LIVING WORLD
Journal of the Trinidad and Tobago Field Naturalists' Club
admin@ttfnc.org

ISSN 1029-3299

TRINIDAD AND TOBAGO
FIELD NATURALISTS' CLUB

The Skipper Butterflies (Hesperiidae) of Trinidad. Part 20. Hesperiinae, Moncini: the Remaining Genera of Mostly Unmarked Brown Species: *Eutocus*, *Eprius*, *Mnasicles*, *Methionopsis*, *Sodalia*, *Thargella*, *Nastra*, *Mnasilus*, *Mnasitheus* and *Papias*

Matthew J.W. Cock

Cock, M.J.W. 2013. The Skipper Butterflies (Hesperiidae) of Trinidad. Part 20. Hesperiinae, Moncini: the Remaining Genera of Mostly Unmarked Brown Species: *Eutocus, Eprius, Mnasicles, Methionopsis, Sodalia, Thargella, Nastra, Mnasilus, Mnasitheus* and *Papias*. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2013, 1-18.

Cock, M.J.W. 2013. The Skipper Butterflies (Hesperiidae) of Trinidad. Part 20. Hesperiinae, Moncini: the Remaining Genera of Mostly Unmarked Brown Species: *Eutocus, Eprius, Mnasicles, Methionopsis, Sodalia, Thargella, Nastra, Mnasilus, Mnasitheus* and *Papias*. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2013, 1-18.

The Skipper Butterflies (Hesperiidae) of Trinidad. Part 20. Hesperiinae, Moncini: the Remaining Genera of Mostly Unmarked Brown Species: *Eutocus, Eprius, Mnasicles, Methionopsis, Sodalia, Thargella, Nastra, Mnasilus, Mnasitheus* and *Papias*

Matthew J.W. Cock
c/o CABI, Bakeham Lane, Egham, Surrey TW20 9TY, UK.
m.cock@cabi.org / mjwcock@btinternet.com

ABSTRACT
Trinidad and Tobago skipper butterflies (Hesperiidae) of the tribe Moncini (genera *Eutocus*, *Eprius, Mnasicles*, *Methionopsis*, *Sodalia*, *Thargella*, *Nastra*, *Mnasilus*, *Mnasitheus* and *Papias*) are treated and the adults illustrated. Details are given of the taxonomy, history, identification and biology of the 10-11 Trinidad species in these genera. *Thargella caura caura* (Plötz) is recorded from Tobago for the first time, while *Eprius veleda veleda* (Godman) is shown to have been misidentified from Tobago. The caterpillar of *Methionopsis ina* (Plötz) and life history of *Papias phaeomelas* (Hübner) are described and illustrated.

Key words (not in title): Trinidad and Tobago, Tobago, life history, food plant, parasitism.

INTRODUCTION

This is the last descriptive part in my series on the skipper butterflies of Trinidad (Cock 2012 and earlier papers) and covers the 'little brown jobs', i.e. those with no spotting or reduced opaque spotting, but normally without hyaline spots. There is a final part planned which will comprise a revised checklist and details of new species recorded from the island since the earlier parts which would have dealt with them were published.

Most of the genera dealt with in this paper were described by F. DuC. Godman in the volume of *Biologia Centrali-Americana* dealing with Hesperiidae (Godman 1899-1901). There is a good reason for this: the pioneering work of Godman on the genitalia of Central American species was seminal in revealing both the diversity of plain brown species, but also the relative ease with which they could be identified from the male genitalia.

This section of Moncini is still a work in progress for Trinidad, inasmuch as there may well be additional plain brown species present. All those attempting to identify Trinidad species of this general appearance need to be aware of the possibility that there are more species than are treated here and so proceed with caution. Some of the more useful characters which differentiate the species treated here are summarised in Table 1 overleaf. Males have secondary sexual characters which aid identification and they can be identified by dissection of the genitalia if necessary. In the future, it should be possible to identify females by examination of the genitalia, but these have not been documented for many of the relevant species as yet, so for now, they are best identified by careful comparison with reliably identified males. Brushing the scales from the ventral end of the female abdomen may reveal characters that can be seen under a dissecting microscope and used to distinguish females, e.g. as shown for *Corticea corticea* (Plötz) in Cock (2010). Pairs taken *in copulo* should be preserved and labelled as such since they provide reliably associated sexes of the same species.

Eutocus Godman 1901

This is a genus of seven species (Evans 1955; Mielke 2004), of which two occur in Trinidad. *Eutocus vetulus vetulus* (Mabille), with pale yellow veins UNS and light blue spots UNH was treated in Cock (2011), whereas treatment of the second species, *E. facilis* (Plötz), was delayed until now, so that the plain brown species may be treated together.

Evans (1955) characterises the genus as similar to *Callimormus* (treated in Cock 2011) with an angled brand over the origin of vein 2, but no brand below that vein; mid tibiae smooth; nudum of 10 segments entirely on the apiculus; palpi segment 3 elongate, erect and pointed; mostly small species, male F 10-12 mm; inconspicuous or no markings UPF. The male genitalia are not of the *Callimormus* type and vary a good deal with the species, so probably more than one genus is involved. Godman (1901) designated the type species as *E. phthia* Godman, which is a synonym of *E. facilis*.

J3/1 *Eutocus facilis* (Plötz 1884)

Fig. 2.

Plötz (1884) originally described this species from Suriname. Unaware of the Plötz species, Godman (1901) re-described it as *E. phthia* based on a long series from Central America to Guyana, although the material illus-

Table. Summary of the main distinguishing features of the unmarked brown Moncini treated in this paper (mostly after Evans (1955)).

Species	♂ F brand	Mid tibiae	Antenna: Costa[1]	Club	Nudum	Palpi 3	♂ F length (mm)	♂ hair tuft	Markings (UPS plain brown except as indicated)	Other features
Eutocus facilis	Angled brand over origin vein 2, no brand below vein 2	Smooth	(0.6)	Slender, obtuse at thickest point to long apiculus	0/10	Elongate, erect and pointed	10-12	None	UNH discal spots, if present, yellowish; UPF may have spots of a few yellow scales in spaces 2, 3, 6 and 7; UNF sparse dark ochreous scaling, dorsum broadly paler; UNH with dark ochreous scaling, usually discal spots of a few yellow scales in spaces 2-6	
Eprius velada	Long brand against cell at base of space 2; long brand centred under origin of vein 2, extending inwards nearly to base of cell	Smooth	(0.5)	Yellow at base of club, below	0/10	Long, thin	12	UPH erect hairs along vein IA	UNF uniform; apex UNF and all UNH sparsely strewn with inconspicuous ochreous scales	Legs yellowish; palpi below, yellow and black
Mnasicles hicetaon	Narrow broken grey stigma from base vein 3 to vein 1	A few spines	0.6	Yellow at base of club, below		Long, thin	13	UPH with erect hairs along vein IA	UNS pale brown with inconspicuous grey scaling; UNF darker below cell	Cilia grey
Methionopsis ina	Long brand above vein 2	Smooth	0.65 (>0.5)	Yellow under club	0/10	Long, thin	Variable, 10-15	None	UNF dorsum broadly pale; UNH with more or less of a purple gloss and dark ochreous scaling	F vein 5 straight, not decurved
Sodalia sodalis	A widening brand against cell between veins 3 and 2; short bar under vein 2	A few spines	0.6 (0.5)	Yellow under base of club; club slender = ¼ shaft; apiculus obtuse	2/10	Cylindrical, slender, protruding	14	None	UNH with small faint whitish spots at end cell and on disc from space 2 to space 6	
Thargella caura	None	Smooth	0.7 (0.6)	Yellowish under club; club ¼ shaft, slender; apiculus obtuse	2/10	Short, conical	14	UPH fringe along vein 1B	UNF chocolate, conspicuously paler along dorsum, below vein 2; UNH chocolate, abdominal fold brown	Strongly arched F costa
Nastra guianae	None	A few spines	0.5 (>0.5)	1/3 shaft		Short, conical, protruding	13	None	UPF discal spots faint or absent; UNH with at least traces of white scaled discal spots in spaces 2-6	Cheeks against first segment of palpi white

[1] Author's measurement; Evans (1955) ratio in brackets (converted to decimal number)

Table continued. Summary of the main distinguishing features of the unmarked brown Moncini treated in this paper (mostly after Evans (1955)).

Species	♂ F brand	Mid tibiae	Antenna: Costa	Club	Nudum	Palpi 3	♂ F length (mm)	♂ hair tuft	Markings (UPS plain brown except as indicated)	Other features
Mnasilus allubita	None	A few spines	0.6 (>0.5)	1/4 shaft	3/8	Short	11-14	A recumbent hair tuft along the middle third of space IA UPF	UPS dark brown, with dull greenish-ochreous scaling on costa F and basal 2/3 UPH; UPF with spots of ochreous scales in spaces 1B, 2, 3, 4, 5 and 6-8, some or all of which may be missing; UPH may have faint traces of discal spots; UNF black; apex, costa dull greenish ochreous, no spot in space 1B; other spots as UPF but some or all may be absent; UNH greenish-ochreous; veins more or less paler, may be faint traces of discal spots	F vein 2 mid vein 3 and base
Mnasitheus chrysophrys	Brands situated beyond the origin of vein 2, centred under origin vein 3: a very short brand over vein 2, a longer one under vein 2 and a still longer one over vein 1	A few spines	0.6 (just >0.5)	1/4 shaft	3/8 or 2/9	Short, conical	11	None	UPF with inconspicuous yellow scaling forming obscure discal and apical spots; UNF costa and apex and all UNH purple with a few yellow scales	Legs yellow. Palpi yellow and brown. Cilia more or less pale yellow
Papias phainis	None	Spined	(>0.5)		2/9 – 4/9	Short, stout, conical	14	None	UNH and apex UNF chocolate. UNF no traces of discal spots, dorsum to vein 2 paler; UNH small discal spots of yellow scales more or less developed in spaces 2-6	Cheeks and outer edge of palpi generally orange to yellow
Papias phaeomelas	None	Spined	0.6 (>0.5)		2/9 – 4/9	Short, stout, conical	14	None	UNH and apex UNF chocolate; UNF with faint yellow discal spots in spaces 2 and 3; UNH may have faint traces of discal spots	Cheeks and outer edge of palpi generally orange to yellow
Anthoptus epictetus ♀	-	Smooth	0.5 (0.6)	Yellow under club; 1/3 shaft	3/8	Short, protruding	13	None	Entirely brown	Palpi yellow
Anthoptus insignis	None	Smooth	0.6 (0.3)	Extensively pale ventrally; apiculus dark brown	3/8	Short, protruding	12	None	UNH dark ferruginous, also apex and costa UNF	Cheeks dark brown
Anthoptus maracanae ♀	-	Smooth	0.5 (0.6)	Yellow under base club; 1/3 shaft	3/8	Short, protruding	15	None	Uniform dark brown, above and below	Palpi yellow and brown

