

LARVAL MORPHOLOGY AND PHYLOGENY OF
TRICHORDESTRA TACOMA (STRECKER) (NOCTUIDAE)¹

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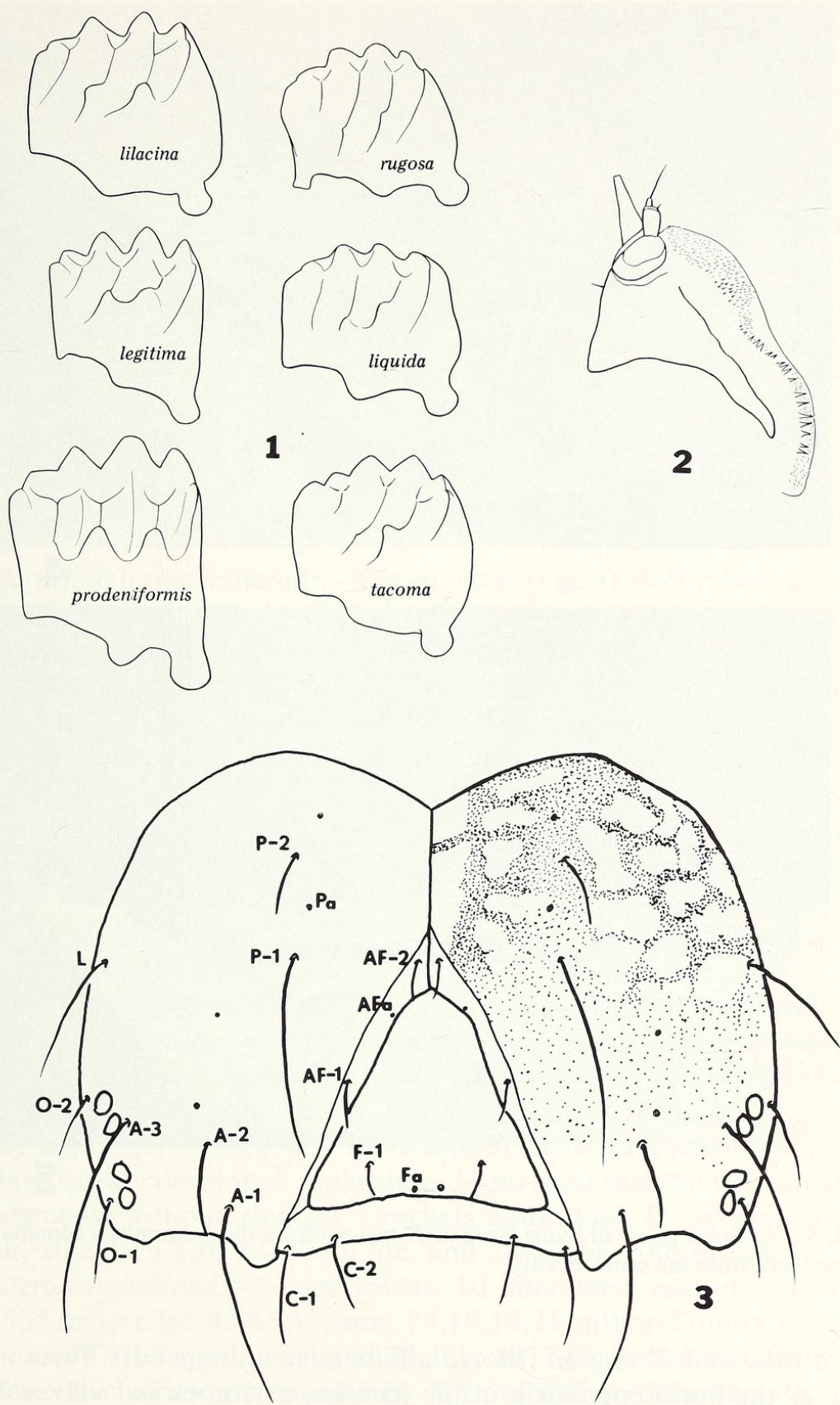
Abstract.—The larva of *Trichordestra tacoma* (Strecker) (Lepidoptera; Noctuidae) has been misidentified in the past, resulting in a discrepancy in the phylogenetic placement of this species in separate works based on adults and on larvae. Both larva and adult prove to be similar to *T. rugosa* (Morr.) and *T. liquida* (Grote). The larva is described and illustrated, and a host list is presented.

