

# New records of butterflies and moths (Lepidoptera) from Tobago, W.I.

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## ABSTRACT

The following are new Lepidoptera records from Tobago: *Herpetogramma phaeopteralis* (Guenée) (Crambidae), *Celiptera levina* (Stoll), *Kakopoda progenies* (Guenée), *Lascoria purpurascens* (Kaye) (Erebidae), *Pleuroprucha hypoxia* Prout (Geometridae), *Carystoides basoches* (Latreille) (Hesperiidae), *Norape argyrorrhoea* Hübner (Megalopygidae) *Marimatha botyoides* (Guenée), *Micrathetis dasarada* (Druce), *Xanthopastis timais* (Cramer) complex (Noctuidae), *Hamadryas feronia* (Linnaeus) (Nymphalidae), *Phiditia ?cuprea* (Kaye) (Phiditidae), *Phereoeca uterella* (Walsingham) (Tineidae). Records of *Eulepidotis* sp. (Erebidae), *Neogalea sunia* (Druce) and *Tripudia quadrifera* Zeller (Noctuidae) are reidentified as *E. viridissima* (Bar), *N. caracara* Troubridge, and *T. lamina* Pogue respectively.

Key words: iNaturalist, Crambidae, Erebidae, Geometridae, Hesperiidae, Megalopygidae, Nymphalidae, Phiditidae, Tineidae

## INTRODUCTION

The butterflies of Tobago are fairly well known, and an updated checklist of 150 species was recently published (Cock 2017a). In contrast, the moths of Tobago are not well known and only in 2017 was the first checklist of 355 species published (Cock 2017b). This is a small total compared to the more than 742 species extrapolated by Cock (2003), and many more moth species are expected to occur in Tobago, particularly those of smaller size. Cock and Kelly (2020) added 45 new records of moths from Tobago, based mostly on photographs taken by Kelly at the lights of his house near Englishman's Bay.

With no active collectors or entomologists currently involved in surveying the Tobago moth fauna, progress is limited to observations and images shared by resident and visiting naturalists and observers. Fortunately, the identification of photos of most species of Tobago moths is relatively straightforward given that (1) digital cameras or phones make taking identifiable images increasingly straightforward; (2) the Lepidoptera fauna of Tobago is, with very few exceptions, a subset of the fauna of Trinidad (Cock 2017b); (3) the moth fauna of Trinidad is now reasonably well known to the author, based on extensive collecting and museum work (Cock 2003). Furthermore, digital images are easily shared, facilitating rapid identification and feedback. Using this approach, I report here two additions to the butterflies and 11 to the moths of Tobago based on images posted on iNaturalist ([www.iNaturalist.org](http://www.iNaturalist.org)) and include a voucher image for each new record. Three published records of moths from Tobago are reidentified.

I refer to material examined in the following collections: Matthew J.W. Cock, private research collection, Dolgellau, UK (MJWC), The Natural History Museum, London, UK (NHMUK), National Museums of Scotland (NMS), and the University of the West Indies Zoology Museum, St. Augustine, Trinidad and Tobago (UWIZM). As discussed

in Cock (2017b) and Cock and Kelly (2020) identifications were made by comparison with the first author's collection of Trinidad moths (MJWC), which have been named primarily in the context of the collections of NHMUK and the National Museum of Natural History, Washington. Species are arranged by family alphabetically, and alphabetically within families; subfamilies are included in parentheses after each newly recorded species. Comments on the status of each species in Trinidad are based on the author's unpublished records; these give an indication of what the status of these species may be in Tobago. The figures show photographs taken in Tobago, except as indicated. © in the figure legend refers to the photographer. As the photographs are without any indication of scale, the forewing length (F: base of forewing – wing tip) is provided in the figure legends based on Trinidad material in MJWC.

## CRAMBIDAE

### *Herpetogramma phaeopteralis* (Guenée, 1854) (Spilomelinae)

This species is known as an occasional pest of lawn grass, and is sometimes abundant in Trinidad (Callan 1953). Perhaps surprising, Cock (2017b) knew of no records from Tobago, so recent photographs by Aaron Wheeler (Fig. 1) and Liam Wheeler (Black Rock, 29 August 2021) are the first for the island. To aid future identifications, Fig. 2 shows a clearer image from Trinidad.

## EREBIDAE

### *Celiptera levina* (Stoll, 1782) (Erebinae)

This species was described from Suriname. It is known from Trinidad (Kaye and Lamont 1927) and has been reported as a pest of sugar cane in Trinidad (Box 1954). Mark Hulme photographed a female at Bloody Bay (Fig. 3).