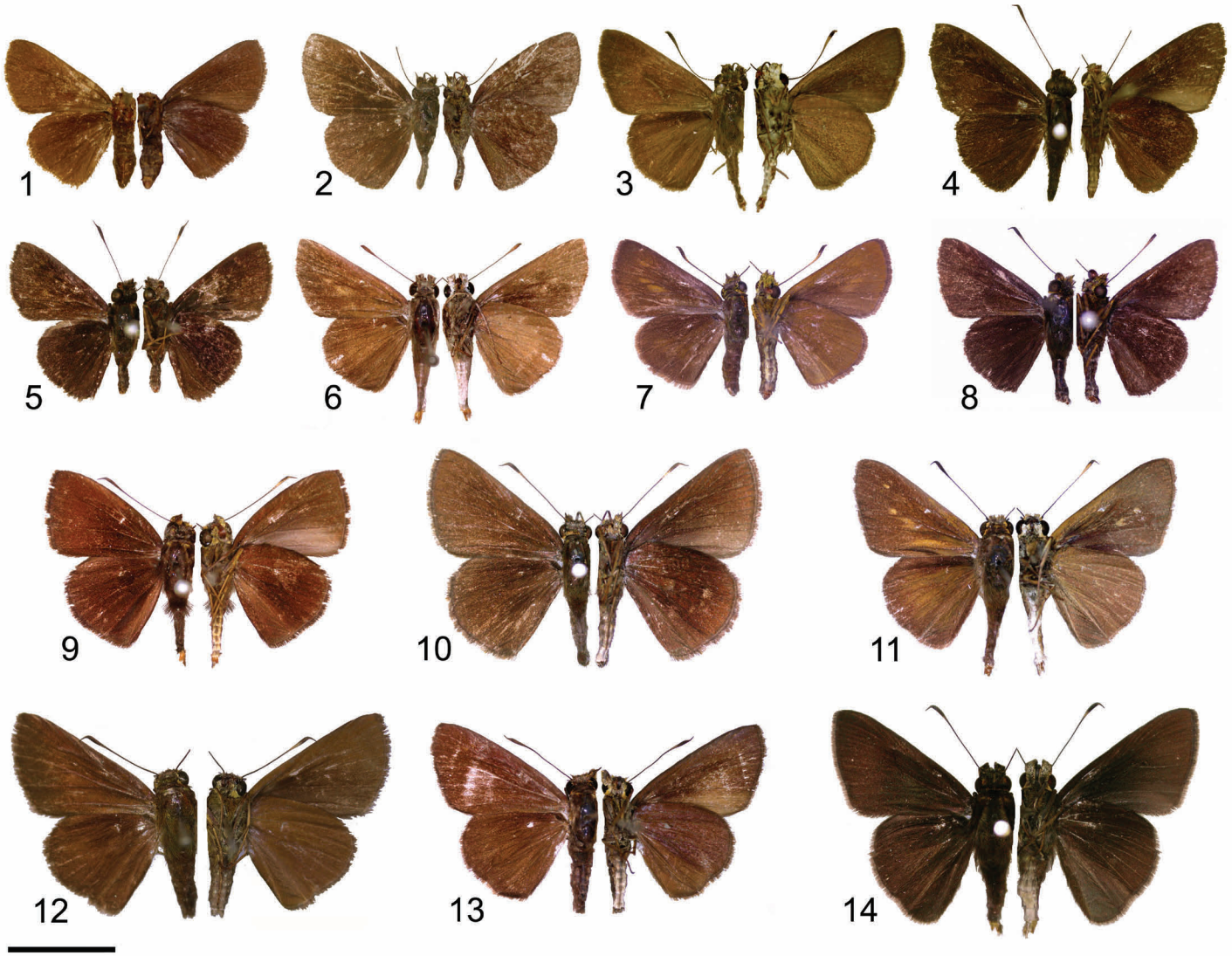

Fig. 1. Selected adult Moncini and Anthoptini with markings absent or reduced to opaque spots. 1, *Eutocus facilis* (Plötz) ♀ (Fig. 2) (specimen in NHM); 2, *Eprius veleda veleda* (Godman) ♂ (Fig. 3); 3, *Mnasicles hicetaon* Godman ♂ (Fig. 4); 4, *Methionopsis ina* (Plötz) ♂ (Fig. 6); 5, *Mnasitheus chrysophrys* (Mabille) ♂ (Fig. 17); 6, *Nastra guianae* Lindsey ♂ (Fig. 12); 7, *Anthoptus epictetus* (Fabricius) ♀ (Fig. 28); 8, *Anthoptus insignis* (Plötz) ♂ (Fig. 29); 9, *Thargella caura caura* (Plötz) ♂ (Fig. 10); 10, *Sodalia sodalis* (Butler) ♀ (Fig. 9); 11, *Mnasilus allubita* (Butler) ♂ (Fig. 14); 12, *Anthoptus maracanae* (Bell) ♀ (Fig. 31); 13, *Papias* sp. ?*phainis* ♀ (Fig. 19); 14, *Papias phaeomelas* (Hübner) ♂ (Fig. 20). Scale bar = 1 cm, 1.6 x life size.

trated is from Teapa, Mexico. Evans (1955) lists many specimens from Mexico, and smaller numbers south to Ecuador, the Guianas and a single female from Trinidad. This last was collected by Dr. F.W. Jackson, but lacks a specific locality or date, although it was acquired by the NHM in 1915. Evans' listing is the first published record of this species from Trinidad.

Godman (1901, plate 103.18-20) illustrates the UNS, venation and genitalia (as *E. phthia*); Hayward (1942) illustrates the male genitalia, pointing out that they differ slightly from those illustrated by Godman; Evans (1955) also illustrates the male genitalia, showing a valve very similar to that of Godman.

The female in the NHM collected by Dr. F.W. Jackson and listed by Evans (1955) remains the only known specimen from Trinidad (Fig. 2). Since I normally examine all plain brown skippers that I encounter, this suggests that either it is restricted to areas where I have not collected, or it is rare, or both.

Janzen and Hallwachs (2012) indicate they may have two similar species under this name from Costa Rica. Both feed on grasses, particularly *Lithachne pauciflora*. They show caterpillars with a pale brown head, brown sutures and lateral line to stemmata; green body with broad pale subdorsal stripes. The pupa is off-white, with a very short, blunt frontal projection.

Fig. 2. Female *Eutocus facilis*, Trinidad, F.W. Jackson (specimen in NHM; head missing).

Fig. 3. Male *Eprius veleda veleda*, Inniss Field, xi.2006, S. Alston-Smith.

***Eprius* Godman 1901**

Godman established this genus for his new species, *E. veleda* Godman, which occurs in Trinidad (below). He originally named the genus *Epeus*, but realising that this name was preoccupied, renamed it *Eprius* in the Addenda to that volume of *Biologia Centrali-Americana*. However, early last century, subsequent workers on the Trinidad fauna overlooked this and have used the original name *Epeus* (e.g. Longstaff 1908; Kaye 1914, 1921; Sheldon 1936). There is still only the one species in the genus (Evans 1955; Mielke 2004).

Evans (1955) characterised the genus as follows. Antennae half costa, shaft chequered yellow and black, yellow at base of club, below; nudum 10 segments all on the apiculus. Palpi slender, third segment long, thin. Mid tibiae smooth: legs yellowish. ♂ UPF with a long brand against cell at base of space 2, and a long brand centred under origin of vein 2, extending inwards nearly to base of cell: UPH erect hairs along vein lA.

J5 *Eprius veleda veleda* (Godman 1901)

Fig. 3.

Godman (1901) described this species from Mexico, Guatemala, Honduras and Panama, but illustrated it with specimens from Teapa, Mexico. The nominate subspecies is found from Mexico south to Ecuador and east to Trinidad (Evans 1955; Mielke 1992). A second subspecies, *E. veleda obrepta* (Kivirikko), occurs from the mouth of the Amazon to Argentina (Mielke 1992). Godman (1901) illustrates the UNS, venation and male genitalia, and Evans (1955) illustrates the male genitalia; the evenly rounded clasper is similar in both.

Kaye (1914, Addenda) listed this species from Trinidad based on a specimen captured by K. St. A. Rogers at Emperor Valley, Port of Spain, January 1913. In his 1921 catalogue, Kaye (1921, no. 438) adds no further information, but does include Tobago in the range of this species. Longstaff (1908, 1912) records a specimen from Cocoa Wattie, Tobago, and this record is repeated in Sheldon (1936). I have recently examined Rogers' Trinidad specimen and Longstaff's Tobago specimen in HEC, and they are both males of *Anthoptus insignis* (Plötz) (Cock 2010, and below). Thus, *E. veleda* was incorrectly recorded by Kaye (1914, 1921), Longstaff (1908) and Sheldon (1936). There are no records of this species from Tobago, so it should be removed from the Tobago list.

Evans (1955) lists a male and three females in the NHM, but I found two males and three females from Trinidad curated as *E. veleda*. The two males were collected by A. Hall from the 'Northern Mountains', one in i.1936 and the other xii.1938-i.1939. In my opinion, the three females are a mixed series, and only one (labelled only 'Trinidad') is a good match to the two males. In preparing this paper, I found that I had misidentified this species in my collection, so my previous use of this name, e.g. in Lamont's collection in UWI (Cock 1982 mis-spelt *velada*) is almost certainly incorrect. S. Alston-Smith has collected this species from Inniss Field (v.2003, xi.2006, i.2007) and Bush Bush (iii.2003); all specimens were captured at roadsides in the early morning (0630-0830 h). The food plants and early stages do not seem to be known (Mielke 2005; Beccaloni *et al*. 2008; Janzen and Hallwachs 2012).

***Mnasicles* Godman 1901**

This genus was based on two Central American species (Godman 1901): the type species *M. geta* Godman and the less common, but more widespread *M. hicetaon* Godman. Godman (1901) illustrates the male UNS, venation and genitalia of *M. getus*. One more species was subsequently described from Ecuador, and just three species are known for this genus (Evans 1955; Mielke 2004).

The genus is characterised as generally like *Eprius*; unmarked above; mid tibiae with a few spines; ♂ UPF with a narrow broken stigma from base vein 3 to vein 1; UPH with erect hairs along vein lA; aedeagus and saccus very long (Evans 1955). The form of the brand will separate this genus from *Eprius* and *Methionopsis* (Godman 1901), but as discussed under *M. hicetaon* below, it places it close to *Remella* Hemming 1939. The only known food plants are grasses (below).

J6/2 *Mnasicles hicetaon* Godman 1901

Figs. 4-5.

This species was described from three males from Mexico (Godman 1901). Evans (1955) lists a further three males from Trinidad and two from Paraguay, and gives *koehleri* Hayward, described from Corrientes, Argentina, as a synonym. Bell (1932) described *Perimeles stollmeyeri* from Trinidad (Botanic Gardens, Port of Spain). Mielke and Casagrande (2002) examined the type of *stollmeyeri*, and established that it is a synonym of *Mnasicles hicetaon*. Cock (1981, 1982) mis-spelt this species as *hicetaeon*.

Fig. 4. Male *Mnasicles hicetaon*, Palo Seco Oilfield, 7 October, 1995.

Fig. 5. Female *Mnasicles hicetaon*, Bush Bush Island, 28 March, 2003 (palpi missing).

Although he would have seen specimens – there is a male from Trinidad in the NHM collected July 1891 – Kaye (1921, 1940) did not recognise this species. Furthermore, Kaye (1940) overlooked Bell's description of *stollmeyeri* from Trinidad, although he did include *Arotis kayei* (Bell) described from Trinidad in the same paper (Bell 1932). Kaye and other Trinidad collectors doubtless misidentified *M. hicetaon* for another plain brown species; thus, Lamont's collection in UWI includes specimens of *M. hicetaon* in a mixed series of *Methionopsis ina* (Plötz) (as its synonym *M. modestus* Godman (Cock 1982)). In Cock (1982), I speculated that Kaye's (1921, no. 418) inclusion of *Mnasitheus uniformis* (Butler and Druce) without comment was based on a misidentification of *M. hicetaon*.

