Species Status Assessment

Common Name:	Kennedy's Emerald	**Date Updated:**	2024-03-11
Scientific Name:	*Somatochlora kennedyi*	**Updated By:**	Erin L. White
Class:	Insecta		
Family:	Corduliidae		

Species Synopsis

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

Kennedy's Emerald is a *Somatochlora* in the Corduliidae family and one of several species of this genus that are cryptic in daytime behavior as adults and difficult to detect. It occurs in Canada from the Yukon and British Columbia east to Labrador and Nova Scotia and in the United States from Minnesota east to Maine and south to New Jersey (NatureServe 2024). It is known to breed in large bog ponds, sedge fens, small fen pools, and open wetlands (fens, marshes, or swamps) (Jones et al. 2008, IUCN 2024). The 2010 site in NY is a low gradient creek with a marshy, grassy area along the shore (NYNHP 2024). It appears to be declining in the region (White et al. 2015).

There are two confirmed counties known to be inhabited by *S. kennedyi* currently in the state with medium to high estimated threats. It is difficult to determine the short and long term trend, as records for this species are too few and infrequent to accurately assess population trends. There is at least one record from Albany County and one record for St. Lawrence County pre-2005 (White et al. 2010). There were no confirmed records during the NYDDS (White et al. 2010). One record in 2010 was observed in Essex County and one was observed in 2014 from Columbia County (NYNHP 2024). Two additional photographic records from Essex County and one from Franklin County were documented in recent years (iNaturalist 2024). The Franklin County one is less certain as it was a female.

I. Status

a. Current legal protected Status

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

ii. New York: Unprotected

b. Natural Heritage Program

i. Global: G5

ii. New York: S1S2 **Tracked by NYNHP?** On Active Tracking List

Other Ranks:

NYS 2025 SGCN Status: High Priority Species of Greatest Conservation Need
COSEWIC: Not listed in Canada
IUCN Red List: Least Concern
Northeast Regional SGCN: RSGCN; R3 Vulnerability and Shared Responsibility

Status Discussion:

There are two locations known in the state with medium to high estimated threats. It is difficult to determine the short and long term trend, as records for this species are too few and infrequent to accurately assess population trends. There is at least one record from Albany County and one record for St. Lawrence County pre-2005 (White et al. 2010).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status or S-Rank	SGCN?
North America	Yes	Unknown	Unknown	Unknown		
Northeastern US	Yes	Unknown	Declining	Pre and post 2000	R3	RSGCN
New York	Yes	Unknown	Unknown	Pre and post 2005	S1S2	No
Connecticut	No	-	-	-		
Massachusetts	Yes	Unknown	Unknown	Unknown	S1	Yes
New Jersey	Yes	Unknown	Unknown	Unknown	S2	Yes
Pennsylvania	No	-	-	-		
Vermont	Yes	Unknown	Unknown	Unknown	S1S2	Yes
Ontario	Yes	Unknown	Unknown	Unknown	S4	
Quebec	No	Unknown	Unknown	Unknown	S5	

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):

The New York State Dragonfly and Damselfly Survey was conducted from 2005-2009, but there are no organized, regular monitoring or survey activities directed toward this species or to sites where it has been documented.

Trends Discussion

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

Records for this species are too few and infrequent to accurately assess population trends. The number of new records in recent years since 2005 likely reflects heightened interest and survey effort. It appears to be declining in the region (White et al. 2015) and is likely difficult to detect due to elusive behavior as with other *Somatochlora*. Documented records over time suggest the species has always been rare in NY.

