

## **Cobblestone Tiger Beetle**

*Cicindela marginipennis*

Federal Listing	N/A
State Listing	E
Global Rank	G2
State Rank	S1
Regional Status	high



*Photo by Pamela Hunt*

### **Justification (Reason for Concern in NH)**

The Cobblestone Tiger Beetle occurs in small and often isolated populations on medium-to-large rivers in the eastern United States, where it is restricted to the upstream ends of cobble bars. These habitats are subject to numerous stressors relating to altered hydrology (inundation by dams, flooding, etc.) and possible human disturbance. The species was considered both high responsibility and high concern in USFWS Region 5, and thus listed as a Regional SGCN.

### **Distribution**

The Cobblestone Tiger Beetle has a disjunct distribution along rivers in the eastern United States. An isolated population is found in Alabama and Mississippi, but the bulk of the range is in the Northeast. Populations occur in a narrow band from Indiana to Ohio. Two additional small populations occur in western New York and southwestern New Brunswick (Pearson et al. 2006). In New England it is known only from Vermont and New Hampshire, with the latter supporting five known populations along the Connecticut River from Walpole to Lebanon. These are located at Walpole Island (Walpole), Chase Island (Cornish), Hart Island (Plainfield), Burnaps Island (Plainfield), and Johnson Island (Lebanon).

### **Habitat**

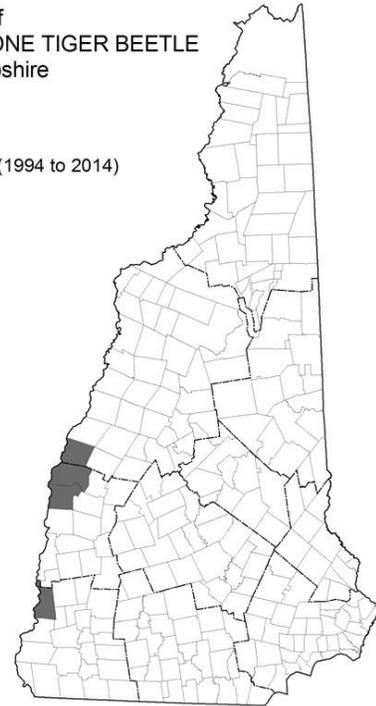
Cobblestone tiger beetles inhabit sandy cobble beaches on the upstream ends of islands and along the banks of free-flowing rivers (Leonard and Bell 1999, Hudgins et al. 2011). The upstream ends of islands are typically covered with pebbles and cobble-sized stones, while downstream ends are sandy (Leonard and Bell 1999). Vegetation is sparse at the upstream end with a moderate diversity of grasses, herbs, and forbs, and few shrubs and trees (Leonard and Bell 1999, Hudgins et al. 2011). Data from the Genesee River in NY suggest that beetles prefer larger islands and those with a larger area-to-perimeter ratio (Hudgins et al. 2011). Riverine islands are subject to annual disturbance from frequent flooding and ice scouring in the spring, which maintains suitable habitat by eliminating encroaching vegetation from the cobbled shore (TNC 1995).

## NH Wildlife Action Plan Habitats

- Large Warmwater Rivers

Distribution of  
COBBLESTONE TIGER BEETLE  
in New Hampshire

■ Current (1994 to 2014)



**Distribution Map**

## Current Species and Habitat Condition in New Hampshire

Surveys in 1983 and 1993 indicated small but stable populations of Cobblestone Tiger Beetles (Nothnagle 1993). Johnston and Burnaps Islands had the fewest cobblestone tiger beetles (10 and 7, respectively - perhaps higher on Johnston [Hunt, pers. obs. 2006]), whereas Walpole and Chase Island had the most (58 and 26, respectively) (Nothnagle 1993). Surveys in 2014 documented the species on all five sites, but relative abundance was not available as this profile was being written.

## Population Management Status

Not currently in place for this species.

## Regulatory Protection (for explanations, see Appendix I)

- Endangered Species Conservation Act (RSA 212-A)
- Rivers Mngmt and Protection Program - NHDES

## Quality of Habitat

Cobblestone tiger beetles are restricted to the open, cobbled, and sparsely vegetated areas of river islands. The upstream sections of Burnaps, Chase, Hart, Johnston, and Walpole Islands all provide suitable habitat for cobblestone tiger beetles. The lower sections of these islands support well-established floodplain forests, which do not provide adequate habitat due to heavy sedimentation and dense vegetation cover (TNC 1995). Appropriate habitats for cobblestone tiger beetles south of Walpole Island in the Connecticut River in Massachusetts and Connecticut, as well as in feeder

## *Appendix A: Insects*

streams, have not been surveyed (Nothnagle 1993).

