Species Status Assessment

Common Name: Two-spotted lady beetle **Date Updated:**

Scientific Name: *Adalia bipunctata* **Updated By:**

Class: Insecta

Family: Coccinellidae

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

Adalia bipunctata is 4-5 mm long and ovoid-shaped. The head and thorax are black with yellow markings. Elytra are orange-red, typically with 1 black spot on each (Street 2001). However, there are variations that include: four to six spots, transverse markings, or a black background (Marshall 2000). Undersides are black to reddish-brown. Larvae are soft-bodied, black with yellow and white spots, and elongate (Street 2001).

This lady beetle can be found in a variety of habitats if aphids or other small, soft-bodied insects are present (Street 2001). The Lost Ladybug Project (Cornell University 2013) reported *A. bipunctata* in gardens, yards/backyards, and woods/trees (non-orchard) in New York.

A. bipunctata is the only *Adalia* species in North America and was once considered the second most common lady beetle. It is also found in Europe and remains common there. Surveys since the 1980s indicate a population decline for this species, as with several other native lady beetles (Harmon et al 2007 and The Lost Lady Bug Project 2013). Stephens and Losey (2003) stated that this species has rarely been collected in recent years.

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:** S2 **Tracked by NYNHP?:** Yes

Other Ranks:

-IUCN Red List: not listed

-Northeast Regional SGCN: not listed

Status Discussion:

There are new locations in iNaturalist (2024) that need to be confirmed. The Heritage rank may need to be evaluated in the state.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Choose an item.	Choose an item.			Choose an item.
Northeastern US	Yes	Choose an item.	Choose an item.			Choose an item.
New York	Yes	Choose an item.	Choose an item.		Not listed, HPSGCN, S2	Yes
Connecticut	Yes	Choose an item.	Choose an item.		Not listed (reported on iNaturalist (2024))	Choose an item.
Massachusetts	Yes	Choose an item.	Choose an item.		Not listed (reported on iNaturalist (2024))	Choose an item.
New Jersey	No data	Choose an item.	Choose an item.			Choose an item.
Pennsylvania	Yes	Choose an item.	Choose an item.		Not listed (reported on iNaturalist (2024))	Choose an item.
Vermont	Yes	Choose an item.	Choose an item.		Not listed, SU	Choose an item.
Ontario	Yes	Choose an item.	Choose an item.		Not listed, S4S5	Choose an item.
Quebec	Yes	Choose an item.	Choose an item.		Not listed (reported on iNaturalist (2024))	Choose an item.

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):*

This species, as well as other lady beetles, are the target of a citizen science project known as The Lost Ladybug Project. Participants search for, photograph, and submit images and locations of ladybugs. I'm not aware of any regular surveys.

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

Abundant data are not available, but this species was once considered common and found throughout New York. The population appears to be lower now than in the early to mid-1900s. The decline went largely unnoticed until the 1980s. Reasons for the decline are unknown but could be because of multiple factors including habitat loss, competition with non-native species, insecticide use, pathogens,

and parasites. Decreases were noted after the arrival of *Coccinella septempunctata* and *Harmonia axyridis*. Recent observations indicate a range reduction New York. The species has been found in western and northern parts of the state (Cornell University 2013). Harmon et al (2007) stated that the population is likely at or near the detection threshold.

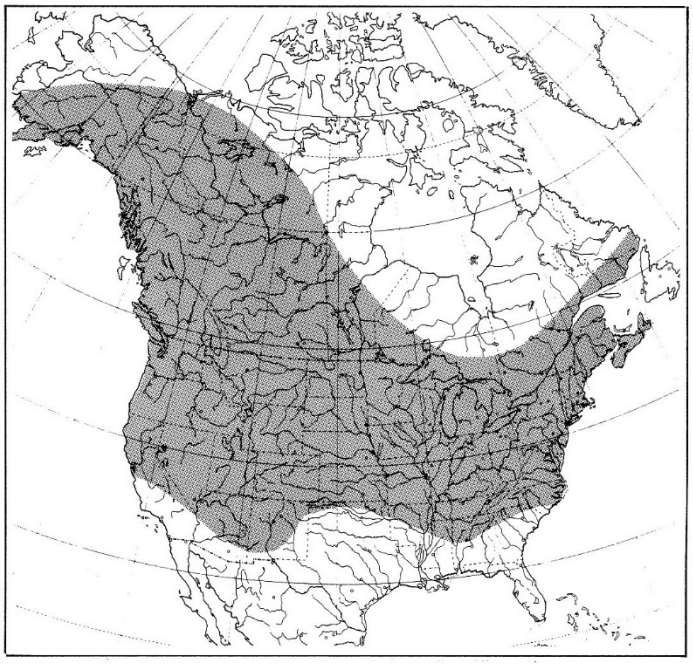

Fig. 638. Distribution. *Adalia bipunctata.*

Figure 1. *A. bipunctata* range map prior to decline (Gordon 1985)

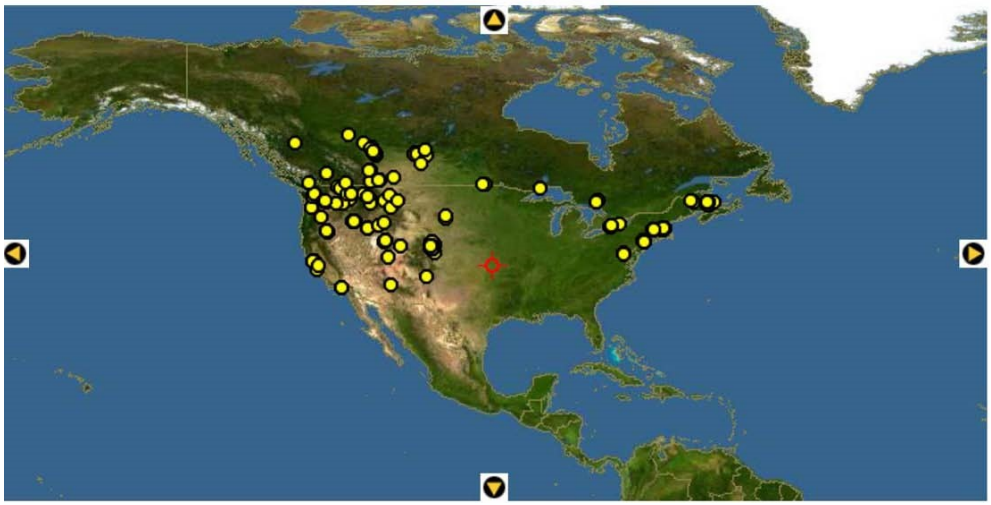

Figure 2. *A. bipunctata* range map 2000-2013 (Cornell University 2013)

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

Years	# of Records	# Counties	% of State
Pre-2013	6	3	<1%
2013-2023	?	?	?

Table 1. Records of *Adalia bipunctata* in New York.

Details of historic and current occurrence:

There are six known locations where approximately 25 individuals have been documented in Erie, Monroe, and Kings counties (Cornell University 2013).

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%	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):*

a. Urban/Suburban built (confirmed)

b. Agricultural (NLCD agricultural class 81-82) (not confirmed in NY)

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
No	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

(Stephens and Losey (2003) suggested lady beetles are a good indicator of ecological health because of their sensitivity to natural enemies and anthropogenic influences.)

Habitat Discussion:

Adalia bipunctata can be found in a variety of habitats as long as there are soft-bodied insects present, especially aphids. In New York, *A. bipunctata* have been found in gardens, yards/backyards, and woods/trees (non-orchard) between 2000 and 2013 (Cornell University 2013). Agricultural land has been declining in New York since the 1880s. Between 1940 and 1997, there was a 57% decline in farmed land in New York (Harmon et al. 2007). This species is also known to use wooded habitats.
"Stable" was selected above because one habitat type is decreasing (farmland) while the other is increasing (wooded areas).

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):*

A. bipunctata emerges in early to mid-spring. It takes less than one month to mature and they live for one to two years (Martinez 2006).
Interspecies depredation and cannibalism have been documented. *Perilitus coccinellae*, a braconid wasp, parasitizes lady beetles (Martinez 2006). Microsporidia, a pathogen, has been documented and its impacts are under investigation (Martinez 2006, Cornell University 2013). Insecticides and transgenic crops are also a source of mortality (Martinez 2006).

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

Agricultural land has been declining in New York since the 1880s resulting is less suitable habitat for lady beetles. Between 1940 and 1997, there was a 57% decline in farmed land in New York (Harmon et al. 2007). Parasites, parasitoids, pathogens, increased cannibalism, insecticide use, transgenic crops, and hybridization with other species are also considered factors that could reducing two-spotted lady beetle population (Martinez 2006, Cornell University 2013).

Threats to NY Populations	
Threat Category	Threat
1 Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (*C. septempunctata* (C-7) and Asian species, such as *Harmonia axyridis*)
2 Natural System Modifications	Other Ecosystem Modifications (loss of agricultural and/open habitats)
3 Pollution	Agriculture and Forestry Effluents (pesticide use)

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:

Preservation of farmland would maintain or increase suitable open habitat. Pesticide use should be avoided when possible. If pesticide use cannot be avoided: use chemicals that target only the pest, treat only infested area, and select chemicals that do not persist.

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

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1. Species Management	Species Re-introduction
2. Species Management	Ex-situ Conservation (laboratory rearing)
3. Livelihood, Economic, and other Incentives	Conservation Payment (Farmland Conservation)

Table 2. Recommended conservation actions for *Adalia bipunctata*.

VII. References

Committee on the Status of Endangered Wildlife in Canada. 2013. "Candidate Wildlife Species." Government of Canada. http:www.cosewic.gc.ca/eng/sct3/index_e.cfm. (Date accessed December 29, 2013).

Cornell University. 2013. "The Lost Ladybug Project." www.lostladybug.org. (Date accessed: December 29, 2013).

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Harmon, J.P., E. Stephens, and J. Losey. 2007. The decline of native coccinellids (Coleoptera: Coccinellidae) in the United States and Canada. Journal of Insect Conservation. 11: 85-94.

Marshall, S. 2000. "Lady Beetles of Ontario." http://www.uoguelph.ca/debu/lady/lady-beetles.htm. (Date accessed: January 15, 2014).

Martinez, Danielle. 2006. "Adalia bipunctata, two-spotted lady beetle." https://instruct1.cit.cornell.edu/courses/icb344/abstracts/Two-spotted-ladybeetle.htm (date accessed: January 16, 2014).

Stephens, Erin and John Losey. 2003. The decline of C-9- New York State's insect. The Xerces Society. Wings: Essays on Invertebrate Conservation. Fall 2003 pp. 8-12.

Street, R. 2001. "Adalia bipunctata" (On-line), Animal Diversity Web. http://animaldiversity.ummz.umich.edu/accounts/Adalia_bipunctata/ (Date accessed January 16, 2014).

Originally prepared by	Hollie Y. Shaw
Date first prepared	January 22, 2014
First revision	
Latest revision	

Species Status Assessment

Common Name: One-spotted tiger beetle **Date Updated:** 1/8/2024

Scientific Name *Apterodela unipunctata* **Updated By:** M. Schlesinger

Class: Insecta

Family:

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

The one-spotted tiger beetle is at the northern edge of its distribution in New York and has one of the least predictable historical distributions of any of New York's rare tiger beetles. Historic records are from Long Island's pine barrens, the Adirondack Mountains, New York City, and the lower Hudson Valley (Schlesinger 2010). This beetle has not been found in New York since 1939. Its secretive and nocturnal nature likely contributes to its perceived rarity; it may be more common than is known but is considered to be possibly extirpated in New York.

This beetle is shade-loving and has been found in hardwood forest situations, generally along shaded woodland paths. The ecology of this tiger beetle is not well known. Adults have been collected from April through September, with peak numbers in June or July (USGS 2006).

This species has not been found in New York since 1939. It is probably extirpated, but there has been a lower survey effort because it is a crepuscular species (NYSDEC SGCN Expert Meeting).

This species was formerly classified in the genus *Cicindela*.

I. Status

a. Current legal protected Status

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

ii. **New York:** Not listed; SGCN

b. Natural Heritage Program

i. **Global:** G4

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

Other Ranks:

-IUCN Red List: Not ranked

-Northeast Regional SGCN: Not ranked

Status Discussion:

This beetle's unusual habitat preferences and crepuscular habitat make a state listing of Possibly Extirpated premature (Schlesinger 2010). Globally, it is ranked Apparently Secure because it is a widespread species, occurring in common forest habitat and is probably more common than records suggest (NatureServe 2013).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.
Northeastern US	Yes	Unknown	Unknown			No
New York	No	Unknown	Unknown			Yes
Connecticut	No	Choose an item.	Choose an item.			No
Massachusetts	No	Choose an item.	Choose an item.			No
New Jersey	Yes	Unknown	Unknown			No
Pennsylvania	Yes	Unknown	Unknown			No
Vermont	No	Choose an item.	Choose an item.			No
Ontario	No	Choose an item.	Choose an item.			No
Quebec	No	Choose an item.	Choose an item.			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):*

No regular surveys are being conducted for this species at this time and there are no known populations to monitor.

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

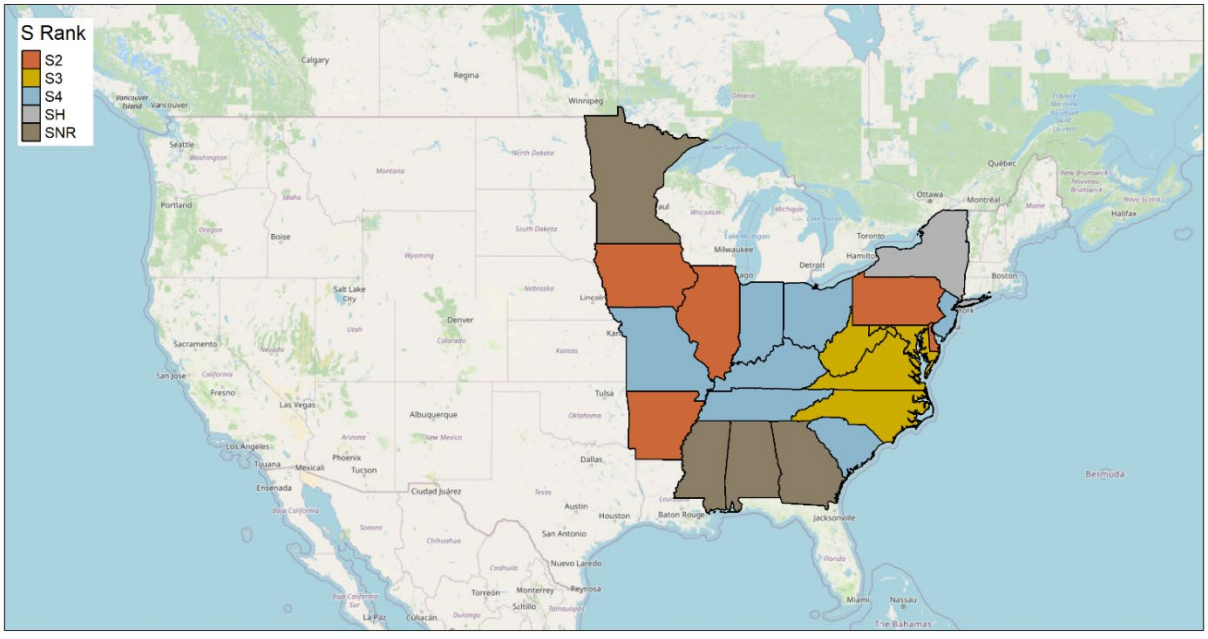

Figure 1. Status of *Apterodela unipunctata* in North America (NatureServe)

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

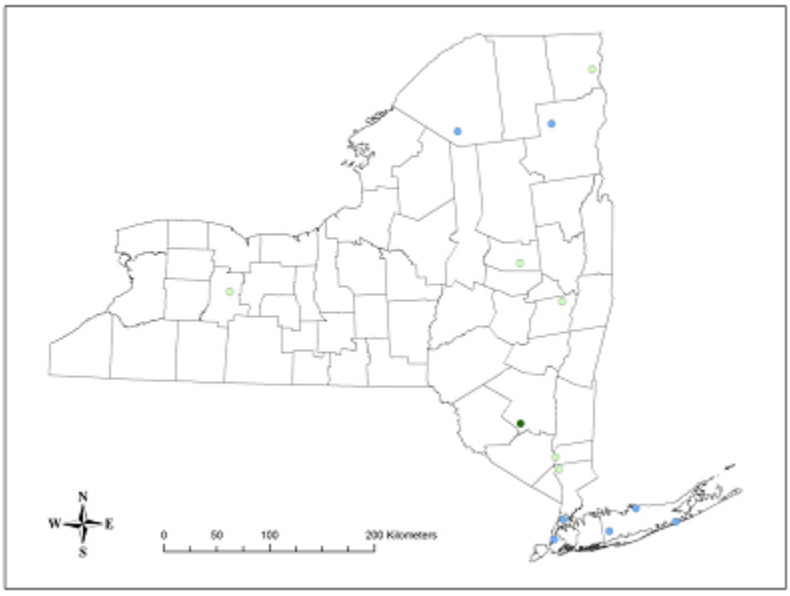

Figure 3. Historical records of *Apterodela unipunctata* in New York in light blue (Schlesinger 2010)

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	7	_____
2000-2023	_____	0	_____

Table 1. Records of *Apterodela unipunctata* in New York.

Details of historic and current occurrence:

Three occurrences pre-1928 (Leonard): Bronx Park, Bronx County; Brooklyn, Kings County; and Ft. Greene, Kings County. 4 occurrences pre-1939 (Gordon): Irvington, Westchester County; North Elba, Essex County; Oswegatchie, St. Lawrence County; and Quogue, Suffolk County. There are no current records of occurrence for this species.

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	100 mi

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. Oak-Pine Forest
2. Oak Forest
3. Rocky Outcrop
4. Coastal Hardwoods
5. Mixed Northern Hardwoods

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
No	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:

This tiger beetle generally occurs in oak-pine or hardwood forests with broad-leafed litter but the species is also reported from shale barrens. The habitat includes the forest understory and not just openings or roads within the forest (NatureServe 2013).

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):*

This species is apparently most active in the late afternoon and early evening, and possibly even at night. It also appears to be fairly solitary, to hide under leaf litter, and to run more than fly. Consequently less is known about this tiger beetle than many other species. Adults are active from April to September, but more so in June and July. Larvae overwinter and the species exhibits a two year life cycle (Pearson et al. 2006). New York records are from April, June, July, and September (Gordon 1939).

It is well known that tiger beetles can disperse several to hundreds of kilometers. While this species is said to seldom fly, it is capable of doing so. Individuals do not form small local colonies, but tend to occur throughout contiguous habitats. So while there are no direct data there would seem no doubt individuals can move a few kilometers and that where habitats are extensive occurrences will probably be also (NatureServe 2013).

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

Threats to NY Populations	
Threat Category	**Threat**
1. Residential & Commercial Development	Housing & Urban Areas (habitat loss)
2. Natural System Modifications	Fire & Fire Suppression (fire suppression)

Threats to this species are not well documented, but as some historical and extant locations are from barrens habitats, fires suppression is a likely contributor to apparent population declines.

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

Yes:_____ **No:** _X_ **Unknown:**_____

If yes, describe mechanism and whether adequate to protect species/habitat:

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

Pitfall arrays and dawn/dusk surveys should be conducted on small trails within forests at historical locations that still appear suitable in order to determine if this species still exists within the state (Schlesinger 2010).

Schlesinger (2010) recommends that this species be listed as Special Concern in New York. A more restrictive listing is probably not warranted until the status of this species is clarified with more targeted survey efforts.

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) -
https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1.	

Table 2. (need recommended conservation actions for *Apterodela unipunctata*)

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.

VII. References

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Shea, J. 2012. NYSDEC SWAP 2015 Species Status Assessment for Cicindela dorsalis dorsalis. Prepared on January 12, 2012. Revised by Samantha Hoff on July 24, 2013.

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Originally prepared by	John Shea
Date first prepared	January 4, 2012
First revision	Jully 22, 2013 (Samantha Hoff)
Latest revision	January 8, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: Eastern pinebarrens tiger beetle **Date Updated:** 1/4/2024

Scientific Name: *Cicindela abdominalis* **Updated By:** M. Schlesinger

Class: Insecta

Family: Carabidae

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

The Eastern pinebarrens tiger beetle is commonly found in a variety of habitats including paths, roads, and open sandy areas (USGS 2006). It is a summer species, with peak activity in July (USGS 2006). There are only three historical records of this species in the state; just two of them are dated, 1913 and 1917. New York is at the northern edge of this species' historic range (Pearson *et al.* 2006); Leonard and Bell (1999) do not even discuss this species in their account of New England's tiger beetles. As such, it might have been a rare visitor to Long Island's pine barrens when it was collected in the early part of the 19th century, and with the increasing loss of pine barrens to development it might have vanished. Knisley and Hill (1992) suggest that vegetation succession in the face of fire suppression was a likely culprit in the extirpation of *C. abdominalis* from Virginia. It is likely extirpated from New York for similar reasons (Schlesinger 2010). This species is probably extirpated in NY, but due to edge-of-range dynamics, could turn up again (NYSDEC SGCN Experts Meeting).

I. Status

a. Current legal protected Status

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

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G3

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

Other Ranks:

-IUCN Red List: Not assessed

-Northeast Regional SGCN: Watchlist

Status Discussion:

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining	Last 100+ years		Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Declining	Declining	Last 100+ years	RSCGN Watchlist	Choose an item.
New York	No	Extirpated	Extirpated	Last 100+ years		Yes
Connecticut	No	Choose an item.	Choose an item.			No
Massachusetts	No	Choose an item.	Choose an item.			No
New Jersey	Yes	Unknown	Unknown			Yes
Pennsylvania	No	Choose an item.	Choose an item.			No
Vermont	No	Choose an item.	Choose an item.			No
Ontario	No	Choose an item.	Choose an item.			No
Quebec	No	Choose an item.	Choose an item.			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):*

No regular surveys are being conducted for this species at this time and there are no known populations to monitor. Two historical locations were surveyed in the late 1990s and 2000s (17 locations overall), but no individuals were detected (Schlesinger 2010).

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

This species was last observed in New York in 1944 (Montauk, Suffolk County). Surveys were performed in the late 1990s and 2000s at 17 historical locations with no individuals found (Schlesinger 2010).

