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ABSTRACT

Two species of *Pseudautomeris* Lemaire (Lepidoptera: Saturniidae, Hemileucinae) occur in Trinidad: *P. salmonea* (Cramer) and *P. lata* (Conte). Earlier records of *P. salmonea* from Trinidad are misidentifications for *Automeris zurobara* (Druce), whereas *P. salmonea* was misidentified as *P. irene* (Cramer) (= *A. irene*). *Pseudautomeris lata* is a new island record for Trinidad. *Pseudautomeris salmonea* is reported to feed on *Malanea macrophylla* Bartl. ex Griseb. (Rubiaceae) and mulberry, *Morus nigra* L. (Moraceae) (incorrectly published as a food plant for *P. irene*). *Pseudautomeris lata* is reported to feed on *Gonzalagunia spicata* (Lam.) M. Gómez (Rubiaceae). Caterpillars of both species are illustrated.

Key words: Lepidoptera, Saturniidae, Hemileucinae, *Pseudautomeris*, *salmonea*, *irene*, *lata*, *Malanea macrophylla*, *Morus nigra*, Trinidad.

INTRODUCTION

The saturniid moth genera *Automeris* Hübner and the closely related *Pseudautomeris* Lemaire include more than 135 and 16 respectively small to large, colourful species with conspicuous eye-spots on the hind wing upper surface (Lemaire 2002). In previous contributions I have treated *A. liberia* (Cramer) (Cock 2005) and *A. metzli* Sallé (Cock 2008). There are a further seven species of *Automeris* known from Trinidad, and two rather similar species belonging in the closely related genus *Pseudautomeris*, which are discussed here. Apart from features of the male and female genitalia, the eye-spots of the hind wing differ from those of *Automeris* spp. having the pupil of the upper hind wing an arc or boomerang shape (Figs. 1, 2) (D'Abbrera 1995; Lemaire 2002).

The following abbreviations are used here: A1-9, abdominal segments 1-9; T1-3, thoracic segments 1-3; UNS, underside (ventral surface); UPF, upper side of fore wing; UPH, upper side of hind wing; UPS, upper side (dorsal surface). The following abbreviations are used for collections consulted: CABI, CAB International collection in Curepe; HEC, Hope Entomological Collections, Oxford University Museum; NHM, the Natural History Museum, London; NMS, the National Museums of Scotland; UWI, the University of the West Indies (St. Augustine). Specimens not attributed to a collection are in my own collection.

Pseudautomeris salmonea (Cramer)

In the Trinidad literature, the species treated as *P. salmonea* (= *A. salmonea*) was misidentified. Kaye and Lamont (1927) list *A. salmonea* from Trinidad based on specimens from Fyzabad, 7.xi.1917; San Fernando,

18.xii.1917 (R. M. Farmborough); Palmiste, vii.1915; 31.xii.1920; 11.i.1921; 23.iv.1922 (N. Lamont). I have seen the two R. M. Farmborough specimens in HEC, and specimens dated 31.xii.1920 and 11.i.1921 in Lamont's collection in UWI, the former an unidentified male and the latter a female labeled as *A. salmonea*. In addition, I have seen a second female specimen collected at Fyzabad by R. M. Farmborough in HEC dated x.1917-vi.1918 and identified as *A. salmonea* by "Sir N. Lamont and W. J. Kaye, 1923". There are also two additional females in Lamont's collection in UWI labeled as *A. salmonea* (29.xii.1946, 21.ix.1947). All these specimens are *A. zurobara* Druce. Thus it is clear that Kaye and Lamont (1927) misidentified *A. zurobara* as *P. salmonea*. D'Abbrera (1995) and Lemaire (2002) include Trinidad in the distribution of *A. zurobara*.

Pseudautomeris salmonea has been collected in Trinidad, but was hitherto misidentified by Kaye (1901) and Kaye and Lamont (1927) as *P. irene* (Cramer) (= *A. irene*). The outer discal line of the UPF of *P. irene* comprises a straight double line, pale basally and dark distally, and the inner discal line is almost straight and dark only. In contrast, the outer discal line of *P. salmonea* is straight or slightly curved, with the inner margin only conspicuously pale at the veins, and the inner discal line is irregular and angled towards the costa (D'Abbrera 1995; Lemaire 2002).

