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The Skipper Butterflies (Hesperiidae) of Trinidad
Part 15, Hesperiinae, Genera Group M

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ABSTRACT
Figures of adults and details of the taxonomy, history in Trinidad, description, identification and biology are given for the Trinidad species of Genera Group M: *Hylephila p. phyleus* (Drury), *Polites vibex praeceps* (Scudder), *Wallengrenia otho clavus* (Erichson), *W. premnas* (Wallengren), *Pompeius pompeius* (Latreille), *P. amblyspila* (Mabille), *Anatrytone perfida* (Möschler), *Quasimellana eulogius* (Plötz), *Q. servilius* (Möschler), *Euphyes peneia* (Godman), *Arotis kayei* (Bell), *Metron c. chrysogastra* (Butler) and *M. noctis* (Kaye). Of these, *H. p. phyleus*, *Polites vibex praeceps*, *Pompeius pompeius* and *E. peneia* are also reported from Tobago. Two species, *Atalopodes c. campestris* (Boisduval) and *W. ophites* (Mabille), have been recorded from Trinidad, but are considered to need confirmation. The life history of *Q. eulogius* is described and illustrated.

INTRODUCTION

Evans (1955) characterizes this group as generally tawny; varying from species with no apiculus (all nudum segments on the antennal club), to a well-developed apiculus with equal nudum segments on the club and apiculus; the club is always constricted at the beginning of the apiculus (Fig. 1); the palpi vary from slender and quadrate to flattened (i.e. the inner edge is narrower than the edge against the head) (Fig. 2).

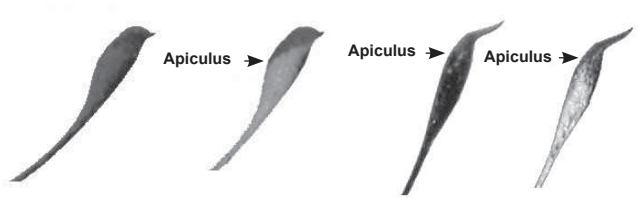

Fig. 1. Antennal club of Group M Hesperiidae. From left to right: male *Hylephila phyleus* dorsal and ventral, male *Anatrytone perfida* dorsal and ventral. The beginning of the apiculus is indicated where apparent.

Fig. 2. Head of male *Hylephila phyleus*, dorsal view.

Evans (1955) treats 182 species in 35 genera for Group M as indigenous to the Americas. Compared to other groups of Hesperiidae, this group is comparatively well represented in North America, with more than 20 genera, several being restricted to the region. Thirteen species of nine genera (not all recognised by Evans) occur in Trinidad, and a further two species have been reported from the island, but are considered to need confirmation. Four species of four different genera are recorded from Tobago.

This group includes several common and conspicuous tawny species associated with open spaces and gardens in Trinidad, notably *Polites vibex praeceps* (Scudder), *Wallengrenia otho clavus* (Erichson), *Pompeius pompeius* (Latreille), and *Quasimellana eulogius* (Plötz). However, several others are uncommon, without clear habitat associations.

To the extent that food plants are known for the Trinidad Group M species, all are grass feeders. It seems likely that many Hesperiinae grass feeders are able to develop successfully on a variety of grasses, even though adult females will not necessarily oviposit on all these different species. Workers such as Laurent (1908) and Dethier (1939) have pointed out that it is quite easy to obtain oviposition by grass feeding field-captured Hesperiinae, and by rearing from these eggs, details of the early stage can be recorded. It is important, therefore, to distinguish carefully field observations of oviposition and caterpillar food plants from observations in captivity, in order to understand the ecology of the different species.

All specimens illustrated are in the author's collection unless indicated otherwise. Similarly, any specimens referred to without attributing a collector or collection, were

collected by the author and are in either the author's collection or the collection of CABI, Curepe, Trinidad. The scale at the bottom of most figures of pinned specimens is in mm. Other conventions and abbreviations follow earlier parts of this series (Cock 2006 and earlier papers). The museum abbreviations can be found in the acknowledgements at the end of the paper.

***Hylephila* Billberg**

This genus is found principally in the Andes and Patagonia, and comprises about 25 rather similar species (Evans 1955; MacNeill and Herrera 1999). The only Trinidad representative is the most common and widespread species: *H. phyleus* (Drury).

231. M6/1 *Hylephila phyleus phyleus* (Drury 1773)
Figs. 3-6.

Evans (1955) treats *H. phyleus* as six subspecies, five restricted to parts of the Andes, and one, ssp. *phyleus*, widespread from USA to Argentina, including all the Caribbean islands (TL Antigua), and also occurring as an exotic species in Hawaii (Tashiro & Mitchell 1985).

Many authors, including Kaye (1904, No. 269; 1921, No. 378), Evans (1955), Barcant (1970) and Cock (1982), mis-spelt this species as *H. phylaeus*. Kaye (1921) considered it abundant in Trinidad. For Tobago, Sheldon (1938) records two males and two females from Roxborough, captured by Frank d'A[badie]; a pair in NHM from the Sheldon bequest labelled Tobago most probably represent two of these.

Both males and females are considered highly variable (Evans 1955), although I have not seen a great deal of Trinidad material so as to be able to characterise this.

Male (Figs. 3, 6). UPS head and body dark brown with tawny hairs, dense on abdomen; UNS white; legs yellow-brown. Antennal shaft and club dark above, and white below; apiculus orange. UPS wings marked in dark brown and yellow-orange; brand black, along base of space 2 and across space 1. UNS light yellow-brown with dark submarginal and discal spots, and space 1B UNH dark. UNH spots are variable: in some specimens, they are distinct, dark and contrasting, ranging to others, in which the spots are barely distinguishable from the ground colour. F male 15 mm.

The extensive yellow-orange markings UPS resemble those of *Polites vibex praeceps* (Figs. 7, 9), but in *H. phyleus* the outer margins are more sharply defined, and the scalloping more extensive and deeper, especially UPH (compare Fig. 3 and Fig. 7); furthermore, the stigma of *P. vibex praeceps* (Figs. 7, 9) has a large broad grey area, whereas that of *H. phyleus* is plain black (Fig. 3). In the field or in photographs, if only the UNS is visible (Fig. 6), *H. phyleus* should be recognisable by the generally sharper edges to the dark spots, together with the straight alignment to the margin of the spots in spaces 2-5 UNH. In contrast *P. vibex praeceps* has the dark spots more diffuse and the UNH spots in a submarginal band (Fig. 7). Finally, the antennae of *H. phyleus* are proportionately shorter than others of the group, and this character may be useful in the field.

Fig. 3. *Hylephila phyleus phyleus* male, Nariva Swamp, Sand Hill, at *Bidens* flowers, 17.iv.1982.

Female (Figs. 4, 5). Strong sexual dimorphism. Head, antennae and body as male. UPS wings dark brown with orange-brown markings, and pale brown spots in spaces 1-4 and cell UPF. UNS dull pale orange-brown, except the discal and dorsum area UNF dark, space 1B UNH dark and space 1C UNH pale; the UPS orange-brown markings are evident as pale yellow markings, and the light brown spots of UPF as paler spots; dark spots UNS less extensive than in male. The size of the pale spots UPS and UNS is variable. Specimens with reduced spots (e.g. Fig. 4) seem more common, but in others, the spots are quite extensive and run into each other (Fig. 5).

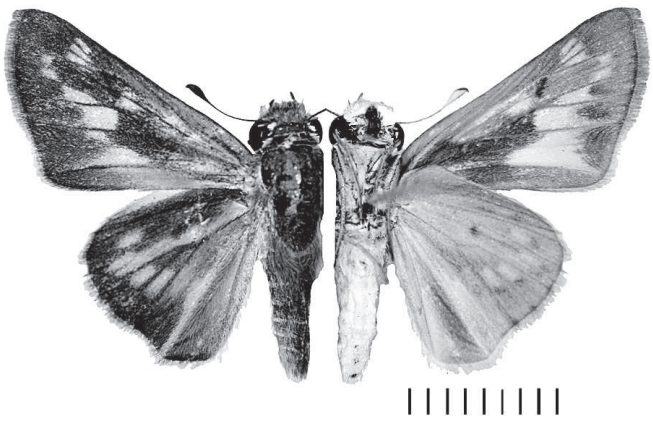

Fig. 4. *Hylephila phyleus phyleus* female, Cats Hill, eupatorium flowers, 19.ix.1982.

The combination of well-defined orange-brown spots UPS and light brown spots UPF is distinctive. The male of *Quasimellana eulogius* is superficially similar, but lacks the light brown spots UPF (Fig. 22). If only the UNS is visible, the dark spots and pale yellow spots UNH should help to distinguish this species from others found in Trinidad. F female 16.5 mm.

Fig. 5. *Hylephila phyleus phyleus* female, Rio Claro-Guayaguayare Rd., milestone 4½-5½, eupatorium flowers, 1.x.1994.

Illustrations in Lewis (1973, UPS, plate 22.7), Riley (1975, plate 23), Smith *et al*. (1994, plate 30), Brévignon & Brévignon (2003, live female) and a variety of internet sites, including DCLS (2007) and UC (2007).

