Species Status Assessment

Common Name: Subarctic bluet **Date Updated:** January 2, 2024

Scientific Name: *Coenagrion interrogatum* **Updated By:** Erin L. White

Class: Insecta

Family: Coenagrionidae

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

The subarctic bluet (Coenagrion interrogatum) ranges from Alaska and the Yukon Territory eastward across Canada to Newfoundland, Labrador, and Nova Scotia. In the U.S., it has been confirmed in the northern reaches of the following states: Washington, Montana, Wisconsin, New York, Vermont, New Hampshire, and Maine (Abbott 2010) but it is predominantly a Canadian bluet. The species does not appear to occur north of the arctic treeline (Cannings and Cannings 1997, Corbet 2003). New York lies at the absolute southern end of its range, with documentation from two locations in Franklin County in 1993 in the vicinity of Paul Smiths (Donnelly 1999). No records resulted from searches during the New York State Dragonfly and Damselfly Survey (NYDDS) (White et al. 2010).

C. interrogatum is found in open fens, bogs, bog-bordered ponds, and marshes with cool water and most commonly, where abundant floating aquatic moss such as Sphahnum spp. is present (Jones 2005, Fleckenstein 2006, Wisconsin Odonata Survey 2009, DuBois et al. 2005, Cannings and Cannings 1997).

I. Status

a. Current legal protected Status

i. **Federal:** Vulnerable **Candidate:** No

ii. **New York:** Not Listed

b. Natural Heritage Program

i. **Global:** G5

ii. **New York:** S1 **Tracked by NYNHP?:** Yes

Other Ranks:

-NYS 2025 SGCN Status: High Priority Species of Greatest Conservation Need

-IUCN Red List: Least Concern

-Northeast Regional Rank (White et al.2015): R4, shared responsibility

Status Discussion:

White *et al.* (2010) calculated a revised S-rank of S1.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown	Last assessment US 1985; Canada 2012		-
Northeastern US	Yes	Unknown	Increasing	Pre and post 2000	R4	No
New York	Yes	Unknown	Unknown	Pre and post 2005	S1; HPSGCN	No
Connecticut	No	-	-			-
Massachusetts	No	-	-			-
New Jersey	No	Unknown	Unknown	Does not appear to have ever occurred there		No
Pennsylvania	No	-	-			-
Vermont	Yes	Unknown	Unknown		S1	Yes
Ontario	Yes	Unknown	Unknown		S4	-
Quebec	Yes	Stable	Stable		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):*

With two records for the state in 1993 in Franklin County and one record from post-2005 in Essex County, it is impossible to suggest a population trend for New York. The fact that the species was not found during the NYDDS may well be from insufficient search efforts in appropriate habitat, rather than a loss of the species from the two sites where it had been found (Paul Novak, pers. comm.). Most

targeted rare odonate surveys in bogs occur July and later, which would miss the June window for this species.

