

Species Status Assessment

Class: Insecta
Family: Coenagrionidae
Scientific Name: *Enallagma minusculum*
Common Name: Little bluet

Species synopsis:

The distribution of the little bluet (*Enallagma minusculum*) encompasses North Carolina, the northeastern United States, and southeastern Canada (Nikula *et al.* 2003). More specifically, the species is found in North Carolina, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, and Prince Edward Island (NatureServe 2012, Abbott 2007). In New York, *E. minusculum* is now known to occur at three locations, two in Suffolk County and one in Queens County (New York Natural Heritage Program 2010). The species is known to inhabit ponds and lakes with sandy substrate, mainly coastal plain ponds with emergent vegetation along the shoreline (Carpenter 1991, Lam 2004).

I. Status

a. Current Legal Protected Status

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

ii. **New York** Threatened: SGCN

b. Natural Heritage Program Rank

i. **Global** G4

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

Other Rank:

IUCN Red List— Least Concern

Status Discussion:

White *et al.* (2010) suggests that the status remain S1 (5 or fewer occurrences, or few remaining acres or miles of stream, or factors demonstrably making it especially vulnerable to extinction rangewide or in New York State).

II. Abundance and Distribution Trends

a. North America

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Time frame considered: Last assessment US 2006, Canada 2012

b. Regional

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Regional Unit Considered: Northeast

Time Frame Considered: Last assessment 2006

c. Adjacent States and Provinces

CONNECTICUT **Not Present** **No data**

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Time frame considered: _____

Listing Status: Special Concern **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? Yes

NEW JERSEY Not Present X _____ No data _____

ONTARIO Not Present X _____ No data _____

PENNSYLVANIA Not Present X _____ No data _____

QUEBEC Not Present X _____ No data _____

VERMONT Not Present X _____ No data _____

d. NEW YORK Not Present _____ No data _____

i. Abundance

_____ declining _____ increasing _____ stable X unknown

ii. Distribution:

 X declining _____ increasing _____ stable _____ unknown

Time frame considered: 2005-2009

Monitoring in New York.

Most ponds known to support, formerly support, or in close proximity to such ponds, were surveyed as part of a special project portion of the New York State Dragonfly and Damselfly Survey (NYSDDS) from 2005-2009. Given that this species may exist at a single pond in New York State, with significant threats; at minimum, some type of periodic monitoring of Wildwood Lake is warranted.

Trends Discussion:

The population at one Suffolk County location was estimated to have excellent viability in 2009, with an estimated 868 individuals observed (New York Natural Heritage Program 2011, White *et al.* 2010). Population estimates have not been made for other sites (two other Suffolk County locations where they may no longer be present and one Queens County location which is largely uninvestigated at present). Information on the species prior to the late 1990s is very limited, with documented observations at just two sites prior to 1995 (Donnelly 1999, New York Natural Heritage Program 2011).

Recent observations since 1995 have been noted in Suffolk and Queens county sites and the species had been observed at one of three extant sites prior to 1926 (New York Natural Heritage Program 2011). Little bluets were documented historically at two additional sites on Long Island, but have not been seen there in recent years and long-term information regarding population size is not available prior to the late 1990s (Donnelly 1999, New York Natural Heritage Program 2011). Observations are fairly recent and long-term trends are unclear, but the apparent disappearance at some sites indicates a decline in site occupancy at the very least.

