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ABSTRACT

The saturniid moth recorded from Trinidad as *Automeris janus* (Cramer) is shown to have been misidentified, and all supposed specimens checked are actually *A. metzli* Sallé. Trinidad food plant records from *Erythrina* and coconut for *A. janus* should therefore be associated with *A. metzli* instead. The caterpillar is described and illustrated, and compared with published illustrations.

Key words: *Automeris janus*, *Automeris metzli*, *Belvosia formosa*, *Erythrina* sp., coconut, Trinidad, Tobago.

Saturniidae is a family of large moths with more than 40 species known from Trinidad (Cock 2003). The large moths and conspicuous, colourful caterpillars, which have urticating spines, are often encountered by naturalists and the general public. Adult moths of the genus *Automeris* characteristically have conspicuous eyespots set in yellow, orange or red on the upper surface of the hind wing, which are normally covered by the forewing in the resting position. Lemaire (2002), in his definitive monograph of the Hemileucinae (Saturniidae), distinguishes three rather similar species of *Automeris*, which until quite recently have been confused under the name *A. janus* (Cramer): i.e., *A. janus*, *A. metzli* Sallé and *A. exigua* Lemaire. *Automeris janus* and *A. metzli* have only been recognized as separate, valid species since 1952, based on their sympatric occurrence in Rancho Grande, north-central Venezuela (Flemming 1952). Lemaire (2002) gives the distribution of *A. janus* as Guiano-Amazonian, extending into north-central Venezuela, of *A. metzli* as Central America and western Andes (Colombia and Ecuador) and north-central Venezuela, and of *A. exigua* as overlapping with *A. metzli* except that it does not occur in Venezuela. He does not include Trinidad in the distribution data for any of the three species. Nevertheless, *A. janus* is reported in the literature from Trinidad (Kaye 1901; Kaye and Lamont 1927; Chadee *et al.* 1982). The purpose of this note is to clarify which species of this group occurs in Trinidad and record observations of the biology in comparison with observations from Central and South America.

Kaye (1901) reports a specimen of *A. janus* "in the National Collection", i.e. The Natural History Museum, London (NHM). I have found no specimens of *A. janus* from Trinidad in the NHM, but there is a male specimen of *A. metzli* collected by E. Lafond at Belmont, which is of the right vintage to be the specimen to which Kaye refers.

Kaye and Lamont (1927) repeat the NHM record of *A. janus* adding Lamont's records from "Palmiste,

very common on *Erythrina* etc., 20.ii.1916; 14.xi.1917; 5.xii.1917 (N.L.). Kept in check through parasitization by a tachinid fly." Three specimens, a male and two females, with these data are in the collection of Sir Norman Lamont preserved at the University of the West Indies, St. Augustine (UWI), labeled as *A. janus*. The female from 5.xii.1917 is labelled "emerged". In Lamont's collection in the National Museums of Scotland, there are five specimens curated as *A. metzli*, only one of which has full data, from Palmiste, 22.xi.1935. However, two of these specimens are labelled as "*Automeris janus*", one in Lamont's writing (K. Bland, pers. comm. 2007), so it seems clear that Lamont had considered this series to be *A. janus*. There are also two males collected by Lamont at Palmiste, 9.xii.1917 and 11.xii.1917, in the Hope Entomological Collections, Oxford University Museum. All of Lamont's material is *A. metzli*.

Chadee *et al.* (1982) report the tachinid fly *Belvosia formosa* Aldrich parasitizing *A. janus* caterpillars collected from coconut on Monos Island, Trinidad, but I have not seen their host material. There are two unlabelled tachinids in Lamont's collection in UWI, placed next to the specimens of *A. metzli*, which must represent the tachinid to which Kaye and Lamont (1927) refer, and which may also be *B. formosa*.

D'Abrera (1995) includes Trinidad in the range of *A. janus*, but not of *A. metzli*, based on his interpretation of the NHM collection. I have checked the NHM collection, and the only Trinidad specimens of this group that I found were *A. metzli* (see comments above on Kaye (1901) and below), suggesting that D'Abrera's record is an error.

In addition to these published records, there is a male *A. metzli* collected at Port of Spain by F. Birch in the NHM, and there are specimens of *A. metzli* from Curepe, Arima Valley (Simla), Hollis Reservoir, and Morne Bleu (Textel Installation) in my collection and the CABI collection in Curepe.

Thus, I have seen no specimens of *A. janus* from Trini-

dad, and all published records that I have checked from specimens are *A. metzli*, often incorrectly identified as *A. janus*. It seems likely that *A. metzli* is the only species of this group occurring in Trinidad. There are no records of either species from Tobago.

Automeris metzli seems to be widespread in Trinidad, and could turn up almost anywhere. Lemaire (2002) was not aware of naturally used food plants (as opposed to food plants accepted in captivity), so the two food plant records, *Erythrina* and coconut, are noteworthy, and suggest a wide host plant range for the caterpillars. However, although Kaye and Lamont (1927) considered it common, I would consider *A. metzli* an occasional species in Trinidad, most often seen either as caterpillars, or as adults coming to lights.

