

## Species Status Assessment

**Class:** Birds  
**Family:** Parulidae  
**Scientific Name:** *Setophaga cerulea*  
**Common Name:** Cerulean Warbler

### Species synopsis:

Formerly *Dendroica cerulea*, cerulean warbler was recently placed in the genus *Setophaga*. Cerulean warbler is listed as Special Concern in New York.

This warbler uses two distinct habitat types in New York: forested wetlands and riparian corridors, and dry ridge tops and hillsides. Cerulean warblers are sparsely distributed in New York with the largest concentrations in the Great Lakes Plain and smaller concentrations in Allegany State Park and the Hudson Highlands area west of the Hudson River, and southwest of St. Lawrence County. Breeding Bird Survey trends indicate a significant decline rangewide of 3.1% per year since 1966. The second New York Breeding Bird Atlas (2000-05) shows a decline in occupancy of 13% since 1980-85. With no change in the magnitude of threats or the magnitude of conservation efforts, projections of future population trends based on an assumption of historic BBS trends continuing into the future indicate there is about a 90% probability that within 100 years cerulean warblers will decline to a population size that is about 10% of their current numbers (Thogmartin et al. 2006).

### I. Status

#### a. Current Legal Protected Status

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

#### b. Natural Heritage Program Rank

- i. **Global** G4
- ii. **New York** S3? B **Tracked by NYNHP?** No

**Other Rank:**

NYNHP – Watch List

IUCN Red List status: Vulnerable

Partners in Flight Watch List

USFWS - Bird of Conservation Concern (A finding in 2006 deemed that Threatened status was not warranted.)

Canada – Species of Special Concern

Identified as a Species of Greatest Conservation Need within the Wildlife Action Plans of 22 states.

Species of Northeast Regional Conservation Concern (Therres 1999)

**Status Discussion:**

Cerulean warbler has a patchy breeding distribution in New York. Cerulean warbler is ranked as Vulnerable in Ontario, New York, Connecticut, and New Jersey. It is ranked as Critically Imperiled in Massachusetts, Vermont, and Quebec.

**II. Abundance and Distribution Trends**

**a. North America**

**i. Abundance**

declining     increasing     stable     unknown

**ii. Distribution:**

declining     increasing     stable     unknown

Time frame considered: 2002-2012

**b. Regional**

**i. Abundance**

declining     increasing     stable     unknown

**ii. Distribution:**

declining     increasing     stable     unknown

Regional Unit Considered: Eastern BBS

Time frame considered: 2002-2012

**c. Adjacent States and Provinces**

**CONNECTICUT**                      Not Present \_\_\_\_\_                      No data \_\_\_\_\_

**i. Abundance**

\_\_\_\_ declining    \_\_\_\_ increasing              X   stable    \_\_\_\_ unknown

**ii. Distribution:**

\_\_\_\_ declining    \_\_\_\_ increasing            \_\_\_\_ stable      X   unknown

Time frame considered: 2002-2012 BBS: apparently stable but with significant data deficiencies.

Listing Status: Not Listed                      SGCN? Yes

**MASSACHUSETTS**                      Not Present \_\_\_\_\_                      No data \_\_\_\_\_

**i. Abundance**

\_\_\_\_ declining    \_\_\_\_ increasing            \_\_\_\_ stable      X   unknown

**ii. Distribution:**

\_\_\_\_ declining    \_\_\_\_ increasing            \_\_\_\_ stable      X   unknown

Time frame considered: \_\_\_\_\_

Listing Status: Not Listed                      SGCN? No

**NEW JERSEY**                      Not Present \_\_\_\_\_                      No data \_\_\_\_\_

**i. Abundance**

\_\_\_\_ declining    \_\_\_\_ increasing \_\_\_\_ stable      X   unknown

**ii. Distribution:**

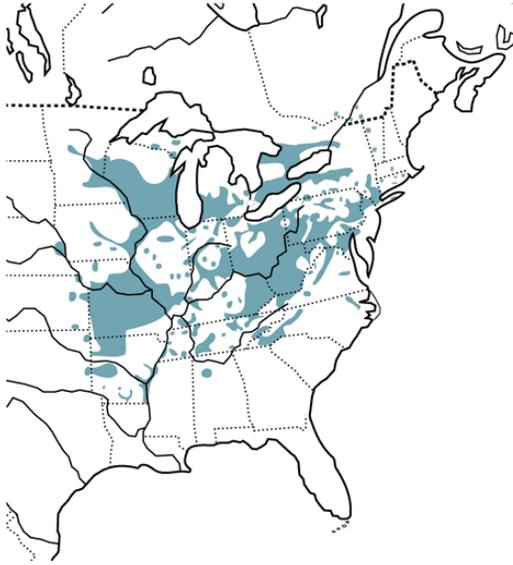
\_\_\_\_ declining    \_\_\_\_ increasing            \_\_\_\_ stable      X   unknown

