

Chelymorpha cribraria (Fabricius), a Neotropical Tortoise Beetle New to Florida (Coleoptera: Chrysomelidae)¹

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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 Co. 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 *C. cribraria* at other localities in Dade and Monroe counties.

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: *C. cassidea* (Fabricius) and *C. geniculata* Boheman. The endemic Florida *C. geniculata* has had a checkered taxonomic history. It is often considered either a synonym or subspecies of *C. cassidea* (Balsbaugh and Hays 1972). Both are uniformly tan to red-brown in color with 12-14 black spots on the elytra and 4-6 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 (Fig. 1). 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 in *C. cribraria* is maintained "... by selection through visually oriented predators." Adult *C. cribraria* are unpalatable to some predators. In Brazil, *C. cribraria* appears to belong to at least six different mimicry groups with two to four beetle species in each group.



Fig. 1. Adult of *Chelymorpha cribraria* (Fabricius), typical color form in Florida. Photography credit: Jeffrey W. Lotz.

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BIOLOGY: Buzzi (1988) reviewed the biology of Neotropical cassidines and gave the following composite account of several species of Brazilian *Chelymorpha*, including *C. cribraria*: Eggs are glued to leaves of the host plant in clusters; they hatch in 6-8 days. There are five larval instars and time spent in the larval stage ranges from 13-18 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 8-10 days. Females live an average of 6 months and lay about 1,500 eggs.

HOSTS: *Chelymorpha cribraria* has been recorded in the Neotropics from several species of *Ipomoea*, such as *I. cairica* (L.) Sweet. Per., *I. 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 *I. indica* (Burm. f.) Merr. and *I. pes-capre* (L.) R. Br., railroad vine. The two morning glories on Florida's list of endangered plants, *Ipomoea microdactyla* Griseb. and *I. tenuissima* Choisy (Coile 1994), occur in the areas where *C. cribraria* is established.

DISTRIBUTION: This species is distributed throughout South America and the Antilles. Buzzi (1988) recorded *C. 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.

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LITERATURE CITED:

- Balsbaugh, E.U., Jr., and K.L. Hays. 1972. The leaf beetles of Alabama (Coleoptera: Chrysomelidae). Auburn University, Agricultural Experiment Station Bulletin 441. 223 p.
- Blatchley, W.S. 1924. The Chrysomelidae of Florida. *The Florida Entomologist* 7(3): 33-39; 7(4): 49-57; 8(1): 1-7, 8(2): 17-23, 8(3): 39-46.
- Buzzi, Z. J. 1988. Biology of Neotropical Cassidinae. pp. 559-580. *In* P. Jolivet, E. Petitpierre, and T.H. Hsiao (eds.). *Biology of Chrysomelidae*. Kluwer Academic Publishers, Dordrecht.
- Coile, N.C. 1994. Florida's endangered and threatened plants. Florida Department of Agriculture & Consumer Services, Bureau of Entomology, Nematology and Plant Pathology - Botany Contribution No. 29. 56 unnumbered p.
- Vasconcellos-Neto, J. 1988. Genetics of *Chelymorpha cribraria*, Cassidinae: colour patterns and their ecological meanings. pp. 217-232. *In* P. Jolivet, E. Petitpierre, and T.H. Hsiao (eds.). *Biology of Chrysomelidae*. Kluwer Academic Publishers, Dordrecht.