Species Status Assessment

Common Name: Kentucky warbler **Date Updated:** January 4, 2024

Scientific Name: *Geothlypis formosa* **Updated By:** M. Oberkircher

Class: Aves

Family: Parulidae

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

Kentucky warbler is a fairly common breeder in the southern United States and has been expanding its range northward since the early 1960s, reoccupying its historic range. New York is the northern extent of the breeding range. Breeding occurs only in the southernmost parts of the state and populations appear to fluctuate. The preferred habitat in New York is hilly woodlands with stream-bearing ravines and a dense shrubby understory.

I. Status

a. Current legal protected Status

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

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G5

ii. **New York:** S2B **Tracked by NYNHP?:** Yes

Other Ranks:
-NYS 2025 SGCN Status: Species of Greatest Conservation Need
-IUCN Red List: Least Concern
-Partners in Flight: 14 out of 20

Status Discussion:

In New York, Kentucky warbler is an uncommon and local breeder in the southeastern portion of the state. It may also breed in river valleys along the Pennsylvania border. It is a rare spring and fall migrant through the breeding area and very rare anywhere else. Kentucky warbler is ranked as Imperiled in New York and Massachusetts and as Vulnerable in Connecticut and New Jersey (NatureServe 2020). The IUCN Red List status is Least Concern with a decreasing global population trend (BirdLife International 2016).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining			Choose an item.
Northeastern US	Yes	Declining	Declining			No
New York	Yes	Declining	Declining			Yes

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Connecticut	Yes	Unknown	Unknown			No
Massachusetts	No	-	-			No
New Jersey	Yes	Unknown	Unknown		Special Concern	Yes
Pennsylvania	Yes	Stable	Stable			Yes
Vermont	No	-	-			No
Ontario	No	-	-			No
Quebec	No	-	-			No

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):*

None.

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

Declines in Kentucky warbler populations in New York were noted in the early 1900s and the species was essentially extirpated from New York by 1942 (Bull 1964). Breeding resumed in 1973 on Long Island and expanded until the 1980s and 1990s. Breeding Bird Atlas data show a loss in occupancy of 72% between 1980-85 and 2000-05.

Breeding Bird Survey data show both long- and short-term survey-wide declines of -0.90 from 1966-2015 and -0.4 from 1993 to 2021; in the Eastern region Kentucky warblers declined -0.73 from 1966-2015 and increased 0.36 from 2005-2015 (Sauer et al. 2017). Abundance trends from eBird show a -10.8% decline with an upper confidence interval of -3.5% and a lower interval of -18% for breeding Kentucky warblers in NY from 2012-2022.

Partners In Flight estimates that the species has declined by 29% throughout its range.