**Fig. 1.** Female *Herpetogramma phaeopteralis*, Plymouth, 24.viii.2021, A. Wheeler (iNaturalist observation 92504084); F 9 mm. © under CC-BY-NC license.



**Fig. 2.** Female *Herpetogramma phaeopteralis*, Trinidad, St. Augustine, 27.viii.2020, M. Hulme (iNaturalist observation 68547464). © under CC-BY-NC license.



**Fig. 3.** Female *Celiptera levina*, Bloody Bay, 4.i.2021, M. Hulme (iNaturalist observation 67617630); F 24 mm. © under CC-BY-NC license.

### *Eulepidotis viridissima* (Bar, 1876) (Eulepidotinae)

Cock and Kelly (2020) recorded and illustrated a *Eulepidotis* sp. photographed by Matt Kelly at light above Englishman's Bay on five occasions. Since then, Kelly found a dead specimen on 30 March 2020 which he forwarded to me. I was able to identify this as *E. viridissima*, although the green is a different tone to my Trinidad specimen. Further, a DNA barcode was obtained for this specimen (DNA sample MJWC-443), on the basis of which it forms part of Barcode Index Number BOLD:AAM8852 in the in the Barcode of Life Data System (<https://v3.boldsystems.org/>), which includes material from French Guiana, Ecuador and Peru, all identified as *E. viridissima*.

### *Kakopoda progenies* (Guenée, 1852) (Erebinae)

This species was described from St Thomas and Guadeloupe. It has not previously been recorded from Trinidad & Tobago, but I have female specimens from Curepe (17.viii.1980, 22-25.i.1981), which I identified by comparison with the NHMUK collection. Rachael Williams-Littzen found and photographed a female between Buccoo and Black Rock (Fig. 4).



**Fig. 4.** Female *Kakopoda progenies*, Buccoo to Black Rock, 22.xi.2020, R. Williams-Littzen (iNaturalist observation 68781859); F 13 mm. © under CC-BY-NC license.

### *Lascoria purpurascens* (Kaye, 1923)

Kaye (1923) described this species from Trinidad, and I identified it by comparison with the type in NHMUK. It is a common and widespread species in Trinidad. Amy Deacon photographed a male near Parlatuvier (Fig. 5).

## GEOMETRIDAE

### *Pleuroprucha hypoxia* Prout, 1938 (Sterrhinae)

Trinidad material of this species was identified by comparison with the type (NHMUK, ♂ Venezuela). It has not previously been reported from Trinidad, but there are several records:



**Fig. 5.** Male *Lascoria purpurascens*, Parlatuvier, 4.i.2021, A. Deacon (iNaturalist observation 67663089); F 13 mm. © under CC-BY-NC license.

Caparo, Curepe, Morne Bleu Textel, North Coast lookout track. Liam Wheeler photographed one near Black Rock (Fig. 6). As the photo is not quite sharp a pinned Trinidad specimen is also shown for comparison (Fig. 7).



**Fig. 6.** *Pleuroprucha hypoxia*, Black Rock, 17.xi.2021, L. Wheeler (iNaturalist observation 91626535); F 10 mm. ©, under CC-BY-NC license.



**Fig. 7.** Female *Pleuroprucha hypoxia*, Trinidad, Morne Bleu Textel Installation, at light, 6.xii.1980, M.J.W. Cock [MJWC].

## HESPERIIDAE

### *Carystoides basoches* (Latreille, 1824) (Hesperiinae)

This species is known from Trinidad (Cock 2005), but Rich Kostecke's photo from Tobago (Fig. 8) is the first record I have seen from the island (Cock 2017a).



**Fig. 8.** Male *Carystoides basoches*, Tobago, 28.xi.2007, R. Kostecke (iNaturalist observation 69887858); F 22 mm. © under CC-BY-NC license.

## LIMACODIDAE

### *Miresa clarissa* (Stoll, 1790)

This species was treated as a new Tobago record by Cock and Kelly (2020), but was already included in Cock's (2017b) checklist.

