

Scientific Note: Clarification of the nomenclature and distribution of *Mania aegisthus* (Fabricius, 1781) (Lepidoptera: Geometroidea: Sematuridae)

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Abstract: Until recently there has been considerable confusion over the correct nomenclature of the sexually dimorphic moth species in the genus *Mania* (Sematuridae). In addition, some websites still indicate that *Mania aegisthus* (Fabricius) occurs in Suriname, whereas this species is confined to the Greater Antillean islands of Cuba, Hispaniola, and Jamaica. This note clarifies the taxonomy and distribution of this species.

Key words: Cuba, Hispaniola, identification, Jamaica, nomenclature, Suriname.

INTRODUCTION

The genus *Mania* Hübner was previously regarded as a member of the Uraniidae within the superfamily Uraniioidea. However, following phylogenetic and molecular studies (Minet & Scoble, 1999; Regier, 2008; Sihvonen *et al.*, 2011; Heikkilä *et al.*, 2015), these moths are now recognized as members of the family Sematuridae within the Geometroidea, with six genera containing forty species (van Nieukerken *et al.*, 2011). Despite the genus containing only a few species, until now there has been confusion over the identification and distribution of species. This note provides a summary of the misapplication of names along with the correct nomenclature, description, and distribution of *Mania aegisthus* (Fabricius, 1781).

MATERIALS AND METHODS

The present study was conducted under Permit 18/27 issued by the National Environment Planning Agency, Kingston, but no new specimens of *Mania* were collected. Adults were photographed while at rest using a Nikon D800 camera with a Nikkor AF-S 18-200 mm lens or Nikon D850 camera with a Micro Nikkor AF-S 105 mm lens. Several existing pinned specimens were examined and photographed using a Canon EOS 5DsR camera with Tamron 90 mm F/2.8 lens or Sony Cyber-shot 20.4 megapixels with 30X optical zoom.

Adult wingspans were measured in millimeters from forewing tip to forewing tip, but this measurement provides only an approximate measurement of size that depends on how the wings were arranged at time of pinning, so we also provide average wing length measured from mid-thorax behind the head to wing tip. A brief description of wing markings and

color patterns together with photographs highlight features to aid identification.

Superfamily GEOMETROIDEA Leach, 1815

Family Sematuridae Guenée, 1858

Subfamily Sematurinae Guenée, 1858, Corkscrew moths

Genus *Mania* Hübner, 1821

Mania aegisthus (Fabricius, 1781)

Type locality: Jamaica

Nomenclature

Fabricius (1781) described *Papilio aegisthus*. Billberg (1820) proposed *Nothus* as a name for the genus, but this name is preoccupied by *Nothus* Olivier, 1811 (Coleoptera: Tenebrionidae; Olivier, 1811) and is therefore unavailable. However, *Nothus* has been in common usage, with Gaede (1930) referring to Jamaican specimens as *Nothus aegisthus*, a nomenclature Gowdey (1928) followed in his list of Jamaican Lepidoptera. More recently, the Barnes' (2002) website Moths of Jamaica, West Indies, refers to *Nothus aegisthus* and *Nothus excavata* [sic] from Jamaica.

The Moth Photographers Group's (2013) online checklist of Lepidoptera of the Antilles currently lists *Mania aegisthus* (Fabricius, 1793) from Cuba, but also lists the same species as *Nothus aegisthus* (Fabricius, 1781) from Jamaica and Hispaniola. Walker (1854) referred to the species as *Nyctalemon aegisthus* for specimens from Jamaica and *Nyctalemon excavatus* for the same species from Hispaniola.

The generic name *Sematura* has also been in use for this species (Dalman, 1825), such as *Sematura aegisthus* for specimens from Jamaica, and a female specimen of *M. aegisthus* from Haiti described as *Sematura phoebe* by Guenée in 1857.



Figure 1. *Mania aegisthus* in Jamaica: ♂ dorsal (top left); ♂ ventral (top right); ♀ dorsal (bottom left), ♀ ventral (bottom right). ♀ photos courtesy of IJ, NMHJ.



Figure 2. *Mania lunus*: ♂ dorsal (left). Photo courtesy of National Museums of Scotland; ♀ dorsal (center), ♀ ventral (right). Photos courtesy of Matthew J. W. Cock.

