

Species Status Assessment

Class: Birds
Family: Parulidae
Scientific Name: *Setophaga castanea*
Common Name: Bay-breasted warbler

Species synopsis:

Formerly *Dendroica castanea*, bay-breasted warbler was reclassified into the genus *Setophaga* in July 2011 (see AOU). This species breeds in mature conifer forests, especially spruce-fir. About 98% of the population breeds across the boreal forests in Canada. In New York, it is found only in the Adirondack Mountains, where it occurs as a disjunct population at the southernmost edge of the North American range, about 250 miles from the core breeding area. A 63% decline in occupancy in New York was documented by the Breeding Bird Atlases from 1980-85 to 2000-05.

Local populations fluctuate with the presence of a favored food item, spruce budworm. Royoma et al. (2005) refer to bay-breasted warbler as a cyclical species that has a very high probability of returning to higher population levels.

I. Status

a. Current and Legal Protected Status

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

b. Natural Heritage Program Rank

- i. **Global** G5
- ii. **New York** S2 **Tracked by NYNHP?** Yes

Other Rank:

IUCN Red List Category: LC - Least concern

Partners in Flight – Watch List

Status Discussion:

Bay-breasted warbler is a rare breeder in New York. It is widespread in Canada, and rarely occurs in the Adirondack region. It was found in the Tug Hill region during the first Breeding Bird Atlas, but not during the second. It is a fairly common migrant in western New York. It is ranked as imperiled in New York and critically imperiled in Vermont, but as secure in adjacent states and provinces.

II. Abundance and Distribution Trends

a. North America

i. Abundance

___ declining X increasing ___ stable ___ unknown

ii. Distribution:

___ declining ___ increasing X stable ___ unknown

Time frame considered: 2001-2011

b. Regional

i. Abundance

___ declining X increasing ___ stable ___ unknown

ii. Distribution:

___ declining ___ increasing X stable ___ unknown

Regional Unit Considered: Atlantic Northern Forest (BBS trend)

Time Frame Considered: 2001-2011

c. Adjacent States and Provinces

CONNECTICUT	Not Present <u> X </u>	No data _____
MASSACHUSETTS	Not Present <u> X </u>	No data _____
NEW JERSEY	Not Present <u> X </u>	No data _____
PENNSYLVANIA	Not Present <u> X </u>	No data _____

ONTARIO

i. Abundance

 X declining ___increasing ___ stable ___unknown

ii. Distribution:

___ declining ___increasing X stable ___unknown

Time frame considered: abundance: 1966-2009; distribution: 1981-2005

Listing Status: Not Listed

QUEBEC

i. Abundance

 X declining ___increasing ___ stable ___unknown

ii. Distribution:

 X declining ___increasing ___ stable ___unknown

Time frame considered: 1970-2009

Listing Status: Not Listed

VERMONT

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Time frame considered: abundance: 1966-2009; distribution: 1981-2005

Listing Status: Not Listed SGCN? Yes

d. New York

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Time frame considered: 1980-85 to 2000-05

Monitoring in New York.

The Wildlife Conservation Society has conducted surveys for boreal breeding birds at a number of locations the Adirondack Park since 2003 (Glennon 2010). Bay-breasted warbler is one of 12 target species.

Trends Discussion:

Bay-breasted warbler populations fluctuate markedly with the abundance of spruce budworm (Venier et al. 2009). In Canada, which contains more than 90% of its range, the bay-breasted warbler declined 3% annually from 1970 to 2009 and 5.2% annually from 1989 to 2009. In North America, the bay-breasted warbler has increased an average of 2.7% per year from 2001-2011 (Sauer et al. 2012). In New York, the Breeding Bird Atlas documented a 63% decline in occupancy from 1980-85 to 2000-05. Sauer et al. (2012) have suggested that declines in the New York from 2001-2011 are approximately 5.4% per year, which indicates a 43% decline in abundance over the period. However, Sauer et al. (2012) advise that these data should be used cautiously as they may have some deficiencies.

The Wildlife Conservation Society conducted point counts for 12 boreal species at 59 locations in the Adirondack Park from 2007-2011. Fewer than five detections were obtained for bay-breasted warbler, which prevented occupancy modeling.

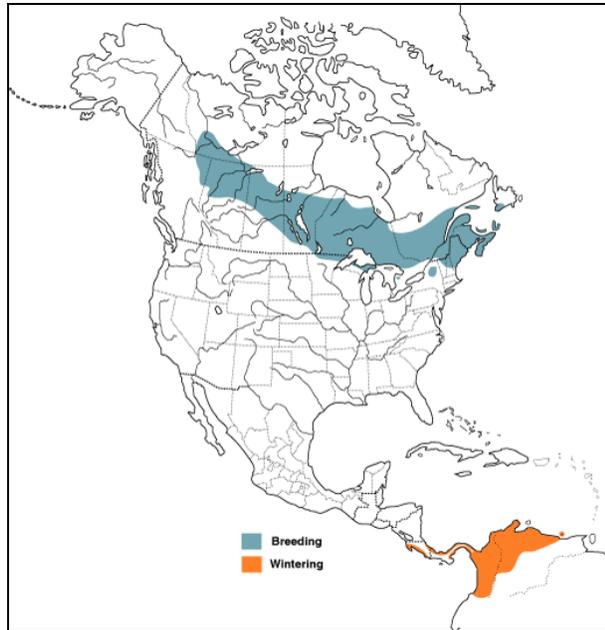


Figure 1: Distribution of bay-breasted warbler in North America (Birds of North America Online).

