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INSECTS OF MACQUARIE ISLAND. LEPIDOPTERA: PYRALIDAE: SCOPARIINAE

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Abstract: This is a re-description of *Eudoria mawsoni* (Womersley and Tindale)—Lepidoptera, Pyralidae, Scopariinae—the only endemic moth so far recorded from Macquarie Island, and the only moth breeding for certain on the island.

The material dealt with in this study was collected by Messrs. K. C. Watson, J. H. Calaby and Dr. J. L. Gressitt, working at the Australian National Antarctic Research Expedition Station at Macquarie Island in 1960 and 1961.

The pyralid moth, *Scoparia mawsoni* Womersley and Tindale, was originally described from a small series of poorly preserved adults and a larva collected by the late Prof. T. Harvey Johnston at Macquarie Island in 1930 (Womersley & Tindale, 1937). The condition of the adult material did not permit a detailed description of the wing pattern and, although the male genitalia were described and figured, the description and figure of the female genitalia was confined to the external structures of the posterior three abdominal segments. The present descriptions are based upon a long series of pinned adults, some of which were reared from pupae.

Named adult material collected by Dr. Gressitt is deposited in the Bishop Museum, Honolulu, while the bulk of the adult, larval and pupal material collected by Mr. Watson and Mr. Calaby has been deposited in the Australian National Insect Collection, Division of Entomology Museum, C. S. I. R. O., Canberra. Named adults from this last series have been deposited in the British Museum (Nat. Hist.); U. S. National Museum; Canadian National Insect Collection; South Australian Museum, Adelaide; National Museum of Victoria, Melbourne; and the Australian Museum, Sydney.

Chapman (1911) erected the genus *Eudoria* to contain certain species, with moss-feeding larvae, previously placed in *Scoparia* Curtis. He showed that these two genera could be distinguished mainly by the male genitalia, in particular, the form of the uncus and the sacculus and the presence or absence of cornuti in the male aedeagus. In *Scoparia*, the uncus tapers to the apex, the sacculus terminates in a sharp projection and there are conspicuous cornuti on the vesica of the male aedeagus. On the other hand, in *Eudoria* the uncus is broadly rounded and hood-like, the sacculus has no terminal projection, and the aedeagus is without cornuti. This separation was confirmed by Pierce and Metcalfe (1938). McDunnough (1961) showed that the females of these two genera could be separated effectively on the form of the ovipositor, which in *Eudoria* is retractile, with long apophyses posteriores. In *Scoparia* the ovipositor is non-retractile, the need for well elongated apophyses posteriores thus being reduced.

In discussing the distribution of the Scopariinae, Munroe (1958) pointed out that most of the Australian and New Zealand species placed in the genus *Scoparia*, which he had examined, were in fact referable to *Eudoria*. The genus is particularly well developed in the Pacific area, although it is apparently absent from temperate South America, where it is replaced by *Scoparia*. It has been especially successful in colonizing oceanic islands, the species being endemic to the islands on which they occur.

E. mawsoni is the only endemic lepidopteron so far recorded from Macquarie Island. Assiduous collecting by Mr. Watson throughout a period of twelve months has failed to disclose any other species breeding naturally on the island. A specimen of *Anagasta kuehniella* (Zell.) was reared from foodstuffs stored at the Station, and specimens of *Agrotis ypsilon* (Hufn.) were taken at light. Neither of these cosmopolitan species is likely to be established on the island.

Eudoria mawsoni (Womersley and Tindale), NEW COMBINATION

Scoparia mawsoni Wom. & Tind., 1937, B. A. N. Z. Antarctic Res. Exped., Rep. ser. B, **4**: 84, pl. II, figs. a–f.

Types: I have examined 5 paratypes preserved in spirit in the South Australian Museum, Adelaide, and labelled "*Scoparia mawsoni* Tindale, Macquarie Island, Banzare Exped., Swampy Land, 3rd. Dec. 1930, Paratypes." The microscope slide mounts from which Womersley and Tindale's figures were made are also in the South Australian Museum.

Male: Head pale ochreous gray, often suffused with gray or white; antenna dark fuscous; maxillary palpus ochreous gray, suffused with fuscous on outer surface, whitish apically; labial palpus with basal segment white, segment 2 gray, fuscous on outer surface, whitish ventrally. Thorax pale ochreous gray, suffused with gray; legs pale ochreous gray, suffused with gray, especially on fore and median tibiae and tarsi, bases of coxae white. Abdomen ochreous gray, paler ventrally. Forewing pale ochreous gray, more or less suffused with gray; a fuscous spot near base, midway between costa and dorsum; an outwardly oblique, somewhat sinuous fuscous line from 1/6 costa to 2/5 dorsum, often ill-defined; a prominent dark fuscous oval spot in disc just beyond 1/3; 2 poorly defined oval fuscous, pale-centered spots just beyond 2/5 and at 3/5; an inwardly oblique fuscous sinuous line from costa at 4/5 to dorsum just beyond 3/4; a suffused fuscous area near tornus and another along dorsal 2/3 of termen; cilia pale ochreous gray, basal 1/3 gray. Hindwing gray; cilia ochreous gray, basal 1/4 gray.

