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THE LARVA OF *CRYPTOCALA ACADIENSIS* (BETHUNE) (NOCTUIDAE)[1]

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ABSTRACT. The mature larva of *Cryptocala acadiensis* (Beth.) (Lepidoptera: Noctuidae) is described. *Apocynum androsaemifolium* L. was found to be an acceptable food plant; additional acceptable and unacceptable food plants are listed. Eggs were laid singly and the minimum developmental time from egg to adult was 116 days in the laboratory. This is a much shorter developmental time than what would be expected in nature as the mature larva is presumed to overwinter.

In the type description, *Cryptocala acadiensis* (Bethune, 1869) was placed in the genus *Anarta* Ochsenheimer because of its small size and black bordered, yellow hind wings. Benjamin (1921) recognized it as a synonym and the older name for *Rhynchagrotis gilvipennis* (Grote) and erected *Cryptocala* for it. Prior to this paper nothing was known of the life history. Mikkola and Jalas (1977) report that *Rumex* is the host plant of the very close (if actually distinct) species, *Noctua* (*Cryptocala*) *chardinyi* Boisduval.

Cryptocala acadiensis occurs from Labrador south to Massachusetts and west to the Pacific. Its flight period is from July to August (Forbes, 1954). A female of *C. acadiensis* was taken at ultraviolet light on 16 July 1977 in the Adirondacks, 6 mi east of Indian Lake, 1820 ft, Hamilton Co., New York. The following day 39 eggs were laid singly in a holding jar. The larvae eclosed in seven days and were offered a selection of plants.

The first instar larvae initially accepted the blossoms of *Hypericum perforatum* L., *Sagittaria latifolia* Willd., the blossoms and leaves of *Apocynum androsaemifolium* L., and the leaves of *Prunus virginiana* L., *Achillea millefolium* L., *Sambucus canadensis* L., and *Spiraea latifolia* (Ait.) Borkh., but the limited feeding and continual wandering of the first instar larvae indicated that most of these plants were unacceptable. Only *A. androsaemifolium* was continuously utilized by the first instar larvae and all later instars were reared to maturity on *A. androsaemifolium* leaves. Plants refused by the first instar larvae include: *Rubus idaeus* L., *Amelanchier laevis* Wieg., *Pteridium aquilinum* (L.) Kuhn, and *Vaccinium myrtilloides* Michx.

The larvae feeding on *A. androsaemifolium* remained healthy (no disease) but grew slowly. They started pupating on 12 September 1977 and adults began to emerge on 10 November 1977. Presumably, this species would normally overwinter as a mature larva and pupate in the spring.

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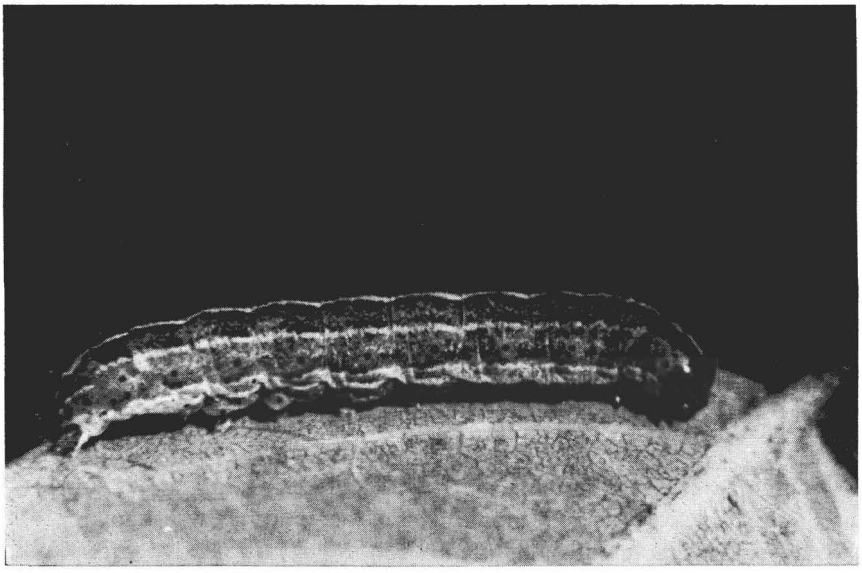


FIG. 1. *Cryptocala acadiensis*, Adirondack Mts., New York: photograph of living, ultimate instar larva.

The larvae were cultured in tins in total darkness (interrupted only by the addition of fresh leaves every two days) at 22°C (±3°). These artificial conditions speeded development as is the case with many species which normally feed at night. The early pupation is also typical of many Lepidoptera which have a non-obligatory diapause.

