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# CALLEIDA DECORA (FABRICIUS)

## (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: It is reported from the Southeastern States, extending into the Midwest, Baja California, Mexico, and Belize (Erwin et al. 1977).

DESCRIPTION: Eggs are round, white, semi-opaque, ca. 0.75 mm dia., covered with sand particles, and attached by a silken thread to a leaf or other available surface such as a stem or twig (Fig. 1). Larvae are active, black, campodeiform, with yellowish-red head capsules (Fig. 2). Larvae are ca. 1.5 mm long at hatching and may grow to ca. 10 mm total body length prior to pupation. Mean head capsule widths for the 3 larval instars are 0.60, 0.90, and 1.23 mm respectively. Pupae are white, exarate, and ca. 5 mm long (Fig. 3). The pupal cell is usually constructed ca. 7-15 mm beneath the soil surface (Hasse 1971). Adults are slender, 7-10 mm long, 2.5-3.5 mm wide (Fig. 4). Head and elytra are green or blue-black, thorax and legs yellowish-red with tips of femora and tarsi dark. Antennae are dark with 3 or 4 basal segments lighter.

Males have a double row of papillate hairs on the undersurface of the first 3 protarsal segments and first 2 metatarsal segments (appearing white), but female tarsi are pubescent (straw-colored) (Horn 1882; McWhorter et al. 1984).

ECONOMIC IMPORTANCE: On soybeans, populations were estimated as high as 5400/ha in Gadsden Co., Florida, (Neal 1974) and 8600/ha, in Alachua Co., Florida, (Elvin 1983). C. decora adults and larvae have been observed feeding on velvetbean caterpillars, A. gemmatalis Hübner; cabbage loopers, Trichoplusia ni Hübner; soybean loopers, Pseudoplusia includens (Walker); and other lepidopterous larvae (Whitcomb and Bell 1964; McCarty et al. 1980; McWhorter et al. 1984; unpub. data 1973, 1982). Over 10% of the total insect predation (almost 20% during one season) of A. gemmatalis larvae (1st-4th instar) artifically placed on soybean foliage was by C. decora. Of the 21 predation observations involving C. decora during a total of 4 seasons, 19 were by larvae and 2 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-3rd instar) P. includens larvae/24 hr (Richman et al. 1980).

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 (Fig. 1). Developmental times at 22-28°C for eggs, larvae, and pupae are ca. 4-6, 12-18, and 4-6 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.

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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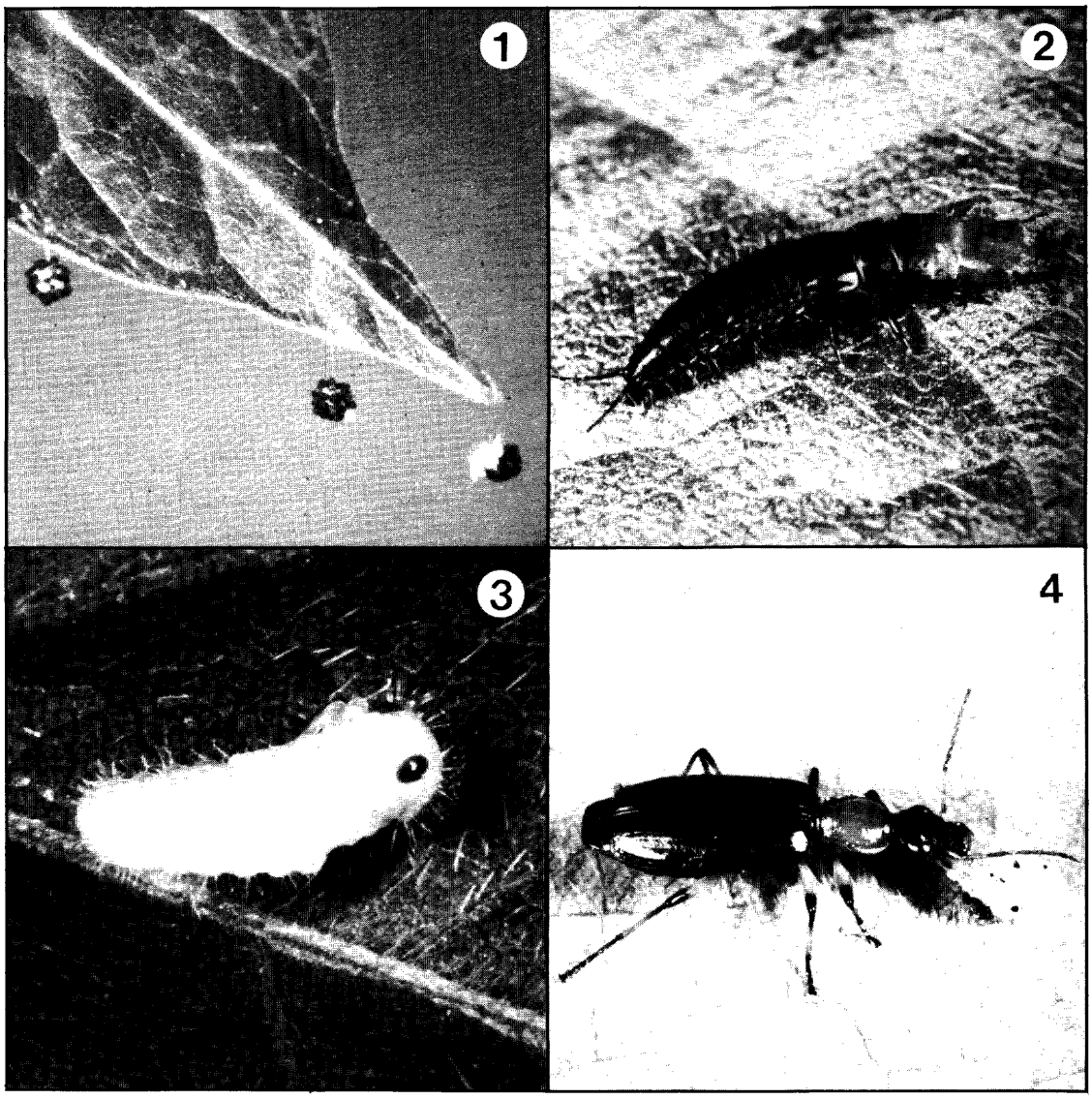


Fig. 1-4. Calleida decora (Fabricius): 1) egg, 2) larva, third instar, 3) pupa, 4) adult male. Photographs by Shepard, reproduced from McWhorter et al. (1984) by permission of the editor, J. Agric. Ent.