Kaye (1901) recorded *A. irene* "in the National Collection" (i.e. Natural History Museum, London) from Trinidad. There are no Trinidad specimens of *P. irene* in the NHM, but there is an old specimen of *P. salmonea* which is the right vintage for Kaye to have seen.

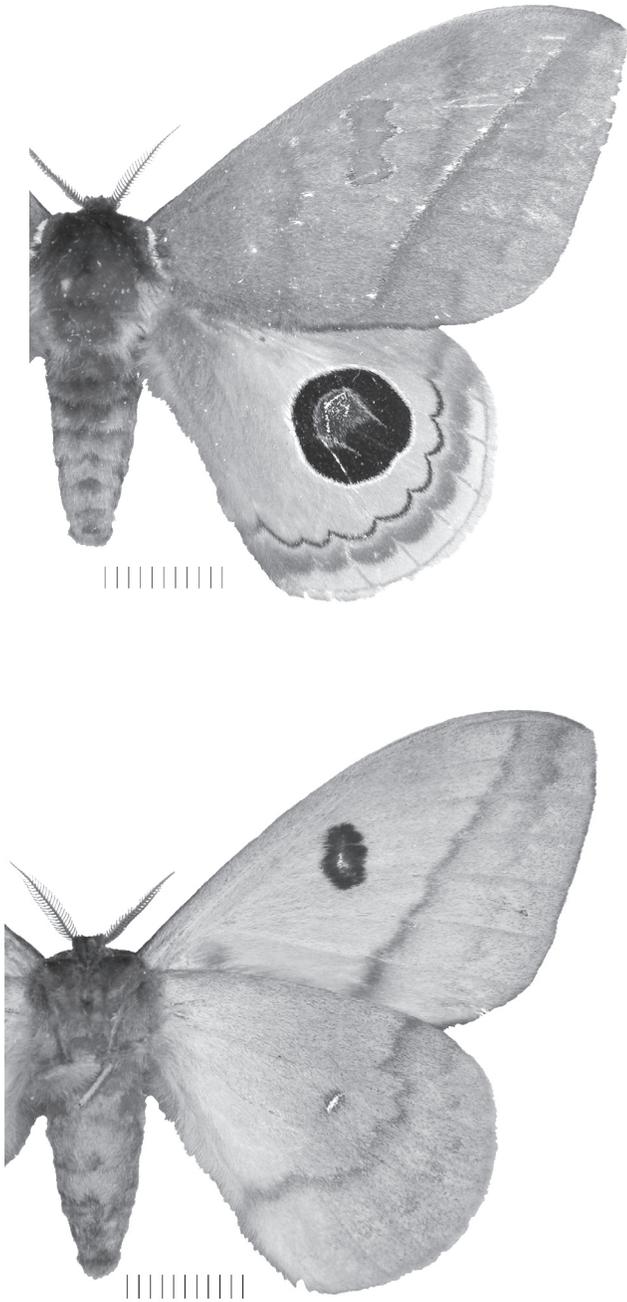


Fig. 1. Male *Pseudautomeris salmonea* (Cramer), at MV Light, Simla, Arima Valley, 30.vii.1981 (M. J. W. Cock); **above**, UPS; **below**, UNS. Scale in mm.

Kaye and Lamont's (1927) treatment of *A. irene* lists specimens taken by Sir N. Lamont (Palmiste: 17.xi.1915, 13.xii.1918), and R. M. Farmborough. They add that Lamont captured a colony of larvae at Palmiste on mulberry which pupated 22.xii.1921 and emerged at intervals from 26.i to 15.iv.1922. "Mulberry" is usually used to refer to *Morus nigra* L. (Moraceae), although it is also used for other species of *Morus*. However, in Trinidad only *M. nigra* seems to be involved (Freeman and Williams 1928).

I have located the specimens listed by Kaye and Lamont (1927) in UWI, HEC and NMS, and all are *P. salmonea*, although the specimens in NMS had been labeled *A. irene*. It is clear that Kaye and Lamont (1927) misidentified *P. salmonea* as *P. irene*.