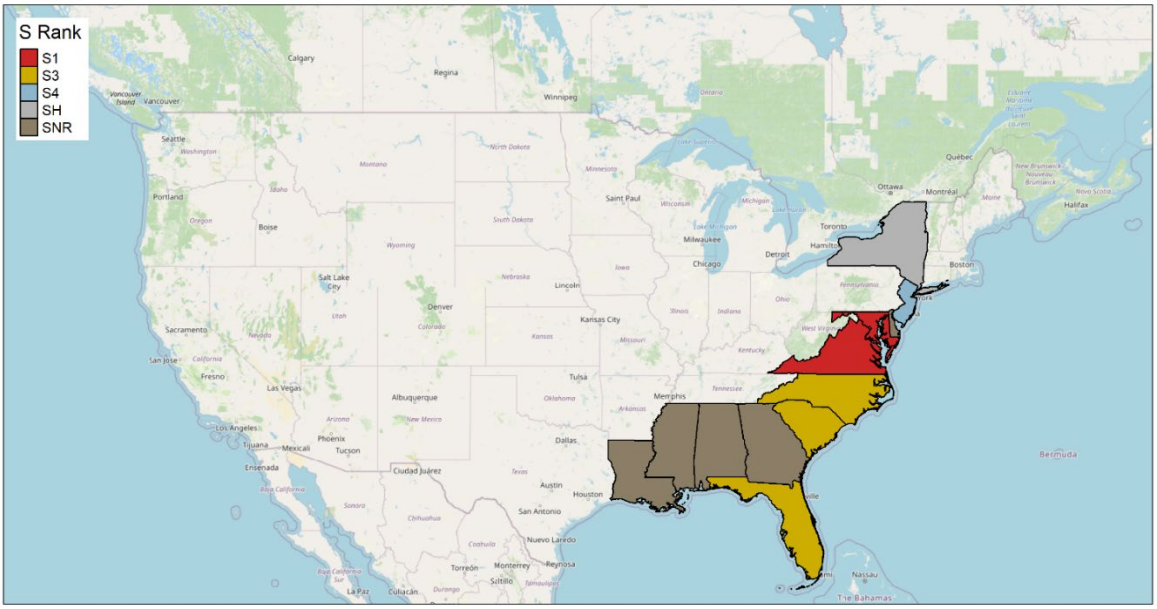

Figure 1. *Cicindela abdominalis* distribution and/or status (NatureServe)

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

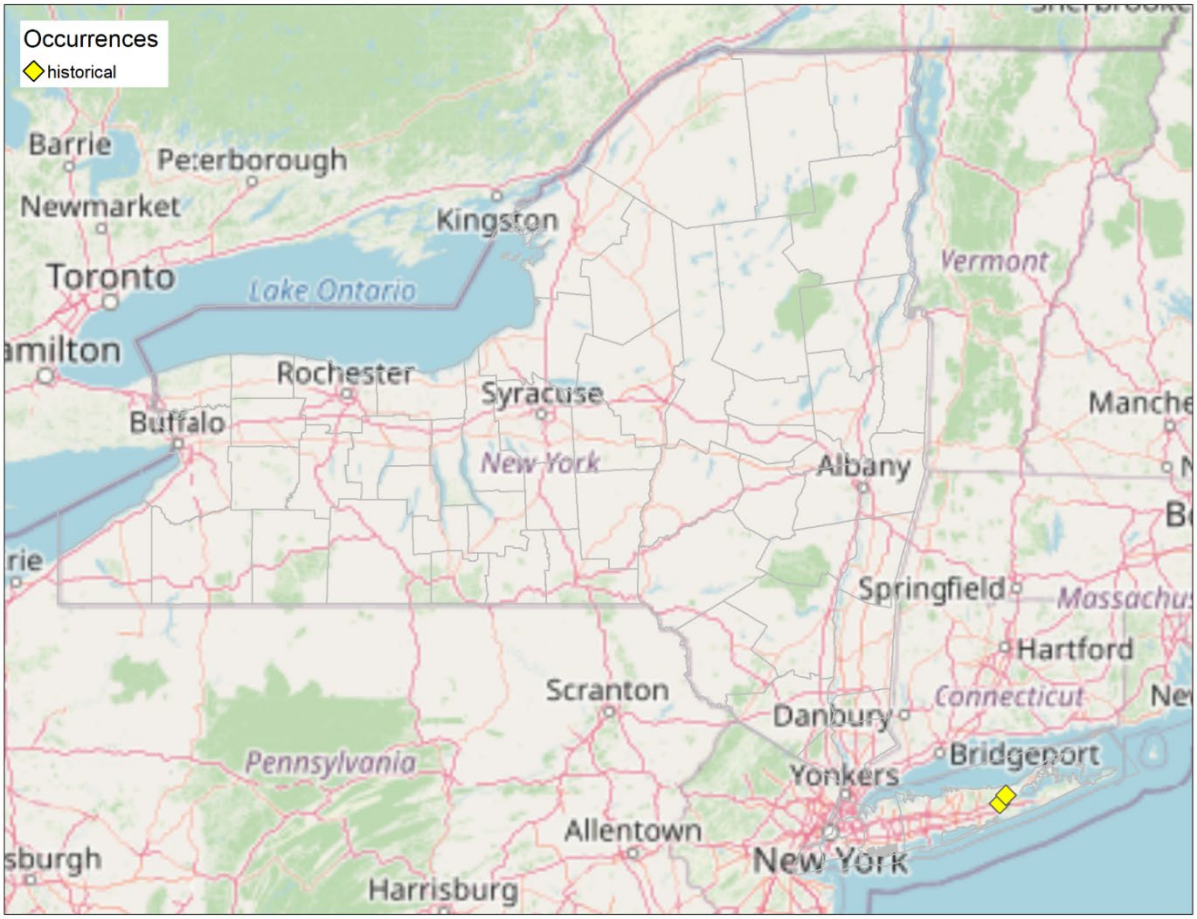

Figure 3. Records of *Cicindela abdominalis* in New York

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	3		<1%
2000-2023	0		

Table 1. Records of *Cicindela abdominalis* in New York.

Details of historic and current occurrence:

All historical occurrences are from Suffolk County: Riverhead (1914 and 1917), and Bald Hill (1913), and Montauk (1944) (NYNHP 2013). There are no current occurrence records and this beetle is likely extirpated from New York. Because suitable habitat is still present, however, it is ranked SH as opposed to SX.

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	200 mi

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. Oak-Pine Forest
2. Coastal Coniferous Barrens
3. Pine Barrens
4. Coastal Hardwoods

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Yes	Yes	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 eastern pinebarrens tiger beetle occurs in dry, sandy coastal plain pine barrens, sand hills, and other pine or mixed pine-oak woodland or scrub. It is also found along paths and in patches of bare sand (NatureServe 2013).

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):*

This is a summer species that is usually most abundant in July, with South Carolina occurrence dates from late May to early October (Knisley and Schultz 1997). The three New York records are from August (Gordon 1939). Larval development in this species is thought to be one year and adults occur individually or sometimes in small aggregations (Knisley and Schultz 1997).

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

Threats to NY Populations	
Threat Category	**Threat**
1. Residential & Commercial Development	Housing & Urban Areas (loss of habitat)
2. Human Intrusions & Disturbance	Recreational Activities (ATV use)
3. Natural Systems Modification	Fire & Fire Suppression

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

Yes:_____ **No:** _X__ **Unknown:**_____

If yes, describe mechanism and whether adequate to protect species/habitat:

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

Continue inventory of tiger beetles of Long Island pine barrens. 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 2011).

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1.	
2.	

Table 2. (need recommended conservation actions for *C. abdominalis*).

VII. References

Gordon, W.M. 1939. The Cicindelidae of New York with reference to their ecology. M.S. thesis, Cornell University, Ithaca, N.Y. 136 pp.

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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.

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Schlesinger, M.D. 2010. Rare Tiger Beetles of New York: Status and Conservation. New York Natural Heritage Program Report.

Shea, J. 2012. NYSDEC SWAP 2015 Species Status Assessment for Cicindela abdominalis. Prepared on January 5, 2012. Revised by Samantha Hoff on July 22, 2013.

USGS. 2006. Tiger Beetles of the United States: *Cicindela abdominalis*. http://www.npwrc.usgs.gov/resource/distr/insects/tigb/usa/6.htm

Originally prepared by	John Shea
Date first prepared	January 5, 2012
First revision	July 22, 2013 (Samantha Hoff)
Latest revision	January 4, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: Appalachian tiger beetle **Date Updated:** 1/12/2024

Scientific Name: *Cicindela ancocisconensis* **Updated By:** M. Schlesinger

Class: Insecta

Family: Carabidae

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

The Appalachian tiger beetle is a riparian species of hilly and low mountainous regions (Knisley and Schultz 1997, Leonard and Bell 1999, Pearson et al. 2006). It occurs in the eastern United States and southeastern Canada. This beetle persists in the three main regions from which it was known historically: the Catskills, Adirondacks, and western New York. However, it was not detected in most of the historical locations or in the great majority of new sites within and outside of these regions that were recently surveyed. Whether these results stem from the beetle's extreme rarity or low detectability, or our lack of understanding of suitable habitat, remains to be determined (Schlesinger 2010). The New York Natural Heritage Program database lists 16 occurrences for this species within the state. It is difficult to assess population trends for this species, as historical data gives little sense of population sizes and as new locations probably represent populations that were always present, but had not yet been documented (NYNHP 2011).

I. Status

a. Current legal protected Status

i. **Federal:** Not listed **Candidate:** _____

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G3

ii. **New York:** S2 **Tracked by NYNHP?:** Yes

Other Ranks:
-IUCN Red List:

-Northeast Regional SGCN:

Status Discussion:

This species is ranked as Imperiled in New York because it appears to be lost from some of its historical occurrences, and *de novo* surveys of suitable habitat have turned up very few new occurrences. It is globally ranked Vulnerable due to a spotty distribution in most or all of its range and because it is a habitat specialist and in decline throughout much of its range (NatureServe 2013). It does not appear to be threatened with extirpation from the state given its broad distribution across the state and presence in multiple pristine streams and rivers; however, as a riparian specialist it is vulnerable to recreational activities, cobble and gravel mining, and altered flood regimes from damming (Schlesinger 2010).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.
Northeastern US	Yes	Unknown	Unknown			Choose an item.
New York	Yes	Unknown	Unknown			Yes
Connecticut	No data	Choose an item.	Choose an item.			No
Massachusetts	No	Choose an item.	Choose an item.		Historical	Yes
New Jersey	Yes	Unknown	Unknown			Yes
Pennsylvania	Yes	Unknown	Unknown			Yes
Vermont	Yes	Unknown	Unknown			Yes
Ontario	No data	Choose an item.	Choose an item.			Choose an item.
Quebec	Yes	Unknown	Unknown			Choose an item.

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):*

There are no regular monitoring efforts at this time and few if any surveys have been conducted since the 2010 completion of the Tiger Beetle Status State Wildlife Grant project.

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

It is difficult to assess population trends for this species, as historical data gives little sense of population sizes and as new locations probably represent populations that were always present, but had not yet been documented (NYNHP 2013). Short-term trends are also difficult to assess as survey efforts in the past 10 years have focused on the discovery of new locations rather than periodic visits to know sites to determine population level changes (NYNHP 2013).

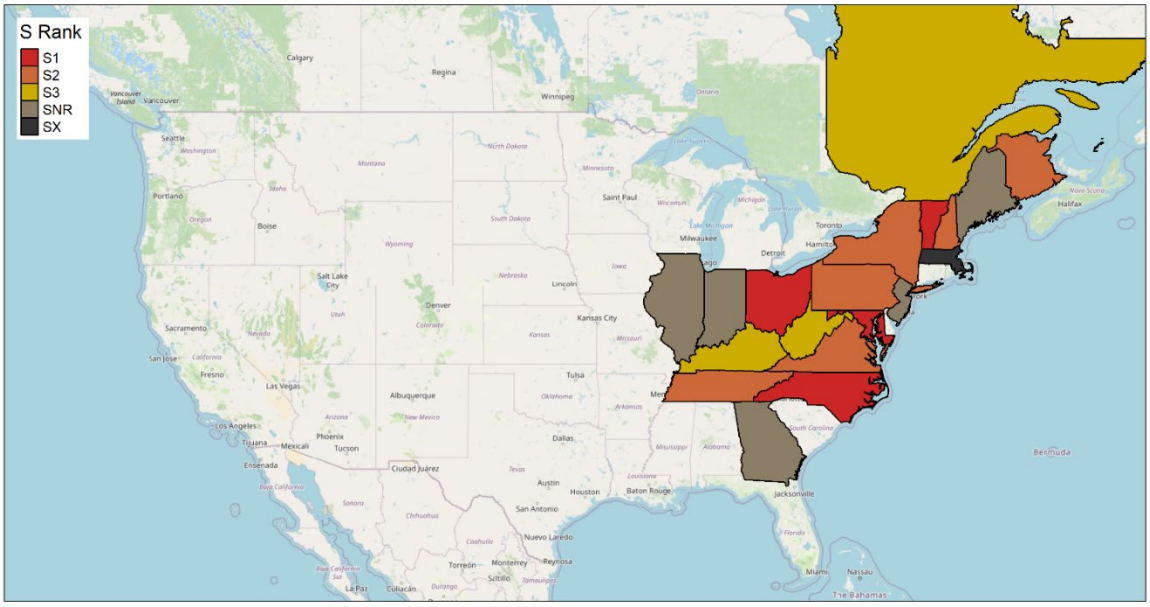

Figure 1. Status of *Cicindela ancocisconensis* in North America (NatureServe)

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

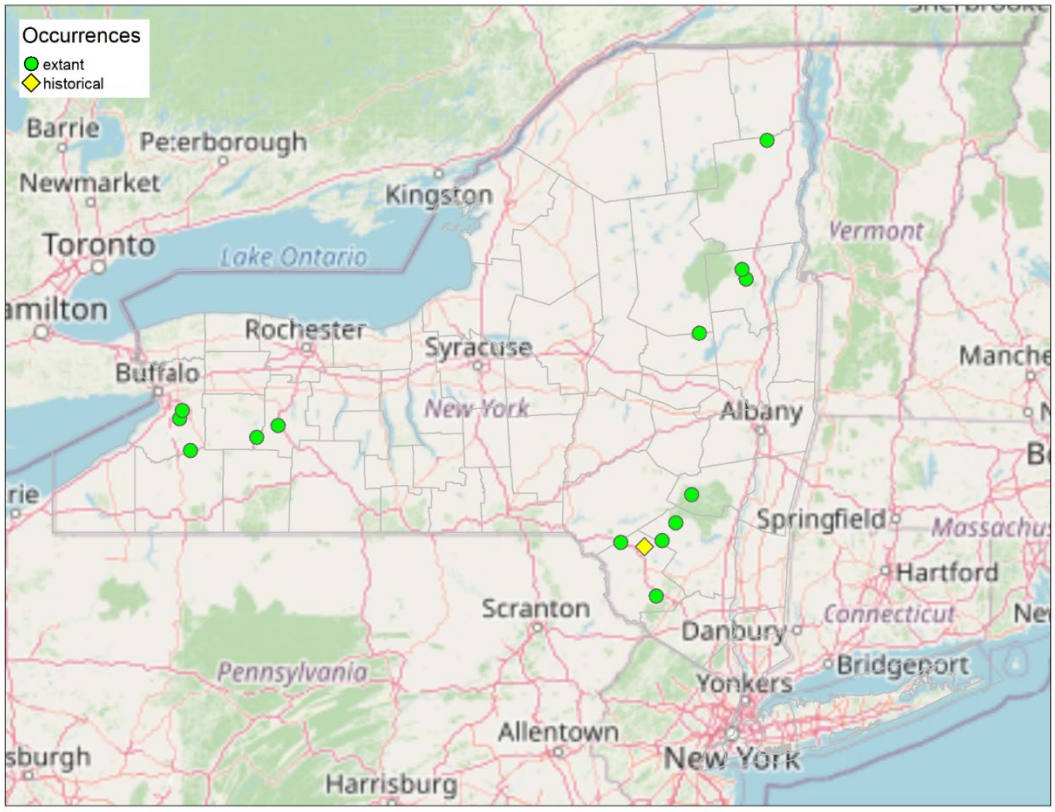

Figure 3. Records of *Cicindela ancocisconensis* in New York (NYNHP)

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	8	_____
2000-2023	_____	14	50%

Table 1. Records of *Cicindela ancocisconensis* in New York.

Details of historic and current occurrence:

There are seven recorded occurrences from the early 1900s and one from 1968. There are 14 recorded occurrences from 1997-2023 and populations are currently known from 10 creeks or rivers in three different regions of the state (Schlesinger 2010, NYNHP 2012). iNaturalist records are sparse and not reflective of the known distribution of the species.

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%	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. Lake and river shore/beach
2. Floodplain Forests
3. Riparian

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 Appalachian tiger beetle is a riparian species of hilly and low mountainous regions (Knisley and Schultz 1997, Leonard and Bell 1999, Pearson et al. 2006). It typically inhabits the edges of forested streams and rivers where it occupies sand bars, shaded sand beaches, and gravel areas or cobble bars, but has also been found on dirt roads in the proximity of streams and rivers (Gordon 1939, Knisley and Schultz 1997, Leonard and Bell 1999, Pearson et al. 2006, NYNHP 2011). Areas supporting this species in New York tend to have a substrate mixture of sand, cobble, and some larger rocks with sparse to moderate vegetation of various herbaceous species and saplings of cottonwood (*Populus deltoides*), willow (*Salix sp.*) or sycamore (*Platanus occidentalis*) (NYNHP 2013).

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):*

Adults are most often found in June at least in New England. In New York it has been found in May, June, July, August and September, with most records coming from July-September. It is a fall-spring species emerging in late July to September, hibernating and reappearing in late April to June and then declining in midsummer. Sometimes it cannot be found in late season where it was present in spring suggesting adults may not always be active in fall, but this does not appear to be the case at most sites in New York. This species is believed to have a two-year life cycle southward and three northward so larvae will always be present in their burrows at any season (NatureServe 2011).

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

Threats to NY Populations	
Threat Category	**Threat**
1. Natural System Modification	Dams & Water Management/Use (alteration of natural flooding regimes)
2. Energy Production & Mining	Mining & Quarrying (gravel mining)
3. Human Intrusions & Disturbance	Recreational Activities (off road vehicle use)
4. Climate Change & Severe Weather	Storms & Flooding
5. Natural System Modifications	Other Ecosystem Modifications (channelization as response to increased storms)

Alteration of natural flooding regimes, primarily due to construction of dams, is probably the primary threat to this species (Knisley and Schultz 1997, NYNHP 2011). Dams will inundate cobble bar habitat upstream of the dam while the natural flooding regime is altered downstream of the dam. When natural flooding regimes are altered, cobble bars become overgrown with dense herbaceous and shrub vegetation becoming unsuitable for the beetles. Gravel mining of cobble bars is also a major threat in some regions of the state. Off road vehicle use of cobble bars can destroy larval habitat and has been noted as a threat both in the literature and during on site surveys in western New York. Removal of riparian forest cover is also a possible threat (NYNHP 2011).

Recent severe flood events in various parts of the state associated with tropical storms and possibly of greater frequency and severity due to climate change are a serious potential threat to the small, isolated populations of this species. While such flooding may in the long run create very good cobble

bar habitat it is also be very possible that entire metapopulations could be wiped out in a single storm event leaving no or few individuals surviving to repopulate newly created habitat. The drainages occupied by cobblestone tiger beetle in New York were not affected by the 2011 and 2012 storm events, but could certainly be in future years.

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

Yes: X **No: X** **Unknown:_____**

If yes, describe mechanism and whether adequate to protect species/habitat:

The Protection of Waters Program provides protection for rivers, streams, lakes, and ponds under Article 15 of the NYS Environmental Conservation Law; however, this may not be sufficient to support the riparian habitat this species requires.

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

Maintenance of natural flooding regimes and streamside riparian vegetation is desirable in watersheds where this species occurs. Minimizing off road vehicle use of cobble bar habitats should reduce or prevent the loss of occupied habitats or areas that might otherwise be suitable for occupation (NYNHP 2011).

Schlesinger (2010) recommends that this species be listed as Special Concern in New York. It does not appear to be threatened with extirpation from the state at this time, given its broad distribution across the state and presence in multiple pristine streams and rivers. However, as a riparian specialist it is vulnerable to recreational activities, cobble and gravel mining, and particularly altered flooding regimes from damming.

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

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

Table 2. Recommended conservation actions for *C. ancocisconensis*.

VII. References

Gordon, W.M. 1939. The Cicindelidae of New York with reference to their ecology. M.S. thesis, Cornell University, Ithaca, N.Y. 136 pp.

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.

Mawdsley, J. R. 2007a. Comments on conservation status of the tiger beetle *Cicindela ancocisconensis* T.W. Harris (Coleoptera: Carabidae: Cicindelinae). Proceedings of the Entomological Society ofWashington 109:721-724.

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New York Natural Heritage Program. 2013. Element Occurrence Database. Albany, N.Y.

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 Program Report.

Originally prepared by	John Shea
Date first prepared	January 5, 2012
First revision	February 11, 2014 (Samantha Hoff)
Latest revision	January 8, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: Hairy-necked tiger beetle **Date Updated:** 1/11/2024

Scientific Name: *Cicindela hirticollis* **Updated By:** M. Schlesinger

Class: Insecta

Family: Carabidae

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

The hairy-necked tiger beetle has declined in many parts of its range, mainly due to habitat alteration and recreational pressure on its sandy habitats. This beetle occurs on sandy beaches associated with large lakes (primarily Ontario and Champlain) and the ocean. Beaches can be narrow or wide, with varying amounts of dune vegetation, but usually with some associated dunes intact. Approximately 13 of 40 historical occurrences on Long Island appear still to be occupied, with most having been surveyed recently. Three occurrences along Lake Ontario and two along Lake Champlain are known, and there are several recent records from smaller lakeshores in the Adirondacks. No historical information is available for New York's Great Lakes populations. A primary research need is further description of the morphology, habitat use, and distribution of C. h. hirticollis and C. h. rugifrons, which apparently overlap at several locations in New York (Mawdsley et al. 2013, Schlesinger and Novak 2011).

I. Status

a. Current legal protected Status

i. **Federal:** Not listed **Candidate:**

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G5

ii. **New York:** S1S2 **Tracked by NYNHP?:** Yes

Other Ranks:
-IUCN Red List:

-Northeast Regional SGCN: Watchlist

Status Discussion:

This species has a limited state distribution, narrow habitat requirements, and is declining in much of its range, including New York, due to beach front development and overuse of beaches. Recent records from smaller lakeshores in the Adirondacks that may have been overlooked previously, or may be recently colonized, are encouraging.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Unknown	Unknown		RSCGN watchlist	Yes
New York	Yes	Unknown	Unknown			Yes
Connecticut	Yes	Unknown	Unknown			Yes
Massachusetts	Yes	Unknown	Unknown			Yes
New Jersey	Yes	Unknown	Unknown			Yes
Pennsylvania	Yes	Unknown	Unknown			Yes
Vermont	Yes	Unknown	Unknown			Yes
Ontario	Yes	Unknown	Unknown			No
Quebec	Yes	Unknown	Unknown			Choose an item.

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):*

Scattered surveys have happened since Schlesinger (2010), particularly on NYS Parks properties on Long Island and on Lake Ontario. Many observations from known populations and a few recent observations in Hamilton County and one from Warren County appear on iNaturalist.