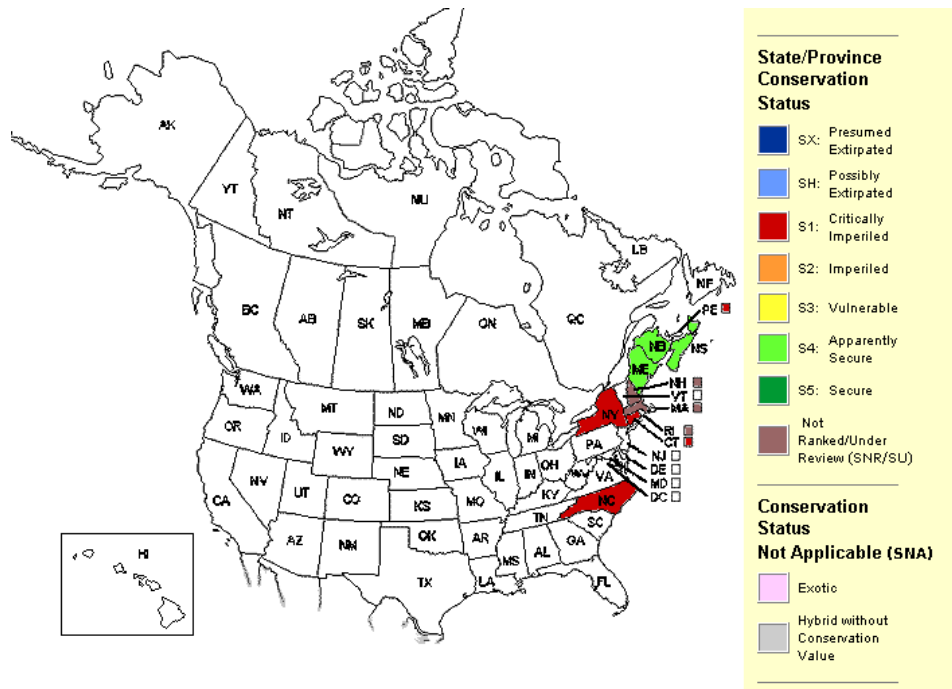


Figure 1. Conservation status of the little bluet in North America (NatureServe 2012).

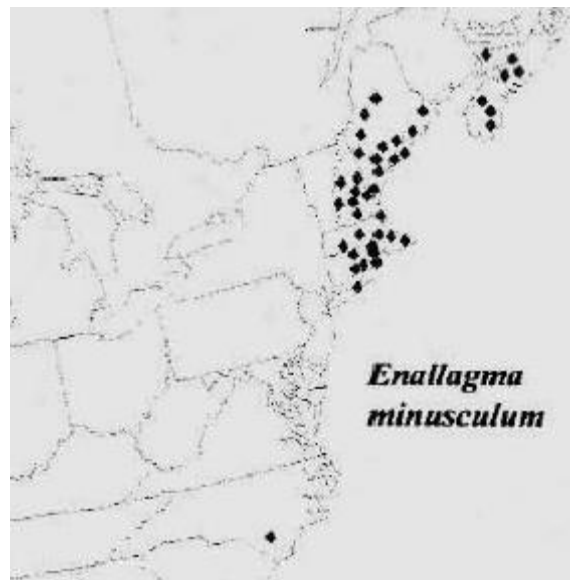


Figure 2. Distribution of the little bluet in the United States (Donnelly 2004).

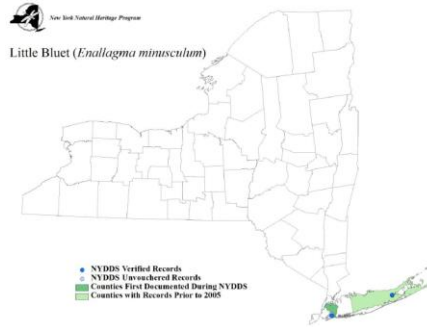


Figure 3. Occurrence records of the little bluet in New York (White *et al.* 2010).

III. New York Rarity, if known:

Historic	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
prior to 1970	_____	2	_____
prior to 1980	_____	_____	_____
prior to 1990	_____	_____	_____

Details of historic occurrence:

Wading River and Long Pond (Donnelly 1992)

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
	_____	3/4	_____

Details of current occurrence:

- 1993 Lake Panamoka (but not found in 2007 or 2009)
- 2008 Big Johns Pond
- 2009 Wildwood Lake Riverhead: 868 individuals observed

Second number of occurrences obtained from the map by White *et al.* (2010) using data collected during The New York Dragonfly and Damselfly Survey 2005-2009.

