

## Species Status Assessment

**Class:** Insecta  
**Family:** Cicindelidae  
**Scientific Name:** *Cicindela ancocisconensis*  
**Common Name:** Appalachian Tiger Beetle

### Species synopsis:

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

#### b. Natural Heritage Program Rank

- i. **Global**      G3
- ii. **New York**      S2      **Tracked by NYNHP?** Yes

### Other Rank:

None

**Status Discussion:**

This species is ranked as Critically Imperiled in New York because it appears to be lost from some of its historical occurrences, and *de novo* surveys of suitable habitat 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**

**a. North America**

**i. Abundance**

declining  increasing  stable  unknown

**ii. Distribution:**

declining  increasing  stable  unknown

Time frame considered: \_\_\_\_\_

Moderate decline

**b. Regional (e.g., Atlantic Flyway, USFWS Region 5 – Northeast, Watershed, Hydrologic Unit)**

**i. Abundance**

declining  increasing  stable  unknown

**ii. Distribution:**

declining  increasing  stable  unknown

Regional Unit Considered: \_\_\_\_\_ Northeast \_\_\_\_\_

Time Frame Considered: \_\_\_\_\_

Moderate decline



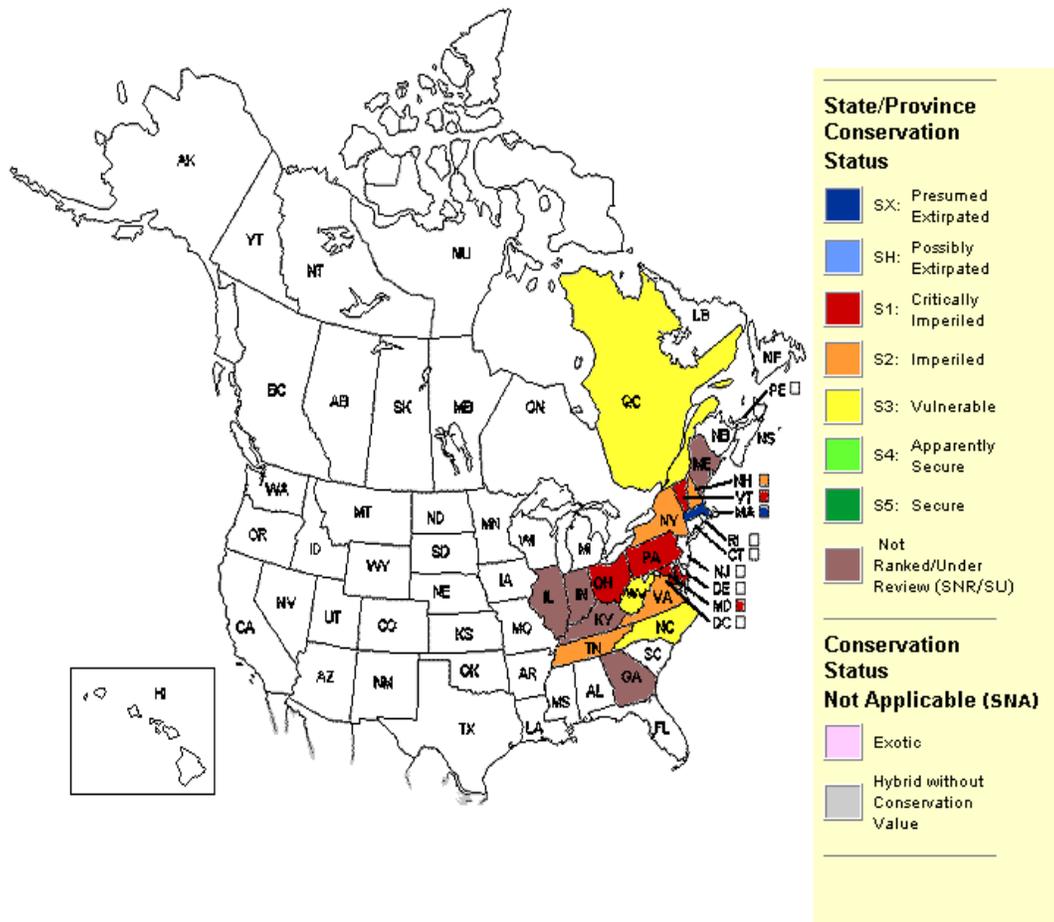


## Monitoring in New York.

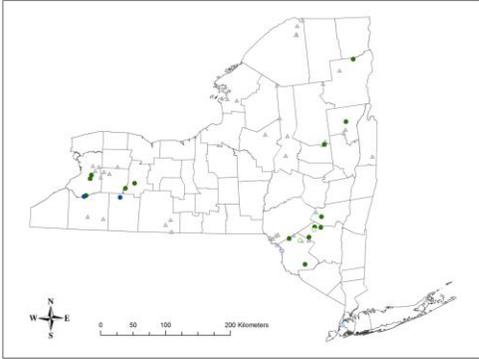
There are no regular monitoring efforts at this time and few if any surveys have been conducted since the 2010 completion of the Tiger Beetle Status State Wildlife Grant project.

## Trends Discussion:

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.** Conservation status of the Appalachian tiger beetle (NatureServe 2013).