The adult moths (Figs. 1-3) are large, with a forewing length of 60 mm or more. The forewings are marked in light olive-grey, with a darker discal line, and a small white spot surrounded by an irregular polygon of seven dots joined by a narrow line. The hind wings are pale olive-brown. The eyespot is pale lilac centrally, with white along the veins creating a ramified line; surrounded by a black border; a narrow black line distally to this; a broader red line distal to this, dark at costa and dorsum. Base of hind wing bright red, extending along the dorsum to the level of the eye marking in the male and joining the narrow line distal to the eye marking, stopping well short in the female. Red on centre of costa hind wing, more pronounced in male, joining the end of the narrow black line around the eyespot. The underside is pale olive-grey. Forewing with a large black eyespot around a small white cross, a red flush on the disc, and the discal line more diffuse and segmented. Hind wing with a small white spot at end cell, and two diffuse discal bands. The sexes are similar as adults, but the female has the fore wings more falcate, and the abdomen is very large, since saturniid moths do not feed as adults, and emerge with all eggs already formed and ready to be laid.

In Trinidad, this species can be recognized by its large size, olive-grey ground colour, the red markings, and the distinctive eyespot. There are no other closely similar species known from Trinidad, but *A. janus* is similar and could also be found to occur in the future. It has the wings less pointed and generally darker, the red markings on the hind wing upper side more extensive, and the discal line on the forewing upper side is slightly undulate (Lemaire 2002). Colour pictures of both species can be found in D' Abrera (1995), Lemaire (2002) and at several sites on the internet, e.g. Biodiversity Institute of Ontario (2008).

On 19 November 1978, I found a mature caterpillar (Figs. 4-6) crawling on the North Coast Road close to milestone 10. When disturbed it curled up (Fig. 5) presenting



Fig. 1. *Automeris metzli* adult male, upper side, forewing 62 mm. Arima Valley, Simla, at Mercury Vapour Light, 6.viii.1982, M.J.W. Cock (in coll. MJWC).

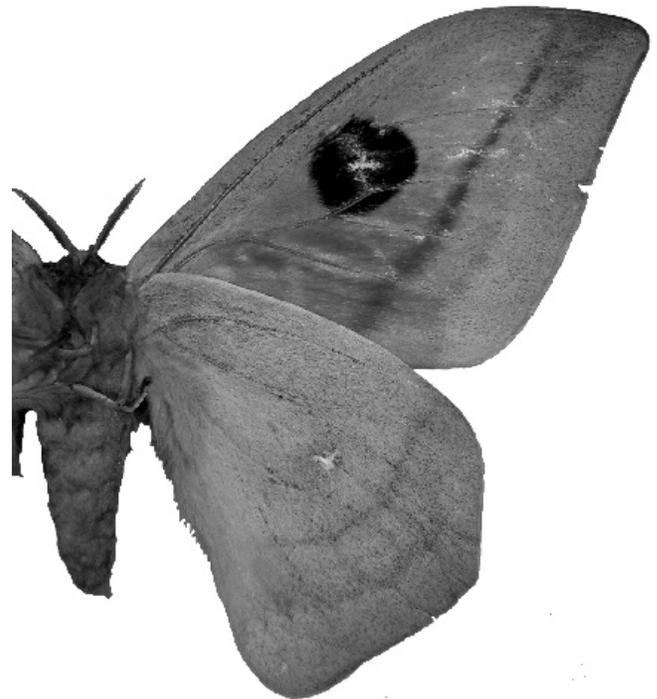


Fig. 2. *Automeris metzli* adult male, underside (data as Fig. 1).



Fig. 3. *Automeris metzli* adult female, upper side, forewing 65 mm. Collected as caterpillar on North Coast Road, milestone 10, 19.xi.1978, adult 21.xii.1978, M.J.W. Cock (in coll. MJWC).

urticating spines in all directions. The caterpillar spun up a cocoon between leaves without feeding.

The cocoon measured about 80 x 40 mm externally. It was constructed with dark brown silk in two distinct layers. The outer cocoon was a finely woven mesh. In the gaps between leaves, the inner cocoon was of coarsely reticulate mesh (2-3 mm apart) formed of multiple strands of silk combined together. On the inside of this, there was a pad of finer spun silk towards one end, in which the cremaster was embedded. The two layers of the cocoon were combined where a leaf was incorporated into the cocoon and the coarse reticulation was not then present.

An adult female *A. metzli* emerged on 21 December 1978. Although I did not record the dates of cocoon formation and pupation, these would have been within a few days of collection and thus in line with Chadee *et al.* (1992) who noted three weeks for pupation.

