

Three noxious Hornworms in Suriname.

by

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II. *Erinnyis alope* Drury¹⁾

The hornworm of this hawk moth forms a pest of minor importance to the papaya tree (*Carica papaja* L.) Seedlings may be killed if the heart of the young plant is destroyed by the feeding of the caterpillars. Generally the damage is not severe because the sphingid eggs are often parasitized to a very high percentage by *Telenomus ?dilophonotae* Cameron²⁾, a 0.7—0.95 mm long black Scelionid, with partly yellowish-grey coloured legs, of which 8—14 larvae may develop in a single egg.

MORPHOLOGY.

The egg, oval shaped with longest and shortest diameter of 1.9 and 1.6 mm, has a greenish colour; the colour of the parasitized egg changes to dark brown.

There are 5 larval instars for which the following head-widths in millimetres can be noted: 1.0 (I), 1.5 ((II), 2.0—2.2 (III), 3.4—3.7 (IV) and 5.1—5.3 (V).

Larva I. The newly hatched slender caterpillar has a pale yellow green colour and has a length of about 7 mm. Dorsally, the 8th abdominal segment bears a 4 mm long black horn. The full-grown larva attains a length of 1.2 cm.

Larva II. The dull pale yellow-green coloured caterpillar has a dark abdominal projection of about 5 mm and reaches a length of 2 cm when full-grown.

Larva III. The pale green coloured body vaguely shows whitish dots and has a pale whitish-green band dorso-laterally, ending at the base of the 7—9 mm long pale-coloured spinulated horn. The full-grown larva attains a length of 3 cm.

Larva IV. The body length of the young larva is 3 cm; when full-grown about 5 cm, with a body width of 0.6 cm. The dorsal projection on segment 8 varies in length from 0.8—1 cm. The larva has a pale green colour, which in some cases has a vague pink colour on the ventral side, with whitish-grey dots on the skin.

A pale yellowish-white longitudinal band runs dorsally on head and body at both sides of the median and ends near the base of the abdominal projection. Dorsally, on the anterior part of the metathorax and extending for a short distance over both longitudinal bands, we find a pale yellow-whitish broad transverse zone, which has an oval spherically shaped velvety black spot in the middle. This black spot has in its median a fine white line crossed by a short white line in the centre. The anterior margin of the black spot may be bordered with brown having a small white dot in the median. Normally, the whitish-yellow zone with black spot is not visible as this skinpart lies hidden in folds between the mesothorax and metathorax.

Larva V. Just after moulting the green-coloured caterpillar has a body length

1) 2) Identifications by W. D. FIELD and C. F. W. MUESEBECK, U.S.D.A.

of 5 cm; dorsally the anterior part of the metathorax has a velvety black broad zone with a yellow ring in the centre. After a few hours this yellow ring turns to orange while the green colour of the hornworm changes into brown as the primary colour for the dorsal bodypart and into a greyish light brown for the lateral and ventral bodyparts. Ventrally, in the median, a dark brown coloured band runs longitudinally over the whole body. Most of the abdominal segments have a pair of small grey-cream coloured dots which form a row dorso-laterally.

Normally, the head and prothorax extend forwards but sometimes they are pointed perpendicularly downward and hidden in dorsal view beneath the meso- and metathorax, in which case both these thorax segments have the form of a blunt beaked snake head. The anterior border of the brown mesothorax is more or less wine-red with a whitish dot in the centre; another white-coloured transversal dot is situated dorsally in the middle of the posterior border of the mesothorax.

In the centre of the orange coloured ring on the velvety black anterior part of the metathorax is located a white cross-like figure. The posterior half of the metathorax is light cream-grey coloured and always visible as a broad transverse zone whereas the anterior part is often folded and hidden between the meso- and metathorax. The full-grown caterpillar may attain a length of 11.5 cm and a width of 1.4 cm. The short somewhat curved horn has a length of 5—6 mm; this projection may be entirely cream-white but in several cases the lower half is darker coloured.

P u p a. The newly-formed pupa is about 5.5 cm long and chestnutbrown; it has darkbrown longitudinal lines on the wing, antenna and leg sheaths; several abdominal segments show black transverse bands and transverse lines formed by dots and stripes. The dorsal somewhat flat posterior part of the last abdominal segment (cremaster) projects horizontally. The pupa gradually darkens during the development of the moth.

A d u l t (see fig. 2). The colour of the upper part of the forewing is mainly darkbrown; the orange-coloured hindwing has a broad darkbrown seam along the lateral margin. Dorsally at both sides of the median, the tapering abdomen is ornamented with a row of 5 greyish white short bands located on a black patch. The antennae of the male are ciliated. The wing span varies from 9—10 cm. At rest the moth has a rather slender arrowlike shape when viewed from the dorsal side.

LIFE HISTORY. The hawk moth, active during darkness, deposits its eggs separately and sparsely on the upper sides of the papaya leaves. Occasionally, the egg can also be noticed on leafstalks and on fruits. After hatching, which occurs in about 5 days, the young larva I almost completely devours the shell, leaving only a small part glued to the leaf. The larvae of the first three stages feed on the leaves to a limited extent. During daytime they remain motionless on the lower sides of the leaves; in consequence of their pale green body colour they are difficult to observe. The development of each of the first three instars takes two days ¹⁾. During the 4th and 5th stage the larvae feed more ravenously during

¹⁾ These and following data from laboratory breeding experiments during January 1955.



Fig. 2. *Erinnyis alope* Drury, female. About natural size.

3 and 5—6 days respectively. The hornworm of the last stage is conspicuous on account of the damage caused, and of its size and colour. One or two hornworms are usually present on a papaya tree. During the daytime the hornworms of the 4th and 5th instar often remain motionless. The caterpillar of the 5th instar sometimes feigns death, holding its body rigidly stretched, head downward, at a slight angle with the papaya stem by clasping its abdominal feet of segments 6 and 10 to the stem. The hornworm may also stretch between the stem and a leafstalk or cling along the main leaf vein.

When disturbed the hornworm of the last two instars may bend its head and pronotum perpendicularly downward by which movement the folded anterior part of the metathorax becomes visible as a yellow-coloured band with a black spot in larva IV and as a black band ornamented with an orange ring in larva V. These colours probably form a deterrent pattern to preying birds.

If strongly irritated, larva V swiftly and strongly swings its abdomen, while a cracking sound may be produced by the mandibles; a chlorophyllous green mucus is sometimes vomited.

Larva V, when full-grown, crawls to the soil surface and after two days pupates on the ground among leaves and litter which it fastens together with silk. After 14—15 days the hawk emerges.

✓ *Drymonia trimacula* Esper. De soort was in 1955 te Colmschate talrijk op licht. Alle exemplaren behoorden tot de donkere f. *dodoneata* Hb. Bij Apeldoorn, waar de vlinder ook gewoon is, komt daarentegen in hoofdzaak de lichte typische vorm voor.

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