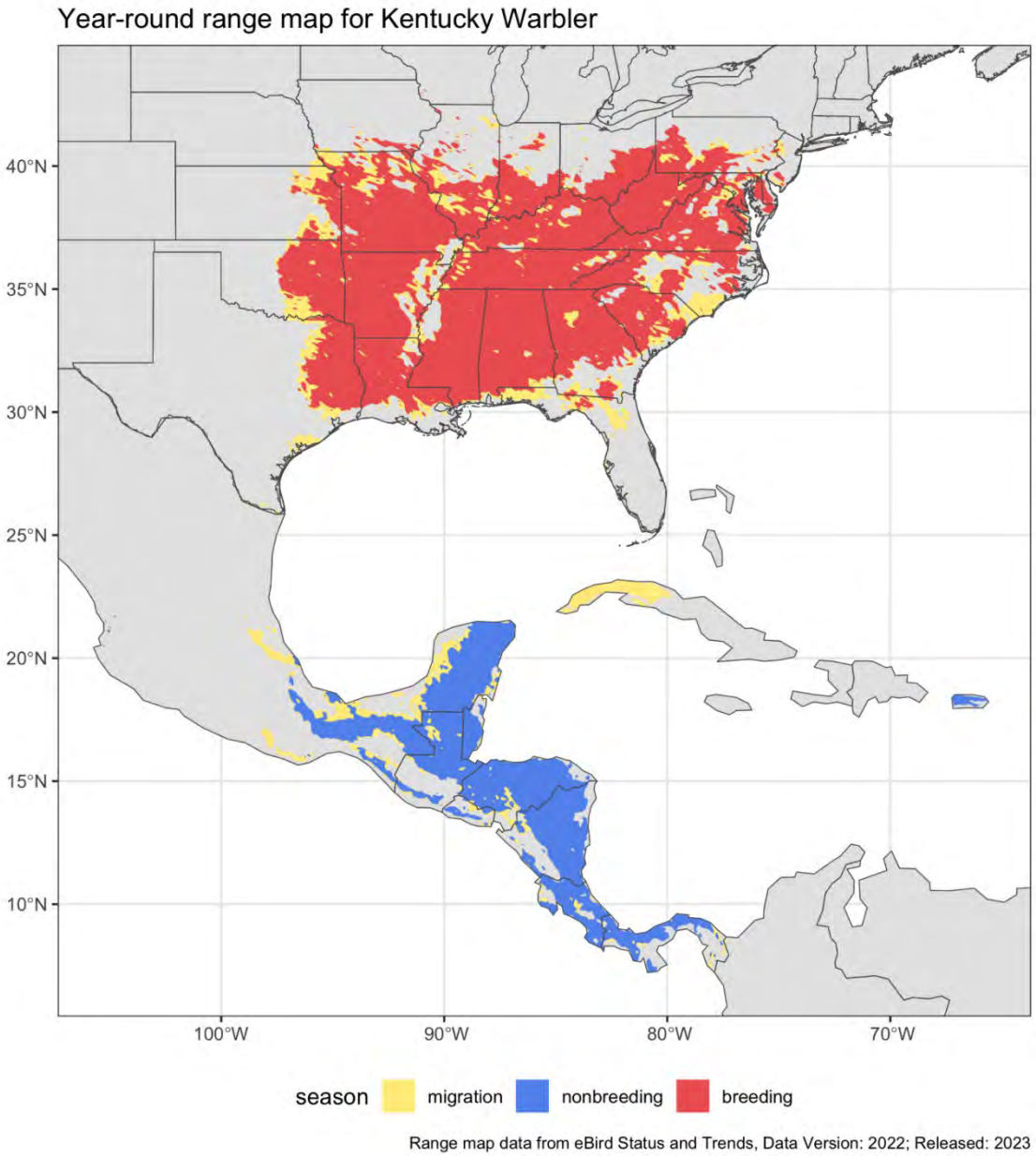

Figure 1. Full (year-round) range for Kentucky warbler (eBird).

