

Tortoise Beetle, *Chelymorpha cribraria* (Fabricius) (Insecta: Coleoptera: Chrysomelidae)¹

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The Featured Creatures collection provides in-depth profiles of insects, nematodes, arachnids and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.

Introduction

In September of 1993, a single specimen of an exotic tortoise beetle was collected on a species of *Ipomoea* (Convolvulaceae) in a weedy lot in Davie, Broward County. Further collecting turned up additional specimens at the original site and at other localities in Broward County. The beetle was identified as *Chelymorpha cribraria* (Fabricius), a widely distributed Neotropical species known to feed on sweet potato (*Ipomoea batatas* (L.) Lam.) and other morning glories. Subsequent surveys and collecting have revealed populations of *Chelymorpha cribraria* at other localities in Dade and Monroe counties.

Distribution

This species is distributed throughout South America and the Antilles. Buzzi (1988) recorded *Chelymorpha cribraria* from Brazil, Cayenne, Colombia, Guadeloupe, and Paraguay. There are specimens in the Florida State Collection of Arthropods from Antigua, Argentina, Dominican Republic, and Panama. In Florida, it has been collected in the following localities: Broward Co.: Davie, Hallandale; Dade

Co.: Camp Mahachie, Cape Florida State Park, Matheson Hammock, Virginia Key; Monroe Co.: Key Largo State Botanical Site.

Identification

The genus *Chelymorpha* Boheman contains more than 100 species, which are mostly Neotropical in distribution. Two species have been recorded (Blatchley 1924) previously from Florida: *Chelymorpha cassidea* (Fabricius) and *Chelymorpha geniculata* Boheman. The endemic Florida *C. geniculata* has had a checkered taxonomic history. It is often considered either a synonym or subspecies of *Chelymorpha cassidea* (Balbaugh and Hays 1972). Both are uniformly tan to red-brown in color with 12 to 14 black spots on the elytra and four to six on the pronotum. *Chelymorpha cribraria* is extremely polymorphic in color (Vasconcellos-Neto 1988), and most of the color forms have been described as separate species. Only two color forms have been found in Florida so far. The most common color form in Florida is bicolored, with pronotum black and elytra brick-red or tan. Much less common is the color form having a tan ground color with metallic reflections, numerous black speckles, and longitudinal red stripes on the elytra.

Vasconcellos-Neto (1988) presented a model consisting of six tightly-linked genes responsible for color in *C. cribraria*. He found eight color forms produced from 21 genotypes, and hypothesized that the stable polymorphism

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in *Chelymorphism cribraria* is maintained "... by selection through visually oriented predators." Adult *Chelymorphism cribraria* are unpalatable to some predators. In Brazil, *Chelymorphism cribraria* appears to belong to at least six different mimicry groups with two to four beetle species in each group.



Figure 1. Adult of the tortoise beetle, *Chelymorphism cribraria* (Fabricius), with antennae and legs extended.

Credits: Jeffrey Lotz, Division of Plant Industry



Figure 2. Adult of the tortoise beetle, *Chelymorphism cribraria* (Fabricius), with antennae and legs drawn in.

Credits: James Castner, UF/IFAS

Biology

Buzzi (1988) reviewed the biology of Neotropical cassidines and gave the following composite account of several species of Brazilian *Chelymorphism*, including *Chelymorphism cribraria*: Eggs are glued to leaves of the host plant in clusters; they hatch in six to eight days. There are five larval instars and time spent in the larval stage ranges from 13 to 18 days. Larvae possess a fecal fork and carry their feces over their body. This camouflage is thought to provide protection from predators and parasitoids. Pupation, which takes place on the host plant and under the fecal shield, lasts eight to 10 days. Females live an average of six months and lay about 1,500 eggs.

Hosts

Chelymorphism cribraria has been recorded in the Neotropics from several species of *Ipomoea*, such as *Ipomoea cairica* (L.) Sweet. Per., *Ipomoea cardiophylla* Gray, and *I. batatas* (sweet potato). In Florida, it has been collected on various morning glories, but the only two that have been identified to species are *Ipomoea indica* (Burm. f.) Merr. and *Ipomoea pes-capre* (L.) R. Br., railroad vine. The two morning glories on Florida's list of endangered plants, *Ipomoea microdactyla* Griseb. and *Ipomoea tenuissimum* Choisy (Coile 1994), occur in the areas where *Chelymorphism cribraria* is established.

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