An application made by Cock & Lamas (2011) to stabilize the name *Sematura* Dalman, submitted to the International Commission on Zoological Nomenclature, ICZN, was rejected, giving precedence to the older genus name *Mania* Hübner, 1821 (ICZN, 2015), as noted by Cock (2016). Both *Nothus* Bilberg, 1820, and *Sematura* Dalman, 1825 are now recognized as being synonymous with *Mania*.

Mania is a small genus with four recognized Neotropical to subtropical species. The sexes are dimorphic; the male of *M. aegisthus* was originally described by Fabricius in 1781 as *Papilio aegisthus*, and the female was described as *Nyctalemon excavatus* by Westwood (1879). It also appears that Gaede (1930) confused the male and female in his brief descriptions of each sex of *Mania aegisthus* (as *Sematura*). The female of



Figure 3. *Mania empedocles*: ♂ dorsal (left); ♂ ventral (right). Photos courtesy of Matthew J. W. Cock.

M. aegisthus was misidentified by Stoll (1782) as the female of *Mania lunus* (Linnaeus, 1758), being illustrated with male specimens of *M. lunus* from Suriname. While the brown ground color and lighter banding of *M. lunus* (Fig. 2) and *M. empedocles* (Cramer, 1779) (Fig. 3) are superficially similar to those of *M. aegisthus*, the post-discal lines on both forewing and hindwing in *M. lunus* and *M. empedocles* are virtually straight, while those on the wings of *M. aegisthus* are undulating in both sexes, being first extended outwards at the end of the cell, then strongly indented below the cell on the forewing, this sequence repeated again near the tornus on the hindwing.

The type locality for *M. aegisthus* was given by Fabricius (1781) as “in Indiis”, and later ascribed to Jamaica by Butler (1870) from a specimen collected by Philip Gosse identified then as *Papilio aegisthus* and deposited in the Banksian Collection (Walker, 1854). *Mania aegisthus* is confined to the Greater Antillean islands of Cuba, Jamaica, and Hispaniola and is not present in Suriname (Cock & Lamas, 2011; Cock, 2016).

Material examined

The following description is based on nine specimens examined; three males and three females in the Thomas Turner collection; two females from the Natural History Museum of the Institute of Jamaica collection, Kingston; together with photographs of eight additional specimens taken by Vaughan Turland, John Fletcher, and from photographs by Leonard Wright from the Natural History Museum of the Institute of Jamaica, along with information from Barnes’s ‘Moths of Jamaica’ website (Barnes, 2002).

The common name for *Mania*, Corkscrew Moths, is derived from the tails on the hindwings, which in life are twisted. The species of this genus are also known as Eye-tailed Moths, in reference to the eyespots located at the base of the hindwings and on the tails. Specimens of both sexes vary greatly in size. Although the immature stages in Jamaica have not been found, such wide variation in adult size can occur when eggs are laid

in large batches with some larvae experiencing a shortage of larval food plant toward the end of the final larval instar while still developed enough to pupate and produce smaller adults (Turner, pers. obs.). Regardless of size, the wing markings and patterns remain constant.

Male: (Fig. 1). Male wingspan ranges from 56 mm to 80 mm with forewing length of between 35 mm and 45 mm (n=3). Ground color dark brown with a mix of a mix of pale chestnut, and lighter straw-colored lines with darker cells in series of chevron-like markings.

Dorsal forewing divided into three concentric series: a basal series edged distally by a series of larger cells; a median series edged distally by undulating postdiscal band, which extends outwards at end of cell between veins Cu_1 - Cu_2 , and a marginal series between post-discal band and outer margin. The latter is defined by more heavily patterned cells distad of a darker brown postdiscal line. Outer sub-margin is marked with a series of undulating lighter and darker brown lines, and with a very thin almost continuous dark brown marginal line. This wing pattern continues on upper hindwing, outer margin of which is edged with three pronounced indentations, third extending into a tail which terminally becomes broadly spatulate. At base of tail toward tornus is largest of three eyespots, each black with a thin white distal crescent, and almost completely ringed with a thin light brown margin; second eyespot is positioned along basal edge of tail at point where tail becomes spatulate and is half size of basal eyespot; third eyespot is slightly smaller than second and is positioned medially, just before end of tail, which can be 22 mm in length in largest specimens; undulating postdiscal line extends outwards between veins Cu_2 - A_2 . A light brown submarginal marking tapers from basal eyespot to tornus and is also marked with a thin dark brown submarginal line. Antennae light brown, filamentous, slightly thickened toward end before tapering to a point, extending almost to postdiscal band along forewing; labial palpi pale chestnut, each edged frontally with a fine brush of long brown scales and with a pair of short, forward-extending projections approximately 1.5 mm in length, distally knobbed; dorsal head, thorax and abdomen dark brown; three chestnut brown ‘v’-shaped markings on thorax; abdomen with a pale dashed mid-dorsal line; first three abdominal segments also display pale yellowish-brown intersegmental bands; laterally pale gray.

