

Species Status Assessment

Class: Birds
Family: Strigidae
Scientific Name: *Asio flammeus*
Common Name: Short-eared owl

Species synopsis:

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 and Legal Protected Status

i. Federal Not Listed Candidate? No

ii. New York Endangered

b. Natural Heritage Program Rank

i. Global G5

ii. New York S2 Tracked by NYNHP? Yes

Other Rank:

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)

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

a. North America

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Time frame considered: 1966-2010

b. Regional

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Regional Unit Considered: Northeast

Time Frame Considered: Since 1950s

c. Adjacent States and Provinces

CONNECTICUT **Not Present** _____ **No data** _____

i. Abundance

_____ **declining** _____ **increasing** _____ **stable** X **unknown**

ii. Distribution:

_____ **declining** _____ **increasing** _____ **stable** X **unknown**

Time frame considered: Former breeder; rare in winter

Listing Status: Threatened SGCN? Yes

MASSACHUSETTS **Not Present** _____ **No data** _____

i. Abundance

 X **declining** _____ **increasing** _____ **stable** _____ **unknown**

ii. Distribution:

 X **declining** _____ **increasing** _____ **stable** _____ **unknown**

Time frame considered: Confined to offshore islands; 14 records since 1980

Listing Status: Endangered SGCN? Yes

NEW JERSEY **Not Present** _____ **No data** _____

i. Abundance

_____ **declining** _____ **increasing** _____ **stable** X **unknown**

ii. Distribution:

_____ **declining** _____ **increasing** _____ **stable** X **unknown**

Time frame considered: Extirpated as breeder since late 1980s

Listing Status: Endangered (breeding); Special Concern (wintering) SGCN? Yes

Trends Discussion:

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 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.

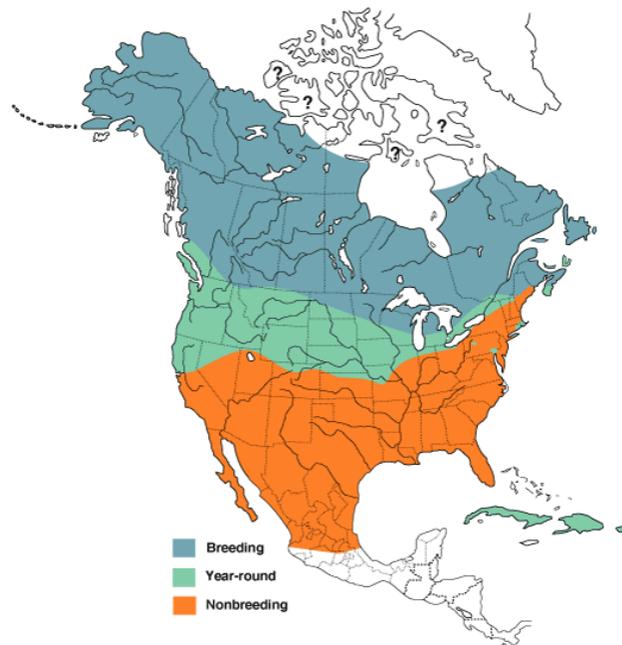


Figure 1. Range of the short-eared owl in North America (Birds of North America Online 2013).

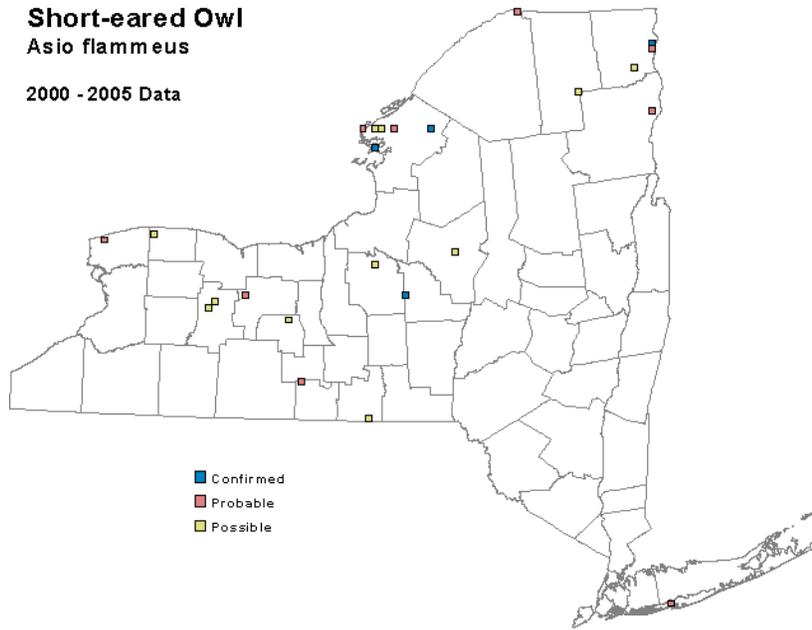


Figure 2. Short-eared owl occurrence in New York State during the second Breeding Bird Atlas (McGowan and Corwin 2008).

