

# The Skipper Butterflies (Hesperiidae) of Trinidad

## Part 10, Pyrginae Completed, Genera Groups F and G

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### INTRODUCTION

Two Genera Groups, F and G, are treated in this paper. This completes my treatment of the Trinidad Pyrginae, the second of the three subfamilies of Trinidad Hesperidae.

All plates of adults include a scale bar of 10 mm, and are collected by, and in the collection of, the author unless otherwise stated.

This series of articles now covers 150 species of Trinidad & Tobago Pyrrhopyginae and Pyrginae, i.e. about half the total number of Hesperidae. Since I started this series of papers in 1981 much new information has come to light, including species new to science, new island records, new distribution records and new information on food plants and biology. For example, when I listed the Trinidad & Tobago Hesperidae in 1982, I recognised 272 species of Hesperidae (Cock 1982c); today I know of 305 species - an increase of 33 (net of one species removed from the list). Of these new island records, 18 have been featured in this series of articles published in *Living World* and 16 (including 5 further Pyrginae) are unpublished.

I reiterate my thanks to Dr C Dennis Adams, Mrs Yasmin Comeau, Borai Kalloo and Winston Johnson of the National Herbarium who identified the plants from which I reared Hesperidae in Trinidad. The following have very kindly assisted in providing access to the collections in their care: Dr George McGavin of the Hope Entomological Collections, Oxford University Museum (HEC), Dr Phillip Ackery of the Natural History Museum (NHM) (formerly British Museum (Natural History)), Dr Mark Shaw of the Royal Scottish Museum (RSM), 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).

Once again, I especially thank Scott Alston-Smith who has read and commented on this paper, and provided additional records from his collecting, and observations and food plant records which have not previously been published (indicated as SAS in text).

### GENERA GROUP F

Genera Groups F and G are included in Section 2 of the Pyrginae (Evans 1953), as described in Cock (1991). In Section 2 the palpi may be entirely forward pointing (correct), and the third segment always protrudes in front of the second (Figures 2-3 in Cock 1991), and the forewing cell is generally short, less than two-thirds of the length of the costa and shorter than the dorsum (Figure 1 in Cock 1991).

Evans (1953) characterised Group F as follows. Abdomen shorter than the dorsum of the hind-wing. Antennal club bent before its middle. Under surface of the anterior portion of the forewing more concave than usual, giving rise to the name "batwing" (see plates of adults at rest). Evans (1953) did not know their resting position (wings open or closed), but all the species I have observed in the field rest with their wings held open.

Evans (1953) arranges the 74 American species of group F in 16 genera. The Trinidad fauna includes 16 species in 11 genera, although one of these needs confirmation. Just three species of Group F are found in Tobago. One species treated here, *Anastrus obscurus neaeris* Möscher, is a new record for Trinidad discovered by Scott Alston-Smith.

There is information available regarding the life history or food plants of 11 Trinidad species. All recorded food plants are dicotyledons, and in Trinidad include Annonaceae (*Cycloglapha*), Leguminosae

(*Gesta*), Malpighiaceae (*Chiomara*, *Ebrietis*, *Timochares*), Myrtaceae (*Anastrus*), Polygonaceae (*Anastrus*), Rutaceae (*Achlyodes*, *Helias*), and Verbenaceae (*Chiomara*).

### 118. F2/1 *Achlyodes busirus negro* Kaye 1921

This species is found from Mexico to Bolivia and Argentina in four subspecies (Evans 1953). *A. busirus negro* is an endemic subspecies in Trinidad. It is characterised by the entirely black male, and the very limited yellow markings UNH in the female. All the mainland subspecies have more extensive yellow or brown markings and are slightly larger.

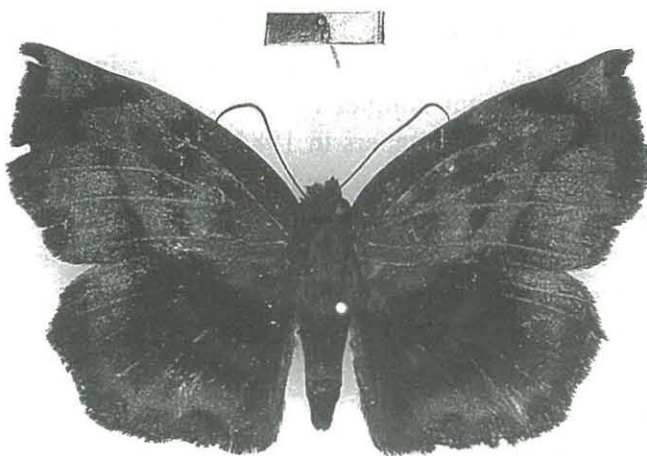
Kaye (1914, addenda) records a K St A Rogers specimen from Siparia (13.i.1913) as "*Eantis busiris*" (a mis-spelling). Subsequently, Kaye (1921) introduced the name *negro* as a subspecies of *A. busirus* Stoll 1782 when he also records a Sir N Lamont capture from Morne Diable (31.vii.1917). He pointed out the difference in colouring from the mainland subspecies, but neglected to mention that he was naming a new subspecies!



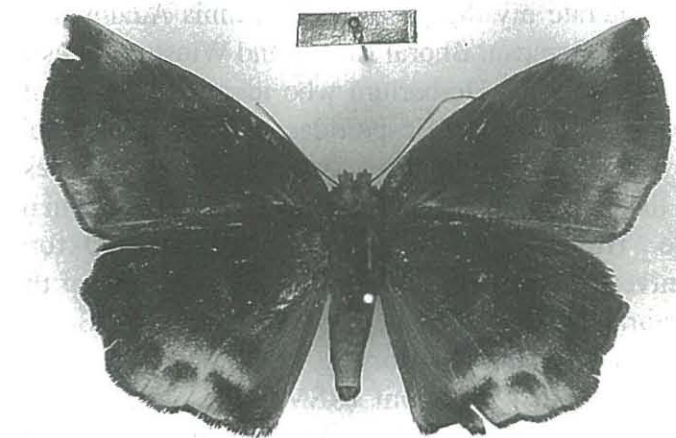
**Plate 1.** *Achlyodes busirus negro* ♂ on flowers of *Austro eupatorium inulaefolium*, Rio Claro - Guayaguayare Road, 11.x.1993

The male (Plate 1) is completely black above and below, with very indistinct dark brown bands; the black colouring, together with its large size and the shape of the wings (F falcate, bulging outwards in

spaces 2-3, H bulging outwards in spaces 2-3), make it unmistakable in the Trinidad fauna. The female is brown above, with dark brown discal and marginal bands (Plate 2); below it is lighter brown with variable yellow markings (Plate 3). I have one female with no yellow markings on the UNS at all (Plate 4). Normally there is diffuse yellow shading on the costa just short of the apex UNF, and on the margin, just above the tornus UNF, and a conspicuous yellow margin in spaces 1C-3 UNH, sometimes with a matching submarginal band linked to the marginal band along veins 2 and 3. The cilia are brown apart from a paler patch UNF margin just below apex. The female is readily recognised by its large size, wing shape, and when present the UNS yellow markings. Illustrations in Barcant (1970, Fig. 4, No. 10, ♂) and Lewis (1973, Plate 80, No. 4, ♀). No costal fold; F ♂ 27 mm, ♀ 29 mm.



**Plate 2.** *Achlyodes busirus negro* ♀, Morne Catherine, 28.i.1980.



**Plate 3.** *Achlyodes busirus negro* ♀ UNS, Parrylands, 2.ii.1980

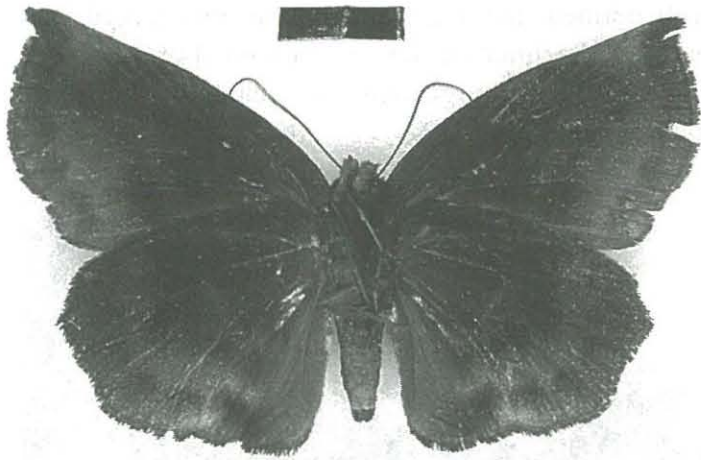


Plate 4. As plate 2, UNS.

This large and distinct species is not particularly rare in forested parts of Trinidad, and can be quite common at times in the South. I have records of more than 16 specimens from the South, one from Central and nine from the North (three from Morne Catharine). It comes readily to flowers, especially *Austroepatorium* and *Chromolaena* in the South (Plate 1). Although more common in lowland areas, its range does extend to the ridge-tops of the Northern Range.

Moss (1949) reared what Evans (1953) treats as the nominate subspecies on a species of *Zanthoxylum* (Rutaceae) different to that used by *A. thraso* Hübner at Belem. Differences between his description and mine for subspecies *negro* are discussed below. Hayward (1941) lists *Citrus* sp. (Rutaceae) as the food plant, based on earlier publications from Brazil, while Biezanko (1963) and Biezanko & Mielke (1973) are more specific, listing *Citrus aurantium* L., *C. medica limetta* Risso and *C. sinensis* Osbeck, as food plants in Rio Grande do Sul, Brazil.

I have reared this species in Trinidad from a larva found on a sapling of *Zanthoxylum martinicense* (Lam.) DC. in Parrylands Oil-field (23.xii.1981). The early shelters are made with a triangular flap from the edge of a leaf, but the larger larvae hide between two leaves, one on top of the other. The small larvae do not perforate the leaves, but leave windows with the dorsal leaf cuticle intact.

The mature larva measures about 35 mm and is attractively marked with white and yellow stripes on a mauve background. Head chordate, glabrous, shiny,

strongly rugose; brown merging with darker area on clypeus and ventrally. T1 anterior half brown, posterior half concolorous with body. Body glabrous; ground colour translucent brown-mauve-grey; 2 mm below spiracles a strong white lateral line, shaded yellow in middle of each segment; T3-A7 with a narrow white band on posterior margin, reaching lateral stripe; T2 with similar line that stops well short of lateral line; T2-A1, A9 with yellow transverse band dorsally at the middle of each segment, meeting lateral line at anterior margin of segment; A2-8 with similar yellow band dorsally nearer the posterior margin (at about 2/3 width of segment) passing just anterior to spiracles, but not quite reaching the lateral line. Spiracles brown, inconspicuous. Legs brown; prolegs concolorous with body. Medium sized larvae (15 mm) are similar, but the markings are less distinct, and small larvae (5 mm) are plain green with a brown chordate head.

The pupa is formed in the last larval shelter which is densely lined with silk. It lasts about 12 days for the male. It is rounded and heavily covered with a white waxy bloom; spiracles dark; frontally, five dark spots are arranged in a pentagon, the two dorsal spots linked by a short line to the T1 spiracles; two dark spots anterior to cremaster on dorsal side, linked to cremaster by two narrow dark lines, initially curved but parallel on the cremaster; the appendages are delineated with narrow dark lines.

