

Species Status Assessment

Common Name: Russet-tipped clubtail **Date Updated:** January 11, 2024

Scientific Name: *Stylurus plagiatu* **Updated By:** Erin L. White

Class: Insecta

Family: Gomphidae

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

From White et al. 2010: The center of distribution of the russet-tipped clubtail (*Stylurus plagiatu*) “is in the southern forest and grassland ecoregion along the Kansas/Oklahoma border. It reaches its northern extent in eastern New York. The northeastern-most occurrence in its range is on the Mohawk River very near its confluence with the Hudson (Hemeon 2007). Pre-NYDDS records (Donnelly 2004) are from this location southward along the Hudson to its mouth. However, NYSDDS records were concentrated in Greene, Columbia, and southern Albany counties, pointing to an important [meta]population in this vicinity. There is an older record from Lake George but despite searching, no recent records from that location. Further inventory is needed along southern Lake Champlain and westward along the Mohawk River where the habitat appears suitable for population expansion along the northern edge of this presumably temperature-limited species (Corser 2010).

In the main part of its range, *S. plagiatu* primarily inhabits larger rivers but, also smaller creek tributaries and even lakes and reservoirs with sandy and/or silty bottoms, into which the larvae burrow (Dunkle 2000). In New York, it is a habitat specialist species, almost exclusively inhabiting forested tidal mudflat communities along the Hudson River and short stretches of tidal tributaries (Corser 2010).”

Appropriate habitat includes smaller rivers and medium-sized forested trout streams with intermittent riffles and rapids (Walker 1958) and sandy/mucky bottoms with slow to moderate flow (White et al. 2010).

I. Status

a. Current legal protected Status

i. **Federal:** Not Listed _____ **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): R3 Vulnerability, Shared Responsibility

Status Discussion:

White *et al.* (2010) suggests that the status remain S1. This will likely not change based on current information. Due to it's restricted range and habitat in NY and threats, this species is HPSGCN.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining	Last assessment US 1985; Canada 2011		-
Northeastern US	Yes	Unknown	Increasing	Pre and post 2000		No
New York	Yes	Unknown	Declining	Pre and post 2005	S1; SGCN	Yes
Connecticut	No	-	-			-
Massachusetts	No	-	-			-
New Jersey	Yes	Unknown	Unknown		S4	No
Pennsylvania	Yes	Unknown	Unknown		S2S3; SGCN	Yes
Vermont	No	-	-			-
Ontario	Not Detected	Declining	Declining		SH	-
Quebec	No	-	-			-

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 (NYDDS) was conducted from 2005-2009. Some regular monitoring occurs at protected sites that Heritage staff revisit as part of OPRHP or State Lands inventory work.

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

Recent survey efforts suggest the known range of this species occurs along the Hudson River and it's tributaries in seven counties (2005 to present). It no longer appears to be present in southern NY and Long Island and it's range has contracted, suggesting a declining trend post 2005 from previous records (Donnelly 2004, iNaturalist 2024, White *et al.* 2010).