**Figure 2.** New York locations for *Cicindela ancocisconensis* (light green: approximate historical locations; dark green: extant locations) and *C. marginipennis* (light blue: approximate historical locations). Gray triangles are locations surveyed where neither species was detected (Schlesinger 2010).

**III. New York Rarity, if known:**

<b>Historic</b> (select one)	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
<b>prior to 1970</b>	_____	<b><u>8</u></b>	_____
<b>prior to 1980</b>	_____	_____	_____
<b>prior to 1990</b>	_____	_____	_____

**Details of historic occurrence:**

There are seven recorded occurrences from the early 1900s and one from 1968.

<b>Current</b>	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
	_____	<b><u>14</u></b>	<b><u>10%</u></b>

**Details of current occurrence:**

There are 14 recorded occurrences from 1997-2009 and populations are currently known from 10 creeks or rivers in three different regions of the state (Schlesinger 2010, NYNHP 2012).

**New York's Contribution to Species North American Range:**

**Distribution** (percent of NY where species occurs)

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

**Abundance** (within NY distribution)

- abundant
- common
- fairly common
- uncommon
- rare

**NY's Contribution to North American range**

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

**Classification of New York Range**

- Core
- Peripheral
- Disjunct

**Distance to nearest population:**

\_\_\_\_\_

**Rarity Discussion:**

With the exception of Neversink Gorge and some sites on the Cattaraugus Creek, this species has typically been recorded in small numbers of five or fewer individuals. Mawdsley (2007) suspects that this species is likely more common than it appears to be from field surveys. One possible explanation he puts forth is that *C. ancocisconensis* commonly occupies the vegetated zone at the edge of cobble bars rather than the open, sandy spots frequented by other riparian specialists. It does not appear to be threatened with extirpation given its broad distribution across from state and presence in multiple pristine streams and rivers (Schlesinger 2010).



**V. New York Species Demographics and Life History**

- Breeder in New York**
  - Summer Resident**
  - Winter Resident**
  - Anadromous**
- Non-breeder in New York**
  - Summer Resident**
  - Winter Resident**
  - Catadromous**
- Migratory only**
- Unknown**

**Species Demographics and Life History Discussion:**

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. Many recent July and August records represent incidental observations made during the course of surveys for *Cicindela marginipennis*. Apparently 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:**

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?**

No      Unknown

Yes

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

**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.

Conservation actions following IUCN taxonomy are categorized in the table below.

Conservation Actions	
Action Category	Action
Law and Policy	Policies and Regulations
Education and Awareness	Awareness & Communications
Land/Water Protection	Site/Area Protection
Land/Water Protection	Resource/Habitat Protection
Land/Water Management	Site/Area Management
Land/Water Management	Invasive/Problematic Species Control
Land/Water Protection	Site/Area Protection

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for riparian tiger beetles, and for *Cicindelaancocisconensis* in particular.

**Habitat management:**

- \_\_\_ Reduce or eliminate detrimental ATV use on cobble bars where these species occur or could occur if such activity was lacking or reduced.

**Habitat monitoring:**

- \_\_\_ Compile baseline data on existing threats to these species including existing gravel mine permits, exiting areas of high ATV use, existing hydrological flow alterations.

**Habitat research:**

- \_\_\_ Larval habitat for Cobblestone tiger beetles should be determined by excavation of a limited number of larval burrows and adult beetle dispersal should be identified through a mark-recapture effort . Vegetation density, cobble size, and sand/cobble interspersion are habitat characteristics that probably need to be determined for both species as well as common species that co-occur with them.
- \_\_\_ Support and encourage research that would increase knowledge of the impact of poorly known threats to these species (e.g. invasion by aggressive, non-native plants such as *Polygonum cuspidatum* and *Lythrum salicaria*, in riparian areas; development in riparian areas).

**Habitat restoration:**

- \_\_\_ Determine if there are streams/rivers with existing dams where restoration of more natural flow regimes could result in restoration of suitable habitat for these species.
- \_\_\_ Determine if there is a means of restoring suitable (as in not overgrown) cobble bar habitat on the Delaware River where Cobblestone tiger beetle appears to have been extirpated.

**New regulation:**

- \_\_\_ Recommendations for official state endangered, threatened, or special concern listing are an anticipated result of the statewide inventory. It is expected that one or both species will be recommended for listing and officially adding these species to the list would constitute a specific action.

**Population monitoring:**

— Conduct surveys to obtain repeatable, transect count, baseline population assessments at occupied sites where the species occur..

**Statewide baseline survey:**

— Conduct surveys for these species at potential sites throughout the state. Cobblestone tiger beetle is known from just two rivers in the state while *Cicindela ancocisconensis* is currently known from less than 10 streams/rivers. A currently approved, but not yet begun State Wildlife Grant Tiger Beetle Project will utilize Natural Heritage Program staff and other biologists to conduct surveys for these species at potential sites throughout the state.

**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 of Washington 109:721-724.

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 5, 2012).

New York Natural Heritage Program. 2011. Online Conservation Guide for *Cicindela ancocisconensis*. Available from: <http://www.acris.nynhp.org/guide.php?id=7564>. Accessed January 5th, 2012.

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.

**VIII. Experts Consulted**

Paul Novak, NYSDEC

Matthew Schlesinger, NY Natural Heritage Program

**Prepared by:** John Shea

**Date prepared:** January 5, 2012

**Date last revised:** February 11, 2014 (Samantha Hoff)