The status of the genera *Mnasicles* and *Remella* Hemming need critical re-examination. *Remella* was a replacement name for *Perimeles* Godman 1901, an unavailable homonym (Hemming 1939). The type species of *Remella* and *Perimeles* is *remus* Fabricius (treated in Cock 2011). Bell (1932) placed his new species *stollmeyeri* in *Perimeles* because although the colouring is very different, the male brand and genitalia are very similar. By the same argument, *Mnasicles* may well be synonymous with *Remella* (=*Perimeles*), in which case *Mnasicles* would be the senior name.

The male genitalia are illustrated by Godman (1901, plate 103.27), Bell (1932, Fig. 3), Evans (1955), Hayward (1950, plate 13.5) and Burns (1990 – a reproduction of Godman's figure) and the adult by Hayward (1950, plate 24.20).

This is an occasional species in Trinidad, for which I have 31 records. Sometimes it is locally common – I caught 11 males and four females (half my total records), on one occasion in the Palo Seco Oilfield, 7 October, 1995, feeding on *Bidens pilosa* flowers in an open area. It is widespread in the lowlands of Trinidad, mainly from forested areas, with records including Point Gourde in the north-west, several from around Port of Spain, Nariva Swamp (Cock 1981), and Morne Diablo and Palo Seco in the south. A pair taken in Nariva Swamp (Manzanilla-Mayaro Road, milestone 46 ¼ track) were flying at dusk. The months of capture are spread through the year.

This species has been reared primarily from *Oryza latifolia* in Costa Rica (Janzen and Hallwachs 2012), but also occasionally from several other grasses. The caterpillars they illustrate have the head dark, a pale spot in front of the stemmata, and a broad, diffuse, pale line from adjacent to the vertex around the face towards the pale spot; T1 with a narrow black dorsal plate; body green,

speckled with white; clear dorsal line; diffuse pale dorsolateral line.

Methionopsis Godman 1901

This is a genus of plain brown Moncini, established for two species, with *M. modestus* Godman as the type species (Godman 1901). *Methionopsis modestus* is considered a junior synonym of *M. ina*, and occurs in Trinidad (Evans 1955). There are now four species recognised in the genus (Evans 1955; Mielke 2004). Evans (1955) characterises the genus: antennae longer than half costa: shaft slightly chequered and yellow under club, which is 1/5 shaft; nudum 0/10; palpi slender, third segment long, thin; mid tibiae smooth; F vein 5 straight, not decurved as usual; ♂ UPF typically with inconspicuous narrow brands, against cell between origins veins 3 and 2, over and under vein 2; dark brown, without markings. The only reported food plants are Commelinaceae (see below).

J8/1 *Methionopsis ina* (Plötz 1882)

Figs. 6-8.

The type locality of *M. ina* is Chiriqui, Panama (Plötz 1882); Godman (1901) described the synonym *M. modestus* from Mexico, Guatemala and Panama, and subsequently synonymised it under *M. ina* (Godman 1907). Evans' (1955) listing of the material in the NHM shows it to be a common species, widespread from Mexico to Paraguay.

Evans (1955) notes the male has a long brand present above vein 2 (not found in other members of the genus); UNF dorsum broadly pale; UNH with more or less of a purple gloss and dark ochreous scaling; very variable in size, ♂ F 10-15 mm. Godman (1901, plate 103.14-16) illustrates the male UNS, venation and genitalia of a specimen from Mexico (as *M. modestus*), and Evans (1955) illustrates the male genitalia.

Kaye (1904) first listed this species from Trinidad as *M. modestus*, commenting, "A common species on the mainland, and probably so in Trinidad." He merely repeats this information in his 1921 catalogue (Kaye 1921, no. 437).

This is a common species in Trinidad, although males seem to be four times as common as females among the 50 records I have compiled from collections. It is widespread in forested areas throughout the island to at least 2300 feet (700 m, Morne Bleu Textel, ♂ 27 November, 1980, ♀ 9 August, 1981, ♀ 16 January, 1988). One male was captured in my light trap (Curepe, 15 January, 1980), and one at dusk at Spanish Farm, Las Lomas (23 March, 1980). Although captures are spread through the year apart from April-May, 60% were from December to March suggesting this species is most active in the dry season.

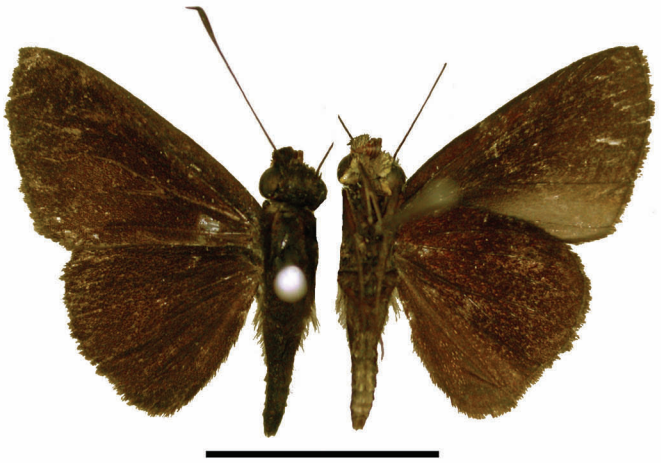

Fig. 6. Male *Methionopsis ina*, Mt. Tabor, 13 January, 2004.

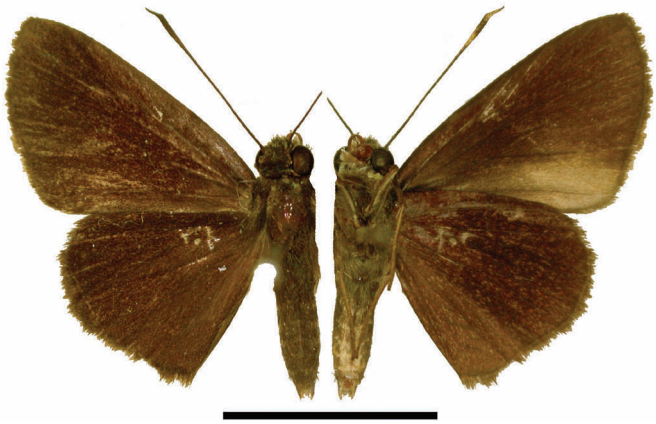

Fig. 7. Female *Methionopsis ina*, Las Lomas, Spanish Farm, 17 December, 1980 (palpi missing).

Unusually for this tribe, most of the reported food plants are in the family Commelinaceae. Janzen and Hallwachs (2012) reared it from four genera of Commelinaceae, but predominantly from *Commelina erecta* and *Dichorisandra amabilis,* and occasionally from the grass *Ichnanthus pallens*. I find that their pictures of the caterpillars, especially 04-SRNP-23525, match very closely two parasitized final instar caterpillars which I found on a plant of *D. hexandra*, 14 October, 1995, in forest on the track from St. Benedicts to Mt. Tabor (95/51, 95/52).

Caterpillar 95/51 was in a shelter made by folding a leaf upwards along the midrib, while caterpillar 95/52 was in a tightly rolled pendulous leaf remnant. After two days, caterpillar 95/51 prepared a pupal chamber by trimming the two leaf halves to leave a shallow arc of leaf tissue along the midrib, making a pocket. Within the pupal chamber, caterpillar 95/51 was killed by ten braconid larvae which spun separate white cocoons in the

shelter, but only one adult emerged. Similarly, caterpillar 95/52 made a pupal chamber three days after collection and produced about 13 braconid cocoons which emerged after nine days.

The caterpillars (Fig. 8) measured 22-23 mm when collected. Head oval, widest near base and indent at vertex; ground colour light brown with variable green tint; posterior margin dark; dark stripe from vertex laterally to mouthparts; sutures dark; pale, slightly yellow spots at apex before lateral stripe and before stemmata. T1 with a narrow, black transverse plate. Body translucent pale matt green; dorsal line greener; faint pale subdorsal and dorsolateral lines apparent on caterpillar which took an extra day before preparing pupal chamber; faint lateral line where trachea visible through cuticle; anal plate with a dark arc at posterior margin; spiracles pale inconspicuous; all legs concolorous; gonads not visible through cuticle.

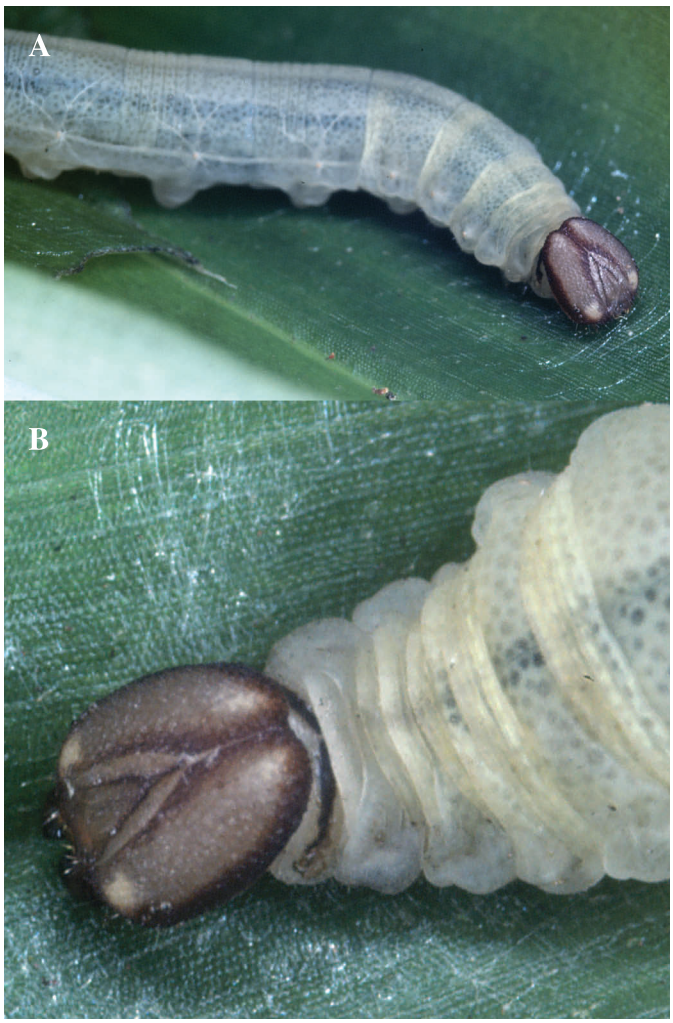

Fig. 8. Caterpillars of *Methionopsis ina*, collected on *Dichorisandra hexandra*, lower Mt. Tabor, 14 October, 1995. **A**, anterodorsolateral view, 24 mm, ref. 95/52; **B**, dorsal view, 23 mm, ref. 95/51.