New York's Contribution to Species North American Range:

Distribution (percent of NY where species occurs)

Abundance (within NY distribution)

0-5%

abundant

6-10%

common

11-25%

fairly common

26-50%

uncommon

>50%

rare

NY's Contribution to North American range

0-5%

6-10%

11-25%

26-50%

>50%

Classification of New York Range

Core

Peripheral

Disjunct

Distance to nearest population:

~300 mi

Rarity Discussion:

In New York, *E. minusculum* has been documented in three locations in Suffolk and Queens counties (New York Natural Heritage Program 2011). A number of sites with suitable habitat were searched during the New York Dragonfly and Damselfly Survey (2005-2009), but even with increased effort looking for the species in recent years, only three locations are known in the state (White *et al.* 2010) and at least one of these may no longer be occupied.

IV. Primary Habitat or Community Type:

- 1. Lacustrine, coastal plain, sand/gravel bottom

Habitat or Community Type Trend in New York:

Declining ___ Stable ___ Increasing ___ Unknown

Time frame of decline/increase: short-term and long-term

Habitat Specialist? Yes ___ No

Indicator Species? ___ Yes No

Habitat Discussion:

E. minusculum inhabit ponds and lakes with sandy substrate, mainly in coastal plain areas with emergent vegetation along the shoreline (Carpenter 1991, Lam 2004), although the recently completed new Hampshire Dragonfly Survey (Hunt 2012) found them occurring far north of the coastal plain in New Hampshire. The largest Long Island population is known from a coastal plain pond which contains the following emergent plants: three-square bulrush (*Schoenoplectus pungens*), jointed rush (*Juncus articulatus*), many-flowered pennywort (*Hydrocotyle umbellata*), seven-angle pipewort (*Eriocaulon aquatic*), and golden hedge-hyssop (*Gratiola aurea*). The pond is surrounded by a wooded upland as well as residences (New York Natural Heritage Program 2010).

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:

Females oviposit in floating or emergent vegetation on ponds while "in tandem" or coupled with males after mating (Nikula *et al.* 2003). This behavior is not unique to this species, but not all damselflies do this. This strategy reduces competition from other males: A male ensures that other males cannot mate with a female before she lays her eggs (New York Natural Heritage Program 2011).

In Maine, the flight season is from mid-June through late August (Brunelle and deMaynadier 2005), while New Hampshire flight dates run from May 27 through August 23 with the majority of the records from the beginning of July through the first third of August (Hunt 2012). Connecticut reports adults from early June through mid-August (Lam 2004) and New York dates for confirmed observations span from 4 June to 14 July (New York Natural Heritage Program 2010).

VI. Threats:

The habitat of the largest population of *E. minusculum* in New York (Suffolk County) is surrounded by residential development and is used for recreation, where trampling of pond vegetation has been observed (New York Natural Heritage Program 2011). In 2009, invasive Asiatic clams (*Corbicula corbicula*) were found at this location and monitoring the site every two years with a threat assessment is suggested (White *et al.* 2010). Any activity that causes water contamination or the alteration of natural hydrology could impact *E. minusculum* populations (NYS CWCS 2006). Such threats might include roadway and agricultural run-off, ditching and filling, eutrophication and nutrient loading from fertilizers and septic systems, changes in dissolved oxygen content, and development (NYS DEC 2005). Groundwater withdrawal is a potential threat in lentic habitats on Long Island, as are invasive plant species replacing native plants required for oviposition (New York Natural Heritage Program 2011). Both emergence rates and/or species ranges may shift for odonate species as a result of climate change (Kalkman *et al.* 2008).

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

No Unknown
 Yes

The little bluet is listed as a threatened species in New York and is protected by Environmental Conservation Law (ECL) section 11-0535 and the New York Code of Rules and Regulations (6 NYCRR Part 182). A permit is required for any proposed project that may result in a take of a species listed as Threatened or Endangered, including, but not limited to, actions that may kill or harm individual animals or result in the adverse modification, degradation or destruction of habitat occupied by the listed species.

