

Species Status Assessment

Class: Insecta
Family: Cicindelidae
Scientific Name: *Cicindela patruela patruela*
Common Name: Northern Barrens Tiger Beetle

Species synopsis:

The nominate form of the Northern barrens tiger beetle (*Cicindela patruela patruela*) occurs at inland pine barrens in the Midwest, extending southward to Georgia, and northward into southern New England (Pearson *et al.* 2006). There are only a handful of records from New England (Leonard and Bell 1999). This subspecies was presumed extirpated from New York until its rediscovery in 2004 at Sam's Point Preserve in the Shawangunk Mountains (Ulster County). Although this beetle has not been observed for decades in other reported localities, additional populations may be present elsewhere in the state (NYNHP 2011). Several historic sites were recently surveyed but, despite the presence of apparently suitable habitat at some locations, this species was not found (Schlesinger 2010).

I. Status

a. Current Legal Protected Status

- i. **Federal** Not Listed **Candidate:** No
- ii. **New York** Not Listed; SGCN

b. Natural Heritage Program Rank

- i. **Global** G3T3
- ii. **New York** S1 **Tracked by NYNHP?** Yes

Other Rank:

COSEWIC: Endangered (2009)

Status Discussion:

The single occurrence of this species in New York makes it highly vulnerable to extirpation, hence its Critically Imperiled state rank (Schlesinger 2010). It is ranked Vulnerable globally due to its

limited, and sometimes ephemeral habitat type and existence in small populations (NatureServe 2013).

II. Abundance and Distribution Trends

a. North America

i. Abundance

 X declining ___increasing ___stable ___unknown

ii. Distribution:

 X declining ___increasing ___stable ___unknown

Time frame considered: _____

Moderate decline

b. Regional

i. Abundance

 X declining ___increasing ___stable ___unknown

ii. Distribution:

 X declining ___increasing ___stable ___unknown

Regional Unit Considered: _____ Northeast _____

Time Frame Considered: _____

Moderate decline

c. Adjacent States and Provinces

CONNECTICUT Not Present _____ No data X

i. Abundance

____ declining ____increasing ____stable ____unknown

ii. Distribution:

____ declining ____increasing ____stable ____unknown

Time frame considered: _____

Listing Status: _____ SGCN? No

MASSACHUSETTS Not Present _____ No data X

i. Abundance

____ declining ____increasing ____stable ____unknown

ii. Distribution:

____ declining ____increasing ____stable ____unknown

Time frame considered: _____

Listing Status: _____ SGCN? No

NEW JERSEY Not Present _____ No data X

i. Abundance

____ declining ____increasing ____stable ____unknown

ii. Distribution:

____ declining ____increasing ____stable ____unknown

Time frame considered: _____

Listing Status: Extirpated SGCN? No

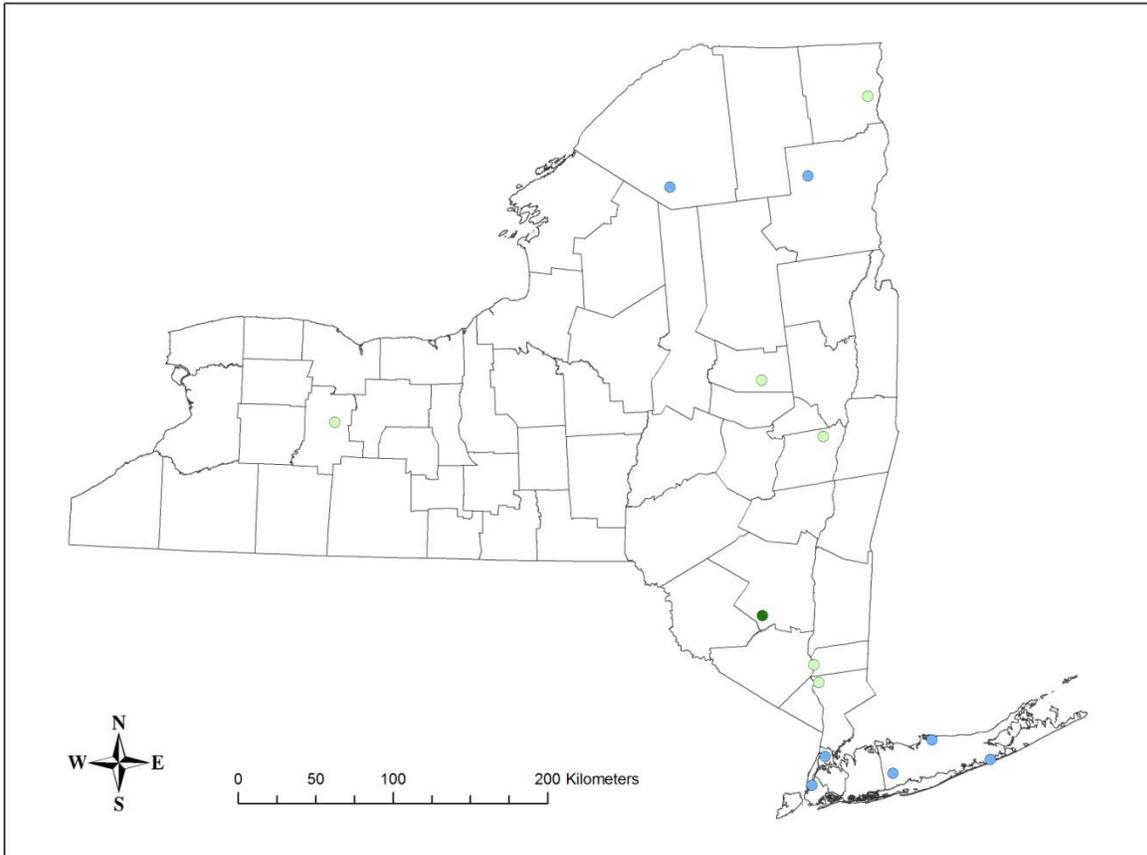


Figure 1. New York locations for *Cicindela patruela patruela* (light green: approximate historical locations; dark green: extant location) and *C. unipunctata* (light blue: approximate historical locations) (Schlesinger 2010).

III. New York Rarity, if known:

Historic (select one)	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
prior to 1970	_____	<u>7</u>	_____
prior to 1980	_____	_____	_____
prior to 1990	_____	_____	_____

Details of historic occurrence:

Historical occurrence records are as follows: Karner (Blueberry Hill), Albany County (pre-1928); Peekskill, Peekskill Mtn., Westchester County (1891); Plattsburgh, Clinton County (Cornell University Insect Collection); West Point, Orange County (pre-1928); Conesus Lake, Livingston

County (pre-1928); Crystal Lake (pre-1939); Gloversville, Fulton County (Cornell University Insect Collection).

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
	_____	_____	<u><1%</u>

Details of current occurrence:

An apparently substantial population exists at Sam’s Point in Ulster County and is likely more widespread than surveys would indicate (Schlesinger 2010). Recent occurrence records are from: Hogencamp Mountain (2008); Lake Awosting (2006); Schunnemunk Mountain (2007); Shawangunk Mountains (2008)- all locations in Orange County; and numerous locations at Sams Point (Sams Point Overlook, West Carriageway Rock Outcrops, East Carriageway 1 and East Carriageway 2, Lake Maratanza Path, Old Carriageway (2004-2007).

New York’s Contribution to Species North American Range:

Distribution (percent of NY where species occurs)

- 0-5%
- 6-10%
- 11-25%
- 26-50%
- >50%

Abundance (within NY distribution)

- abundant
- common
- fairly common
- uncommon
- rare

NY’s Contribution to North American range

- 0-5%
- 6-10%
- 11-25%
- 26-50%
- >50%

open ground exists, such as along trails, on outcrops, scree, or talus slopes, or on ridge summit openings dominated by lichens and dry mosses. Willis (2000) reviews habitats for the species as a whole and concludes "one nearly constant soil condition... is consolidated sandy soil nearby, usually covered by mosses" but much of his "oak-pine forest" (probably all in New Jersey) is actually woodlands (NatureServe 2011). Several references note an association with sandstone (Knisley and Schultz 1997).

In its single known occurrence in New York, the species persists in rocky and sandy sites with pitch pine and scrub oak vegetation. Individuals are most frequently found in sandy or rocky openings and sometimes escape into low vegetation. These locations include natural openings as well as old roads and restoration sites (NYNHP 2011).

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:

This is a spring-fall tiger beetle, with adults active in late May and June, and again in late August and September, although fall activity periods are reported to be reduced or absent in some populations (Knisley and Schultz 1997, Leonard and Bell 1999, Pearson et al. 2006). At the one known occurrence in New York, surveys have detected the species in late May, June, early July, August, and September. The larvae are present in burrows throughout the year, and the species has a two-year life cycle (Knisley and Schultz 1997, Leonard and Bell 1999, Pearson et al. 2006, NYNHP 2013).

