

## BRIEF NOTE

TWO NEWLY DETECTED NOCTUIDS (*HYDRAECIA IMMANIS* AND *HYDRAECIA MICACEA*) OF POTENTIAL ECONOMIC IMPORTANCE IN OHIO<sup>1</sup>

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During the course of preparing an annotated checklist of the owlet moths of Ohio, 2 species of borers not previously known to occur in Ohio have been identified. One of these is known as the potato stem borer, *Hydraecia micacea* (Esper), and the other as the hop vine borer, *Hydraecia immanis* Guenée.

Although neither of the above species has been associated with damage to agricultural crops in Ohio, it is deemed appropriate that entomological and agricultural personnel be alerted to their presence and potential importance.

This paper includes a closely related non-economic species, *Hydraecia stramentosa* Guenée, and an economic species, the stalk borer, *Papaipema nebris* Guenée, since the latter may be confused with the 2 newly detected moths if it is reared from corn.

The potato stem borer, *H. micacea*, was first collected at Wooster, Wayne Co., Ohio, by Rings in a blacklight trap 29 July 1960. It remained unidentified until we began our study of Ohio noctuids when it was determined by Metzler. The hop vine borer, *H. immanis*, was collected by Metzler 24 July 1976, and 27 August 1976 from Champaign Co. A second specimen was collected by Metzler on 4 September 1976. A third specimen was collected by Metzler 6 August 1977 in Vinton Co.

The third species in the genus, *stramen-*

*tosa*, is the most frequently collected species to date. Rings collected individuals of this species 11 August 1965, 30 August 1967, 1 September 1975, and 3 September 1975 at Wooster, in blacklight traps. Metzler later collected the species at Cedar Bog, Champaign Co. on 18 September 1976.

The threat to agricultural production by the 2 *Hydraecia* spp. in Ohio is difficult to assess. However, it is known from numerous studies that many species of noctuids can occur in unpredictable, local outbreaks.

We do know that the hop vine borer is a native of the midwest and that it is the only species of *Hydraecia* damaging corn in Illinois, Wisconsin, Minnesota and Iowa (Godfrey 1981) (fig. 1). On the other hand, the potato stem borer is a palearctic species which was inadvertently introduced into eastern Canada around 1900 (Gibson 1909). This species is polyphagous and has been reported from 10 counties in central and western New York in the vicinity of Lake Ontario (Muka 1976).

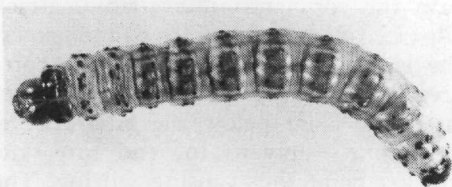


FIGURE 1. Larva of the hop vine borer, *Hydraecia immanis*. Courtesy of G. L. Godfrey, Illinois Natural History Survey.

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This insect has received special attention because it can easily destroy 50% of a stand of field corn, particularly in fields where grassy weeds are not controlled.

KEY TO MOTHS

Key to species of adult *Hydraecia* and species which may be confused with them. This key should work for noctuid moths reared from stem borers in corn or potatoes. There are a number of other noctuid moths which resemble the species in the key so that the final identification should be made by an expert.

- 1. Moth gray; postmedial line (PM) whitish, contrasting, nearly straight (fig. 2A) . . . . . *Papaipema nebris*.  
 Moth brownish, postmedial line not whitish . . . . . 2.
- 2. Moth lemon yellow (fig. 2B) . . . . .  
*H. stramentosa*.  
 Moth darker, brownish . . . . . 3.
- 3. Moth pinkish brown: antemedial (AM) and postmedial lines double, pale filled; postmedial line slightly sinuous (fig. 2C) . . . . . *H. immanis*.  
 Moth brownish, slight olive tint; antemedial and postmedial lines single, dark; postmedial line nearly straight (fig. 2D). . . . . *H. micacea*.

