

LARVAL TAXONOMY OF ONCOPERA BRACHYPHYLLA TURNER AND ITS DISTINCTION FROM ONCOPERA MITOCERA (TURNER)

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SUMMARY

The larval taxonomy of *Oncopera brachyphylla* Turner is given in detail and criteria are provided for the separation of the larvae of *O. mitocera* (Turner) and *O. brachyphylla*. The "prepupae" vary only to a limited extent from the larvae and criteria are also provided for their separation.

I. INTRODUCTION

A method of distinguishing between larvae and also between prepupae of *Oncopera mitocera* (Turner) and *O. brachyphylla* Turner became necessary as a part of a biological study of these species as pests of pastures on the Northern Tablelands of Queensland. The larval taxonomy of *O. mitocera* has been examined by Martyn (1960). The present study details the larval taxonomy of *O. brachyphylla* and gives the results of an investigation to determine a field method of distinguishing between the larvae and also between the "prepupae" of the two species.

II. MATERIALS AND METHODS

Specimens of both species were obtained by weekly field collections at a number of locations on the Northern Tablelands over a period of 5 years (Elder, unpublished data).

Late instar larvae and prepupae were examined in detail with a stereoscopic microscope. The terminology and notation of the chaetotaxy used is that suggested by Hinton (1946) and used by Martyn (1960).

III. CHARACTERS AND DISTINCTIONS

(a) Larvae

Dorsal views of the larval head of the two species are given in Figure 1 and thoracic and abdominal characters are shown in Figures 2 and 3.

O. brachyphylla.—The head of *O. brachyphylla* (Figure 1 A,D) is similar to that of *O. intricata* Walker (Martyn 1960) in that there is no ridge as in *O. mitocera* (Figure 1B); hence the common name round-headed pasture webworm. The mandible has no diagonal ridge and the sclerite beneath the insertion of the antenna is flat with no conical projection.

On the prothorax of *O. brachyphylla* (Figure 2A) setae D2 and SD1 are on the same heavily pigmented area. The paired ventral setae (V) are on a mid-ventral plate.

On the mesothorax (Figure 2B), the paired dorsal setae (D1) are on a mid-dorsal plate. The setae D2, SD1, SD2 and L3 are on the same sclerotized plate, while L1 and L2 are on separate pinacula.

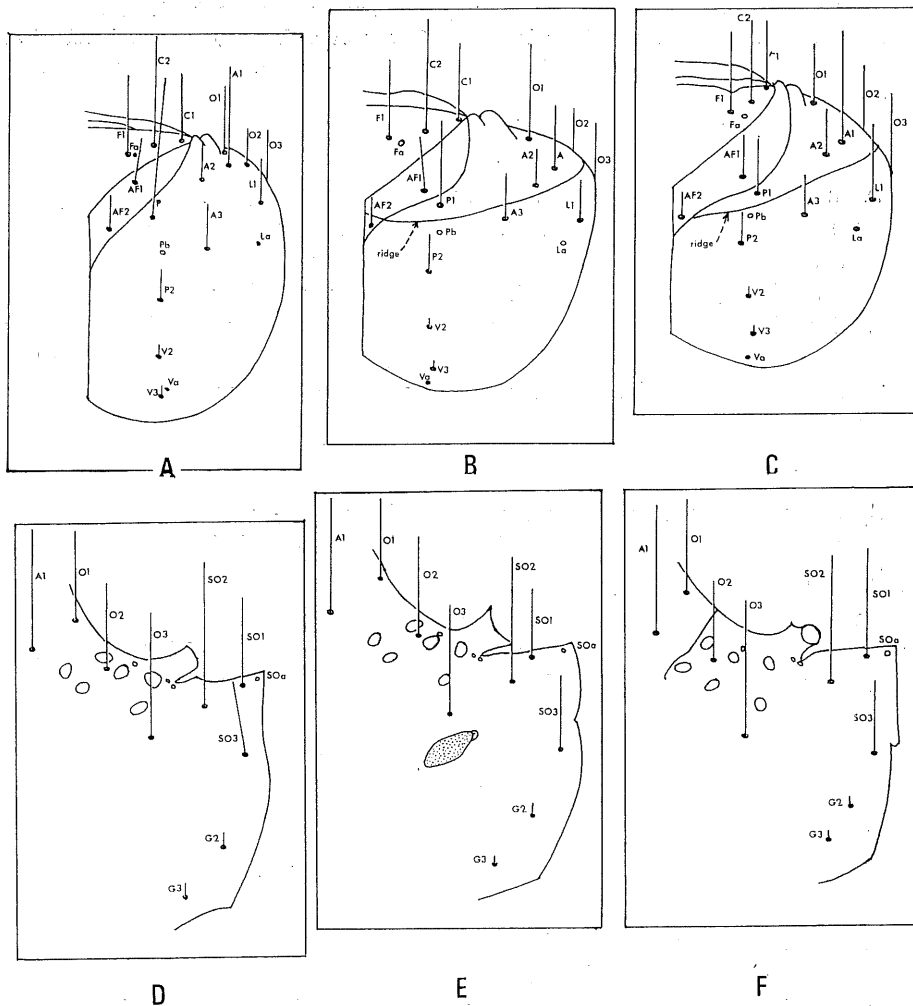


Fig. 1.—A, *O. brachyphylla*: dorsal view of larval head. B, *O. mitocera*: dorsal view of larval head. C, *O. mitocera*: dorsal view of prepupal head. D, *O. brachyphylla*: ventral view of larval head. E, *O. brachyphylla*: ventral view of prepupal head. F, *O. mitocera*: ventral view of larval head. (Note: P in A should be P1).