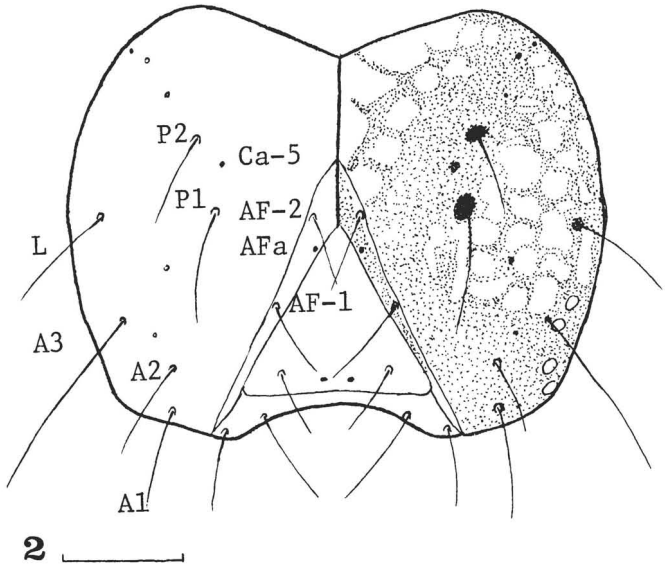
The illustrations that accompany the descriptions of the last larval instar were drawn to scale using an ocular grid. All scale lines represent 0.5 mm. The terminology and abbreviations follow Godfrey (1972) with the exception of coronal punctures.

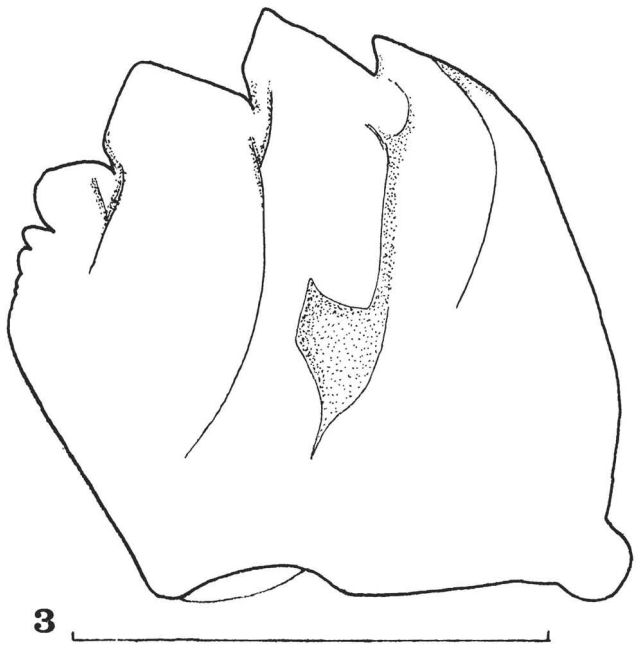
General (Fig. 1). Head 2.06–2.23 mm wide. Total length 26–30 mm. Abdominal prolegs present on third through sixth segments. Head and body smooth. Setae simple, insertions in small, flat, black tubercles. Spiracle A-8 0.28 mm high. Seta D1 0.40 mm long.

Coloration (living material). General head and body color light brown; a light middorsal line and a light line just below D2 on all segments; venter below spiracles light; spiracles also light.