Time frame considered: 2002-2012 BBS: apparently increasing but with significant data deficiencies

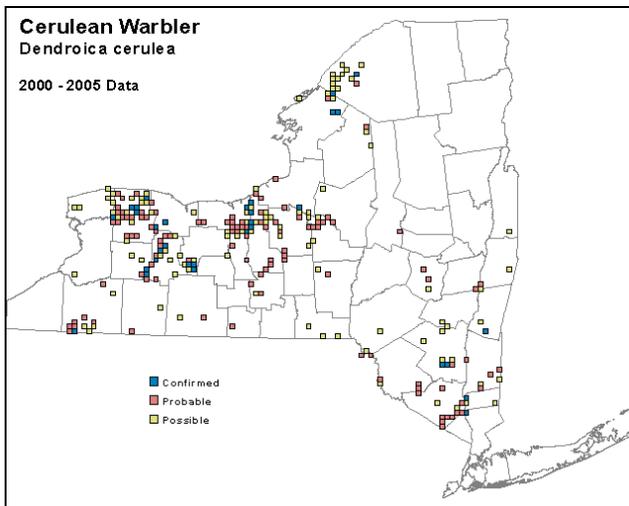
Listing Status: Special Concern                      SGCN? Yes



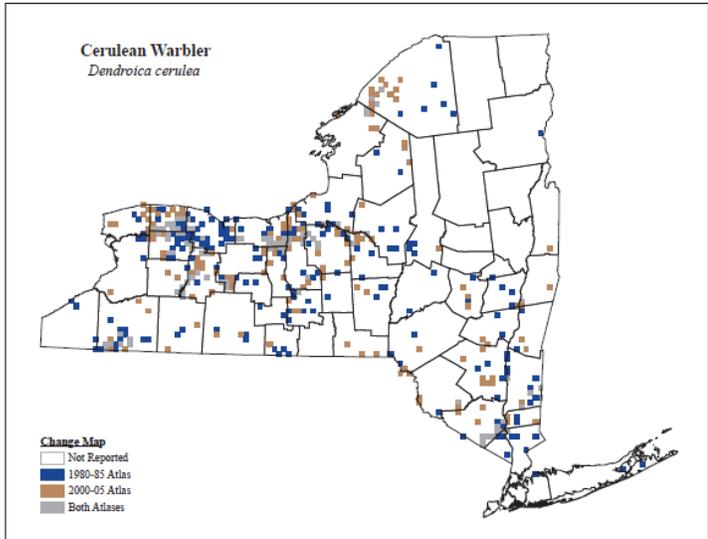




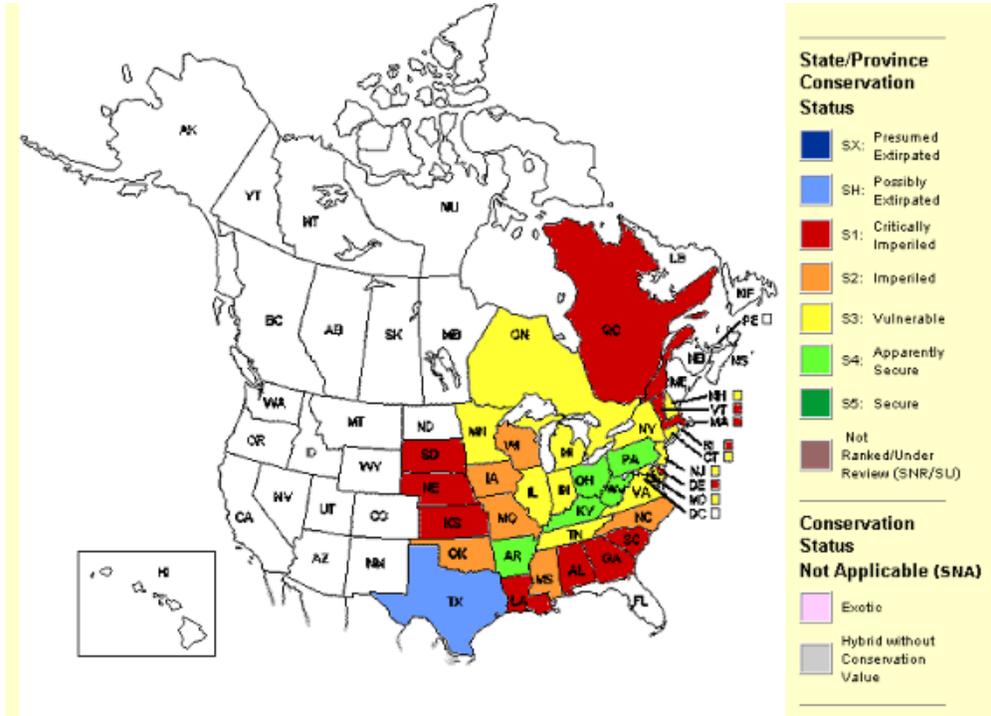
**Figure 1.** Range of the cerulean warbler in North America (Birds of North America Online 2013).



