

Species Status Assessment

Class: Birds
Family: Icteridae
Scientific Name: *Dolichonyx oryzivorus*
Common Name: Bobolink

Species synopsis:

Bobolinks breed across the northern half of the United States and winter in South America. They rely on agricultural landscapes, where nesting occurs in hay meadows or grassy pastures. Higher densities are observed in larger grazed pastures and larger, older hayfields containing the least amount of alfalfa. The Second Breeding Bird Atlas (2000-05) showed an 8% decline in occupancy since 1980-85. Breeding Bird Survey data for New York show a significant annual decline of 0.8% per year for the period 1999-2009 and a significant annual decline of 1% per year for the period 1966-2009.

I. Status

a. Current Legal Protected Status

- i. Federal Not Listed Candidate: No
ii. New York SGCN

b. Natural Heritage Program Rank

- i. Global G5
ii. New York S5B Tracked by NYNHP? No

Other Rank:

Partners in Flight Tier I

Status Discussion:

The bobolink is a widespread breeder at lower elevations in New York, with gaps in higher elevation areas and on Long Island. Bobolink is considered Secure or Apparently Secure in most northeastern states; it is ranked as Vulnerable in Massachusetts and as Imperiled in New Jersey.

II. Abundance and Distribution Trends

a. North America

i. Abundance

 X declining ___increasing ___stable ___unknown

ii. Distribution:

 X declining ___increasing ___stable ___unknown

Time frame considered: 1999-2009

b. Regional

i. Abundance

 X declining ___increasing ___stable ___unknown

ii. Distribution:

 X declining ___increasing ___stable ___unknown

Regional Unit Considered: Eastern BBS

Time Frame Considered: 1999-2009

c. Adjacent States and Provinces

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

i. Abundance

declining **increasing** **stable** **unknown**

ii. Distribution:

declining **increasing** **stable** **unknown**

Time frame considered: 1999-2009

Listing Status: _____ Special Concern _____ SGCN? Yes _____

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

i. Abundance

declining **increasing** **stable** **unknown**

ii. Distribution:

declining **increasing** **stable** **unknown**

Time frame considered: 1999-2009

Listing Status: _____ Not Listed _____ SGCN? No _____

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

i. Abundance

declining **increasing** **stable** **unknown**

ii. Distribution:

declining **increasing** **stable** **unknown**

Time frame considered: 1999-2009

Listing Status: _____ Threatened _____ SGCN? Yes _____

Trends Discussion:

The second breeding bird atlas (2000-05) showed an 8% decline in occupancy since 1980-85. BBS data for New York show a significant annual decline of 0.8% per year for the period 1999-2009 and a significant annual decline of 1% per year for the period 1966-2009. BBS data show significant declines in most surrounding states and provinces. BBS data for the eastern U.S. from 1999-2009 show a significant 2.4% annual decline from 1999-2009.

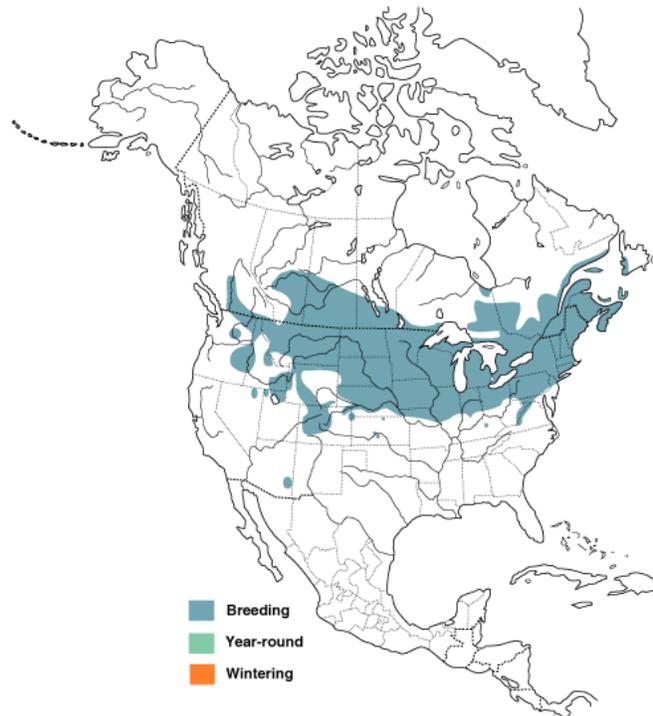


Figure 1. Range of the bobolink in North America (Birds of North America Online 2013).