***Sodalia* Evans 1955**

Evans (1955) established this genus for three brown species, with variable markings UNH. He characterised it: antennae = ½ costa; shaft chequered and yellow under base of club: club slender = ¼ shaft; apiculus obtuse, nudum 2/10; palpi slender, hairy: third segment cylindrical, slender, protruding; mid tibiae with a few spines; ♂ UPF with a widening brand against the cell between veins 3 and 2 and a short bar under vein 2; genitalia unlike any other in respect of the uncus and gnathos viewed ventrally – both are divided into two widely separated branches, forming the sides of a square. The type species is *S. sodalis*, which occurs in Trinidad.

J10/2 *Sodalia sodalis* (Butler 1877)

Fig. 9.

Butler (1877) described this species from Obydos on the Lower Amazon. Evans (1955) gives two subsequent synonyms: *huaynai* (Lindsey 1925) described from Peru, and *saramacca* (Williams and Bell 1931) from Suriname. The type of *sodalis* is in the NHM along with specimens from Nicaragua south to Ecuador and the Amazon (Evans 1955).

The male genitalia are illustrated by Lindsey (1925, plate 28.10 as *Metiscus*? *huaynai*), Williams and Bell (1931, as *Euroto saramacca*) and Evans (1955); Williams and Bell (1931, plate 1.8) also illustrate the adult male in black and white. It is not obvious that the clasp shown by Lindsey is conspecific with the other two species, although it could be broken and part missing; this synonymy may be worth checking.

The first record of this species from Trinidad was when Evans (1955) listed two males from Trinidad in the NHM. These specimens were from the collection of A. Hall, taken in the "Northern Mountains" between

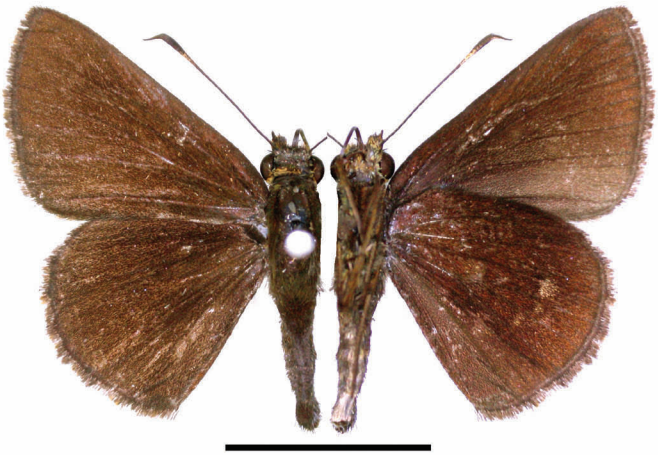

Fig. 9. Female *Sodalia sodalis*, swamp behind Las Cuevas Bay, 17 January, 2004.

December 1938 and January 1939; W.J. Kaye would not have seen this material, although there is a male from Irois, 13 March, 1932 in Sir N. Lamont's collection in NMS that Kaye could have seen. Cock (1982) inadvertently overlooked Evans' record in his list of Trinidad Hesperiidae.

This is not a common species in Trinidad – in addition to the three historical specimens mentioned above I have collected three specimens myself from lowland areas: Curepe (♀ 10 January, 1980, ♀ 18 December, 1981), and Las Cuevas Bay, swamp behind beach (♀ 17 January, 2004). S. Alston-Smith has five males and five females in his collection from southern oilfield roads. The months of capture (December to March) suggest this species may fly primarily in the dry season. The food plants and early stages have not been reported (Mielke 2005; Beccaloni *et al*. 2008; Janzen and Hallwachs 2012).

Thargella Godman 1900

The strongly arched F costa of the type species caused Godman (1901) to establish *Thargella* as a new genus, for his new species *T. fuliginosa* Godman, a synonym of *T. caura* (Plötz). A second species has since been described from southern Brazil (Mielke 2004).

Evans (1955) characterised the genus: antennae 9/15 costa; shaft plain, yellowish under club; club ¼ shaft, slender; apiculus obtuse, nudum 2/10; palpi slender, hairy, third segment short, conical; mid tibiae smooth; wings square, costa F highly arched and costa hardly longer than dorsum; no secondary sexual characters, other than a fringe UPH along vein 1B.

J17 *Thargella caura caura* (Plötz 1882)

Figs. 10-11.

This species was described from Suriname (Plötz 1882) and is found from southern Mexico (Freeman 1976) to Bolivia (Evans 1955). *Thargella fuliginosa* (Godman 1901) is a synonym described from Nicaragua, Colombia, Guyana and the Amazon (Godman 1907). There is a second subspecies, *occulta* (Schaus 1902), found in the vicinity of Rio de Janeiro, southern Brazil (Evans 1955). *Cymaenes sipariana* Kaye (1925) was described from Trinidad, and placed as a synonym of *T. caura* by Evans (1955). However, Mielke and Casagrande (2002) examined the female holotype and established that it is a valid species in the genus *Propapias* as it was treated in Cock (2010).

Godman (1900, plate 100.24-25) illustrates the venation and male genitalia from Nicaragua, and Hayward (1950, plate 20.2) and Evans (1955) illustrate the male genitalia.

This species was first recorded from Trinidad by

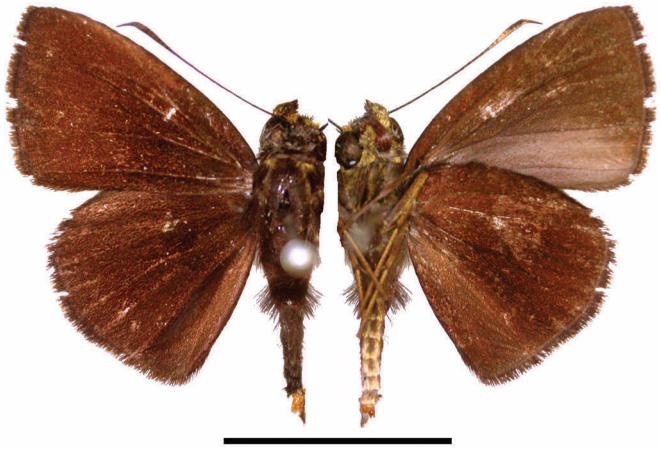

Fig. 10. Male *Thargella caura*, San Miguel Valley, 17 October, 1979.

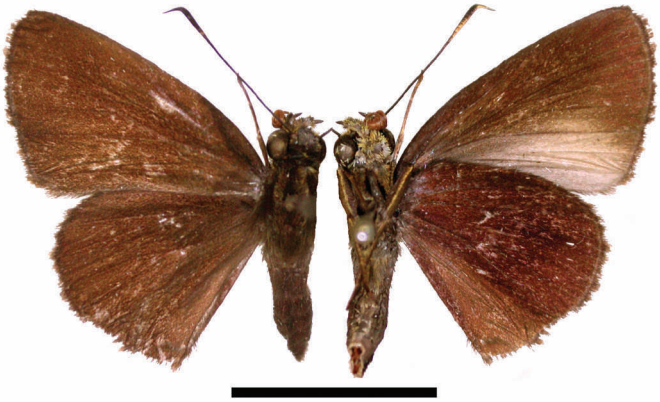

Fig. 11. Female *Thargella caura*, Mt. Tamana, 12 November, 1995.

Kaye (1904 as *T. fuliginosa*) from two specimens he captured in June 1898. Later (Kaye 1921, no. 416) he adds that it is not rare. Although *T. caura* has not been recorded from Tobago (Sheldon 1936, 1938; Cock 1982), there is a male in the NHM from the W.G. Sheldon collection which W.H. Evans dissected and drew, but missed in his list of the NHM collections (Evans 1955).

This is a fairly common species in Trinidad (24 records), found in forested areas in lowlands throughout the island, and extending up to 1100 feet (335 m) in the Northern Range (Mt. Tabor, 12 November, 1978). More than 80% of captures have been from October to February. It does not seem to visit flowers.

Moss (1949) reared this species from 'carapicho grass' but gives no description or illustration of the early stages. Carapicho may be a reference to *Cenchrus echniatus* (Poaceae), known as capim-carrapicho in Brazil (Cardenas and Coulson 1967). There are four emerged pupae associated with this name in the NHM dry stages collections from Moss' collection. Moss identified the material as '*Eutychide achelous'*, so the identification as

T. caura is due to W.H. Evans. The pupae are pale brown, rather translucent, fragile and have collapsed; they measure 16-19 mm; a short, narrow, blunt, brown frontal projection; proboscis sheath extends to end of cremaster; two shelters are lined with white waxy powder, but two are not. The single, partially visible final instar caterpillar head capsule is dark brown, and particularly the ventral portion is covered with white waxy powder.

Nastra Evans 1955

Evans (1955) compared his new genus, *Nastra*, with *Cymaenes* (see Cock 2011). Hence it can be characterised as follows: antennae rather > ½ costa; club 1/3 shaft; nudum 3/8; palpi slender: third segment short, conical, protruding; mid tibiae with a few spines; no secondary sexual characters. The type species is the North American *Nastra lherminieri* (Latreille).

J26/5 *Nastra guianae* Lindsey 1925

Fig. 12.

Lindsey (1925) described this species from a single male from Guyana and illustrated the adult and genitalia. Evans (1955) lists specimens from Colombia, Guyana and the Amazon, and illustrates the clasper of the male genitalia.

De Jong (1983) comments on the similarity of *N. guianae* and *Mnasilus allubita* (Butler), which appear externally identical apart from the colour of the palpi and the presence of an inconspicuous recumbent hair tuft F UPS in male *M. allubita*. Note that Lindsey (1925) described *guianae* as a species of *Mnasilus*. The claspers are similar and both have an unusually long aedeagus. They are likely to be congeneric.

I added this species to the Trinidad list (Cock 1982) based on a male from Wallerfield, 17 February, 1982 (Fig. 12). Since then, S. Alston-Smith has collected three males (Inniss Field, November 2006; Rio Claro-Guayaguayare Road, April 2006; North Post, November 1999) and two females (Moruga East Field, November 2006; Rock River Road, February 2007).

There is no information available on the food plants and life history (Mielke 2005; Beccaloni *et al*. 2008).

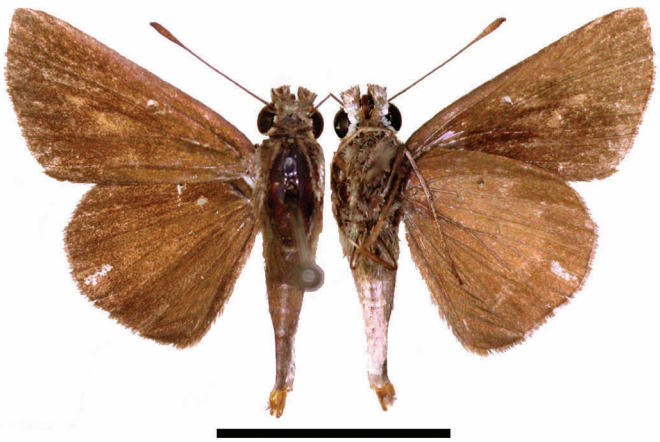

Fig. 12. Male *Nastra guianae*, Wallerfield, 17 February, 1982.

Mnasilus Godman 1900

Godman (1900) established this monotypic genus for his new species *M. penicillatus* Godman, now known to be a synonym of *M. allubita* (Butler). Although Godman (1900) compared *Mnasilus* with *Cymaenes* (=*Megistias*), Evans (1955) compared it with *Parphorus* (treated in Cock 2011): antennae rather longer than half costa; club ¼ shaft; nudum 3/8; palpi second segment quadrate, hairy, third short; mid tibiae with a few spines, which may be short or long or obsolete; F vein 2 mid vein 3 and base. Unlike *Parphorus*, there is no brand or stigma, but there is a recumbent hair tuft along the middle third of space 1A UPF.