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



**Figure 3.** Change in cerulean 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 the cerulean warbler in North America (NatureServe 2012).

**III. New York Rarity, if known:**

<b>Historic</b>	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
<b>prior to 1970</b>	_____	_____	_____
<b>prior to 1980</b>	_____	_____	_____
<b>prior to 1990</b>	_____	<u>279 blocks</u>	<u>5%</u>

**Details of historic occurrence:**

The first Breeding Bird Atlas (1980-85) in New York documented cerulean warbler in 279 survey blocks statewide (Andrle and Carroll 1988).

<b>Current</b>	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
	_____	<u>244 blocks</u>	<u>5%</u>

**Details of current occurrence:**

The second Breeding Bird Atlas (2000-05) in New York documented cerulean warbler in 244 survey blocks statewide, a decline of 13% 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%
- >50%

**Abundance** (within NY distribution)

- abundant
- common
- fairly common
- uncommon
- rare

**NY's Contribution to North American range**

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

\_\_\_ >50%

**Classification of New York Range**

\_\_\_ Core

X Peripheral

\_\_\_ Disjunct

**Distance to core population:**

\_\_\_\_\_

**IV. Primary Habitat or Community Type:**

1. Floodplain Forests
2. Riparian
3. Hardwood Swamp
4. Oak Forest
5. Oak-Pine Forest

**Habitat or Community Type Trend in New York:**

\_\_\_ Declining      X Stable      \_\_\_ Increasing      \_\_\_ Unknown

**Time frame of decline/increase:** \_\_\_\_\_

**Habitat Specialist?**                      \_\_\_ Yes      X No

**Indicator Species?**                      \_\_\_ Yes      X No

**Habitat Discussion:**

Two distinct habitat types are used: (1) forested wetlands and riparian corridors dominated by sycamore, cottonwood, silver and red maples, and green ash; and (2) dry ridgetops and hillsides

dominated by mature oak-hickory and mixed mesophytic forests (Rosenberg et al. 2000). Favored riparian habitats appear to include at least some very large “super-canopy” trees.

**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:**

Cerulean warblers can breed successfully when 1 year old and annually thereafter. The number of clutches/breeding season is usually 1; 2 or possibly even 3 may be laid if earlier ones are lost. The longevity record is from a 6-year-old male. There are no published studies of survivorship, and the numbers of returning individuals are at present too small to estimate return rates. No reports of proportions of returning birds have been made.

## **VI. Threats:**

Most populations in New York breed on protected lands. Threats include continued loss of mature deciduous forest on private lands, and subtle changes in forest structure through loss of dominant canopy trees on managed lands (Rosenberg 2008). Loss of wintering habitat in South America is a well-documented concern (Hamel 2000).

Robbins et al. (1992) indicate that nest parasitism by brown-headed cowbirds is a likely factor in the decline. Nest parasitism by cowbirds is at least part of the mechanism by which the forest fragmentation effect is manifested (Hamel 1992).

Second-growth forests lack the complex structural variety that cerulean warblers favor for breeding. While logging operations in managed forests can result in habitat fragmentation, carefully planned silvicultural practices will benefit cerulean warbler by providing structural diversity in the forest habitat (Wood et al. 2013).

Acid rain could be a threat to forest health and therefore, to this species suite (NYSDEC 2005).

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

No       Unknown

Yes

The cerulean 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:**

Members of several states within the Appalachian Mountain portion of this warbler's range have been involved in studying cerulean warbler response to silvicultural practices and a compilation of Best Management Practices (BMPs) has been completed (Wood et al. 2013). These BMPs will enable implementation of silvicultural practices that benefit cerulean warbler. Maintenance of larger tracts is important as this is an area-sensitive species.

Wood et al. (2013) state that past even-aged forest management has resulted in a forest structure that is not favored by cerulean warblers. Rather, management practices that create an "old-growth" forest structure may be beneficial, specifically small group-selection harvests that promote a heterogeneous canopy, with canopy gaps with advanced vegetative growth. In forest stands with high cerulean warbler densities and nest success, no harvest is the most favorable option for maintaining populations. Management recommendations vary by region, cerulean warbler

abundance, and amount of forest in the landscape. Boves et al. (2013) found that harvests can act as an ecological trap, resulting in increased cerulean warbler densities and reduced nesting success.

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 & Natural Process Restoration
Education & Awareness	Awareness & Communications

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for deciduous/mixed forest birds, and for cerulean warbler specifically.