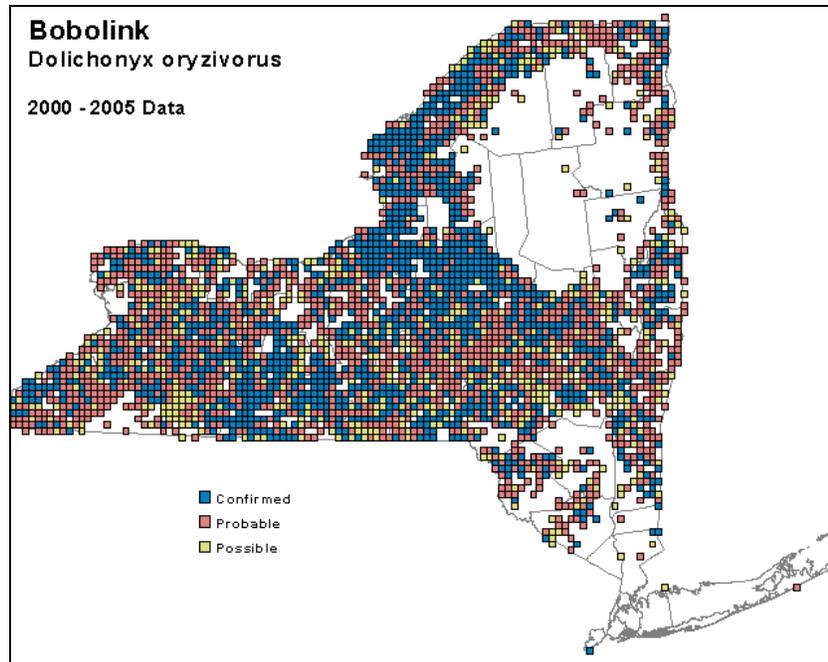


Figure 2. Bobolink occurrence in New York State during the second Breeding Bird Atlas (McGowan and Corwin 2008).

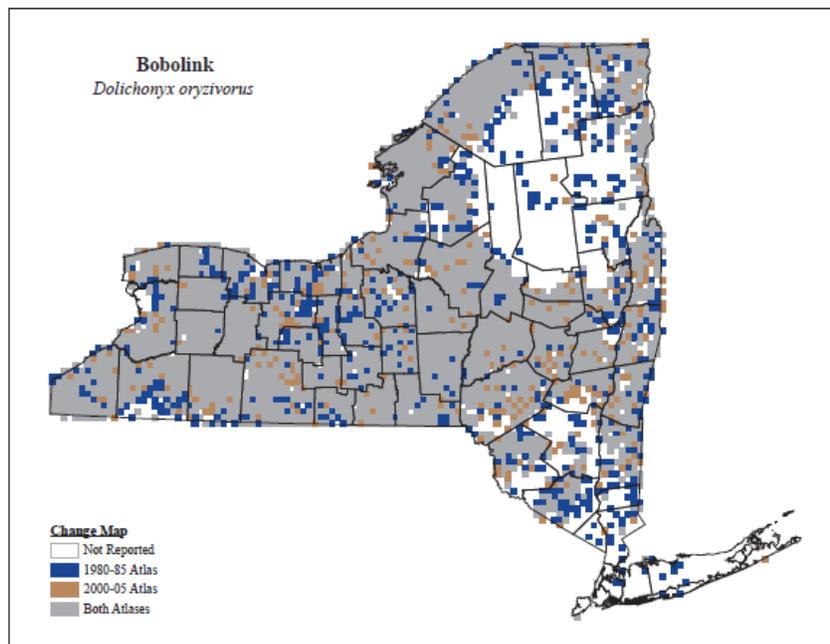


Figure 3. Change in bobolink occurrence in New York State between the first Breeding Bird Atlas and the second Breeding Bird Atlas (McGowan and Corwin 2008).

