QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES

DIVISION OF PLANT INDUSTRY BULLETIN No. 558

DISTINCTION BETWEEN ADULT ONCOPERA MITOCERA (TURNER) AND ONCOPERA BRACHYPHYLLA TURNER

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SUMMARY

Criteria are given for the separation of adult *Oncopera mitocera* (Turner) and *O. brachyphylla* Turner without the need for genitalia dissections.

The wing patterns are unreliable due to variation within the sexes and species, and are frequently seriously abraded in field-collected material.

A swollen posterior tibia is present in the male of *O. mitocera* and this carries a large curved tuft of hair-scales. Both of these features are absent in the male of *O. brachyphylla*. Hand lens examination of genitalia is sufficient for separation of the females.

I. INTRODUCTION

Two species of pasture webworms, *Oncopera mitocera* (Turner) and *O. brachyphylla* Turner, are pests of dairy pastures on the Northern Tablelands of Queensland (Elder 1965). The adults of these species are much alike and they occur in the same localities at the one time. As part of biological and ecological studies of these insects Elder (1969) has given details of the flight periods. These demonstrated the need for a rapid method of distinguishing the two species and their sexes without the task of genitalia dissections, especially in the case of the males.

A large series of field-collected moths of each sex of both species were examined and the distinguishing features detailed both microscopically and macroscopically. In this way relationships between genitalia, wing patterns and other important morphological features as given by Tindale (1933) and Common (1966) were determined.

II. WING PATTERN

Typical wing patterns of the two species, and of the sexes of each, show differences. These patterns, however, were widely variable within each sex of each species (Figures 1–4) and furthermore they readily became seriously lost by abrasion. Abraded specimens are common in field-collected material and the margin of doubt with these was shown to be so great that wing pattern was not sufficiently consistently reliable as a rapid method of species separation.

III. DETERMINATION OF MALES

Among the characters given by Tindale (1933) and followed by Common (1966) as distinguishing moths of *Oncopera* from other Hepialids is the presence of a dense tuft of specialized hair-scales arising from the greatly swollen posterior tibia of the male.

Males of *O. mitocera* have the swollen posterior tibia and arising from this is a large curved tuft of hair-scales (Figure 5).

Fig. 1.—Variation in wing patterns of female *Oncopera brachyphylla.*

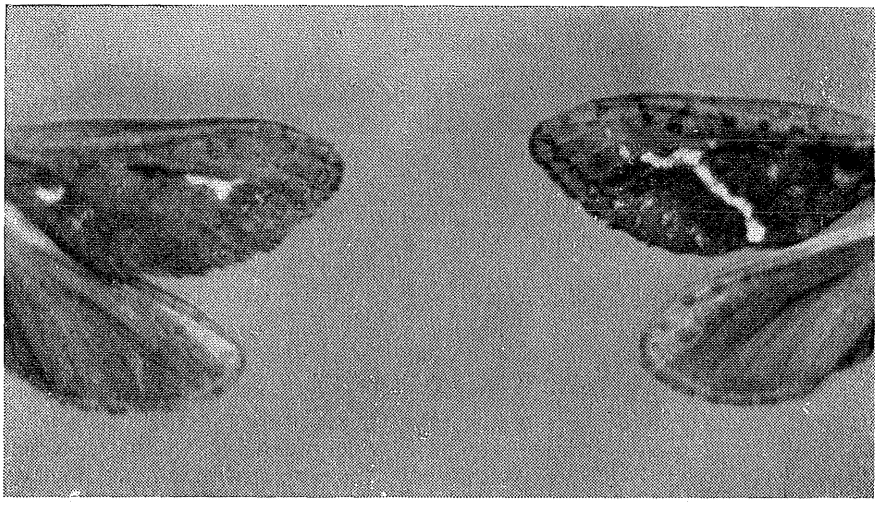

Fig. 2.—Variation in wing patterns of male *Oncopera brachyphylla.*

The present studies have shown, however, that the males of *O. brachyphylla* do not possess a swollen posterior tibia. The width of the tibia is similar to that of the femur and the arrangement of hair-scales (Figure 5) is greatly reduced in comparison with that of *O. mitocera.* The posterior tibial hair-scales present in *O. brachyphylla* do not have a broad, flattened basal part tapering into a long, hair-like distal part as described by Common (1966).

Common (personal communication 1970), on re-examination of the holotype male and four other male specimens of *O. brachyphylla,* agrees that the posterior tibia of this species is not swollen and that no hair-scale tuft is present.