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

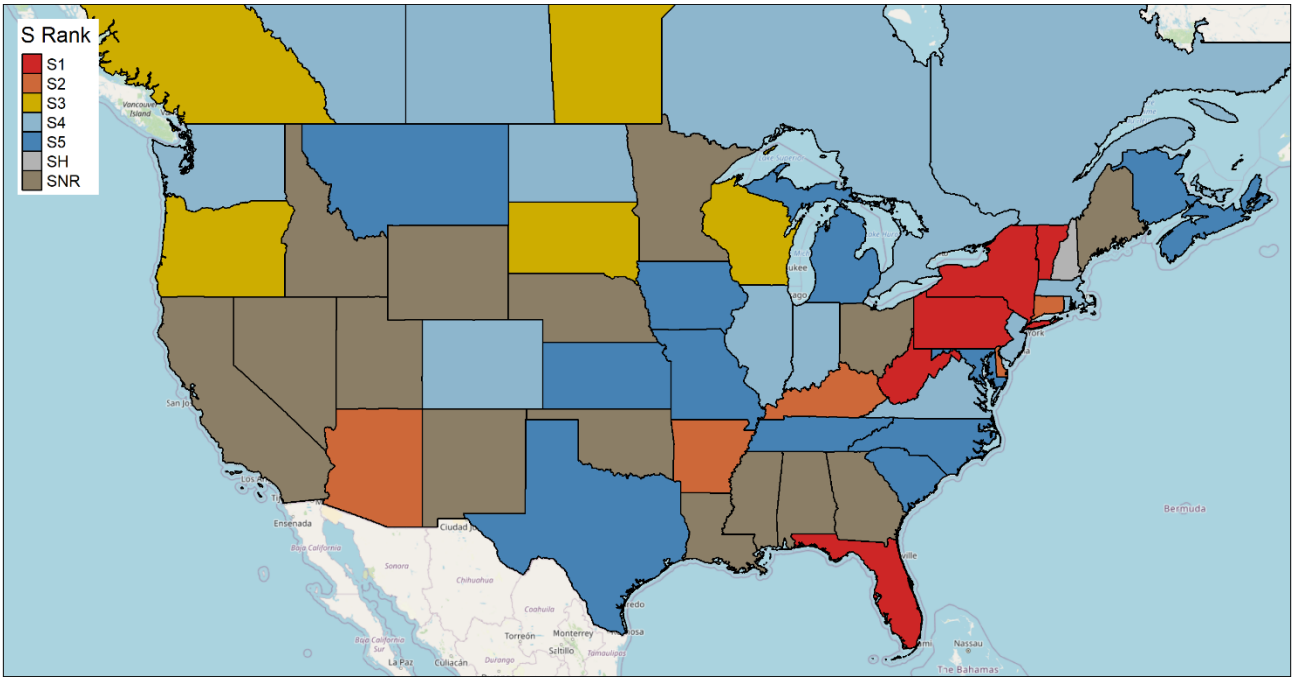

Figure 1. Status of *Cicindela hirticollis* in North America (NatureServe)

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

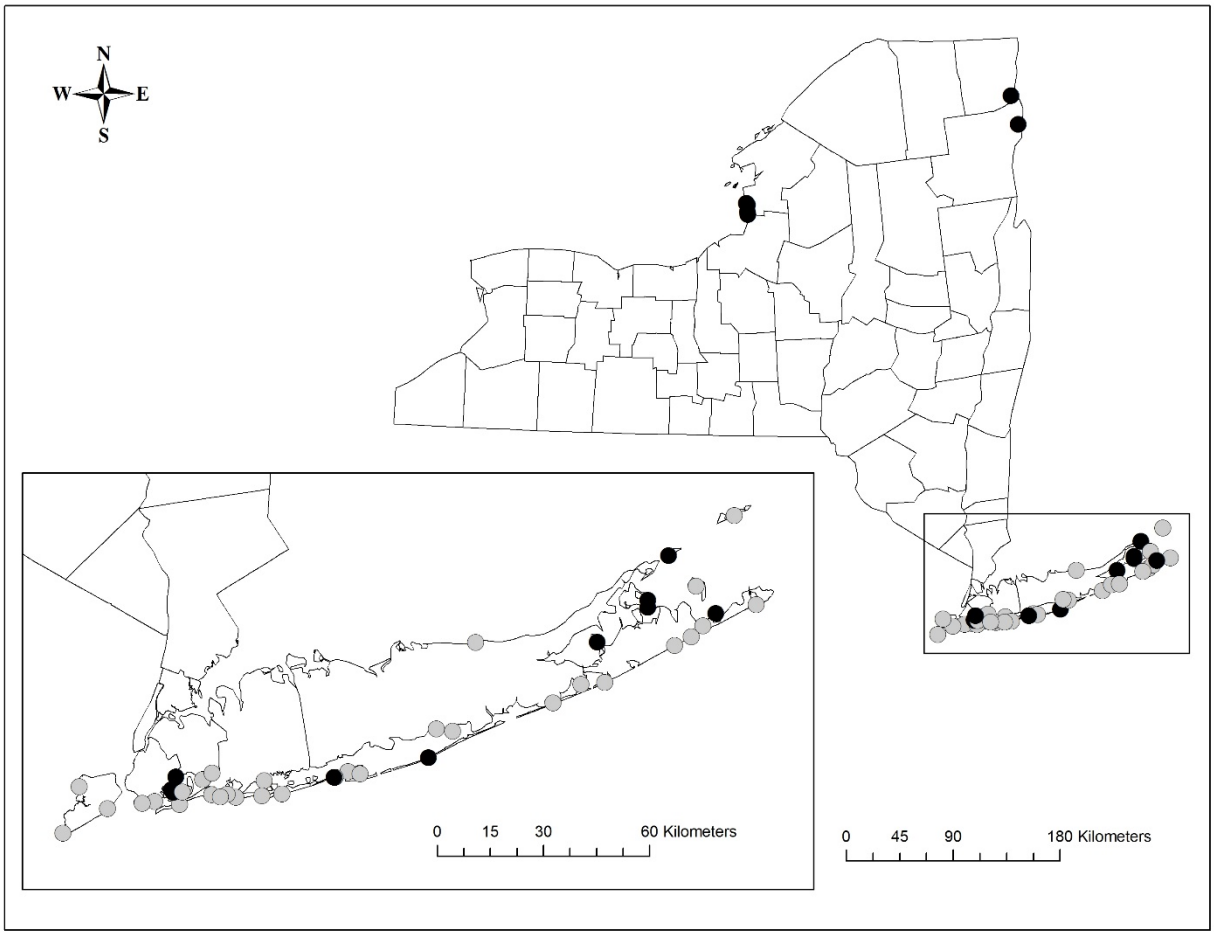

Figure 3. Records of *Cicindela hirticollis* in New York (New York Natural Heritage Program) Map source: Schlesinger and Novak (2011). Current (black dots) and approximate former (gray dots) distribution of *Cicindela hirticollis* in New York. There are several recent records from Hamilton County and Warren County that are not represented here.

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	~40	_____
2000-2023	_____	~20	_____

Table 1. Records of *Cicindela hirticollis* in New York.

Details of historic and current occurrence:

Approximately 13 of 40 historical occurrences on Long Island appear still to be occupied, with most having been surveyed in the last 15 years. No historical information is available for New York's Great Lakes populations (Detailed in Schlesinger (2010), Schlesinger and Novak (2011), and Mawdsley et al. (2013)) but recent surveys show robust populations there. A large population is on Plum Island and several small scattered populations occur on Fishers Island; neither location has beach driving. Recent iNaturalist observations from smaller lakeshores in the Adirondacks do not have abundance estimates.

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%	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. Maritime dunes

2. Lake and river shore/beach

Habitat or Community Type Trend in New York

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

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):*

The females oviposit in late June or July and the larvae reach the third instar during late September at which point they seal their burrows by mid (?) October and hibernate (Hamilton 1925). The burrows open in May of the following year and pupation occurs during June or July. The adults eclose in August, overwinter and become sexually mature the following spring (*loc. cit.*).

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

Threats to NY Populations	
Threat Category	**Threat**
1. Natural System Modifications	Other Ecosystem Modifications (beach grooming)
2. Natural System Modifications	Other Ecosystem Modifications (beach stabilization)
3. Human Intrusions & Disturbance	Recreational Activities (beach recreation)
4, Human Intrusions & Disturbance	Recreational Activities (driving)
5. Climate Change & Severe Weather	Storms & Flooding (severe storms)

Beachfront development and overuse of beaches are major threats. In particular, vehicle traffic that crushes larval burrows is a chief cause of decline.

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

Yes:_____ **No: _X__** **Unknown:_____**

If yes, describe mechanism and whether adequate to protect species/habitat:

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

The most critical management need for the hairy-necked tiger beetle is the control and/or elimination of vehicle and other recreational traffic on occupied beaches, which can crush larval burrows. Beach grooming and stabilization measures also adversely affect larval and adult beetles.

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1.	
2.	

Table 2. (need recommended conservation actions for *Cicindela hirticollis*).

VII. References

Gordon, W.M. 1939. The Cicindelidae of New York with reference to their ecology. M.S. thesis, Cornell University, Ithaca, N.Y. 136 pp.

Keys, Jr.,J.; Carpenter, C.; Hooks, S.; Koenig, F.; McNab, W.H.; Russell, W.;Smith, M.L. 1995. Ecological units of the eastern United States - first approximation (cd-rom), Atlanta, GA: U.S. Department of Agriculture, Forest Service. GIS coverage in ARCINFO format, selected imagery, and map unit tables.

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Schlesinger, M., and P. Novak. 2011. Status and conservation of an imperiled tiger beetle fauna in New York State, USA. Journal of Insect Conservation 15:839-852.

Schlesinger, Matthew D. 2010. Rare tiger beetles of New York: status and conservation. New York Natural Heritage Program. New York State Department of Environmental Conservation. Albany, NY. 118 pp.

Originally prepared by	Matthew Schlesinger
Date first prepared	2013
First revision	February 18, 2014 (Samantha Hoff)
Latest revision	January 8, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: Cobblestone tiger beetle **Date Updated:** 1/12/2024

Scientific Name: *Cicindela marginipennis* **Updated By:** M. Schlesinger

Class: Insecta

Family: Carabidae

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

Isolated populations of cobblestone tiger beetle occur throughout the eastern United States as well as in New Brunswick, Canada. Cobblestone tiger beetles are found on sandy cobble beaches on the upstream sides of islands and along the banks of small to medium sized rivers with swift-flowing water (Dunn 1981, Nothnagle 1993, Leonard and Bell 1999, Pearson et al. 2006). This beetle is extant in 9 rivers in 11 states (NatureServe 2012). Within New York this species occurs on the islands and banks of the Cattaraugus and Upper Genesee rivers. Sites in at least two states have been lost to dams or waterway construction, however not all habitats are currently threatened.

"USFWS (2019) found listing this species as endangered or threatened under the Endangered Species Act is not warranted." (NatureServe Explorer).

I. Status

a. Current legal protected Status

i. **Federal:** Not listed **Candidate:**

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G3

ii. **New York:** S1S2 **Tracked by NYNHP?:** Yes

Other Ranks:

-IUCN Red List: Vulnerable

-Northeast Regional SGCN: RSGCN

COSEWIC: Special Concern

Status Discussion:

With only two extant occurrences and having disappeared from one or two historical locations, this species has a calculated rank of S1S2 (Critically Imperiled to Imperiled). Its current range in New York includes portions of the Genesee River and Cattaraugus Creek (Schlesinger 2010).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Unknown	Unknown			Yes
New York	Yes	Unknown	Unknown			Yes
Connecticut	No	Choose an item.	Choose an item.			Choose an item.
Massachusetts	No	Choose an item.	Choose an item.			Choose an item.
New Jersey	Yes	Unknown	Unknown			Yes
Pennsylvania	Yes	Unknown	Unknown			Yes
Vermont	Yes	Unknown	Unknown			Yes
Ontario	No	Choose an item.	Choose an item.			Choose an item.
Quebec	No	Choose an item.	Choose an item.			Choose an item.

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):*

There are no regular monitoring activities at this time.

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

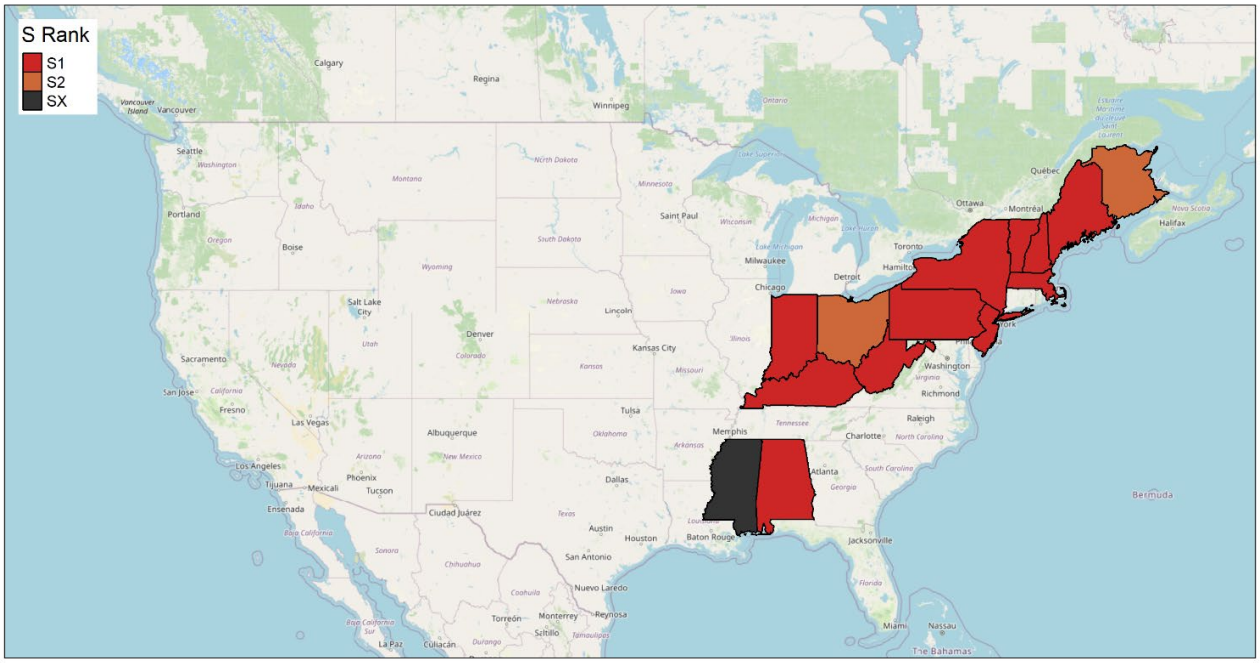

Figure 1. Status of *Cicindela marginipennis* in North America (NatureServe)

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

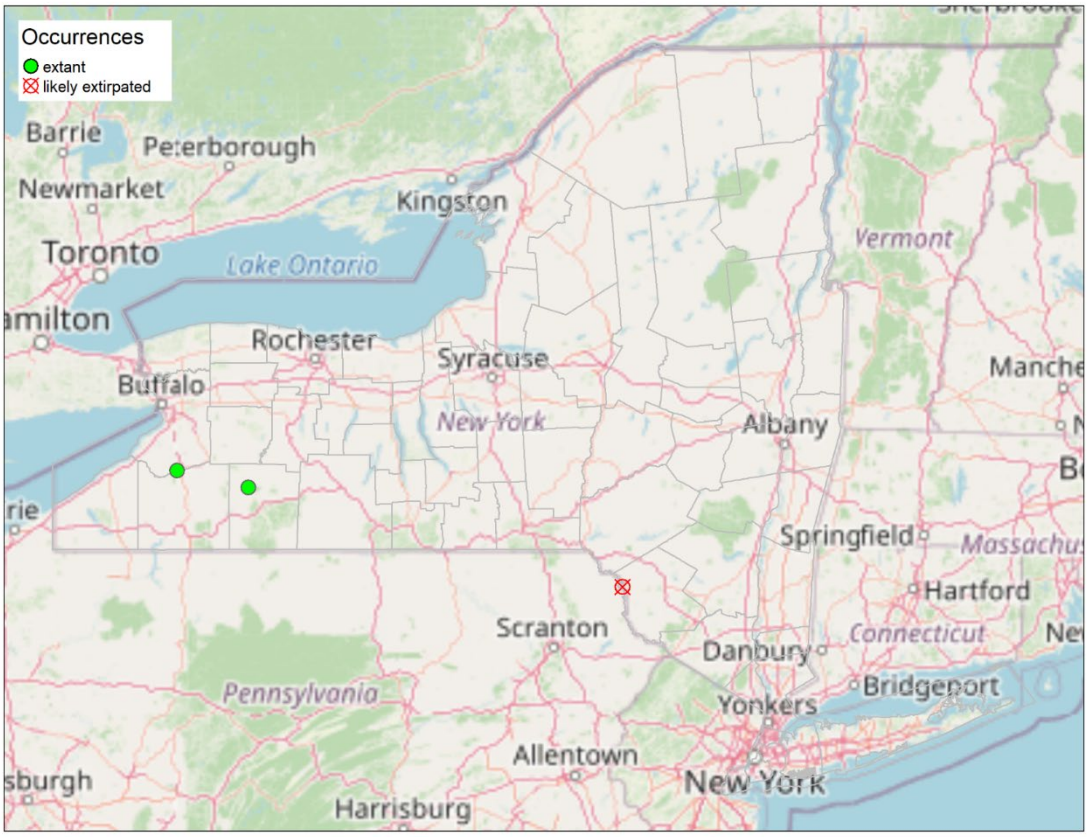

Figure 3. Records of *Cicindela marginipennis* in New York (NYNHP)

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000		3	5%
2000-2023		2	3%

Table 1. Records of *Cicindela marginipennis* in New York.

Details of historic and current occurrence:

Cicindela marginipennis was known historically from three locations in New York: Cattaraugus Creek in Cattaraugus County, the Delaware River at Callicoon in Delaware County (Leng in Leonard 1928), and New York City (Gordon 1939). The Callicoon location has been searched multiple times without success and appears to be extirpated. It is unclear where the New York City record came from and it does not appear to be substantiated by a specimen. Current occurrences: Cattaraugus Creek in Cattaraugus and Erie Counties. Genesee River in Allegheny, Livingston and Wyoming counties.

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%	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):*

a. Lake and River Shore/Beach

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Choose an item.	Choose an item.	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:

Cobblestone tiger beetles concentrate in the middle of the cobbled shoreline, 20-50 m away from the water's edge (Nothnagle 1993, 1995; TNC 1995). This area is not heavily scoured or subject to heavy sedimentation and the vegetation is not dense (TNC 1995). The minimum required habitat size is approximately 0.08 ha (0.2 ac) with a sand and vegetation cover of 20-50% and cobble-sized stones ranging in diameter from 2.5-7.6 cm (1-3 in) (Nothnagle 1995). Cobblestone tiger beetles do not typically inhabit gravel or areas with large stones and boulders (Nothnagle 1995). Source: New Hampshire Wildlife Action Plan

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):*

Individual *C. marginipennis* are known to disperse at least several hundred meters (Hudgins et al. 2010).

Copulation has been observed from mid July to late August, with oviposition behavior observed as late as August 28 (Nothnagle, pers. obs.).

The larval period consists of three instars or moults, which occur over a period of two years in Vermont. The three instars have burrow diameters of 1.5 mm, 2.5 mm and 3.5 mm, respectively. First instar larvae were seen in early September, with second instars first appearing in mid September. Second instar larvae are active again in the spring, and moult to the third instar in July. Third instars overwinter again, resume activity in early May, and emerge as adults in late June or early July, about 22 months after hatching from eggs. Larvae from two different annual cohorts are active at the same time.

Adults are active primarily on warm, sunny days. They are capable of rapid flight, but forage in a cursorial fashion, running along the ground in short, erratic movements. This beetle has a "summer

active" life history, in which adults are active only during the summer months. In Vermont, adults are generally found from early July until early September, although year to year variation in emergence and disappearance occurs. Peak adult densities are seen from mid to late July, after which adults gradually decline.

Larvae plug their holes in mid to late September for hibernation. Since the life cycle requires two or three years, larvae are always present in burrows in the soil.

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

Threats to NY Populations	
Threat Category	**Threat**
1. Natural System Modification	Dams & Water Management/Use (alteration of natural flooding regimes)
2. Energy Production & Mining	Mining & Quarrying (gravel mining)
3. Human Intrusions & Disturbance	Recreational Activities (off road vehicle use)
4. Climate Change & Severe Weather	Storms & Flooding
5. Natural System Modifications	Other Ecosystem Modifications (channelization as response to increased storms)
6.Biological Resource Use	Hunting & Collecting Terrestrial Animals (collecting)

Alteration of natural flooding regimes, primarily due to construction of dams, is probably the primary threat to this species (Novak 1999, Knisley and Shultz 1997). Dams will inundate cobble bar habitat upstream of the dam while the natural flooding regime is altered downstream of the dam. When natural flooding regimes are altered cobble bars become overgrown with dense herbaceous and shrub vegetation becoming unsuitable for the beetles. Gravel mining of cobble bars, an activity regulated by NYSDEC but for which permits are sometimes given, is also a major threat. There are a number of existing permits on both the Genesee River (Taft 2002) and Cattaraugus Creek that have the potential to negatively impact populations of *Cicindela marginipennis*. Off road vehicle use of cobble bars can destroy larval habitat and has been noted as a threat both in the literature and during on site surveys in western New York. Intensive collecting by private collectors has been noted as a threat to some species of tiger beetle and is a potential threat primarily to *Cicindela marginipennis*.

Recent severe flood events in various parts of the state associated with tropical storms and possibly of greater frequency and severity due to climate change are a serious potential threat to the small, isolated populations of this species. While such flooding may create very good cobble bar habitat, it is also be very possible that entire metapopulations could be wiped out in a single storm event leaving no or few individuals surviving to repopulate newly created habitat. The drainages occupied by cobblestone tiger beetle in New York were not affected by the severe storms of 2011 and 2012, but could certainly be in future years.

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 Protection of Waters Program provides protection for rivers, streams, lakes, and ponds under Article 15 of the NYS Environmental Conservation Law.

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

Schlesinger (2010) recommends that this species be listed as Threatened in New York. Although not in immediate danger of extirpation from New York, the cobblestone tiger beetle could become endangered or extirpated (or both) if one of the two occurrences experienced a population reduction from extreme flooding. Changes in water management of the Mount Morris Dam on the Genesee River could have profound effects on the beetle's population upstream. Further, a large portion of the Cattaraugus Creek population is on private land, and any cobble and gravel mining occurring there could substantially affect larval and adult habitat (Schlesinger 2010).

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

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

Table 2. Recommended conservation actions for *Cicindela marginipennis*

VII. References

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Taft, K. 2002. E-mail of October 7, 2002 to Paul Novak regarding Mined Land Reclamation Permits for gravel removal on the Genesee River.

The Nature Conservancy. 1995. Conservation plan for Burnaps, Chase, Hart, Johnston, and Walpole Islands, New Hampshire. The Nature Conservancy, Concord, New Hampshire, USA.