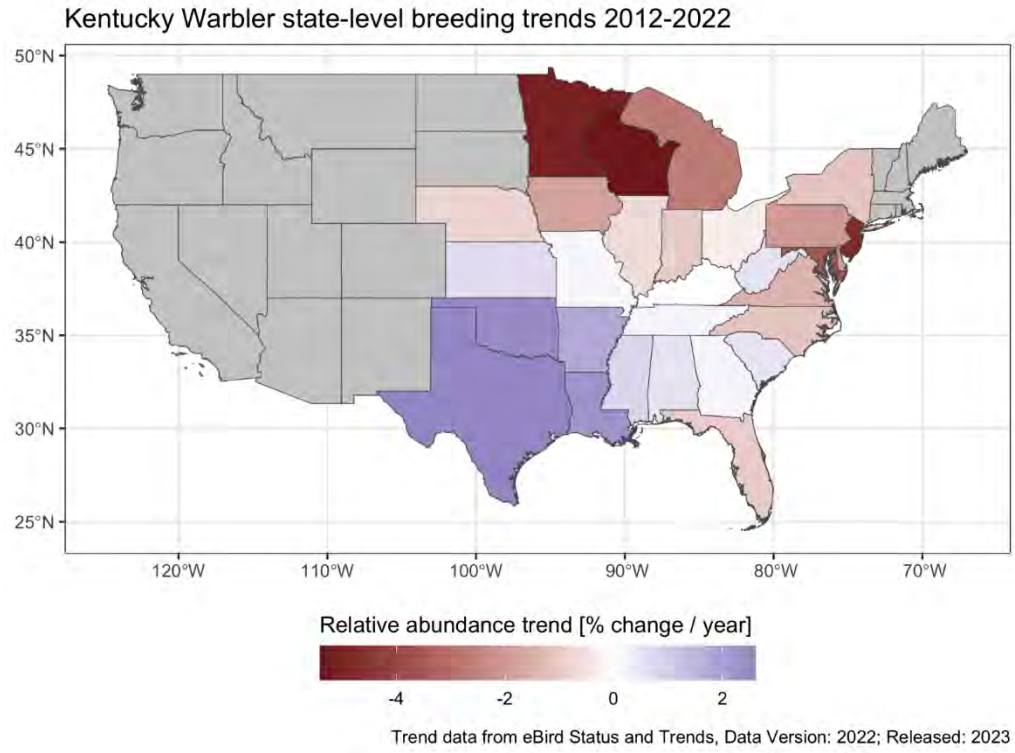

Figure 2. Trends, by state, for Kentucky warbler (eBird).

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

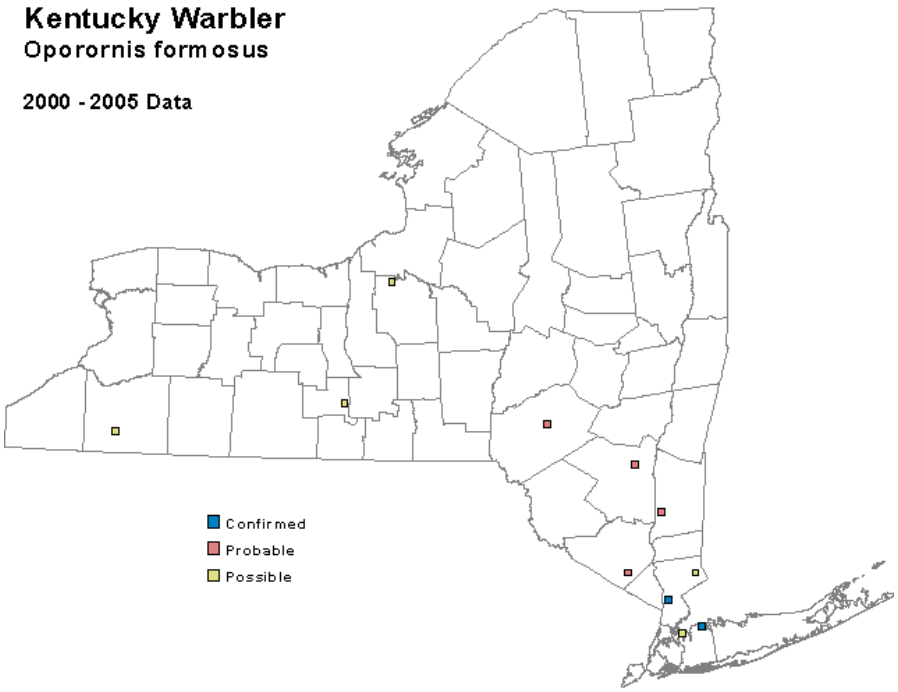

Figure 3. Kentucky warbler occurrence in New York State during the second Breeding Bird Atlas (McGowan and Corwin 2008).