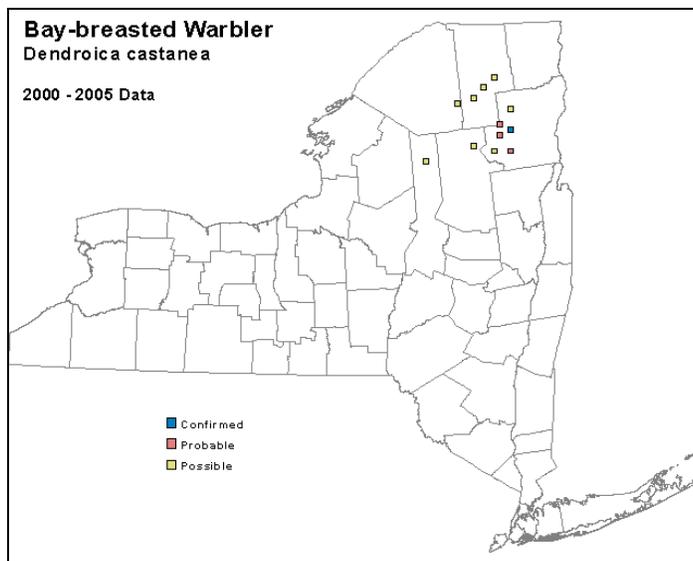


Figure 2. Bay-breasted warbler occurrence in New York State during the second Breeding Bird Atlas (McGowan and Corwin 2008).

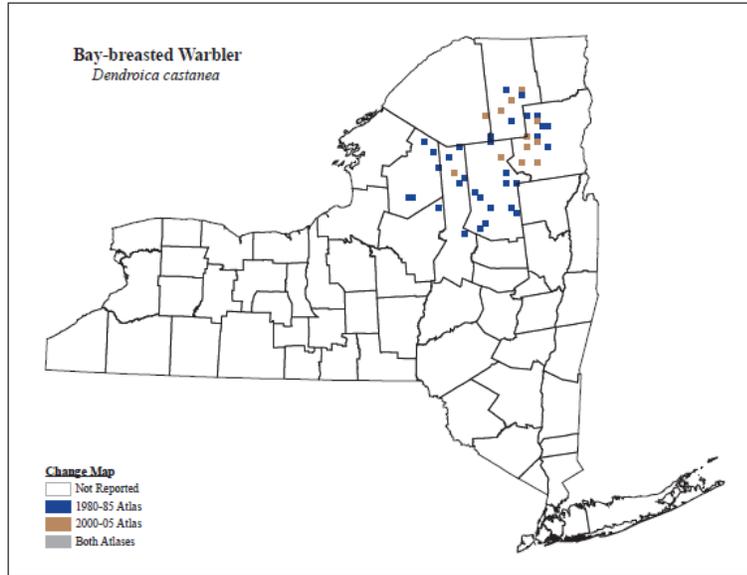


Figure 3. Change in Bay-breasted warbler occurrence in New York State between the first Breeding Bird Atlas and the second Breeding Bird Atlas (McGowan and Corwin 2008).

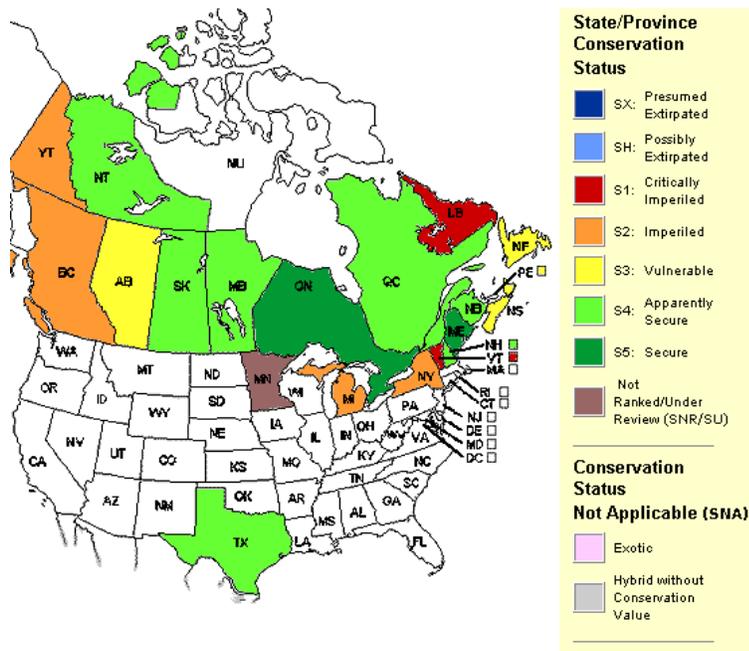


Figure 4: Conservation status of bay-breasted warbler in North America (NatureServe 2013).