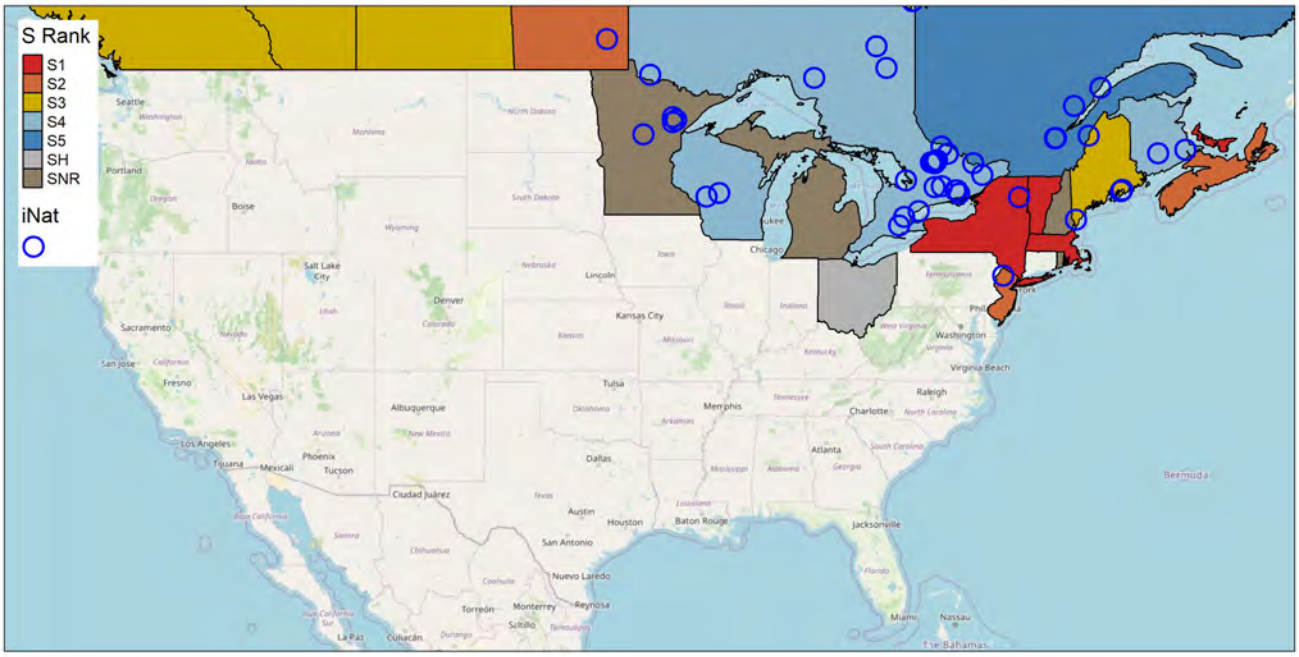

Figure 1: *Somatochlora kennedyi North American distribution. Points show research-grade iNaturalist observations (NatureServe 2024, iNaturalis 2024).*

Figure 2: *Somatochlora kennedyi regional distribution as reported at https://northeastwildlifediversity.org/rsgcn and found in a regional odonate project.*

III. New York Rarity

(provide map, numbers, and percent of state occupied)

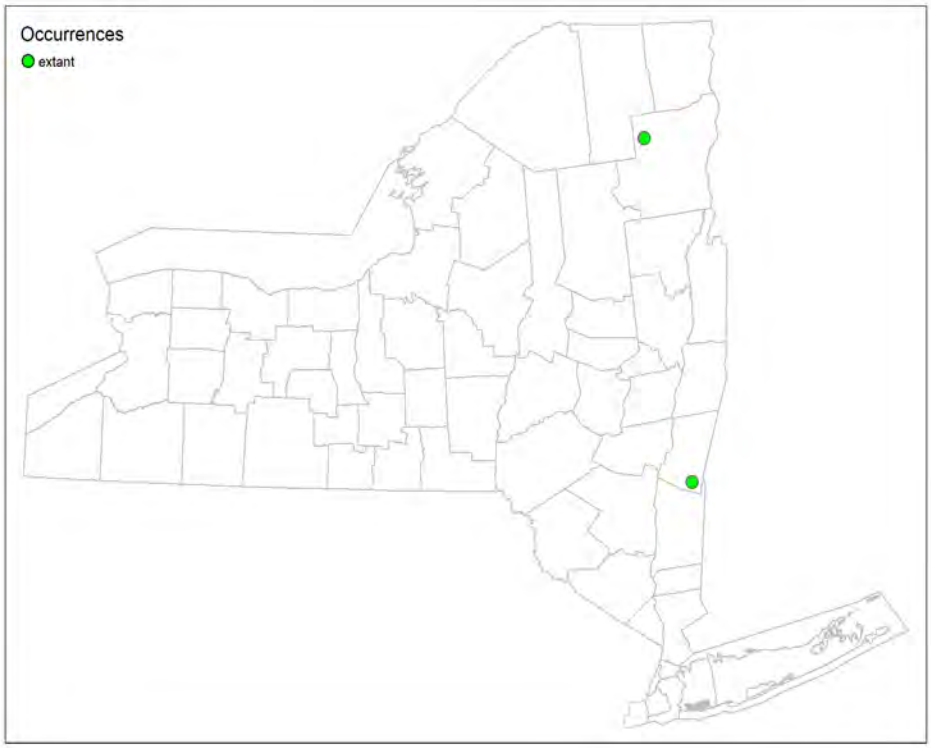

Figure 3: *NYS distribution for Somatochlora kennedyi based on element occurrence data.*