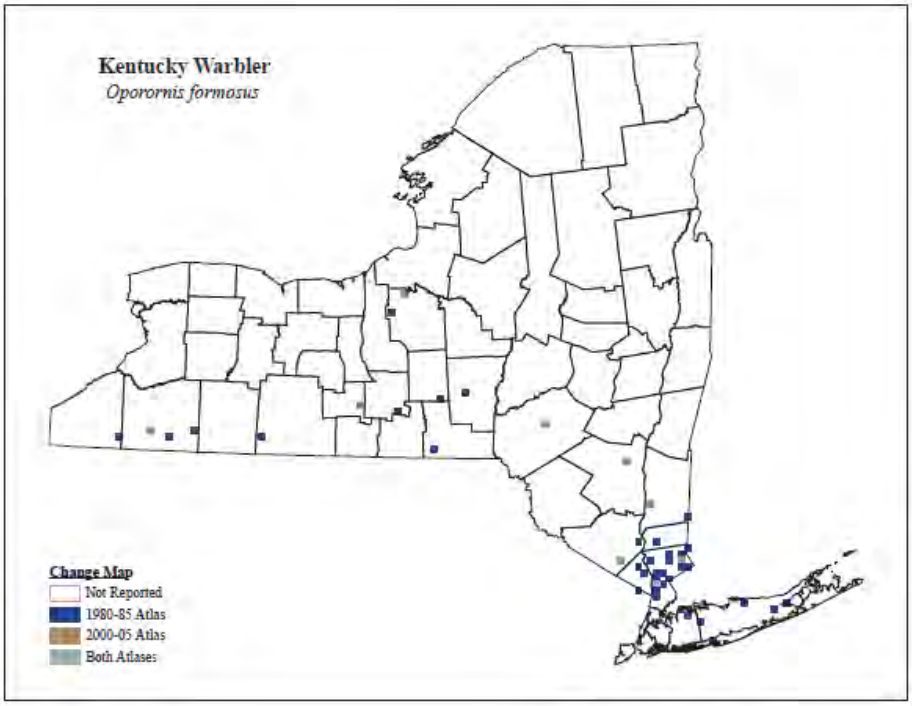

Figure 4. Change in occurrence of Kentucky warbler in New York since the first Breeding Bird Atlas (McGowan and Corwin 2008)