In his description of the larva of subspecies *busirus*, Moss (1949) refers to a yellow stripe on each of its ten segments (i.e. T1-A7), whereas I observed them on T2 to A9; he states that these lines meet the lateral stripe, but I note that those of A2-A8 stop short; he refers to the segment interstices as very light blue, which I considered white. He does not mention any markings on the pupa. Since I only reared and described one larva, it is difficult to suggest that these differences might be consistent without examining further material.

#### 119. F2/2 *Achlyodes thraso* Hübner 1807

The taxonomy of this species is somewhat obscure. There is a group of between three and five species or subspecies involved. Evans (1953) recognised five subspecies which he attributed to the species *A. thraso*. However, this is not the senior name in the group:

*thraso* was described by Hübner in 1807 (given as Jung 1792 in Evans 1953, but corrected in Evans 1955) while *mithridates* was described by Fabricius in 1793. The five subspecies recognised by Evans (1953) are: *thraso* found from Texas to Argentina, *mithridates* restricted to Jamaica, *papinianus* Poey 1832 restricted to Cuba, *minor* Comstock 1944 restricted to Dominica, and *sagra* Evans 1953 from Haiti (TL), Puerto Rico and St Thomas. Most subsequent authors have followed this treatment, except for recognising *mithridates* as the senior name (e.g. Scott 1986, Bridges 1988).

However, the account given in Brown & Heineman (1972) is the only recent critical consideration of the taxonomy of this complex. They concluded that *A. mithridates* is sufficiently different from *A. thraso* in details of the male genitalia and secondary sexual characters (*A. thraso* has a hair tuft on each hind tibia which fits into a thoracic pouch; both are lacking in *A. mithridates*) as indicated by E.L. Bell (quoted in Brown & Heineman 1972, p. 375) that they should be treated as separate species. They further consider that the other three taxa represent a single clinal species, *A. papinianus*, where the *papinianus* form represents one extreme, *minor* represents the other, and *sagra* is intermediate. These conclusions seem to have been overlooked by subsequent authors. In light of the differences in the descriptions of the larvae of *A. mithridates* (Brown & Heineman 1972) and *A. thraso* (below), I am following the conclusion of Brown & Heineman and treating *A. thraso* as a separate, distinct species, with no subspecies. The Texas population of *A. thraso* has been referred to subspecies *tamenund* Edwards 1870, although Evans (1953) and recent treatments (e.g. Bridges 1988) treat this name as a synonym of *A. thraso*.

Kaye (1914) recorded this species from Trinidad as "*Eantis thraso*", citing a capture by H. Caracciolo in 1906; subsequently (Kaye 1921) he added records from St Joseph (iii.1914, F.W. Jackson) and the South (Sir N Lamont). Kaye (1921) also records *A. papinianus* from Trinidad from a St Ann's specimen (no further data given). *A. papinianus* as indicated above is restricted to either Cuba, or to Cuba, Haiti and Dominica depending upon one's interpretation of the taxon. Kaye (1921) states that "it can be recognised by the mottled hind wing, in which it chiefly differs

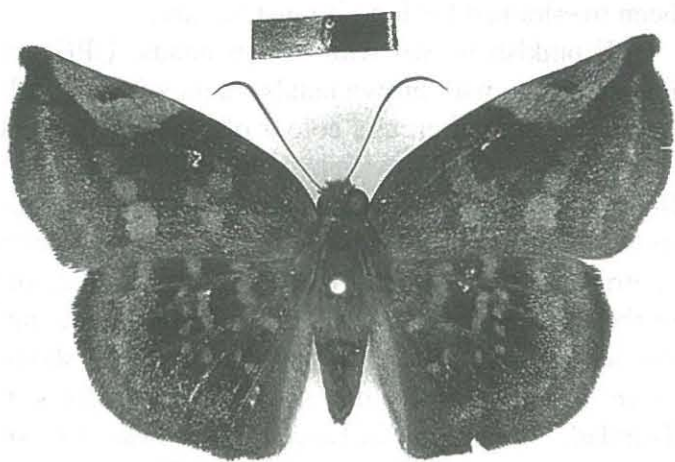
from [*Achlyodes*] *thraso*". *A. papinianus* does have well defined markings, and I think this record was based upon either an extreme individual of *A. thraso*, or the previously unrecognised female, or an error of identification.



Plate 5. *Achlyodes thraso* ♂, Inniss Field, 2.x.1994

Male almost black above; dark purple scales faintly delineate submarginal bands on both wings; UPH two discal bands of dark mauve-brown spots; a bar of same colour across costa to end cell, extending in a narrow line to costa just short of apex (Plate 5). UNS uniform dark black-brown; a light brown patch on costa just before apex; UNH paler towards dorsum. Cilia brown except for pale patch on UNF margin just below apex. Female similar to male, but ground colour brown, and markings much more distinct (Plate 6); UNS with light brown discal bands only hinted at in male. The wing shape (falcate F), and markings, especially the pale patch on costa UPF near apex will enable this species to be recognised. Illustrations in Barcant (1970, Fig. 4, No. 8, ♀) and Lewis (1973, Plate 80, No. 6, ♂). No costal fold; F ♂ 20-21 mm, ♀ 22-23 mm.

This species is quite common and widespread in lowland areas of all Trinidad, particularly in forested areas and around old neglected citrus estates. I have only once found it at any altitude, at 1500 ft on Morne Catharine. I would expect it to be found around neglected citrus plantings in the Northern Range, but have not noted this. It feeds readily at flowers, including *Bidens pilosa*, *Austro eupatorium* and *Chromolaena*.



**Plate 6.** *Achlyodes thraso* ♀, Las Lomas, Spanish Farm, 7.iii.1980

In his list of food plants of Argentine Hesperiiidae, Hayward (1941) gives *Zanthoxylum hiemalis* (St. Hil.) Engl. and *Z. naranjillo* (Grisel) Engl. (Rutaceae), while for Rio Grande do Sul, Biezanko (1963) and Biezanko & Mielke (1973) report *Z. hiemalis* and *Z. rhoifolia* as food plants. Moss (1949) records the food plants in Belem as various species of *Citrus* (Rutaceae), and in the forest on *Z. rhoifolia* Engl. He notes "the larva is plain green with a rotund brown head. The larval shelters consist of leaves pulled together and are easy to detect. The pupa is short and robust and smooth and is covered with a white bloom". In Texas, *A. thraso* has been recorded to feed on *Z. fagara* (L.) Sarg. (Kendall 1965).

In the collection of IIBC at Curepe there are two females reared from citrus at Curepe by RE Cruttwell (now MacFadyen). I have reared this species in Trinidad from a larva found on a sapling of *Z. martinicense* in Parrylands Oil-field (23.xii.1981), while SAS has found it on the same food plant in Inniss Field. *Z. martinicense* is known locally as "l'epinet" and is also noteworthy as the food plant of the lycrophon swallowtail, *Papilio lycrophon* Hübner (S Alston-Smith pers. comm.). SAS has also reared *A. thraso* from *Z. microcarpa* at Point Gourde (xi.1993). My larva was collected on the same plant and on the same day as I found larvae of *A. busirus negro* (above). The shelters are similar to those of *A. busirus negro*.

The mature larva measures about 28 mm. Head chordate; pale brown; dark with reddish tint ventrally

and laterally; small white spot laterally. Body translucent whitish green; T3-A7 with dorso-lateral row of yellow spots (T3 very small in middle of segment; A1-3, A5 larger, mid segment; A4, A6-7 elongate); dorsal line clearer and darker; lateral to the dorso-lateral spots the body is speckled with yellow to give yellow-green effect. Legs concolorous. Panton (1897, quoted in Brown & Heineman 1972 and summarised in Smith *et al.* 1994 and various publications on the North American fauna) gives a detailed description of the larva of *A. mithridates*, which differs in aspects of the head, and body colouring, especially the arrangement of the dorso-lateral spots.

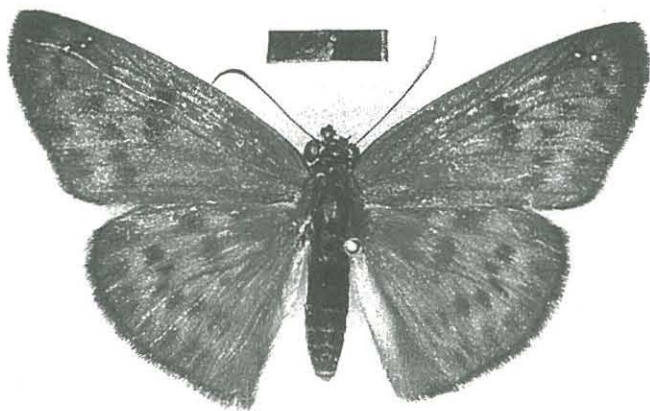
The translucent pupa is pale green, covered with a heavy layer of white waxy powder; appendages delineated with narrow dark lines; short blunt frontal spike with dark tip; pair of small dark spots below frontal spike; spiracles brown, inconspicuous except those of T1 which are dark; dark spot above eye; four small black spots arranged in a square anterior to the cremaster on both the ventral and dorsal surface. Pupation lasted 11 days.

### 120. F3 *Grais stigmaticus stigmaticus* Mabille 1883

This species is the only one recognised from the genus. It occurs from Mexico to Argentina (TL Brazil) in the nominate subspecies, and additional subspecies are described from Mexico (Paso de San Juan) and Jamaica.

Specimens collected by Sir N Lamont at Palmiste (24.x.1915; now in RSM) and Rock Penal Road (14.i.1921) were the basis for Kaye's (1921) inclusion of this species in the addenda of his catalogue.

UPS light brown, with macular brown marginal and discal bands (Plate 7); UNS yellow-brown with light brown macular marginal and discal bands UNH space 1A and 1B paler, but margin black. Female UNS is darker than that of the male, and the female has three small white hyaline apical spots absent in the male. The large size and rather featureless brown wings distinguish this from other skippers. Illustrations in Brown & Heineman (1972, Plate X, No. 1, ♀), Lewis (1973, Plate 83, No. 7), Riley (1975, Plate 22, No. 12, ♂) and Smith *et al.* (1994, Plate 29, No. 7, ♀ from Trinidad). No costal fold; F ♂ 25 mm, ♀ 27 mm.



**Plate 7.** *Grais stigmaticus stigmaticus* ♀, Rock Penal Road, milestone 8.75, at flowers, 31.xii.1979

Kaye (1921) notes that this species appears to be confined to the South. It is certainly much commoner in forested areas of the South (I have records of 9 specimens), but J & F Preston also caught a male on the Lower Morne Catherine Road (27.ii.1982) and the specimen illustrated by Smith *et al.* (1994) is from "W. central Trinidad" (probably Caparo). When feeding on flowers with its wings held flat, this is a conspicuous and easily recognised species. Although I have made several captures at flowers of *Chromolaena odorata* (♂, ♀, Rock-Penal Road, 31.xii.1979; ♀, Parrylands, 18.i.1988), I have also caught it in forest shade (♂, ♀, East Moruga oil-field, 24.ii.1980) and sunbathing in a forest clearing (♂, West Moreau oil-field, 31.xii.1979).

Nascimento & Hay (1993) record the food plant to be *Metrodorea pubescens* St. Hil. & Tull (Rutaceae) in Central Brazil.