Originally prepared by	John Shea
Date first prepared	January 5, 2012
First revision	February 18, 2014 (Samantha Hoff)
Latest revision	January 8, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: New Jersey pine barrens tiger beetle **Date Updated:** 1/12/2024

Scientific Name: *Cicindela patruela consentanea* **Updated By:** M. Schlesinger

Class: Insecta

Family: Carabidae

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

The New Jersey pine barrens tiger beetle is a subspecies of a widespread, but uncommon and localized species, *C. patruela*, occurring historically throughout Long Island's pine barrens where it was at the northernmost extent of its distribution and in the New Jersey Pine Barrens. Compared to the nominate subspecies *C. p. patruela*, it is the more coastal, occurring in New Jersey and southward to Virginia (Mawdsley 2007). Despite extensive searches by Blanchard (2006) in 1998-2006 and by Mawdsley, this subspecies has not been found in New York since 1952. Populations in the New Jersey Pine Barrens are apparently stable, providing a chance that this beetle could be rediscovered in New York (Schlesinger 2010, NatureServe 2013).

I. Status

a. Current legal protected Status

i. **Federal:** Not listed **Candidate:**

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G3T1T3

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

Other Ranks:
-IUCN Red List:

-Northeast Regional SGCN: RSGCN

Status Discussion:

This tiger beetle occurred historically in New York, on the eastern end of Long Island, and is ranked Possibly Extirpated. Although it has been over 50 years since the last known sighting of this insect in New York, a small chance remains that Long Island's pine barrens could still contain a population of this taxon (Schlesinger 2010). It is globally ranked Imperiled because the only documented populations were on Long Island (all pre-1950) and in the New Jersey Pine Barrens where it was recorded from seven counties, and because causes of decline are not really known.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Choose an item.	Choose an item.			Yes
New York	No	Choose an item.	Choose an item.			No
Connecticut	No	Choose an item.	Choose an item.			Choose an item.
Massachusetts	No	Choose an item.	Choose an item.			Choose an item.
New Jersey	Yes	Unknown	Stable			Yes
Pennsylvania	No	Choose an item.	Choose an item.			Choose an item.
Vermont	No	Choose an item.	Choose an item.			Choose an item.
Ontario	No	Choose an item.	Choose an item.			Choose an item.
Quebec	No	Choose an item.	Choose an item.			Choose an item.

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):*

No regular surveys are being conducted for this species at this time and there are no known populations to monitor. Blanchard (2006) reported searching for this species in 28 locations from 1998-2006 but never encountered any individuals (Schlesinger 2010).

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

This subspecies had a small range historically but has apparently declined, disappearing from New York in the second half of the 1900s.

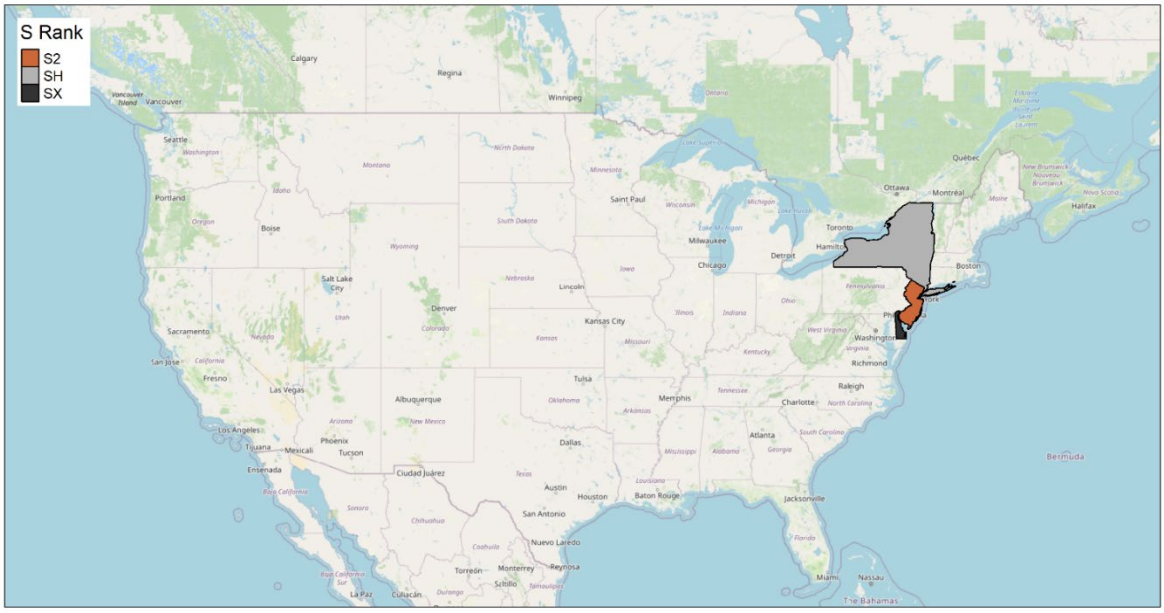

Figure 1. Status of *Cicindela patruela consentanea* in North America (NatureServe)

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

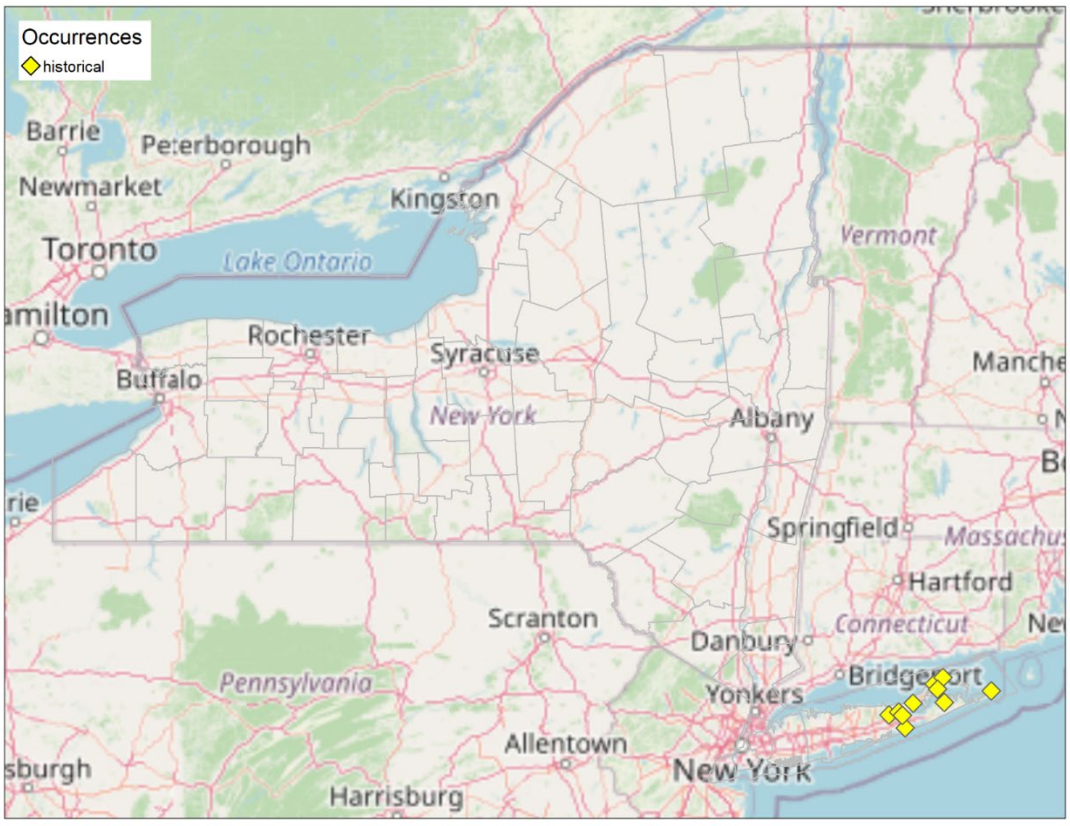

Figure 2. Records of *Cicindela patruela consentanea* in New York

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	17	_____
2000-2023	_____	0	_____

Table 1. Records of *Cicindela patruela consentanea* in New York.

Details of historic and current occurrence:

Schlesinger (2010) lists 17 historic occurrences of this species, with the most recent recorded in 1952 (Greenport). Others are from: Alley Pond, Queens County (pre-1941); Bay Shore (1916); Calverton (1946); Flanders (1946); Huntington (no date) and Mattituck (1946). There have been no occurrences of this species recorded since 1952 (Schlesinger 2010). The number of historical records on Long Island (17) suggests it was once well established there, but is apparently extirpated from the state and outside of New Jersey, where there are far fewer occurrences there since 1970 than prior to then (NatureServe 2013).

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	100 mi

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. Oak-Pine Forest
2. Oak Forest
3. Pine Barrens
4. Coastal Hardwoods
5. Coastal Coniferous Barrens

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Choose an item.	Choose an item.	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:

This beetle occurs in the most xeric parts of the New Jersey Pine Barrens, requiring patches of bare sand for breeding (see Boyd 1978). Willis (2000) reviewed habitats for the species and concluded "one

nearly constant soil condition... is consolidated sandy soil nearby, usually cover by mosses" but much of his "oak-pine forest" (probably all for this subspecies) is actually woodlands (NatureServe 2013). It has a very narrow environmental specificity, with scare key requirements (NatureServe 2013). Its habitat typically has exposed pebbles, patches of sand blackened by vegetation and lichens nearby. Two constants for this species is an abundance of fairly large pebbles in the sand and nearby shade into which adults may retreat during hot weather (NatureServe 2013).

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):*

Summarized from NatureServe (2013):

This is a diurnal, fall-spring species. Adults peak in September, and again from about mid-April to mid-May, but some can be seen in the intervening months, especially August. Larvae occur all year and the life cycle takes two years. Adults overwinter in the soil.

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

Threats to NY Populations	
Threat Category	**Threat**
1. Residential & Commercial Development	Housing & Urban Areas (loss and degradation of habitat)
2. Natural System Modifications	Fire & Fire Suppression (fire suppression)
3. Human Intrusions & Disturbance	Recreational Activities (ATV use)

Mawdsley (2007) cites urbanization and suppression of natural fire regimes as the chief causes of decline in this beetle, two threats that are clearly present on Long Island. Urbanization reduces the quantity of suitable forest, while fire suppression reduces the size and abundance of forest openings frequented by tiger beetles. Mawdsley (2005) documented the extirpation of the nominate subspecies, *C. p. patruela*, from the Washington, D.C. area, apparently resulting from urbanization. While urbanization on Long Island has not wiped out suitable pine barrens habitat there, which remains in considerable acreage, a long history of fire suppression might have destined this species to extirpation (Schlesinger 2010).

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

Yes:_____ No:__X__ Unknown:_____

If yes, describe mechanism and whether adequate to protect species/habitat:

Describe 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. Ultimately, if the species is truly extirpated, habitat improvement followed by release of individuals would be needed to restore the species to New York.

Schlesinger (2010) recommends that this species be listed as Endangered in New York and it is not entirely clear why this subspecies has become so much rarer in the past 50 years than it once was (NatureServe 2013).

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

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

Table 2. Recommended conservation actions for *Cicindela patruela consentanea*.

VII. References

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Willis, Harold L. 2000. Collecting notes for *Cicindela patruela* in central Wisconsin. Cicindela 32(3-4): 49-54.

Originally prepared by	John Shea
Date first prepared	January 6, 2012
First revision	July 22, 2013 (Samantha Hoff)
Latest revision	January 8, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: Northern barrens tiger beetle **Date Updated:** 1/11/2024

Scientific Name: *Cicindela patruela patruela* **Updated By:** M. Schlesinger

Class: Insecta

Family: Carabidae

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

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; now part of Minnewaska State Park). The known occupied area at Sam's Point has been increased considerably since the beetle's initial discovery. 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:** _____

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G3T3

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

Other Ranks:

-IUCN Red List: Not ranked

- COSEWIC: Endangered

-Northeast Regional SGCN: RSGCN

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

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Unknown	Unknown			Yes
New York	Yes	Unknown	Unknown			Yes
Connecticut	Yes	Unknown	Unknown			No
Massachusetts	Yes	Unknown	Unknown			No
New Jersey	Yes	Unknown	Unknown			No
Pennsylvania	Yes	Unknown	Unknown			No
Vermont	Yes	Unknown	Unknown			No
Ontario	Yes	Unknown	Unknown			Choose an item.
Quebec	No data	Choose an item.	Choose an item.			Choose an item.

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):*

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

Based on old localities lacking extant populations, the global population appears to be declining at least 10-30% (NatureServe 2013). Short-term trends are unknown, and this species was rediscovered recently in New York in 2004. Although it has not been observed for decades in other reported localities, additional populations may be present elsewhere in the state (NYNHP 2011).

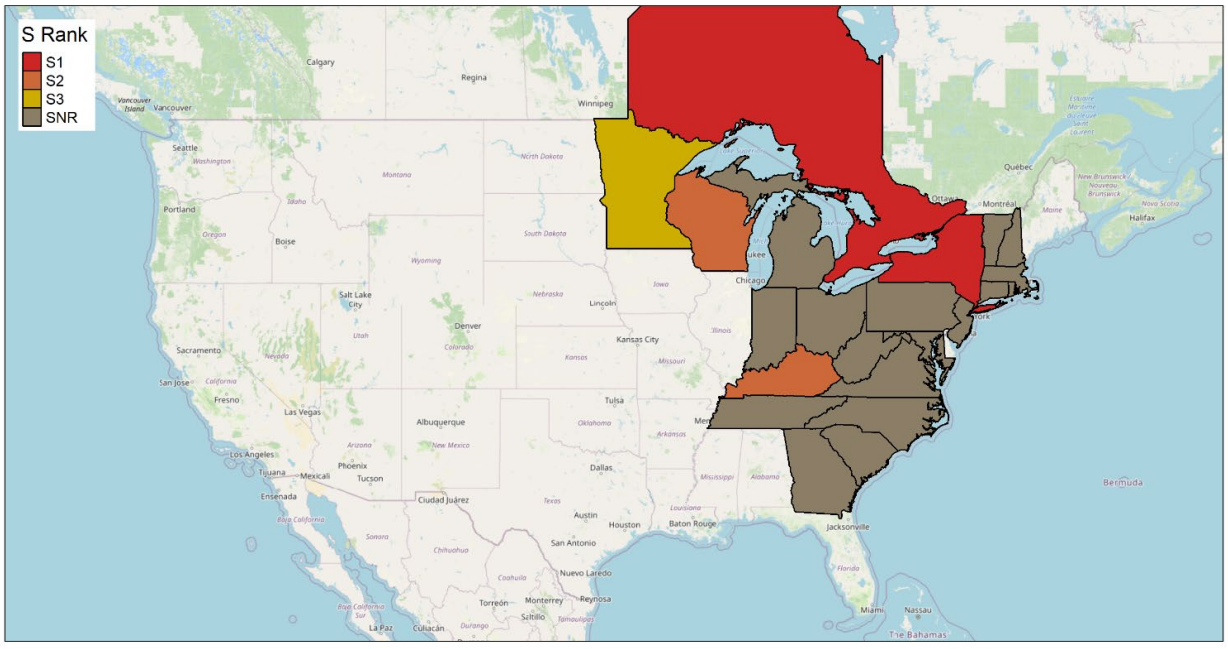

Figure 1. Status of *Cicindela patruela patruela* in North America (NatureServe)

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

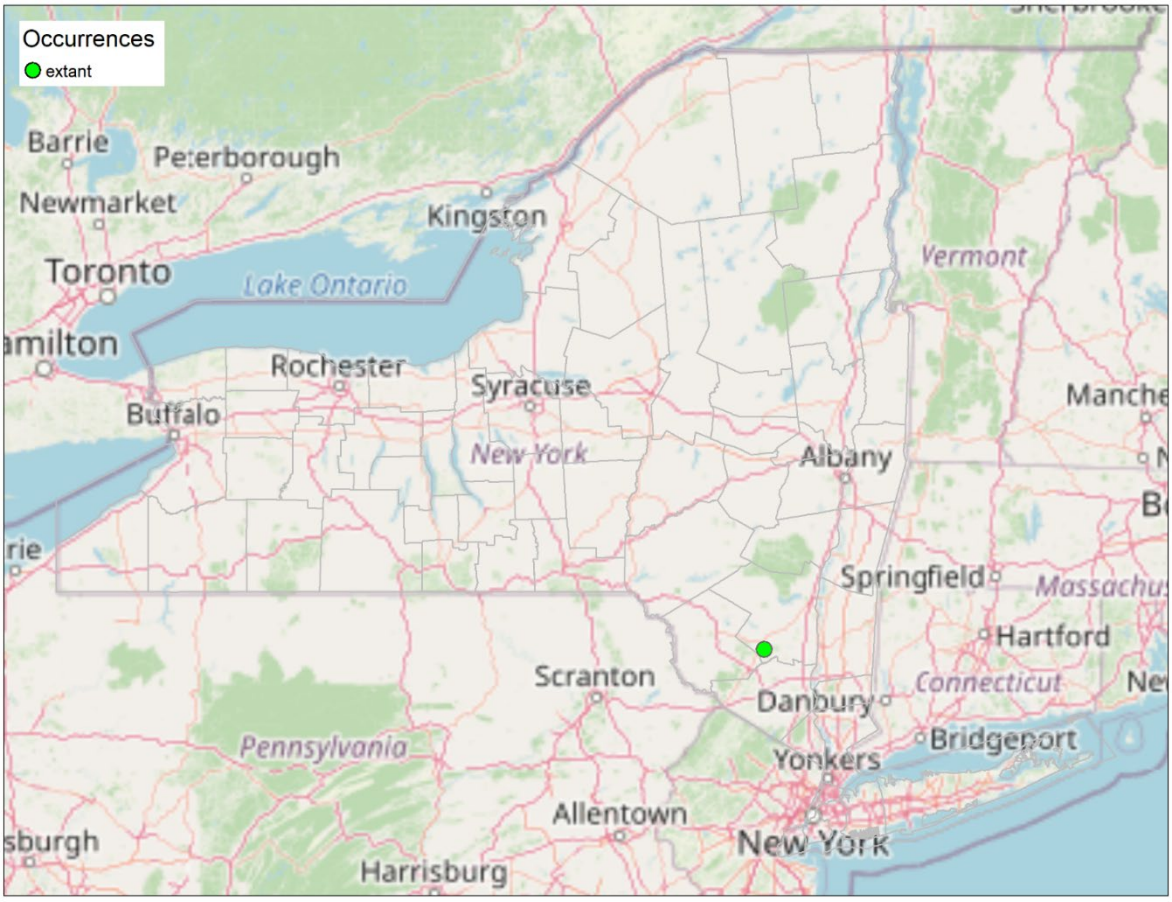

Figure 2. *Cicindela patruela patruela* distribution in New York (New York Natural Heritage Program)

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	4	_____
2000-2023	_____	1	_____

Table 1. Records of *Cicindela patruela patruela* in New York.

Details of historic and current 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). Intensive study of the single known extant population in the Shawangunk Mountains (Wybron 2019, Wybron et al. 2021), while yielding new locations in the vicinity of known locations, also determined the population to be small, in the hundreds of adults.

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%	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. Oak-Pine Forest

2. Oak Forest

3. Pine Barrens

4. Rocky Outcrop

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Yes	Choose an item.	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

Habitat Discussion:

This tiger beetle is a habitat generalist throughout the species' range, although it appears to be a specialist within a given geographic region. It has been found in open deciduous woodlands where 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).

Within the known occurrence, Wybron (2019) found pebble cover to be the primary habitat feature associated with both adults and larval burrows. Ant abundance and other vegetation did not clearly related to beetle presence.

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):*

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 *(from NY 2015 SWAP or newly described):*

Threats to NY Populations	
Threat Category	**Threat**
1. Human Intrusions & Disturbance	Recreational Activities (hiking and biking)
2. Natural System Modification	Fire & Fire Suppression (too much or too little fire)

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?

Yes: X **No:** _____ **Unknown:** _____

If yes, describe mechanism and whether adequate to protect species/habitat:

The only known occurrence is in a State Park.

Describe 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). State Parks staff have been monitoring the species for occupancy annually following Wybron et al. (2021).

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

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

Table 2. Recommended conservation actions for *Cicindela patruela patruela*.

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.

VII. References

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Originally prepared by	John Shea
Date first prepared	January 4, 2012
First revision	February 18, 2014 (Samantha Hoff)
Latest revision	January 11, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: Nine-spotted lady beetle **Date Updated:**

Scientific Name: *Coccinella novemnotata* **Updated By:**

Class: Insecta

Family: Coccinellidae

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

Coccinella novemnotata is a small, oval-shaped insect that ranges from 4.7 to 7 mm. The head is broad with a pale spot between the eyes. Key characteristics for identifying C. novemnotata (also known as C-9) include a large ventral pale trapezoidal spot that extends posteriorly as far as the dorsal spot. The elytra have black spots that get smaller in size and in number until the scutellar spot. Typically, there are a total of nine spots, but the number can vary. Sexes are similar.

C-9 is typically found in open landscapes, especially agricultural land. Aphids are a preferred food. Historically, this species' range included the Nearctic Region of the United States and southern Canada. It was once considered the most common lady beetle in New York and was named the state insect in 1989. Populations have sharply declined since the 1980s and the species has not been found in the Northeast with the exception of a small population at a farm in Suffolk County, New York (Cornell University 2013).

I. Status

a. Current legal protected Status

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

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G2

ii. **New York:** Not ranked **Tracked by NYNHP?:** No (but planning to)

Other Ranks:
-IUCN Red List:

-Northeast Regional SGCN:

Status Discussion:

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining	1987-2013		Choose an item.
Northeastern US	Yes	Declining	Declining	1987-2013		Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
New York	Yes	Declining	Declining	1970-2013		Yes
Connecticut	No	Choose an item.	Choose an item.	1987-2013	SH	No
Massachusetts	Yes	Unknown	Unknown	1989-2013	Not listed	No
New Jersey	Yes	Unknown	Unknown	1989-2013		Yes
Pennsylvania	Choose an item.	Unknown	Unknown	1989-2013	Not listed	No
Vermont	Choose an item.	Unknown	Unknown	1989-2013	Not listed	No
Ontario	Choose an item.	Unknown	Unknown	1989-2013		Choose an item.
Quebec	Choose an item.	Unknown	Unknown	1989-2013		Choose an item.

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):*

Regular surveys are not taking place, but there is a citizen science project (The Lost Ladybug Project) that started in 2000.

USDA APHIS surveys in 1993 found zero C. novemnotata during surveys in 11 Northeastern states, including New York (Harmon et al. 2007, The Lost Ladybug Project, 2013).

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

C. novemnotata was once widespread and common across North America. As of December 2013, The Lost Ladybug Project reported sightings from only 14 states and two provinces. The majority of the sightings were from the western United States, especially dry, high elevations of Colorado and South Dakota and pan handle of Nebraska (Cornell University 2013). In 1993, USDA APHIS conducted comprehensive surveys in which no C. novemnotata were found in the Northeast (Harmon et al. 2007). More recent surveys have shown a sharp decline in the population and range of this species.