The mature caterpillar measured 80 mm in length and about 15 mm in diameter. Lemaire (2002) writes that the caterpillars of *Automeris* spp., in common with other Hemileucinae, bear scoli on the body segments: on T1-A9 pairs of lateral, sub-dorsal and dorsal scoli; T1-3, A1-2, A7 also have a pair of ventral scoli; and A8-9 have a mid-dorsal scolus. I did not observe the ventral scoli on this

living caterpillar, but recorded that on T2 and A1-A7 the lateral scoli measure about 5 mm, the dorso-lateral 12-13 mm, and the sub-dorsal 15 mm. The scoli on T1 shorter and those on T3, A8 and A9 longer, and may measure up to 20-23 mm.

Head oval; glabrous apart from a few scattered, short, pale setae in ventral half; green with black markings (Fig. 7). Body glabrous; green with black markings (Fig. 6) and faint yellow dorsal and lateral stripes. Scoli mauve-red with green spines. Spiracles white, with black markings anterior and posterior. Legs dark; prolegs covered with

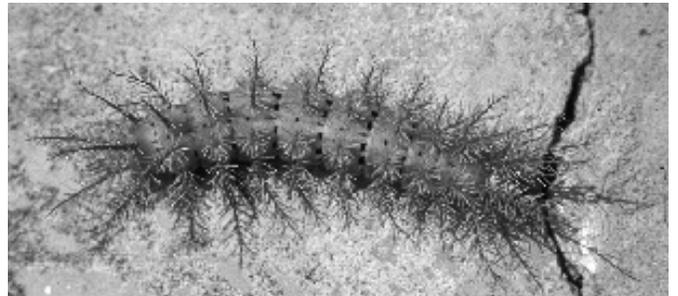


Fig. 4. Mature caterpillar of *Automeris metzli* (data as Fig. 3), 80 mm (head to the right).

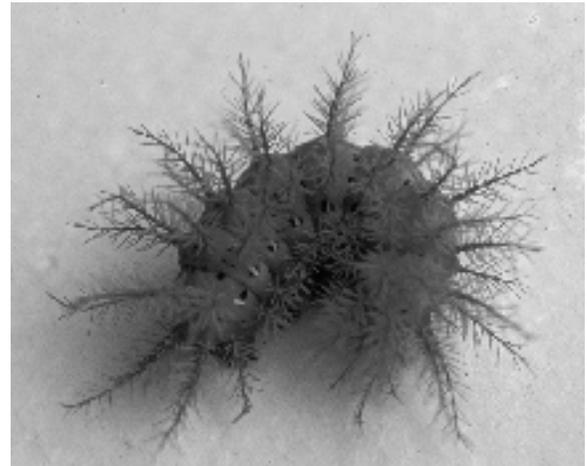


Fig. 5. Mature caterpillar of *Automeris metzli* (data as Fig. 3), defensive posture in response to disturbance (head to the right).

setae.

The pupa was 25 mm long and about 15 mm at its widest (measurements on emerged pupa). Pupa dark brown, matt, rugose, with scattered short brown setae.

Lemaire (2002) considers that earlier published life histories of *A. janus* actually refer to *A. metzli*. He provides a brief description of all instars and illustrates larvae from Mexico with heavier black markings than those shown here from Trinidad (Plate ES5.1-3). Caterpillars may have green scoli (Plate ES5.1) or red-mauve scoli (Plate ES5.2-

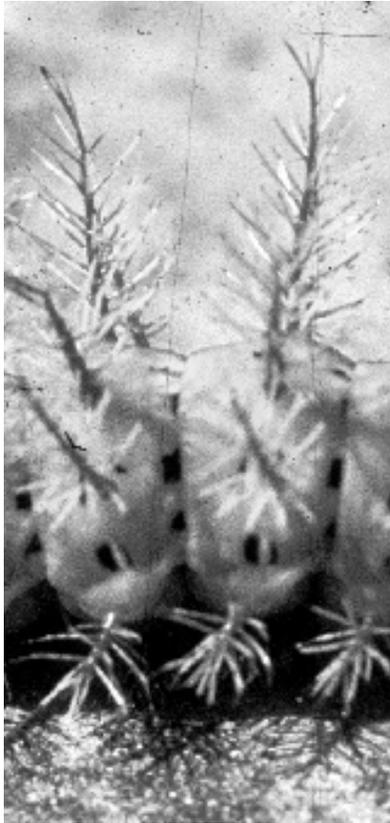


Fig. 6. Mature caterpillar of *Automeris metzli* (data as Fig. 3): lateral view, segments A8-A9 (head to the right).



Fig. 7. Cast head capsule of final instar caterpillar of *Automeris metzli* (data as Fig. 3), approx. 8 x 8 mm. In life, the pale areas were bright green.

3) like the Trinidad specimen described here. A caterpillar illustrated as *A. janus* (?) from Venezuela (Plate ES4.11) resembles the caterpillar from Trinidad, and may well actually be of *A. metzli* as well. In contrast, the caterpillar of *A. exigua* is black, with pale spines and conspicuous red-brown spiracles (Plate ES4.12).

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