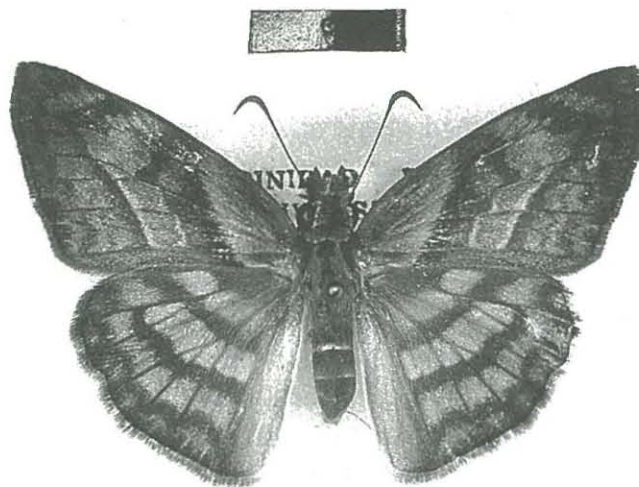
#### 121. F5/1 *Timochares trifasciata trifasciata* Hewitson 1868

This species is widespread as the nominate subspecies from Mexico to Paraguay (TL Bolivia), and as subspecies *sanda* Evans 1953 from Argentina. There is only one other species in the genus, *T. ruptifascia* Plötz 1884, from Mexico and Jamaica.

Kaye (1940) first recorded this species from Trinidad on the basis of specimens from St Joseph (xii.1922, F.W. Jackson) and Port of Spain (10.vii.1927, Forbes), commenting that since it had

been overlooked for long it must be rare.

UPF pinkish brown with brown bands; UPH yellowish brown with brown bands - a pleasing but subtle contrast in the ground colour of the fore and hind wings (Plate 8). UNS light yellowish brown, with light brown bands. The female is slightly larger, has more rounded wings, and the UPF markings are more contrasting. The contrast between the ground colour of the fore and hind wings UPS is characteristic, and the sharply contrasting discal bands UPH should serve to distinguish this species from others in Trinidad. Illustration in Lewis (1973, Plate 87, No. 40). Long costal fold; F ♂ 21 mm, ♀ 22 mm.



**Plate 8.** *Timochares trifasciata trifasciata* ♀, Nariva Swamp, Manzanilla - Mayaro Road, milestone 46 track, 23.v.1979

In addition to the records given by Kaye from St Joseph and Port of Spain, I have two females from Nariva Swamp (23.v.1979, 25.xi.1980) (Cock 1982a) and a male from Bush Bush (7.v.1995; others seen). I have seen three more females from Grande Ravine (8.x.1977, SAS) and Parrylands (13.iii.1982, 27.iii.1982, J & F Preston), and a male from Manzanilla (10.i.1923, F.W. Jackson in NHM). Evidently a widespread but uncommon species. At Bush Bush (v.1995) it was feeding at flowers of *Cordia curassavica*.

SAS has discovered that the food plant of *T. trifasciata* in Trinidad is *Stigmaphyllon adenodon* (Malpighiaceae); having observed a female ovipositing, he successfully reared out larvae from Cruse

Field in 1991. The congeneric *T. ruptifasciata ruptifasciata* Plötz is recorded to feed on *Malpighia glabra* (Malpighiaceae) (Scott 1986). I have seen hesperiid shelters on *Malpighia glabra* (West Indian Cherry or Barbados Cherry) in Tunapuna, which may have been this or another Group F species.

### *Anastrus* Hübner 1824

Three species of this genus are found in Trinidad although one, *Anastrus obscurus neaeris*, is here recorded from the island for the first time. They are united by the distinctive wing shape, with the F more pointed than usual for Pyrginae.

#### 122. F6/1 *Anastrus sempiternus simplicior* Möschler 1876

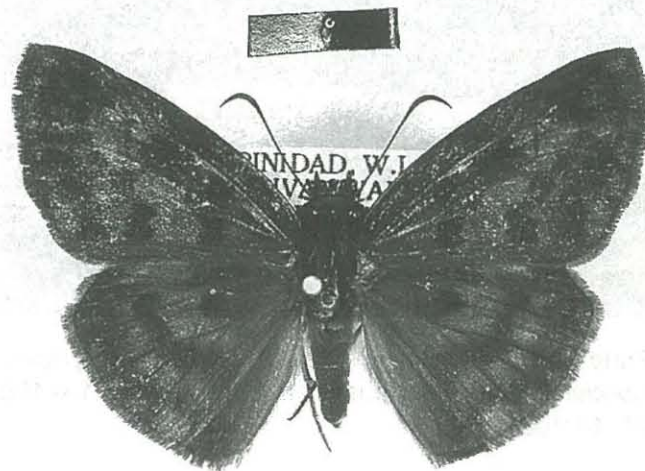
The subspecies *simplicior* Möschler 1876 is restricted to South America, being found from Venezuela to Bolivia (TL Surinam). The nominate subspecies is found from Mexico to Venezuela and Ecuador (TL Costa Rica), and has the UNH dorsal third bluish white, whereas in *simplicior* the UNH is uniform ochreous brown (Evans 1953). A third subspecies, *dilloni* Bell & Comstock 1948 is restricted to Haiti (TL) and Jamaica.

A single specimen collected vi.1898 by W.J. Kaye was the basis for his inclusion of this species in the Trinidad list (Kaye 1904).

UPS ground colour brown with a coppery tint; dark brown submarginal and discal bands on the UPS (Plate 9). UNS pale coppery brown with lighter marginal and discal bands. The female is larger, UPS lighter, UNS with markings considerably more contrasting. The wing shape will distinguish this from other genera of Group F, while the UPS and UNS banding will distinguish it from the other two *Anastrus* spp. Illustrations in Brown & Heineman 1972, Plate IX, No. 14), Lewis (1973, Plate 80, No. 22), Riley (1975, Plate 22, No. 13, ♂) and Smith *et al.* (1994, Plate 29, No. 8, ♀ subsp. *dilloni*). Short, very narrow costal fold; F ♂ 19 mm, ♂ 21 mm.

This is not a very common species, although perhaps it is overlooked since its food plant, guava, is common enough. I have specimens from Parrylands (♂, at flowers of *Chromolaena odorata*, 2.ii.1980),

Wallerfield (22.x.1980), Brechin Castle (♀, larva on guava, adult 26.xi.1981), and Bush Bush (♀ 7.v.1995). I have also seen specimens from Grande Ravine (♂, 13.x.1977, SAS), Fondes Amandes (♂, 5.i.1977, SAS) and Maraval (vii.1891 in NHM). It would appear to be widespread in disturbed mostly lowland areas (although SAS has found a pupa at the summit of El Tucuche), but not very common.

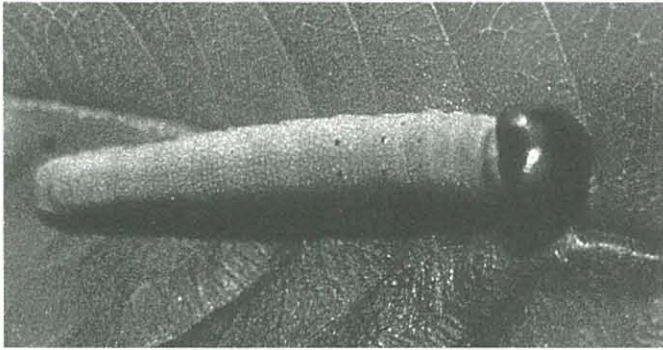


**Plate 9.** *Anastrus sempiternus simplicior* ♀, Nariva Swamp, Bush Bush Island, at *Cordia* flowers, 7.v.1995

Moss (1949) reared this subspecies in Belem, and notes that the plain green larvae feed on guava (*Psidium* sp.), *Eugenia* spp., *Tapirira* spp. and other Myrtaceae. Kendall (1976) has reared *Anastrus sempiternus sempiternus* Butler & Druce 1872 from larvae collected on *Terminalia catappa* L. (Combretaceae) in Mexico. Apart from a pupation period of 9-12 days no details of the biology are given. Steinhauser (1975) lists the same food plant in his list of HesperIIDae of El Salvador. Brown & Heineman (1972) give Turner's unpublished details of the life history of *A. s. dilloni* which also feeds on guava.

I reared this species from a larva collected on guava, *Psidium guajava* L. (Myrtaceae) which I collected at Brechin Castle, 1.xi.1981. SAS has collected a pupa also from guava, on the summit of El Tucuche. The fourth instar larval shelter was a triangular flap cut from the edge of the leaf lamina. The larva measured 12 mm when collected; head chordate, dark reddish brown with an indistinct black marking antero-laterally; body green, tinged with yellow anteriorly and posteriorly, with pale speckles and a pair of small black dots dorsally on T3-A2 (Plate 10).

The fifth instar larva 30 mm; large head, strongly chordate, rugose, dark brown posteriorly, light brown anteriorly, with a dark broad arc across the face, convex side dorsally; body yellow green with a pair of small dorsal black spots on A1-3. When mature, the larva turns milky white and the dorsal spots fade out.



**Plate 10.** Fourth instar larva of *Anastrus sempiternus simplicior* collected on guava, Brechin Castle, 1.xi.1981 (Ref.: 81/10B).

The translucent pupa is pale shining green; spiracle T1 with brown edge. There is no production of wax at pupation in this species or other members of the genus. Pupation took eight days.

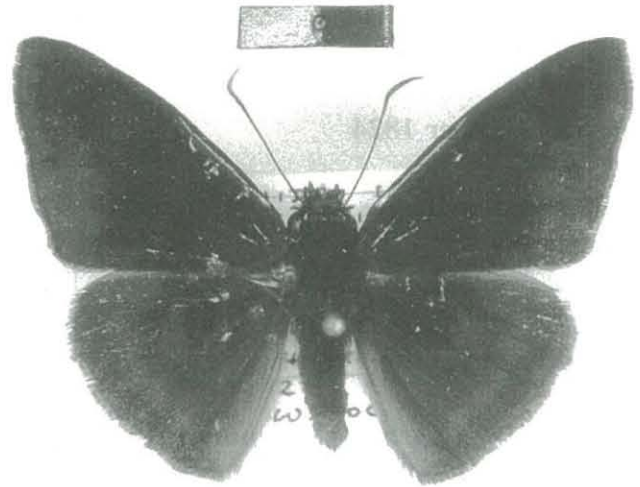
### 123. F6/3 *Anastrus petius petius* Möschler 1876

The nominate subspecies is restricted to South America, being found from Colombia through the Amazons to South Brazil (TL Surinam); a second subspecies, *obliqua* Plötz 1884 is only recorded from Guatemala and Honduras (Evans 1953).

Kaye (1940) first recorded this species from a specimen collected at Fort George by F.W. Jackson (i.1922). He mis-spelt the specific name as *retius*, although in his text for this species *petius* is spelt correctly; Barcant (1970) perpetuates this error. This species was recorded from Tobago for the first time by Cock (1982c), on the basis of a male which I took on the Main Ridge (18.v.1981).

UPS dark brown with two very faintly discernible blue bands UPH (Plate 11.). UNS uniformly light coppery brown, tinged with grey on dorsum of both wings. The wing shape, almost uniform UPS and UNS, and faint blue bands UPH all serve to charac-

terise this species. Costal fold to middle of costa, narrow, white internally; F ♂ 21-22 mm.



**Plate 11.** *Anastrus petius petius* ♂, Waller Field, ex pupa coll. on *Coccoloba venosa*, 24.xi.1981

This is a species which seems to be more frequent in the North, particularly on the higher parts of the Northern Range. I have specimens from El Tucuche (♂, 2700 ft, 27.iii.1979), Andrew's Trace (♀, 2000 ft, 20.ix.1978), Morne Bleu Textel Road (♂, 7.x.1979; others seen), Lalaja Ridge (♂, 20.iii.1979, 14.ix.1979), and have also seen a female from Grande Ravine (ix.1978, SAS) and a pair from Port of Spain (i.1897, Dr Rendall in NHM). I have also reared a male from Waller Field (adult 4.xii.1981). The localities and food plants suggest that it is more closely related to forest situations than the last.