VI. Threats:

Urbanization, disruption by recreation (off-road vehicle use), and suppression of natural fire regimes are likely causes of decline in this beetle. Urbanization reduces the quantity of suitable forest, while fire suppression reduces the size and abundance of forest openings frequented by tiger beetles.

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

No Unknown
 Yes

The single occurrence is on land owned, managed, and protected by The Nature Conservancy and the Office of Parks, Recreation & Historic Preservation, but this species and its specific habitat area are not protected. It is for the most part protected from off-road vehicles and other recreational activities that might compact larval burrows.

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

Reduce or eliminate detrimental ATV and other motor vehicle use in pine barrens habitats that support, or may support, this species. Restore fire and other natural disturbances that maintain or provide new openings in the beetle's pine barrens habitats (NYNHP 2013). Research that would increase knowledge of threats to this tiger beetle, as well as helping define preferred habitat in order to guide monitoring, restoration and habitat protection efforts is needed (NYNHP 2013). High-quality pine barrens areas on the Shawangunk Ridge should be the highest inventory priority and nearby rocky summits with pitch pine are also of high priority (NYNHP 2013).

Schlesinger (2010) recommends that this species be listed as Endangered in New York. Despite the single known occurrence of this species being on protected land, a listing of Endangered will allow the state the regulatory authority to manage for the beetle and its habitat should it be discovered on unprotected land or land on which fire management is not practiced (Schlesinger 2010). Schlesinger (2010) also recommends surveying the three historical locations that have yet to be surveyed- Peekskill, Gloversville, and Conesus Lake. Regular monitoring of the Sam's Point population, which could focus on documenting continued occupancy and possible estimates of population size using standardized sampling or mark-recapture study, would be a valuable investment (Schlesinger 2010).

Conservation actions following IUCN taxonomy are categorized in the table.

Conservation Actions	
Action Category	Action
Law and Policy	Policies and Regulations
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 Protection	Site/Area Protection

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for pine barrens tiger beetles, and for *Cicindela patruela patruela* in particular.

Habitat management:

- ___ Reduce or eliminate detrimental ATV use in barrens habitats that support, or may support, these species.

Habitat research:

- ___ Support and encourage research that would increase knowledge of threats facing these species of tiger beetles.
- ___ 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, or special concern listing are an anticipated result of the State Wildlife Grant Tiger Beetle Inventory. It is expected that one or more of the species will be recommended for listing and officially adding these species to the list would constitute a concrete action.

Population monitoring:

- ___ Conduct repeatable surveys for these species at a selected number of sites in order to monitor population trends over time.

Statewide baseline survey:

- ___ Conduct surveys for these species at potential sites throughout the state (expected range for two species is Long Island only. These species are known from fewer than 10 locations in the state, but new populations probably remain to be discovered for at least two of the species. A currently approved, but not yet begun State Wildlife Grant Tiger Beetle Inventory Project will utilize Natural Heritage Program staff and other biologists to conduct these surveys.

VII. References

- Knisley, C.B. and T.D. Schultz. 1997. The Biology of Tiger Beetles and a Guide to the Species of the South Atlantic States. Virginia Museum of Natural History Special Publication Number 5. Virginia Museum of Natural History: Martinsville, Virginia. 210 pp
- Leonard, J.G. and R.T. Bell. 1999. Northeastern tiger Beetles: A Field Guide to tiger Beetles of New England and Eastern Canada. CRC Press. NY, NY. 176 pp.
- NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: January 4, 2012).
- New York Natural Heritage Program. 2013. Online Conservation Guide for *Cicindela patruela patruela*. Available from: <http://www.acris.nynhp.org/guide.php?id=37144>. Accessed January 4th, 2012.
- Pearson, D.L., C.B. Knisley, and C.J. Kazilek. 2006. A field guide to the tiger beetles of the United States and Canada. Oxford University Press. NY, NY. 227 pp.
- Schlesinger, M.D. 2010. Rare Tiger Beetles of New York: Status and Conservation. New York Natural Heritage Report.
- Willis, Harold L. 2000. Collecting notes for *Cicindela patruela* in central Wisconsin. *Cicindela* 32(3-4): 49-54.

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