I have found this to be an uncommon species in Trinidad, and agree with Lemaire (2002) that it is a forest species. I have seen specimens from Simla (♂ 30.vii.1981 (Fig. 1), ♂ 28.iii.1982, ♀ 30.iii.1989 (R. Brown) [CABI]), and I have a female collected at light in Parrylands Oilfield, ii.1980 by J. O. Boos (Fig. 2). In addition I have

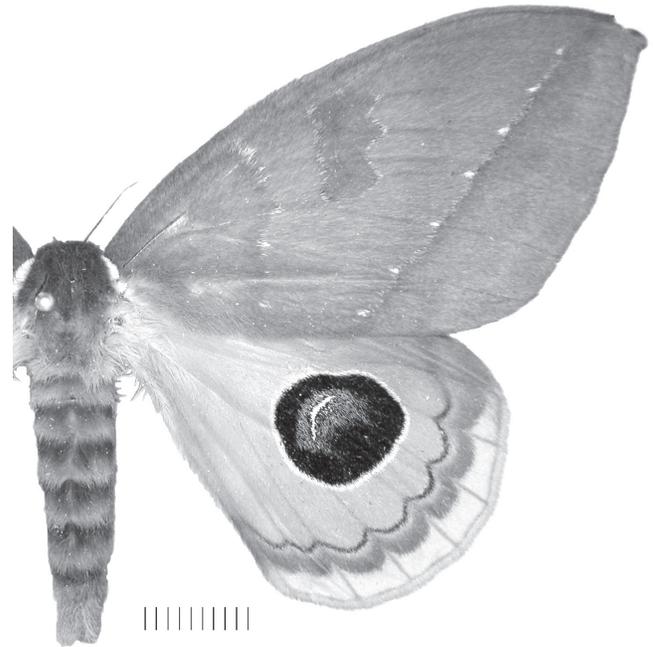


Fig. 2. UPS female *Pseudautomeris salmonea* (Cramer), at light, Parrylands Oilfield, ii.1980 (J. O. Boos). Scale in mm.

two caterpillar records: one photographed on the ground at Simla by K. Preston-Mafham with no food plant associated (Fig. 3) and the other I found feeding on *Malanea macrophylla* Bartl. ex Griseb. (Rubiaceae) on Andrew's Trace (x.1979). I reared this specimen (♂, xii.1979), but did not record details of the caterpillar.

Lemaire (2002) illustrates the caterpillar, and there are other illustrations published on the internet (Lahousse 2009; Wolfe 2009; Ziereis *et al.* 2009), which are all similar and comparable to the caterpillar in Fig. 3.

The caterpillar collected on *M. macrophylla* (below) spun up its cocoon between leaves in captivity. The cocoon consists of loosely spun chestnut brown silk, with no clear structure. The pupa is matt dark brown, rather featureless, about 30 mm long and 12 mm wide at the thorax.

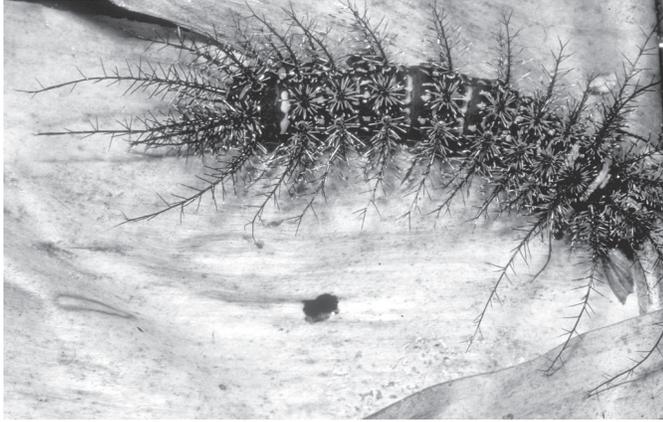


Fig. 3. Final instar caterpillar of *Pseudautomeris salmonea* (Cramer), Simla (Photo: Ken Preston-Mafham, Premaphotos).

***Pseudautomeris lata* (Conte)**

This species has not previously been recorded from Trinidad, and I have not found any specimens in the collections outside Trinidad that I have reviewed. I have seen males collected at light at Curepe (1970s, F. D. Bennett, CABI) and Morne Bleu Textel Station (21.vii.1989, R. G. Brown and T. Cassie, CABI). The only female specimen that I know from Trinidad is one that I reared from a caterpillar collected on *Gonzalagunia spicata* (Lam.) M. Gómez (Rubiaceae) on Morne Catherine on 28 January 1980, and reared through to an adult female which emerged on 1 March 1980.



Fig. 4. UPS male *Pseudautomeris lata* (Conte), Morne Bleu, Textel Station, 21.vii.1989 (R. G. Brown and T. Cassie); specimen in CABI. Scale in mm. (Photo: Perry Polar, CABI).