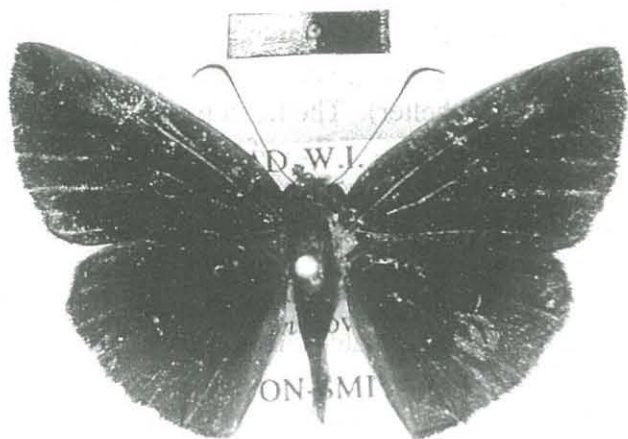
Although he was unable to identify the food plant of this species, Moss (1949) records some details of the larva and its biology. "The larvae are light bluish green, the head bifurcated and black-edged on the frons, in colour red-brown, this deepening towards the mouth and bearing a pair of ochreous eye-spots situated near each other in the upper portion. ... The larval shelters consist of large triangular pieces of leaf, flimsily spun down at the tips and gnawed irregularly on the edge but without the ventilation holes." In his material in the NHM there is a leaf shelter attributed to this species which contain cocoons of a parasitic *Apanteles* sp.

In shady secondary forest at Waller Field (24.xi.1981), I found a pupa of this species on a plant

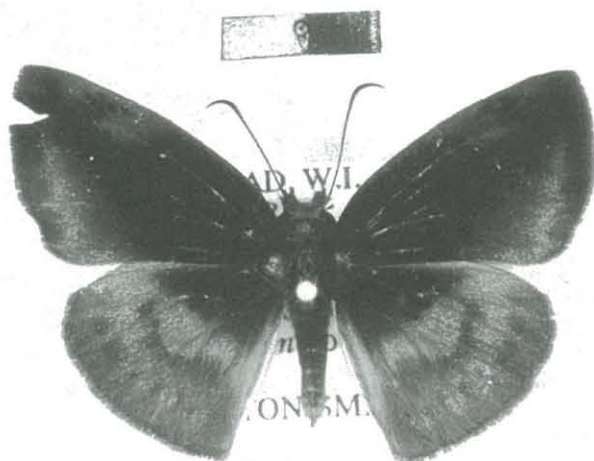


of *Coccoloba venosa* L. (Polygonaceae) of less than 1m. Extensive feeding on two of the large leaves had left little more than the mid-ribs and main veins, and in a 30 mm shelter at the tip of one of these, the pupa was formed. It was similar to that of *A. sempiternus*, pale shining green, with the cremaster tip and the edge of the T1 spiracle dark. SAS has collected and reared early stages of this species from *C. marginata* from Valencia and Andrew's Trace.

**123a. F6/6 *Anastrus obscurus naearis*  
Möschler 1878**



**Plate 12.** *Anastrus obscurus naearis* ♂, Rio Claro - Guayaguayare Road, *Eupatorium* flowers, ix.1993, S. Alston-Smith



**Plate 13.** *Anastrus obscurus naearis* ♀, Rio Claro - Guayaguayare Road, *Eupatorium* flowers, ix.1993, S. Alston-Smith

Evans (1953) recognises four subspecies of *A. obscurus* Hübner 1824, although the differences in the genitalia suggest that some or all of these merit species rank. Subspecies *naearis* is found in Central America, Colombia (TL) and Venezuela. Subspecies *narva* Evans 1953 is similar but has the UNH uniform brown, and is found from the Guianas through the Amazon basin to Bolivia (TL Upper Putumayo). The other subspecies extend the range to South Brazil and Bolivia.

Sexually dimorphic. Male UPS black, distal half UPH with a dark blue suffusion (Plate 12). UNS dark brown with copper tint; UNH dorsal half of wing shaded to light grey. Female dark brown above; UPH distal two-thirds occupied by two discal bands of lilac which fuse at costa and continue as a narrowing submarginal band UPF to costa (Plate 13). UNS as male. The UPS colouring cannot be confused with any other Trinidad species. Illustration in Lewis (1973, Plate 80, No. 21, ♂). No costal fold; F ♂ 19 mm, ♀ 19 mm.

This species is here recorded from Trinidad for the first time. It was discovered by SAS along the Rio Claro - Guayaguayare Road in 1993. On this occasion, it was not rare and SAS collected a series of five males and five females. It is remarkable that such a distinctive species should have avoided detection for so long. It appears to occur in very localised and temporary broods. An alternative explanation would be that it is a recent coloniser in Trinidad; time will tell if it spreads and becomes more common.

Moss (1949) does not mention rearing this species, but there is a final instar cast larval skin under this name in his material in the NHM. It has a plain brown head capsule.

**124. F8/4 *Ebrietis anacreon anacreon* Staudinger  
1876**

The nominate subspecies is widespread, from Mexico to Argentina (TL Brazil). Two populations in Ecuador and Colombia to Venezuela have the tornal area UNH more or less white and are considered separate subspecies by Evans (1953). Curiously, Kaye (1921, 1940) did not record this species from Trinidad, and the listing by Evans (1953) seems to be the first record from the island.

Sexual dimorphism slight; males have more pointed F and reduced pale markings (Plates 14, 15). UPS dark brown with light brown marking with a blue tint. UNS brown with indistinct pale brown bands; dorsum UNF and UNH paler with copper tint. This and the next species with their blue-mauve tinted markings on a dark background are reminiscent of *Gorgythion* spp., but can be immediately recognised as they are considerably larger. These two species are superficially similar, but the wing shapes are different, and while the UPS markings of *E. anacreon* are solid, those of the discal and basal areas for *C. thrasybulus* mostly have a dark brown centre. Costal fold; F ♂ 17-19 mm, ♀ 18 mm.



Plate 14. *Ebrietis anacreon anacreon* ♂, Rio Claro - Guayaguayare Road, 11.x.1993

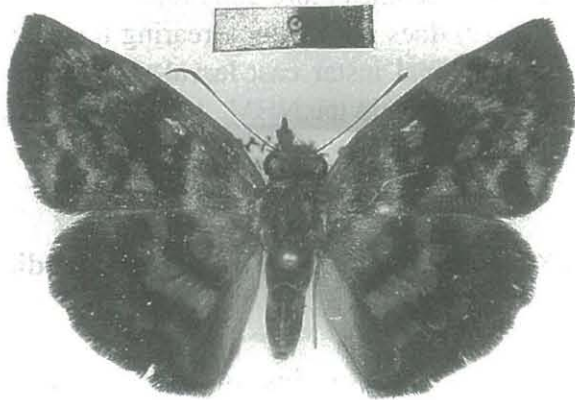


Plate 15. *Ebrietis anacreon anacreon* ♀, Parrylands Oilfield, 23.xii.1981

This is a widespread, although not especially common species in forested parts of Trinidad. I have records from the heights of the Northern Range (♀,

Andrew's Trace, 2200 ft, 6.xii.1978; ♀, Arima-Blanchisseuse Road, milestone 10, 11.ix.1979), Waller Field (♂, 5.x.1981, J & F Preston), and the South (Rio Claro-Guayaguayare Road, Cats Hill, Parrylands). Males come occasionally to flowers (Cats Hill, *Austroeupatorium* flowers, 19.ix.1982), but I have found the females more commonly, resting on leaves.

I am not aware of any published observations on the life history. In Trinidad I have twice found larvae on a vine, *Stigmaphyllon findlayanum* (Malpigiaceae) at Point Gourde (x.1995 and vii.1996). The stage III larval shelter used by the L4 and L5 is a long petiolate flap, hinged at one end along a major vein; and held above the leaf surface with strands of silk (in Africa larvae of the Pyrginae genus *Eagris* make a rather similar stage III shelter). The larva rests on the under surface of the turned over flap of the shelter.

L4 20 mm. Head chordate, only slightly indented at epicranial notch; rugose; matt; dark except for light brown marking across face, split by heavy dark line from near epicranial notch to mouth parts. T1 with narrow, dark dorsal plate. Body blue-green with evenly distributed dense yellow dots; indistinct, clear dorsal line; narrow, pale dorso-lateral line; ventro-lateral flap pronounced. Legs concolorous; spiracles pale and inconspicuous.

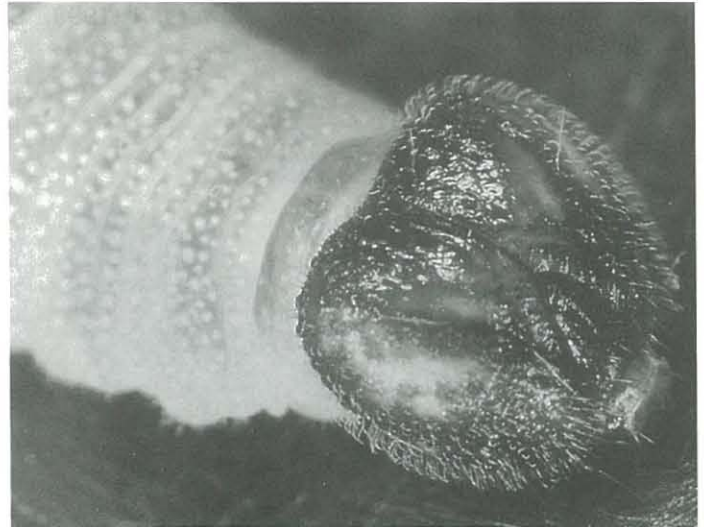


Plate 16. Fifth instar larva of *Ebrietis anacreon anacreon*, collected on *Stigmaphyllon findlayanum*, Point Gourde, 14.vii.1996 (Ref. 96/9).

L5 27 mm. Head chordate, broadly and shallowly indented at epicranial notch; covered with short, pale,

erect setae; dark brown or brown with a broad, light brown band across face, much wider laterally, and interrupted by a heavy, dark brown stripe from epicranial notch to mouth parts; a parallel, pale brown streak below the light brown band, above the stemmata. T1 concolorous with body. Body matt pale green, covered with yellow dots; dorsal line slightly darker; narrow, yellow dorso-lateral line. Legs concolorous, spiracles yellow, inconspicuous; anal plate truncate posteriorly.



**Plate 17.** Pupa of *Ebrietis anacreon anacreon*, collected as larva on *Stigmaphyllon findlayanum*, Point Gourde, 14.vii.1996 (Ref. 96/9).

Pupa 17 mm; rounded outline, with pointed cremaster; light green except tip of cremaster dark and T1 spiracles which are light brown and protuberant.