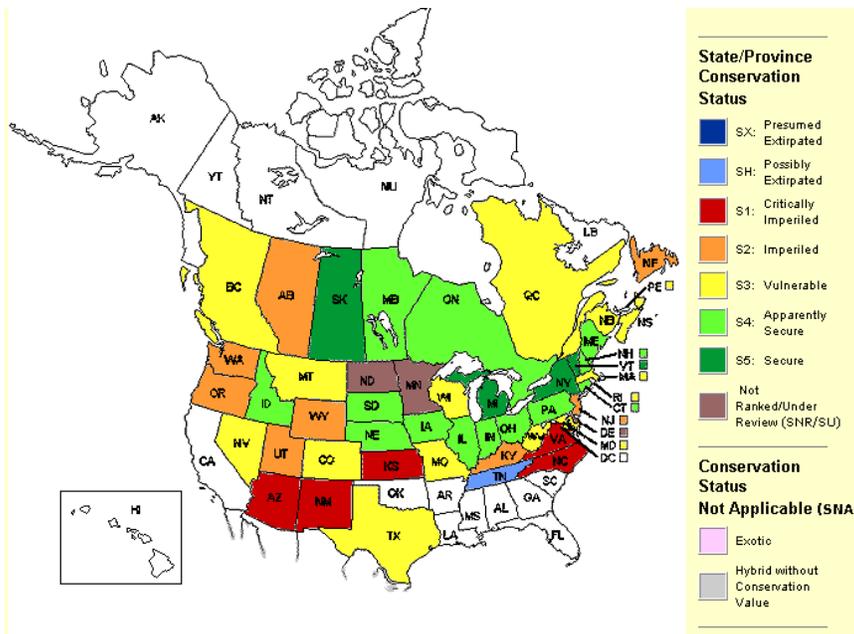


Figure 4. Conservation status of the bobolink in North America (NatureServe 2012).

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>3,465 blocks</u>	<u>65%</u>

Details of historic occurrence:

The first Breeding Bird Atlas (1980-85) recorded occupancy in 65% of the survey blocks statewide (Andrle and Carroll 1988).

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
	_____	<u>3,178 blocks</u>	<u>60%</u>

Details of current occurrence:

The second Breeding Bird Atlas (2000-05) recorded occupancy in 60% of the survey blocks statewide, a decline of 8% since 1980-85 (McGowan and Corwin 2008).

New York's Contribution to Species North American Range:

Distribution (percent of NY where species occurs)

- ___ 0-5%
- ___ 6-10%
- ___ 11-25%
- ___ 26-50%
- X >50%

Abundance (within NY distribution)

- ___ abundant
- ___ common
- X fairly common
- ___ uncommon
- ___ rare

NY's Contribution to North American range

- ___ 0-5%
- ___ 6-10%
- X 11-25%
- ___ 26-50%

___ >50%

Classification of New York Range

Core

___ Peripheral

___ Disjunct

Distance to core population:

IV. Primary Habitat or Community Type:

1. Pasture/Hay
2. Old Field Managed Grasslands

Habitat or Community Type Trend in New York:

Declining ___ Stable ___ Increasing ___ Unknown

Time frame of decline/increase: _____ Since 1970s _____

Habitat Specialist? ___ Yes No

Indicator Species? ___ Yes No

Habitat Discussion:

Bobolinks may prefer fields comprised of a mixture of grasses and broad-leaved forbs such as red clover (*Trifolium pretense*) and dandelion (*Taraxacum officinale*). Density is high in fields in west-central New York with relatively low amounts of total vegetative cover, low alfalfa (*Medicago sativa*) cover, and low total legume cover but with high litter cover and high grass-to-legume ratios relative to other nearby fields (Bollinger 1988a, Bollinger and Gavin 1992). These vegetative characteristics occur in hay fields in New York that are ≥ 8 years old, determined by the time since last plowing and reseeded (Bollinger and Gavin 1992). These "old" hay fields contain significantly higher densities of bobolinks than hay fields < 8 years old, or than any of 3 other types of fields or pastures sampled. Also, large fields have higher densities than small fields; fields ≥ 30 ha support more than twice the number of males per 100 m of transect than fields ≤ 10 ha (Bollinger and Gavin 1992).

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:

Bobolinks are capable of breeding in their second year and apparently breed, or attempt to breed, every year. Bollinger and Gavin (1989) noted return rates of 70% for males and 44% for females. Predation on eggs and nestlings and nest exposure to adverse weather and flooding are probably the most significant mortality factors. Bobolinks generally are considered to be an uncommon (Friedmann 1963, Martin and Gavin 1995) or rare (Martin 1967) host of the brown-headed cowbird. Bollinger (1988b) recaptured a female, banded as a nestling, which was 8 years old.

VI. Threats:

Land-use changes are a significant threat to grassland bird populations on regional and continental scales. From 1940 to 1986 in 18 northeastern states, the area in hay fields declined from 12.6 to 7.1 million ha. During the same period, hay fields planted to alfalfa and alfalfa mixtures, a vegetation type not typically used by many species of grassland birds, increased from 20% to 60% (Bollinger and Gavin 1992).

Since the mid-1940s, the eastward expansion of grassland birds has reversed in northeastern U.S. and southern Ontario as agricultural lands have been abandoned, reverting to deciduous forest (Robbins et al. 1986, Hussell 1987). Sibley (1988) noted that declines had resulted from the

replacement of grain crops by corn and alfalfa, despite the use of corn fields for breeding noted by other authors.