Comparisons of two recent reclassifications of hadenine noctuids based on larvae (Godfrey 1972) and on a section of the adults (McCabe 1980) has yielded a discordance in the phylogenetic placement of *Mamestra tacoma* Strecker (1900). *M. tacoma* has been placed in *Polia* (McDunnough 1938), but recently the genus *Trichordestra* was erected for it and its relatives (McCabe 1980). *Trichordestra* presently includes eight nearctic species, the larvae of which are characterized by two inner mandibular teeth and a striped body pattern in addition to the characters Godfrey (1972) used in his group seven. The adult moths are best defined by three bandlike signa on the female bursa copulatrix.

One of us (TLM) cultured the larvae and discovered that specimens previously determined, by association, as "*Polia*" *tacoma* were actually another, as yet unidentified noctuid larva. True *T. tacoma* larvae have the two inner mandibular teeth so typical of other known *Trichordestra* larvae (Fig. 1). *T. tacoma* larvae were discovered to have two color phases: the typical phase is green and appears unstriped in life, although faint stripes are traceable in preserved larvae; a red color phase has prominent stripes and in this manner is more typical of the genus. Dyar (1904) may have described the green phase of *T. tacoma* larvae.

T. tacoma are related to *T. liquida* (Grote) on the basis of the paired, inner mandibular teeth with the tooth in the second inner ridge being weakly developed (broken off or worn down in some specimens of *T. tacoma*) (Fig.

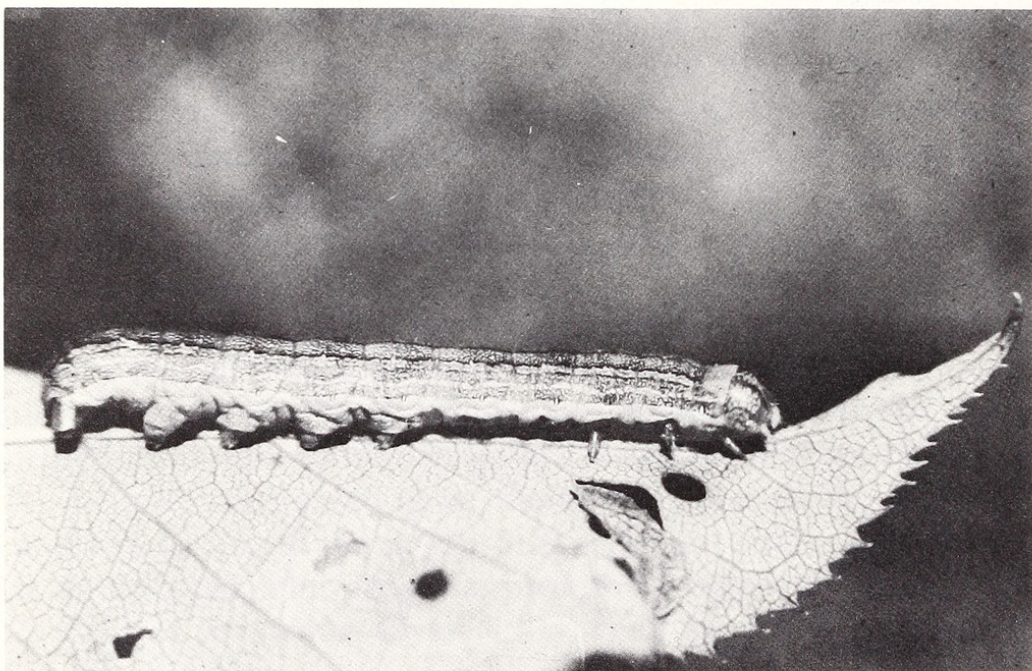
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Figs. 1-3. 1. Oral aspect of the left mandibles of the known larvae of *Trichordestra*. 2. Hypopharynx of the larva of *T. tacoma*. 3. Frontal aspect of the head capsule of *T. tacoma*.