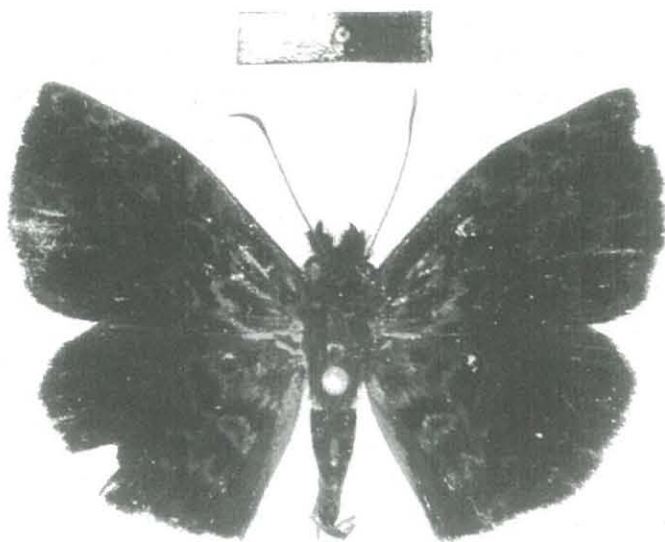
### 125. F9/1 *Cycloglapha thrasibulus thrasibulus* Fabricius 1793

This is another widespread species, being found from Mexico to Paraguay (TL "Indiis") in the nominate subspecies, while a population from Ecuador and North Peru with the tornal area UNH white is treated as a separate subspecies, *flinta* Evans 1953.

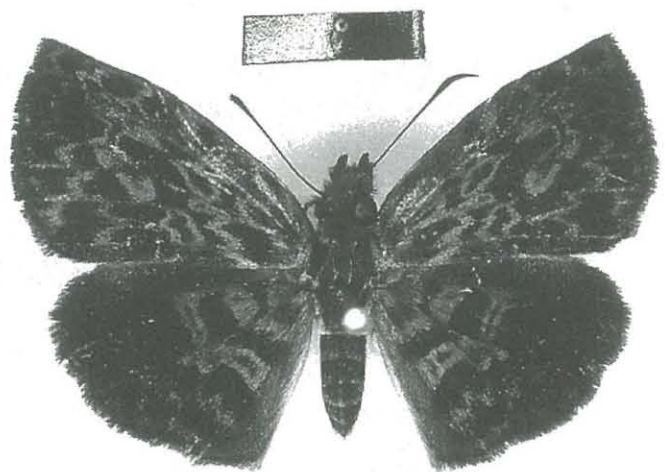
This species was originally recorded from Trinidad by Kaye (1904, 1921) as *Camptopleura thrasibulus*, without giving any details of captures.

Sexual dimorphism quite marked, the male much darker due to reduced markings above (Plate 18, 19). UPS dark brown with blue-purple tinted brown markings, several with dark brown centres - which should serve to distinguish this species from the last. UNS dark brown with indistinct coppery brown markings in male and pale coppery brown markings in female.

Illustration in Lewis (1973, Plate 82, No. 5). Costal fold; F ♂ 17 mm, ♀ 18 mm.



**Plate 18.** *Cycloglapha thrasibulus thrasibulus* ♂, Palo Seco Oilfield, 7.x.1995



**Plate 19.** *Cycloglapha thrasibulus thrasibulus* ♀, Parrylands, 2.ix.1980

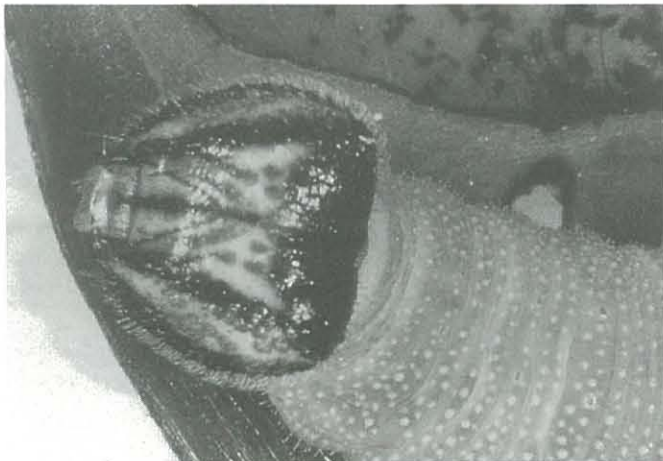
This is not a common species in Trinidad in my experience. I have just three records of adults: a male from the Palo Seco Oilfield (7.x.1995), a female at flowers of *Cordia curassavica* (Parrylands, 2.ix.1980) and another from the summit of Cumberland Hill (8.viii.1981). There is a male from St Anns in the NHM.

The larval food plants of this subspecies have been recorded as *Styrax ferrugineus* Nees & Mart. (Stryracaceae) near Brasilia (Diniz & Morais 1995),

*Annona* and *Guatteria* (Annonaceae) in Belem (Moss 1949), and *Platanus mexicana* Moric (Platanaceae) in Mexico (Kendall & McGuire 1975).

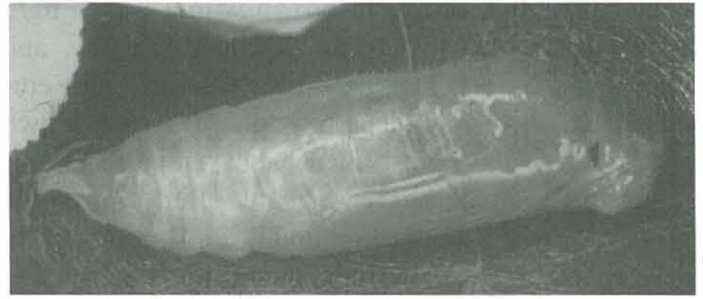
SAS has found the food plant of this species in Trinidad to be *Rollinia multiflora* (Annonaceae), and reared it out from Grande Ravine in x.1992. Since then I have also reared this species from the same food plant, collected from the border between the pine plantation and the old cacao estate behind St Benedict's (ix.1994). I have also found empty shelters on the Arima-Blanchisseuse Road, milestone 9.25 (x.1994).

The stage I shelter is a triangular flap cut from the edge of the leaf lamina, using a major vein as a hinge on the short side of triangular flap; of the two distal sides of the shelter, one is usually significantly longer than the other. The stage II shelter is similar, but larger. The stage III shelter is also similar in concept, but larger, with irregular notches cut from the longest side of the triangle, and with the aid of strands of silk from the margin of the shelter, it is held well off the surface of the leaf, similarly to that of the last species.



**Plate 20.** Fifth instar larva *Cycloglapha thrasibulus thrasibulus* collected on *Rollinia multiflora*, behind St. Benedict's, 30.ix.1994 (Ref. 94/40).

L5 30 mm. Head chordate; rugose; short pale setae; dark brown with light brown vertical streaks anteriorly and laterally. T1 concolorous with body. Body uniform yellow-green with yellow speckles (absent ventrally). Legs and prolegs concolorous. Pupa 16 mm. Smoothly contoured, eyes a bit protuberant; green; spiracle T1 protuberant, black; no white waxy powder. Pupation took eight days.



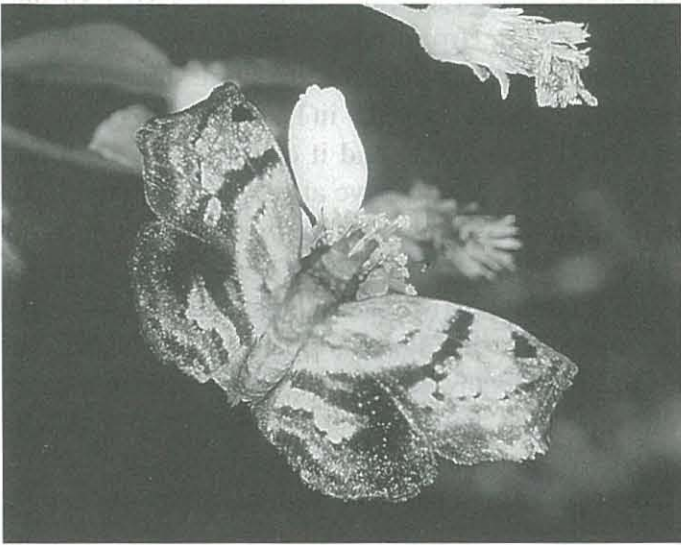
**Plate 21.** Pupa *Cycloglapha thrasibulus thrasibulus* collected as larva on *Rollinia multiflora*, behind St. Benedict's, 30.ix.1994 (Ref. 94/40).

## 126. F10 *Helias phalaenoides phalaenoides* Fabricius 1807

This is the only species recognised from the genus *Helias* by Evans (1953). It occurs in four subspecies, of which the nominate is the most widespread, being recorded from Panama to Bolivia (TL not given, but probably Surinam). Other subspecies extend this range to Mexico in the North and Argentina in the South.

Kaye (1904) first recorded this species from Trinidad as *Diphoridas phalaenoides*, commenting that it was "not rare in the Botanical Gardens". Evans (1953) lists two males from Tobago, and this is the first record from that island, although since they were collected by F.W. Jackson in 1914, it is strange that Sheldon (1936, 1938) was not aware of them.

Sexual dimorphism slight, the male is darker than the female (Plate 22) and the pale markings have a blue tint. UPS dark brown with extensive brown markings. UNS brown, with pale tornal area and discal bands UNH. This species is quite distinctive in the Trinidad fauna; the size, wing shape, and a dark brown stripe across the disc UPF which runs into a similar broad band UPH which narrows at the dorsum should distinguish it from other species. Illustration in Lewis (1973, Plate 83, No. 10). No costal fold; F ♂ 14 mm, ♀ 14 mm.



**Plate 22.** *Helias phalaenoides phalaenoides* ♀, Brasso, 11.x.1993

This is a common species along roadsides and in open disturbed situations throughout lowland Trinidad. I have records from the North Coast, valleys and disturbed lower slopes of the Northern Range, Waller Field, Brasso and various localities in the South. It is particularly fond of flowers of *Bidens pilosa*, on which it feeds with open wings, the forewing tips bent downwards (Plate 22) - a typical and pronounced "batwing".

Moss (1949) has reared the plain green larva of this species from *Citrus*. The translucent pupa is light brown when emerged, with a protuberant brown spiracle on T1 and no frontal spike or wax (Moss's material in NHM). SAS has noted the same food plant in Trinidad.

#### 126a. F11/2 *Camptopleura auxo* Möschler 1878

Although this species is widespread from Guatemala to Paraguay (TL Colombia), it is not particularly common, and was only recently recorded from Trinidad for the first time by J & F Preston (Cock 1984a).

I have not seen the male. Female UPS dark brown with indistinct brown markings (Plate 23). UNS brown with paler brown markings, most extensive at tornus UNH. The size, wing shape, and very obscurely marked dark UPS should distinguish this species. F

♀ 16 mm. The illustration of *Camptopleura theramenes* Mabille in Lewis (1973, Plate 81, No. 24) is similar to *C. auxo*.



**Plate 23.** *Camptopleura auxo* ♀, Brasso, 11.x.1993

The original record of this species was from milestone 10.5 on the Arima-Blanchisseuse Road (4.x.1981, J & F Preston). Since then SAS has caught a full series (5 males, 5 females) and I have photographed and caught a female at Brasso. This seems to be a localised rather than a rare species, and it is surprising that it wasn't picked up before, although perhaps it was overlooked for the more common dark species of this group.

Life history and food plants apparently unknown.

