Species Status Assessment

Class: Insecta
Family: Coenagrionidae
Scientific Name: *Enallagma pictum*
Common Name: Scarlet bluet

Species synopsis:

The scarlet bluet (*Enallagma pictum*) has a small range which extends only from New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, and southern Maine. In New York, there are 10 known locations in Suffolk County (New York Natural Heritage Program 2010). These locations were investigated as part of a special NYSDDS effort but due to the species' Threatened status in the state, the locations were not listed in the final report (New York Natural Heritage Program 2010).

E. pictum is found at acidic, sandy, coastal plain ponds with water lillies (Nikula *et al.* 2003, Lam 2004). Preferred habitat also typically has bayonet rush (*Juncus militarus*) along the shoreline (Gibbons *et al.* 2002, New York Natural Heritage Program 2010). In Cape Cod, Gibbons *et al.* (2002) found that *E. pictum* occurs mainly in habitats with white water lily (*Nymphaea odorata*). Most known habitats in New York include water lillies, pickerelweed, shorelines of emergent grasses, rushes, or sedges, or boggy margins (New York Natural Heritage Program 2010).

In New York, *E. pictum* has been confirmed in ten locations in Suffolk County (New York Natural Heritage Program 2011). In addition to a restricted range, there are a number of threats to these locations. New locations in recent years are likely due to increased survey effort rather than a population increase or expansion.

I. Status

a. Current and Legal Protected Status

i. Federal ___Not listed_____ **Candidate?** __No___

ii. New York ___Threatened; SGCN_____

b. Natural Heritage Program Rank

i. Global _____G3_____

ii. New York _____S2_____ **Tracked by NYNHP?** __Yes___

Other Rank:
IUCN Red List— Near threatened

Status Discussion:

White *et al.* (2010) calculated a revised draft S-rank of S2 from S1.

II. Abundance and Distribution Trends

a. North America

i. Abundance

____ declining ____increasing ____stable __X__ unknown

ii. Distribution:

____ declining ____increasing ____stable __X__ unknown

Time frame considered: ____Last assessment 1998 _____

b. Regional

i. Abundance

____ declining ____increasing ____stable __X__ unknown

ii. Distribution:

____ declining ____increasing __X__ stable _____ unknown

Regional Unit Considered: _____Northeast_____
Time Frame Considered: ____Last assessment 1998 _____

c. Adjacent States and Provinces

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

i. Abundance

____ declining ____increasing ____stable __X__ unknown

ii. Distribution:

____ declining ____increasing ____stable __X__ 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: _____Threatened_____ SGCN? __Yes___

NEW JERSEY **Not Present _____** **No data _____**

i. Abundance

____ declining ____increasing ____stable __X__ unknown

ii. Distribution:

____ declining ____increasing ____stable __X__ unknown

Time frame considered: _____
Listing Status: _____Conservation Concern_____ SGCN? ___Yes____

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 **No data _____**

i. Abundance

____ declining ____increasing ____stable __X__ unknown

ii. Distribution:

____ declining ____increasing __X__ stable _____ unknown

Time frame considered: _____2005-2009_____

Monitoring in New York.

The New York State Dragonfly and Damselfly Survey (NYSDDS) was conducted from 2005-2009.

Trends Discussion:

Trend information for this species is unknown.