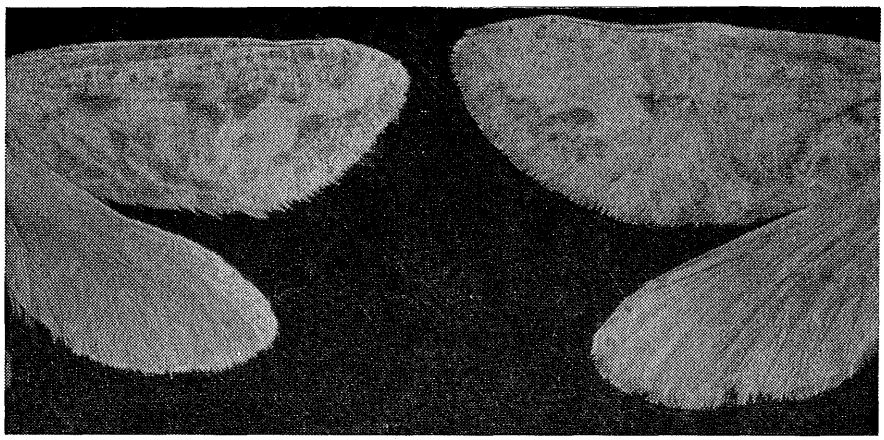

Fig. 3—Variation in wing patterns of female *Oncopera mitocera.*

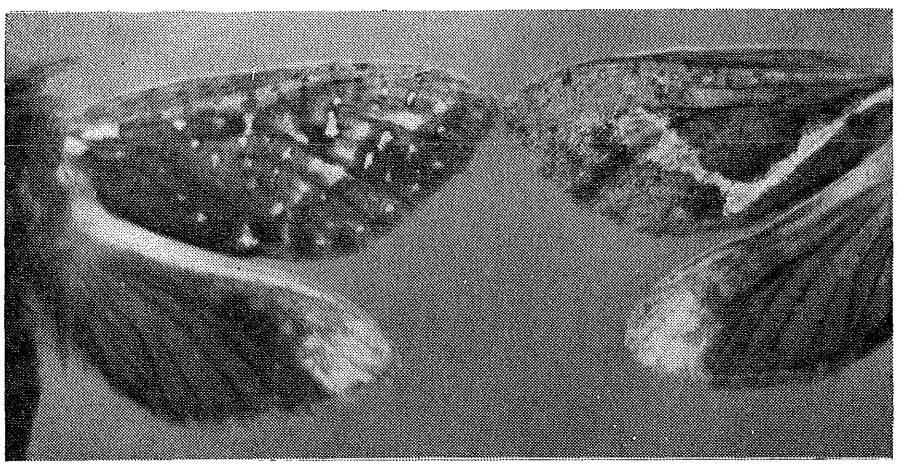

Fig. 4.—Variation in wing patterns of male *Oncopera mitocera.*

These characters therefore provide reliable differences for the rapid separation of the males of the two species in field-collected material.

While the absence of the swollen posterior tibia and hair-scale tuft might suggest some different generic placing for *O. brachyphylla,* the filamentous antennae with a tuft of long hair-scales on the scape still agrees with the genus *Oncopera* as determined by Tindale (1933).

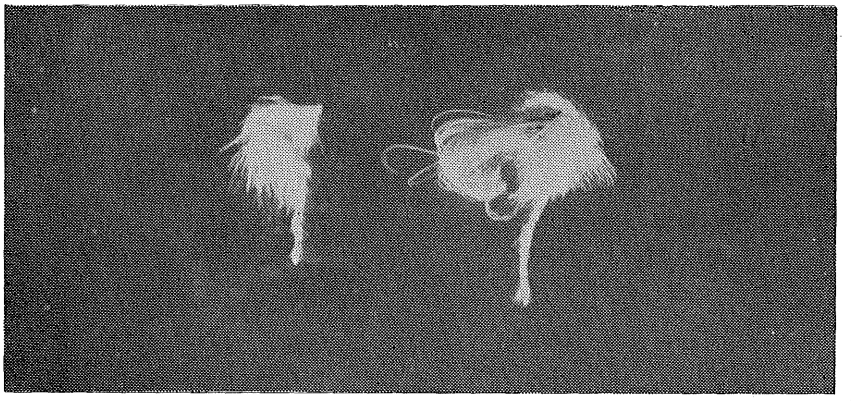

Fig. 5.—Posterior legs of male *Oncopera.* Right, *O. mitocera,* showing the large curved tuft of hair-scales on the tibia. Left, *O. brachyphylla,* showing the absence of the large curved tuft of hair-scales on the tibia.

