Natural Heritage &
Endangered Species
Program

Commonwealth of Massachusetts
Division of Fisheries & Wildlife
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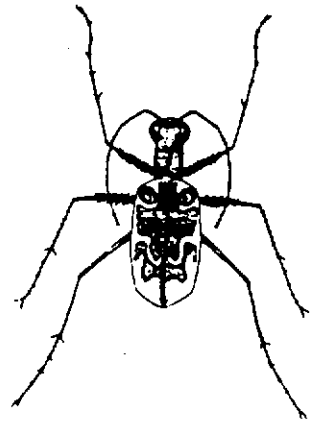
MASSACHUSETTS ENDANGERED WILDLIFE

Puritan Tiger Beetle
(Cicindela puritana)

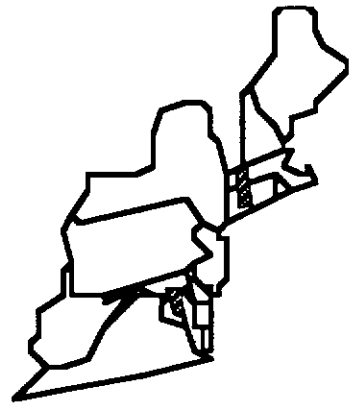
DESCRIPTION: The Puritan Tiger Beetle is a diurnal insect, approximately 12 to 18 mm (0.5 to 0.7 in.) in length, with long, slender legs, a metallic blue underside, and a brownish-bronze dorsal surface. Each of its wing covers is marked with thin, transverse and marginal white bands. Tiger Beetles are so named because of their "tiger-like" hunting strategy of chasing down prey and capturing victims with their long mandibles.

Larvae of the Puritan Tiger Beetle are black and shiny, with one pair of antennae on the head, a pronotum (analagous to a "neck" area) covered with setae (hairs), and a long segmented abdomen. They range in size from 7.7 mm (0.3 in.) at the first instar (larval stage) to 14.3 mm (0.55 in.) at the third instar. Besides this change in size, they do not change drastically in appearance between molts.

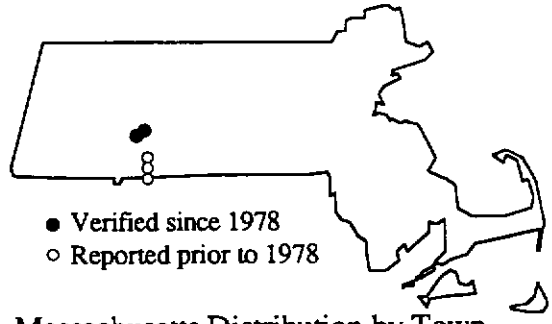


Josephine Thomas, 1989

SIMILAR SPECIES IN MASSACHUSETTS: Cicindela repanda is another species of Tiger Beetle in Massachusetts that closely resembles the Puritan Tiger Beetle. C. repanda is considerably stouter; C. puritana is longer and thinner, with a hairier abdomen. Unlike C. repanda, the Puritan Tiger Beetle's white markings on the wing covers are continuous on the outer edge. It can also be quite difficult to differentiate between the larvae of C. puritana and that of C. repanda. It is nearly impossible to distinguish between them at the first instar. Once the larvae are in their second and third instars, it can be observed that C. puritana has twice as many pronotal setae ("hairs" on the pronotum).



Range of Puritan Tiger Beetle



Massachusetts Distribution by Town

RANGE: The Puritan Tiger Beetle is very restricted in range. Historically, it only inhabited scattered localities along the Connecticut River in New Hampshire, Massachusetts, and Connecticut, as well as the Chesapeake Bay area of Maryland. It is now found in less than a handful of locations along the Connecticut River in Massachusetts and Connecticut, a 26-mile stretch of the Chesapeake Bay area, and one other site in Kent County, Maryland.

HABITAT IN MASSACHUSETTS: The few remaining populations of Puritan Tiger Beetles in Massachusetts all inhabit selected sandy beaches along the Connecticut River. These beaches are generally dry and wide, free of vegetation, and are located at the bends of the river. The larvae of the Puritan Tiger Beetles live in burrows at the upper margin of the beaches. By comparison, the larval burrows of the Chesapeake Bay population are located in clay and sand banks above the beach.

ECOLOGY / BEHAVIOR: Female Puritan Tiger Beetles oviposit (lay eggs) in mid to late August. The eggs hatch in late August or early September; the newly emerged larvae inhabit burrows in the soil, where they capture small insects which wander by the burrow entrances. The larvae molt to the 2nd instar in October and overwinter until the following year. They feed through the summer before finally molting to the third instar at summer's end. The larvae overwinter again, and transform into pupae in late May or early June. Finally, in late June to early July, the Puritan Tiger Beetles emerge from their burrows as adults. They are most active on hot, sunny days, and prey on flies, ants, and other small insects. Mating and oviposition occur until mid to late August, after which they die.

POPULATION STATUS: The Puritan Tiger Beetle is listed as an "Endangered" species in Massachusetts; it is also federally listed as a "Threatened" species. Puritan Tiger Beetles have been documented historically (before 1978) in three towns; three current (since 1978) sites in two towns have also been documented. Recreational use, vehicular traffic, and camping cause habitat degradation and trampling of larval burrows. The first instar larvae are most harmed by these activities, as their burrows are not very deep. Riverbank stabilization projects and development along the Connecticut River have significantly reduced the amount of suitable habitat for the Puritan Tiger Beetle in Massachusetts.