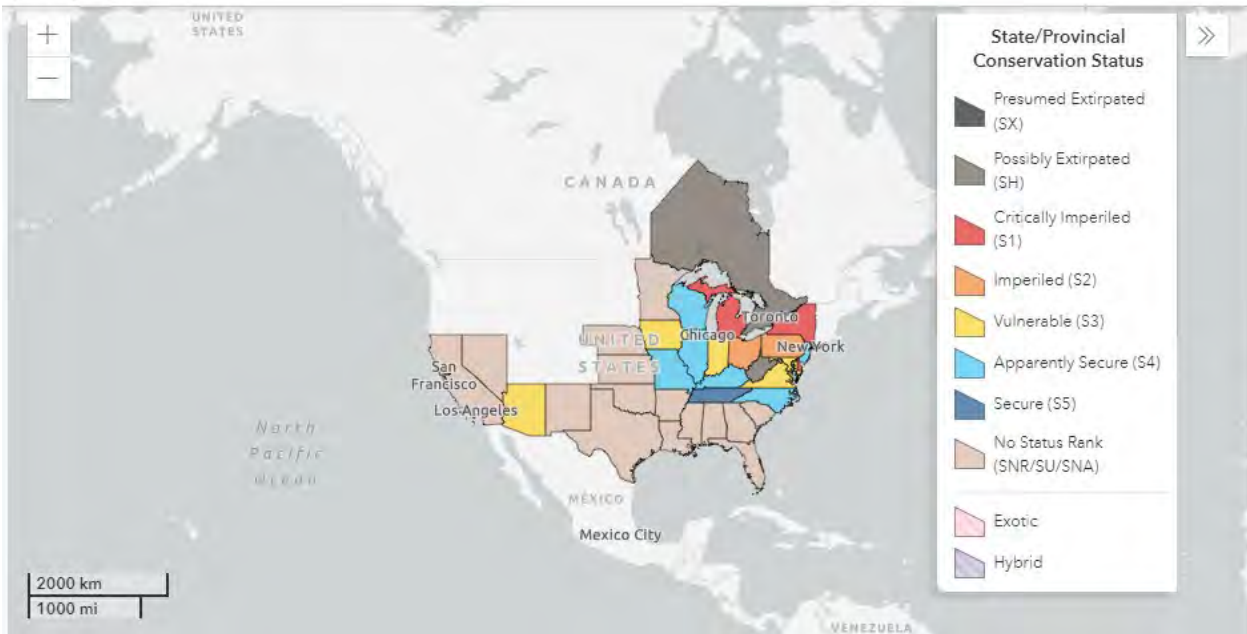


Figure 1. Conservation status of the russet-tipped clubtail in North America (NatureServe 2024).