C. novemnotata is the state insect of New York. It was once considered the most common lady beetle in the state. The decline went largely unnoticed until the 1980s. The Lost Ladybug Project has reported a single known location in New York with 21 lady beetles from an organic farm in Amagansett on 8/16/2011 (Cornell University 2013).

Year last collected:

Maryland 1987

Pennsylvania 1987

Delaware 1988

Maine 1992

Declines noted in Alabama, Mississippi since the 1990s. It is possibly extirpated from southern Ontario and is being considered for listing in Canada.

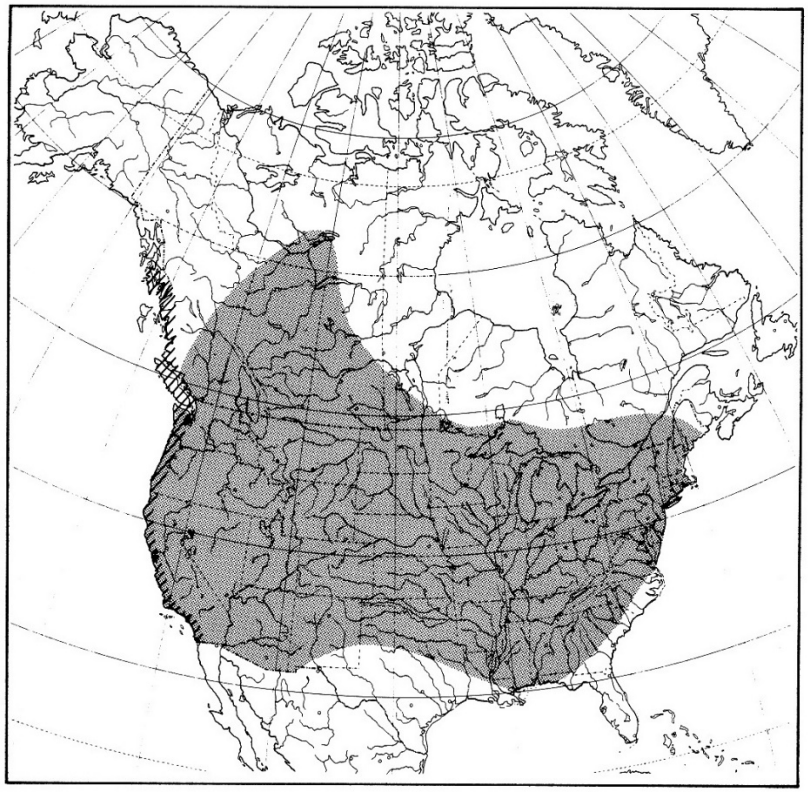


Fig. 644. Distribution. *Coccinella johnsoni* (cross hatch, west coast); *C. novemnotata.*

Figure 1. C. novemnotata range map prior to recent decline (Gordon 1985)

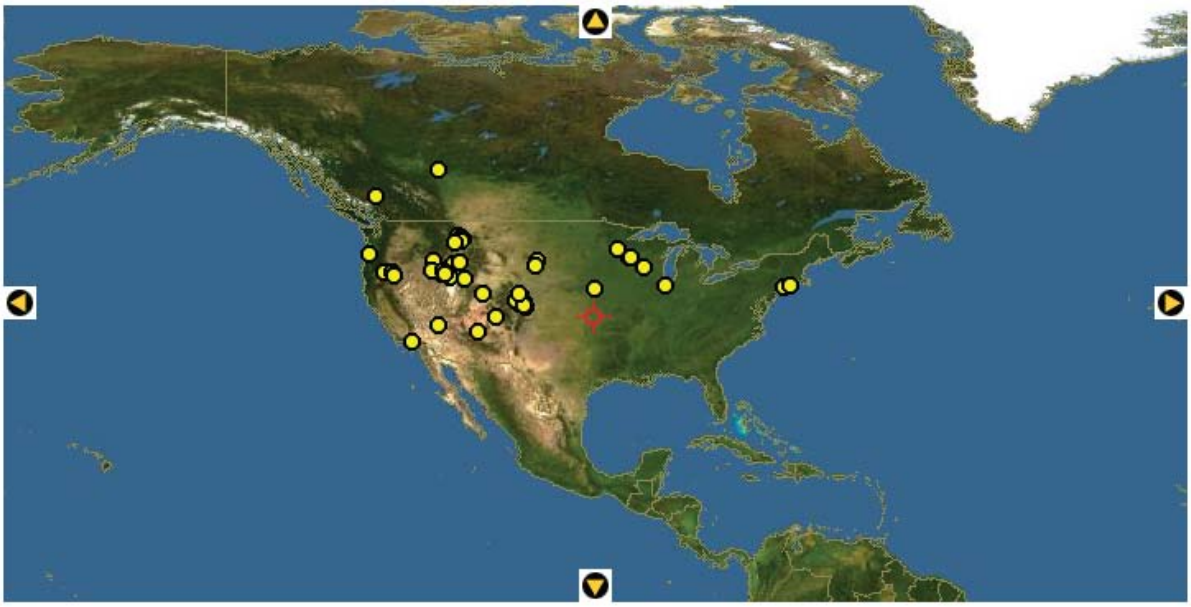
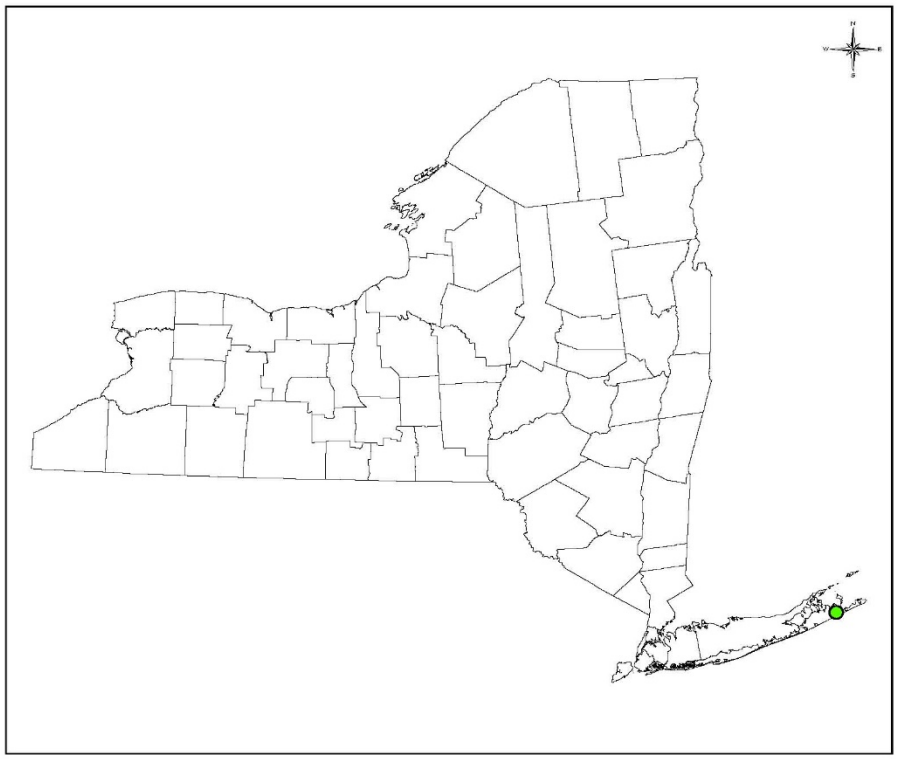


Figure 2. C. novemnotata range map 2000-2013 (Cornell University 2013)

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



New York State Range Map for Coccinella novemnotata (ninespotted lady beetle) 2000-2013 (The Lost Ladybug Project 2013)

Figure 3. Records of C. novemnotata in New York 2000-2013 (The Lost Ladybug Project 2013)

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	_____	_____
2000-2023	_____	_____	<1%

Table 1. Records of C. novemnotata in New York.

Details of historic and current occurrence:

While it's difficult to assign numbers concerning the historical range, there were small studies in the last 100 years that give some indications of the population status. In 1924, a study in Ithaca found that C-9 made up 13% of the Coccinellidae. Another study in 1971 shows a decline with a maximum of one C-9 per 100 stems counted (weekly). Another study on Long Island from 1956-1958 found C-9 represented 19% of the Coccinellidae population in a potato crop. USDA records

show that C-9 was not common in the Northeast in the 1980s or early-1990s (Harmon et al. 2007). It has not been found in any Northeastern state except New York in recent years.

There is one known location where approximately 21 individuals have been found on a farm in Amagansett in Suffolk County (Cornell University 2013).

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%	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

As of 2013, there is only one known New York population in Amagansett in Suffolk County. In general, there have been notable declines throughout C. novemnotata's range. Since the beginning of The Lost Ladybug Project (Cornell University 2013) in 2000, this species has not been found in any state or Canadian province that borders New York.

IV. Primary Habitat or Community Type *(from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):*

a. Agricultural (NLCD agricultural class 81-82) (confirmed)

b. Open Shrubland/grassland

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
No	Yes	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

(Stephens and Losey (2003) suggested lady beetles are a good indicator of ecological health because of their sensitivity to natural enemies and anthropogenic influences.)

Habitat Discussion:

The preferred habitat is open landscape such as grasslands and agricultural land. Preferred agricultural crops include: alfalfa, clover, corn, potatoes, and soybeans. Suburban areas and wooded habitats have also been reported as suitable habitat. The Lost Ladybug Project (Cornell University 2013) reported the following habitats across North America: yard/backyard, woods/trees, garden (fava bean), meadow (non-agricultural- grass/weed), bushes/shrubs, wetland, and soil/rock/sand (not shore).

Agricultural land has been declining in New York since the 1880s. Between 1940 and 1997, there was a 57% decline in farmed land in New York (Harmon et al. 2007).

V. Species Demographic and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/ Catadromous?
Yes	Yes	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):*

C. novemnotata larvae hatch from eggs after four days and undergo four instars before pupating. It takes approximately four to five days to reach the third instar. Seven days later, the larvae are at the pre-pupal stage for one day before pupating and metamorphosing. Adults emerge approximately four days after pupating. Elytra harden after one day. Sexual maturity is reached two to four days after emergence (Losey et al 2012). Adults are polygynandrous and breed for several weeks. The last generation overwinters (Ijaz 2013). (Summary: 20 days from egg to adult; adults live/mate for several weeks.)

This species is diurnal. Movement is either flight or crawling.

Interspecies depredation and cannibalism have been documented. *Perilitus coccinellae*, a braconid wasp, parasitizes lady beetles (Ijaz 2013). Microsporidia, a pathogen, has been documented and its impact on this species is under investigation (Cornell University 2013).

It appears that competition with other aphid-eating insects, such as C. septempunctata, may be leading to smaller ninespotted ladybeetles. This leads to higher mortality and lower fecundity (Losey et al 2012, The Lost Ladybug Project 2013). Losey et al (2012) found that simply limiting the number of aphids has a significant effect on the C-9's size. The size of the field collected specimens was similar to lab-reared beetles that were fed 5 aphids per day. Survival for this group in the lab was 23% compared to the highest survival rate of 75% for lady beetles that were fed 21 aphids per day.

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

1. While it is difficult to prove, it appears this species has been displaced by the nonnative C-7. C-7 and C-9 use similar habitats. Note: Some field collected C-9 were significantly smaller than their laboratory offspring which had constant access to aphids. These recently collected field specimens are also smaller than specimens at Cornell University that were collected between 1909 and 1972. Smaller adults have lower survival and fecundity. C-9 may be smaller as a result of competition with C-7 (Lost Ladybug Project, 2013).
2. A decline in farming (farm/open habitat loss) has decreased the available suitable habitat.
3. C-9 appears to be sensitive pesticide use (Stephens and Losey 2003).

Note: These are general threats that may or may not apply to the site on Long Island. However, C-7 has been found at the site making competition a likely threat.

Threats to NY Populations	
Threat Category	**Threat**
Invasive & Other Problematic Species & Genes	Invasive Non-native/Alien Species (*C. septempunctata* (C-7))
Natural System Modifications	Other Ecosystem Modifications (loss of agricultural land/open habitats)
Pollution	Agriculture and Forestry Effluents (pesticide use)

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 preservation of farm land via conservation easements would help preserve/conserve suitable habitat. Sustainable and/or organic farming practices would be beneficial

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

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1 Species Management	Species Re-introduction
2 Species Management	Ex-Situ Conservation (laboratory rearing)
3 Livelihood, Economic & Other Incentives	Conservation Payment (farmland conservation)

Table 2. Recommended conservation actions for C. novemnotata.

Note: These are general conservation action that may or may not apply to the site on Long Island.

Additional research is needed to determine specific habitat needs. Additional survey work is needed to determine the full range and population size in New York. Consider incentives that encourage sustainable farming or reduced pesticide use.

Recommendations from Kathy O'Brien: Implement landowner incentives to organic farmers or other productive open areas where pesticides are not used. This addresses the threat of insecticides, and could be applied on Long Island or other areas where reintroductions are being considered.

VII. References

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Originally prepared by	Hollie Y. Shaw
Date first prepared	January 15, 2014
First revision	
Latest revision	

Species Status Assessment

Common Name: Transverse lady beetle **Date Updated:**

Scientific Name: *Coccinella transversoguttata* **Updated By:**

Class: Insecta

Family: Coccinellidae

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

Coccinella transversoguttata is a slightly oval-shaped insect that ranges from 5-7.8 mm. The elytra are red/orange with black markings. There is a solid black band behind the pronotum and elongated black markings near the end of its body. The pronotum is black with white markings on the side. The head has two white spots. Eggs are yellow and approximately 1.0 mm. Larvae are elongate and black with several segments. There are orange spots on the dorsal-lateral area of the abdomen. Spines run the length of the body (Graves 2013).

C. transversoguttata prefer open habitats, especially old fields, agricultural fields, meadows, and marshes (Graves 2013).

Sharp declines have been noted, especially in the east. At one time this species was common throughout a large portion of North America extending from Labrador to Alaska and south to California. The current range extends from western Canada and western United States into Mexico. It is also found it Europe, Asia (except China,) and Central America. It is absent from the eastern portion of North America with the exception of one 2012 record from Quebec (Cornell University 2013).

I. Status

a. Current legal protected Status

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

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** Not ranked

ii. **New York:** Not ranked **Tracked by NYNHP?:** No (but planning to)

Other Ranks:
-IUCN Red List:

-Northeast Regional SGCN:

Status Discussion:

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining	1980s-2013		Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Declining	Declining	1980s-2013		Choose an item.
New York	Yes	Declining	Declining	1989-2013		Yes
Connecticut	Yes	Unknown	Unknown	1989-2013	Not listed	No
Massachusetts	Yes	Unknown	Unknown	1989-2013	Not listed	No
New Jersey	Yes	Unknown	Unknown	1989-2013	Not listed	No
Pennsylvania	Yes	Unknown	Unknown	1989-2013	Not listed	No
Vermont	Yes	Unknown	Unknown	1989-2013	Not listed	No
Ontario	Yes	Unknown	Unknown	1989-2013		Choose an item.
Quebec	Yes	Declining	Declining	1989-2013		Choose an item.

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):*

This species, as well as other lady beetles, are the target of a citizen science project known as The Lost Ladybug Project. Participants search for, photograph, and submit images and locations of ladybugs. I'm not aware of any regular surveys.

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

Historically, C. transversoguttata was common throughout a large portion of North America extending from Labrador to Alaska and south to California (Gordon 1985). During the 1980s, a decline of many native lady beetles was noted, including C. transversoguttata. It appears the range has shifted to mostly the western portion of North America. C. transversoguttata has not been found in New York State in recent years.

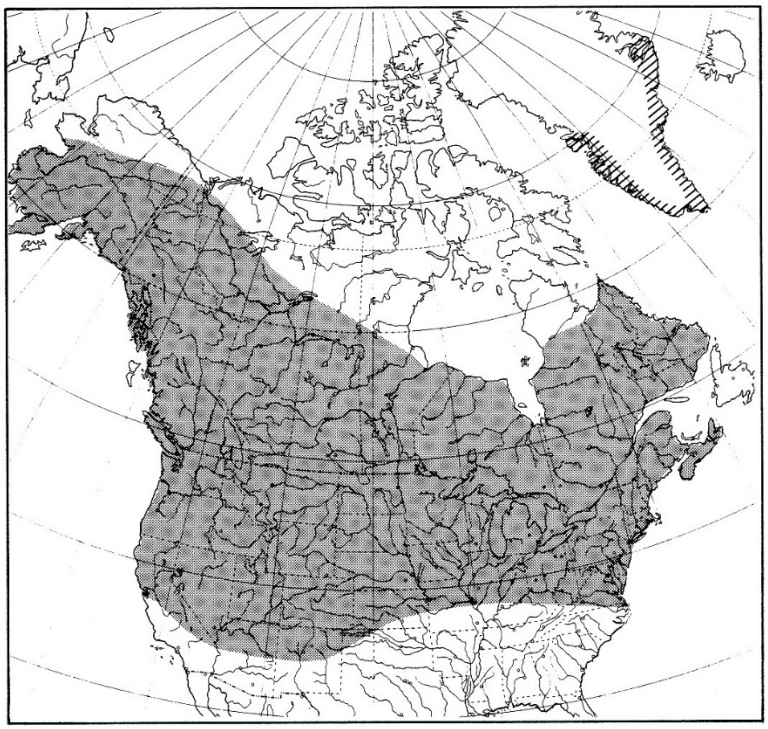


Fig. 642. Distribution. *Coccinella transversoguttata richardsoni* (shaded); *C. t. ephippiata* (cross hatch, Greenland).

Figure 1. Range of C. transversoguttata in North America (Gordon 1985)

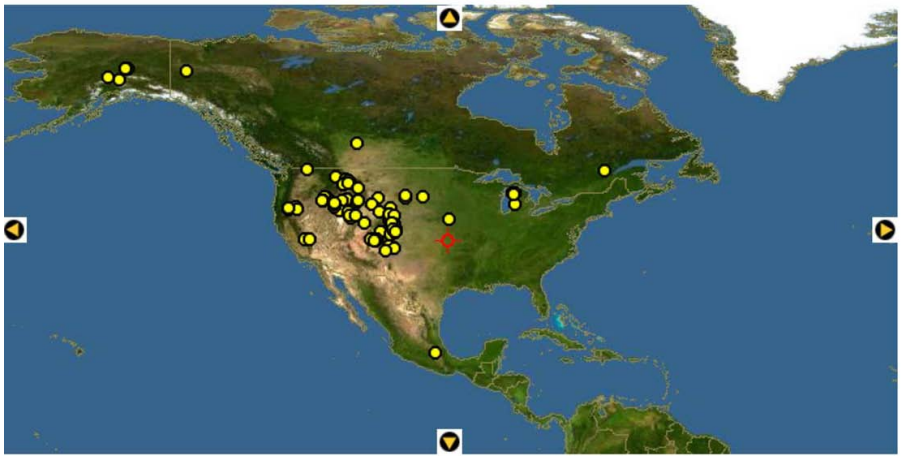


Figure 2. Distribution of C. transversoguttata

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

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	_____	_____
2000-2023	_____	_____	_____

Table 1. Records of C. transversoguttata in New York.

Details of historic and current occurrence:

Prior to the mid to late 1980s, C. transversoguttata was considered common in New York State. C. transversoguttata has not been found in New York in recent years.

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%	Core	Historic core population

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

This species has become increasingly rare in North America. It has been found at one location in the east (Quebec, Canada) since the beginning of the Lost Ladybug Project in 2000 (Cornell University 2013). It has not been found in New York recently, but was once considered common.

IV. Primary Habitat or Community Type *(from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):*

a. Agricultural (NLCD agricultural class 81-82)

b. Open Shrubland/grassland

(The habitat types above have not been confirmed in New York recently but are considered suitable habitat.)

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
No	Yes	Declining	1880s-2013

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

Stephens and Losey (2003) suggested lady beetles are a good indicator of ecological health because of their sensitivity to natural enemies and anthropogenic influences.

Habitat Discussion:

C. transversoguttata prefer open habitats such as old fields, agricultural fields, meadows, and marshes. Agricultural land has been declining in New York since the 1880s. Between 1940 and 1997, there was a 57% decline in farmed land in New York (Harmon et al. 2007).

V. Species Demographic and Life History:

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

Mating and egg lying occur in the spring after temperatures rise above 12°C. This species is polygynadrous. There are usually two generations per season, but adults will continue to breed until the temperatures cool. Egg masses contain 20-30 eggs and are usually found near aphids. There are four larval instars before pupating. Adults overwinter.

Non-native lady beetles are predators of C. transversoguttata . In addition, they are likely outcompeting C. transversoguttata for resources. *Perilitus coccinellae*, a braconid wasp, parasitizes lady beetles. There are several other known pathogens and parasites of Coccinellidae (Graves 2013).

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

Threats to NY Populations	
Threat Category	**Threat**
1 Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (*C. septempunctata* and *Harmonia axyridis* resource competition, possible inbreeding)
2 Natural System Modifications	Other Ecosystem Modifications (loss of agricultural land/open habitats)
3 Pollution	Agricultural and Forestry Effluents (pesticide use)
4 Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (hybridization with)

1. While it is difficult to prove, it appears this species has been displaced by the nonnative lady beetles via competition for resources, depredation, and possible inbreeding.
2. A decline in farming (farm/open habitat loss) has decreased the available suitable habitat.
3. Lady beetles appear to be sensitive pesticide use (Stephens and Losey 2003).

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:

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

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated

subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1 Species Management	Species Re-introduction
2 Species Management	Ex-Situ Conservation (laboratory rearing)
3 Livelihood, Economic & Other Incentives	Conservation Payment (farmland conservation)

Table 2. Recommended conservation actions for C. transversoguttata.

Additional research is needed to determine specific habitat needs. Additional survey work is needed to determine the full range and population size in New York. Consider incentives that encourage sustainable farming or reduced pesticide use.

Comments from Kathy O'Brien: Targeted searches are needed where the species has been recently found in other states to refine habitat needs. Then apply habitat knowledge to surveys in New York to locate populations. This would address loss of habitat threat, and would be applicable to any area in the state where potentially-occupied habitat exists. Conservations actions #1 and #2 above are not applicable until we have a better understanding of what the species' habitat needs are, and possibly why these bees have declined. Conservation action #3 may work if pesticides prove to be a major culprit.

VII. References

Committee on the Status of Endangered Wildlife in Canada. 2013. "Candidate Wildlife Species." Government of Canada. http:www.cosewic.gc.ca/eng/sct3/index_e.cfm. (date accessed December 29, 2013).

Cornell University. 2013. "The Lost Ladybug Project." www.lostladybug.org. (date accessed: December 29, 2013).

Graves, D. 2013. "Coccinella transversoguttata" (On-line), Animal Diversity Web. Accessed January 16, 2014 at http://animaldiversity.ummz.umich.edu/accounts/Coccinella_transversoguttata/

Gordon, R. 1985. The Coccinellidae (Coleoptera) of America north of Mexico. *Journal of the New York Entomological Society*, 93: 1-912.