In Trinidad, this is not a common species, although sometimes several can be found together, e.g. at flowers of *Austroeupatorium inulaefolium* on the Rio Claro - Guayaguayare Road, milestone 4½-5½, 1.x.1994. It seems to be restricted to open, lowland situations with plenty of flowers, such as *Bidens pilosa* and eupatorium, on which it readily feeds. I have seen one male from a light trap in Curepe, xi.1971 (CABI).

Fig. 6. *Hylephila phyleus phyleus* male, Rio Claro - Guayaguayare Rd., milestone 4½ - 5½, 1.x.1994.

In addition to the Roxborough specimens reported by Sheldon from Tobago, J. Morrall (pers. comm. 2006) has a specimen from Rockley Bay, taken ix.2002. It seems likely that this is also an occasional species in Tobago.

Shapiro (1975) describes mate location and courtship observed on the lawns of the University of California. Males perch on raised objects on the lawn, such as leaves and grass stems, and fly to investigate anything that flies past.

This skipper is a minor lawn pest in parts of its range, particularly in California and Hawaii, USA (Potter & Braman 1991). Caterpillars are seldom seen since they remain concealed in lightly woven silken tubes in the thatch area, i.e. the area of brown grass material between the soil and the green leaves and stems. Pupation often occurs in grass near the surface of the soil in a loosely woven cocoon covered with leaf litter debris, but if debris is not available, the pupa may be free in the grass-root zone (Tashiro & Mitchell 1985).

Grass food plants are recorded from North America: *Agrostis* spp., *Cynodon dactylon* (Bermuda grass), *Eragrostis hypnoides*, *Imperata cylindrica, Digitaria* spp., *Poa pratensis, Sorghum halapense* (Johnson grass), *Saccharum officinarum* (sugar cane), *Stenotaphrum secundatum* (St. Augustine grass), and *Zea mays* (corn) (Bryson & Sudbrink 2000; DCLS 2007; Kendall 1959; Scott 1986; UC 2007).

In addition, Scott (1986) lists *Axonopus compressus* and *Paspalum conjugatum* from the Caribbean. In Jamaica, *Cynodon dactylon*, *Panicum sanguinale* and *Paspalum conjugatum* are food plants (Brown & Heineman 1972; Panton 1897), but it is not clear whether T. Turner's record of *A. compressus* in Brown & Heineman (1972) refers to a field host or captive rearing.

Grasses are also the food plants recorded from South America: sugar cane in Argentina (Box 1953); *Digitaria sanguinalis, Panicum repens*, *Paspalum pumilum*, *P. cromyorrhizon*, *Stenotaphrum secundatum* in Zona Sueste of Rio Grande do Sul, Brazil (Biezanko 1963); *Agrostis*, *Cenchrus*, *Cynodon* and *Eriochloa* spp. (sources in Canals (2003)). I think the record of *Canna* spp. (Cannaceae) in Hayward (1941) must be an error.

Several North American workers have described the life history, including Coolidge (1925) in California. Panton (1897) provides a detailed description from Jamaica, which is quoted in full by Brown and Heineman (1972). Brévignon and Brévignon (2003) illustrate the egg, caterpillar and pupa in colour from the French Antilles. UC (2007), Minno *et al.* (2005) and Wagner (2005) illustrate the caterpillar. The illustrations of egg, caterpillar, pupa and adult in DCLS (2007) are excellent. The caterpillars in all these sources is dark grey-brown with narrow, dark

dorsal and dorso-lateral lines, while the head is mat black and rugose with pale adfrontal sutures, a diffuse line each side of the epicranial suture, and white before the black dorsal plate on T1.

This is in contrast to other reports: pale green caterpillar with darker stripes, black dorsal plate T1, and light brown head from Georgia, USA (based on an original painting by John Abbot (USC 2007, image No. 47) published in Boisduval and LeConte (1829-1837)); a dull green caterpillar, thickly granulated with pale points, and dark brown dorsal plate T1 and head in Florida (Edwards 1879), a light green caterpillar from Brazil (Moss 1949), and a green striped caterpillar with a dark brown head (Riley 1975; no source attributed, but likely to be Boisduval and LeConte (1829-1837)). Since all modern observations of this species from North America are of dark grey-brown caterpillars, it seems that the caterpillar illustrated by Abbot (USC 2007) is incorrectly associated with this species, and this has given rise to subsequent confusion, e.g. Riley (1975) and Scott (1986). Moss (1949) is generally reliable, but his notes on this species are extremely brief, and there is no illustration, so a lapse is not impossible. On balance, there seems no reason to expect the caterpillar of this species, when found in Trinidad, to differ from those described and illustrated from North America and the Caribbean.

I have found no reports of food plants or pest status of this species in Trinidad and Tobago, for example, it is not mentioned in the account of turf pests by Laurence (1987). This might reflect the use of less suitable grasses for lawns in Trinidad, or effective natural enemies, or some other reason.

232. M13/1 *Polites vibex praeceps* (Scudder 1872)
Figs. 7-9.

Evans (1955) treats this species as seven subspecies, of which *praeceps* occurs from Mexico (TL) to northern South America. Other subspecies extend the range north to the southern USA, and south to Argentina. Subspecies *dictynna* (Godman & Salvin) occurs in the Lesser Antilles (TL St. Vincent).

Crowfoot (1893, No. 184) included this species in the original list of Trinidad butterflies as *Pamphila vibex*. Kaye (1904, No. 270; 1921, No. 379) includes it as *Thymelicus vibex*, noting that it is as common as *H. phyleus* (above), which he considered abundant. Sheldon (1936) records a specimen from Charlotteville (Sir N. Lamont).

Male (Figs. 7, 9). Similar in markings and colouring to *H. phyleus* (above) under which species, differences are discussed. The brand is narrowly black against the base of space 2, and broadly grey distal to this from base of vein 3, along base of space 2 and across vein 1. The uniform orange-brown UPH discal area should distinguish the male from other species. F male 17 mm. Illustrations in Barcant (1970, UPS, Fig. 6), Lewis (1973, UNS, plate 22.38).

Fig. 7. *Polites vibex praeceps* male, Fort George, 27.ii.1994.

Female (Fig. 8). Strong sexual dimorphism. UPS head and body dark brown with brown hairs; UNS head and body pale. UPS dark brown with tawny scales and hairs basally UPF and on UPH; white hyaline spots in spaces 2, 3 and 6-8, diffuse pale brown spot in lower space 1B. UNF brown, tawny on basal half costa, pale brown spot 1B, larger than UPS, covering width of space. UNH khaki brown, paler basally and in space 1C, broad pale discal band across spaces 2-7, the spots in spaces 4 and 5 displaced towards margin. At first sight, the female might be mistaken for one of several superficially similar species in other groups, but examination of the antennal club should immediately separate these. The female of *Pompeius pompeius* is superficially similar (Fig. 15), but has white hyaline spots in spaces 4 and 5 UPF, and the UNH is more variegated, with the spots in spaces 4 and 5 in line with those in spaces 2 and 3. F female 17 mm.

Fig. 8. *Polites vibex praeceps* female, Curepe, iii.1980.

This is one of the commonest skippers in Trinidad, found everywhere in open areas and along roadsides in forested areas. It comes readily to flowers, including *Bidens pilosa*, eupatorium, lantana and *Stachytarpheta* spp. I have seen a specimen from Gasparee (male 11.iii.1928, N. Lamont, RSM). The only recent records from Tobago of which I am aware are those of J. Morrall (pers. comm. 2006), who has taken several specimens at Rockley Bay, Tobago; it is probably sometimes common on the island.

Fig. 9. *Polites vibex praeceps* male, Palo Seco Oilfield, 7.x.1998.

The early stages of ssp. *vibex* (Geyer) have been described from eastern North America by Scudder (1889) and from Florida by Edwards (1879 as *Pamphila brettus* (Boisduval and LeConte), a synonym), and summarised by Smith *et al.* (1994). Minno *et al*. (2005) describe and illustrate the caterpillar from Florida. Edwards (1879) reports oviposition on *Paspalum setaceum*, whereas Kendall (1965) reports oviposition on *Stenotaphrum secundatum* (St. Augustine grass) and *Cynodon dactylon* (Bermuda grass) in Texas, while Minno *et al*. (2005) give the food plants as weedy grasses including *Digitaria ciliaris* and *S. secundatum*. Apart from an unconfirmed oviposition record on *Smilax campestris* (Liliaceae) in Rio Grande do Sul, Brazil (Biezanko 1963), I have located no food plant records for ssp. *praeceps* from South America.

The caterpillar lives in a tubular leaf shelter; it has a black head with a pale line each side of the epicranial suture (similar to *H. phyleus*); dorsal plate T1 black; body pale green with dark spiracles and prolegs (Minno *et al*. 2005).

233. M14/1 *Wallengrenia otho clavus* (Erichson 1848)
Figs. 10-11.

This skipper was treated as *Wallengrenia druryi curassavica* (Snellen) by Evans (1955) and Cock (1982); the correct spelling has now been established as *drury* (Mielke 2004).