**Habitat management:**

- \_\_\_ Identify critical cerulean warbler focus areas and enhance populations.
- \_\_\_ Minimize the effects of fragmentation of habitats due to human development.
- \_\_\_ Implement population control of whitetail deer in areas where deer populations are affecting forest regeneration and species composition.

**Habitat research:**

- \_\_\_ Habitat research to study area sensitivity and habitat requirements of cerulean warblers.
- \_\_\_ Research effects of logging on "forest interior" birds.
- \_\_\_ Identify the critical core areas for cerulean warblers in the lake plain and protect them from human development.

**Other action:**

- \_\_\_ Educate the public on the benefits and need for forest management on public and private lands.

**Population monitoring:**

- \_\_\_ BBS appears adequate for most species. Cerulean warblers need targeted monitoring to determine precise trends.

Recommendations for 2015 SWAP (M. Burger):

- Promote forest management following recently released Cerulean warbler habitat Best Management Practices.

- Reduce deer population where forest regeneration is poor.

## VII. References

Andrle, R.F. and J.R. Carroll. 1988. The atlas of breeding birds in New York State. Cornell University Press, Ithaca, NY.

Appalachian Mountain Joint Venture Technical Committee. Meeting Notes from August 7-8, 2012 Technical Committee Meeting, Morgantown, WV.

Boves, T.J., D. A. Buehler, J. Sheehan, P. Bohall Wood, A. D. Rodewald, J. L. Larkin, P. D. Keyser, F. L. Newell, A. Evans, G. A. George, and T. B. Wigley. 2013. Spatial Variation in Breeding Habitat Selection by Cerulean Warblers (*Setophaga cerulea*) throughout the Appalachian Mountains. *The Auk* 130(1):46-59.

Hamel, P. B. 1992. Cerulean warbler, *DENDROICA CAERULEA*. Pages 385-400 in K. J. Schneider and D. M. Pence, editors. Migratory nongame birds of management concern in the Northeast. U.S. Fish and Wildlife Service, Newton Corner, Massachusetts. 400 pp.

McGowan, K. J. and K. Corwin, eds. 2008. The second atlas of breeding birds in New York State. Cornell University Press, Ithaca, NY.

NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. <<http://www.natureserve.org/explorer>>. Accessed 27 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 27 June 2013.

Oliarnyk, C.J., and R.J. Robertson. 1996. Breeding behavior and reproductive success of Cerulean Warblers in southeastern Ontario. *Wilson Bulletin* 108(4):673-684.

Price, J., S. Droege, and A. Price. 1995. The summer atlas of North American birds. Academic Press, New York. x + 364 pp.

Robbins, C. S., J. W. Fitzpatrick, and P. B. Hamel. 1992. A warbler in trouble: *DENDROICA CERULEA*. Pages 549-562 IN J. M. Hagan III, and D. W. Johnston, editors. 1992. Ecology and conservation of neotropical migrant landbirds. Smithsonian Institution Press, Washington, D.C. xiii + 609 pp.

Rosenberg, K.V. 2008. Cerulean warbler, *Dendroica cerulea*. Pages 508-09 in *The second atlas of breeding birds in New York State* (K.J. McGowan and K. Corwin, eds.). Cornell University Press, Ithaca, NY.

Rosenberg, K.V., S.E. Barker, and R.W. Rohrbaugh. 2000. An atlas of Cerulean warbler populations: final report to USFWS: 1997-2000 breeding seasons. Cornell Lab of Ornithology, Ithaca, NY. <<http://www.birds.cornell.edu/cewap/cwapresultsdec18.pdf>>.

Sauer, J. R., J. E. Hines, J. E. Fallon, K. L. Pardieck, D. J. Ziolkowski, Jr., and W. A. Link. 2014. The North American Breeding Bird Survey, Results and Analysis 1966 - 2012. Version 02.19.2014 USGS Patuxent Wildlife Research Center, Laurel, MD.

Therres, G.D. 1999. Wildlife species of regional conservation concern in the northeastern United States. *Northeast Wildlife* 54:93-100.

Thogmartin, W.E., J. R. Sauer, P. Hamel, M.G. Knutson, J. Baldy, E. Ozdenerol, J.Cochrane, T. Will, R. Dettmers, P. Wood. 2006. Modeling for Cerulean Warblers on the breeding ground. Abstract. Paper presented at Fourth North American Ornithological Conference, Veracruz, Mexico, October 2006.

Wood, P.B., J. Sheehan, P. Keyser, D. Buehler, J.Larkin, A. Rodewald, S. Stoleson, T.B., Wigley, J. Mizel, T. Boves, G. George, M. Bakermans, T. Beachy, A. Evans, M. McDermott, F. Newell, K. Perkins, and M. White. 2013. Management guidelines for enhancing Cerulean Warbler breeding habitat in Appalachian hardwood forests. American Bird Conservancy. The Plains, Virginia. 28 pp.

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