



**Natural Heritage
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Program**

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Massachusetts Division of Fisheries & Wildlife

**Northeastern Beach Tiger Beetle
*Cicindela dorsalis***

State Status: **Endangered**
Federal Status: **Threatened**

DESCRIPTION: Tiger beetles are so named because of their “tiger-like” behavior of chasing down and capturing prey with their long mandibles. The Northeastern Beach Tiger Beetle (*Cicindela dorsalis*) is an active coastal predator, 13-15 mm in length (Pearson et al. 2006), with a bronze head and thorax, white elytra (wing covers) imprinted with bronze maculations (markings), and long, slender, bronze legs. The grub-like larva of the Northeastern Beach Tiger Beetle has an iridescent green and bronze head, an iridescent bronze pronotum (“neck”) covered with setae (hairs), and a long, segmented, white abdomen. The Northeastern Beach Tiger Beetle is one of four subspecies of *Cicindela dorsalis*; however, only the nominate subspecies (*Cicindela dorsalis dorsalis*) occurs in Massachusetts. The Hairy-necked Tiger Beetle (*Cicindela hirticollis*) is also found on coastal beaches, including those inhabited by the Northeastern Beach Tiger Beetle; however, its elytra are dark brown to greenish-brown with white maculations.



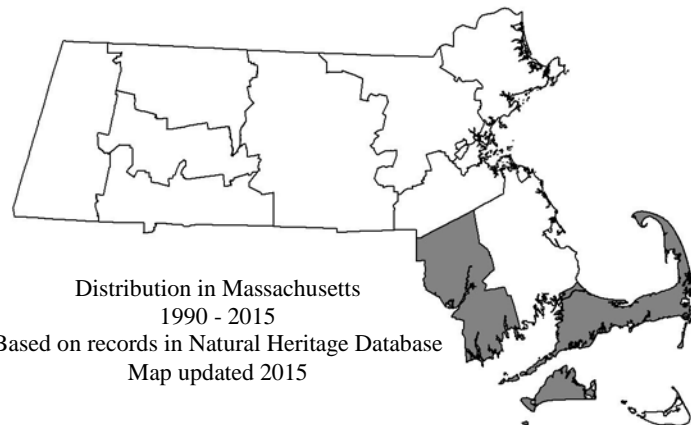
Cicindela dorsalis ▪ MA: Dukes Co. ▪ 2 Aug 2007 ▪ Photo by M.W. Nelson

HABITAT: The Northeastern Beach Tiger Beetle is a coastal species that inhabits large, exposed ocean beaches with fine sand particles and a low intensity of human disturbance. In Massachusetts, high-quality habitat consists of wide beaches with a well-developed and

Adult Activity Period in Massachusetts

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

dynamic dune system; typically the dominant vegetation of the upper beach and dunes is dunegrass (*Ammophila breviligulata*). Inhabited beaches are relatively pristine and undisturbed by human activity, with little or no off-road vehicle traffic.



LIFE HISTORY: Adult Northeastern Beach Tiger Beetles emerge from mid-June to mid-August, usually peaking in numbers by mid-July. The adult beetles forage in the intertidal zone, preying on small invertebrates and scavenging dead fish. They are primarily active during the day, but are occasionally active at night. Mating occurs from mid-July to early August, and the females lay their eggs in the intertidal zone. By mid-September most, if not all, adult beetles have died. Northeastern Beach Tiger Beetles have a two-year life cycle; larvae develop through three instars and overwinter twice before emerging as adults. Larvae dig vertical burrows in the sand. Young,

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

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recently-hatched larvae first appear in mid-summer; their burrows are within a few meters of the high tide line. By the following spring, burrows of overwintering larvae are located well up the beach near or beyond the edge of vegetation. By autumn, larvae have moved their burrows back down to the upper beach. The change in burrow location parallels the erosion and accretion cycle of the beach, which widens in summer as sand is deposited, and narrows in autumn and winter as it is eroded by stronger wind and waves. Northeastern Beach Tiger Beetle larvae are extremely voracious. Their sensory organs detect vibrations made by small invertebrate prey; when prey is close, a larva lunges out of its burrow and captures its victim with strong, serrated jaws, then dragging its prey into the burrow and devouring it. The primary larval food is “sand fleas” (amphipods), which are often abundant in wet sand around the sea wrack.

and Canada. Oxford University Press, New York, New York. 227 pp.

GEOGRAPHIC RANGE: Historically the Northeastern Beach Tiger Beetle could be found along the Atlantic Coast from Massachusetts to Virginia. It is currently only found at the extremities of its former range, in the Chesapeake Bay of Maryland and Virginia, and at two beaches in Massachusetts. A Massachusetts population at a third site is the result of a reintroduction project by the U.S. Fish & Wildlife Service and the Massachusetts Division of Fisheries & Wildlife.

STATUS AND THREATS: The Northeastern Beach Tiger Beetle is federally listed as Threatened, and it is an Endangered species in Massachusetts, currently occurring at only three sites in the state. This species formerly inhabited other beaches on Cape Cod and the offshore islands, but it has not been found at any of these sites for many years. Increased intensity of recreation on these beaches, in particular off-road vehicle traffic, is responsible for the disappearance of these populations (as well as many others along the Atlantic Coast). Off-road vehicles kill adult beetles and larvae by crushing them, and also damage larval burrows. As a result, the larvae must reduce their feeding time and expend considerable energy repairing their burrows. Another threat to this species is beach stabilization, which interferes with the natural cycle of beach erosion and accretion, to which the life cycle of the Northeastern Beach Tiger Beetle is adapted.

Literature Cited

Pearson, D.L., C.B. Knisley, and C.J. Kazilek. 2006. *A Field Guide to the Tiger Beetles of the United States*

Updated 2019
Updated by M.W. Nelson, NHESP Invertebrate Zoologist, May 2015

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