J29 *Mnasilus allubita* Butler 1877

Figs. 13-16.

Butler (1877) described this species from specimens collected at Obydos (Lower Amazon) and Rio Sapó (Amazonas, Brazil); Mielke and Casagrande (2002) designated the specimen from Obydos as lectotype. *Mnasilus penicillatus* Godman (1900) is a synonym described from Mexico and Panama, while *Vehilius norma* Dyar is another described from Guyana. Evans (1955) lists specimens in the NHM from Mexico to Paraguay, and it was recently recorded from Texas for the first time (Reid and Warren 2009).

Godman (1900) illustrates the UPS, UNS venation and male genitalia; Hayward (1938) illustrates the male

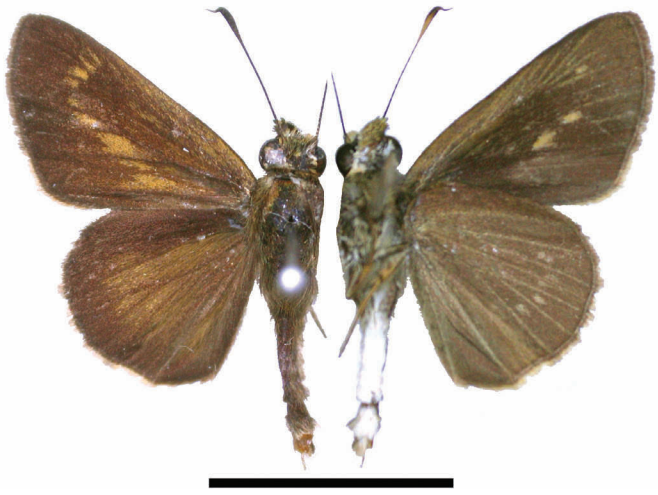

Fig. 13. Male *Mnasilus allubita*, Bush Bush Island, 7 May, 1995.

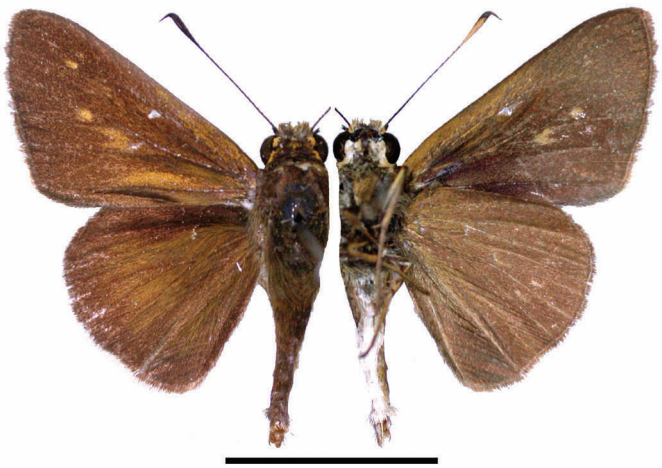

Fig. 14. Male *Mnasilus allubita*, Las Lomas, Spanish Farm, 17 December, 1980.

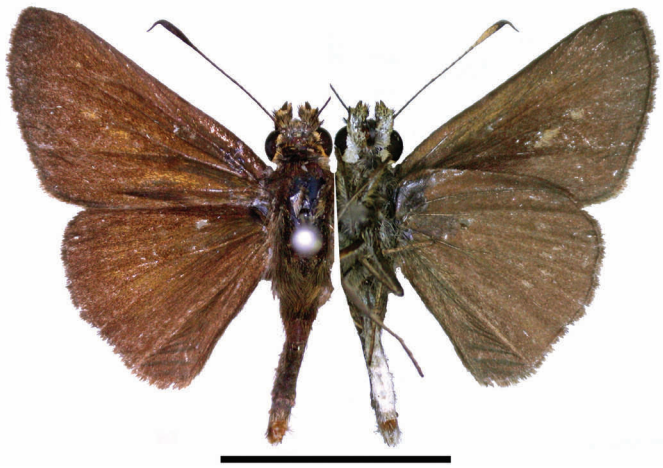

Fig. 15. Male *Mnasilus allubita*, Bush Bush Island, 28 March, 2003.

genitalia of specimens from Argentina and Guyana, the latter having a sharp ventral spike to the valve (as do Trinidad specimens), whereas in the former this is blunt (thereby resembling those of *Nastra guianae*, and perhaps not correctly treated as *M. allubita*); Hayward (1950) illustrates the male adult and genitalia (with a pointed ventral spike); Evans (1955) illustrates the male genitalia. The sharp ventral spike of the male claspers can be revealed by brushing away the ventral scales of the genitalia, and this provides a useful supplementary diagnostic feature amongst Trinidad species.

Strangely, Kaye (1921, 1940) did not record this species from Trinidad; there are no specimens from his collection in MGCL (A.D. Warren, pers. comm. 2012), and there are none at all in the NHM (Evans 1955), and yet it is a common species in Trinidad, which led me to suggest that *M. allubita* could be a recent coloniser of Trinidad (Cock 1982). The only early specimen that I have seen is from 1926 (♂, Irois, 10 February, 1926, N. Lamont's

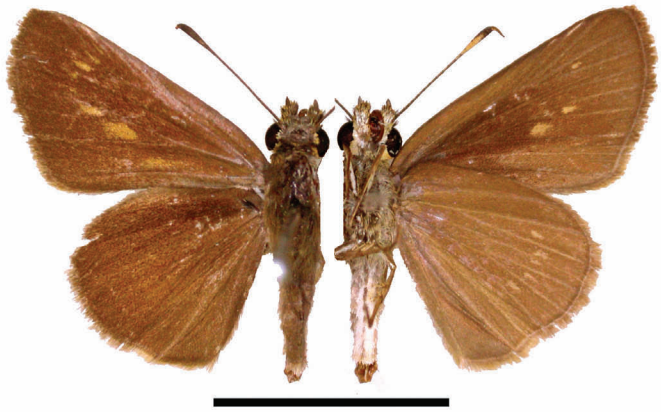

Fig. 16. Female *Mnasilus allubita*, Nariva Swamp, Manzanilla-Mayaro Road, milestone 46 track, 5 February, 1980.

collection in UWI, misidentified as *Euroto cocoa* Kaye, a synonym of *Penicula bryanti* (Weeks) as listed in Cock (1982)), but after that I have seen none until my own records from 1979 onwards. The fact that *M. allubita* was recently recorded from Texas for the first time (Reid and Warren 2009) suggests a degree of vagility in this species, supporting the suggestion that it may have recently colonised Trinidad.

This common species can be found in lowland disturbed forest areas throughout the island (66 records). It can be locally very common (Manzanilla Windbelt Reserve 8♂, 5♀ 22 January, 1988; Bush Bush Island 11♂, 3♀ 28 March, 2003). Several localities are swampy areas (Bush Bush Island; Caroni Swamp, ¼ mile E of Cacandee Sluice; Manzanilla Windbelt Reserve; Nariva Swamp, Manzanilla-Mayaro Road, milestone 46 track; Nariva Swamp, Sand Hill) suggesting an affinity with this habitat. Two specimens were caught in a light trap at Curepe (♀ 23 January-10 February, 1982, ♂ 6-11 December, 1981, both F.D. Bennett) and one male was captured at dusk at Las Lomas, Spanish Farm (23 March, 1980). Males perch at a height of about 1m in sunlit forest patches and defend territories. Months of capture are more or less throughout the year.

Dyar (1917) described a synonym, *norma*, from material reared by H.W.B. Moore from 'a water grass' *Paspalum repens* (=*P. gracile*) at Georgetown, Guyana. Moss (1949) reared this species from 'grasses', but gives no description or illustration, and there are no preserved early stages in the NHM. Janzen and Hallwachs (2012) have reared this species occasionally from three species of grass: most frequently from an unidentified species, but also from *Leersia hexandra* and *Oryza latifolia*. Their photographs of caterpillars show a pale brown head with diffuse dark black bands down face and laterally, a yellow spot in front of the stemmata, and a smaller whitish one behind; T1 concolorous; body pale green with

darker speckles.

***Mnasitheus* Godman 1900**

Godman (1900) established this species with *M. cephis* Godman as the type; *M. cephis* is a synonym of *M. chrysophrys* (Mabille). Evans (1955) characterised the genus: small plain dark species with brands or a stigma UPF; antennae just longer than half costa: club ¼ shaft: nudum 3/8 or 2/9; palpi slender, hairy; third segment short, conical; mid tibiae with a few long spines, which may be absent. There are 11 species in the genus, but only *M. chrysophrys* is found in Trinidad.

Janzen and Hallwachs (2012) have reared an unidentified species of *Mnasitheus* from a grass in Costa Rica. The pupa is pale yellow-brown; no frontal spike; conspicuous erect setae on eyes and thorax; spiracle T1 prominent, orange-brown.

J32/1 *Mnasitheus chrysophrys* (Mabille 1891)

Figs. 17-18.

This species was described from Colombia (Mabille 1891) and is recorded from Mexico to Paraguay (Evans 1955).

In addition to the generic characters, Evans (1955) notes: UPF with inconspicuous yellow scaling forming obscure discal and apical spots; UNF costa and apex and all UNH purple with a few yellow scales; legs yellow; palpi yellow and brown; cilia more or less pale yellow, often conspicuously so; ♂ UPF brands parallel to veins 1 and 2, situated well beyond the origin of vein 2, centred under origin vein 3: a very short brand over vein 2, a rather longer one under vein 2 and a still longer one over vein 1.

Godman (1900, plate 100. 26-27) illustrates the male venation and genitalia of a specimen from Central America (as *M. cephis*) and Evans (1955) illustrates the male genitalia.

Kaye (1921, 1940) did not record this species from Trinidad, so when Evans (1955) listed eight males from Trinidad in the NHM, this was the first published record from Trinidad. These specimens in the NHM include specimens that Kaye is likely to have seen, and his own collection included two unrecognised specimens, one of which he misidentified as *Mnasitheus simplicissima* (Herrich-Schäffer), (A.D. Warren, pers. comm. 2012). I have previously treated Kaye's report of *M. simplicissima* from Trinidad as a misidentification for *Anthoptus insignis* (Cock 1982, 2010, and this paper below). It is clear from Kaye's and Lamont's collections that there was significant confusion over the application of names to the small brown Hesperiinae from Trinidad, none of which were dissected.

This species is widespread and fairly common (21 records) in lowland forest areas and extends up to the ridges of the Northern Range (around Arima Valley, Morne Catherine). The main months of capture have been January-March, i.e. the dry season.

Although there are no food plant records for this species (Mielke 2005; Beccaloni *et al*. 2008), the record of a *Mnasitheus* sp. from a grass in Janzen and Hallwachs (2012) suggests *M. chrysophrys* is likely to be a grass feeder.