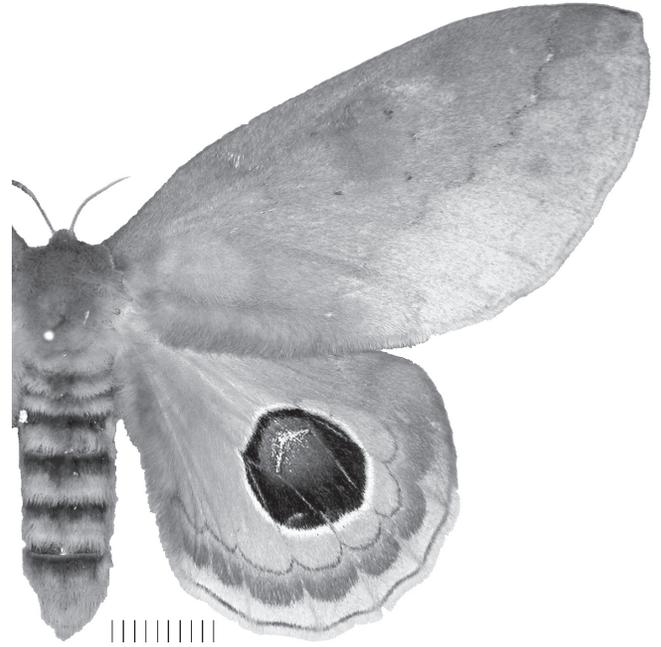


Fig. 5. UPS female *Pseudautomeris lata* (Conte), collected as caterpillar on *Gonzalagunia spicata*, Morne Catherine, 28.i.1980 (M. J. W. Cock). Scale in mm.

Pseudautomeris lata has distinctively oval ellipsoid fore wings and a crenulated fore wing diagonal line (Figs. 4-5). The male (Fig. 4) is smaller and the fore wing colouring varies from yellow-brown to dark brown (Lemaire 2002).

Lemaire (2002) and Wolfe (2009) illustrate the caterpillar, which agrees with that illustrated here.

When collected, the caterpillar, which was in the final instar, measured 7 cm (Fig. 6). Head pale yellow with black triangle over clypeus and adfrontals and a black oval spot on each epicranium. Body segments T1-A2 have four pairs of scoli (sub-dorsal, dorso-lateral, lateral and ventro-lateral), segments A2-A7 have three pairs of scoli (no ventro-lateral), and segments A8-A9 have a dorsal scolus and two pairs of scoli (dorso-lateral and lateral). The length of the scoli were estimated using a ruler in mm (Table 1). The scoli of segments T2-T3 and A8-A9 are conspicuously longer than the others (Table 1, Fig. 6).

The scoli are simple, covered with spines; the shorter scoli are plain, longer ones with a black band before apex, and those of segments T1-T3 and A8-A9 have the apex white. The spines of the scoli of segments T1-T3 and A8-A9 are black basally, the lower spines with white bands, the remainder with white tips, except the apical ones are white. The scoli of segments A1-A7 are green in the basal half and black in the distal half; the lower spines are plain, and the distal ones have a black band before apex. The body is pale yellow with black markings. T1 is unmarked

Table 1. Approximate scoli length in mm of final instar caterpillar of *Pseudautomeris lata*, collected Morne Catherine, 28.i.1980. Measured by eye compared to a ruler marked in mm held adjacent to the caterpillar and parallel to the scoli, accurate to +/-1mm.

Segment(s)	Sub-dorsal	Dorso-lateral	Lateral	Ventro-lateral
T1	15	12	6	4
T2-T3	45	30	9	5
A1	12	12	10	5
A2	12	18	11	5
A3-A7	12	18	11	-
A8	45 ¹	30	11	-
A9	9 ¹	30	18	-

¹dorsal scoli

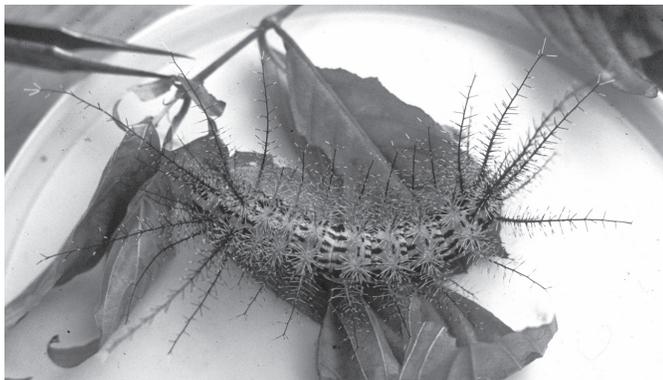


Fig. 6. Final instar caterpillar of *Pseudautomeris lata* (Conte), collected on *Gonzalagunia spicata*, Morne Catherine, 28.i.1980 (M. J. W. Cock); **above**, lateral view; **below**, dorsal view.