Burns (1994) points out that *clavus* has previously been misidentified (as what is now known as *Anatrytone perfida*) and is in fact the senior name for the subspecies previously known as *Wallengrenia druryi curassavica*. Burns (1994) leaves the status of this taxon open, referring to it as *W. clavus*, but suggesting it may prove to be a subspecies of *otho* J. E. Smith. Smith *et al*. (1994) treat *W. drury* (Latreille) as a separate species, restricted to Hispaniola, Puerto Rico and some nearby islands; their taxonomy is based on J. Miller (unpublished). Mielke and Casagrande (2002) introduce the combination *Wallengrenia otho clavus*, which Mielke (2004) follows for the Neotropical checklist. Subspecies *clavus* occurs from the south of Texas – records of ssp. *curassavica* from this region are considered to refer to *clavus* (A. Warren pers. comm. 2007) – south to Brazil (Evans 1955). Other subspecies occur from Canada to Argentina (Evans 1955), and separate species or subspecies on almost all the Caribbean islands: *vesuria* Plötz from Jamaica, *misera* Lucas from Cuba (TL) and northern Bahamas, *drury* from the Bahamas, Turks & Caicos, Hispaniola, Puerto Rico and the Virgin Islands, and *ophites* (Mabille) from the Lesser Antilles south to St. Vincent (Smith *et al*. 1994). Here, I follow the treatment of Mielke (2004) pending the publication of J. Miller's investigations. Furthermore, although the published observations on the caterpillars of the Caribbean subspecies suggest that they may well be valid species, the relationship between ssp. *otho* and ssp. *clavus* remains unclear.

Kaye (1914; 1921, No. 381) reports *Catia pustula* (Hübner) from Trinidad, based on a male from St. Ann's Valley in H. J. Adams' collection (now in the NHM), and *Pamphila misera* Lucas (Kaye 1914; 1921, No. 377) based on another male from St. Ann's Valley (G. E. Tryhane). Hübner's *pustula* is a synonym of ssp. *otho* and as noted above, *misera* is the Cuban subspecies. Both records are assumed to refer to *Wallengrenia otho clavus*. There are three male *W. o. clavus* from St. Ann's Valley in the NHM, which probably include one or both of these specimens.

Male (Fig. 10). UPS head and body dark brown with orange-brown setae and hairs, UNS pale; legs yellow-brown. Antennal shaft dark above, chequered below; apiculus orange-brown. UPF dark brown, orange-brown basally, extending distally along costa, space 3 and space 1A. Conspicuous and distinctive brand: an intense black line along base of space 2, adjacent to base of this, across space 1B, a broad, grey, quadrate area over vein 1B, and basal to the lower half of this, a black spot. UPH brown with diffuse orange-brown markings, strongest in cell and spaces 4-5. UNF costa and apex to space 3 orange-brown; tornal half blackish-brown, most intense at base. UNH rather uniformly pale yellow-brown with only traces of

pale yellow markings. F male 16 mm. The UPS markings and brand are distinctive, but the UNS is similar to that of *Anatrytone perfida* (Figs. 20, 21), *Quasimellana eulogius* (Figs. 22, 26) and *Q. servilius* (Möschler) (Fig. 32), and not easily separated in the field without seeing the UPS.

Fig. 10. *Wallengrenia otho clavus* male, Curepe, at flowers, 7.x.1979.

Female (Fig. 11). Strong sexual dimorphism. Head, antennae and body as male, except apiculus brown. UPF dark brown with costa diffuse orange-yellow, and yellow spots in lower space 1B, 2, 3, 4, 6-8, cell. UPH dark brown with disc diffuse orange-brown, a large and diffuse orange-brown spot in spaces 4-5. UNF costal half orange-brown as male, spots yellow; tornal half dark, more intense basally. UNH uniform light orange-brown, with indistinct yellow spots in space 2, 3, 4-5, 6 and 7. F female 15.5 mm. The diffuse orange-brown spots, especially in spaces 4-5 UPH, should make this species easy to recognise – some superficially similar species in other groups being separated by examination of the antennal club.

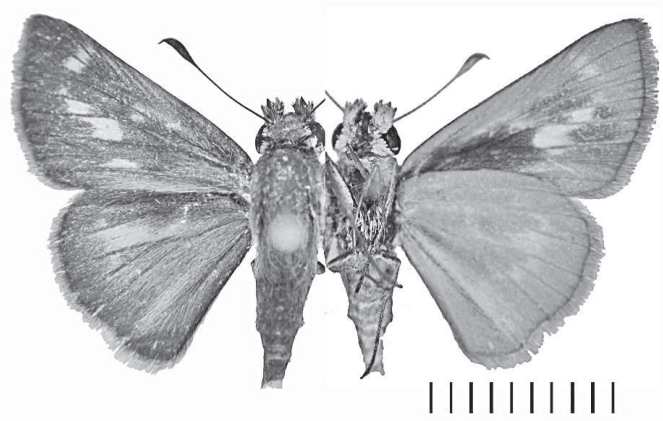

Fig. 11. *Wallengrenia otho clavus* female, Fort George, 27.ii.1994.

This is a common species in Trinidad, found everywhere in open spaces with flowers and along roadsides in forested areas. Cock (1981a) reported it from Nariva Swamp.

I have found no published records of the life history or food plants of *W. otho clavus* from Trinidad, or elsewhere in its range. Therefore published observations on the biology and food plants of other subspecies or *W. otho* may be helpful to anticipate the situation with regard to *W. otho clavus* in Trinidad.

Kendall (1959) observed that in Texas, caterpillars of *W. otho otho* feed readily on St. Augustine grass, *Stenotaphrum secundatum*. In his rearing they made a shelter of a circle of tissue paper (used to line the rearing container) folded in half and carried this around as a mobile shelter; as the caterpillars grew, bigger cases were constructed. Presumably, caterpillars do this using leaf material in the field – Minno *et al.* (2005) refer to a case of grass clippings and silk.

Wolcott (1922) notes that *W. o. drury* is the commonest skipper on sugar cane in Hispaniola, but also feeds on rice and other coarse leaved grasses. He briefly describes the caterpillars of *W. otho drury* from Hispaniola as "green with purplish-brown head, variably marked with silvery or greenish-yellow".

In Cuba, (Dethier 1939) records *W. otho misera* from sugar cane, describes the egg and first four instars and includes a diagram of the head of the fourth instar. The head is black with a broad white stripe from the vertex across each half of the epicranium to the stemmata, body mottled white and dark ferruginous, orange spots on T3 - A8 on stigmatal line; short black hairs from black tubercles; legs fuscous.

Brévignon and Brévignon (2003) note the grasses *Oplismenus hirtellus* and *Rottboellia cochinchinensis* (exotic) as food plants of *W. o. ophites* (as *W. ophites*) in Guadeloupe. They illustrate the egg, caterpillar and pupa from Marie Galante and Guadeloupe. The caterpillar, presumably in the fifth instar, has the head black with a sharply demarcated white line down each side of the epicranial suture, a white spot over or in front of the stemmata; the neck is white anterior to the black transverse plate on T1; body grey-brown in colour, with a dark dorsal line and two pale lateral lines.

Minno *et al*. (2005) give grasses such as *Eleusine indica* as food plants for ssp. *otho*. DCLS (2007) gives more detail, listing the following grass food plants: *Digitaria sanguinalis*, *Oryza sativa* (rice), *Saccharum officinarum* (sugar cane), *Stenotaphrum secundatum* (St. Augustine grass) and *Paspalum* sp. The records on rice and sugar cane may be based on those listed by Scott (1986) from Puerto Rico, which would actually be for ssp. *drury*.

Thus, the food plant records of other ssp of *otho*, in-

dicate that ssp. *clavus* in Trinidad will include sugar cane and other coarse grasses amongst its food plants.

The larva of *W. otho otho* is described and illustrated by Minno *et al*. (2005) from Florida. The head, dorsal plate T1, and true legs are black; body dark greenish-brown with orange marking laterally on the thorax.

J. E. Smith named *otho* from Georgia, USA, based on paintings of the adults, caterpillar and pupa by John Abbot (Smith & Abbot 1797). Abbot's paintings show a greenish caterpillar with longitudinal lines and a brown head (MBG 2007; USC 2007, image No. 47). Calhoun (2006), in his analysis of Smith & Abbot (1797), notes that the caterpillar illustrated is not compatible with US species of *Wallengrenia*.

Riley (1975) describes the caterpillar of "*Wallengrenia otho*" as having a chocolate brown head, but does not attribute this character to any particular subspecies or origin – this description is likely to have been derived from the original illustrations in Smith & Abbot (1797).

Scott's (1986) description of the caterpillar of *W. otho* combines features of the caterpillar illustrated by Smith and Abbot (1797), *W. otho drury* from Hispaniola (Wolcott 1922), and the fourth instar of *W. o. misera* from Cuba described by Dethier (1939).

The early stages of the different subspecies of *W. otho* might be expected to be similar. However, it seems clear that the caterpillars of ssp. *otho* as illustrated by Minno *et al*. (2005), ssp. *drury* (Wolcott 1922), the fourth instar of ssp. *misera* (Dethier 1939), and ssp. *ophites* (Brévignon and Brévignon 2003) are sufficiently different that Smith *et al*. (1994) are likely to be correct in treating these as separate species. Well-documented life histories might provide conclusive support for treating these subspecies as valid species. Hence, recording the life history of ssp. *clavus* from Trinidad would be a useful contribution to clarifying the taxonomy of this group.

233a. M14/1 *Wallengrenia otho ophites* (Mabille 1878)

As discussed under the last species, Mielke (2004) treats *ophites* as a subspecies of *W. otho*, but Smith *et al.* (1994) treated the different Caribbean subspecies of *otho* as distinct species, and given the apparent differences between the caterpillars noted above, this is likely to be correct.