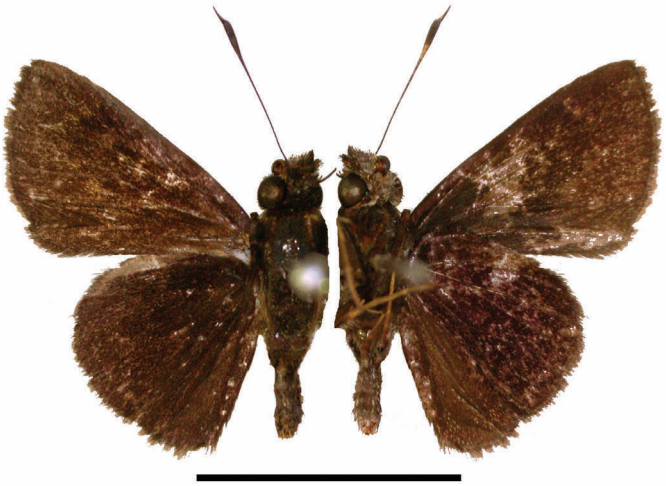

Fig. 17. Male *Mnasitheus chrysophrys*, Arima-Blanchisseuse Road, milestone 8, 8 September, 1979.

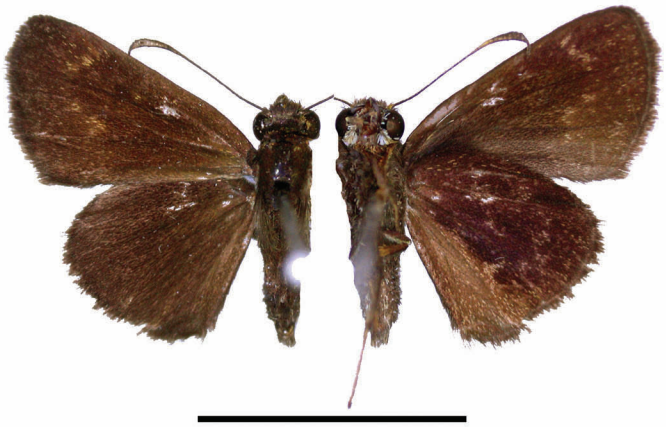

Fig. 18. Female *Mnasitheus chrysophrys*, Morne Catherine, 12 February, 1980 (palpi missing).

***Papias* Godman 1900**

This genus was established for four brown skippers which resemble *Lerema* with regard to male genitalia (Godman 1900). The type was fixed as *infuscata* Plötz (Godman 1900), which is a synonym of *subcostulata* Herrich-Schäffer (Evans 1955; Mielke 2004). Subsequently, Godman (1907) considered that he had misidentified *infuscata*, and substituted *integra* Mabille; however, this too is now considered a synonym of *subcostulata*

(Mielke 2004), so the type species for the genus remains *subcostulata*. The genus is now considered to contain ten species (Mielke 2004), and most can only reliably be identified by examination of the male genitalia. Evans (1955) characterised the genus: antennae rather > ½ costa: nudum 2/9 - 4/9; palpi slender, third segment typically short, conical; mid tibiae spined; no secondary sexual characters; UPS unmarked; UNS may be spotted and have pale veins. Cheeks and outer edge of palpi generally orange to yellow.

Kaye (1940) recorded *P. infuscata* from Trinidad based on a specimen that he collected at Maracas, 24 November, 1920. I have not located this specimen, and A.D. Warren (pers. comm. 2012) advises me that there are no *Papias* spp. from Kaye's collection in MGCL. Until Kaye's specimen is located, or new material of *P. subcostulata* (=*infuscata*) is collected from Trinidad, this record should be discounted.

Janzen and Hallwachs (2012) have reared one or more *Papias* spp. probably including *P. subcostulata* on grasses, predominantly *Setaria paniculifera*. The caterpillars have a plain dark brown or black head and an unmarked translucent green body, and the pupa is pale brown, rounded, with no frontal spike.

J36/4 *Papias phainis* Godman 1900

Fig. 19.

This species was described from Mexico, Guatemala and Costa Rica (Godman 1900), and is known from Mexico south to Bolivia and southern Brazil, including Guyana (Evans 1955). *Papias monus* Bell (1942) described from Guyana, is considered to be a synonym (Evans 1955; Mielke 2004), but the much shorter saccus and aedeagus of *monus* (Bell 1942, Fig. 10) compared to *phainis* (Godman 1900, plate 100.16) suggests this is incorrect. Evans (1955) illustrates the male genitalia and characterised the adult: UNF no traces of discal spots, dorsum to vein 2 paler; UNH small discal spots of yellow scales more or less developed in spaces 2-6.

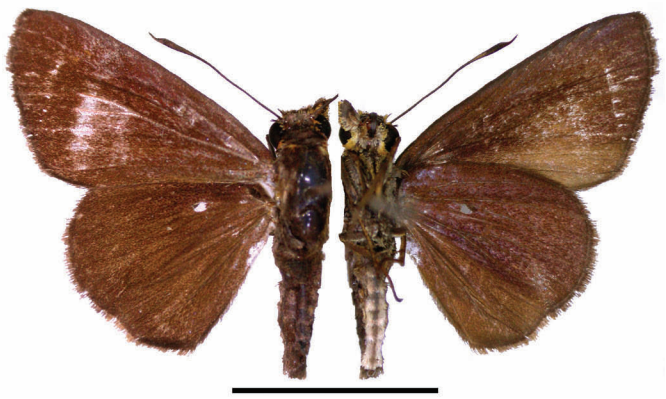

Fig. 19. Female *Papias phainis* (provisional identification), Rio Claro-Guayaguayare Rd., N. of junction with Saunder's Trace: ♀ ovipositing 93/12, 11 October, 1993 (M.J.W. Cock).

Schaus (1902) described *Papias ctyanus* from Trinidad, and Kaye (1940, no. 414B) repeated this. Evans (1955) treated *P. ctyanus* as a synonym of *P. phainis*, and it was on this basis that Cock (1982) included *P. phainis* as a Trinidad species. However, Mielke (2004) considers that *P. ctyanus* is a synonym of *Corticea noctis* (Plötz) from southern Brazil, and that the Trinidad locality label of the type is an error (see also *Psoralis chittara* (Schaus) below).

A female that I identified as *P. phainis* was observed ovipositing on grass (pers. comm. in Beccaloni *et al*. 2008) and is shown as Fig. 19. This appears to be *P. phainis*, but as it is female, I have not been able to confirm this identification. Hence, at this time there are no confirmed specimens of *P. phainis* known from Trinidad.

J36/5 *Papias phaeomelas* (Hübner 1831 in Hübner 1818-1831)

Figs. 20-27.

The type locality of this species is Brazil (Hübner 1818-1831), and it is recorded from Mexico to Guyana to the mouth of the Amazon (Evans 1955). It was described again as *P. microsema* (Godman 1900 in Godman and Salvin 1879-1901) from Mexico, Costa Rica, Panama and Brazil, which Lindsey (1925) noted is a synonym of *P. phaeomelas*. There is a syntype of *phaeomelas* in the Berlin Museum (O.H.H. Mielke, pers. comm. 2012), but it is in poor condition and missing its abdomen, so there seems little scope for a definitive confirmation that it is correctly treated as a senior synonym of *P. microsema*. With this proviso, I continue current usage.

Hübner (1818-1831, Figs. 581-582) illustrates the adult; Godman and Salvin (1879-1901, plate 100.14-15) illustrate the male underside and genitalia; Evans (1955) illustrates the male genitalia. In addition to the distinctive male genitalia, Evans (1955) notes that the UNF has faint yellow discal spots in spaces 2 and 3, and UNH may have faint traces of discal spots.

Kaye (1914, 1921, no. 414) lists *P. phaeomelas* (as *P. microsema*) from Trinidad based on one or more specimens collected in St. Ann's Valley by G.E. Tryhane; I have not located this material. Evans (1955) lists one male from Trinidad in the NHM. I have examined this specimen; it is a male collected at Fort George in September 1891. The abdomen has been glued onto the body, and Evans dissected it and sketched the genitalia. S. Alston-Smith has five males and five females in his collection from southern oilfield roads.

In a small open patch in secondary forest at Inniss Field in south Trinidad, I recently found *P. phaeomelas*

caterpillars (11/15), and observed oviposition (11/21) on *Paspalum fasciculatum*, which I have previously recorded as the food plant of *Perichares philetes philetes* Gmelin (Cock 2005). The ovipositing female was observed at about 1630 h under quite heavily overcast conditions. She was captured and confined in a plastic pot with a leaf of *Paspalum fasciculatum*, and later that evening had laid seven eggs on the leaf (Fig. 24). The following account is based on these two collections.

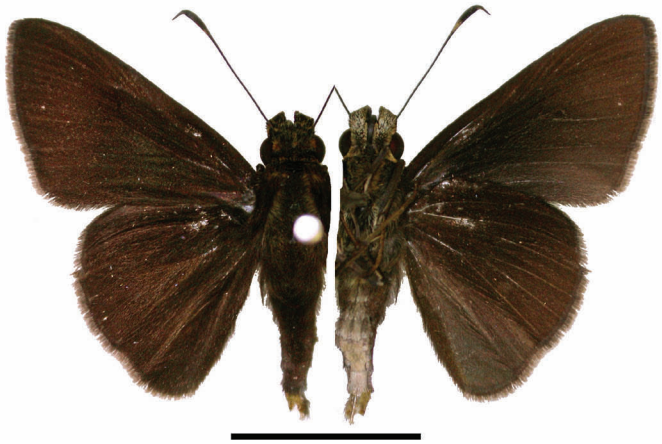

Fig. 20. Male *Papias phaeomelas*, Inniss Field, collected as caterpillar on *Paspalum fasciculatum* 9 October, 2011, adult 27 November, 2011, ref. 11/15F.

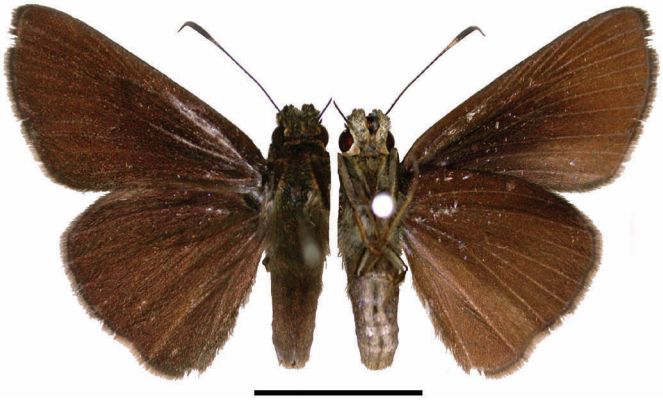

Fig. 21. Female *Papias phaeomelas*, reared from ovum laid by female collected at Inniss Field, 9 October, 2011, adult 17 December, 2011, ref. 11/21E.

Fig. 22. Adult female *Papias phaeomelas*, collected as caterpillar on *Paspalum fasciculatum* 9 October, 2011, Inniss Field, adult 15 November, 2011, ref. 11/15A.

One third instar caterpillar of 5 mm had constructed its shelter by making two cuts from the edge of the leaf lamina, 15 mm apart, with the resultant flap folded under the leaf. A 6 mm third instar caterpillar had constructed its shelter from the apical 27 mm of the leaf, with one basal cut to the midrib, and the shelter rolled.