. Segments T2-A9 more or less follow the scheme shown in Fig. 7. The clasper is dull brown-green with black markings. True legs orange-brown; prolegs concolorous; spiracles white.

The cocoon and pupa are similar to those described for *P. salmonea* above.

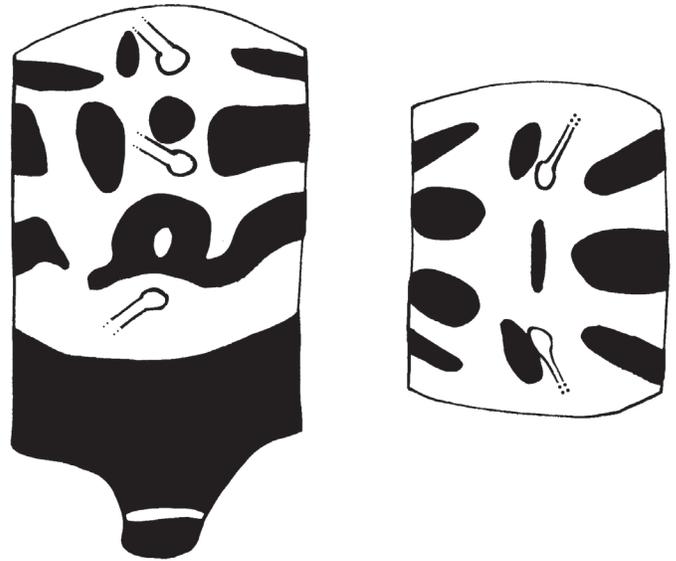


Fig. 7. Diagrams of *Pseudautomeris lata* caterpillar segment A3: **left**, lateral view, with anterior margin to the right, and **right**, dorsal view with anterior margin to the right. Scoli are shown as the truncated bases only. The white and black areas represent pale yellow and black respectively, except the pale area just above the subventral black area is tinted orange. The white spot surrounded by black between the ventro-lateral and lateral scoli in the lateral view is the white spiracle.

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REFERENCES

- Cock, M. J. W. 2005. *Automeris liberia* (Cramer) (Lepidoptera: Saturniidae) in Trinidad. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2005: 48-49.
- Cock, M. J. W. 2008. *Automeris metzli* Sallé (Lepidoptera: Saturniidae) in Trinidad, West Indies. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2008: 39-42.
- D'Abbrera, B. 1995. Saturniidae Mundi. Saturniid Moths of the World. Part 1. Melbourne & London; Hill House Publishers for Automeris Press (Goecke & Evers), Keltern, Germany. 177 p.
- Freeman, W. G. and Williams, R. O. 1928. The useful and ornamental plants of Trinidad and Tobago. *Memoirs of the De-*

partment of Agriculture of Trinidad and Tobago, 4: 192 p.

Kaye, W. J. 1901. A preliminary catalogue of the Lepidoptera: Heterocera of Trinidad. *Transactions of the Entomological Society of London*, 1901: 115-158, 2 plates.

Kaye, W. J. and **Lamont, N.** 1927. A catalogue of the Trinidad Lepidoptera: Heterocera (Moths). *Memoirs of the Department of Agriculture of Trinidad and Tobago*, 3: 144 p.

Lahousse, R. 2009. Hétérocères de Guyane Française. <http://www.guianensis.fr/index.htm> (last accessed 9 Feb. 2009).

Lemaire, C. 2002. The Saturniidae of America. Hemileucinae. Keltorn, Germany: Goecke & Evers. 1388 p., 140 plates.

Wolfe, K. 2009. The Kirby Wolfe Saturniidae Collection. <http://www.silkmoths.bizland.com/kirbywolfe.htm> (last accessed 9 Feb. 2009).

Ziereis, F., Kölzer, P. and **Schayck, E.** 2009. Saturniidae World. Homepage für den Saturniidenfreund. <http://www.saturniidae-web.de/index.html> (last accessed 9 February, 2009).