Harmon, J.P., E. Stephens, and J. Losey. 2007. The decline of native coccinellids (Coleoptera: Coccinellidae) in the United States and Canada. Journal of Insect Conservation. 11: 85-94.

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 21, 2014).

Originally prepared by	Hollie Y. Shaw
Date first prepared	January 22, 2014
First revision	
Latest revision	

Species Status Assessment

Common Name: Three-banded lady beetle **Date Updated:**

Scientific Name: *Coccinella trifasciata* **Updated By:**

Class: Insecta

Family: Coccinellidae

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

Coccinella trifasciata is a small insect that ranges from 4.0 to 5.0 mm. Males have a pale head with the exception of a black band across the base. Females have a black head with two pale spots. The anterior margin of the pronotum is typically pale with a large ventral pale spot that extends posteriorly as far as the dorsal spot. Elytra have three transverse black bands that are interrupted at the suture (Gordon 1985).

Since the beginning of the Lost Ladybug Project, C. trifasciata has been found in meadows/fields (non-agricultural), gardens, yards, hayfields, and bramble fruits in New York (Cornell University 2013).

I. Status

a. Current legal protected Status

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

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** Not ranked

ii. **New York:** Not ranked **Tracked by NYNHP?:** No (but possibly in future)

Other Ranks:
-IUCN Red List:

-Northeast Regional SGCN:

Status Discussion:

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining	1980s-2013		Choose an item.
Northeastern US	Yes	Declining	Declining	1980s-2013		Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
New York	Yes	Declining	Declining	1980s-2013	Not listed	Yes
Connecticut	Yes	Unknown	Unknown	1980s-2013	Not listed	No
Massachusetts	Yes	Declining	Declining	1980s-2013	Not listed	No
New Jersey	Yes	Unknown	Unknown	1980s-2013	Not listed	No
Pennsylvania	Yes	Unknown	Unknown	1980s-2013	Not listed	No
Vermont	Yes	Unknown	Unknown	1980s-2013	Not listed	No
Ontario	Yes	Declining	Declining	1980s-2013	Not listed	Choose an item.
Quebec	Yes	Declining	Declining	1980s-2013	Not listed	Choose an item.

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):*

This species, as well as other lady beetles, are the target of a citizen science project known as The Lost Ladybug Project. Participants search for, photograph, and submit images and locations of ladybugs.

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

It appears that the population is declining and there is some range reduction.

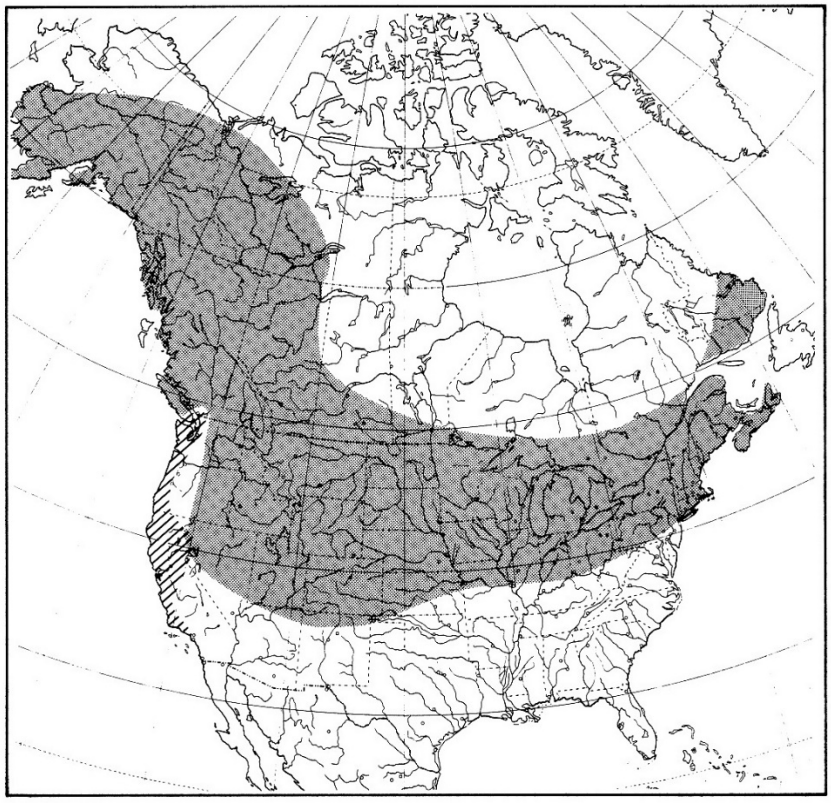
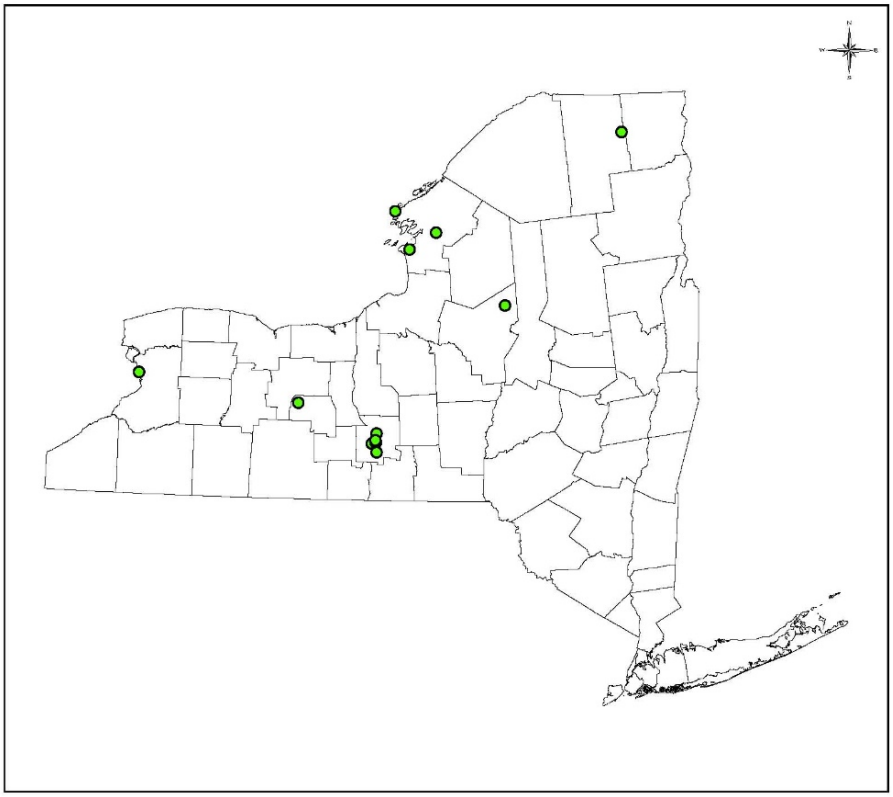


Fig. 640. Distribution. *Coccinella trifasciata trifasciata* (shaded); *C. t. subversa* (cross hatch).

Figure 1. Range of C. trifasciata (Gordon 1985)

Figure 2. Observations of C. trifasciata from The Lost Ladybug Project 2000-2013 (Cornell University 2013)

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



New York State Range Map for Coccinella trifasciata (three-banded lady beetle) 2000-2013 (Cornell University 2013)

Figure 3. Range of C. trifasciata in New York (Cornell University 2013)

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	_____	_____
2000-2023	_____	_____	<1%

Table 1. Records of C. trifasciata in New York.

Details of historic and current occurrence:

Twenty C. trifasciata have been found at twelve sites in six counties in Central/Western and Northern New York. The Lost Ladybug Project (Cornell University 2013) stated that this species population is declining.

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	

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):*

a. NLCD Developed Classes 21-24, 31

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
No	Yes	Unknown	

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

Stephens and Losey (2003) suggested lady beetles are a good indicator of ecological health because of their sensitivity to natural enemies and anthropogenic influences.

Habitat Discussion:

Extensive habitat data are not available. Recent observations report the following habitats in New York: meadows/fields (non-agricultural), gardens, yards, hayfields, and bramble fruits (Cornell University 2013).

V. Species Demographic and Life History:

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

Specific demographics and life history information are not available for this species. It is assumed that its life cycle follows that of most Coccinellidae. In general, egg hatch after several day, larvae go through several instars before pupating and reaching adulthood.

Non-native lady beetles are predators of C. trifasciata. In addition, non-native lady beetles are likely outcompeting C. trifasciata for resources. *Perilitus coccinellae*, a braconid wasp, parasitizes lady beetles. There are several other known pathogens and parasites of Coccinellidae (Graves 2013).

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

1. While it is difficult to prove, it appears some native species have been displaced by nonnative lady beetles (Lost Ladybug Project, 2013).
2. A decline in farming (farm/open habitat loss) has decreased some of the available suitable habitat.
3. Lady beetles appear to be sensitive pesticide use (Stephens and Losey 2003).

Note: These are general threats that may or may not apply to New York sites. However, non-native species are found throughout the state making competition a likely threat.

Threats to NY Populations	
Threat Category	**Threat**
1 Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species
2 Natural System Modifications	Other Ecosystem Modifications (loss of agricultural land/open habitats)
3 Pollution	Agriculture and Forestry Effluents (pesticide use)

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:

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

Additional research is needed to determine specific habitat needs. Additional survey work is needed to determine the full range and population size in New York. Consider incentives that encourage sustainable farming or reduced pesticide use.

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1 Species Management	Species Re-introduction
2 Species Management	Ex-Situ Conservation (laboratory rearing)

Table 2. Recommended conservation actions for C. trifasciata.

VII. References

Committee on the Status of Endangered Wildlife in Canada. 2013. “Candidate Wildlife Species.” Government of Canada. http:www.cosewic.gc.ca/eng/sct3/index_e.cfm. (date accessed December 29, 2013).

Cornell University. 2013. “The Lost Ladybug Project.” www.lostladybug.org. (date accessed: December 29, 2013).

Graves, D. 2013. "Coccinella transversoguttata" (On-line), Animal Diversity Web. Accessed January 16, 2014 at http://animaldiversity.ummz.umich.edu/accounts/Coccinella_transversoguttata/

Stephens, Erin and John Losey. 2003. The decline of C-9- New York State’s insect. The Xerces Society. Wings: Essays on Invertebrate Conservation. Fall 2003 pp. 8-12.

Originally prepared by	Hollie Y. Shaw
Date first prepared	February 5, 2013
First revision	
Latest revision	

Species Status Assessment

Common Name: Salt marsh tiger beetle **Date Updated:** 1/10/2024

Scientific Name: *Ellipsoptera marginata* **Updated By:** M. Schlesinger

Class: Insecta

Family: Carabidae

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

The salt marsh tiger beetle requires sandy substrate adjacent to salt marshes. This species has received little attention in the Northeast, and while some authors have suggested a regional decline (Leonard and Bell 1999; Knisley and Schulz, 1997), others have found the evidence lacking (Ward and Mays 2015). Despite Ward and Mays (2014) finding *E. marginata* in most suitable habitat in Maine, the suitable habitat there is limited and the species was recently listed as Threatened in Maine (https://www.maine.gov/ifw/fish-wildlife/wildlife/endangered-threatened-species/listed-species.html). There is some evidence to suggest the species has disappeared from some sites in New York, but very little formal survey effort has been expended here. The number of iNaturalist records from New York has increased dramatically in the last few years, and a handful of blacklight surveys by the New York Natural Heritage Program (unpublished data) have successfully detected the species, though in small numbers. Given the large number of threats to coastal ecosystems, systematic surveys for this species to better determine its status are warranted.

(formerly *Cicindela marginata*)

I. Status

a. Current legal protected Status

i. **Federal:** None **Candidate:** _____

ii. **New York:** None

b. Natural Heritage Program

i. **Global:** G5

ii. **New York:** S3 **Tracked by NYNHP?:** no; watchlist

Other Ranks:
-IUCN Red List: N/A

-Northeast Regional SGCN: Watchlist [Assessment Priority]

Status Discussion:

This species is considered vulnerable (S3) in New York although coordinated survey effort has been lacking.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.
Northeastern US	Yes	Unknown	Unknown		Watchlist (assessment priority)	Yes
New York	Yes	Unknown	Unknown			Yes
Connecticut	Yes	Unknown	Unknown			Yes
Massachusetts	Yes	Unknown	Unknown			Yes
New Jersey	Yes	Unknown	Unknown			Yes
Pennsylvania	No data	Unknown	Unknown			No
Vermont	No	Choose an item.	Choose an item.			No
Ontario	No	Choose an item.	Choose an item.			Choose an item.
Quebec	No data	Choose an item.	Choose an item.			Choose an item.

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):*

None. iNaturalist shows recent records but without abundance estimates.

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

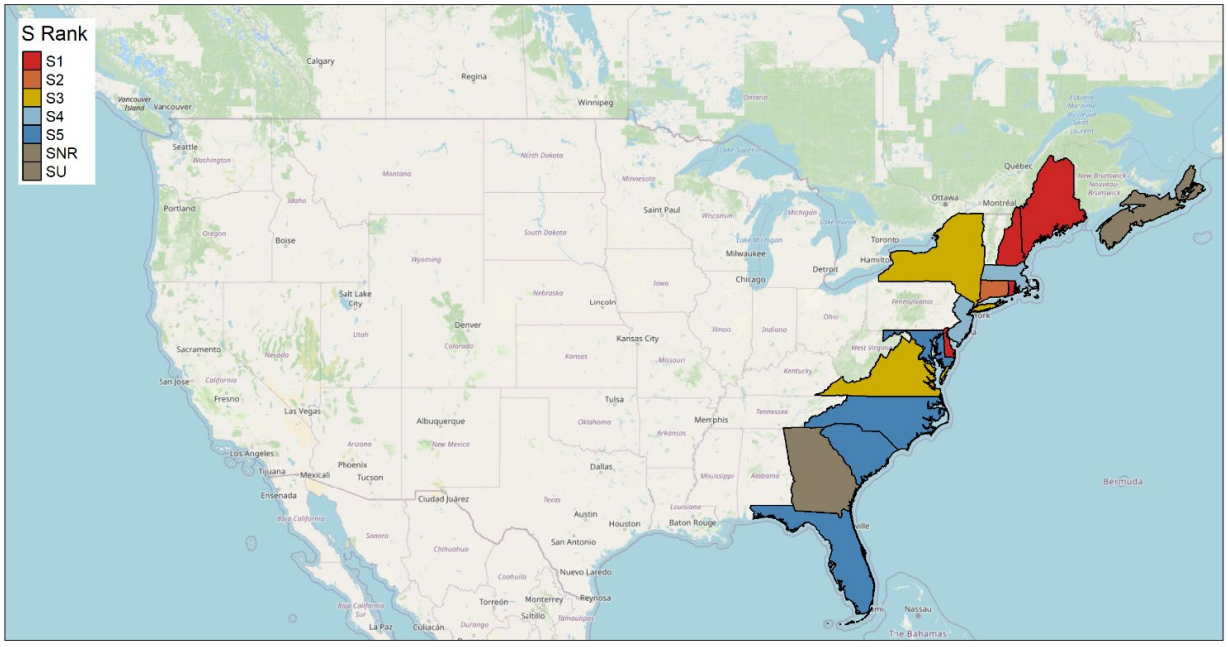


Figure 1. Status of *Ellipsoptera marginata* in North America (NatureServe)

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

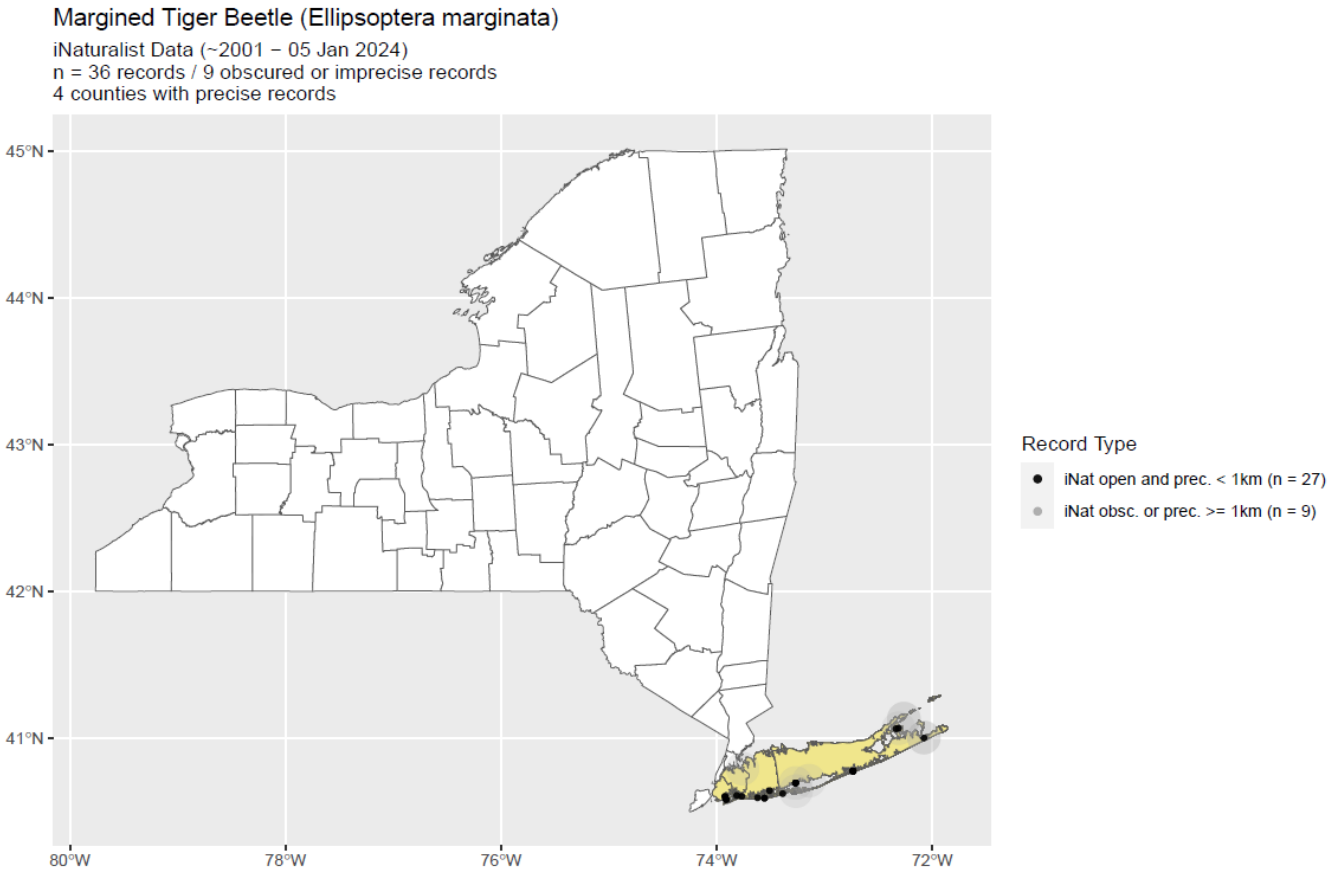


Figure 3. *Ellipsoptera marginata* records in New York (iNaturalist)

Years	# of Records	# of Sites	% of State
Pre-2000	_____	22	_____
2000-2023	27	_____	_____

Table 1. Records of *Ellipsoptera marginata* in New York. Recent records have not been examined to determine how many distinct occurrences exist.

Details of historic and current occurrence: Many records have been submitted to iNaturalist since the last SWAP. There are currently 35 observations reflecting 17 distinct localities. In addition, NYNHP black light surveys since 2020 have detected the species adjacent to 3 of 4 salt marshes surveyed.

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%	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):*

a. Maritime dunes, salt marsh

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Yes	Choose an item.	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

Habitat Discussion:

From Ward and Mays (2015).

As its name implies, Salt Marsh Tiger Beetle adults can be found in salt marshes, especially those associated with sandy barrier beaches (Leonard and Bell 1999). According to Dunn (1981), adults can be found along the back beach where the dunes and the salt marsh meet, on saline mud flats, and occasionally on sandy ocean beaches. Adults have also been reported from the mouths of tidal streams (Pearson et al. 2006), and even occasionally on coral outcrops (Choate 2003).

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):*

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

Threats to NY Populations	
Threat Category	**Threat**
1. Natural System Modifications	Dams & Water Management/Use (altered salt marsh hydrology)
2. Climate Change & Severe Weather	Storms & Flooding (severe storms)
3. Climate Change & Severe Weather	Habitat Shifting & Alteration (rising sea level)

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

Yes:_____ No:_X__ Unknown:_____

If yes, describe mechanism and whether adequate to protect species/habitat:

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

Coordinated inventory is needed to determine this species' status in NY.

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1.	

Table 2. (need recommended conservation actions for *Ellipsoptera marginata*).

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 #5, 210pp.

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Schlesinger, M.D. and P.G. Novak. 2011. Status and Conservation of an Imperiled Tiger Beetle Fauna in New York State, USA. Journal of Insect Conservation 15:839-852.

Schlesinger, M. 2013. NYSDEC SWAP 2015 Species Status Assessment for Cicindela hirticollis. Revised by Samantha Hoff on February 18, 2013.

Ward, M.A and J.D. Mays. 2014. Systematic surveys for a coastal tiger beetle, Cicindela marginata Fabricus, in Maine. Northeastern Naturalist 21(4):574–586.

Ward, M.A. and Mays, J.D., 2015. Cicindela marginata Fabricius (Carabidae: Cicindelinae) in the Northeastern United States: A Tiger Beetle In Decline?. Northeastern Naturalist, 22(1), pp.192-199.

Originally prepared by	Matthew Schlesinger
Date first prepared	October 30, 2013
First revision	February 18, 2014 (Samantha Hoff)
Latest revision	January 10, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: Puritan tiger beetle **Date Updated:** 1/12/2024

Scientific Name: *Ellipsoptera puritana* **Updated By:** M. Schlesinger

Class: Insecta

Family: Carabidae

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

A federally threatened species, the puritan tiger beetle is currently restricted to a 26-mile stretch along the Chesapeake Bay, a 1.5 mile stretch of riverbank in Calvert County, Maryland, and to two short stretches of the Connecticut River in Massachusetts and Connecticut. Historically, it was present along 125 miles of the Connecticut River but has been eradicated from most of its historic range. There are three unconfirmed and questionable historical reports of this species in New York, but most researchers omit these unverified records from the historical distribution.

Although there are three unconfirmed and questionable historical reports of this species in New York, most researchers omit these unverified records from the historical distribution and it is very possible this species never did occur in New York. Experts comment that this species should be deleted from SGCN list (NYSDEC SGCN Expert Meeting).

