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IFAS EXTENSION

A Ground Beetle, *Calleida decora* (Fabricius) (Insecta: Coleoptera: Carabidae)¹

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Introduction

Calleida decora (Fabricius) is a small arboreal ground beetle, predaceous both as larva and adult. Common on various cultivated crops, it is apparently the only carabid to complete its larval development on Florida soybean foliage (Neal 1974). It is believed to be a major factor in suppression of several lepidopterous pests, e.g., velvetbean caterpillar, *Anticarsia gemmatalis* Hübner, on soybeans.

Synonymy

Erwin et al. (1977) listed synonyms:

C. cordicollis Putzeys,

C. cyanoptera LeConte, and

C. coeruleipennis Gemminger & Harold.

Distribution

Calleida decora is reported from the southeastern United States, extending into the Midwest, Baja California, Mexico, and Belize (Erwin et al. 1977).

Description

Eggs are round, white, semi-opaque, approximately 0.75 mm in diameter, covered with sand particles, and attached by a silken thread to a leaf or other available surface such as a stem or twig.

Larvae are active, black, campodeiform (in early stages having no abdominal appendages except cerci), with yellowish-red head capsules. Larvae are approximately 1.5 mm long at hatching and may grow to 10 mm total body length prior to pupation. Mean head capsule widths for the three larval instars are 0.60, 0.90, and 1.23 mm respectively.

Pupae are white, exarate, and approximately 5 mm long. The pupal cell is usually constructed ca. 7 to 15 mm beneath the soil surface (Hasse 1971).

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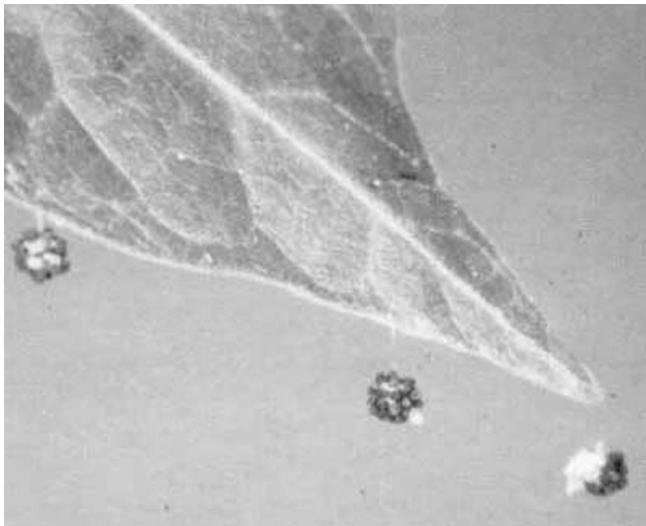


Figure 1. Eggs of *Calleida decora* (Fabricius), a ground beetle. Credits: Photograph by: Shepard, reproduced from McWhorter et al. by permission of the editor, Journal of Agricultural Entomology



Figure 2. Larva of *Calleida decora* (Fabricius), a ground beetle. Credits: Photograph by: Lyle Buss, University of Florida



Figure 3. Pupa of *Calleida decora* (Fabricius), a ground beetle. Credits: Photograph by: Shepard, reproduced from McWhorter et al. by permission of the editor, Journal of Agricultural Entomology.

Adults are slender, 7 to 10 mm long, 2.5 to 3.5 mm wide. Head and elytra are green or blue- black,

thorax and legs yellowish-red with tips of femora and tarsi dark. Antennae are dark with three or four basal segments lighter.



Figure 4. Adult *Calleida decora* (Fabricius), a ground beetle. Credits: Photograph by: Lyle Buss, University of Florida.

Males have a double row of papillate hairs on the underside of the first three protarsal segments and first two metatarsal segments (appearing white), but female tarsi are pubescent (straw-colored) (Horn 1882, McWhorter et al. 1984).

Biology

Caged adult females live an average of 230 days with a mean preovipositional period of 11 days and lay an average of 800 eggs (McWhorter et al. 1984). While an egg is still held by the abdominal tip, the female covers it with sand or dust particles, and binds it with silken thread to form a purse. The "egg purse" is attached to a leaf by a silken thread. Developmental times at 22 to 28°C for eggs, larvae, and pupae are approximately four to six, 12 to 18, and four to six days, respectively (McWhorter et al. 1984; unpub. data 1973, 1982). Larvae are predaceous except while undergoing sclerotization following hatching and molting (McWhorter et al. 1984). They are highly cannibalistic and must be reared in individual containers. They feed readily on lepidopterous eggs as well as small larvae.

Economic Importance

On soybeans, populations were estimated as high as 5400/ha in Gadsden County, Florida (Neal 1974) and 9600/ha in Alachua County, Florida (Elvin 1983). *C. decora* adults and larvae have been observed feeding on velvetbean caterpillar, *A. gemmatalis* Hübner; cabbage looper, *Trichoplusia ni* Hübner; soybean looper, *Pseudoplusia includens* (Walker); and other lepidopterous larvae (Whitcomb and Bell 1964; McCarty et al. 1980; McWhorter et al. 1984; unpublished data 1973, 1982).

Over 10% of the total insect predation (almost 20% during one season) of *A. gemmatalis* larvae (1st to 4th instar) artificially placed on soybean foliage was by *C. decora*. Of the 21 predation observations involving *C. decora* during a total of four seasons, 19 were by larvae and two by adults (Elvin 1983, unpub. data 1974). Adult *C. decora*, confined in small field cages on potted soybeans, consumed an average of 6.4 small (1st to 3rd instar) *P. includens* larvae/24 hr (Richman et al. 1980).

Survey and Detection

Larval and adult populations on crops may be sampled by direct observation or examination, vacuum sampling, sweeping, shaking, or beating of the foliage. This species should not be confused with destructive leaf beetles of similar size and coloration.

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