Declines in some areas have been attributed to decrease in hayfield area, earlier and more frequent hay-cropping, and shift from timothy and clover to alfalfa; earlier, agricultural practices that converted wooded land to open land resulted in an increase in range (Bollinger et al. 1990, Bollinger and Gavin 1992). In New York, primary disturbance to nesting is hay-cropping; 100% of nests with eggs and young nestlings affected by mowing were abandoned or destroyed, but proportion of young lost declined with age of nestlings (Bollinger et al. 1990). A threat to the grasslands in New York is a failure to address the viability of dairy farming, especially smaller family farms (NYSDEC 2005). Fire-dependent pine barren type communities also support grassland species. Fire suppression can make them less suitable.

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).

Bobolink was classified as “presumably stable” in regard to predicted climate change in an assessment of vulnerability conducted by the New York Natural Heritage Program (Schlesinger et al. 2011).

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

No Unknown
 Yes

The bobolink is protected under the Migratory Bird Treaty Act of 1918.

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

The NYSDEC’s Best Management Practices (BMPs) for grassland birds should be used to guide habitat management on grassland habitat or habitat to be converted into grassland. The management goal of these BMPs is to maintain the open, grassy conditions necessary for successful breeding by grassland birds and to avoid disturbance to nesting birds. Techniques may include seeding, mowing, and removal of trees and shrubs including invasive species. Typically, land should be managed for a minimum of 5 years to begin showing benefits for grassland birds. These BMPs form the basis for specific 5-year Site Management Plans for landowners selected to receive technical and financial assistance through LIP (NYSDEC 2013).

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 bobolink.

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

- Andrle, R.F. and J.R. Carroll, eds. 1988. The atlas of breeding birds in New York State. Cornell University Press, Ithaca, NY.
- Bollinger, E. K. 1988a. Breeding dispersion and reproductive success of Bobolinks in an agricultural landscape. Phd Thesis. Cornell Univ. Ithaca, NY.
- Bollinger, E. K. 1988b. A longevity record for the Bobolink. N. Am. Bird Bander 13:76.
- Bollinger, E. K. and T. A. Gavin. 1989. The effects of site quality on breeding-site fidelity in Bobolinks. Auk 106:584-594.
- Bollinger, E. K., P. B. Bollinger, and T. A. Gavin. 1990. Effects of hay-cropping on eastern populations of the Bobolink. Wildl. Soc. Bull. 18:142-150.
- Bollinger, E. K. and T. A. Gavin. 1992. Eastern Bobolink populations: ecology and conservation in an agricultural landscape. Pages 497-506 in Ecology and conservation of neotropical migrant landbirds. (Hagan III, J. M. and D. W. Johnston, Eds.) Smithsonian. Inst. Press, Washington, D.C.
- Friedmann, H. 1963. Host relations of the parasitic Cowbird. Museum of Natural History. Smithsonian Institution, Washington, D. C.
- Martin, S.G. 1967. Breeding biology of the bobolink. M.S. thesis. University of Wisconsin, Madison, WI.
- Martin, Stephen G. and Thomas A. Gavin. 1995. Bobolink (*Dolichonyx oryzivorus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. <<http://bna.birds.cornell.edu/bna/species/176>>.
- McGowan, K.J. and K. Corwin, eds. 2008. The second atlas of breeding birds in New York State. Cornell University Press, Ithaca, NY.
- Mineau, P. and M. Whiteside. 2013. Pesticide acute toxicity is a better correlate of U.S. grassland bird declines than agricultural intensification. PloS ONE 8: 1-8
- Morgan, M. R. and M. F. Burger. 2008. A plan for conserving grassland birds in New York: Final report to the New York State Department of Environmental Conservation under contract #C005137. Audubon New York, Ithaca, NY. <<http://ny.audubon.org/PDFs/ConservationPlan-GrasslandBirds-NY.pdf>>. Accessed 4 June 2013.

NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. <<http://www.natureserve.org/explorer>>. Accessed 4 June 2013.

New York State Department of Environmental Conservation (NYSDEC). 2005. New York State Comprehensive Wildlife Conservation Strategy. <<http://www.dec.ny.gov/index.html>>. Accessed 4 June 2013.

New York State Department of Environmental Conservation (NYSDEC). 2013. Best management practices for grassland birds. <<http://www.dec.ny.gov/pubs/86582.html>>. Accessed 4 June 2013.

Schlesinger, M.D., J.D. Corser, K.A. Perkins, and E.L. White. 2011. Vulnerability of at-risk species to climate change in New York. New York Natural Heritage Program, Albany, NY.

Date last revised: July 2014