(formerly *Cicindela puritana*)

I. Status

a. Current legal protected Status

i. **Federal:** Threatened **Candidate:** _____

ii. **New York:** Not Listed; non SGN

b. Natural Heritage Program

i. **Global:** G1G2

ii. **New York:** SNA **Tracked by NYNHP?:** _____

Other Ranks:
-IUCN Red List:

-Northeast Regional SGCN:

Status Discussion:

Although there are three unconfirmed and questionable historical reports of this species in New York, most researchers omit these unverified records from the historical distribution and it is very possible this species never did occur in New York.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Stable			Choose an item.
Northeastern US	Yes	Unknown	Stable			Choose an item.
New York	No	Choose an item.	Choose an item.			No
Connecticut	Yes	Unknown	Unknown			Yes
Massachusetts	Yes	Unknown	Unknown			Yes
New Jersey	No	Unknown	Unknown			No
Pennsylvania	No	Choose an item.	Choose an item.			No
Vermont	No	Choose an item.	Choose an item.			Yes
Ontario	No	Choose an item.	Choose an item.			No
Quebec	No	Choose an item.	Choose an item.			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):*

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

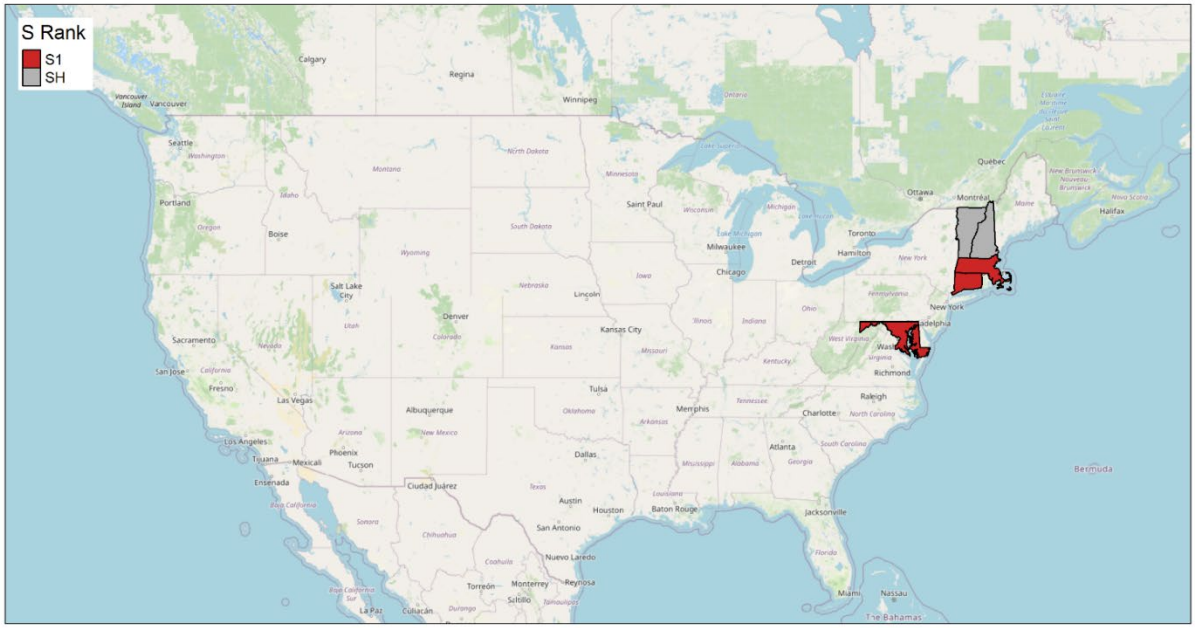

Figure 1. Status of *Ellipsoptera puritana* in North America (NatureServe)

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

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	_____	_____
2000-2023	_____	_____	_____

Table 1. Records of *Ellipsoptera puritana* in New York.

Details of historic and current occurrence:

The historical presence of *Ellipsoptera puritana* in New York is based on three location records in a Cornell University Master's thesis (Gordon 1939), and a New York State list published in 1926 (Leonard). One of the records appears to be a case of mistaken identification, one of the records appears to be a case of mistaken location (taken in CT rather than NY), and the third record is indefinite in location, listed only as "NY" (Novak 1997). It is possible this species never actually occurred in New York.

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
Choose an item.	Choose an item.	

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):*

a.

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Choose an item.	Choose an item.	Choose an item.	

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:

Adults and larvae have been found on the upper portions of sandy beaches near fresh water or salt water. Knisley (1987) determined the habitat for the larvae to be cliffs that were relatively extensive with little vegetation. All areas where this beetle has recently been found are characterized by the presence of "narrow sandy beaches with adjacent well-developed cliffs of sand and clay soil" (Knisley 1987). All sites, historic and recent, are in close association with the Connecticut River or Chesapeake Bay (NatureServe 2011).

V. Species Demographic and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/ Catadromous?
Unknown	Choose an item.	Choose an item.	Choose an item.	Choose an item.	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):*

Adult Puritan tiger beetles emerge during mid to late June. The populations peak in late June to early July and then begin to decline in late July. Larvae hatch in August as first instars. After 2-4 weeks, larvae molt into second instars, the state in which they overwinter. The following spring they molt into third instars and spend the next season in this stage. The following spring, they pupate and adults emerge 22 months after birth (NatureServe 2011).

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

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:

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

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) -
https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1.	

Table 2. (need recommended conservation actions for *Ellipsoptera puritana*)

VII. References

Gordon, W. M. 1939. The Cicindelidae of New York With Reference to their Ecology. M. S. Thesis. Cornell University, Ithaca, NY. 136 pp.

Hill, J. M. and C. B. Knisley. 1993. Puritan tiger beetle (Cincindela puritana) recovery plan. U.S. Fish and Wildlife Service Northeast Region. 39 pp.

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, Martinsville. 210 pp.

NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: January 11, 2011).

New York State Department of Environmental Conservation. (2006). New York State Comprehensive Wildlife Conservation Strategy. Albany, NY: New York State Department of Environmental Conservation.

Novak, P. 1997. Memorandum to Kathy O'Brien regarding Cicindela puritana specimens at the Staten Island Museum. 2 pp.

Originally prepared by	John Shea
Date first prepared	January 12, 2012
First revision	July 24, 2013 (Samantha Hoff)
Latest revision	January 8, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: Northeastern beach tiger beetle **Date Updated:** 1/8/2024

Scientific Name: *Habroscelimorpha d. dorsalis* **Updated By:** M. Schlesinger

Class: Insecta

Family: Carabidae

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

The northeastern beach tiger beetle was formerly common on coastal beaches from Massachusetts to New Jersey and along the Chesapeake Bay in Maryland and Virginia. It is currently confined to a few sites in Virginia and Maryland, and two sites in Massachusetts, having been extirpated from 90% of formerly occupied sites (Schlesinger 2010). It was listed federally as Threatened in 1990.

In New York, this tiger beetle was formerly distributed along many of Long Island's barrier beaches but it appears to have been extirpated entirely by around 1950 (Stamatov 1972). The potential for reintroduction on Long Island was studied by Simmons (2008) who found that although some beaches were intact structurally, nearly all were subject to substantive and pervasive vehicular traffic and were thus unsuitable. Ideal habitat for the adult beetles and their larvae is wide, dynamic, fine sand beaches with little human or vehicular activity.

This species was formerly classified in the genus *Cicindela*.

I. Status

a. Current legal protected Status

i. **Federal:** Threatened **Candidate:** No

ii. **New York:** Threatened

b. Natural Heritage Program

i. **Global:** G3T2

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

Other Ranks:
-IUCN Red List: Not ranked

-Northeast Regional SGCN: RSCGN

Status Discussion:

In New York, this tiger beetle was formerly distributed along many of Long Island's barrier beaches but it appears to have been extirpated entirely by around 1950 (Stamatov 1972).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Choose an item.	Choose an item.			Choose an item.
Northeastern US	Yes	Choose an item.	Choose an item.			Yes
New York	No	Extirpated	Extirpated			Yes
Connecticut	No	Extirpated	Extirpated			Yes
Massachusetts	Yes	Stable	Stable			Yes
New Jersey	No	Extirpated	Extirpated			Yes
Pennsylvania	No	Extirpated	Extirpated			Yes
Vermont	No	Choose an item.	Choose an item.			No
Ontario	No	Choose an item.	Choose an item.			No
Quebec	No	Choose an item.	Choose an item.			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):*

No regular surveys are being conducted for this species at this time and there are no known populations to monitor. Most potentially suitable beach areas on Long Island have been visited in recent years and found to be unsuitable (Simmons 2008, Schlesinger 2010).

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

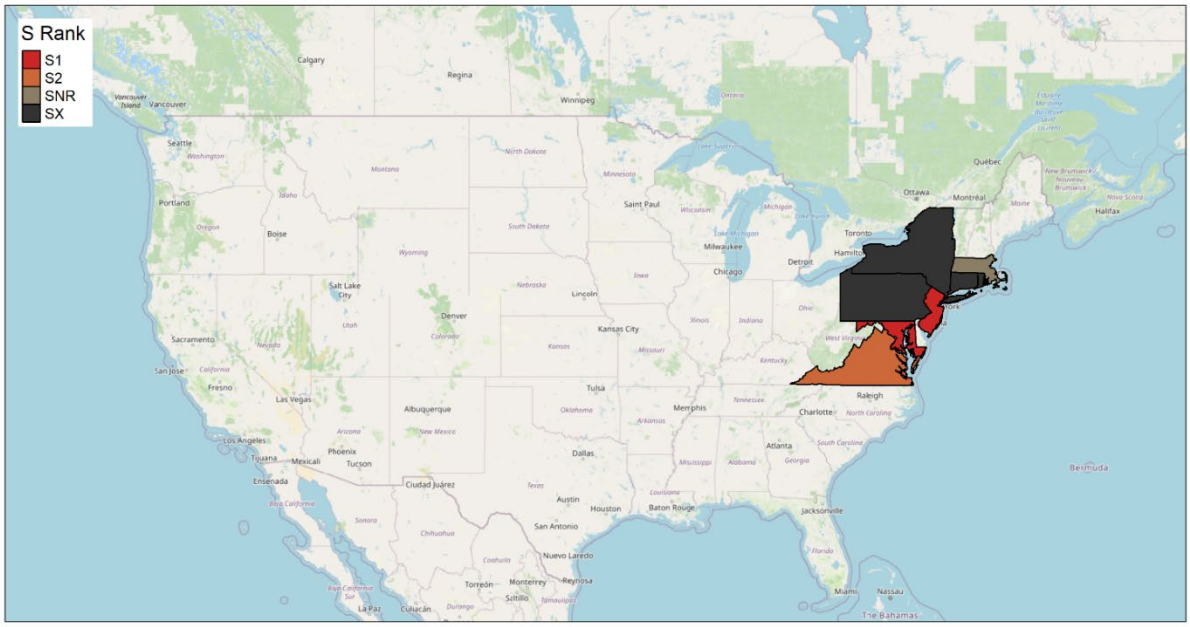

Figure 1. Status of *Habroscelimorpha dorsalis dorsalis* in North America (NatureServe)

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

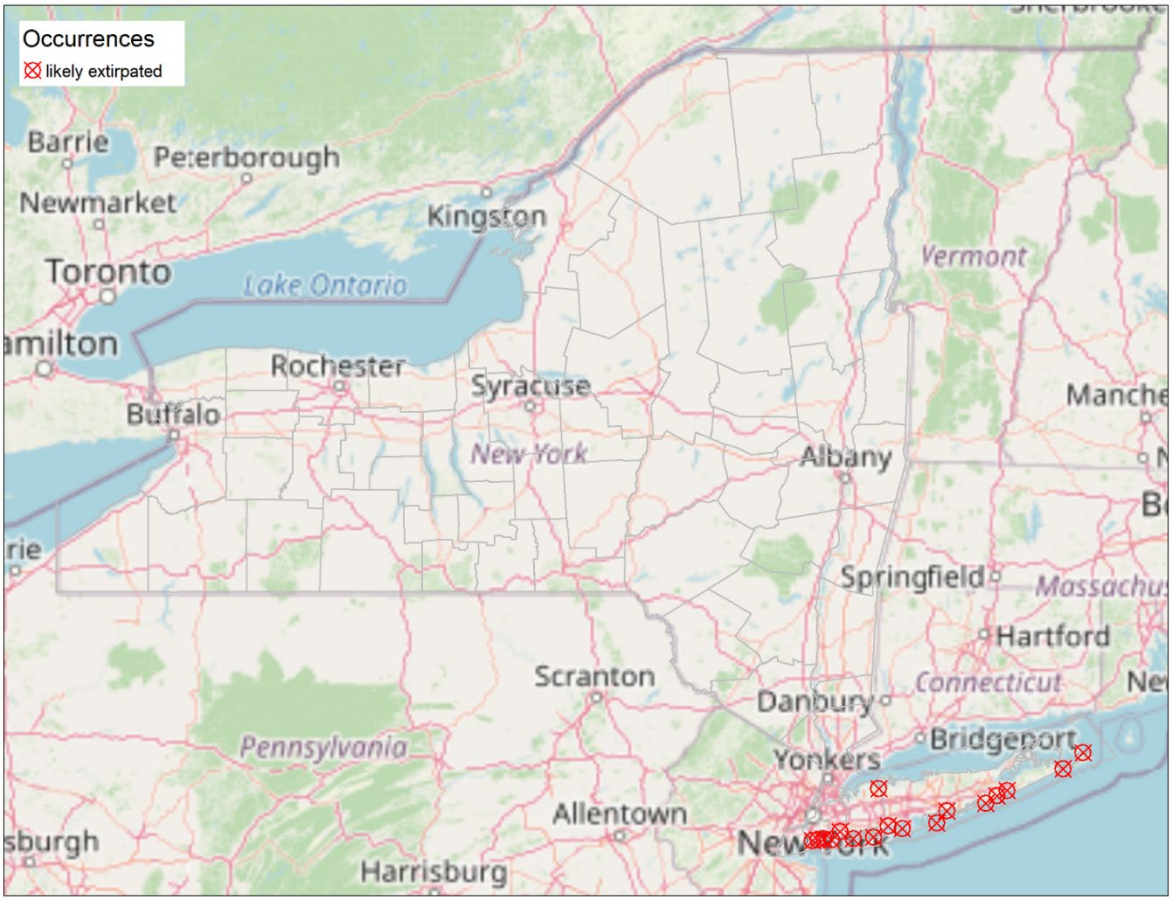

Figure 3. Records of *Habroscelimorpha dorsalis dorsalis* in New York

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	24	5%
2000-2023	_____	0	0

Table 1. Records of *Habroscelimorpha dorsalis dorsalis* in New York.

Details of historic and current occurrence:

Most NY occurrences were recorded during the early 1900s, with the most recent being 1945 (Schlesinger 2010). There are no current New York occurrence records for this species; it is presumed to be extirpated.

Two extant populations are known in the Northeast. One occurs on Martha's Vineyard, an island off Cape Cod, Massachusetts. A population at Monomoy National Wildlife Refuge, also off Cape Cod, was established with individuals translocated from the Martha's Vineyard population. At least 26 populations are known along the Chesapeake Bay.

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%	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):*

a. Maritime dunes

Habitat or Community Type Trend in New York

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

This tiger beetle requires Atlantic Ocean sand beaches as habitat throughout its life cycle. Adults and larvae are typically found on beaches that are dynamic and have back beach vegetation. Preferred beaches are long and wide (greater than 5-8m (16-26ft) wide), have low human and vehicular activity, fine sand particle size, and a high degree of exposure (Hill and Knisley 1994).

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):*

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

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:

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

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for the beach tiger beetles, and for the northeastern beach tiger beetle in particular.

Habitat research:

____ Beaches on Long Island where the Northeastern beach tiger beetle formerly occurred or could occur should be examined to determine if any support large populations of an associated species (*Cicindela hirticollis*) or have other factors (such as a long stretch of beach where vehicle and heavy foot traffic is restricted) suggesting that they may be capable of supporting a population of Northeastern beach tiger beetle. Coordinate with Northeastern beach tiger beetle Recovery Team.

Relocation/reintroduction:

____ An assessment as to the feasibility of a New York reintroduction site for Northeastern beach tiger beetle should be given consideration in conjunction with USFWS Northeastern beach tiger beetle Recovery Team planning. Introductions took place in New Jersey in 1994, 1995, and 1997 but the reintroductions have been deemed unsuccessful (Gwiazdowski and Knisley 2019).

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation	
Action Category	**Action**
1. Species Management	Species reintroduction
2.	

Table 2. Recommended conservation actions for *Habroscelimorpha dorsalis dorsalis*.

VII. References

Gwiazdowski, R. and C.B. Knisley. 2019. Survey report for the Northeastern Beach tiger beetle (Cicindela dorsalis), adult and larval forms, at Sandy Hook, NJ during summer and fall of 2017 & 2018. Report to the U.S. Fish and Wildlife Service, New Jersey Field Office, Pleasantville, NJ

Hill, J. M., and C. B. Knisley. 1994. Northeastern Beach Tiger Beetle (*Cicindela dorsalis dorsalis* Say) Recovery Plan. Final report to the U.S. Fish and Wildlife Service. 53 pages.

Knisley, C. B., J. I. Luebke, and D. R. Beatty. 1987. Natural history and population decline of the coastal tiger beetle, Cicindela dorsalis dorsalis Say (Coleoptera: Cicindelidae). Virginia Journal of Science 38:293-303.

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New York State DEC Fact Sheet: Northeastern Beach Tiger Beetle

Nothnagle, P. and T. Simmons. 1990. Ecology of the northeastern beach tiger beetle, *Cicindela dorsalis dorsalis* in southeastern Massachusetts. A report prepared for The Massachusetts Natural Heritage Program.

Schlesinger, M.D. 2010. Rare Tiger Beetles of New York: Status and Conservation. New York Natural Heritage Report.

Shea, J. 2012. NYSDEC SWAP 2015 Species Status Assessment for Cicindela dorsalis dorsalis. Prepared on January 12, 2012. Revised by Samantha Hoff on July 24, 2013.

Simmons, T. 2008. Habitat assessment of Long Island Atlantic Ocean Beaches for the potential restoration of the federally threatened northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) (Coleoptera : Cicindelidae). A report prepared for New York Natural Heritage Program.

Stamatov, J. 1972. *Cicindela dorsalis* Say endangered on northern Atlantic Coast. Cicindela 4:78.

USFWS. 2004. Minutes of, Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) meeting. Annapolis, MD. February 18-19, 2004.

USFWS. 2009. Northeastern beach tiger beetle, *Cicindela dorsalis dorsalis*. Five-year review: summary and evaluation. Gloucester, VA.

USFWS. 2019. Northeastern beach tiger beetle, *Cicindela dorsalis dorsalis*. Five-year review: summary and evaluation. Gloucester, VA.

Originally prepared by	John Shea
Date first prepared	January 12, 2012
First revision	July 24, 2013 (Samantha Hoff)
Latest revision	January 8, 2024 (Matthew Schlesinger)

Species Status Assessment

Common Name: Sylvan hygrotus diving beetle **Date Updated:**

Scientific Name: *Hygrotus sylvanus* **Updated By:**

Class: Insecta

Family: Dytiscidae

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

Until the 1980s the sylvan hygrotus diving beetle was known in the Northeast only from pre-1900 specimens taken at Peekskill, New York and Lexington, Massachusetts, although Anderson (1976) felt that the Lexington location may be erroneous. Previous to its discovery in Anoka and Isanti counties in Minnesota (Daussin 1979), this beetle was generally believed to be extinct. A specimen in the Cornell collection from near Dreyden, New York collected in 1982 is identified as this species. Subsequently there have been reports in Wisconsin, Manitoba, Ontario and Quebec. What little is known of this beetle's habitat use is summarized by Daussin (1979). Most recent specimens were from temporary pools in fens. The New York specimens were from a small pond (NatureServe 2011). It is quite possible, even likely, that this species would prove to be much more common and widespread than records indicate if the habitat were better understood and more collectors searching such places.

I. Status

a. Current legal protected Status

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

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** GU (unrankable)

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

Other Ranks:

- This beetle is listed as Special Concern in Wisconsin, where there are records from three counties.

Status Discussion:

Status of this species is difficult to determine due only a few historic collection sites and little known information on distribution and habitat.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Unknown	Unknown			Choose an item.
New York	Yes	Unknown	Unknown			Yes
Connecticut	No	Choose an item.	Choose an item.			Choose an item.
Massachusetts	No	Choose an item.	Choose an item.			Choose an item.
New Jersey	No	Choose an item.	Choose an item.			Choose an item.
Pennsylvania	No	Choose an item.	Choose an item.			Choose an item.
Vermont	No	Choose an item.	Choose an item.			Choose an item.
Ontario	No data	Choose an item.	Choose an item.			Choose an item.
Quebec	No data	Choose an item.	Choose an item.			Choose an item.

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):*

None.

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

Unknown.

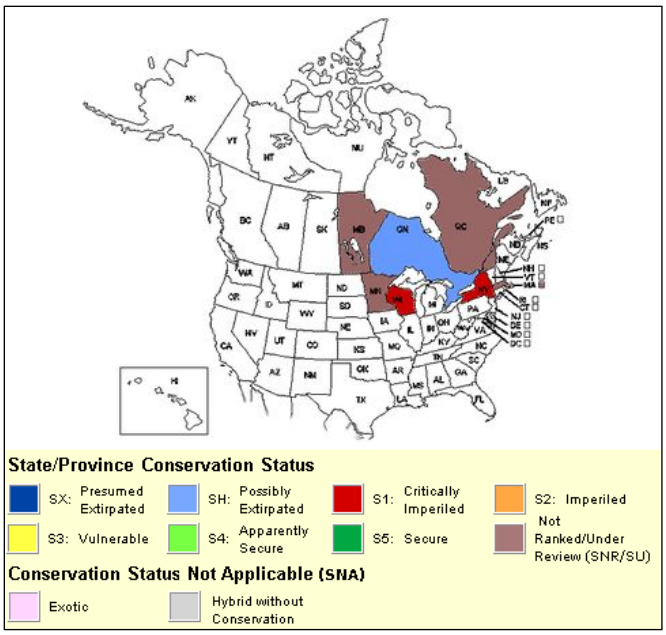

Figure 1. Conservation status of the sylvan hygrotus diving beetle (NatureServe 2013).

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

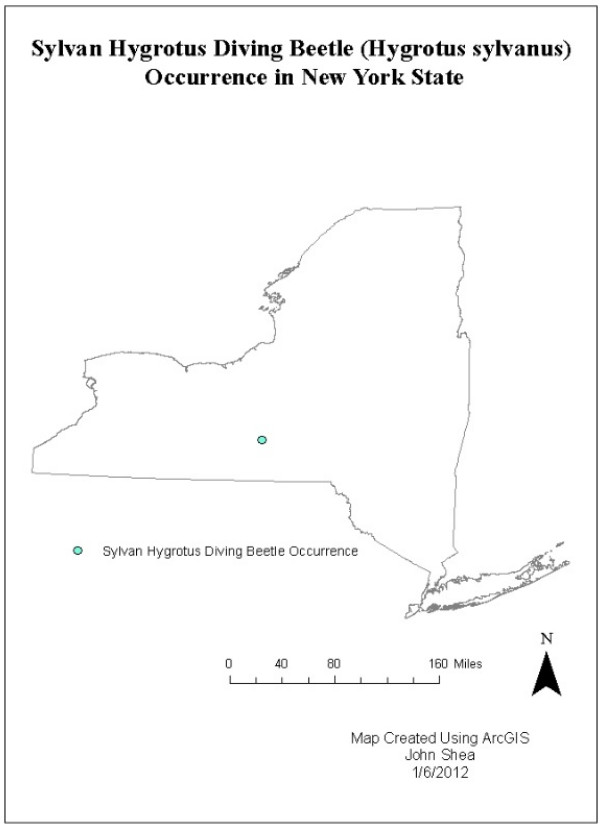

Figure 2. Known location of the sylvan hygrotus diving beetle in New York

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	1	_____
2000-2023	_____	1	_____

Table 1. Records of H. sylvanus in New York.