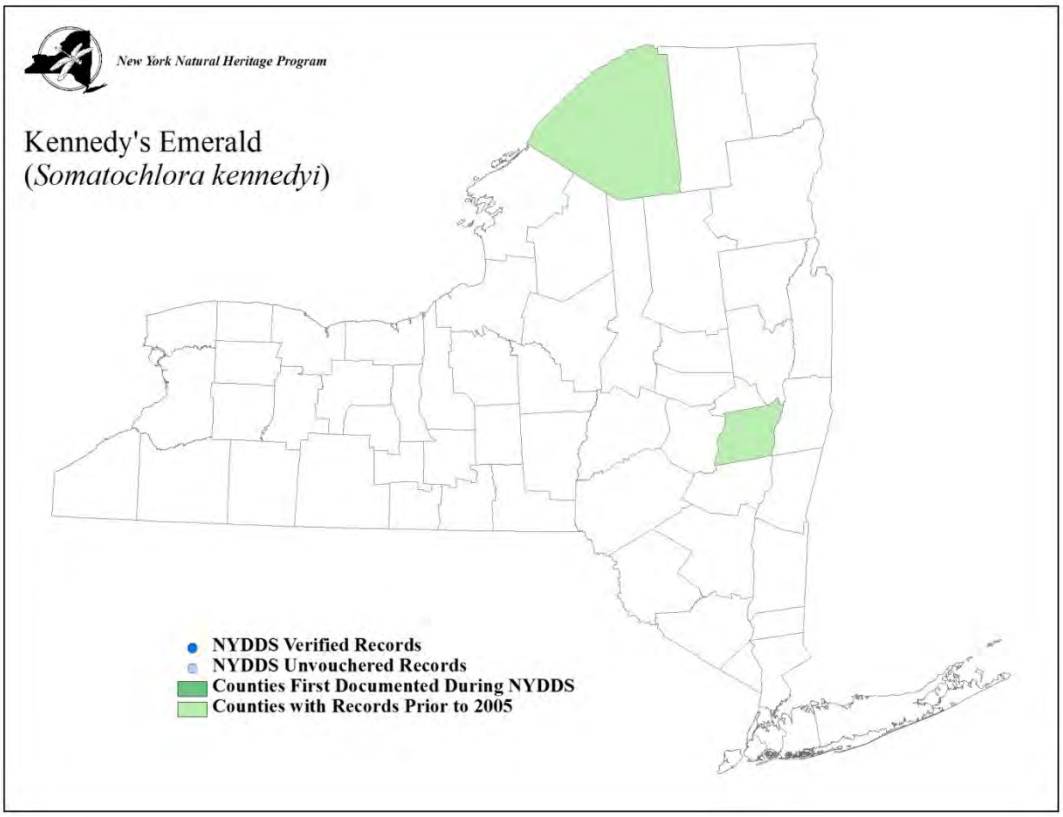

Figure 4. Historical occurrence records of the Kennedy's Emerald in New York during the NYDDS (White *et al.* 2010).