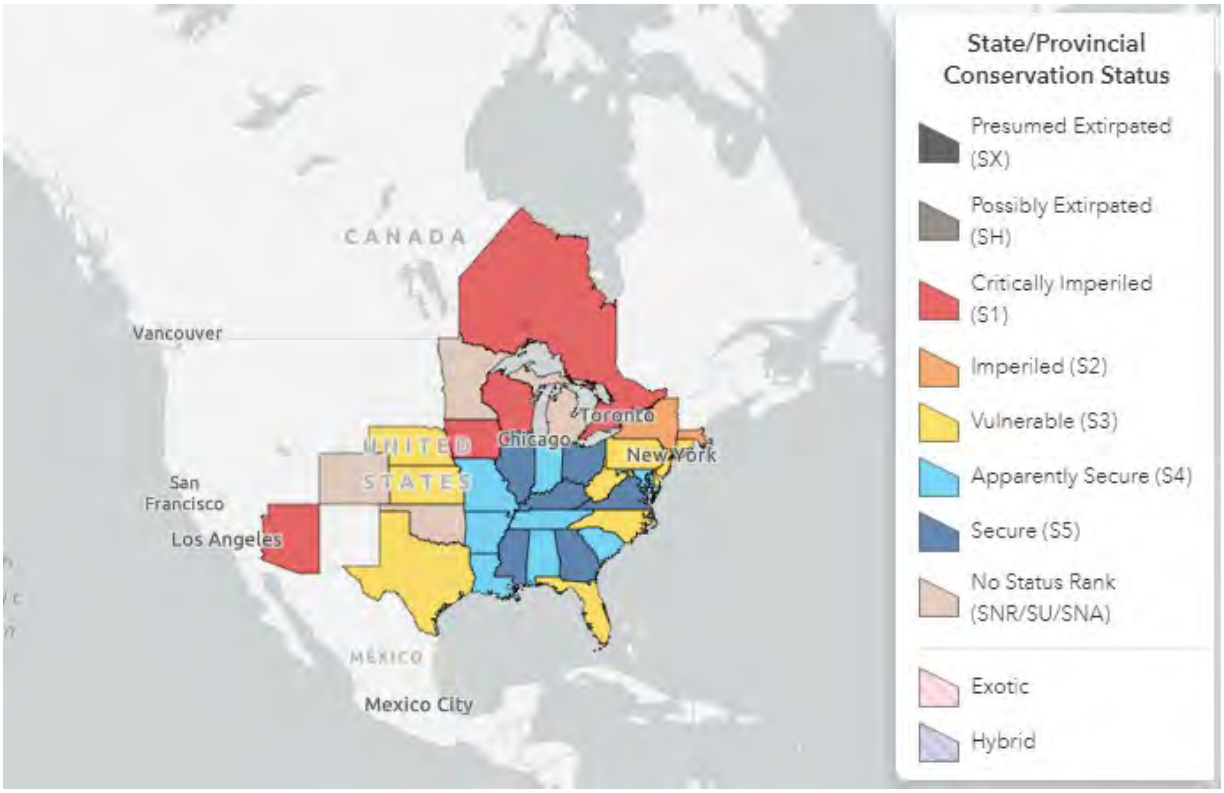

Figure 5. Conservation status of Kentucky warbler in North America (NatureServe)

Details of historic and current occurrence:

The first Breeding Bird Atlas (BBA) (1980-85) documented occupancy in 39 blocks, 0.7% of the survey blocks statewide (Andrle and Carroll 1988). The second BBA (2000-05) documented occupancy in 11 blocks, 0.2% of the survey blocks statewide (McGowan and Corwin 2008). Declines were especially dramatic in the two former strongholds, the Manhattan Hills and the Coastal Lowlands.

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, Kentucky warbler has been documented in 19 priority blocks, 0.4% 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%	Peripheral	

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):*

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

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:

The Kentucky warbler breeds in dense thickets within damp, heavily shaded deciduous forests of floodplains, swamps, and ravines (Bent 1953, Terres 1980). McDonald (1998) described the breeding habitat as bottomland hardwoods at low elevations. Robbins (1979) estimated that the minimum forest area required to sustain a viable breeding population was 80-125 acres. A thick understory and well-developed ground cover are essential to the species' reproductive success. One study of nesting sites in a bottomland hardwood forest found that Kentucky Warblers prefer tree-fall gaps in densely shaded forest (Kilgo et al. 1996). Kentucky warbler density is positively associated with leaf litter, understory density, and canopy height (Bakermans et al. 2012).

In New York, Kentucky warbler breeds in hilly woodlands with stream-bearing ravines and a dense shrubby understory. These warblers will breed in forests of various ages but are most common in medium-aged forests (NatureServe 2011).

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	No	-

Column options
First 5 fields: Yes; No; Unknown; (blank) or Choose an item
Anadromous/Catadromous: Anadromous; Catadromous; (blank) or 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):*

Plumage is not a reliable criterion for distinguishing first-year birds from older adults of this species. Data from banded male nestlings, however, indicate that first-year males can breed successfully. No female banded as a nestling is known to have returned to a research site. Few pairs (1–2 out of 40 pairs/yr) raise two broods. A second nesting attempt is initiated about 10 days after the first brood leaves the nest (McDonald 1998).

The record for the oldest known Kentucky warbler was at least 8 years, banded as adult male in Alabama and was subsequently recaptured in the same state returning annually to the same territory in north Virginia (BBL 2020). Adult survivorship of banded birds in Virginia varies annually; the mean over 6 years was 62%. Causes of mortality include several known instances of nestlings dying from exposure during rainy periods and thunderstorms (McDonald 1998).

Two males banded as nestlings in Virginia (out of 44) returned and bred 50 and 250 m, respectively, from their natal grounds. No females banded as nestlings returned from 1980-1997. Overall, the species apparently rarely returns to its natal site to breed. Most males return to exactly the same territory they defended the previous year, and they maintain the same territorial boundaries. Those known to relocate between years (7% of total; *n* = 201) have moved distances of 100–500 m (McDonald 1998).

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

Much of the range occupied by Kentucky warbler in New York is currently, or has long been, under a high degree of suburban development. This development pressure leads to a number of factors that collectively threaten Kentucky warbler occupancy and nesting success including increased brood parasitism, increased predation, and higher populations of white-tailed deer which remove understory.