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>32 blocks</u>	<u><1%</u>

Details of historic occurrence:

Bay-breasted warbler was established as breeding species in New York in 1926 with a female feeding young in Essex County (Levine 1998). Bull (1974) noted just 11 nests. The first breeding bird atlas (1980-85) documented occupancy in 32 survey blocks, less than 1% of the state.

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
	_____	<u>12 blocks</u>	<u><1%</u>

Details of current occurrence:

The second breeding bird atlas (2000-05) documented occupancy in 12 survey blocks, less than 1% of the state. This is a decline of 63% since 1980-85.

New York's Contribution to Species North American Range:

Distribution (percent of NY where species occurs)

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

Abundance (within NY distribution)

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

NY's Contribution to North American range

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

26-50%

>50%

Classification of New York Range

Core

Peripheral

Disjunct

Distance to core population:

~250 miles

IV. Primary Habitat or Community Type:

1. Spruce-Fir Forest and Flats
2. Conifer Forest Swamp
3. Mountain Spruce-Fir Forests
4. Mixed Hardwood Swamp

Habitat or Community Type Trend in New York:

Declining Stable Increasing Unknown

Time frame of decline/increase: _____

Habitat Specialist? Yes No

Indicator Species? Yes No

Habitat Discussion:

Bay-breasted warbler nests in mature conifer forest, especially spruce/fir with only a scattering of deciduous trees and often near water, but it appears to expand its habitat into young and intermediate aged stands in response to budworm outbreaks. Peterson (1988) summarized the

habitat use to include Norway spruce plantations—one near a large open bog—and a variety of tree species including balsam fir, hemlock, pine, birch, willow, and shrubs. Peterson (1988) also noted that breeding frequently occurred in these forest types along rivers, open water courses, sluggish streams, and beaver ponds.

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 is no information on age at first breeding, intervals between breeding, reproductive success, and little data on predation or competition.

VI. Threats:

Illinois and Wisconsin have documented mortality of bay-breasted warblers from collisions with towers during fall migration. In Illinois, 237 birds were killed on one night (Seets and Bohlen 1977). Arnold and Zink (2011) classified bay-breasted warbler as the North American landbird species that most frequently collides with towers.

Warming temperatures could result in the eventual loss of boreal habitat in New York. In an assessment of vulnerability to predicted climate change conducted by the New York Natural

Heritage Program, bay-breasted warbler was identified as a second-priority species whose sensitivity should be assessed in the future (Schlesinger et al. 2011).

Acid deposition can reduce the vitality or outright kill conifer forests, can reduce prey quantity, and could be reducing populations of land snails, which are an important source of calcium during the breeding season. Osborne et al. (2011) showed that the effects of mercury can be exacerbated in boreal species that use high-acid habitats such as peatlands.

In eastern Canada, shorter forest-cutting cycles, which reduce the area of mature forests, and planting of black spruce and jack pine (*Pinus banksiana*), which are more resistant to spruce budworm, will both contribute to creating less attractive breeding habitat for this warbler (Erskine 1992). There is also evidence that bay-breasted warblers are sensitive to landscape-level forest composition. Drolet et al. (1999) found that bay-breasted warblers were absent from landscapes with <55% forest cover, and Hobson and Bayne (2000a) found that bay-breasted warblers were virtually absent from a fragmented landscape while being common in nearby contiguous forest. They have also been found to avoid riparian and upland leave strips of width 32-132m (Meiklejohn and Hughes 1999, Potvin and Bertrand 2004).

Their wintering habitat in Central and South America is in a relatively restricted area that is subject to habitat loss through development and deforestation (Morton 1992). 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. In some areas, hunting remains a problem.

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

No Unknown

Yes

Bay-breasted 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:

The NY Comprehensive Wildlife Conservation Strategy (CWCS; NYSDEC 2005) states the need for a management plan for high-altitude conifer forest birds that incorporates the results of the 2004 State Wildlife Grant study on boreal forest birds (Glennon 2010). Conservation actions following IUCN taxonomy are categorized in the table below.

Conservation Actions	
Action Category	Action
Land/Water Management	Site/Area Management

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for boreal forest birds, which includes bay-breasted warbler.

Habitat monitoring:

___ Conduct field studies to determine causes for declines of species known to be declining.

Habitat research:

___ Complete an inventory and analysis of the distribution and abundance of boreal species.

Population monitoring:

___ Develop a long term monitoring program to determine population trends of boreal forest birds.

State land unit management plan:

___ Review Department wildfire management for Forest Preserve lands.

VII. References

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Date last revised: July 2014