Female: Similar to ♂, but more heavily suffused with gray and fuscous, with markings consequently less conspicuous.

Variation: The general coloration and intensity of the markings vary considerably. Some specimens are predominantly ochreous gray, others have the ochreous gray ground color almost completely obscured by a gray suffusion, while the markings in some are very distinct and in others obsolete.

Expanse: ♂ 21.2–26.7 mm, ♀ 18.6–24.8 mm.

Specimens examined: 196 ♂♂, 18 ♀♀.

Male genitalia (fig. 1A): Uncus broad, apex rounded, clothed with anteriorly directed hairs; gnathos with short curved arms, uniting to form a tapering acute median process; valva elongate, dilated and gently rounded distally, sacculus small, without projections;

juxta broad and rounded at base, tapering distally; vinculum broadly rounded; aedeagus (fig. 1B) long, with parallel sides, gently curved, without cornuti.

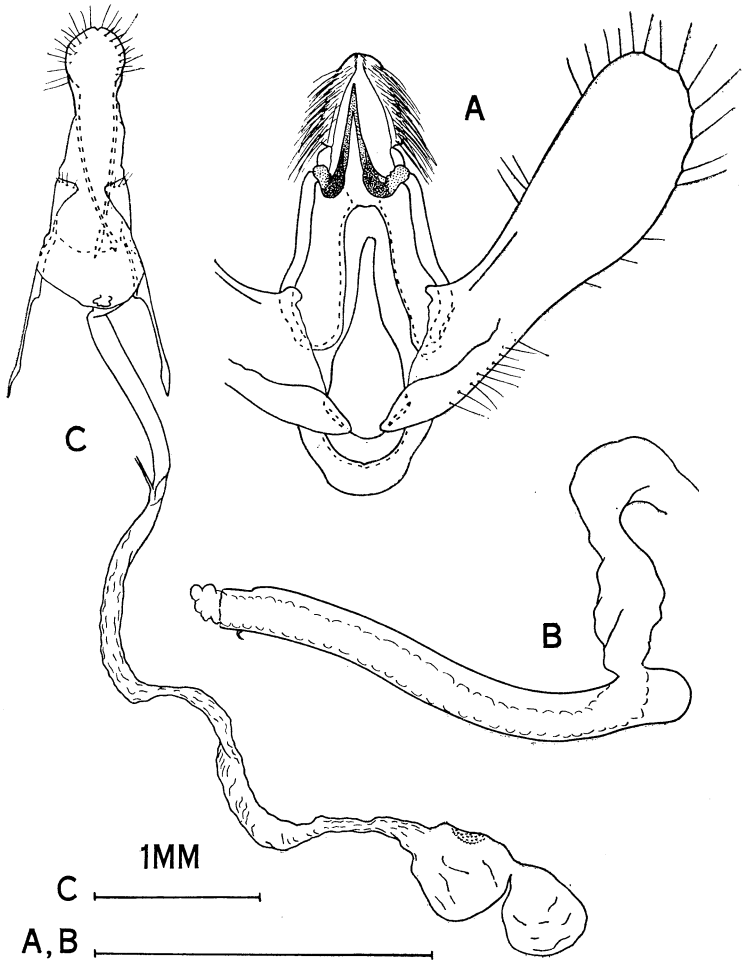

Fig. 1. Genitalia of *Endoria mawsoni* (Wom. and Tind.): A, ♂ genitalia with aedeagus removed; B, ♂ aedeagus, lateral view; C, ♀ genitalia.

Female genitalia (fig. 1C): Apophyses posteriores as long as apophyses anteriores; ostium bursae greatly reduced, membranous; ductus bursae long, sinuous and coiled once, sclerotized between ostium bursae and junction of ductus seminalis, remainder membranous; corpus bursae spherical with a slightly smaller ovate diverticulum, signum an oval scobinate plate.

Comments: The larva of *E. mawsoni* was described in detail by Tillyard (1920), although he stated that his larva belonged to the subfamily Crambinae. The larvae examined by Womersley and Tindale (1937) agreed with Tillyard's description. The larvae

now available are closely similar to Tillyard's specimen, except for the orientation of the crochets of the abdominal prolegs. Tillyard stated that the circlet of triordinal crochets was most complete on its outer side, that is on the side farthest removed from the mid-line of the abdomen. In the larvae associated with the adults described above, the relative position of the crochets is reversed, the smallest crochets of the group being on the inner side, that is the side nearest the mid-line of the abdomen.

The larvae and pupae collected by Watson were mostly associated with mosses, but a few were collected in other situations such as on *Colobanthus*. Whether these larvae were actually feeding on plants other than mosses is not known.

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