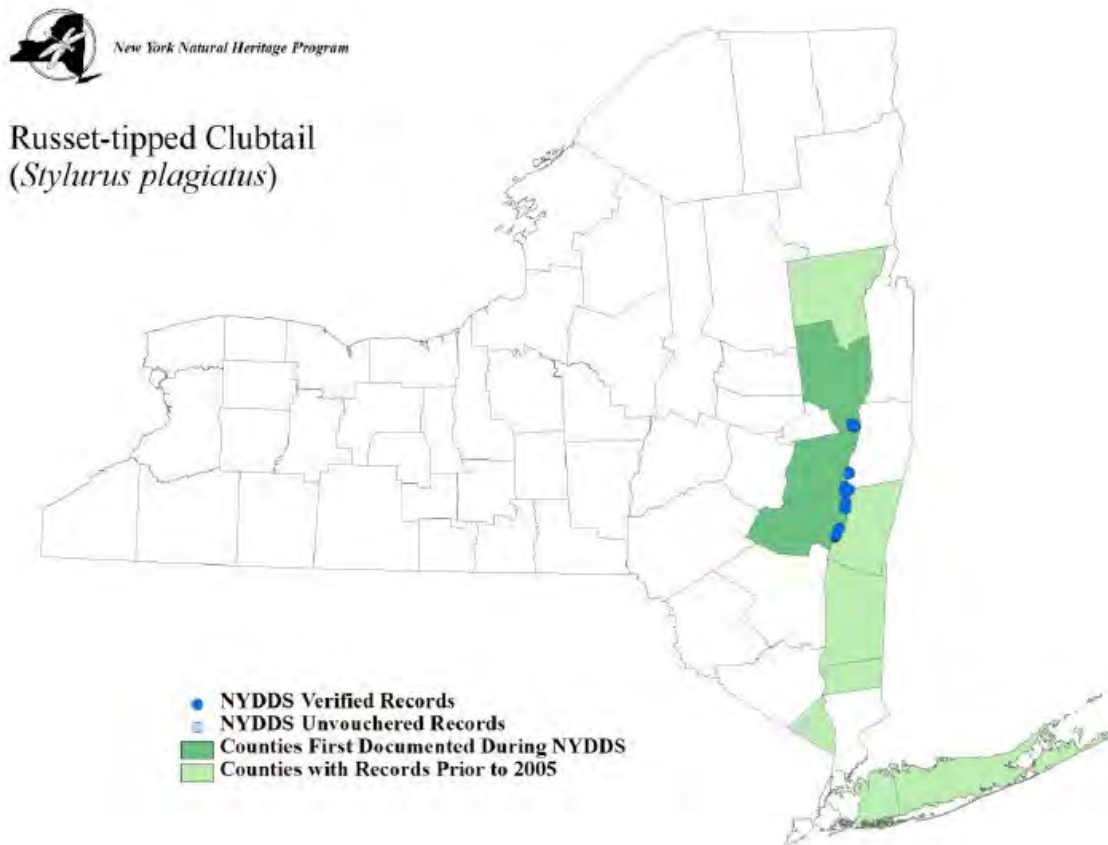


Figure 2. Occurrence record of the Russet-tipped Clubtail in New York during the NYDDS (White *et al.* 2010).

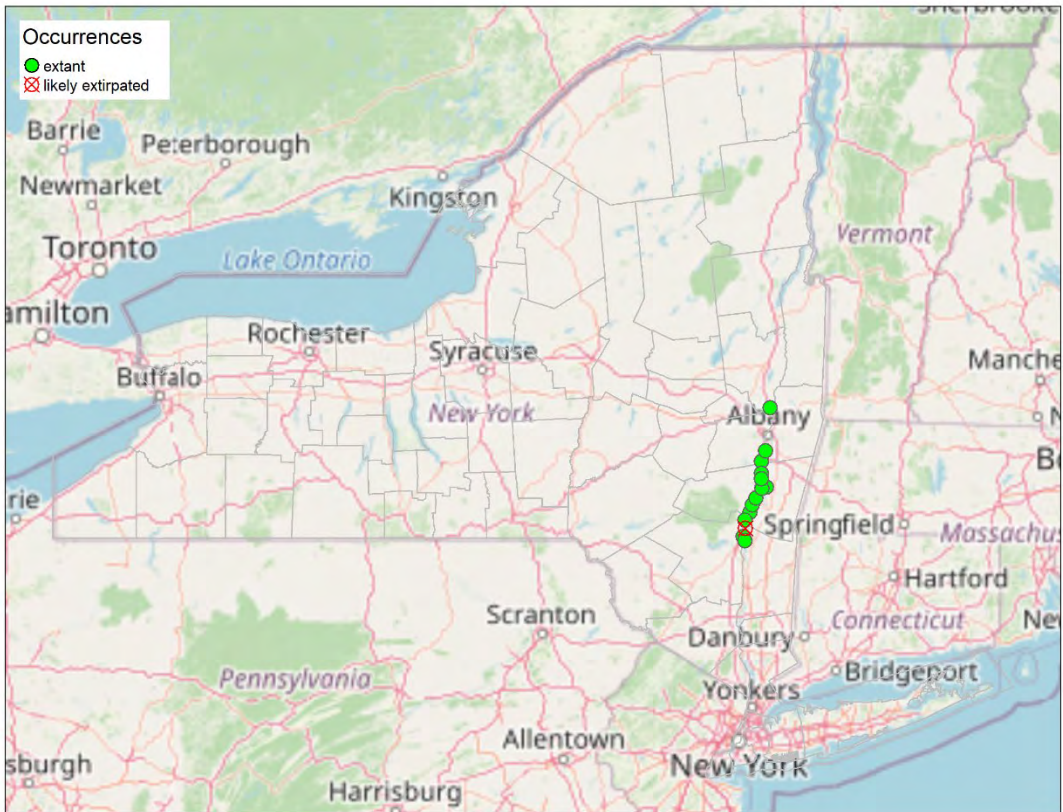


Figure 3. NYNHP element occurrence records for the Russet-tipped Clubtail in NY (NYNHP 2024).

