The Skipper Butterflies (Hesperiidae) of Trinidad
Part 14, Hesperiinae, Genera Group L

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ABSTRACT
Details are given of the taxonomy, history, description, identification and biology of the nine genera and 15 Trinidad species of Genera Group L of the Hesperiidae (Lepidoptera). *Decinea lucifer* (Hübner) is a new island record for Trinidad. All 15 species are illustrated as adults. The early stages are illustrated for *Saturnus saturnus saturnus* (Fabricius), *Quinta cannae* (Herrich-Schäffer), *Cynea irma* (Möschler) and *C. diluta* (Herrich-Schäffer) from Trinidad material, and for *Rhinthon cubana osca* (Plötz) from Colombian material, and notes are provided on the early stages of *Saturnus reticulata reticulata* (Plötz). Three genera and three species also occur in Tobago.

INTRODUCTION

Evans (1955) characterises genera Group L as intermediate between Groups J (which I have yet to cover) and O (Cock 2003). More specifically, the morphology of the club of the antennae ranges about one-third of the nudum on the club and two-thirds on the apiculus, to half the nudum on the club and half on the apiculus. The palpi range from a quadrate second segment as in some members of Group J (e.g., *Lerema*) to a flattened second segment as in *Calpodes* (Group O). The termen of the hindwing is convex and not straight or concave as in Group O. All Trinidad species are basically brown in ground colour. Thus, Group L is a convenient arbitrary grouping of genera on limited characters, and unlikely to represent a monophyletic group.

In the new checklist of Neotropical butterflies (Lamas 2004), Mielke's (2004) treatment of the Hesperiidae, does not recognise any groupings below the subfamily level of Hesperiinae. While I agree that this is appropriate given our current knowledge, for practical and historical reasons I have chosen to continue with Evans' Genera Groups at this time. I believe that in due course, increased knowledge of the early stages of the Hesperiidae will make an important contribution to our increased understanding of the classification of Hesperiidae at and below the subfamily level, which is one reason I have taken significant trouble to record these in detail whenever possible.

Evans (1955) recognised 17 genera and 80 species of Group L from the Neotropical Region. Nine genera and 15 species occur in Trinidad, while just three species of three different genera are recorded from Tobago.

To my knowledge only five of these species have been reared in Trinidad until now: *Saturnus saturnus saturnus* (Fabricius), *Saturnus reticulata reticulata* (Plötz), *Quinta cannae* (Herrich-Schäffer), *Cynea irma* (Möschler) and *Cynea diluta* (Herrich-Schäffer). Details are provided on these, as well as details of the life history of *Rhinthon cubana osca* from Colombia. Caterpillars of some species have rather narrow heads. Although *S. r. reticulata* has a 1 mm frontal spike, pupae of other species that I have reared have no frontal spike unlike, e.g., most members of genera Groups K (Cock 2005) and O (Cock 2003). The known food plants of Group L are all Monocotyledons, a mixture of grasses, and Epigynae such as Zingiberaceae, Cannaceae and Marantaceae.

An important recent publication is that of Greeney and Jones (2003), who set forth a classification scheme for the characteristic shelters that caterpillars of Hesperiidae make. I have used this classification for the life history information provided here.

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 Bioscience, 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 2005 and earlier papers). The museum abbreviations can be found in the acknowledgements at the end of the paper.

217. L1/1 *Saturnus saturnus saturnus* (Fabricius 1787)

Figs. 1-6.

The nominate subspecies was described from French Guiana and occurs from Venezuela to the Amazon; a second subspecies, *servus* (Evans 1955), is restricted to southern Brazil.

This species seems particularly common in collections from Trinidad, 34 out of 62 specimens of this subspecies listed in the NHM being from Trinidad (Evans 1955). In

spite of this, Kaye (1921, 1940) did not record this species from Trinidad; there are no specimens in his collection in AME, and none of the 34 specimens in the NHM were from his collecting.

Male. Antennae dark, pale under club. UPS brown; head narrowly yellow-tawny around eyes and down centre. UPF brown; basal half of costa tawny; yellow spot in space 1B; yellow hyaline spots in spaces 2, 3, 6, sometimes 7 and occasionally 8. A conspicuous three part stigma UPF: a black streak against cell from above spot in space 2 to above inner margin of spot in space 1; a grey area basal to the spot in space 2, below the first part of the stigma and distal to the third part; and a second black streak, in an arc from basal end of first streak to vein 1 at inner margin of spot in space 1B. UPH brown with faint and indistinct pale discal spots in spaces 3, 4 and 5, which are not apparent in older specimens. UNS of head pale, yellow on palpi; body light brown, legs yellow-brown; abdomen pale with narrow brown ventral and sub-ventral lines. UNS wings lighter brown than UPS; UNF spots as UPF; usually some yellow scales between the UNF spots in spaces 1B and 2, and sometimes in space 3 beyond the spot in space 2; veins of apical portion UNF and all UNH light yellow-brown. Female similar except that the absence of the stigma is striking; in addition the wings are more rounded and less apically pointed; no tawny area along base of costa; F spots paler and that in space 1B smaller. F male and female 14 mm.