Potato stem borer, *Hydraecia micacea*.

LIFE CYCLE AND DAMAGE—Studies in New York have shown that female moths deposit eggs under the leaf sheath of grassy weeds in August and September. The eggs overwinter and hatch in late April or May of the following season and the larvae feed for about 14 days. At this time the larvae leave the corn and, if available, attack cultivated crops such as corn and tomatoes. The larvae resemble the hop vine borer larva that is shown in fig. 1. The insect enters the plant below the ground level and tunnels upward to, and into, the growing point thus causing wilting. The symptoms of infested plants resemble those of the stalk borer (*P. nebris*) and armyworm (*Pseudoletia unipuncta* Haworth).

Development of the larvae is completed by mid-July and, after a short prepupal period, the insects pupate. The moths (fig. 2D) then emerge in late July or early August.

LARVAL DESCRIPTION—Body whitish with dark-brown head, cervical and anal shield. Setal tubercles on thoracic segments and on abdominal segments 9 and 10 heavily pigmented. Head smooth, 2.75—3.16 mm in width. Body uniformly cylindrical; 25—31 mm in length. Crochets uniordinal and in a meso-series.

MOTH DESCRIPTION—General color of fore wings light reddish brown with olive tint; little or no pinkish shades. Antemedial line single, dark and strongly ex-curved below the cell. Postmedial, single, dark brown, more convex on lower half. Postmedial continuing into hind wing as an indistinct, grayish-brown line. Orbicular round sharply defined basally and distally by darker brown scales. Reniform marked similar to orbicular. Claviform indistinct but marked by darker brown scales. Hind wing usually clay-colored and paler than forewing (fig. 2D).

Hop vine borer, *Hydraecia immanis*.

LIFE CYCLE AND DAMAGE—The life cycle of the hop vine borer is probably very similar to that of the potato stem borer. Godfrey (1980) reports that this insect feeds in the bases of corn plants during May and June and their feeding usually results in the death of the plants. The larva is shown in fig. 1. Ohio collection records show that the moths (fig. 2C) emerge in late July or early August.

LARVAL DESCRIPTION—Body whitish with dark brown head, cervical and anal shields. Setal tubercles on thoracic segments and abdominal segments 9 and 10 heavily pigmented. Head smooth, 3.0—3.6 mm in width. Body uniformly cylindrical, 29—35 mm in length. Crochets uniordinal and arranged in a meso-series. Both the potato stem borer and the hop vine borer can be distinguished from the stalk borer in that the latter is mark-