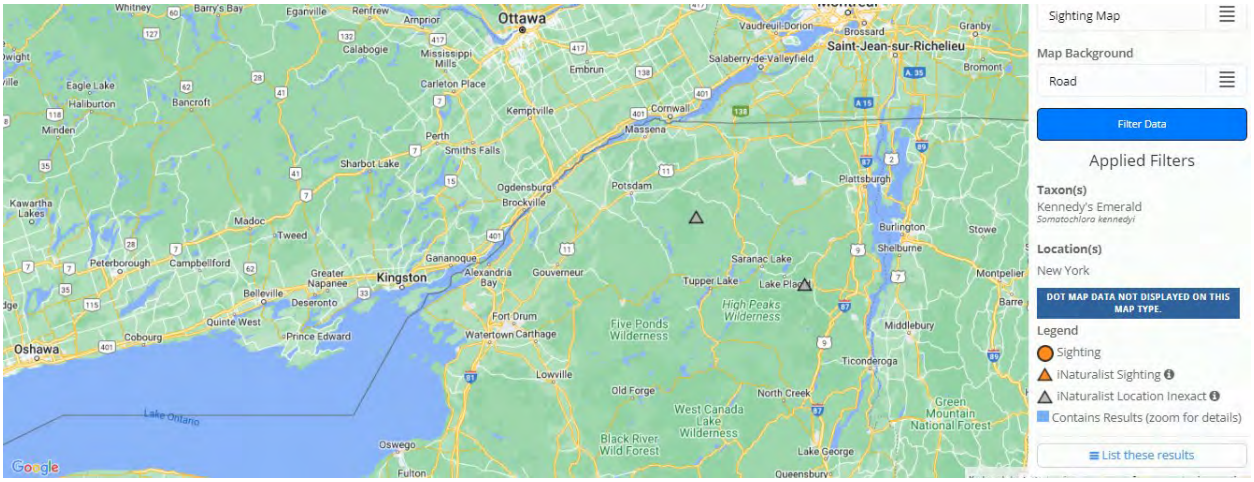

Figure 5. Distribution of the Kennedy's Emerald in NY according to OdonataCentral records (Abbott 2024).

Table 1. Number of observations of *Somatochlora kennedyi* grouped by the dates known to be extant (repeat observations (element occurrences) include the years spanning first observation to last observation) and the number and percent of total of counties these observations fall within for New York State.

Years	# of Records	# of Counties	% of State
Pre-2005	2	2	1-3%
2005-2009	0	0	?
2010-2023	3-4	2-3	3%

Details of historic and current occurrence:

There is at least one record from Albany County and one record for St. Lawrence County pre-2005 (White et al. 2010). There were no confirmed records during the NYDDS (White et al. 2010). One record in 2010 was observed in Essex County and one was observed in 2014 from Columbia County (NYNHP 2024). Two additional photographic records from Essex County and one from Franklin County were documented in recent years (iNaturalist 2024). The Franklin County one is less certain as it was a female.

If it occurs in 2/62 counties, that is very roughly about 3% of the state, though the occupied area of those counties is rather small. There are likely additional undocumented populations in northern NY and the % of the state can be estimated to be 1-3% currently.

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	~1000 mi

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):

Freshwater Marsh and Mixed-hardwood northern swamp

Marshy shore of Warm to cool, Oligo-Mesotrophic, Circumneutral open water

a. Size/Waterbody Type: Creek

b. Geology: Moderately Buffered, Neutral

c. Temperature: Transitional Cool

d. Gradient: Very Low

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/ Increase
Unknown	Unknown	Unknown	Unknown

Column options
Habitat Specialist and Indicator Species: Yes; No; Unkown; (blank) or Choose an item
Habitat/Community Trend: Declining; Stable; Increasing: Unkown; (blank) or Choose an item

Habitat Discussion:

Kennedy's Emerald is known to breed in large bog ponds, sedge fens, small fen pools, and open wetlands (fens, marshes, or swamps) (Jones et al. 2008, IUCN 2024). The 2010 site in NY is a low gradient creek with a marshy, grassy area along the shore (NYNHP 2024).

V. Species Demographics and Life History

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/ Catadromous?
Yes			Yes	Yes	

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):

Adults fly from late May to late July and sometimes into August (Jones et al. 2008).

VI. Threats

From NYS DEC 2005: "Little published information is available citing specific cases of negative impacts to bog/fen odonates, but any activities which degrade the sensitive hydrology of these habitats would threaten populations of these species. Examples include peat mining, ditching, filling, eutrophication and changes in dissolved oxygen content, direct effects of pesticides (e.g. for mosquito control or from agricultural runoff), and increases in the sediment load of the wetland (such as might result should logging occur down to the wetland edge). Natural succession could also threaten some sites as shallow pools fill in with vegetation over time." There is estimated to be impacts from road run-off at the Essex County site and agricultural run-off at the Columbia County site.

Threat Category	Threat	Scope	Severity	Irreversibility
1. Climate Change & Severe Weather	Habitat Shifting & Alteration	P	L	V
2. Climate Change & Severe Weather	Temperature Extremes	P	H	V
3. Pollution	Industrial & Military Effluents (acid rain, mercury)	P	L	M
4. Climate Change & Severe Weather	Droughts	P	M	V

Table 2. Threats to *Somatochlora kenneydyi.*

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:

The Freshwater Wetlands Act provides protection for wetlands greater than 12.4 acres in size under Article 24 of the NYS Conservation Law. The Adirondack Park Agency has the authority to regulate smaller wetlands within the Adirondack Park.