A 17 mm fourth instar caterpillar had made a larger shelter using the apical 130 mm of leaf, with basal cuts from each side to the midrib, with some feeding immediately distal to these, so that the shelter hung downwards on the midrib (Fig. 23). One half of the distal part of the

Fig. 23. Leaf shelters of fourth instar *Papias phaeomelas in situ* on *Paspalum fasciculatum*, Inniss Field, 9 October, 2011, ref. MJWC 11/15.

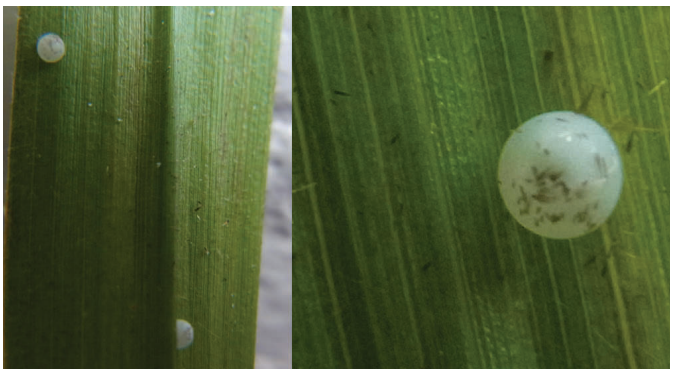

Fig. 24. Ova of *Papias phaeomelas* laid in captivity on *Paspalum fasciculatum*; female captured Inniss Field, 9 October, 2011, ref. MJWC 11/21.

leaf was folded over upwards onto the other half to make the shelter. The basal end of the shelter was closed with a small flap of the shelter lid, and the distal end was left open. The caterpillar rested head downwards towards the open distal end of the shelter. Another fourth instar caterpillar had made a similar shelter, but using only the distal 50 mm of the leaf, and the feeding at the basal cuts left the midrib bare for 20 mm.

Ova were laid individually on *Paspalum fasciculatum*, and hatched after 6 days. They were dome-shaped, pale, with very finely reticulated microsculpture; the base measured 1.09 mm (Fig. 24).

There are normally five instars, although one individual (11/21B) had six instars. The head capsules measured 0.43 x 0.71 mm, 0.90 x 1.00 mm, 1.30 x 1.47 mm, 1.95 x 2.32 mm and 2.61 x 3.31 mm respectively in the five instars. The first two instars were similar, having a black shiny head with scattered pale, erect setae, and finely reticulate in the second instar; narrow black transverse plate on T1; translucent shiny green body (as do most Moncini). In the 6-7 mm second instar, pale subdorsal and dorsolateral lines became visible (Fig. 25A). In the 7-8 mm third instar (Fig. 25B), the head was similar, but the body was now translucent matt green, and the subdorsal and dorsolateral lines were white and relatively conspicuous. The fourth instar, which grew to 17 mm, also had a black head, but the body was now dark translucent matt green, with conspicuous white subdorsal and dorso-

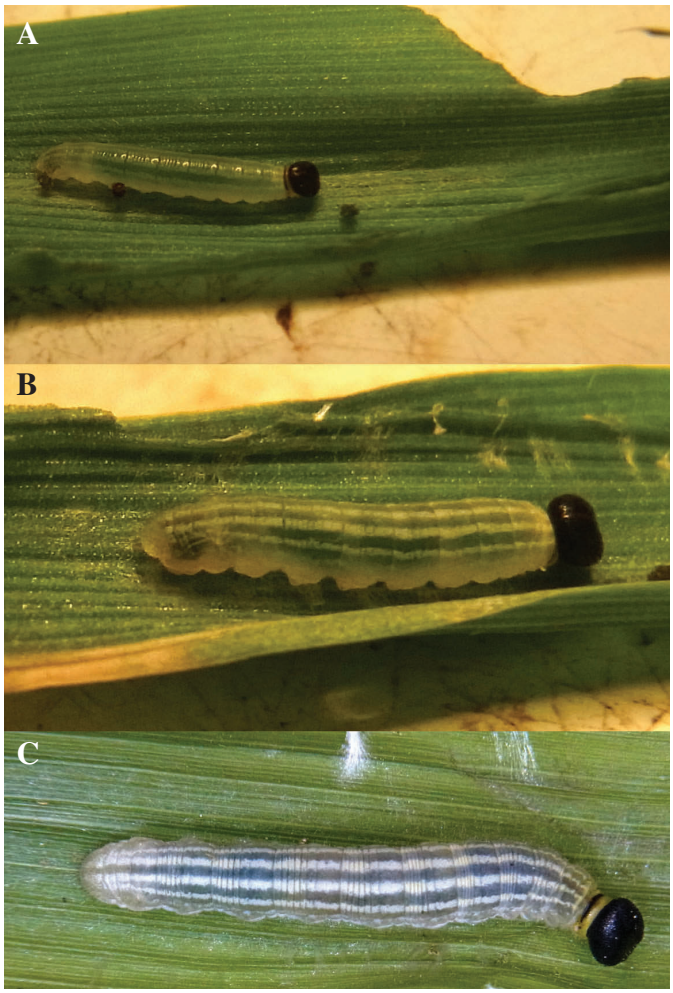

Fig. 25. Early instar caterpillars of *Papias phaeomelas*, collected as caterpillar or reared from ovum, Inniss Field. **A**, second instar, 7 mm; moulted to second instar 25 October, 2011; photographed 2 November; moulted to third instar 5 November; ref. 11/21F. **B**, third instar, 8 mm; moulted to third instar 30 October, 2011; photographed 2 November; moulted to fourth instar 7 November; ref. 11/21C. **C**, fourth instar, 17 mm; collected and photographed 9 October, 2011; moulted to fifth instar 14 November; ref. 11/15A.

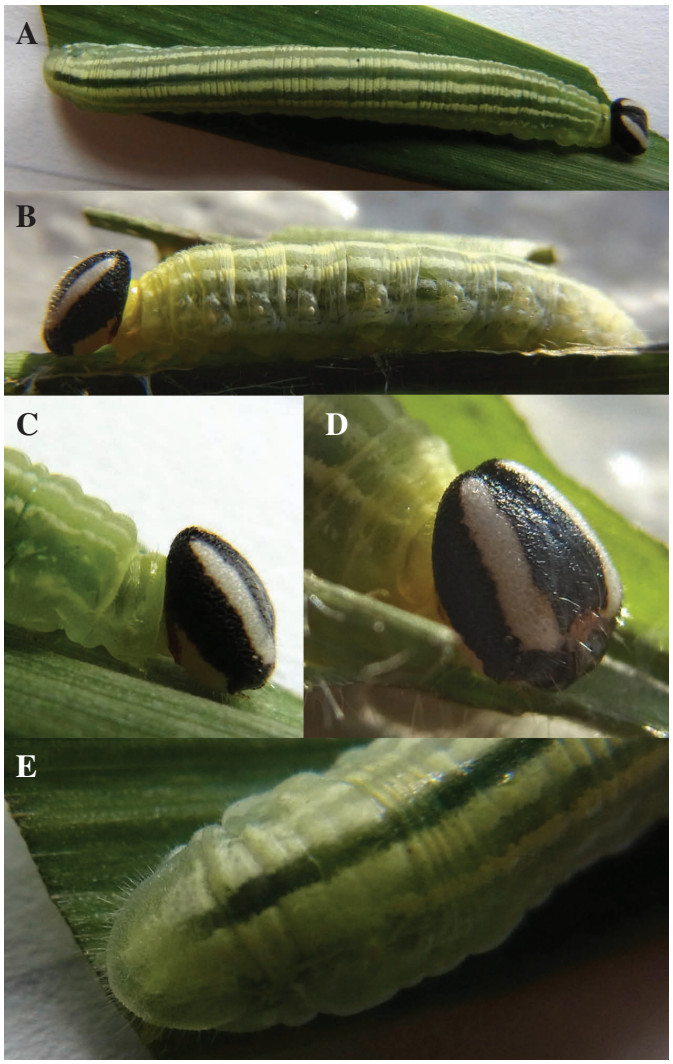

Fig. 26. Final instar caterpillar of *Papias phaeomelas*, collected as caterpillar, Inniss Field. **A**, dorsal view, mature larva, 34 mm; moulted to final instar 14 October, 2011; photographed 24 October; pupated 28 October; ref. 11/15A. **B**, lateral view, newly moulted larva; as A, photographed 15 October. **C**, head, lateral view; as A. **D**, head, anterolateral view; as B. **E**, posterior region, dorsal view; as A.

lateral lines and a weak lateral white line (Fig. 25C).

The final, fifth instar (Fig. 26) measured 20 mm when newly moulted and grew up to 34 mm long when mature. Head rounded, widest at base, indented at vertex; black apart from a bold, sharply defined white stripe from apex to stemmata, and area posteroventrally, narrowing to about half height of head. T1 concolorous; dorsal plate inconspicuous. Body dull green; strong white subdorsal and dorsolateral lines; weak white lateral line; pale ventrolateral flange; pale green ventrally; all legs concolorous; spiracles pale, inconspicuous; anal plate semicircular with erect pale setae (Fig. 26E); anal comb with unusually short teeth. The wax glands develop ventrolaterally from the posterior margin of A6 to the middle of A8. At the prepupal stage, white waxy powder is present laterally on the head, around legs T1-T3 and prolegs A6, ventrally on A7-A8 and claspers.

Larval development from egg to pupa took 56 days (n=4, range 48-73 days); instar 1, 4-8 days; instar 2, 9-10 days; instar 3, 7-8 days; instar 4, 7-11 days; instar 5, 12-14 days.

In captivity, pupation was in a slightly folded leaf held with a strand or two of silk. The pupa is attached at the cremaster and by a simple silk girdle. There was no white waxy powder on the pupa or shelter. A pupa (11/15A) measured 27 mm (Fig. 27), including a 3 mm straight frontal spike; elongate; green, with yellow subdorsal and dorsolateral lines on thorax and abdomen. Pupation in captivity (at 18-20°C) took 15.4 days (n=5, range = 13-18 days).

Fig. 27. Dorsal view, pupa of *Papias phaeomelas*, collected as caterpillar, Inniss Field; 27 mm; pupated 1 November, 2011; photographed 2 November; emerged 17 November; ref. 11/15E.

The early stages of *P. phaeomelas* reported here, the caterpillar with a distinctively marked head and striped body and the pupa elongate, green, striped with a frontal spike, are very different from those of *P. subcostulata* or near (Janzen and Hallwachs 2012) described in the introduction to *Papias* above. Based on the early stages, it seems unlikely that they are congeneric.

Of the seven caterpillars collected 9 October, 2011 at Inniss Field, three were killed by parasitic mermithid nematodes.

I6/1 *Anthoptus epictetus* (Fabricius 1793)

Fig. 28.

Although I have already treated this species in Part 17 (Cock 2010), it is necessary to treat the female here for completeness, as it is another small, almost unmarked, brown species.

Fig. 28. Adult female *Anthoptus epictetus*, Blanchisseuse-Paria Bay track, 22 January, 1980.

J26/9 *Anthoptus insignis* (Plötz 1882)

Figs. 29-30.

This species was also treated in Part 17 (Cock 2010), but both sexes are more or less unmarked. For many years this species has been known as *Nastra insignis*, following Evans (1955), but Steinhauser (1991) transferred it from *Nastra* Evans to *Anthoptus* Bell, commenting that the male and female genitalia of *insignis* are very similar to those of *A. epictetus*. Godman and Salvin (1879-1901) illustrate the adult genitalia of this species misidentified as *Mnasitheus simplicissima* (Herrich-Schäffer), (Evans 1955). It is found in both Trinidad and Tobago.