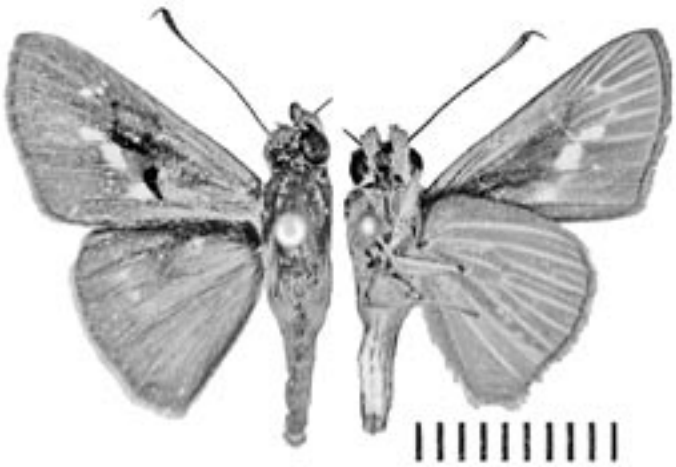

Fig. 1. *Saturnus saturnus saturnus* male; UPS, Point Gourde, 8.x.1995; UNS, Mt. Tabor, 11.iv.1982.

Fig. 2. *Saturnus saturnus saturnus* female; UPS and UNS, North Post, reared from caterpillar collected on *Olyra ciliatifolia*, MJWC ref. 99/10.

Two Trinidad species of *Parphorus* (genera Group J) also have distinctive yellow-brown veins UNS, although these are more yellow in tone, more strongly marked and more contrasting than the light yellow-brown veins of *S. s. saturnus*. Furthermore, *P. storax storax* (Mabille) is smaller (F 11-12 mm); the male stigma is similar, but the spots UPF are more diffuse and less contrasting, forming a more or less continuous line from vein 1 to space 3; the spots UNF are reduced, at most a diffusion in space 1B and a spot in space 3; in the female, the spots UPF are significantly reduced. *Parphorus decora* (Herrich-Schäffer) is intermediate in size (F 13 mm); the UPF spots markings are similar to those of *S. s. saturnus*, but the UNF lacks the spot in space 1B; in addition, the male stigma is restricted to a grey area basal to the spot in space 2, and in both sexes the UNF pale veins are not as extensive.

Saturnus s. saturnus is widespread and quite common in forests throughout Trinidad; it seems to be commoner in the north–44 out of 47 records–and only occasionally found above 1,000 ft. Adults can be found sitting on low (< 1m) vegetation along forest paths, often in sunlit patches. The distinctive striped UNS, and larger size compared to other species with a similar UNS, makes *S. s. saturnus* recognisable in the field in Trinidad.

Fig. 3. *Saturnus saturnus saturnus* female; UNS, reared from caterpillar collected on *Olyra ciliatifolia*, North Post, MJWC ref. 99/10.

I have reared this species from caterpillars collected on *Olyra ciliatifolia* at North Post, 16.v.1999 (MJWC ref. 99/10) and Inniss Field, 16.i.2004 (MJWC ref. 04/28). Another caterpillar collected as a fourth instar caterpillar on *O. latifolia* on Lalaja Ridge, 6.v.1995 (MJWC ref. 95/19A) died as a pupa, but is almost certainly this species. Similarly, on 23 March 2003, I found an emerged pupa with associated head capsule on *O. ciliatifolia* behind St. Benedict's (MJWC ref. 03/202). On the same occasion I also found a dead pupa, again with associated head capsule, in a shelter on an unidentified dicotyledenous plant growing amongst *O. latifolia* (MJWC ref. 03/204); there was no associated feeding, and I interpret this as a pupation site, rather than a host plant. S. Alston-Smith (pers. comm.) has reared this species on bamboo, *Bambusa vulgaris* (Bush Bush, x.1999) and *O. latifolia*.

In my rearing (MJWC ref. 99/10), the pupa was formed between two leaves, one on top of the other (Greeney and Jones type 4); the cremaster was attached to a silk bar, and there was a weak silk girdle over the thorax. No white waxy powder on pupa or lining shelter. Pupa 19-23 mm; elongate, smooth, more or less cylindrical; eyes protuberant; slight frontal projection; short, pale brown, erect setae on thorax (in which the silk girdle is lodged), eyes, and ventrally on abdominal segments; proboscis projects 4 mm beyond wing cases, about 2/3 of the length of the abdomen; cremaster rounded, blunt, brown at margin; pupa colour greenish white apart from the proboscis brown where it projects beyond the wing cases.

