NRCS, USFWS, DEC and others, to better direct funding and other resources to the highest priority areas and projects for grassland habitat management. The ability to focus funding sources in core priority grasslands will be key. If the funding sources from National Resource Conservation Service (NRCS) cannot

be adequately focused in priority areas, then this will cripple the ability to conserve the most critical grassland areas and will result in continued declines in grassland birds even within these focus areas.

- _____ Develop an outreach program to educate the public and land managers on the need for, and wildlife benefits, of grasslands. Also provide technical guidance on what and how to benefit grassland species. Outreach to private landowners will be a key first step to educate the public about the importance of their lands to grassland birds. So much of this habitat exists on private lands that their cooperation will be the ultimate deciding factor on whether species declines can be halted. Their cooperation at the level needed for meaningful change will probably hinge on some form of subsidies.

Population monitoring:

- _____ Develop and implement supplemental monitoring programs for grassland bird species that are not adequately sampled by BBS to determine precise population trends and evaluate effectiveness of conservation efforts. Use long term trend data to determine effectiveness of grassland conservation efforts.
- _____ Complete inventory of potential grassland habitat for species present, distribution, and relative abundance of priority species.

Statewide management plan:

- _____ Complete a comprehensive Grassland Bird Conservation Plan that coordinates research, management, and conservation efforts to more effectively conserve NY's grassland birds. Identify priority species and delineate priority focus areas for conservation and management.

VII. References

This SSA drew heavily from these resources:

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