The Freshwater Wetlands Act provides protection for wetlands greater than 12.4 acres in size under Article 24 of the NYS Conservation Law.

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 roadway and agricultural run-off, eutrophication, development of upland borders to ponds and resulting increased groundwater withdrawal, invasive plant and animal species, trampling of vegetation from recreation, and ditching and filling activities should be considered when managing for *E. minusculum* (NYS CWCS 2006, White *et al.* 2010). Maintenance or restoration of native shoreline vegetation and surrounding upland habitat at Wildwood Lake and Lake Panamoka will benefit this species, as females require native emergent vegetation for successful reproduction and spend much of their time in upland habitats away from the breeding pond (Gibbons *et al.* 2002, White *et al.* 2010).

Further inventory is needed to define the extent of populations of little bluets in New York. In particular, gaining certainty on whether they still occur at lake Panamoka and better information on the Queens County site are needed. In addition, research is required to understand the habitat requirements and threats to this species. In particular, the impact of the newly arrived invasive Asiatic clam (*Corbicula corbicula*) at a Suffolk county site should be evaluated through monitoring and a threat assessment (White et al. 2010). A recovery plan for the species should be developed and appropriate management guidelines should be adopted for its persistence in known locations (NYS DEC 2005).

Conservation actions following IUCN taxonomy are categorized in the table.

Conservation Actions	
Action Category	Action
Education and Awareness	Awareness & Communications
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 and Natural Process Restoration

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for odonates of coastal lakes and ponds, and for the little bluet in particular.

Educational signs:

- ___ Educate the public not to introduce fish into historically fishless coastal plain ponds or new species of fish into coastal plain ponds where the species did not historically occur.

Habitat management:

- ___ Reduce or eliminate detrimental ATV use in and around coastal plain ponds supporting state threatened damselflies.
- ___ Where possible, remove introduced fish or other aquatic animals that may be detrimental to odonate populations through excessive predation on larvae.
- ___ Where possible, remove invasive, non-native plants from ponds and adjacent uplands that may significantly impact larval and adult odonate survival and reproduction.

Habitat monitoring:

- ___ Identify existing and potential locations of public water supply wells and ensure that present and future water withdrawals will not alter the normal range of variation of ground and pond water elevation.
- ___ Support and encourage habitat monitoring efforts that would complete the baseline assessment of habitat quality and threats.
- ___ Identify existing and potential sources of invasive species (including fish).

- Compile existing baseline data on habitat quality and threats. Include pond water quality (pH, conductivity, nutrients, toxins), pond hydrographs (fluctuations in water level with time), presence of fish, presence of characteristic native plants and invasive species, history of ATV use, history of pesticide spraying for mosquito control, extent of upland habitat around each pond.

Habitat research:

- Support and encourage research that would increase knowledge of the impact of poorly known threats to odonates (e.g. water quality degradation, atmospheric deposition, invasive species, pesticide spraying).
- Support and encourage research projects that will help define preferred habitat in order to guide future monitoring, restoration and habitat protection efforts. Include both pond and adjacent upland habitats.

Habitat restoration:

- Wherever possible, fill in non-natural, deep water-retaining holes in coastal plain ponds.
- Identify existing and potential sources of nutrients, toxins, and other chemicals originating from human activities and reduce/eliminate/prevent these where possible.

Modify regulation:

- Ensure that aerial pesticide spraying does not occur over or in close proximity to ponds and adjacent uplands that support these state listed damselflies during the period of adult emergence and flight.
- Modify regulations to provide expanded protection for uplands adjacent to coastal plain ponds that support state threatened damselflies.

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).

Statewide baseline survey:

- Conduct surveys for these species at potential sites throughout the state (expected range for these species is Long Island and Lower New England ecoregion, possibly Westchester County only). These species are known from fewer than 10 locations in the state, but new populations probably remain to be discovered for all of the species. A currently approved, but not yet begun State Wildlife Grant Statewide Odonate Inventory Project will utilize volunteers, Natural Heritage Program and other staff to conduct these surveys.

VII. References

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