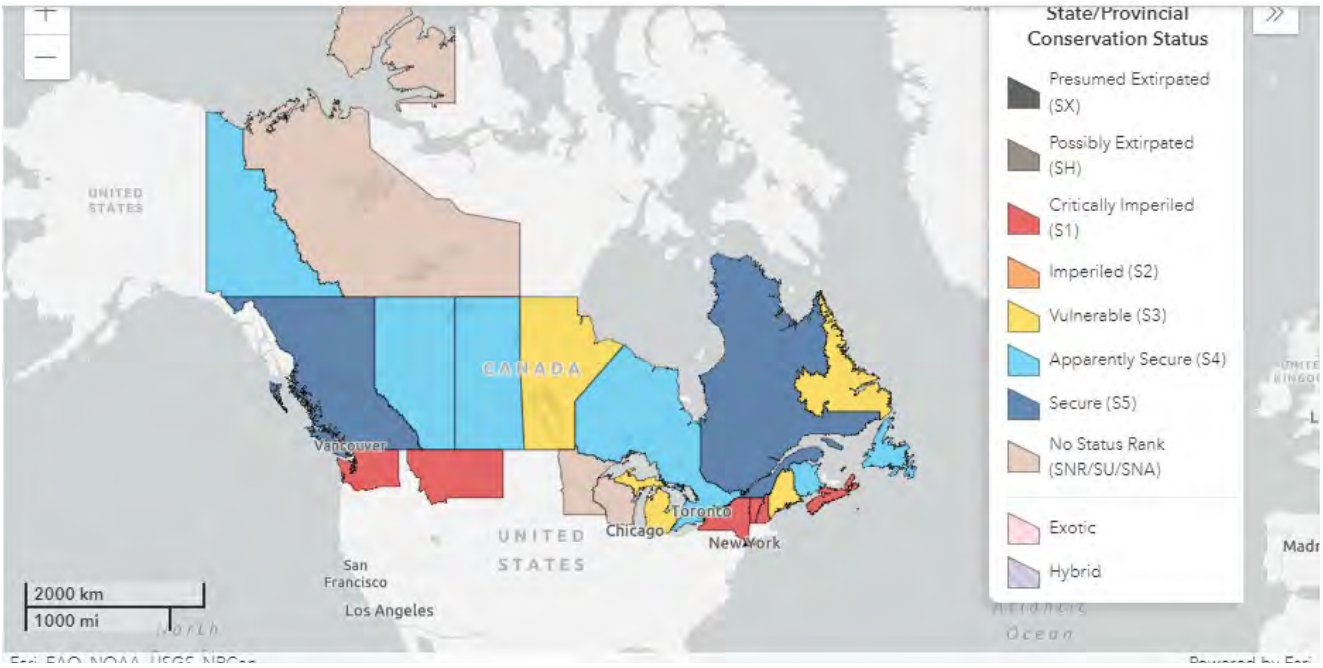

Figure 1. Conservation status of the Subarctic Bluet in North America (NatureServe 2023).

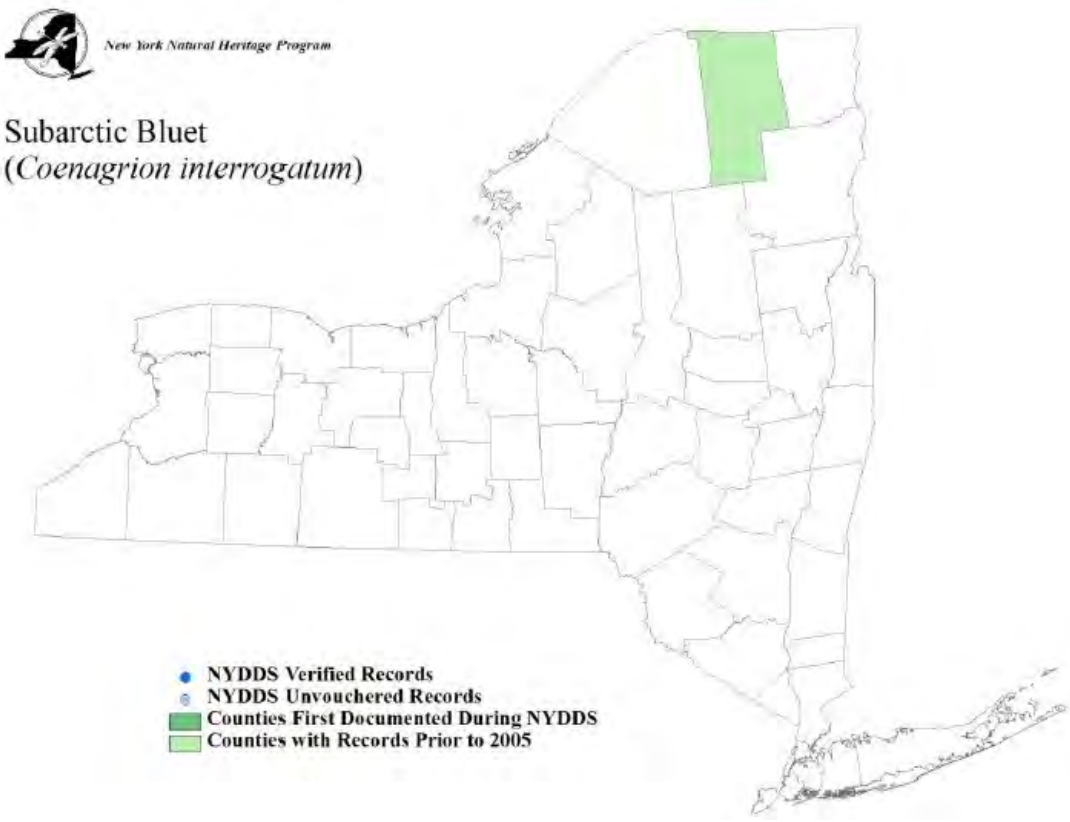

Figure 2. Occurrence record of the Subarctic Bluet in New York during the NYDDS (White *et al.* 2010).