## MEGALOPYGIDAE

### *Norape argyrorrhoea argyrorrhoea* Hübner, [1823] (Trosiinae)

*Norape* is a species-rich genus of Megalopygidae, the last full treatment of which was that of Hopp (1934-1935), although Becker (1995) provided a checklist. I initially identified this species as *N. pura* (Butler) by comparison with the NHMUK collection and examination of the external male genitalia (Hopp 1927), but Becker (1995) made *N. pura* a synonym of *N. argyrorrhoea*. christiannezakour (iNaturalist name) photographed a specimen at Charlotteville (Fig. 9). *Norape plumosa* (Butler) also occurs in Trinidad and Tobago (Cock 2017b); it differs in having transverse shiny bands on the forewing, giving a ripple appearance.



**Fig. 9.** *Norape argyrorrhoea*, Charlotteville, 10.viii.2021, christiannezakour (iNaturalist observation 90872690); F 14 mm. © under CC-BY-NC license.

#### NOCTUIDAE

##### *Marimatha botyoides* (Guenée, 1852) (Eustrotinae)

I identified this species from the NHMUK series, which includes material from Trinidad (Kaye and Lamont 1927) and confirmed this from Ferris and Lafontaine (2010). Sookdeo and Cock (2017) illustrate this species from Huevos Island. *Marimatha aurifera* (Walker) also occurs in Trinidad, but can be distinguished as it has no dark shading before the margin on the dorsal forewing. Mark Hulme photographed a specimen of *M. botyoides* at Bloody Bay (Fig. 10).



**Fig. 10.** *Marimatha botyoides*, Bloody Bay, 11.302N -60.638W, 6.i.2021, M. Hulme (iNaturalist observation 67687825); F 9 mm. © under CC-BY-NC license.

##### *Micrathetis dasarada* (Druce, 1898) (Condicinae)

I identified Trinidad material as this species by comparison with the NHMUK series. It has been recorded from Trinidad by Lamont and Callan (1950), based on one or more specimens in NHMUK. Kaye and Lamont (1927) misidentified it as *Eublemma obliqualis* Fabricius; the specimens they refer to from Palmiste (22.xii.1921, 7.i.1922 N.L.) are in NMS, where I identified them as *M. dasarada*. It is an occasional species in lowland areas of Trinidad. Fig. 11 shows a specimen photographed at Bloody Bay by Mark Hulme.



**Fig. 11.** *Micrathetis dasarada*, Bloody Bay, 11.302N -60.638W, 4.i.2021, M. Hulme (iNaturalist observation 67617631); F 7 mm. © under CC-BY-NC license.

##### *Neogalea caracara* Troubridge, 2020 (Oncocnemidinae)

This species was recently described from the Florida Keys (Troubridge 2020) and is also found in Brazil (Becker 2021) and Trinidad (M.J.W. Cock unpublished). Cock (2017b) listed *Neogalea sunia* (Druce, 1852) as a Tobago species, based on a male collected at mercury vapour light at Speyside, 14–17 May 1982 (M.J.W. Cock) [MJWC]. Examination of the male genitalia showed that this specimen is actually the newly described *N. caracara*. At this time, there are no confirmed records of *N. sunia* from Tobago, although it does occur in Trinidad.

##### *Tripudia lamina* Pogue, 2009 (Cobubathinae)

Cock (2017b) reported this species from Tobago as *T. quadrifera* Zeller, based on specimens collected at Charlotteville. However, this overlooked a study by Pogue (2009) which showed that there are eight species of this appearance, which can be separated only by examination of their genitalia. Dissection of a male from Charlotteville showed that it is actually *T. lamina*. *Tripudia quadrifera* is a Nearctic species, but *T. lamina* is widespread in the Neotropics including Trinidad (Pogue 2009). A further species, *T. grapholithoides* (Möschler) occurs in Trinidad, where the author has reared it from pods of *Ruellia tuberosa* (Acanthaceae); it too is expected to occur in Tobago, as it is found in northern South America and the Lesser Antilles (Pogue 2009).

***Xanthopastis timais* (Cramer, 1780) complex (dark antennae) (Noctuidae)**

This is part of a species complex, traditionally known as the Spanish moth, *Xanthopastis timais*, and recorded as such from Trinidad (Kaye and Lamont 1927). Lafontaine and Schmidt (2011) indicate that there are at least six species in the complex. The whole complex is American, so Cramer (1779-1782) made an error when he described this species from the Coromandel Coast (India). I have examined Trinidad material and noted two probable species, one with dark antennae and the other with brown antennae. Unfortunately, Cramer's (1779-1782, pl. 275B) plate shows a specimen with pale antennae, so this does not resolve the identity of either of the Trinidad species. Accordingly, I currently refer to the two Trinidad species as *X. timais* complex, noting that one has dark antennae and the other brown. Neither form has been recorded from Tobago until now, so christiannezakour's photo of the species with dark antennae from Charlotteville is a new island record (Fig. 12).