Ventral head, thorax, and abdomen, light brown with slightly darker legs; thorax with longer light brown scales.

Ventral forewings and hindwings light brown; costa to subcosta crossed by darker bands between middle of cell and submargin; postdiscal band prominent, undulating, dark brown enclosing faint darker basal striae; a submarginal band of speckled brown ellipses tapering toward tornus; continuing as a dark brown speckled band to anal margin above tornus; eyespots absent, tail speckled



Figure 4. Distribution map for *Mania aegisthus*.

brown basally, more uniform brown distally; anal wing margin with long buff scales. Tonal area between basal eyespot and hind margin often flushed with reddish-brown, more so than in female.

Female: (Fig. 1). Female wingspan ranges from 42 mm to 73 mm with forewing length of between 30 mm and 45 mm (n=6).

Dorsal forewing ground color darker brown than that of male, with greater differentiation of dark brown cells edged with contrasting lighter brown to yellowish-brown lines; postdiscal lines undulating like that of male, pale yellowish-brown, bifid, anterior lines most prominently marked; submargin with better defined dark and lighter brown banding than in male; post discal band fading somewhat toward anal margin on upper hindwing; three marginal indentations better defined than those of male marked with golden brown marginal lines; eyespots and tail as in male. Antennae are slightly shorter and darker than those of male. Labial palpi with short brush hairs, not as well developed as those of male; projections of palpi longer than those of the male, approximately 3 mm in length, terminally knobbed. Dorsal and ventral markings of head, thorax, and abdomen similar to those of male; legs brown.

Ventral forewing defined by a narrow, undulating, dark brown postdiscal band similar to that of male; ground color basad of this light brown, and distad of this by a broad creamy-brown band followed by a dark brown wedge-shaped band extending from costa, tapering to hind margin. A broad marginal band of yellowish-brown dusted with dark brown scales. These patterns extend to lower hindwing. Tail brown without eyespots.

Distribution, habitats and behavior

In Jamaica, *M. aegisthus* is found in primary and secondary moist broadleaf forest and areas adjacent to these forests primarily at elevations between 450 m and 600 m, but there

are also coastal records in secondary forest from elevations as low as 25 m. Specimens are also present at elevations up to at least 1,736 m in the Dominican Republic (Turner, pers. obs.). In Cuba, Núñez (2021, pers. comm.) describes *Mania* as ‘widespread but very rare’, found at altitudes from a few hundred meters up to 1800 m. Usually only a single specimen is seen at any time. It occurs in well preserved forest in the western, central, and eastern mountains. There is an old record from the Zapata Swamp in south western Cuba, which is very humid with dense forest (Núñez, 2021, pers. comm.).

In Jamaica, adults hide in shaded rock crevices within the forest during the day from where they are easily disturbed during daylight hours. Adults are also flushed from their daytime resting places by smoke during slash and burn cultivation events in the Dominican Republic (Turner, pers. obs.). In Jamaica, adults appear toward dusk, with solitary males patrolling back and forth with an undulating flight inside territories defined by small clearings within the forest or by steep-walled limestone ‘cockpits’. Mating has not been observed and there has been no description of the immature stages from the Greater Antilles. Both sexes are attracted to artificial lights, but in low numbers, and mostly with only a single specimen seen on any given night, and moths often continue to fly by rather than settle (Turland, pers. obs.). In Jamaica, this species has been seen in January, between May and August, and in October but is most frequently seen between July and August.

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Figure 5. *Mania aegisthus* in Jamaica: ♂ Marshall’s Pen, Manchester Parish (left); ♂ Marshall’s Pen, Manchester Parish (center); ♀ Stony Hill, St. Andrew Parish (right). ♀ photo courtesy of John Fletcher.

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