Smith *et al*. (1994) give the distribution of *W. ophites* as the Lesser Antilles, as far south as St. Vincent and Trinidad. The Trinidad record is based on a single male of *W. ophites* in the Carnegie Museum of Natural History, Pittsburgh (J. Miller, pers. comm. 2007). The label data specifies Trinidad and S. H. Parrish (J. Miller, pers. comm. 2007), and I take the latter to be the name of the collector.

The absence of this species from Grenada and Tobago, and lack of further material from Trinidad make this record suspect, especially since such a brightly coloured orange species is unlikely to have been overlooked by other collectors. The specimen from Trinidad may represent a vagrant, a temporary colony now extinct, or it could be mis-labelled. Thus, this subspecies or species needs confirmation before inclusion in the Trinidad fauna.

The male is much more extensively orange than that of *W. otho clavus*. The UPF has only the margin dark brown, except that the grey quadrate brand area extends to the margin in spaces 1A-2. UPH and UNH almost entirely orange. The female is less distinct, but has more extensive orange markings than that of *W. otho clavus*. Illustrations in Riley (1975, male, plate 15b), Smith *et al*. (1994, male and female, plate 31.11), and Brévignon & Brévignon (2003, male).

As noted above, the life history is illustrated by Brévignon & Brévignon (2003) from Marie Galante and Guadeloupe, and the grasses *Oplismenus hirtellus* and *Rottboellia cochinchinensis* (exotic) are given as food plants.

234. M14/2 *Wallengrenia premnas* (Wallengren 1860)
Figs. 12-13.

This species occurs in South America from Venezuela to Argentina (TL), but is seldom common anywhere (Evans 1955).

Referring to a specimen captured near Cap de Ville, 1.iv.1929 by Huntingdon, Kaye (1940, No. 381d) added this species to the Trinidad list as *Catorina pudorina* (Plötz), which is a synonym of *W. premnas* (Evans 1955).

Male (Fig. 12). UPS dark brown; UPS head and base of wings slightly tawny; UPS thorax dark chestnut. Antenna dark above, weakly chequered below; club pale below; apiculus chestnut. No spots UPS; fringe pale brown, shading to brown at apex F. Complex brand: black dash along cubitus from middle of base of space 2 to over origin of vein 3, narrowed basally, rounded distally; below base of this a short, narrow silvery streak, parallel to vein 2; a similar but shorted streak below the base of last under vein 1; the area distal to these dark grey about 1/3 of way to margin; basal to last streak a circular black brand in middle of space 1B. Antenna dark above; UNS shaft chequered; UNS club pale brown; apiculus chestnut. UNS head pale; palp 2 speckled with tawny and black, darker distally; palpi 3 brown; UNS thorax chestnut brown; UNS abdomen grey. UNF costa and apex chestnut brown to vein 2; disc, termen and dorsum dark grey; faint pale spot in space 2. UNH chestnut brown, darker basal to discal

band of diffuse yellow-brown spots in spaces 2-7; space 1B dark grey; fringe grey. F male 16 mm.

Fig. 12. *Wallengrenia premnas* male, Arima-Blanchisseuse Road, milestone 9¼, 8.x.1994.

Female (Fig. 13). Similar to male, but with stronger markings: UPF diffuse pale brown spots in spaces 2-3, 6-8; UNF with pale spots in upper space 1B and 2; yellowish spots in spaces 3 and 4. F female 16 mm.

Fig. 13. *Wallengrenia premnas* female, Arima-Blanchisseuse Road, milestone 9¼, Textel Road, at *Austroeupatorium inulaefolium* flowers, 8.x.1979.

This is not a common species in Trinidad, occurring mostly in the Northern Range, particularly on the ridge-tops around the Arima Valley (MJWC), but also to the west of Port of Spain on Cumberland Hill and North Post (S. Alston-Smith, pers. comm. 2006). It also occurs in some lowland areas such as Maracas Bay, Piarco and Waller Field, and I know of just one record from the south of the island (Irois Forest, vii.2003, J. Morrall). Adults come readily to flowers such as *Bidens pilosa* and eupatorium.

Biezanko (1963) lists several grasses as food plants in Zona Sueste, Rio Grande do Sul, Brazil: rice (*Oryza sativa*), *Echinochloa crus-galli*, *Stenotaphrum secundatum* and *Leersia hexandra*. I have found no further information on the life history.

235. M15/1 *Pompeius pompeius* (Latreille 1824)
Figs. 14-16.

This common and widespread species occurs from Mexico to Argentina (TL Brazil), but not on the Caribbean islands (Evans 1955). In the older literature, it is referred to as *athenion* Hübner, which is a nomen nudum (Evans 1955; Mielke 2004).

Crowfoot (1893, No. 188) first recorded this species from Trinidad as *Pamphila athenion*. Kaye (1904, No. 271; 1921, No. 380) reports this species as *Thymelicus athenion*, based on a single specimen which he took in June 1898.

Sheldon (1936, 1938) does not record this species from Tobago, but there is a male in the NHM captured 1-4.ii.1931 by Capt. A. K. Totton, and listed by Evans (1955).

Male (Fig. 14). UPS dark brown; base of costa, head, thorax and disc UPH slightly tawny; obscure pale spots in spaces 2-8; vein 1 and cubitus in space 1B blackish; fringe pale brown, shading to brown at F apex. Complex brand: a thin straight black brand over cubitus, covering upper 2/3 of base of space 2 and covering origin of vein 3; a narrower black brand runs from below origin vein 3, across space 2, where it is interrupted and continues as a short dash under vein 2; on either side of this brand, a more or less circular dark grey area; a black triangle with its base on vein 1, basal to other brands and just beyond origin of vein 2. Antennal shaft dark above, pale at base of club, which is black above with chestnut apiculus; UNS of shaft chequered basally, pale brown distally and under club. UNS of head almost white; palp 2 slightly brown, palp 3 brown; UNS thorax and abdomen pale brown. UNF pale brown; spots of UPF more distinct and a pale patch in space 1B; discal area basal to spots blackish; fringe pale brown. UNH pale brown, variegated with brown discal band; margin narrowly brown. F male 15 mm.

Fig. 14. *Pompeius pompeius* male, Curepe, MV Light, 28.ix-4.x.1981.

Female (Figs. 15, 16). Similar to male, but UPF spots clearly defined, including a spot in space 1B on vein 1; UPH with obscure pale spots in spaces 2-6, the last displaced basally. F female 17 mm.

Fig. 15. *Pompeius pompeius* female, Curepe, 1.ix.1980.

This is a common and widespread species in Trinidad, found everywhere in open spaces with flowers and along roadsides in forested areas. I have noted adults feeding at flowers of *Bidens pilosa*, eupatorium and petraea.

Fig. 16. *Pompeius pompeius* female, at *Austroeupatorium inulaefolium* flowers, Brasso, 1.x.1993.

Janzen and Hallwachs (2007) include one record reared from an un-named Poaceae in Costa Rica. I have found no other information on the life history and food plants.

236. M15/4 *Pompeius amblyspila* (Mabille 1897)
Figs. 17-18.

This species is reported from Mexico to Argentine (TL Bolivia), but is not normally common (Evans 1955). However, records from Mexico all refer to *Joanna joanna* Evans (Warren 2002; Warren *et al.* 2007). *Pompeius amblyspila* has not been reported from Trinidad before.

Phlebodes chittara Schaus was described from Trinidad (Schaus 1902), but Evans (1955) lists *chittara* (Schaus) as a possible synonym of *P. amblyspila*. Mielke (2004) considers *chittara* to be a Brazilian species of *Psoralis*, and treats this type locality as an error. I have examined the type in USNM and agree with Mielke (2004) that it does not represent a Trinidad species.

I have females from Piarco (16.i.1982) and Aripo Savannah (12.viii.1979), and SAS has a female from Toco (iv.2000). It may, therefore, be associated with lowland, open areas with low vegetation.

Male (Fig. 17). I have seen no specimens from Trinidad. UPS brown with extensive yellow-brown shading basally. Well marked black stigma. UPF pale spot in space 1B against vein 1; yellowish hyaline spots in cell and spaces 2-8. UPH faint discal band. UNS brown, with heavier pale spot in space 1B UNF, and whitish spots in spaces 1C-7 UNH.

Female (Fig. 18). Moderate sexual dimorphism. UPS brown; pale non-hyaline spots; fringe pale grey-brown. UNS head pale white-brown; antennal shaft chequered for basal 2/3, pale beneath for remainder, and under base of club. Club dark, apiculus dark chestnut; thorax and abdomen UNS pale brown. UNS pale brown; disk and dorsum UNF, space 1B and lower half IC UNH brown; UNH indistinct pale spots in spaces 1C-7. F female 13.5 mm.

Fig. 17. *Pompeius amblyspila* male, Venezuela; UPS in NHM; UNS in USNM.

Fig. 18. *Pompeius amblyspila* female, Piarco, 16.i.1982.

Theses two females are smaller than typical, so may represent a small island race or a different species, so confirmation of this record with males is desirable. Cock (1982) misidentified this material as *Vehilius inca*, which does not seem to be a Trinidad species.

237. M16/1 *Atalopedes campestris* (Boisduval 1852)
Fig. 19.

This species is common and widespread in the USA (TL California), and its range extends south to Venezuela and Brazil (Evans 1955). The genus was mis-spelt *Atalopodes* in Cock (1982).