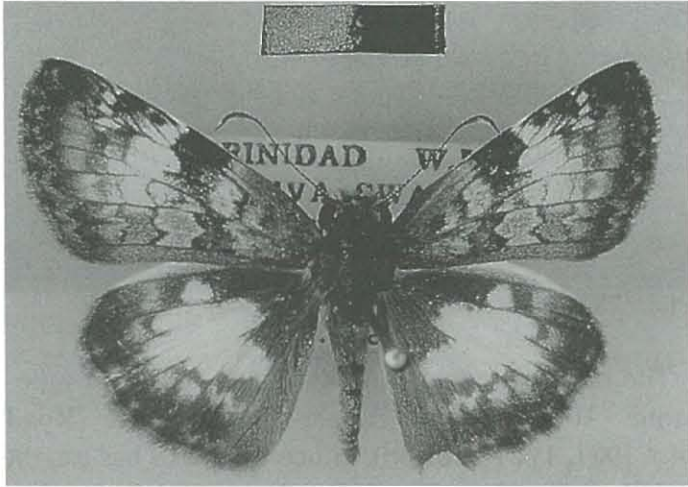
#### 127. F13/1 *Chiomara asychis simon* Evans 1953

This is a very widespread species, being found from Mexico to Argentina and some of the Lesser Antilles. The differences in the genitalia suggest that more than one species may prove to be involved. Subspecies *simon* Evans is restricted to Panama, Colombia (TL), Venezuela and Trinidad, and is similar to the nominate subspecies, *asychis* Stoll 1780, which is from the Guianas (TL Surinam) and North-east Brazil. *C. a. asychis* is larger and darker; UPF the markings are narrower and more sharply defined; UPH the spots in space 7 are smaller and the outer spot is less marked.

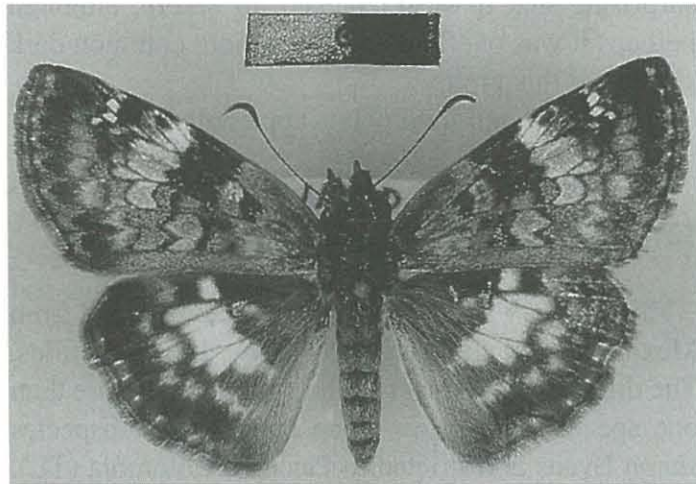
This species was first recorded from Trinidad by Kaye (1940), based on records from Manzanilla in 1915 and iii.1922 by F.W. Jackson.

Sexual dimorphism is quite pronounced, the male being significantly more extensively white on both the

UPS and UNS (Plate 24, 25). This brown and white species is distinctively marked and unlikely to be confused with any other Trinidad species. Illustrations in Lewis (1973, Plate 81, No. 37), Riley (1975, Plate 22, Fig. 16, ♂) and Smith *et al.* (1994, Plate 29, No. 10, ♂ ssp. *vincenta*, and No. 11, ♂ ssp. *grenada*). No costal fold; F ♂ 17-19 mm, ♀ 18-19 mm.



**Plate 24.** *Chiomara asychis simon* ♂, Nariva Swamp, 21.ix.1979



**Plate 25.** *Chiomara asychis simon* ♀, Nr. Mayaro, 29.viii.1982

Although Kaye (1940) suggests that this species is “certainly rare” in Trinidad, it would be more correct to say that it is localised to a specific habitat, where it is quite common. The clue is in the locality recorded by Kaye (Manzanilla). I have already discussed the suite of swamp butterflies recorded by F.W. Jackson from “Manzanilla” (Cock 1984b); *C. asychis simon* is one of these. In fact this skipper can be found quite

commonly along the seaward edge of Nariva Swamp (Cock 1982a), from milestone 39 to 49 of the Manzanilla-Mayaro Road. Capture months (and numbers caught) include ii(1), iii(3), iv(1), vii(3), viii(2), ix(4), and x(1) and it can probably be found throughout the year. I have also found it on the landward side of Caroni Swamp in the vicinity of Cacandee Sluice (French and Bacon 1982), where it is quite common (i-ii.1982). There are three early specimens labelled Port of Spain in the NHM, but these are probably from one of the nearby swamp patches which have now been destroyed. Adults come to flowers such as *Cordia curassavica*.

The nominate subspecies was reared at Belem by Moss (1949) on a “straggling creeper with glaucous leaves and 5-petalled yellow flowers belonging to the Malpighiaceae”. The Central American subspecies, *C. asychis georgina* Reakirt 1868, has been recorded to feed on *Malpighia glabra* L. in Texas (Kendall & Rickard 1976) and *Gaudichaudia pentandra* Juss. in Mexico (Kendall 1976) (both Malpighiaceae), while in Rio Grande do Sul, Brazil, the food of subspecies *autander* Mabilie 1891 is given as *Vitex montevidensis* Cham. (Verbenaceae) by Biezanko (1963) and Biezanko & Mielke (1973).

In Trinidad, the food plant of subspecies *simon* is *Brachypterys ovata* (Cav.) Small (Malpighiaceae), a sprawling bush with yellow flowers which grows in swampy areas (possibly the same food plant found by Moss for subspecies *asychis*). I have reared it from this species from Caroni Swamp, while SAS has reared it from Nariva Swamp. The early larvae use triangular leaf flaps cut from the lamina edge, and the large larvae shelter between two leaves, where pupation takes place. The mature larva has a shield-shaped head, slightly indented at the epicranial notch; it is grey anteriorly (on the face) and dark posteriorly; the dark area extends laterally along the latero-ventral edge, and in a diagonal stripe towards the mouth parts, and dorsally in a broad stripe which extends onto the dorsal part of the face; white markings are present as a stripe lateral to the broad dark dorsal stripe, and a spot placed antero-laterally above the lateral diagonal dark stripe; body whitish blue green. I made no notes regarding the pupa, but Moss (1949) states that it is greenish, and his emerged pupal skin in the NHM has the spiracle of T1 whitish with a brown margin, and

no frontal spike or wax. At least one pupa that Moss collected was parasitised by a yellow and black solitary chalcidoid pupal parasitoid (?*Spilochalcis* sp.).

### 128. F13/3 *Chiomara mithrax* Möschler 1878

No subspecies are recognised of this widespread species which is found from Mexico to Argentina (TL Colombia). It was first recorded from Trinidad in the addenda to Kaye (1914), on the basis of a specimen taken in Emperor Valley by K St A Rogers in i.1913.

The sexes are similar. UPF almost black; basal band dark brown with lighter coppery margins; discal bands brown with coppery margins; termen coppery brown; some scattered light brown scales on disc (Plate 26). UPH dark brown with light brown diffuse bands. UNF brown; pale in space 1A and sub-apical patch on costa. UNH brown with diffuse pale brown bands to match UPH. Illustrations in Lewis (1973, Plate 81, No. 40), Riley (1975, Plate 22, No. 17, ♂) and Smith *et al.* (1994, Plate 29, No. 12, ♂). No costal fold, F ♂ 17 mm, ♀ 19 mm.

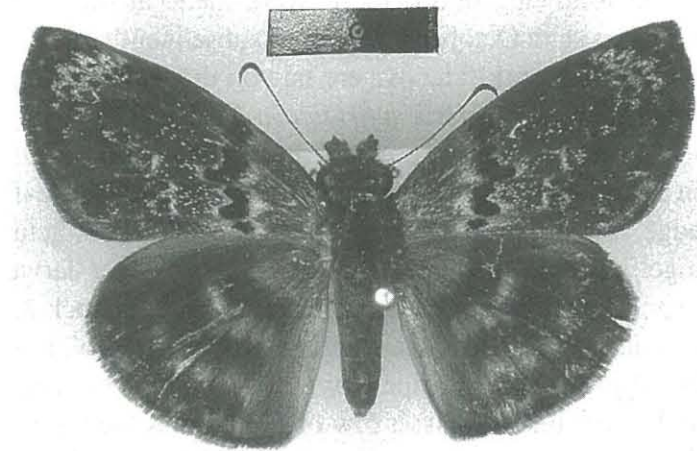


Plate 26. *Chiomara mithrax* ♀, Brigand Hill, 25.xi.1980

This is a widespread and occasional species in open and disturbed areas of Trinidad. Most of my records are from fairly low areas (St Anns, Blanchisseuse-Paria Bay Track, Arima, San Rafael, Cats Hill, Rock-Penal Road, Morne Diable), but I do have specimens from about 1150 ft on Mt. Tabor (♀, 5.viii.1979) and from the summit of Brigand Hill (25.xi.1980). It comes readily to flowers of *Bidens pilosa* and *Eupatorium*, and usually flies close to the ground.

Moss (1949) found shelters of this species quite common on *Vitex triflora* L. (Verbenaceae). Similarly, Biezanko (1963) and Biezanko & Mielke (1973) report the food plant as *V. montevidensis* Cham. in Rio Grande do Sul, Brazil. Moss (1949) writes that “the larva is dull green with a brown head and lives at first under a more or less flat triangular roof, the final larval shelter being of a type peculiar to this species. Having bored three big holes and eaten away portions between the side ribs of the leaf, the larva retires to its prepared shelter, the elevated oval on an adjacent stiff and dark green leaf, then attaching this to the bared ribs, it fastens the two leaves together. This eventually forms the pupal resting place”. Moss’s plate of the larva shows the brown head to have three rows of pale spots: a dorsal one of two spots, and two slightly curved lines of four and three spots respectively below this. The emerged pupal skin (in NHM) is similar to that of *C. asychis*.

SAS reared this species from larvae collected on *Vitex capitata* at Arena Forest (i.1992). He notes that the head of the mature larva has two rows of dark spots: an upper row of four spots and a lower row of three spots; the body is green with a thin yellow lateral stripe, and the pupa is light green.

### 129. F14/4 *Gesta gesta gesta* Herrich-Schäffer 1863

Subspecies *gesta* is widespread from Panama to Argentina, and the Greater Antilles (Cuba [TL], Haiti, Jamaica). A second subspecies, *invisus* Butler & Druce is restricted to Central America, from Mexico to Costa Rica (TL).

This species was included in the first list of Trinidad butterflies by Crowfoot (1893), and confirmed by Kaye (1921) with a capture from Fondes Amandes. It was recorded from Tobago by Sheldon (1936) who found it not uncommon at Speyside, and there is a male and a female in the NHM (Evans 1953).

UPS ♂ dark brown with indistinct brown bands; translucent apical spot (Plate 27); UNS brown largely undifferentiated. The ♀ is paler than the ♂, with markings better differentiated UPS (Plate 28) and UNS. Illustrations in Brown & Heineman (1972, Plate IX, No. 15), Lewis (1973, Plate 82, No. 54, as *Erynnis gesta*), Riley (1975, Plate 22, No. 14, ♂) and Smith *et al.* (1994, Plate 29, No. 9, ♀). No costal fold, F ♂, ♀ 15



mm.

Plate 27. *Gesta gesta gesta* ♂, Fort George, 16.x.1993



Plate 28. *Gesta gesta gesta* ♀, Fort George, 16.x.1993

Apart from Kaye's record from Fondes Amandes, there are specimens from Gasparee (♂, 11.iii.1928, Sir N Lamont in RSM), Port of Spain (♂, i.1897, Dr Rendall), St Anns (♂, i-iii.1932, A Hall), Maraval (♂, vii.1891; ♀, viii.1891), St Augustine (♂, 12.ii.1924, CL Withycombe), Siparia (♂, 8.xii.1915, Sir N Lamont in RSM) and Palo Seco (♂, 8.i.1921, Sir N Lamont in RSM). The only recent locality I know is Fort George, where SAS discovered a localised colony just above the Fort where the food plant, wild indigo (*Indigofera suffruticosa* Mill., Leguminosae), also occurred. I would expect it to turn up in similar disturbed, open situations where its food plant can be

found.