On the metathorax (Figure 2C), the paired setae D1 are on a mid-dorsal plate, setae D2, SD1, SD2 and L3 are on the same sclerotized plate, while L1 and L2 are on separate pinacula. The ventral setae are on a mid-ventral plate.

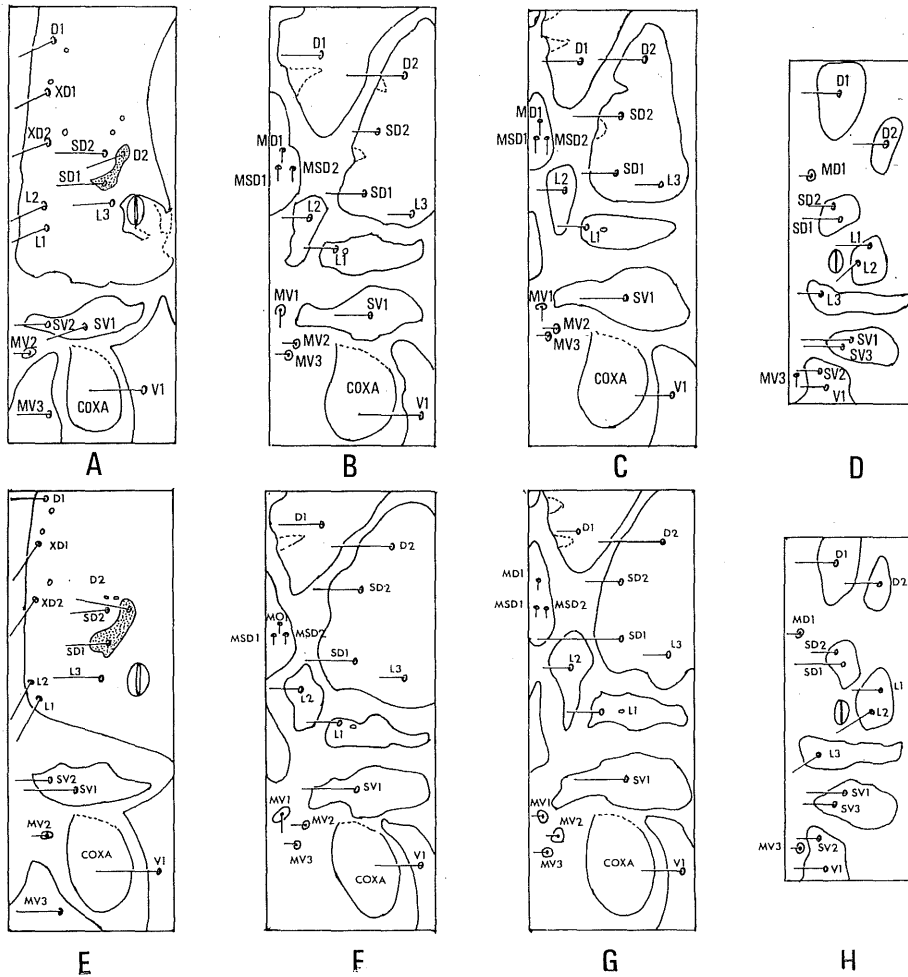


Fig. 2.—A, *O. brachyphylla*: prothorax. B, *O. brachyphylla*: mesothorax. C, *O. brachyphylla*: metathorax. D, *O. brachyphylla*: first abdominal segment. E, *O. mitocera*: prothorax. F, *O. mitocera*: mesothorax. G, *O. mitocera*: metathorax. H, *O. mitocera*: first abdominal segment. (Note: MO1 in F should be MD1).

On the abdomen (Figures 2D, 3A-D), the paired setae D1 are on separate pinacula in juxtaposition on segments 1 to 8 and on separate pinacula on segment 9. The paired setae D2 are on separate pinacula in segments 1 to 9. The sub-dorsal setae SD1 and SD2 are on the same pinaculum on all segments and

the lateral setae L1 and L2 are always on the same pinaculum on segments 1 to 4 and sometimes on separate, although often only just separate, pinacula on segments 5 and 6. On segments 5 and 6, L1 and its pinaculum are sometimes absent. On segments 3 to 7 pinaculum L3 is divided into two widely separate pinacula. Setae SV1 and SV3 are on one pinaculum on segments 1 and 2, SV2 being on a separate pinaculum on segments 1 and 2 while on segment 2 MV3 has moved back from the anterior margin and occurs on the same pinaculum as SV2. On segments 7 to 9 SV1 and SV2 are on one pinaculum. The ventral setae are on a mid-ventral plate on segments 1 and 2 and on separate pinaculum on segments 7 to 9. On segments 3 to 6 V1 is situated on the same sclerotized area at the bases of the prolegs as are SV1, SV2, SV3 and MV3.