Kaye (1940, No. 381c) introduced this species to the Trinidad list, referring to a specimen he captured in Port of Spain (17.ii.1926), and commenting "Doubtless this species has hitherto escaped detection by being confused in the field with *Thymelicus vibex*." This specimen, a male, is in MGCL (A. D. Warren, pers. comm. 2007). I have seen no other Trinidad specimens, so for the moment, this record remains a puzzle, which needs confirmation for the Trinidad list.

The male has a stigma UPF flanked by black patches and set in a large area of specialised scales (Evans 1955) (Fig. 19). Illustrations in Lewis (1973, male UNS, plate 21.14) and Smith *et al*. (1994, male and female, plate 30.19).

Fig. 19. *Atalopedes campestris* male, Venezuela; specimen in USNM.

Smith *et al*. (1994) summarise information on the life history, which is completed on a wide variety of grasses including St. Augustine grass, *Stenotaphrum secundatum* and Bermuda grass, *Cynodon dactylon* (Kendall 1959).

***Anatrytone* Dyar**

Burns (1994) established that *Anatrytone* Dyar, which had been treated as a synonym of *Atrytone* Scudder (e.g. Evans 1955), is a valid genus. Furthermore, the type species of *Mellana* Hayward belongs to the reinstated genus *Anatrytone*, so that *Mellana* is a synonym of *Anatrytone*. However, many species hitherto treated as *Mellana* are not congeneric with this type species, and for these, Burns (1994) created the new genus *Quasimellana* Burns, treated below.

238. M25/3 *Anatrytone perfida* (Möschler 1879)
Figs. 20-21.

Evans (1955) treats this species partly as *Mellana clavus*. Burns (1994) showed that Evans (1955) misidentified *clavus*. The next available name for the species Evans treated as *Mellana clavus* is *perfida* Möschler (TL Colombia). Since Burns (1994) also showed that *Mellana* is a synonym of *Anatrytone*, the correct name is now *Anatrytone perfida* (Möschler) (Burns 1994; Mielke 2004, 2005). It occurs from Colombia to northern Argentina, including Trinidad (Burns 1994).

Kaye (1940, No. 426a) introduces this species to the Trinidad list as *Atrytone mella*, based on a specimen captured at Palmiste, 7.xi.1929, by Sir Norman Lamont, and states that it is not common. This specimen, a female, is now in RSM.

Male (Fig. 20). UPS brown with extensive orange tawny markings; cilia paler. No brand. UNS head pale yellow-brown; apex of labial palp slightly more intense, orange UPS, segment 3 dark above only; antennal shaft chequered, club pale beneath, apiculus chestnut; UNS thorax tawny; UNS abdomen pale. UNS wings bright yellow-brown; diffuse pale area space 1B UNF; remainder of dorsum blackish-brown. F male 17 mm.

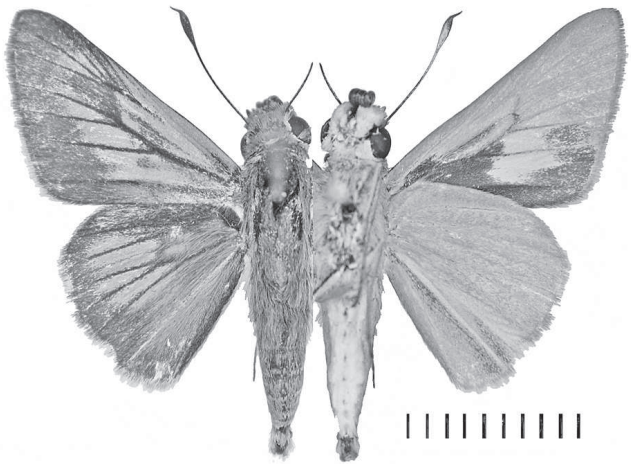

Fig. 20. *Anatrytone perfida* male, Nariva Swamp, Bush Bush Island, 28.iii.2003.

Female (Fig. 21). Strong sexual dimorphism UPS. UPS brown; tawny scales at base of costa UPF and across disc UPH, except veins; UPF yellow-orange spots in spaces 1B-3, 6-8; cilia pale, brown at apex UPF. UNS similar

to male, but a slightly darker shade of yellow-brown. F female 20 mm.

Fig. 21. *Anatrytone perfida* female, Parrylands Oilfield, 22.xii.1980.

This species is closest in colour and markings to *Quasimellana eulogius*, and differences are discussed under that species.

I agree with Kaye (1940) that this is not a common species in Trinidad, but have 21 scattered records from lowland areas of the island, including three from around Nariva Swamp.

This species is reported to have been reared from sugar cane, mostly on the basis of a synonym, *gladolis* Dyar, the type material of which was reared from sugar cane by H.W. B. Moore in Guyana (Box 1953; Dyar 1914; Hall 1939).

Moss (1949) has reared this species at Para (Belem, Brazil) from sugar cane and a wild cane. His paper includes no further observations, but there are reared adults, a pupa case and a cast final instar skin and head capsule in the NHM. The head capsule is 3 mm high, rounded, light brown, with a diffuse brown line parallel to the epicranial and adfrontal suture; the clypeus is missing; anal plate longer than wide, parallel sided, with rounded distal end; no white waxy powder. The pupa is c. 25 mm long; rather cylindrical, only tapering from A7; brown, lighter on abdomen; frontal plate missing; robust, blunt cremaster; brown backward directed setae on A7-8, and ventrally on A5-6; proboscis sheath extends to just short of cremaster.

I know of no information on the life history or food plants from Trinidad.

Quasimellana Burns

Burns (1994) established the new genus *Quasimellana* for many of the species previously placed in *Mellana*, including *eulogius* and *servilius* (= *verba* Evans) (see also under *Anatrytone*, above).

239. M25/7 *Quasimellana eulogius* (Plötz 1883)
Figs. 22-31.

This widespread species is reported from Mexico (TL) to Paraguay (Evans 1955).

Surprisingly, this common species was not recorded from Trinidad until Kaye (1940) recorded it in a footnote to his entry for "*Atrytone mella*", stating that it was recorded by Sir Norman Lamont. The earliest specimens of this common species that I have located date back to 1937 (Sir Norman Lamont in UWI and RSM), so it may well be that this species was previously overlooked. Alternatively, could it have been a recent colonist?

Male (Figs. 22, 26). UPS brown with orange tawny markings; cilia brown. No brand. UNS head pale yellow-brown; apex of labial palp slightly more intense, orange UPS, segment 3 dark; antennal shaft chequered, club pale beneath, apiculus chestnut; UNS thorax tawny; UNS abdomen pale. UNS wings bright yellow-brown; diffuse pale area space 1B UNF; other markings blackish-brown. F male 17 mm. Since the range of this species extends into North America, there are many images available on the internet, often as "*Mellana eulogius*". The male genitalia are illustrated by Godman and Salvin (1879-1901, plate 94) as *Atrytone mellona* Godman (a synonym).

The UPS tawny orange markings are brighter and more extensive than those of *Quasimellana servilius*, while the UNS is a brighter yellow. The UNS is similar to *A. perfida*, but the UPS tawny markings are more continuous in *A. perfida*. Similarly, *Hylephila phyleus*, *Polites vibex praeceps* and *Wallengrenia otho clavus* have more extensive orange markings, but all three also have strong UPF brands. The tawny species of Group I are superficially similar, but in those species the tawny markings extend across space 1B UPF towards the base of the wing.

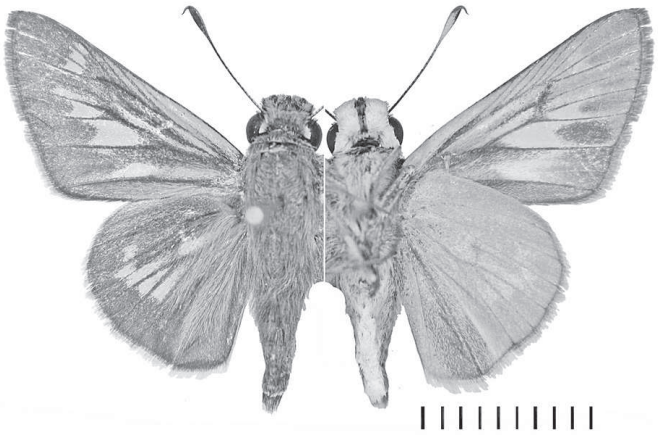

Fig. 22. *Quasimellana eulogius* male, Golden Grove, *Bidens* flowers, 25.viii.1978.

Female (Figs. 23, 24). Strong sexual dimorphism. Variable markings. UPS brown; tawny scales at base of

UPF; tawny setae space 1A UPF and disc to termen UPH; pale yellow spots in spaces 1B, sometimes 5, and in 6-8 (partly hyaline); pale hyaline spots in spaces 2 and 3, sometimes in 4 and sometimes a single or double spot in cell; UPH pale yellow spots in spaces 2-6. UNS similar to male, apart from more extensive spots UNF and faint spots in spaces 2-6 UNH to match UPH. F female 17-18 mm. As noted under the male, images are available on the internet. The female genitalia are illustrated by Burns (1994).