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

Any efforts to reduce siltation from forestry disruption of habitats, reduce alteration of the bogs in activities such as peat mining, salt run-off from roadways, chemical pollution, and any ditching and filling activities should be considered when managing for this species (Massachusetts Natural Heritage Endangered Species Program 2023, NYS DEC 2005, New York Natural Heritage Program 2023b).

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for odonates of bogs, fens, and ponds, and for the incurvate emerald in particular.

Habitat monitoring:

____ Support and encourage habitat monitoring efforts that would complete the baseline assessment of habitat quality and threats.

Habitat research:

____ Support and encourage research projects that will help define preferred habitat in order to guide future monitoring, restoration and habitat protection efforts.

New regulation:

____ Recommendations for official state endangered, threatened, and special concern listing are an anticipated result of the statewide inventory. It is expected that at least a few species will be recommended for listing and officially adding these species to the list would constitute a specific action.

Population monitoring:

____ Conduct surveys to obtain repeatable, relative abundance estimates for these species at known sites and newly discovered sites where access permission to conduct surveys is obtained (as indicated in the State Wildlife Grant Odonate Inventory Project).

Table 3. Recommended conservation actions for *Somatochlora kennedyi*.

Action Category	Action
Land/water protection	1.1. Site/area protection
Land/water protection	1.2. Resource & habitat protection
Land/water management	2.1. Site/area management
Land/water management	2.2. Invasive/problematic species control
Land/water management	2.3. Habitat & natural process restoration
Education & awareness	4.2. Training
Education & awareness	4.3. Awareness & communications
Law & policy	5.2. Policies and regulations

VII. References

This SSA drew heavily from these resources:

New York Natural Heritage Program, State University of New York College of Environmental Science and Forestry. 2023. Element Occurrence and Element Dataset. Albany, New York. [Exported 12/14/2023].

NatureServe. 2023. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. http://www.natureserve.org/explorer. [Accessed 12/14/2023].

Additional references:

Abbott, J.C. 2006-2024. OdonataCentral: An online resource for the distribution and identification of Odonata. Available at https://www.odonatacentral.org/. (Accessed: 3/11/2024).

Donnelly, T. W. 1999. The dragonflies and damselflies of New York. Prepared for the 1999 International Congress of Odonatology and 1st Symposium of the Worldwide Dragonfly nAssociation., Colgate University, Hamilton, NY.

Gawler, S.C. 2008. Northeastern Terrestrial Wildlife Habitat Classification. NatureServe,Boston, MA.

iNaturalist. Available from https://www.inaturalist.org. Accessed March 11, 2024.

IUCN 2024. IUCN Red List of Threatened Species. Version 2023.1. <www.iucnredlist.org>. Accessed 11 March 2024.

Jones, C. D., A. Kingsley, P. Burke, and M. Holder. 2008. Field guide to the dragonflies and damselflies of Algonquin Provincial Park and the surrounding area. The Friends of Algonquin Park, Whitney, Ontario.

Massachusetts Natural Heritage Endangered Species Program. 2023. Incurvate Emerald Fact Sheet. https://www.mass.gov/doc/subarctic-darner/download?_ga=2.222917019.1413571888.1703017646-1980088601.1682429854&_gl=1*1mdgtjj*_ga*MTk4MDA4ODYwMS4xNjgyNDI5ODU0*_ga_MCLPEGW7WM*MTcwMzAxNzY2MS4yLjAuMTcwMzAxNzY2MS4wLjAuMA. Accessed December 19, 2023.

NatureServe. 2024. NatureServe Network Biodiversity Location Data accessed through NatureServe Explorer [web application]. NatureServe, Arlington, Virginia. Available https://explorer.natureserve.org/. (Accessed: March 11, 2024).

New York State Department of Environmental Conservation. (2005). *New York State Comprehensive Wildlife Conservation Strategy*. Albany, NY: New York State Department of Environmental Conservation.

Northeast Fish and Wildlife Diversity. 2024. Regional Species of Greatest Conservation Need (2024). https://northeastwildlifediversity.org/rsgcn. Accessed March 11, 2024.

White, E. L., J. D. Corser, and M. D. Schlesinger. 2010. The New York dragonfly and damselfly survey 2005-2009: Distribution and status of the odonates of New York. New York Natural Heritage Program, Albany, New York.

White, E.L., J.D. Corser, P.D. Hunt, P. DeMaynadier, and M.D. Schleshinger. 2015. Prioritizing Odonata for conservation action in the northeastern USA. Freshwater Science (34): 1079-1093.

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