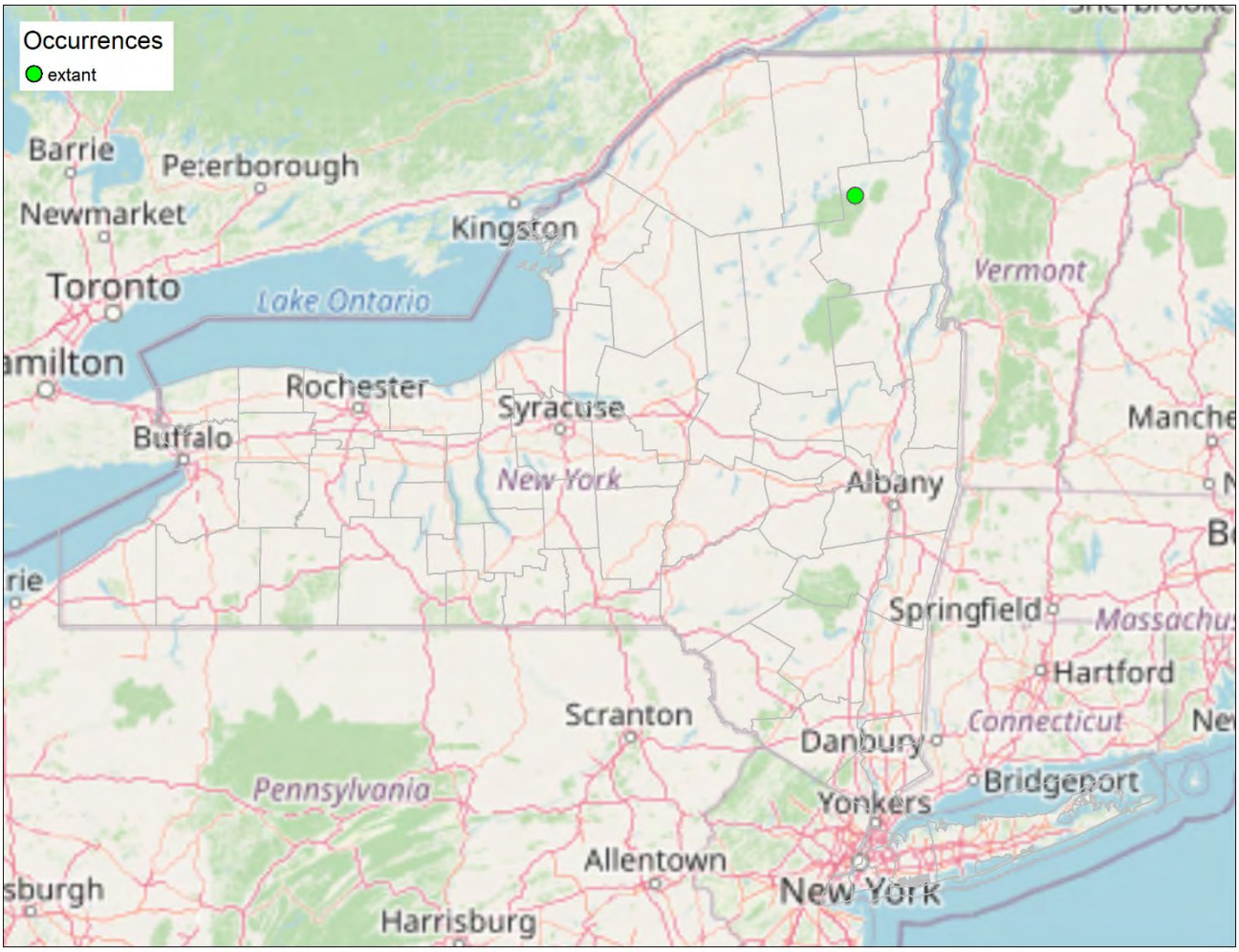

Figure 3. NYNHP element occurrence records for the subarctic bluet in New York (NYNHP 2023).