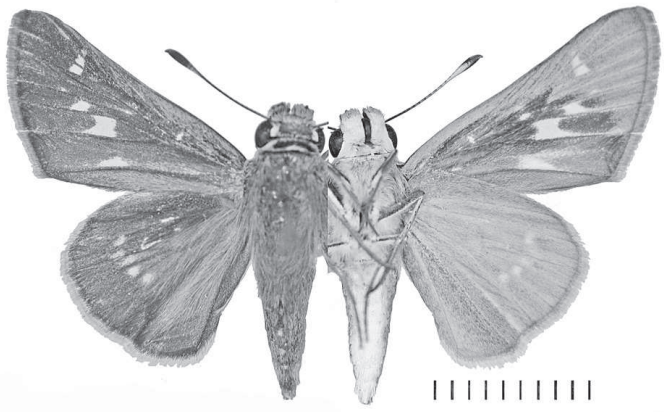

Fig. 23. *Quasimellana eulogius* female, Golden Grove, *Bidens* flowers, 25.viii.1978.

Fig. 24. *Quasimellana eulogius* female, Nariva Swamp, Sand Hill, 17.iv.1982.

The almost plain yellow-brown UNS of the female will separate it from most other Trinidad species. Female *W. otho clavus* have tawny non-hyaline markings including a distinctive tawny marking in cell and spaces 4 and 5 UPH; *A. perfida* has much reduced, diffuse and non-hyaline markings; *Q. servilius* has reduced markings UPF, no markings UPH and the UNS is a much duller yellow-brown.

An atypical small female (Fig. 25) shows reduced markings F and no spots UPH or UNH. Its identity was confirmed by dissection and comparison with Burns (1994). F female 15.5 mm.

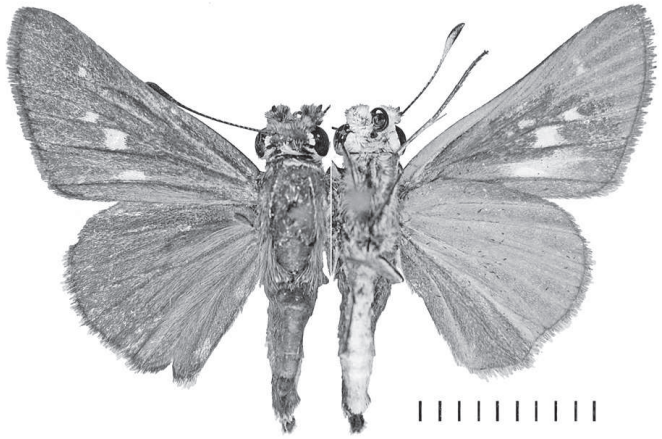

Fig. 25. *Quasimellana eulogius* female, Palo Seco Oilfield, North of San Fernando-Siparia-Erin Road, 7.x.1995.

This is another common and widespread species in Trinidad, associated with open places and roadsides. Adults feed readily at flowers including *Bidens pilosa*, eupatorium and petraea. It occurs on Chacachacare Island (Cock 1981b), but has not been recorded from Tobago.

Fig. 26. *Quasimellana eulogius* adult male, St. Benedict's, 16.x.1993.

Hall (1939) notes that H.W. B. Moore reared this species (as *Atrytone heberia* Dyar, a synonym) from sugar cane in Guyana. This is probably the basis of the record from sugar cane in Box (1953), as *Atrytone eulogius*. Janzen and Hallwachs (2007) include single rearing records from three grasses: *Arundinella deppeana*, *Cynodon nlemfuensis* and *Megathyrsus maximus*.

I have reared this species twice, once from sugar cane, (Curepe, iii.1982, Ref. 82/43D) and once from *Panicum maximum* (Point Gourde, 22.iii.2003, Ref. 03/207). S. Alston-Smith (pers. comm. 2006) has also reared this species several times from caterpillars collected on sugar cane at Khanai Rd., Barrackpore. Given how common and widespread this species is in Trinidad, it seems likely that a variety of grasses are used as food plants. The fol-

lowing description is based upon the male that I reared as 03/207.

The pupal shelter was formed between several pieces of grass and the bottom of the rearing container. The shelter was lined with silk, but there was no white waxy powder. The pupa was formed loose within the shelter, with no girdle or crossbar to support the cremaster. In light of these observations, I suspect pupation normally occurs at the base of the food plant, or amongst leaf litter.

Pupa (Figs. 27, 28) 17 mm. Rounded contours; no frontal spike; cremaster black, arched; proboscis sheath extends two segments beyond end of wing cases. Light brown, with brown dorsal line, weaker on thorax; a faint dark dot at end of cell on F wing case. No white waxy powder on pupa. Spiracle T1 brown, not projecting; other spiracles dark, but inconspicuous. Short, erect pale brown setae on the front of the head; weak recumbent pale brown setae elsewhere on body.

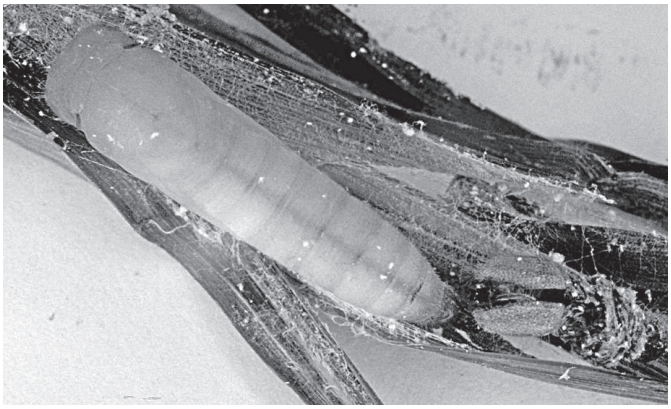

Fig. 27. *Quasimellana eulogius* pupa, dorsal view; Ref. 03/207, 17 mm.

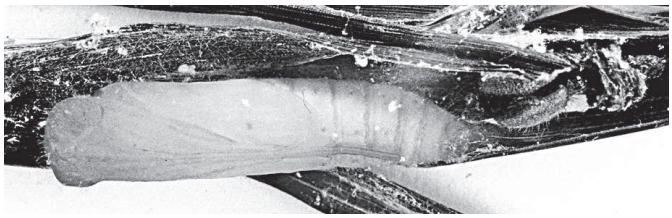

Fig. 28. *Quasimellana eulogius* pupa, ventro-lateral view; Ref. 03/207, 17 mm.

Mature fifth instar caterpillar (Figs. 29, 30) 30 mm. Head oval; pale brown; posterior margin narrowly black; brown markings as follows: a line from vertex laterally to stemmata; a diffuse line from below the apex, running anteriorly down face to end in front of the stemmata, diverging around clypeus; epicranial and adfrontal sutures. T1 pale, a narrow, black transverse dorsal plate extending to T1 spiracle. Body with broad dorsal line of dark khaki; bordered by a broad dorso-lateral stripe of dull yellow-green, marked with transverse ridges, and smooth areas in anterior parts of A1-7; lateral line dull translucent green; ventro-lateral flange paler; ventrally dull translucent green. A8 with orange-brown tint; A9 paler than rest of body. Legs and prolegs pale. Spiracles inconspicuous. The wax glands are formed ventrally in two patches: on the whole ventral surface of A7, and on the posterior half of the ventral surface of A8. However, there is no white waxy powder on the pupa or in the pupal shelter.

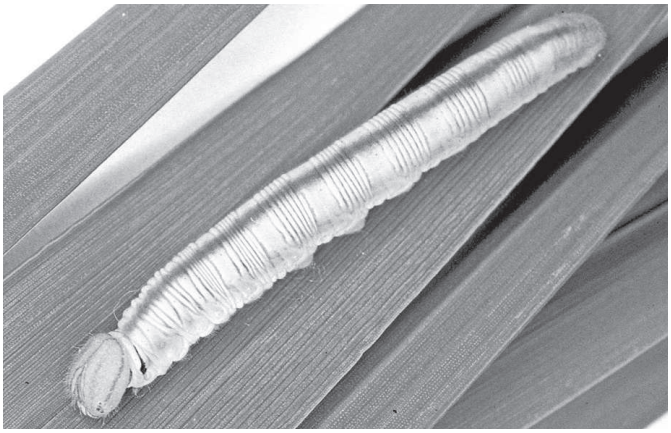

Fig. 29. *Quasimellana eulogius* fifth instar caterpillar, 30 mm, Ref. 03/207.

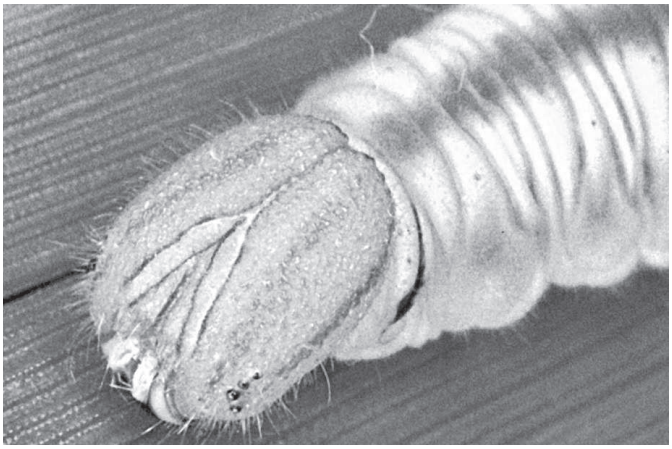

Fig. 30. *Quasimellana eulogius* fifth instar caterpillar, detail of head, Ref. 03/207.