The food plant is reported to be *Cassia occidentalis* L. (Leguminosae) (Hayward 1941, 1947 based on Brazilian publications). Similarly, in Rio Grande do Sul, Brazil, Biezanko (1963) and Biezanko & Mielke (1973) list the food plants as *C. corymbosa* Lam. and *C. ferruginea* Schrad. In contrast, Moss (1949) observed a female laying eggs on *Indigofera anil* L., but did not rear this species. In Texas, subspecies *invisus* is recorded by Kendall (1965) to feed on *I. suffruticosa* and *I. lindheimeriana* Schelle, while in Mexico Comstock & Garcia (1961) found the food plant to be *Cassia* sp. In contrast to these records from Leguminosae, Diniz & Morais (1995) report the food plant of "*Gesta (?) gesta*" to be *Anacardium humile* St. Hil. (Anacardiaceae) near Brasilia.

There is a specimen of *G. gesta* in the collection of the International Institute of Biological Control, Curepe, "collected as larva on *Lantana camara*". This is certainly not a normal food plant, since the fauna of *L. camara* is well known and does not include this species; most likely this represents a larva that strayed onto *L. camara* and then used the leaves to prepare a pupation chamber.

The following observations were made at the Fort George site in October 1993. SAS subsequently reared out this material. The ova are laid on the leaves of the food plant, *Indigofera suffruticosa* Mill., on both the leaf under surface and upper surface. Young larvae rest in a shelter made with a triangular flap cut from the leaf edge, while larger larvae rest between two leaves held together, one on top of the other. The larger larva matches that described and illustrated by Comstock & Garcia (1961). It has an orange-brown head, with a broad green-brown stripe down the centre of the face, and heavy black spots: a row of four across the top of the head, on the posterior margin; a widely spaced row of three smaller spots below this; another row of three spots below this, almost fused to form a bar apart from the ground colour at the sutures with the clypeus; below this a narrow black bar across the mouth parts. T1 concolorous. Body dull green, with a dense speckling of white dots; a yellow dorso-lateral line from T3 to A9 is strongly marked on the anterior margin of each segment, but diffuse in the posterior part (Plate 29).





**Plate 29.** Fifth instar larva of *Gesta gesta gesta* on *Indigofera suffruticosa*, Fort George, 16.x.1993

The pupa described and illustrated by Comstock & Garcia (1961) is 12 mm long, uniform green except for black T1 spiracles, and a group of eight coffee-coloured spots at the tip of the cremaster.

### 130. F15/2 *Ephyriades zephodes* Hübner 1825

Three of the four species of this genus are associated with the Caribbean Islands. *E. zephodes* seems to be common on Haiti and Cuba, but also recorded from Puerto Rico, Jamaica, St Thomas and St Bartholomew. In addition, Evans (1953) records specimens from Mexico (1♂), Brazil (1♂, 1♀) and Trinidad (1♀); all these mainland records would benefit from confirmation. The Trinidad specimen has labels "coll. Kaden" and "Trinidad / Druce Coll." which do not match any of the other Trinidad labels normally encountered in the NHM. The specimen might have been from Trinidad in Cuba, but it doesn't match the series from Cuba which are smaller and darker. It most closely resembles the specimen labelled Brazil, which suggests that it could be a mainland race.

In size and shape the female resembles *Grais stigmaticus*. It is light mauve brown, with UPF two brown diffuse discal bands and a submarginal one; UPH with similar wider bands. White hyaline spots in spaces 2-9, 2 in cell (in line with spot in space 2) and 12. The male is uniformly black above, with a long costal fold. Illustrations in Lewis (1973, Plate

82, No. 50, ♂) and Riley (1975, p. 174, Fig. 21, ♀).

There is a single female of this species labelled Trinidad in the NHM. Evans (1953) lists this as *E. zephodes*, although Kaye (1940) records it as *E. otreus* Stoll 1780 (TL Surinam?), a synonym of the closely related *E. arcas* Drury 1773. This remains the only known record from Trinidad, and I consider it of doubtful validity as a Trinidad species.

The life history and food plants of *E. zephodes* have not been recorded. In Puerto Rico, *E. arcas* is recorded to feed on *Echites* sp. (Bates 1935), *Stigmatophyllum lingulatum*, *Malpighia fulcata* and *Ceiba pentandra* (Wolcott 1951) and the life history is described by Wolcott (1923). *E. brunnea jamaicensis* Möschler 1878 feeds on *M. puniceifolia* (corrected from *Prunus* sp.) in Jamaica and the life history is described in Brown & Heineman (1972). Tamburo & Butcher (1955) describe the life history and illustrate the larva for the Florida subspecies, *E. brunnea floridensis* Bell & Comstock, and published food plants for this subspecies include the Malpighiaceae Barbados cherry, *Malpighia glabra* (Tamburo & Butcher 1955), *Byrsonima* (Baranowski in Kimball 1965) and *Byrsonima lucida* (Lenczewski 1980, quoted by Smith *et al.* 1994). Scott (1986) describes the larva but it is not clear what his source was (it does not seem to be Tamburo & Butcher 1955).

### Genera Group G

In Group G, the abdomen is as long as the dorsum of the hind-wing, the antennal club is blunt and generally bent at its commencement. The wings may be erect, half open or flat in repose. All species can be easily recognised and identified from the plates.

Evans lists just 29 species of this group for the Americas. Four of these are recorded from Trinidad, although two of them are only known from Chacachacare Island. One of these, *Heliopetes laviana leca* Butler, is a new country record collected by Scott Alston-Smith. Of this group, only *Pyrgus orcus* is found in Tobago.

The group is better represented in Africa and Asia, and together they form a compact group. In his analysis of the African species, Evans has suggested that the group should be raised to subfamily status, a view with which I sympathise. All larvae familiar to me

(including those of *Spialia* spp. in Africa) have a round head, and the head and body hairy. All Trinidad species are likely to feed on Malvaceae, although African representatives commonly feed on related families including Tiliaceae and Sterculiaceae, and there are records from Convolvulaceae, Rosaceae etc.

### 131. G1/11 *Pyrgus orcus* Stoll 1780

*Pyrgus orcus* is found from Costa Rica to Argentina (TL Surinam), and up the Lesser Antilles as far North as Dominica. Evans (1953) treated *P. orcus* as a subspecies of *P. oileus* Linnaeus 1767 which occurs in Central America and the Caribbean through the Greater Antilles and down the Lesser Antilles as far South as Grenada, thus overlapping with *P. orcus* through much of the Lesser Antilles. Although de Jong (1983) is not convinced, I follow Brown & Heineman (1972) in treating *P. orcus* and *P. oileus* as distinct species. The two species can be distinguished by the presence in *P. orcus* of a brown spot mid costa in space 8 of the UNH which is absent in *P. oileus*.

Crowfoot (1893) records *Hesperia ruralis* Boisduval 1852 from Trinidad, but not *P. orcus*; since *Pyrgus ruralis* is a North American species, I am convinced this was an error for *P. orcus*. Kaye (1904) records this "commonest skipper" from Trinidad as *Hesperia syrictus* Fabricius 1775, which is a synonym of *P. oileus*. Sheldon (1936) also recorded this species as *Hesperia syrictus* in his list of Tobago butterflies, and it is a common species there. It is also found on Gasparee (2♂, 11.iii.1928, Sir N Lamont in UWI & RSM) and Chacachacare Island (♀, Rusts Bay, 15.i.1980, MJWC & JO Boos) (Cock 1982b).

Male UPS brown with strong clear white spotting, wing bases and dorsum of both wings overlaid with grey setae (Plate 30, 31). Female similar colouring, but white spotting much reduced, giving a very different impression (Plate 31). Both are distinctive in the Trinidad fauna. *P. orcus* is not frequently illustrated, but *P. oileus* is sufficiently similar that illustration of that species can be used to identify *P. orcus* in Trinidad. Illustrations of *P. oileus* can be found in Brown & Heineman (1972, Plate IX, No. 18), Riley (1975, Plate 23, No. 5, ♂), Smart (1976, p. 113, No. 47, ♂) and Smith *et al.* (1994, Plate 29, No. 22, ♂). Costal fold, F ♂, ♀ 14 mm.

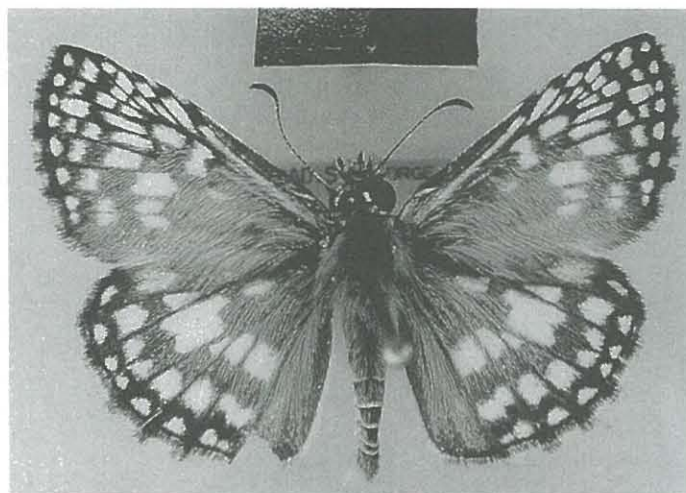


Plate 30. *Pyrgus orcus* ♂, Curepe. 14-22.xi.1980

I am inclined to agree with Kaye, who considered this the commonest skipper. This is a common and widespread species in open, disturbed situations throughout both Trinidad and Tobago. I have found it at up to 2300 ft in the Northern Range (Morne Bleu Textel), and it would probably extend higher were suitable habitat available.

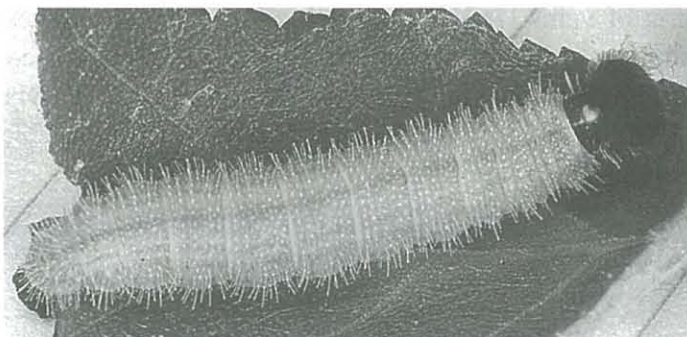


Plate 31. *Pyrgus orcus* in copula, ♂ on the left, Parrylands, 18.i.1988

According to W. Buthn (in Kaye 1921) "the larva feeds on a yellow flowered species of *Sida*. Pupa in a frail cocoon". Moss (1949) reared this species, but did not include any details in the text of his account; the plate of the larva is, in my copy, too indistinct to reveal any detail. In Rio Grande do Sul, recorded food plants include *S. rhombifolia*, *Malva parviflora* L., *Althaea rosea* Cav and *Hibiscus esculentus* L. (all Malvaceae) (Biezanko 1963; Biezanko & Mielke

1973).