Details of historic and current occurrence:

A single occurrence described as “a pond in the woods, Peekskill, NY” (New York State CWCS 2006). A single occurrence from the Town of Dryden, Tompkins County in 1982. This beetle is currently known from Massachusetts, Minnesota, Wisconsin, and New York. In Canada, it is ranked historic (SH) in Ontario and listed but not ranked from Manitoba and Quebec.

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
26-50%	Disjunct	

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):*

a. Lacustrine, warm water shallow

b. Palustrine, mineral soil wetland

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Choose an item.	Choose an item.	Unknown	

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:

Most recent specimens were from temporary pools in fens. The New York specimens were from a small pond (NatureServe 2011).

V. Species Demographic and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?		Winter Resident?	Anadromous/ Catadromous?
Unknown	Unknown	Choose an item.	Choose an item.		Choose an item.	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):*

Life history information for this species is unknown.

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

Threats to this aquatic beetle are unknown given the few locations ever recorded for the species and the scant information on the species and its life history. As an aquatic species it can be assumed that changes in water quality and hydrology could have a negative impact on the species where it occurs (New York State CWCS 2006).

Threats to NY Populations	
Threat Category	**Threat**
1. Natural System Modifications	Dams & Water Management/Use (changes in hydrology)
2. Pollution	Household Sewage & Urban Wastewater (poor water quality)
3. Pollution	Industrial & Military Effluents (poor water quality)
4. Pollution	Agricultural & Forestry Effluents (poor water quality)

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 Protection of Waters Program provides protection for rivers, streams, lakes, and ponds under Article 15 of the NYS Environmental Conservation Law.

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

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for the Sylvan hygrotus diving beetle.

Habitat research:

____ Known locations for the species in other states should be mapped and used with GIS in an attempt to model and predict other sites that warrant survey for this species.

Life history research:

____ Should the species be re-located in the Peekskill area and/or confirmed to be present in the Dryden area, research on the life history aspects of the species should be undertaken. This research should include characterization of the occupied habitat which would feed into additional baseline surveys of similar habitats expanding outward from known occupied locations.

Habitat management:

____ The type locality for this species is Peekskill, NY where the species was "taken in a pond in the woods no longer existent". While the pond for the type specimens may no longer occur it is reasonable to believe that other ponds in the vicinity of Peekskill could still support the species and these ponds should be surveyed where access permission can be obtained. In addition, there is a specimen in the Cornell University Insect Collection that is labeled as this species. The specimen is from Ringwood Preserve, Dryden, NY, 1982. The accuracy of the specimen identification should be confirmed and if the specimen is indeed this species then this location should be re-surveyed and additional, similar wetlands in the vicinity of Dryden should also be surveyed.

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1.	
2.	

Table 2. (need recommended conservation actions for H. sylvanus)

VII. References

Anderson, R. D. 1976. A revision of the Nearctic species of *Hygrotus* groups II and III (Coleoptera: Dytiscidae). Annals of the Entomological Society of America 69(4):577-584

Daussin, G. L. 1979. Rediscovery of *Hygrotus sylvanus* (Fall) (Coleoptera: Dytiscidae). Entomological News. 90(4):207-208.

NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: January 6, 2012).

New York State Department of Environmental Conservation. (2006). *New York State Comprehensive Wildlife Conservation Strategy*. Albany, NY: New York State Department of Environmental Conservation.

Originally prepared by	John Shea
Date first prepared	January 6, 2010
First revision	February 18, 2014 (Samantha Hoff)
Latest revision	

Species Status Assessment

Common Name: American burying beetle **Date Updated:**

Scientific Name: *Nicrophorus americanus* **Updated By:**

Class: Insecta

Family: Silphidae

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

The American burying beetle was recorded historically from at least 150 counties in 35 states and three Canadian provinces extending from southern Maine westward across the Great Lakes states to South Dakota, and southward to Texas and Florida. Populations declined severely in the early 1900s and at the time of federal listing as an endangered species in 1989 it was known from just two locations: a small, but apparently stable population on Block Island off the coast of Rhode Island and a lower density, but more widespread population in eastern Oklahoma (USFWS 1991).

East of the Appalachian Mountains, records indicate that the species declined in a generally north to southward direction, and the decline was well underway, if not complete by the early 1920s. West of the Appalachians, the decline occurred later. In the Midwest, the decline appears to have proceeded from the center of the range outward. While American burying beetle is now known to occur in Nebraska, South Dakota, Kansas, Arkansas and Texas, these locations are rediscoveries or discoveries within the known historical range, and do not indicate an increasing trend. Reintroduction efforts have taken place in Massachusetts and Ohio, and were planned for Missouri (USFWS 1991, 2008).

In New York, there is a total of 14 historical occurrences from eight counties (Suffolk, Nassau, Kings, Richmond, Bronx, Westchester, Monroe, and Erie), but the most recent record was from 1956 and the species is currently believed to be extirpated from the state (NYNHP 2012).

This species was last collected in NY in 1965 and is considered extirpated (NYSDEC SGCN Expert Meeting).

I. Status

a. Current legal protected Status

i. **Federal:** Endangered **Candidate:** _____

ii. **New York:** Endangered

b. Natural Heritage Program

i. **Global:** G2G3

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

Other Ranks:

-IUCN Red List: Critically endangered

-COSEWIC: Extirpated (November 2011)

Status Discussion:

American burying beetle was last collected in New York in 1956 at Westbury in Nassau County (NYNHP 2012). It is considered to be extirpated although the current Natural Heritage rank is shown as State Historical (SH).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown	1991-2013		Choose an item.
Northeastern US	Yes	Unknown	Unknown	1990-2008		Choose an item.
New York	No	Extirpated	Extirpated	1956-1991		Choose an item.
Connecticut	No	Extirpated	Extirpated		Special Concern/ Extirpated	Choose an item.
Massachusetts	Unknown	Unknown	Unknown	1980-2013	Endangered	Choose an item.
New Jersey	No	Extirpated	Extirpated		Endangered/ Extirpated	Choose an item.
Pennsylvania	No	Extirpated	Extirpated		Extirpated	Choose an item.
Vermont	No	Choose an item.	Choose an item.		Not listed	Choose an item.
Ontario	No	Extirpated	Extirpated		Extirpated	Choose an item.
Quebec	No	Extirpated	Extirpated		Extirpated	Choose an item.

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):*

There are no extant occurrences known in New York and no regular surveys are conducted. The last surveys conducted for American burying beetle in New York were on Shelter Island, Suffolk County in 1991 and failed to locate the species (USFWS 2008).

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

Despite the recent rediscovery of this species since 1989 in a number of states, overall this beetle has exhibited a dramatic range collapse, having been reduced to less than 10% of its original range and probably much less than 1% of its original occupied habitat (NatureServe 2011). While there have been a large number of surveys and new occurrences discovered, only a small number of populations are monitored annually or biennially. Whether populations and its range are expanding, stable, or contracting is virtually unknown for American burying beetles in much of Arkansas, Kansas, and parts of Nebraska and Oklahoma. And while the Penikese Island restoration attempt in Massachusetts persisted for about nine generations, none were found during surveys from 2003-2006.

The population on Block Island, RI has been monitored annually since 1991. The number of beetles captured varies considerably from year to year due to weather factors. While population estimates have increased over the 16-year period, a program to provision the beetles with carrion to increase reproduction was put in place in 1994. Biologists studying that population caution that their data provide no clear indication about the long-term viability of the population if carrion provisioning were to be discontinued (USFWS 2008).

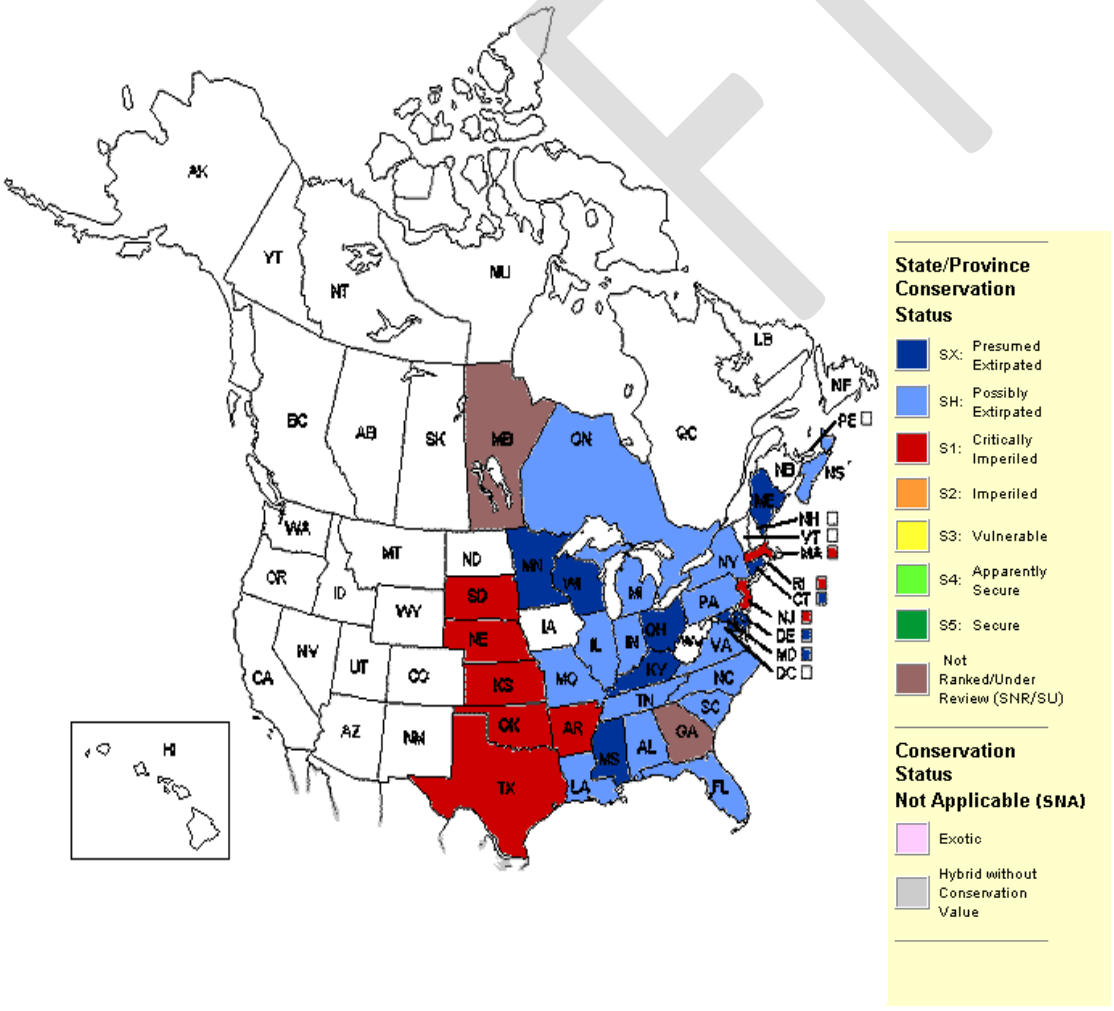

Figure 1: Conservation status of American burying beetle in North America (NatureServe 2011).

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

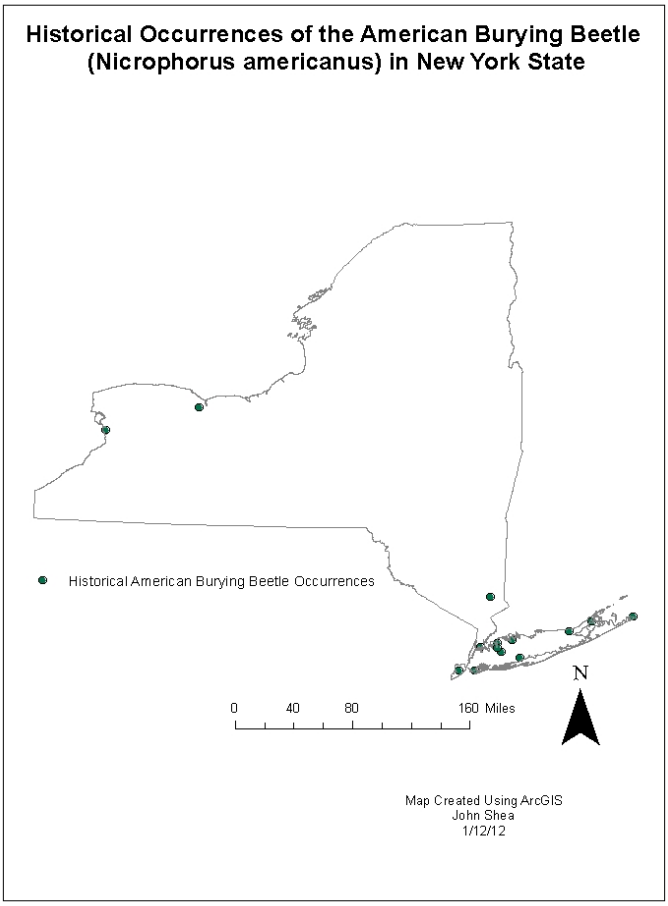

Figure 2: Historical occurrences of American burying beetle in New York (NYNHP 2013).

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	_____	_____
2000-2023	_____	_____	_____

Table 1. Records of American burying beetle in New York.

Details of historic and current occurrence:

Western NY records: Rochester, Durand-Eastman Park (no date), Buffalo, Erie County (no date); southern NY record: Somers, Westchester County (1923); NYC/Long Island area records: Brooklyn, Kings County (1905), Staten Island, Richmond County (no date), Bronx, Bronx County (no date), North Hempstead-Roslyn, Nassau County (1930), North Hempstead-Westbury, Nassau County (1956), Oyster Bay-Sea Cliff, Nassau County (no date), Huntington-Cold Spring Harbor, Suffolk County (1921), Babylon, Suffolk County (1893), Brookhaven, Riverhead, Southampton, Southold, Suffolk County (1934), Southold (1920), Cutchogue (1921), Orient (1937), Montauk Point State Park, East Hampton, Suffolk County (no date).

There are no current occurrences and this species is considered to be extirpated from New York.

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%	Disjunct	

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):*

a. Oak-Pine Forest

b. Pine Barrens

c. Mixed Northern Hardwoods

d. Native Barrens and Savanna

e. Old Field Managed Grasslands

f. Coastal Hardwoods

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
No	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 habitat requirements for American burying beetles are not well-defined. Typical habitats where they have been found are grasslands, pitch pine, and scrub oak habitats as well as agricultural lands and old-growth forest. On Block Island, RI, they occur among maritime shrub thickets. Well-drained soils and a well-developed detritus layer are characteristic of all sites. It is unlikely that vegetational structure and soil type were historically limiting, considering the species' wide geographic range; carrion availability is likely more important. Historically, American burying beetles depended upon large aggregations of 100-200 gram carcasses; ring-necked pheasant chicks were ideally suited. Today on Block Island, large 100-200 gram carcasses are used from six bird species, including pheasants and woodcock. Smaller carcasses (<100 g) are also utilized (NYSDEC 2005).

In a study of American burying beetle at Fort Chaffee in Arkansas, Holloway and Schnell (1997) concluded that this species frequents sites where small vertebrates, particularly mammals, are relatively abundant, irrespective of the predominant vegetation ate the site.

V. Species Demographic and Life History:

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

NYSDEC Fact Sheet:

American burying beetles are active from late April through September. Adults are nocturnal and active when temperatures exceed 15˚C (60˚F). Most reproductive activity and carcass burial occur in June and July. Reproduction depends on the availability of carrion. Bird and mammal carcasses weighing between 100 and 200 grams (i.e. pheasant chicks) are used as a food source during the breeding season. Carcass weight is critical to successful reproduction; there is a positive correlation between carcass weight and number of larvae produced.

Males find carcasses at night, soon after it is dark. They then emit pheromones (sex attractants) to attract females. Carcasses are buried on the spot or rolled into a ball, carried elsewhere (up to 1 m), then buried, usually before dawn. Carcasses weigh up to 200 times a beetle's own weight. The beetles move a carcass by lying on their backs and balancing the carcass above them, then walking their legs to move the load forward as if on a conveyor belt.

About two days after burying the carcass, the female lays her eggs in an escape tunnel leading off an adjacent brood chamber. One parent, usually the female, stays with the eggs. Larvae hatch in approximately four days and are cared for and fed by the adult. This level of parental care is unusual for a non-social insect. Development of larvae is complete in 6-12 days, at which time the brood disperses to pupate in the soil nearby. They emerge as adults 48-60 days later in July and August, and then disperse with their parents. The young, now adults, reproduce the following June or July. They overwinter, probably singly, in the soil. The parents die after reproduction or during the subsequent winter.

While this basic life history has been known for years, since the federal listing of the species, additional research has been published on a number of aspects of burying beetle life history and ecology (USFWS 2008).

Among the important new contributions are:

- Ants compete with burying beetles for carcasses and interference by imported fire ants in Florida led to the inability of *Nicrophorus carolinus* to successfully bury carrion (Scott et al. 1987).

- In addition to seeking carrion during the breeding season, American burying beetles also seek carrion in the fall and one study suggests this provides an overwinter survival benefit (Schnell et al. 2007). There is significant overwintering mortality which may range from 25% to 70%, depending on year, location, and availability of carrion in the fall (USFWS 2008). Bedick et al. (2004) found a bimodal distribution in captures related to age class, with August and September captures corresponding with the emergence of teneral adults.

- American burying beetles are, by necessity, strong flyers as they must travel large distances overnight to seek carrion. On average, recaptured marked beetles at Fort Chafee, Arkansas in 2006 moved 1.29 km (0.8 miles) per day, while in a Nebraska study one marked beetle was recaptured 6.1 km from its original capture location (Bedick et al. 1999, Schnell et al. 2006).
- Multiple, consecutive-year monitoring data at several sites in Oklahoma indicate that American burying beetle captures typically fluctuate on an annual basis (USFWS 2008).
- American burying beetles have a life span of about 12 months (USFWS 2008).
- Few American burying beetles were found in disturbed and fragmented habitats around a studied Nebraska population, consistent with the idea that disturbance and fragmentation are a factor in the species decline (Bedick et al. 2004).

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

Threats to NY Populations	
Threat Category	**Threat**
1. Residential & Commercial Development	Housing & Urban Areas (habitat loss)
2. Transportation & Service Corridors	Roads & Railroads (habitat fragmentation)
3. Invasive & Other Problematic Species & Genes	Problematic Native Species (food chain disturbances by foxes, raccoons)
4. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (red cedar)
5. Pollution	Excess Energy (artificial lights)
6. Pollution	Agriculture & Forestry Effluents (pesticides)

The cause of the American burying beetle's decline is not well understood. Habitat loss, fragmentation, and degradation likely played a role, affecting not only the beetle's habitat but enabling other scavengers to exploit forest edges. Changes in land use resulted in higher populations of scavengers including raccoons, foxes, and crows, which led to competition for food resources. The decline and disappearance of the passenger pigeon—which was an ideal carrion size for American burying beetle—occurred just prior to the burying beetle's decline. Other species of an ideal size for burying beetle that became rare across its range include black-footed ferret, northern bobwhite, and greater prairie chicken. In New York, the American woodcock and ring-necked pheasant would also have provided an appropriately-sized source of carrion.

Recent studies have reinforced the hypothesis that reduction in carrion availability due to land use changes and increased competition was the overriding cause of the species decline. It has been noted that the distribution of remaining populations also points to disease as a possible contributing factor, but

as yet there is no further supporting evidence for this. Nevertheless, disease (though none are specifically identified) and the effects of climate change have not been ruled out as concerns (USFWS 2008).

Newly identified threats of invasive animals (red-imported fire ant) and invasive plants (red cedar) have been noted as growing problems in the portion of the range where all but one of the natural populations occur (USFWS 2008).

Because they are largely nocturnal, the American burying beetle is easily disrupted by increasing light pollution from urban and suburban development. Burying beetles are susceptible to pesticides.

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 American burying beetle is listed as an endangered 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. It is also protected by its status as a federally-listed endangered species.

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

The USFWS Recovery Plan and 5-Year Review for American burying beetle list recovery objectives and needs for this federally listed species. Central to downlisting from endangered to threatened status is the re-establishment of a representative distribution of the species in all four geographic areas of its former range. Although the Midwest geographic recovery area has met the conditions for reclassification, efforts to locate extant populations in the Southeast, Great Lakes, and Northeast recovery areas have been unsuccessful and it is not yet known whether reintroduced populations can be successfully established (USFWS 2008).

There is little mention of New York State in either the Recovery Plan or the 5-Year Review. Habitat fragmentation and competition for carrion are thought to be two major factors in the species decline, and thus barriers to re-establishment. Both factors would be problematic throughout New York. Two areas that minimally warrant survey work for this species in New York include Gardiners Island and Plum Island. Both of these are large islands are located offshore, but close to, the easternmost points of the south shore and north shore of Long Island, respectively. A recent review of information for Plum Island completed by the New York Natural Heritage Program suggests that the natural communities, undeveloped nature, and low abundance of mid-level predators and scavengers would make Plum Island a possibility for either existence of an undiscovered, extant burying beetle population or a site for a re-introduction attempt, and the same could likely be said of Gardiners Island (Schlesinger et al. 2012). Unfortunately, to date, access issues have made survey of these islands next to impossible.

There is the possibility that American burying beetle could still occur in New York on either Gardiners Island or Plum Island off Long Island. If they do not occur there presently, either island could be possible sites for re-establishment although one key uncertainty is that it is not yet known whether reintroduced populations can be successfully established for the long term (USFWS 2008).

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Conservation Actions	
Action Category	**Action**
1.	
2.	

Table 2. (need recommended conservation actions for American burying beetle).

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for the American burying beetle.

Habitat research:

____ Identify sites that may warrant surveys for American burying beetle based on likely availability of appropriate size carcasses, and relatively undisturbed habitat of grasslands or woodlands (probably mainly oak or oak/pine).

Other management plan:

____ Incorporate findings into USFWS Recovery Plan and planning efforts.

Statewide baseline survey:

____ In addition to Gardiner's Island, sites to be surveyed (if any) could be expected to occur within the vicinity of known, recorded New York locations for the species, but need not be restricted to those areas as the species' overall range suggests it could possibly have occurred throughout the state. Surveys are called for in the USFWS Recovery Plan.

VII. References

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