The fourth instar caterpillar (Fig. 31) is similar to the fifth, but the colouring is bolder, and the brown line on the head from apex to in front of the stemmata is less diffuse.

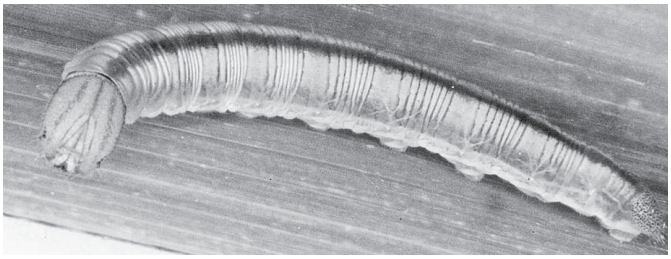

Fig. 31. *Quasimellana eulogius* fourth instar caterpillar, 30 mm, Ref. 03/207.

240. M25/12 *Quasimellana servilius* (Möschler 1883)
Fig. 32.

This species has been reported from Mexico south to Ecuador and the Guianas (Burns 1994; Evans 1955). Evans (1955) described *verba* (TL Ecuador) as a subspecies of *myron* Godman, and it was therefore as *Mellana myron verba*, that I introduced this species to the Trinidad list (Cock 1982). Burns (1994) raised *verba* to species rank, and transferred it to *Quasimellana*. Recently, Mielke and Casagrande (2002) established the correct identity of *servilius* (TL Surinam) as a senior synonym of *verba*, and hence the use of this name here.

It was first recorded from Trinidad by Cock (1982) based on two males from Trinity Hills (29.xii.1981, 4.iv.1982). These records suggest it is restricted to the south of Trinidad, but S. Alston-Smith (pers. comm. 2006) believes he has found it at Sans Souci Estate, Sangre Grande.

Male (Fig. 32). UPS dark brown with tawny markings; cilia brown. No brand. UNS head pale; palps pale basally, dark scales overlaid with pale tawny scales distally, palp 3 dark; antennal shaft chequered, base of club pale below, then dark before chestnut apiculus; UNS thorax tawny; UNS abdomen pale. UNS F pale tawny along costa, including upper half of cell, and apical 1/3, extending narrowly to termen; remainder blackish-brown; pale spot in space 1B, tawny spots in spaces 2 and 3. UNH plain pale tawny, with a slight dull green tint when compared with other tawny species in this group from Trinidad. This green tint is diagnostic for the *myron* group of *Quasimellana* (Burns 1994; Evans 1955) and is stronger in mainland specimens, e.g. Janzen & Hallwachs' (2007) specimens from Costa Rica. However, the markings and genitalia (Evans 1955) are a good match, so I have little doubt as to this identification. F male 13.5 mm. Burns (1994) illustrates a male UPS and UNS.

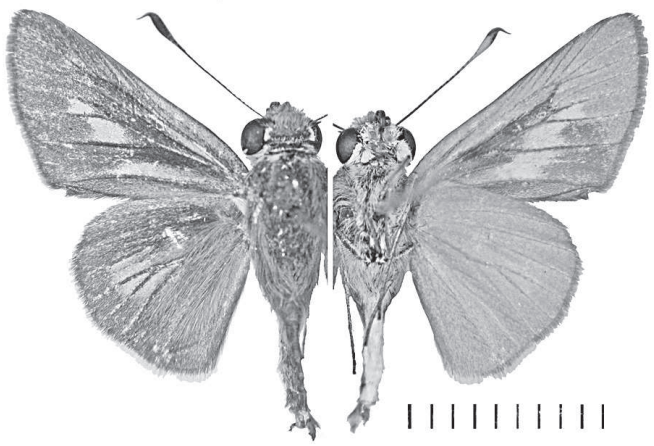

Fig. 32. *Quasimellana servilius* male, Trinity Hills, Morne Derrick, 29.xii.1981.

I have not seen the female from Trinidad. Strong sexual dimorphism UPS. UPS brown, UPF white spot in lower space 1B against vein 1; white hyaline spots in spaces 2, 3, 6 and 7, but reduced compared to male. UNS as male except UNF spot in space 1B is much wider, other spots UPF are white hyaline; UNH with a strong green overlay, except in spaces 1B and 1C.

Janzen and Hallwachs (2007) include several rearing records from *Lasiacis procerrima*, *L. ruscifolia*, *Paspalum nutans* and two further, un-named species of Poaceae, and illustrate the mature caterpillar. I have no information on the life history and food plants from Trinidad.

241. M28/11 *Euphyes peneia* (Godman 1900)
Figs. 33-34.

This species occurs from the Amazon region to Honduras (TL Panama) (Evans 1955), and north to Mexico (Warren *et al*. 2007).

Kaye (1925) described *Euphyes catioides* Kaye from Trinidad, with a single type specimen from Ariapita Road, 15.xi.1920 (W. J. Kaye). This holotype male is in MGCL, although the data label specifies only "Trinidad" for the locality. *Euphyes catioides* is a synonym of *E. peneia* (Evans 1955; Mielke 2004).

Sheldon (1938) reports a specimen from Scarborough as *Atrytone pericia*, a mis-spelling of *peneia*. This is probably the male labelled Tobago in the NHM from the Sheldon bequest.

Male (Fig. 33). UPS brown, with scattered tawny scales and setae especially on disc UPH; diffuse pale spots in spaces 2 (upper part, beyond origin of vein 3), 3, 6-8. Cilia pale, brown towards apex UPF. Brand UPF dark blackish-brown, in a line from under origin vein 3, across spaces 2 and 1B to vein 1, with indistinct interruptions at vein 2 and in space 1B. UNS head white, grading to almost black at labial palp segment 3; antennal shaft slightly chequered, pale beneath club, chestnut apiculus; UNS thorax grey-brown; UNS abdomen pale with narrow brown ventral line. UNF tawny brown along costa and at apex, brown at base of space 3, and outer half spaces 1B and 2; blackish-brown basally; large diffuse pale spot in upper part space 1B; pale spots in spaces 2 and 3, indistinctly in 4-6. UNH tawny brown; spaces 1B and 1 brown; row of diffuse pale yellowish spots in spaces 2-6. F male 18 mm.

Female (Fig. 34). Some sexual dimorphism. UPS brown; pale spots in spaces 2 and 3; a dot in space 6; cilia pale, brown at apex UPF. UNS as male. F female 18.5 mm. Illustrations in Freeman (1967, male UPS and UNS, as *E. donahuei* Freeman, a synonym), Mielke (1972, male & female UPS & UNS, Figs. 23-26), Lewis (1973, female

UNS, plate 82.57). Mielke (1972) and Shuey (1993) illustrate the male and female genitalia, while Freeman (1967) includes the male genitalia of the synonym *E. donahuei*.

This is not a very distinctive species, and it will be necessary to match carefully the markings, colouring and male brand to separate it from other similar species in Group J. *Cynea* spp. (Group K; Cock 2005) are superficially similar, but darker brown, and males have no brand.

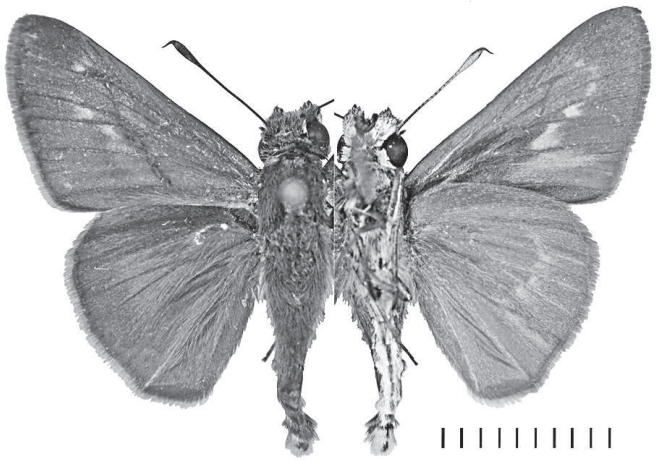

Fig. 33. *Euphyes peneia* male, Palo Seco Oilfield, North of San Fernando-Siparia-Erin Road, 7.x.1995.

Fig. 34. *Euphyes peneia* female, Curepe, at flowers, 7.x.1979.

This is an occasional species in Trinidad, which could turn up almost anywhere, including the higher parts of the Northern Range. It comes to flowers but perhaps less frequently than the common orange species in this group.

Janzen and Hallwachs (2007) illustrate the caterpillars, which they reared frequently from sedges, four species of *Cyperus* spp. in Costa Rica, and once from a grass, *Oryza latifolia* (broadleaf rice). The head capsule of the mature caterpillar is rather like that of *Q. eulogius* (Fig. 30), but the lateral brown line is more sharply defined for *Q. eulogius*, while the line down each epicranium is stronger in *E. peneia*. The body of *E. peneia* is finely variegated in shades of green with yellow tinted skin folds at the rear of each segment, and no dorsal line, whereas that of *Q. eulogius* (Fig. 31) is more uniform with a strong dorsal line.