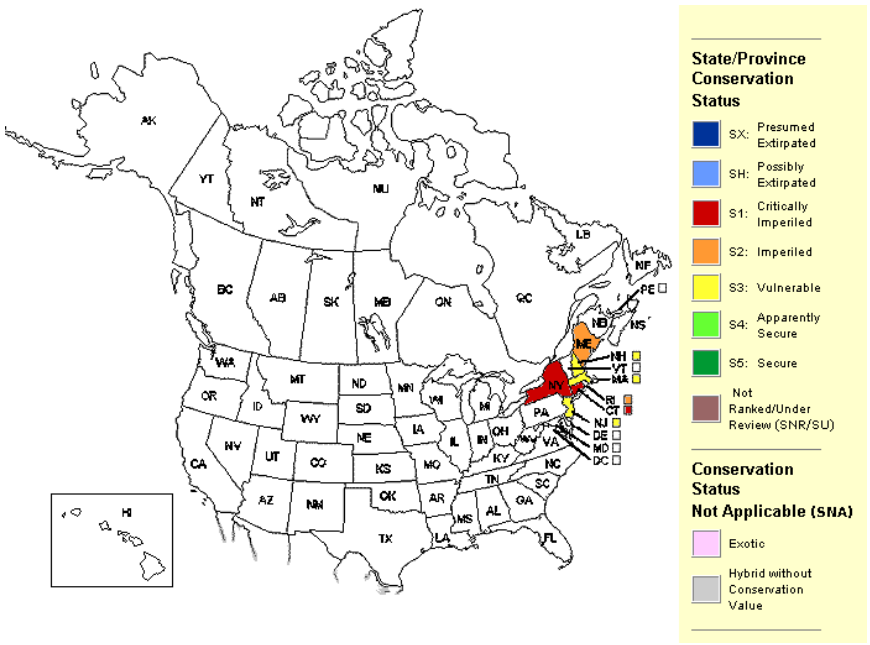

Figure 1. Conservation status of the scarlet bluet in North America (NatureServe2012).

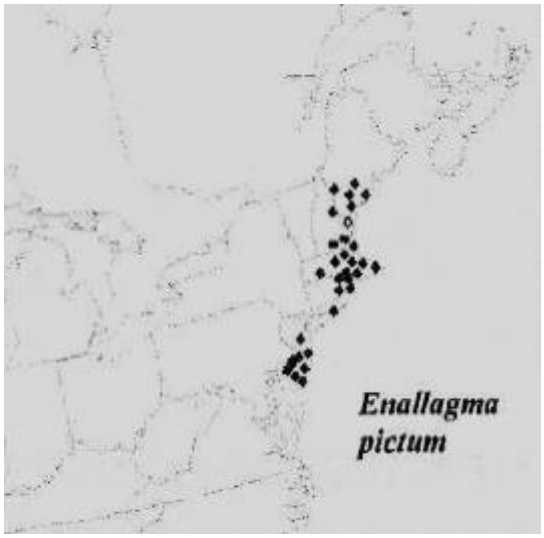

Figure 2. Distribution of the scarlet bluet in the United States (Donnelly 2004).

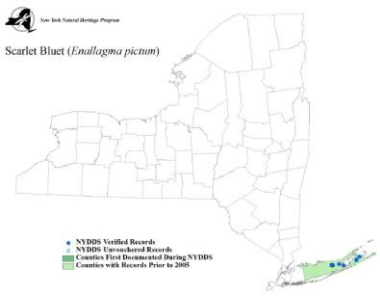

Figure 3. Occurrence records of the scarlet bluet in New York (White *et al.* 2010).

III. New York Rarity, if known:

Historic	# of Animals	# of Locations	% of State
prior to 1970	_____	_____	_____
prior to 1980	_____	_____	_____
prior to 1990	_____	_____	_____

Details of historic occurrence:

There are no historical occurrence records for this species.

Current	# of Animals	# of Locations	% of State
	_____	15	5%

Details of current occurrence:

From The New York Dragonfly and Damselfly Survey 2005-2009. Number of occurrences obtained from map by White *et al.* 2010.

New York's Contribution to Species North American Range:

Distribution (percent of NY where species occurs)

_X_ 0-5%

____ 6-10%

____ 11-25%

Abundance (within NY distribution)

___ abundant

___ common

_X_ fairly common

____ 26-50%

____ >50%

___ uncommon

___ rare

NY's Contribution to North American range

____ 0-5%

_X__ 6-10%

____ 11-25%

____ 26-50%

____ >50%

Classification of New York Range

__X__ Core

_____ Peripheral

_____ Disjunct

Distance to core population:

____N/A_____

Rarity Discussion:

Population estimates have been made in recent years as part of a special effort during the New York Dragonfly and Damselfly Survey from 2005-2010 (White *et al.* 2010). Of the ten sites where *E. pictum* is known to currently occur, eight sites are estimated to have good or excellent viability (New York Natural Heritage Program 2011). Some sites are in close proximity to each other, and the ten sites may be grouped into five pond complexes. Between 10-100 individuals were estimated in at least one pond from each of these complexes since 2005. Three of the complexes contained at least one pond with over 100 individuals, and there was one pond with over 1,000 individuals estimated in recent years (New York Natural Heritage Program 2011). Recent information on the species prior to 2005 is very limited, with records going back to 1989 at three of the sites. New locations in recent years are likely due to increased survey effort rather than a population increase or expansion and may serve as baseline information to look at future trends.