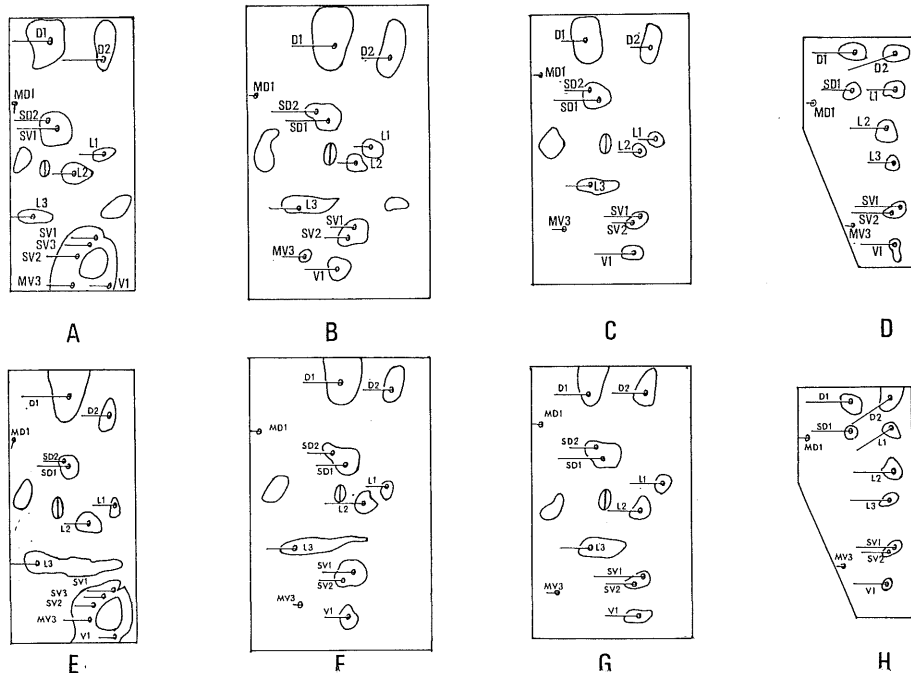


Fig. 3.—A, *O. brachyphylla*: sixth abdominal segment. B, *O. brachyphylla*: seventh abdominal segment. C, *O. brachyphylla*: eighth abdominal segment. D, *O. brachyphylla*: ninth abdominal segment. E, *O. mitocera*: sixth abdominal segment. F, *O. mitocera*: seventh abdominal segment. G, *O. mitocera*: eighth abdominal segment. H, *O. mitocera*: ninth abdominal segment.

O. mitocera.—On the head of *O. mitocera* (Figure 1B,F) the continuous ridge cephalad of seta AF2 marks the edge of a flattened area rather than a depressed area as described by Martyn (1960), the head viewed dorsally or

laterally offering a truncated appearance; hence the common name flat-headed pasture webworm. The head puncture Va lies between V3 and the posterior margin of the head.

Pinaculum L1 and seta L1 are sometimes absent on segment 3 of the abdomen.

Details for *O. mitocera* otherwise are as given by Martyn (1960). Figures 1B,C,F, 2E-H and 3E-H illustrate various characters.

Separation of the species.—*O. brachyphylla* larvae can be readily separated from those of *O. mitocera* by the shape of the head, the presence of Va between V2 and V3, the absence of a strong diagonal mandibular ridge, the absence of a conical projection on the sclerite ventral to the insertion of the antennae, and by whether D1 on the abdominal segments is on separate pinacular or mid-dorsal plates.

Both *O. brachyphylla* and *O. mitocera* larvae are readily separated from those of the other species of *Oncopera* described by Martyn (1960) because on the metathorax of only *O. brachyphylla* and *O. mitocera* is D2 situated on the same sclerite as SD1, SD2 and L3 (Figure 2C,G).

O. mitocera late instar larvae have a greyish colour with a black flattened head, while those of *O. brachyphylla* have a greyish colour distinctly tinged with yellow, and have a dark-brown, rounded head.

(b) Prepupae

Prepupae of these two insects are actually the last instar of the larval stage. These prepupae do not feed, the gut is evacuated, the sclerites of all body segments and the head are only slightly pigmented and during the 7–11 days of the prepupal period for each species (Elder, unpublished data), the body decreases in length and increases in width, taking on roughly the pupal shape prior to moulting to that stage. These progressive changes alter to a marked degree the distances between the sclerites. Otherwise there is no marked difference in the morphology of the prepupa of either species from that of the larva.

In *O. mitocera* the head of the prepupa (Figure 1C) takes on a more rounded form than that of the larva, although the continuous ridge as previously described is still apparent.

In *O. brachyphylla* a pigmented spot near seta 03 (Figure 1E) is a useful character for distinguishing the prepupa of this species from that of *O. mitocera*, in which this spot is absent.

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