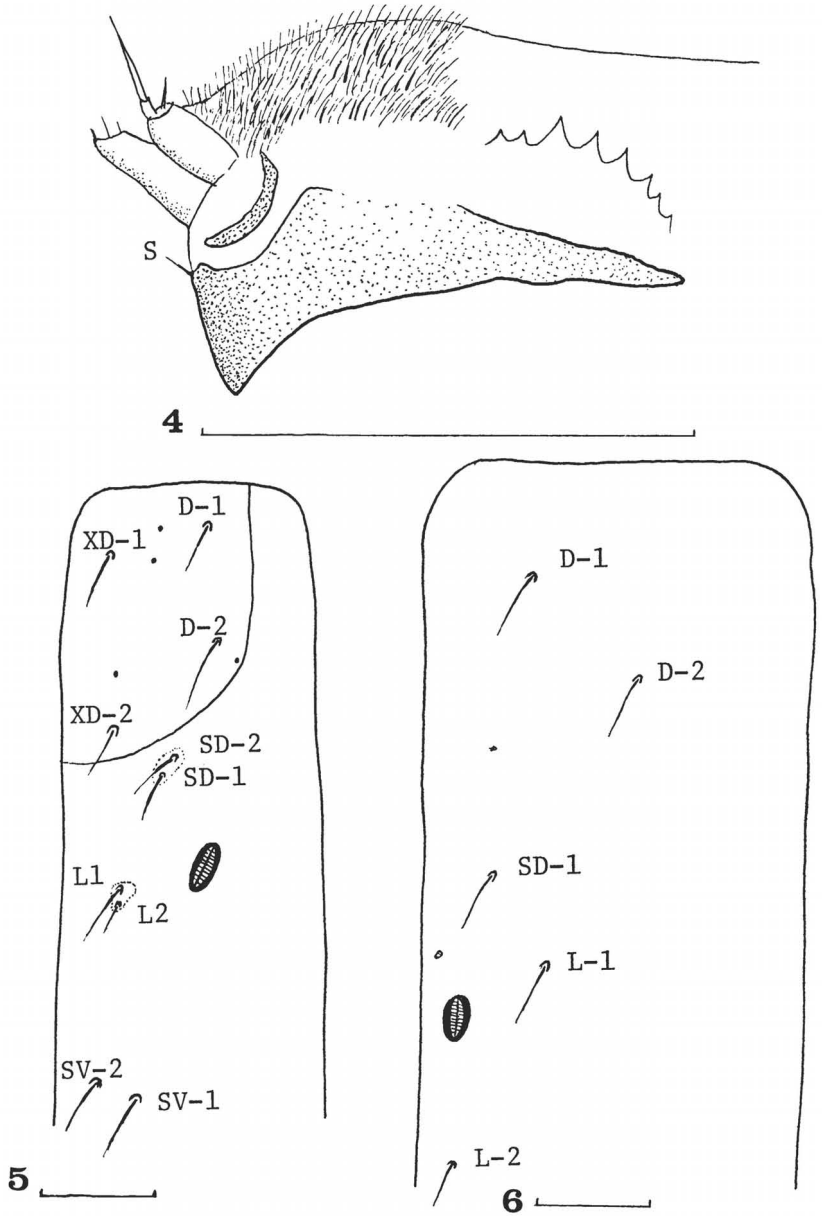
Head (Fig. 2). Epicranial suture 1.04 mm long. Height of frons 1.40 mm. Adfrontal punctures (AFa) anterior and second adfrontal seta (Af-2) posterior to apex of frons. Coronal punctures 5 (Ca-5), posterior setae 1 & 2 (P1 & P2), and lateral seta (L) each arise from a black pigmented spot. Ocellar interspaces between Oc1–Oc2 and Oc2–Oc3 each equal to diameter of Oc2; Oc3–Oc4 one-third diameter of Oc4; Oc4–Oc6 approximately 1.5 times diameter of Oc4; Oc4–Oc5 2.0 times the diameter of Oc4.

Mouthparts. Hypopharyngeal complex (Fig. 3): spinneret subsequal to labial palpus, apex bearing short spinules; stipular seta (S) at anterior dorsal apex of pre-





FIGS. 2–3. *Cryptocala acadiensis*, Adirondack Mts., New York: 2, frontal aspect of head; 3, oral aspect of left mandible.



FIGS. 4–6. *Cryptocala acadiensis*, Adirondack Mts., New York: 4, left aspect of hypopharyngeal complex; 5, left dorsolateral setal arrangement of prothorax; 6, left dorsolateral setal arrangement of first abdominal segment.

mentum; distal region of hypopharynx covered with fine spines; proximolateral region bearing single row of about 8 distinct spines. **Mandible** (Fig. 3): inner ridges distinct, with prominent basal tooth; sixth outer tooth low, divided into smaller subteeth.

Thoracic segments. Prothorax (Fig. 5): cervical shield weakly sclerotized, with two punctures between setae D-1 and XD-1, one puncture between XD-1 and XD-2 (located two-thirds distance from XD-1 to XD-2) and one puncture along posterior margin of shield behind D-2; SD-1 and SD-2 on same pinaculum; L1 and L2 also on same pinaculum; SV-1 and SV-2 separate. **Meso- and metathoracic segments** with a non-setiferous puncture on same pinaculum as SD-1.

Abdominal segments. Ab-1 (Fig. 6): two subventral setae (SV-1 & SV-3); L1 dorsal to spiracle. **Ab-2–6** with three subventral setae. **Ab-7 and Ab-8** with only one setae in subventral group. **Crochets:** uniordinal, 16-17 per third abdominal proleg, 18–21 per fourth, 20–24 per fifth, 22–26 per sixth.

Material examined. Thirteen specimens, 6 miles east of Indian Lake, 1820 ft., lat. 43°45′30″ long. 74°10′14″, Hamilton Co., New York, 10 September 1977, from ova of female collected, determined, and reared by T. L. McCabe.

The basal mandibular tooth and the spinule-tipped spinneret seem to indicate a relationship to *Ochropleura plecta* (L.) (see Crumb, 1956, for larval description), but this is not substantiated by the male genitalia (figured by McDunnough, 1928).

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