Recent observations since 1989 have been noted at Suffolk County sites and the species had been observed at one additional historical location prior to 1913 (New York Natural Heritage Program 2011). Observations are fairly recent and long-term trends are unclear.

IV. Primary Habitat or Community Type:

1. Estuarine, acidic coastal plain pond, sandy bottom

Habitat or Community Type Trend in New York:

__X__ Declining ____Stable ____ Increasing ____Unknown

Time frame of decline/increase: _____

Habitat Specialist? __X__ Yes _____ No

Indicator Species? _____ Yes __X____ No

Habitat Discussion:

E. pictum is found at acidic, sandy, coastal plain ponds with water lillies (Nikula *et al.* 2003, Lam 2004). Preferred habitat also typically has bayonet rush (*Juncus militarus*) along the shoreline (Gibbons *et al.* 2002, New York Natural Heritage Program 2010). In Cape Cod, Gibbons *et al.* (2002) found that *E. pictum* occurs mainly in habitats with white water lily (*Nymphaea odorata*). Most known habitats in New York include water lillies, pickerelweed, shorelines of emergent grasses, rushes, or sedges, or boggy margins (New York Natural Heritage Program 2010).

V. New York Species Demographics and Life History

__X__ Breeder in New York

__X__ Summer Resident

_____ Winter Resident

_____ Anadromous

_____ Non-breeder in New York

_____ Summer Resident

_____ Winter Resident

_____ Catadromous

_____ Migratory only

_____Unknown

Species Demographics and Life History Discussion:

E. pictum is active throughout the day. Males are often found in the shade of leaning sedge stems during hot midday. Most perch on sedge stems but also on lily pads. They often form tandem pairs in the afternoon. Nymphs feed on aquatic invertebrate; adults feed on flying insects (Paulson 2011).

The species has a flight season from mid-May through mid-September. Most records were documented in New York in mid-July before and during the NYDDS and it is known to fly in the state from 17 June through 27 July (Donnelly 1999, NYNHP 2010). Flight dates in New Jersey are longer, from mid-May to mid-September and at their northern range extent in Maine, scarlet bluets are known to fly from early July to late August (Brunelle and Maynadier 2005, Bangma and Barlow 2010).

VI. Threats:

Threats to *E. pictum* at Long Island sites include residential development and the resulting groundwater withdrawal, as well as invasive species such as *Phragmites* on pond shores which crowd out native emergent rushes and floating plans that are required for successful reproduction (New York Natural Heritage Program 2010). According to the Massachusetts NHESP (2003), maintaining natural habitats in the upland areas surrounding the ponds is essential to this species' conservation, as newly emerged adults use these areas as refuge for maturing, roosting, and feeding.

Any activity which might lead to water contamination or the alteration of natural hydrology could impact *E. pictum* populations (NYS DEC 2005). Such threats might include roadway and agricultural run-off, ditching and filling, eutrophication and nutrient loading from fertilizers, herbicides, and septic systems, changes in dissolved oxygen content, and development near their habitats (NYS DEC 2005). Groundwater withdrawal is a potential threat in lentic habitats on Long Island, as are invasive plant species replacing native plants like white water lily, which are essential to *E. pictum* for oviposition (New York Natural Heritage Program 2011). The introduction of grass carp is also a threat to coastal plain ponds on Long Island. In addition, 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

__X__ Yes

The scarlet 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.

Article 15 of Environmental Conservation Law provides protection of rivers, streams, lakes and ponds through the Protection of Waters Program. The Tidal Wetlands Act provides protection for all tidal wetlands under Article 25 of the NYS Conservation Law.

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 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 this species (NYS DEC 2005, White *et al.* 2010). Maintenance or restoration of native shoreline vegetation and surrounding upland habitat 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). Many of the known sites on Long Island are located within or on preserves or protected lands, but the above listed threats might be present on adjacent lands.

Further monitoring is needed to define the extent of populations of *E. pictum* in New York. In addition, research is required to understand the habitat requirements and threats to this species. 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 in particular for the scarlet bluet.

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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