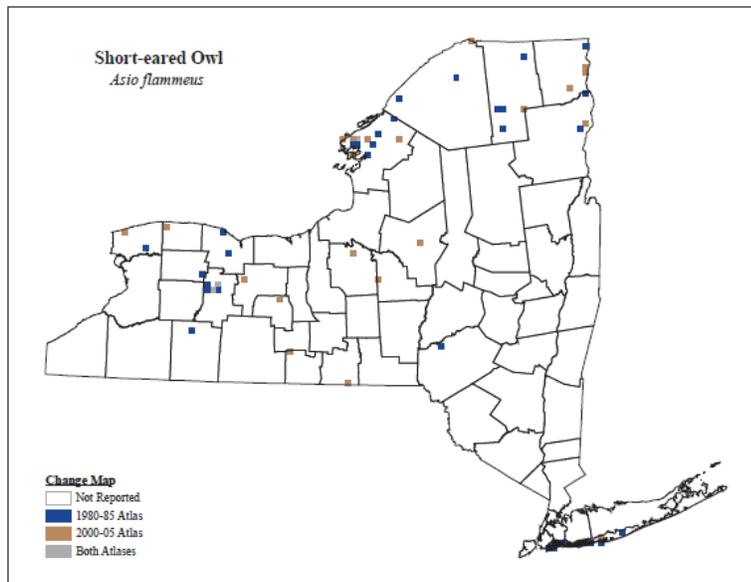


Figure 3. Change in short-eared owl occurrence in New York State between the first Breeding Bird Atlas and the second Breeding Bird Atlas (McGowan and Corwin 2008).

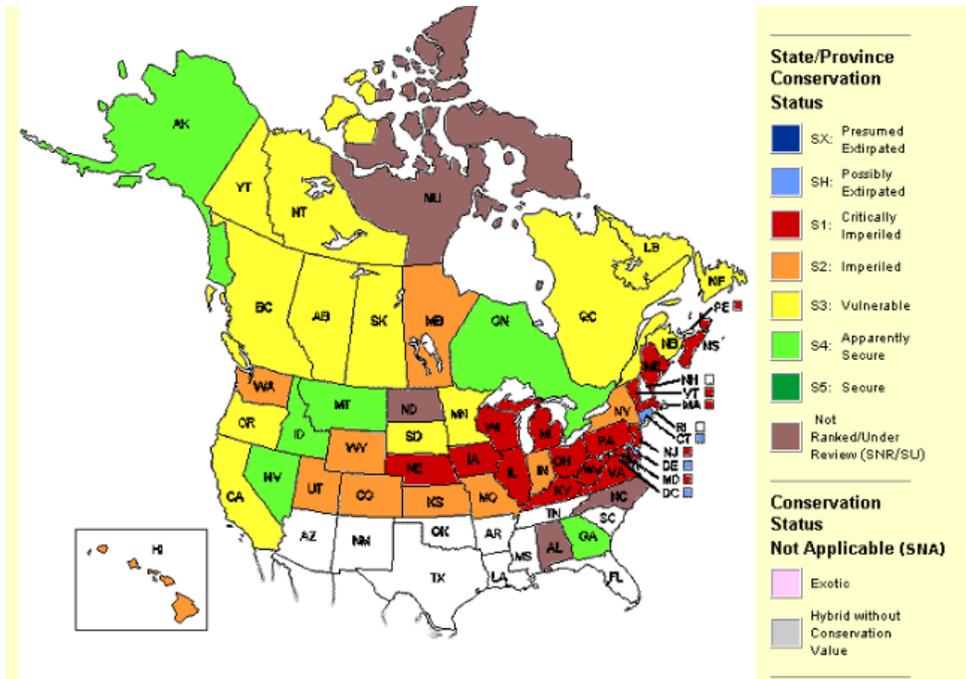


Figure 4. Conservation status of the short-eared owl in North America (NatureServe 2012).