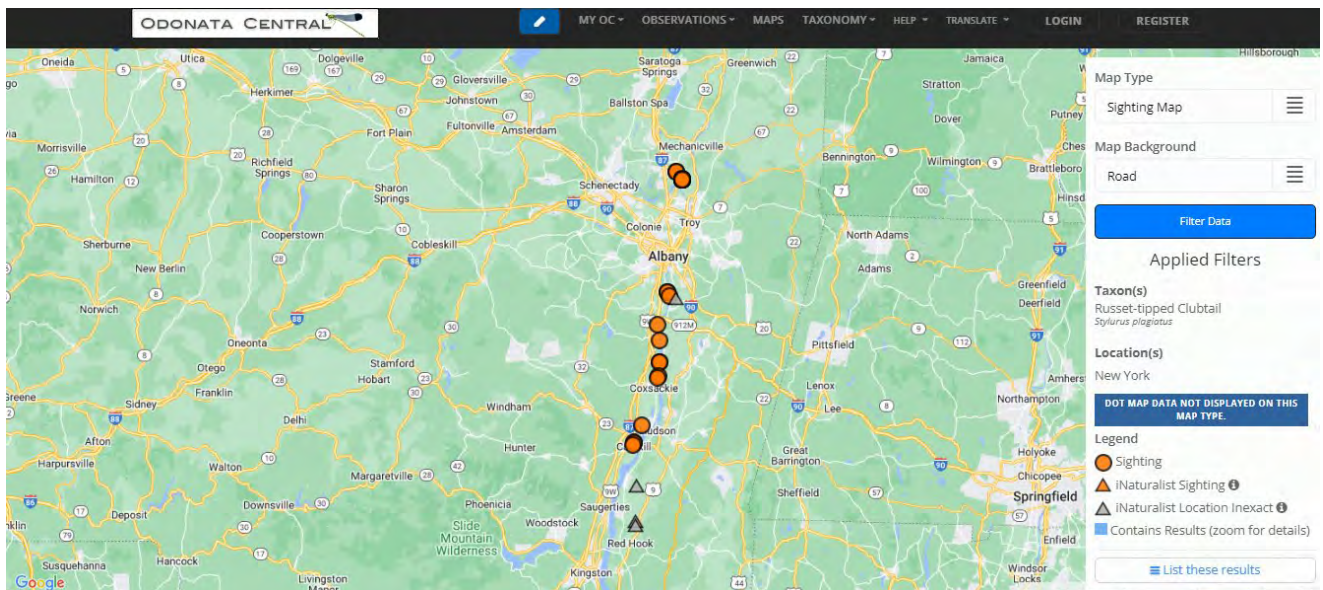


Figure 4. Distribution of the russet-tipped clubtail in New York (Abbott 2024).

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

Years	# of Records	# of Counties	% of State
Pre-2004	at least 7	7	~5-11%
2005-2009	4	4	1-6%
2010-2023	11-14	5	1-10%

Table 1. Records of russet-tipped clubtail in New York.

Details of historic and current occurrence:

Pre-2005, Russet-tipped Clubtails were known from seven counties in the eastern and southern portion of the state (Donnelly 2004). During the NYDDS, records were confirmed in four counties (Greene, Albany, Rensselaer, and Saratoga) and populations were found on the Hudson River and some of its tributaries (White et al. 2010). Since 2010, there are confirmed observations from 5 counties in NY (Ulster, Greene, Dutchess, Columbia, and Rensselaer) (Abbott 2024, iNaturalist 2024). I reviewed the seven iNaturalist records and they appear valid. As many exact locations are obscured to me on iNaturalist, I am unable to determine if multiple records from a county will be the same EO (or if these are breeding locations), so left a range of possible EOs in # of records above (Abbott 2024, iNaturalist 2024, NYNHP 2024).

If it occurs in 5/62 counties, that is very roughly about 10% of the state, though the occupied area of those counties would be smaller and the species is really just known from the Hudson River and environs.