*Pyrgus oileus* also feeds on *Sida* spp., and has been recorded from *Sida rhombifolia* (Bottimer 1926, Brown & Heineman 1972, own unpublished observations), *Sida carpinifolia*, *S. antillensis*, *S. rhombifolia*, and *S. salvaefolia* as well as species of *Abutilon*, *Althaea*, *Hibiscus*, *Malva*, *Malvastrum*, and *Sidalcea* (all Malvaceae) (Scott 1986, Smith et al. 1994 and other summaries).



**Plate 32.** Fifth instar larva *Pyrgus orcus*, on *Sida rhombifolia*, Morne Bleu Textel, 16.i.1988 (Ref. 88/1).

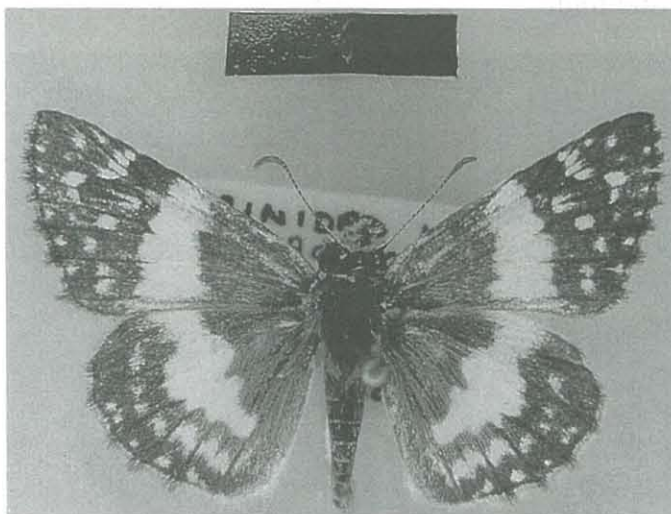
I have reared this species from larvae collected on *Sida rhombifolia* at Aranguéz Gardens, Morne Bleu Textel and the Rio Claro-Guayaguayare Road - a range of localities indicative of the range of this species in Trinidad. The mature larvae shelter between several terminal leaves of a shoot held together with silk, and pupation occurs in the same shelter. The mature larva measures about 15 mm. Head chordate, dull black, rugose, with short erect black setae. T1 dull black-brown, with pale dorsal and dorso-lateral longitudinal stripes. Body yellow-green dorsally with scattered yellow dots; green dorsal line and dorso-lateral line; laterally body green with scattered yellow dots; body covered with erect yellow-white setae. T1-2 legs black; T3 legs, prolegs concolorous with body. The pupa is 14 mm long; thorax green; abdomen yellow-green; spiracles black; black spots on abdomen at tornus FW; thorax and abdomen covered with white setae of about 1.5 mm, erect on thorax and semi-recumbent on abdomen. Pupation lasted only eight days.

**132. G2/1 *Heliopetes domicella domicella* Erichson 1848**

The nominate subspecies is found from USA (Texas) to Colombia and Venezuela and Guyana (TL). A sec-

ond subspecies, *willi* Plötz 1884, occurs further South, from the Amazon to Argentina, and a third, *margarita* Bell 1937, is restricted to Margarita Island.

UPS brown with white markings; the strong, clear white discal band is distinctive (Plate 33). Sexes similar. Illustration in Lewis (1973, Plate 83, No. 12). Short, weak costal fold; F 13 mm.



**Plate 33.** *Heliopetes domicella domicella* ♂, Chacachacare Island, track to lighthouse, 15.i.1980

This species is restricted to Chacachacare Island, where I caught a male and female on a collecting trip in January 1980 with Julius Boos (Cock 1982b). SAS has since caught five males and five females on Chacachacare Island. The habitat was open disturbed situations along the tracks on the island. Scott (1986) note that adults feed at mud and flowers.

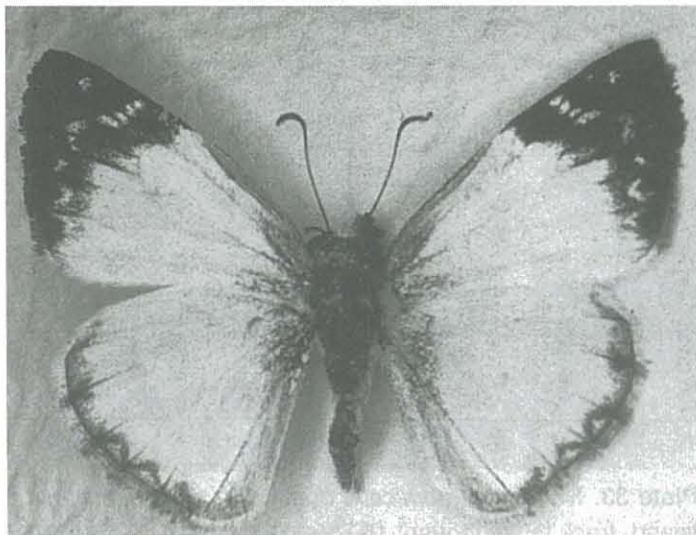
Life history and food plants unknown, but likely to feed on Malvaceae. SAS has observed oviposition in Venezuela (Punta de Mata, Monagas), but has not identified the food plant.

**132a. G2/5 *Heliopetes laviana leca* Butler 1870**

*Heliopetes laviana* Hewitson 1868 occurs in three subspecies: the nominate form from southern USA to Colombia and parts of Venezuela (TL Nicaragua), subspecies *leca* from Venezuela (TL), Ecuador and Peru (here recorded from Trinidad for the first time), and subspecies *libra* Evans 1944 from Peru and Brazil (TL) to Argentina. A single male of this species, found by SAS on Chacachacare Island in 1992, is the

only record from the country.

UPS white, with margin and apical area of F marked with dark brown (Plate 34); UNF white with apical markings; UNH olive-brown with diffuse white markings. the dark UNH combined with predominantly white markings on the UPS make this species distinctive. Illustration in Lewis (1973, Plate 83, No. 13). Costal fold.



**Plate 34.** *Heliopetes laviana leca* ♂, Chacachacare Island, 1992, S. Alston-Smith (in collection SAS).

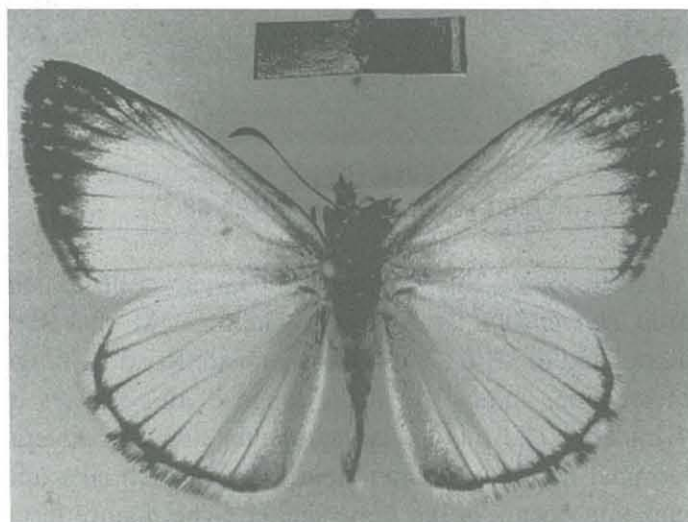
Although Hayward (1941) lists Convolvulaceae as the food plants, based on a Brazilian publication, other authors reports various Malvaceae as the food plants. Thus, the food plants recorded in Rio Grande do Sul, Brazil, by Biezanko (1963) and Biezanko & Mielke (1973) include *Pavonia spinifex* Willd., *Hibiscus esculentus*, *Abutilon pauciflorum* St. Hil. and *A. molle* (Ort.) Sweet. which are all Malvaceae. Scott (1986) lists *Sida filipes*, *Malvastrum americanum*, *Abutilon lignosum*, *A. hypoleucum* and *Pseudabutilon lozani*, presumably based upon observations in the southern USA. Any shrubby Malvaceae on Chacachacare Island would be worth checking for larvae of *H. laviana* and *H. domicella*.

### 133. G2/7 *Heliopetes arsalte arsalte* Linnaeus 1758

Through most of the wide range of this species, the nominate form is found, but a second subspecies,

*marginata* Hayward is restricted to the Pacific margin of Ecuador and Peru. The nominate subspecies is recorded from Mexico to Argentina (TL "Indiis"), and two records from the Greater Antilles are considered to be either vagrants or in error (Riley 1975). This is the only member of the genus recorded from the island of Trinidad itself.

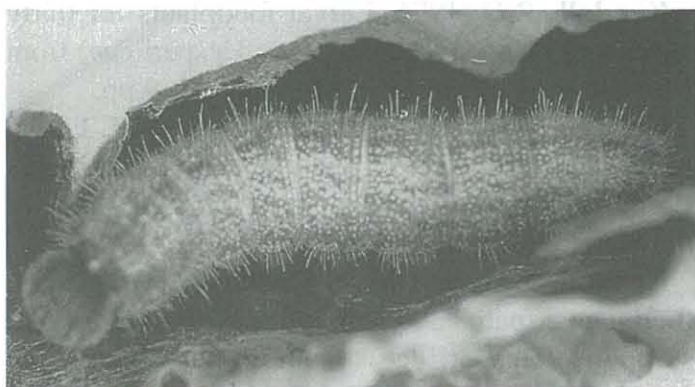
UPS white, with brown markings at margin and F apex (Plate 35); UNS white with termen, distal portion of veins UNF and all veins UNH brown. Sexes similar. A distinctive species unlikely to be confused with any other in Trinidad. Illustrations in Lewis (1973, Plate 83, No. 11) and Riley (1975, Plate 23, No. 4, ♂). Costal fold, F ♂ 16 mm.



**Plate 35.** *Heliopetes arsalte arsalte* ♂, Grande Ravine Reserve, 21.vi.1979

This species was first recorded from Trinidad as "frequent, but not abundant" by Kaye (1904). I would regard it as occasional rather than frequent. It is widespread in lowland Trinidad, and because of its conspicuous colour and markings is not easy to overlook. It does not seem to extend to any great altitude in the Northern Range. The habitat, like that of other members of the genus, is open disturbed situations, such as roadsides.

The biology and food plant do not seem to have been recorded before. I found a larva on *Wissadula contracta* (Malvaceae), on the track above St Benedict's, below the fire tower (x.1994) an area where I have not seen adults. The larval shelter is unusual: the terminal leaves were spun together with one or more dead leaves, and the larva actually rested within a dead crumpled leaf.



**Plate 36.** Fifth instar larva of *Heliopetes arsalte* on *Wissadula contracta*, above St. Benedict's, 6.x.1994 (Ref. 94/60).

L5 19 mm (Plate 36). Head rounded, indented at epicranial notch; brown; covered with short, light brown setae. T1 light brown, with narrow, pale, dorsal line and lateral line. Body dull, sullied green, with irregular sullied yellow lateral streaking merging into each other; dorsal line darker, but only clear on anterior margin of each segment; body covered with long, pale setae. Spiracles pale, inconspicuous. Legs brown; prolegs concolorous.



**Plate 37.** Pupa of *Heliopetes arsalte* collected as larva on *Wissadula contracta*, above St. Benedict's, 6.x.1994 (Ref. 94/60).

Pupa 15 mm (Plate 37). Smoothly contoured; slightly elongate; no projections. Head, thorax and appendages green, wing cases light green distally; abdomen light green; a broad, diffusely defined brown dorsal stripe on abdomen; small, irregular, black, dorsal mark on anterior margin of T1; apart from appendages, pupa covered with long, pale, erect setae. T1 spiracle light brown; abdominal spiracles black. Pupation lasted 10 days.

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