4



5

Figs. 4, 5. 4. Green phase of living larva of *T. tacoma* from the Adirondack Mountains. 5. Red phase larva from the same locality.

1). *T. tacoma* and *T. rugosa* (Morr.) adults have an appendix bursa nearly as large as the bursa copulatrix in the females, asymmetrical valves in the males, and both lack male coremati. The adult male is also similar to *T. liquida* in their similar habitus, similar broad cuculli, and similar asymmetrical valves.

Confined first instar larvae of *T. tacoma* fed on *Apocynum androsaemifolium* L. (APOCYNACEAE), *Sambucus canadensis* L. (CAPRIFOLIACEAE), *Betula papyrifera* Marsh (CORYLACEAE), *Vaccinium myrtilloides* Michx. (ERICACEAE), and *Prunus virginiana* L. and *Spiraea latifolia* (Ait.) Borkh. (ROSACEAE). First instar larvae rejected *Carex* spikes (CYPERACEAE), *Abies balsamea* L. (PINACEAE), and *Viola selkirkii* Pursh (VIOLACEAE). Larvae from an early season female did very well on *Prunus* and were reared to maturity on it, however, larvae from a late-season female had older *Prunus* leaves and did poorly until switched to a non-woody host (*Apocynum*).

First instar larvae have prominent pinaculi, a weakly sclerotized prothoracic shield, and reduced prolegs on the third and fourth abdominal segments. The mature larva is described below.

General (Figs. 4, 5).—Head 2.9–3.0 mm wide; total length (fully expanded) 36 ± 6 mm (N = 14). Abdominal prolegs present on 3–6th and 10th segments.

Coloration (living material).—Green phase (Fig. 4): Soft yellow-green with pale middorsal line, a pair of slightly darker subdorsal bands on each side separated by a narrow pale line, then a pale lateral band which includes the top half of the spiracles followed below by a greenish white subspiracular band which includes the bottom half of the spiracles. Red phase (Fig. 5): Similar to preceding, but much darker, with prominent stripes and with the prevalent color a brownish red.

Head (Fig. 3).—Epicranial suture 0.94 mm long. Height of frons 0.96 mm. Top half of head with reticulate pattern near epicranial suture and between setae P-2 and L. Seta P-1 as long as frons is wide. Ocellar interspaces between Oc1–Oc2 $.5 \times$ diameter of Oc2; Oc2–Oc3 $1.5 \times$ Oc2; Oc3–Oc4 $.5 \times$ Oc3; Oc4–Oc5 $2.5 \times$ Oc4; Oc5–Oc6 $3.0 \times$ Oc5.

Mouthparts.—Hypopharyngeal complex (Fig. 2): With spinneret as long as labial palpi and apical seta combined (Lpg 1&2 and Lp2); distal region with fine spines; proximolateral region with a row of 19–27 spines. Mandible (Fig. 1): Two shallow inner teeth, 6 triangular outer teeth.

Body segments.—Prothorax: SD-2 and SD-1 lacking pinaculum; L1 and L2 share weakly developed pinaculum. Meso- and metathorax and abdominal segments without pinaculi. Crochets uniordinal, 16–26 on 3rd, 18–26 on 4th, 20–28 on 5th, 22–30 on 6th, and 28–32 on 10th proleg.

Material examined.—14 specimens, 10 kilometers east of Indian Lake, elev. 555 meters, lat. 43.45.30, long. 74.10.14, Hamilton County, New York, 19 June 1977 (12 specimens) and 23 July 1977 (2 specimens), from ova of females collected and determined by T. L. McCabe. All larvae, P1 ♀'s, and reared adults are labelled tlm 77-159a (1st ♀) and tlm 77-159 (2nd ♀). Larvae are deposited in the New York State Museum, the Illinois Natural History Survey, and the United States National Museum.

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