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	~900 miles

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. Riverine, tidal mudflats
2. Riverine, tidal tributaries

- a. Size/Waterbody Type:** Great River, Large River
- b. Geology:** Moderately Buffered
- c. Temperature:** Transitional Warm
- d. Gradient:** Very Low

Habitat or Community Type Trend in New York

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

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

Large Rivers were found to have moderate-low vulnerability in the Northeast (White et al. 2015), but potential habitat is very limited within the species historical range in NY.

Habitat Discussion:

S. plagiatus inhabits rivers, streams, and large lakes with sandy substrate (Walker 1958, Dunkle 2000). Larvae are aquatic and found in the water during this life stage, whereas adults are terrestrial and are found in habitats surrounding streams, rivers and lakes. In New York, the russet-tipped clubtail is a habitat specialist species, almost exclusively inhabiting forested tidal mudflat communities along the Hudson River and short stretches of tidal tributaries (Corser 2010).

V. Species Demographic, and Life History:

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

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):

S. plagiatus is thought to spend most of its time in trees when not at water. “Males are often seen hanging vertically in trees or less often in a more horizontal position, especially when on leaves.” They are active throughout the day (Paulson 2011).

“Sexual patrol is in back-and-forth flight over breeding habitats, usually over riffles and typically hovering. Females oviposit in rapid flight, tapping open water at long intervals” (Paulson 2011). Larvae bury deeply into the sand or silt substrates of pools. Newly emerged adult males disperse to surrounding woodlands and during breeding, patrol streams where they frequently land on banks, logs, rocks, sand/cobble bars, and shoreline vegetation (Massachusetts NHESP 2003). Females are rarely observed at all (Walker 1958) and mating pairs are usually in trees well above head height (Paulson 2011). The full flight season in New York runs for approximately 10 weeks; exuviae were found from 30 June through mid-September. This is similar to the flight season in Maine (Brunelle and deMaynadier 2005), Massachusetts (Massachusetts NHESP 2003), Wisconsin (Wisconsin Odonata Survey 2009) and Pennsylvania (Evans 2002).

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

Any activity that might lead to water contamination or the alteration of natural hydrology could impact *S. plagiatus* populations (NYS DEC 2025). However, in New Hampshire, this species is persisting in a heavily altered river (P. Hunt, personal communication).

The russet-tipped clubtail was classified as “not vulnerable/presumed stable” (PS) to predicted climate change in an assessment of vulnerability conducted by the New York Natural Heritage Program. Available evidence does not suggest that abundance and/or range extent within the geographical area assessed with change (increase/decrease) substantially by 2050. Actual range boundaries may change (Schlesinger et al. 2011).

Threats to NY Populations	
Threat Category	Threat
1. Residential & Commercial Development	Housing & Urban Areas (habitat loss)
2. Climate Change & Severe Weather	Storms & Flooding
3. Pollution	Household Sewage & Urban Waste Water (poor water quality)
4. Transportation & Service Corridors	Shipping Lanes (channel dredging)
5. Residential & Commercial Development	Commercial & Industrial Areas (habitat loss/degradation from development, esp. south of Albany)

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:

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. 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 water contamination, hydrological alteration, and surrounding upland development of rivers, streams, and large lakes should be considered when managing for this species (NYS DEC 2005).

Further research is needed to define the distribution and population size of *S. plagiatus*. In addition, research is required to understand the habitat requirements and threats to this species, and to create appropriate management guidelines for its persistence in known locations (NYS DEC 2005). Cascadilla and Fall Creeks in Cayuga and Tompkins County in central New York should be surveyed because in the mid 1950s, many larvae were collected and reared from the vicinity of McClean and Ellis (Donnelly 1999) and the species has been known from the upper Cascadilla since at least the 1920s

(Needham 1928). *S. plagiatu*s has likely disappeared from the southeast Lake Ontario watershed and west of the Adirondacks. Given the lack of records from Abbott (2024) and iNaturalist (2024), it likely has retracted to just a few counties along the Hudson River in NY.

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for odonates of rivers and streams, and for russet-tipped clubtail 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 concrete action. Four of the species are currently listed as Special Concern, but it is possible a change in their listing status may be warranted following additional surveys.

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 russet-tipped clubtail

VII. References

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