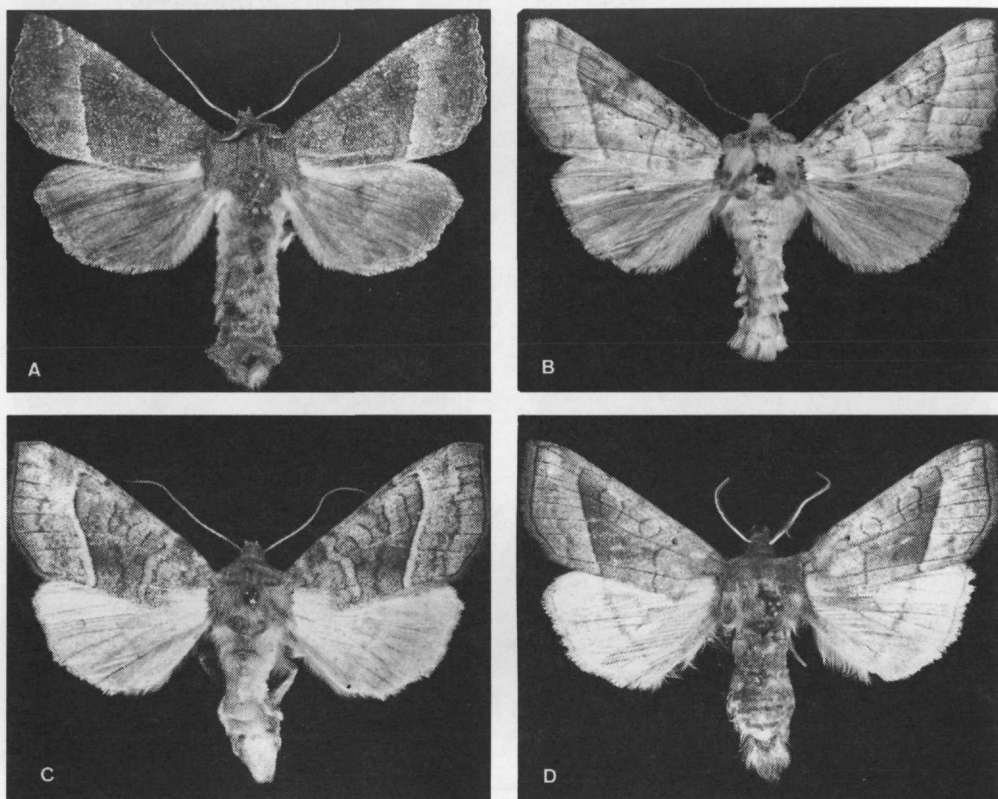


FIGURE 2. (A) Moth of the stalk borer, *Papaipema nebris*, (B) Moth of *Hydraecia stramentosa*; (C) Moth of the hop vine borer, *Hydraecia immanis*; (D) Moth of the potato stem borer, *Hydraecia micacea*.

edly striped with a heavy concentration of purplish pigment in the thoracic area.

The full-grown larvae of *H. immanis* and *H. micacea* are separated with some difficulty. According to Godfrey (1981) the spinneret of *immanis* is acutely pointed and the hypopharygeal spines are very fine and numerous. In contrast, *micacea* has a bluntly tipped spinneret and stout spines on the hypopharynx that are less numerous. Other distinguishing characteristics may be found in the cervical shield, the shape of the prothoracic spiracle and the transverse banding on the abdominal segments (Godfrey 1981).

**MOTH DESCRIPTION**—General color of fore wings pale, pinkish brown shaded with olive brown. Antemedial line and postmedial lines double outlined in

brownish scales. Orbicular square-shaped outlined with brown scales basally and distally. Reniform large and distinctly outlined with brownish scales basally and distally. Claviform indistinct. Hind wing pale grayish brown (fig. 2C). This moth is easily distinguished from *micacea* by the double antemedial and postmedial lines since in the latter they are single.

Since the hop vine borer is apparently a native species and since the potato stem borer has been known to occur in Ohio since 1960, it could be theorized that if either species was destined to be destructive, then at least one species would have caused economic damage. Conversely, it may be that either one or both species have caused local widespread damage and this was attributed to the stalk borer or army-

worm. It seems that the greatest threat is from the potato stem borer because history has shown its economic importance has generally followed its new distributional patterns. At present economic damage by the hop vine borer is confined to northern Illinois, southwestern Wisconsin, southeastern Minnesota, and northeastern Iowa. It is not known if this situation is due to a new biotype involving behavioral changes in food preferences.

#### LITERATURE CITED

- Gibson, A. 1909 *Hydroecia micacea*, esp. in Canada. p 49-51 Thirty-ninth Annu. Rep. Entomol. Soc. Ontario, 1908. Toronto, Canada.
- Godfrey, G. L. 1980 Hop vine borer in corn. Ill. Natur. Hist. Surv. Rep. April. No. 196: 102.
- 1981 Identification and descriptions of the ultimate instar larvae of *Hydroecia immanis* (hop vine borer) and *H. micacea* (potato stem borer) (Lepidoptera: Noctuidae). Ill. Natur. Hist. Surv. Biol. Notes 114: 1-8.
- Muka, A. 1976 A new corn pest is south of the border. Hoard's Dairyman 121: 688.