There is a pair of this species from British Guiana in the NHM, reared on sugar cane by H. E. Box, iii.1924 (Box 1953). Pupa light brown; cylindrical, slightly wider at head-prothorax, scarcely tapered at abdomen, cremaster very short, and abdomen end truncate; no frontal spike; short erect setae on head; lightly covered white waxy powder. No cast caterpillar skin or head capsule.

S. Alston-Smith (pers. comm. 2006) has reared this species from sugar cane at Barrackpore, but I have no details of the life history.

242. M28/16 *Arotis kayei* (Bell 1931)

Figs. 35-36.

This species, named after W. J. Kaye, was described in the genus *Oeonus* Godman (mis-spelt as *Oenus*) by Bell (1931) based on a Trinidad male. Subsequently, it was placed in *Euphyes* Scudder as a subspecies of *sirene* Mabille (Cock 1982; Evans 1955). In his revision of *Euphyes*, Mielke (1972) treated *kayei* Bell as a valid species. Subsequently, Shuey (1987) resurrected the genus *Arotis* Mabille from synonymy with *Euphyes* and transferred *kayei* to it. Shuey (1987) also illustrates the female genitalia.

Evans (1955) includes records from Venezuela to Belem at the mouth of the Amazon. Kaye (1940) refers to it as *Oenus kayei* and cites a Sir Norman Lamont specimen from Morne Diable, 26.xii.1927; I have not seen this specimen in Lamont's collections, so it may be in MGCL.

Male (Fig. 35). UPS plain dark brown. Brand UPF concolorous, in three parts: a streak across base of space 2, from about middle of cubital portion, diagonally to near origin of vein 2; a round portion in line with this, in upper space 1B, just below vein 2; the third part parallel to first, but displaced very slightly outwards, across lower space 1B, wider at top, tapering slightly to vein 1. UNS head grey-brown, shading to brown distally on palpi; antennal shaft brown, pale under club, apiculus chestnut; UNS thorax and abdomen grey-brown, the later with a diffuse pale ventral line. UNF brown, paler towards margin, with the dividing line displaced outwards in spaces 1B, 4 and 5. UNH brown; spaces 1A-C and margin broadly paler brown. Female (Fig. 36). Similar to male, but with double pale line UNS abdomen (this may also be the case in the male, but I cannot tell because of the way that the abdomen has distorted as it dried). F male 16 mm, female 20 mm.

The plain brown UPS, together with the two shades of brown UNS, should help to recognise this species in Trinidad, especially if combined with the characters of the male brand.

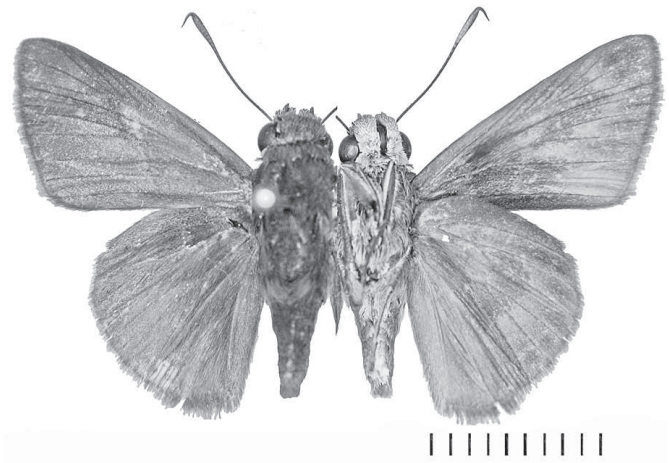

Fig. 35. *Arotis kayei* male, Caura, 2.viii.1976 (J. S. Noyes); specimen in CABI.

Fig. 36. *Arotis kayei* female, Cumaca Road, 4¾ milestone, 20.xii.1978.

This is a rather uncommon species, and I only have records from the north: Arima (male, ii.1930, A. Hall, BM), Caura (male, 2.viii.1976, J. S. Noyes, IIBC), Cumaca Road, milestone 4¾ (female, 20.xi.1978), Fondes Amandes (male, 8.iii.1933, NHM), and East: Matura (male, x.2000, SAS), Valencia (female, i.1985, SAS), and Bush Bush Island (female, x.1999, SAS).

The life history and food plants seem to be unknown, but the food plants may be sedges, as is the case for the closely related genus *Euphyes* (Scott 1986).

243. M33/2 *Metron chrysogastra chrysogastra* (Butler 1870)

Fig. 37.

Evans (1955) treats this very distinctive species as three subspecies, the nominate ssp. occurring from Mexico to Venezuela (TL) and Trinidad (also Surinam (de Jong 1983)), two other ssp. occurring in Bolivia and Brazil.

Kaye (1904, No. 263; 1921, No. 413) reports a single specimen he captured in the Botanic Gardens, June 1901.

Male (Fig. 37). UPS dark brown; yellow spots in spaces 2 and 3 UPF; discal area UPH diffuse yellow. Brand UPF slightly darker brown than ground colour: along cubitus at base of space 2, under basal area of vein 2 from origin. UNS of head yellow-white; UNS of palpi with strong orange tint; antenna shaft brown, club pale brown basally, chestnut on apiculus. UNS of thorax brown; UNS abdomen white, orange tint at lateral margin. UNS wings brown; yellow spots UNF spaces 2 and 3 as UPF; a white, diagonal spot space 1B, aligned with spot in space 2; UNH with sharply demarcated white discal line in spaces 1A and 3-7. The female is similar but with more rounded wings. Illustration in Lewis (1973, UNS, plate 83.35). F male 14 mm.

The white discal band UNH is distinctive for this species in the Trinidad fauna.

Fig. 37. *Metron chrysogastra chrysogastra* male, Lalaja Ridge, 17.iii.1982.

This distinctive species is rare in Trinidad collections. I have records from Lalaja Ridge (male, 17.iii.1982), Andrew's Trace (male, iii.1989, SAS), Maupertuis (3 males, 16.iii.1922, N. Lamont, RSM, UWI), St. George (?female, x.1891, C. W. Ellacombe, NHM) and 4 males, 1 female labelled only Trinidad (BM, NHM). These records suggest it may be a species of the forests of the Northern Range.

Janzen and Hallwachs (2007) include food plant records on *Rhipidocladum racemiflorum* (Poaceae) in Costa Rica. I have no further information on the life history or food plants.

244. M33/6 *Metron noctis* (Kaye 1914)

Figs. 38-39.

Kaye (1914) described this species as *Atrytone noctis* from a specimen taken by G. E. Tryhane in St. Ann's Val-

ley; the specimen, which is a male, is in the NHM. There are no further records in Kaye (1921, No. 382).

Evans (1955) adds a small number of records from Ecuador, Brazil and Paraguay. A synonym, *subviridis* Hayward, was described from Argentina (Evans 1955; Mielke 2004).

Male (Fig. 38). UPS dark brown; tawny scales on head, basal ½ of F costa, and small indistinct and diffuse spots in spaces 1B, 2 and 3; tawny cilia at base of space 1B, and basal ½ of space 1A; fringe paler brown, especially at dorsum UPH. Brand UPF slightly darker than ground colour: along cubitus at base of space 2 and under vein 2 from origin, both wider basally. UNS head and thorax pale khaki green; antennal shaft brown, pale brown under club, chestnut apiculus; UNS abdomen pale. UNS wings khaki-green, except disc and dorsum UNF black; UNH spaces 1B and 1C shiny green-brown; UNF pale spots in spaces 2 and 3, and white diagonal spot in space 1B; UNH pale yellowish spots in space 1C, and end cell; indistinct line of faint spots in spaces 3-5. Female (Fig. 39) similar but diffuse spots UPF stronger and also present in spaces 1B, 6 and 7. F male 14 mm, female 15 mm.

The khaki-green UNS is unlike any other Trinidad skipper. The female of *Q. servilius* (above) when found will also have a green underside, but will be distinguishable by the white F spots.

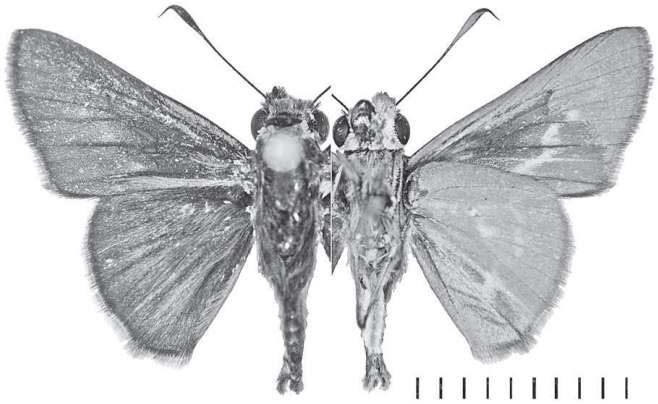

Fig. 38. *Metron noctis* male, Arena Forest, nr. Parrotts Ride, 8.x.1994.

Fig. 39. *Metron noctis* female, Brasso, eupatorium flowers, 11.x.1993.

Like *M. chrysogastra*, this is a rare species in Trinidad collections. Apart from the St. Ann's holotype, I have scattered records from Arena Forest (male, 8.x.1994), Arima-Blanchisseuse Road, milestone 10½ (female, 5.x.1979), Brasso (11.x.1993), west of San Rafael (2 males, 2.x.1982). All except the first of these were taken at flowers of *Austroeupatorium inulaefolium* beside roads in open and forested areas.

I have no information on the life history or food plants, which seem to be unknown.

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