**Fig. 12.** *Xanthopastis timais* complex (dark antennae), Charlotteville, 10.viii.2021, christiannezakour (iNaturalist observation 90802995); F 19–20 mm. © under CC-BY-NC license.

**NYMPHALIDAE**

***Hamadryas feronia feronia* (Linnaeus, 1758) (Biblidinae)**

This common Trinidad species does not seem to have been recorded from Tobago before (Cock 2017a). Liam and Aaron Wheeler photographed one near Lowlands, south-west Tobago (Fig. 13). This could be a vagrant, an overlooked resident or a newly established introduction; the last seems more likely given it is such a conspicuous species, so further observations may confirm this in the future.



**Fig. 13.** *Hamadryas feronia feronia*, Lowlands, 20.viii.2021, L. Wheeler (iNaturalist observation 91959810); F 35–39 mm. © under CC-BY-NC license.

**PHIDITIIDAE**

***Phiditia ?cuprea* (Kaye, 1901)**

Kaye (1901) described and illustrated *P. cuprea* from Trinidad. The doubly indented hindwing margin near the tornus has not been seen in any other similar Trinidad species. In life, the adults rest with the abdomen sharply curved to one side (Fig. 14), which should help distinguish this species in the field.

rastabenz (iNaturalist name) photographed a male in Tobago (Fig. 14) which resembles *P. cuprea* from Trinidad (Fig. 15) in markings, but it is darker and the markings are more contrasting. At this stage, with just one photographic record from Tobago, it is not clear whether this represents a distinct species, a subspecies of *P. cuprea*, or is just an unusual variety, but a Tobago subspecies of *P. cuprea* seems the likeliest. When specimens are available, this can be further evaluated.



**Fig. 14.** Male *Phiditia ?cuprea*, Castara – Parrot Hill, 24.vii.2021, rastabenz (iNaturalist observation 88454966). © under CC-BY-NC license.



**Fig. 15.** Male *Phiditia cuprea*, Trinidad, Maracas Valley, 25.xii.2019, R. Williams-Littzen (iNaturalist observation 36952855); F 22 mm. © under CC-BY-NC license.

## TINEIDAE

### *Phereoeca uterella* (Walsingham, 1897) (Tineinae)

The larvae of *Phereoeca* spp. are case-bearing debris feeders found in houses throughout the tropics. There has been significant confusion in the literature regarding names, but the current view is that there are two species likely to be found in the Neotropical Region: the probably indigenous *P. uterella* and the Old World species *P. allutella* (Rebel) which is adventive in Latin America (Zimmerman 1978, Heppner 2005). The two species can be reliably separated only by examination of the genitalia. To date, only *P. uterella* has been recorded from Trinidad (Busck 1910; dissected identified material in MJWC, NHMUK, UWIZM), so at present I am assuming that all Trinidad and Tobago material is this species. This assumption should be checked at intervals as *P. allutella* can be expected to spread to the islands. Given



**Fig. 16.** Caterpillar or pupa case of *Phereoeca uterella*, Black Rock, 28.viii.2021, L. Wheeler (iNaturalist observation 92806195). © under CC-BY-NC license.

that *P. uterella* definitely occurs in Brazil (Pará), Trinidad and the Virgin Islands, it is expected to occur in Tobago. Hence, Liam Wheeler's photograph of a larval or pupal case in Tobago (Fig. 16) is taken as confirmation that at least one *Phereoeca* species occurs in Tobago, and given our current state of knowledge, this is reported here as *P. uterella*. However, authoritative identification of Tobago material is needed to confirm this.

## ACKNOWLEDGEMENTS

I thank the photographers who posted their images on iNaturalist under a creative commons license, allowing me to document these new records: Amy Deacon (1), Mark Hulme (4), Rich Kosteeke (1), Rachael Williams-Littzen (2), Aaron Wheeler (1), Liam Wheeler (3), christiannezakour (iNaturalist name) (2) and rastabenz (iNaturalist name) (1) as well as Matt Kelly for providing the specimen of *Eulepidotis viridissima*. I also thank Martin Honey (NHMUK), Mark Shaw and Keith Bland (NMS), and Mike G. Rutherford (UWIZM) who facilitated my studies of Trinidad moths in the collections in their care, based on which most of the identifications here are provided. I thank CABI (www.cabi.org, donors - cabi.org) which has provided me with logistic and laboratory support over the years.

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