IV. DETERMINATION OF FEMALES

Female genitalia examined *in vivo* and as slides revealed that the figures of *O. mitocera* and *O. brachyphylla* given by Common (1966) are actually variations of *O. mitocera* female genitalia. Conclusive evidence was obtained by collection and examination of pairs of both species in copulation (Elder, unpublished data).

Common (personal communication 1970) has stated that differences between the single alleged female of *O. brachyphylla* and the very limited number of *O. mitocera* then available are slight and a misidentification of the single specimen has been likely.

Female genitalia of *O. mitocera* (Figures 6 and 7) and of *O. brachyphylla* (Figures 8 and 9) can be readily distinguished by means of a hand lens on the basis of the shape of the lamella antevaginalis in intact moths. This structure in *O. mitocera* is not pointed, whereas in *O. brachyphylla* it is distinctly triangular. Figures 8 and 9 now represent the first illustrations of the female genitalia of *O. brachyphylla* and reference to the four figures of the two species makes detailed descriptions unnecessary. These features were satisfactory in the field for readily separating material of the two species.

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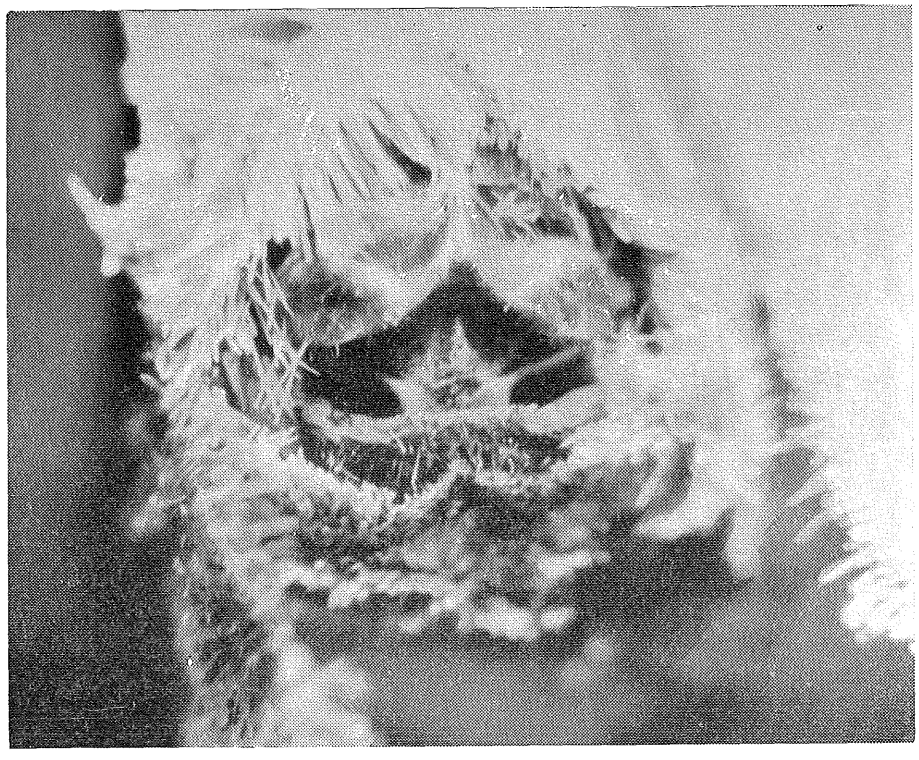
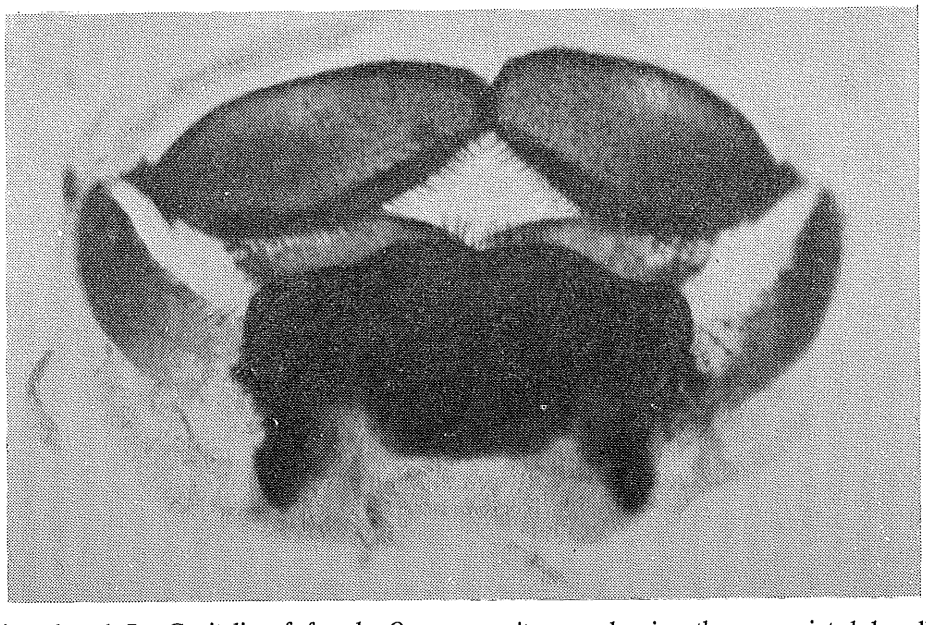
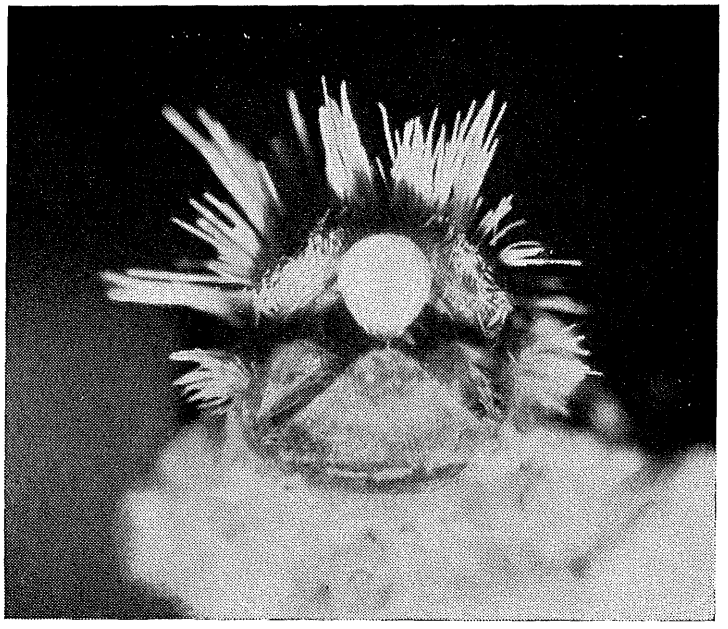
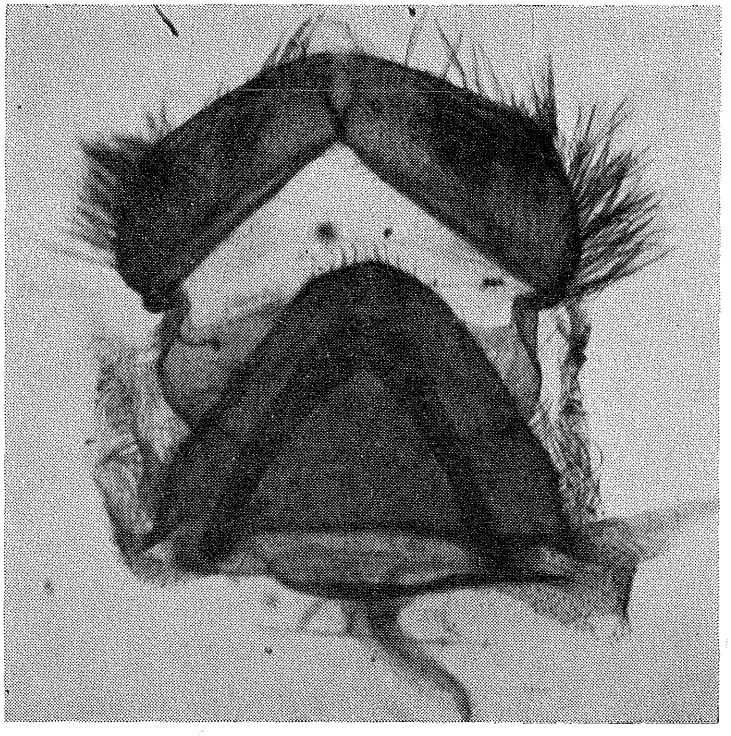




Figs. 6 and 7.—Genitalia of female *Oncopera mitocera,* showing the non-pointed lamella antevaginalis. Fig. 6 (top), intact moth. Fig. 7 (bottom), slide mount.





Figs. 8 and 9.—Genitalia of female *Oncopera brachyphylla,* showing the triangular lamella antevaginalis. Fig. 8 (top), intact moth with egg. Fig. 9 (bottom), slide mount.