### **Habitat Protection Status**

All islands that support cobblestone tiger beetles are protected under the state Endangered Species Act. The Connecticut River was designated as an American Heritage River in 1999. The Silvio O. Conte National Wildlife Refuge Act (1991) and the Rivers Management and Protection Act (RSA 483) protect the Connecticut River. Burnaps Island is owned by the town of Plainfield. Chase Island is a wildlife management area owned by NHFG where hunting and trapping of small game is permitted. Hart Island is owned and managed by The Nature Conservancy. Johnston and Walpole Islands are owned by an unknown agency of the State of New Hampshire (TNC 1995).

### **Habitat Management Status**

None of the islands that support cobblestone tiger beetles are actively managed because of the uncertain distribution of cobblestone tiger beetles in New Hampshire and because of insufficient and dated information.

### **Threats to this Species or Habitat in NH**

*Threat rankings were calculated by groups of taxonomic or habitat experts using a multistep process (details in Chapter 4). Each threat was ranked for these factors: Spatial Extent, Severity, Immediacy, Certainty, and Reversibility (ability to address the threat). These combined scores produced one overall threat score. Only threats that received a “medium” or “high” score have accompanying text in this profile. Threats that have a low spatial extent, are unlikely to occur in the next ten years, or there is uncertainty in the data will be ranked lower due to these factors.*

### **Mortality from boaters that land on islands (Threat Rank: Medium)**

People landing boats on islands where this species breeds have the potential to trample larvae in their burrows if there is considerable human activity (walking, picnicking, etc.) in larval habitat. Overall extent of this threat, however, is poorly known.

### **List of Lower Ranking Threats:**

- Habitat degradation from extended periods of high water that covers substrate
- Habitat degradation from introduced or invasive plants that colonize due to a lack of disturbance
- Habitat degradation and conversion from water releases that erode breeding substrate
- Habitat degradation from a lack of scour that allows succession
- Mortality from water releases and associated flooding
- Mortality and habitat degradation from ATVs on cobble bars
- Mortality from the collection of individuals from the wild
- Habitat degradation and mortality from increased flooding
- Habitat conversion due to development

## Actions to benefit this Species or Habitat in NH

### Implement periodic monitoring to assess this species' status in the state over time

**Specific Threat (IUCN Threat Levels):** None

**Specific Action:** Research, survey or monitoring - fish and wildlife populations

**Objective:**

Because surveys for this species have been to date sporadic, there is value in implementing regular monitoring so as to determine if subpopulations change significantly in size or if currently unoccupied areas of suitable habitat are colonized.

**General Strategy:**

Search known and potential sites for this species during its primary flight period in July and August. Record actual or estimated numbers of individuals detected on each visit.

**Political Location:**

Cheshire County, Grafton County, Sullivan County

**Watershed Location:**

**Location Description:**

Sites along mainstem of the Connecticut River generally between Lebanon and Walpole

### Cobblestone Tiger Beetle condition research

**Objective:**

Assess habitat condition at known and potential Cobblestone Tiger Beetle sites in NH

**General Strategy:**

Conduct habitat assessments at known sites and use these to model potential additional sites within the species' range. Important variables to consider include flooding regime (frequency, duration, effects on substrate), substrate characterization, and vegetation extent and composition.

**Political Location:**

Cheshire County, Grafton County, Sullivan County

**Watershed Location:**

## References, Data Sources and Authors

**Data Sources**

Sources of information include tiger beetle field guides, peer-reviewed journal articles, reports, and the NatureServe database. Sources of information include the NHNH B Element Occurrence Database, conservation plans, and field surveys and reports.

## *Appendix A: Insects*

### **Data Quality**

Locations of cobblestone tiger beetles in New Hampshire have been well documented since their discovery in the 1960s (Dunn 1978, Nothnagle 1989, NHHNB 2005, Normandeau Associates unpubl. data). Current population estimates of cobblestone tiger beetles do not exist. The most recent survey was conducted in 2014 (Normandeau Associates, unpubl. data). Habitat quality has not been assessed since 1995 (TNC 1995).

### **2015 Authors:**

Pamela Hunt, NHA

### **2005 Authors:**

Alina Pyzikiewicz, NHFG

### **Literature**

Hudgins, R., C. Norment, M.D. Schlessinger, and P.G. Novak. 2011. Habitat selection and dispersal of the Cobblestone Tiger Beetle (*Cicindela marginipennis* Dejean) along the Genesee River, New York. *American Midland Naturalist* 165: 304-318.

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