I6/2 *Anthoptus maracanae* (Bell 1934)

Fig. 31.

This is the third species of *Anthoptus* known from Trinidad. It too was treated in Part 17, but identification is covered here again for the female, which is unmarked brown.

Female (Fig. 31). UPS plain brown; UNS brown but of a paler shade; UNH margin of space 1B UNH and distal portion of vein 2 paler. UNS of head pale; UNS thorax brown; UNS abdomen brown, subventrally a pale patch on posterior margin each segment. F female 15 mm.

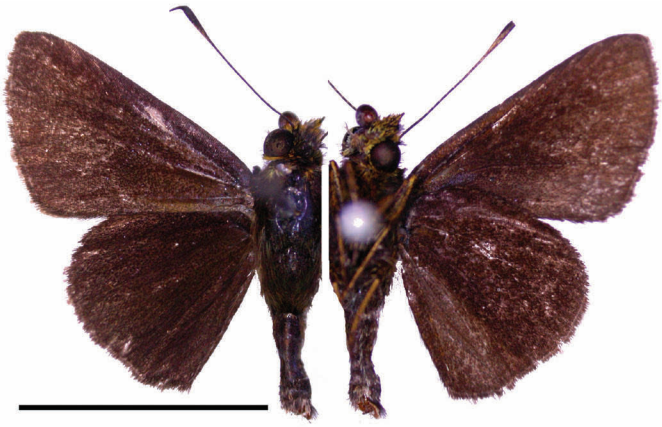

Fig. 29. Adult male *Anthoptus insignis*, Arima-Blanchisseuse Road, milestone 9 ¼, 8 October, 1994.

Fig. 30. Adult female *Anthoptus insignis*, Mt. Tabor, 1,000 ft., 1 January, 1982.

Fig. 31. Adult female *Anthoptus maracanae*, Curepe, MV light trap, 7 August, 1982 (palpi missing).

Psoralis chittara (Schaus 1902)

Schaus (1902) described this species from Trinidad, and so Kaye (1940, no. 414A) added it to the Trinidad list. Mielke (2004) finds that it is a Brazilian species, and that the type must have been mislabelled 'Trinidad'. I have examined the type in the USNM, and it is not a species that I know from Trinidad, so I agree that it should be removed from the Trinidad list.

ACKNOWLEDGEMENTS

The following have very kindly assisted in providing access to the collections in their care: Dr. George McGavin, Dr. Darren Mann and Mr. James Logan of the Hope Entomological Collections, Oxford University Museum (HEC); Dr. Phillip Ackery and Blanca Huertas of the Natural History Museum (NHM) (formerly British Museum (Natural History)); Dr. Mark Shaw of the Royal Scottish Museum (NMS); Mr. Scott Alston-Smith to his private collection (SAS); Professor Julian Kenny and Dr. Gene Pollard of the University of the West Indies, St. Augustine (UWI); Dr. Gerald Legg of the Booth Museum, Brighton (BM); Drs. Lee and Jacqueline Miller of the Allyn Museum of Entomology, Sarasota, Florida (AME), now incorporated into McGuire Center for Lepidoptera and Biodiversity (MGCL).

The specimen of *Eutocus facilis* shown in Figs. 1 and 2 is in the NHM. I thank Andy Warren who checked the MGCL for historical specimens, and Scott Alston-Smith for adding information based on his observations.

REFERENCES

Beccaloni, G.W., Viloria, Á.L., Hall, S.K. and **Robinson, G. S.** 2008. Catalogue of the hostplants of the Neotropical butterflies. Catálogo de las plantas huésped de las mariposas neotropicales. *Monografias Tercer Milenio*, 8: 536 p.

Bell, E.L. 1932. Descriptions of new Hesperiidae from Trinidad, B.W.I. and South America (Lepidoptera: Rhopalocera). *Journal of the New York Entomological Society*, 39: 523-531.

Bell, E.L. 1942. New genera and new species of Neotropical Hesperiidae (Lepidoptera: Rhopalocera). *American Museum Novitates*, 1205: 9 p.

Burns, J.M. 1990. *Amblyscirtes*: problems with species, species groups, the limits of the genus, and genus groups beyond - a look at what is wrong with the skipper classification of Evans (Hesperiidae). *Journal of the Lepidopterists' Society*, 44: 11-27.

Butler, A.G. 1877. On the Lepidoptera of the Amazons collected by James W.H. Trail, Esq., during the years 1873 to 1875. *Transactions of the Entomological Society of London*, 1877(2): 105-156, plate 3.

Cardenas, J. and **Coulson, J.E.** 1967. Weeds of Brazil, a List of Common and Scientific Names. OSU/AID Mimeo 67-13. Corvallis, Oregon: Oregon State University. 16 p. Available at: http://pdf.usaid.gov/pdf_docs/PNRAB151.pdf

Cock, M.J.W. 1981. The Lepidoptera of Nariva Swamp. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 1981-1982: 21-22.

Cock, M.J.W. 1982. The skipper butterflies (Hesperiidae) of Trinidad. Part II. A systematic list of the Trinidad and Tobago

Hesperiidae. *Occasional Papers, Department of Zoology, UWI, St. Augustine, Trinidad*, 5: 49 p.

Cock, M.J.W. 2010. The skipper butterflies (Hesperiidae) of Trinidad. Part 17. Hesperiinae, Anthoptini and the remainder of Evans' genera Group I. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2010: 11-30.

Cock, M.J.W. 2011. The skipper butterflies (Hesperiidae) of Trinidad. Part 18. Hesperiinae, Moncini: eight genera of relatively distinctive species: *Callimormus*, *Eutocus*, *Artines*, *Flaccilla*, *Phanes*, *Monca*, *Vehilius* and *Parphorus*. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2011: 14-36.

Dyar, H.G. 1917. Miscellaneous new American Lepidoptera. *Insecutor inscitiae menstruus*, 5: 65-69.

Evans, W.H. 1955. A Catalogue of the American Hesperiidae in the British Museum (Natural History). Part IV. Hesperiinae and Megathyminae. London: British Museum (Natural History). 499 p., plates 54-88.

Freeman, H.A. 1976. New Hesperiidae records for Mexico. *Journal of the Lepidopterists' Society,* 30: 62-67.

Godman, F. DuC. 1899-1901. Biologia Centrali-Americana. Insecta. Lepidoptera: Rhopalocera. Vol. 2. London: Dulau & Co., Bernard Quaritch, 457-460, pl. 91 (1899), 461-588, pl. 92-100 (1900), 589-782, pls. 101-111 (1901).

Godman, F.D. 1907. Notes on the American species of Hesperiidae described by Plötz. *Annals and Magazine of Natural History, Series 7*, 20: 132-155.

Hayward, K.J. 1938. Hesperioidea Argentina VII. Especies y procedencias adicionales para la fauna Argentina. *Anales de la Sociedad Científica Argentina*, 125(5): 374-383.

Hayward, K.J. 1942. Further new species of Neotropical Hesperiidae from Ecuador (Lep.). *Revista de Entomologia (Rio de Janeiro)*, 12(1941): 521-531.

Hayward, K.J. 1950. Insecta, Lepidoptera (Rhopalocera), familia Hesperiidarum, Subfamilia Hesperiinarum. *In:* **H.R. Descole,** ed. Genera et species animalium argentinorum, 2: [10] + 388 p., 26 plates. Buenos Aires: Guillermo Kraft.

Hemming, F. 1939. Notes on the generic nomenclature of the Lepidoptera: Rhopalocera I. *Proceedings of the Royal Entomological Society*, Series B, 8: 133-138.

Hübner, J. 1818-1831. *Zuträge zur Sammlung exotischer Schmettlinge [sic] : bestehend in Bekundigung einzelner Fliegmuster neuer oder rarer nichteuropäischer Gattungen*. The author; Augsberg, Germany.

Janzen, D.H. and **Hallwachs, W.** 2010. Dynamic database for an inventory of the macrocaterpillar fauna, and its food plants and parasitoids, of Area de Conservacion Guanacaste (ACG), northwestern Costa Rica. http://janzen.sas.upenn.edu (Last accessed 14 April, 2012).

Kaye, W.J. 1914. Additions and corrections to my catalogue of the Lepidoptera: Rhopalocera of Trinidad (1904). *Transactions of the Entomological Society of London*, 1913: 545-585, plate 30.

Kaye, W.J. 1921. Catalogue of the Trinidad Lepidoptera: Rhopalocera. *Memoirs of the Department of Agriculture, Trinidad and Tobago*, 2: 163 p.

Kaye 1940

Lindsey, A.W. 1925. The Cornell University Entomological Expedition to South America of 1919-1920. Scientific results. No. II. Hesperioidea. *Bulletin of the Scientific Laboratories of Denison University*, 21: 71-113.

Longstaff, G.B. 1908. On some of the butterflies of Tobago. *Transactions of the Entomological Society of London*, 1908: 53-57. [Reprinted: *Agricultural Society Paper (Port of Spain)*, 586: 81-87.]

Longstaff, G.B. 1912. Butterfly-hunting in Many Lands. Notes of a Field Naturalist. London: Longmans, Green & Co. 728 p.

Mabille, P. 1891. Description d'hespérides nouvelles. *Annales de la Société Entomologique de Belgique*, 35: lix-lxxxviii, cvi-cxxi, clxviii-clxxxvii.

Mielke, O.H.H. 1992. Notas sinonímicas sôbre Hesperiidae neotropicais, com descrições de novos géneros, espécies e subespécies (Lepidoptera). *Revista Brasileira de Zoologia*, 7(1991): 503-524.

Mielke, O.H.H. 2004. 95. Hesperiidae. p. 25-86. *In* **G. Lamas**, ed. Checklist: Part 4A Hesperioidea – Papilionoidea. Atlas of Neotropical Lepidoptera. Gainesville, Florida: Scientific Publishers.

Mielke, O.H.H. and **Casagrande, M.M.** 2002. Notas taxonômicas em Hesperiidae neotropicais, com descrições de novos taxa (Lepidoptera). *Revista Brasiliera de Zoologia*, 19 (Supplement 1): 27-76.

Plötz, C. 1882-1883. Die Hesperiinen-Gattung Hesperia Aut. und ihre Arten. *Stettiner entomologische Zeitung*, 43 (1882), 314-344, 436-456; 44 (1882), 26-64; 44 (1883), 195-233.

Plötz, C. 1884. Die Hesperiinen-Gattung Apaustus Hüb. und ihre Arten. *Entomologische Zeitung*, 45: 151-166.

Reid, M. and **Warren, A.D.** 2009. A new grass skipper for Texas and the United States: *Mnasilus allubita* (Hesperiidae: Hesperiinae: Moncini). *News of the Lepidopterists' Society*, 51(4): 115-117.

Schaus, W.M. 1902. Descriptions of new American butterflies. *Proceedings of the United States National Museum*, 24 (1262): 383-460.

Sheldon, W.G. 1936. Tobago and its butterflies. *Entomologist*, 69: 1-9.

Williams Jr., R.C. and **Bell, E.L.** 1931. Hesperiidae of the Forbes expedition to Dutch and British Guiana (Lepidoptera). *Transactions of the American Entomological Society*, 57: 249-287, 290, plate 25.