In areas where forests are fragmented, brood parasitism from brown-headed cowbird increases, which can greatly decrease reproductive success. High white-tailed deer populations in urban areas where they cannot be controlled by hunting may greatly reduce the amount of dense, low vegetation that Kentucky warbler needs during the breeding season (NYNHP 2012). High populations of subsidized predators such as raccoon, opossum, etc. increase the risk of nest failure. Silvicultural activities that may create forest openings and promote a dense, shrubby understory may not be undertaken in developed fragmented forest patches.

Neotropical migrants face additional threats on wintering grounds and during migration including loss and degradation of wintering habitat, exposure to unregulated contaminants, and collision with various structures such as powerlines, towers, and turbines. Loss et al. (2014) estimated that 365 to 988 million birds are killed by building/glass collisions in the U.S. each year, with warblers being

among the most vulnerable taxa, and Kentucky warblers among the most vulnerable species to collisions with buildings/glass. They also noted that building collisions are the second leading source of direct mortality of migratory birds, following predation by feral and outdoor pet cats. Kentucky warblers are also vulnerable to mortality from communication towers (Shire et al. 2000 in McDonald 2020). Longcore (2013) found that nearly 60% of avian mortality from collisions with communication towers and guy wires are warblers; Kentucky warblers had an estimated annual loss of 2.5% of estimated population size from mortality at communication towers.

The National Audubon Society's climate vulnerability assessment found that, under the +3.0 °C scenario, the Kentucky warbler had an overall species vulnerability status of "low" with range gained in New York. Climate-related threats include habitat loss from urbanization as well as decreased nesting success due to spring heat waves and heavy rainfall (National Audubon Society 2019).

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
1. Residential and Commercial	1.1 Housing & Urban Areas	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5. Biological Resource Use	5.3 Logging & Wood Harvesting	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.2 Problematic Native Plants & Animals	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	-	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	11.3 Changes in Temperature Regimes	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 1. Threats to Kentucky warbler.

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

Yes: ✓ **No:** **Unknown:**

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

Kentucky warbler 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:

Forest management practices that encourage a dense understory and well-developed ground cover should enhance forest stands for this species (Bushman and Therres 1988). Kendrick et al. (2015) found that Kentucky warbler density increased after clearcuts, thinnings, and selection cuts, although the increases were short lived after the silvicultural treatment. However, Robinson and Robinson (2001) noted that brood parasitism on Kentucky warbler nests was significantly higher in selectively harvested forest stands compared to uncut stands.

Forest management practices that include patches of low-level harvesting will generally benefit ground and shrub nesting species. Some areas of moderate or even- aged management would also be beneficial to many species by providing food and cover, although the majority of the forest should be kept in a relatively mature state. Efforts should also include minimizing the effects of fragmentation on habitats due to development, and on implementing population control of white-tailed deer in areas where deer populations are affecting forest regeneration and species composition (NYSDEC 2005). White-tailed deer population reduction in some areas may reduce over-browsing of the shrub understory critical for Kentucky warbler nesting.

Public outreach about the benefits of and need for forest management to enhance populations of ground and shrub nesting forest breeding birds on public and private lands is greatly needed (NYSDEC 2005).

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.1 Manage plants, animals, fungi, or bacteria	A.1.1.1 Mechanical management – plants A.1.1.4 Mechanical management - animals
B.3 Outreach	B.3.1 Outreach, communication, and distribution	B.3.1.4 Public outreach and information
C.6 Design and Plan Conservation	C.6.2 Conserve specific land or seascapes	C.6.2.2 Acquire title for conservation purposes C.6.2.3 Conserve without acquisition (legally binding)

Action Category	Action	Description
C.6 Design and Plan Conservation	C.6.5 Conservation planning	C.6.5.1 Plan the management of protected areas or sites
Choose an item.		
Choose an item.		

Table 2. Recommended conservation actions for Kentucky warbler

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