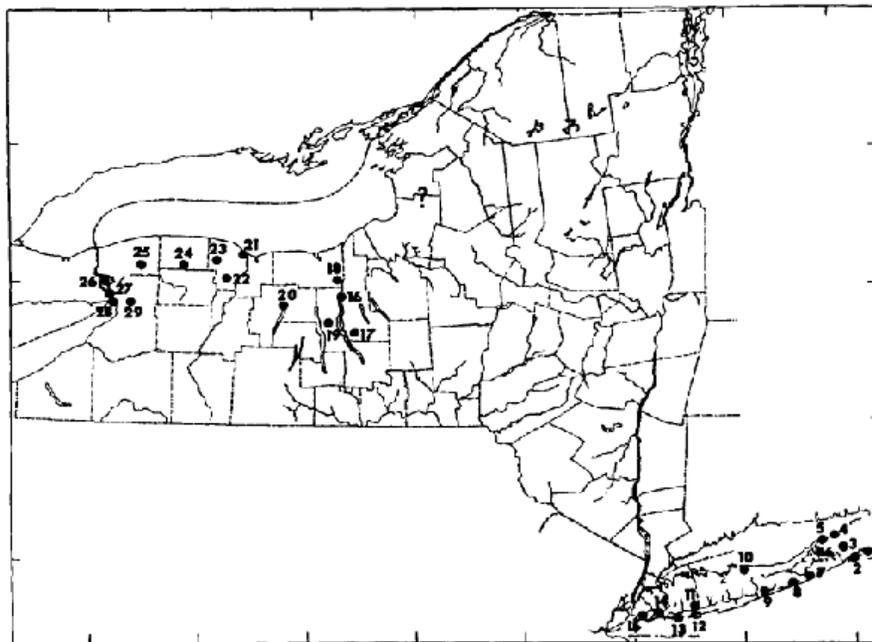


Figure 5. Historic breeding locations of the short-eared owl (Bull 1974).

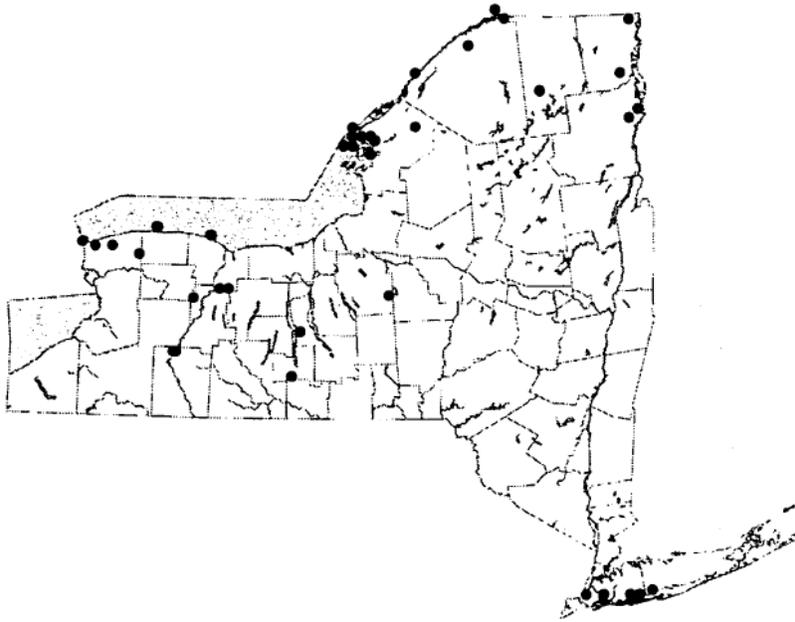


Figure 6. Short-eared owl “Probable” and “Confirmed” breeding locations 1980-2002 (Schneider 2003)

III. New York Rarity, if known:

Historic	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
prior to 1970	_____	_____	_____
prior to 1980	_____	_____	_____
prior to 1990	_____	_____	<u><1%</u>

Details of historic 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.

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
	_____	_____	<u><1%</u>

Details of current occurrence:

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).

New York's Contribution to Species North American Range:

% of NA Range in New York	Classification of New York Range
<input checked="" type="checkbox"/> 0-5%	<input checked="" type="checkbox"/> Core
<input type="checkbox"/> 6-10%	<input type="checkbox"/> Peripheral
<input type="checkbox"/> 11-25%	<input type="checkbox"/> Disjunct
<input type="checkbox"/> 26-50%	Distance to core population:
<input type="checkbox"/> >50%	_____

IV. Primary Habitat or Community Type:

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:

Declining Stable Increasing Unknown

Time frame of decline/increase: Since mid-1800s

Habitat Specialist? Yes No

Indicator Species? Yes No

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. New York Species Demographics and Life History

Breeder in New York

Summer Resident

Winter Resident

Anadromous

Non-breeder in New York

Summer Resident

Winter Resident

Catadromous

Migratory only

Unknown

Species Demographics and Life History Discussion:

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:

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 oldfield habitats (Wiggins et al. 2006).

Short-eared owls are occasionally hit by cars and airplanes. In New York, train collisions have 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?

No **Unknown**

Yes

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.

Conservation actions following IUCN taxonomy are categorized in the table below.

Conservation Actions	
Action Category	Action
Land/Water Protection	Site/Area Protection
Land/Water Protection	Resource/Habitat Protection
Land/Water Management	Site/Area Management
Land/Water Management	Invasive/Problematic Species Control
Land/Water Management	Habitat and Natural Process Restoration
Education and Awareness	Training
Education and Awareness	Awareness & Communications
Law and Policy	Policies and Regulations

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

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