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

C. interrogatum is primarily a Canadian bluet, with a large range from Alaska and the Yukon Territory eastward across Canada to Newfoundland, Labrador, and Nova Scotia. New York is the very southern extent of its range (White *et al.* 2010).

Years	# of Records	# of Counties	% of State
Pre-2004	2	1	<1%
2005-2009	0	0	<1%
2010-2023	1	1	<1%

Table 1. Records of subarctic bluet in New York.

Details of historic and current occurrence:

Two observations of adults of this northern species occurred in Franklin County in 1993. One record is from the Visitors Interpretive Center, 1 mile north of Paul Smith's College on 12 June 1993. The second record was from Chain Lake, 6 miles north of Paul Smith's on 19 June 1993 (Donnelly 1999). These appear to not be mapped in the Element Occurrence Database. Some unsuccessful search effort was made at one of these sites during the NYDDS (2005-2009), but it is possible the species still occurs at one or both sites, as well as other suitable habitats within the Adirondacks. Most targeted rare odonate surveys in bogs occur July and later, which would miss the window for this species. There is one new record from June 15, 2011 in Essex County at a mixed hardwood swamp on the Chubb River (NYNHP 2023).

There were no records found in Abbott 2023 or iNaturalist 2023.

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	~450 mi from stable core

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):*

1. Boreal Forested Peatland
2. Open Acidic Peatlands
3. Mixed Hardwood Swamp

Habitat or Community Type Trend in New York

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 subarctic bluet is found in a variety of wetlands, but is most common around floating aquatic moss. In southern part of range, it is only found at high altitudes (Fleckenstein 2006). Walker (1953) specifically mentions cold swamps and quaking bogs surrounding sphagnum ponds. The latter habitat would be a good description of the two sites in New York.

V. Species Demographic, 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):*

The flight period of a single adult is relatively short - one week to probably less than a month. The species overwinters as larvae. Depending on conditions, individuals probably spend only one winter as larvae, because their marsh habitat may dry up and get very warm. Larvae feed on aquatic animals, probably exclusively invertebrates, while adults feed on flying invertebrates, probably mostly insects. NatureServe (2023) designates sightings more than 3 kilometers apart as separate populations, but little is known about dispersal and colonization ability. This species is not a very strong flier but may be able to colonize sites a few kilometers apart. Upon emergence from the larval stage, tenerals probably stay near the water rather than dispersing for a time as some other species do. Eggs are laid in a slot the female cuts in an aquatic plant (Fleckenstein 2006).

Lam (2004) shows mid June-late September for a flight season for Maine and early June-late July for Ontario. New York records have all been from mid-June (Donnelly 1999, NYNHP 2023).

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

Range-wide, the species faces few immediate threats. Global warming could threaten populations at the southern extent of the range, such as those in New York.

Other potential threats include peat mining, grazing of wetlands, manipulation of water levels, recreation and recreational development, and management of aquatic vegetation. Fish management is less of a threat than with some species because this is a bog/fen inhabitant. Any alteration to the hydrology of wetland habitat from logging or road development is a potential threat (Fleckenstein 2006).

Threats to NY Populations	
Threat Category	**Threat**
1. Climate Change & Severe Weather	Habitat Shifting & Alteration

2. Climate Change & Severe Weather	Temperature Extremes
3. Pollution	Industrial & Military Effluents (acid rain, mercury)
4. Climate Change & Severe Weather	Droughts

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:

Specific management/conservation actions or needs have not been identified for this species.

Surveys are needed to continue to determine if the two Franklin County sites are still extant as well as to look for new sites.

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2006) includes recommendations for the following actions for odonates of bogs, fens, and ponds, and for the subarctic bluet 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.

Conservation Actions	
Action Category	**Action**
1. Land/Water Protection	Resource and habitat protection
2. Land/Water Protection	Site/area protection
3. Land/water management	Site/area management
4. Land/water management	Habitat & natural process restoration
5. Land/water management	Invasives/problematic species control
3. Education and Awareness	Awareness & Communications
3. Education and Awareness	Training
4. Law and Policy	Policies and Regulations

Table 3. Recommended conservation actions for subarctic bluet

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