Fig. 4. *Saturnus saturnus saturnus* pupa, Inniss Field, reared from caterpillar collected on *Olyra ciliatifolia*, MJWC ref. 04/28.

The fifth instar caterpillar lives within a simple leaf roll, incorporating the whole leaf. Fifth instar caterpillar 23-29 mm. Head rounded, wider at base, slightly indent at vertex; light brown, with lower part, including mouth-parts black, divided sharply in a straight line across the base of the clypeus at the level of the stemmata; a diffuse, broad brown line from vertex, tapering towards stemmata; epicranial suture black; epicranium adjacent to dorsal half of adfrontal area narrowly black; a diffuse dark spot on epicranium, just below the level of apex of clypeus. T1 with black transverse dorsal plate on posterior margin. Body dull translucent green; as the caterpillar matures, pale subcutaneous fat bodies develop except along the dorsal line which therefore appears darker; gonads orange. Legs and prolegs concolorous; spiracles pale, inconspicuous. *Parphorus storax* has similar caterpillars and also feeds on *Olyra* sp(p). However, in this species the upper part of the head of the fifth instar caterpillar is plain light brown, and the black ventral region extends over the stemmata, so that the dividing line is not straight as in *S. s. saturnus*. The pupa is clearly different, having a distinctive T shaped frontal protuberance.

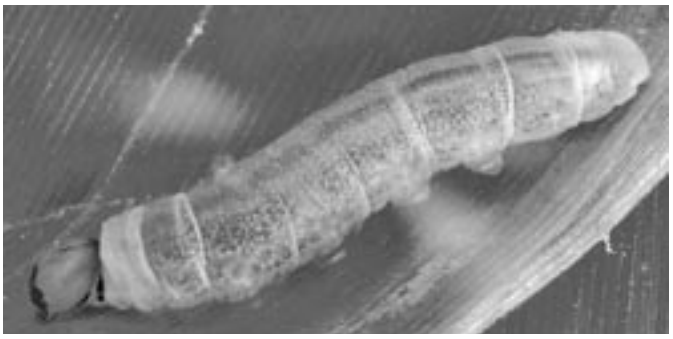

Fig. 5. *Saturnus saturnus saturnus* caterpillar instar 5; North Post, reared from caterpillar collected on *Olyra ciliatifolia*, MJWC ref. 99/10.

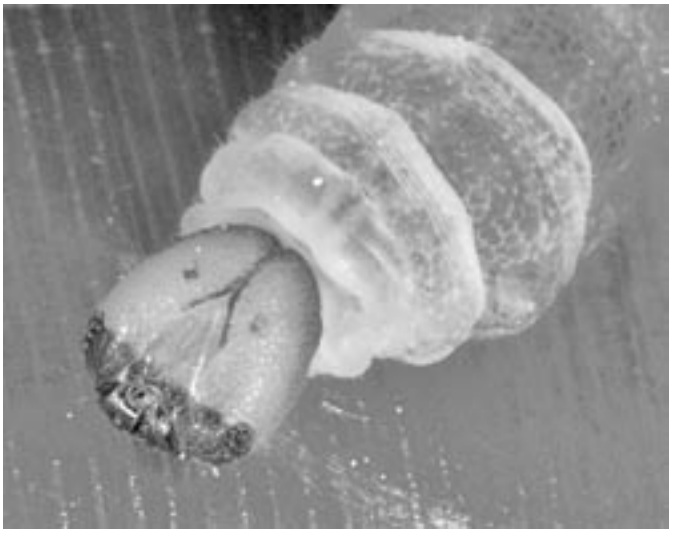

Fig. 6. *Saturnus saturnus saturnus* caterpillar instar 5, detail of head; North Post, reared from caterpillar collected on *Olyra ciliatifolia*, MJWC ref. 99/10.

The fourth instar caterpillar makes a shelter by cutting a notch from the edge of a leaf and rolling the distal portion upwards (Greeney and Jones type 6). Head dark, shiny; dorsal half of epicranium brown. T1 and body as young fifth instar.

218. L1/4 *Saturnus reticulata reticulata* (Plötz 1883)
Figs. 7-8.

This species occurs from Mexico to Uruguay in six subspecies (Evans 1955). The nominate subspecies was described from Venezuela (Laguayra) and is found in Colombia, Venezuela and Trinidad. Evans (1955) treated ssp. *tiberius* (Möschler) as the senior name for this species, which I followed in my checklist (Cock 1982b), but Mielke and Casagrande (2002) point out that *reticulata* is older and therefore has precedence.

Kaye (1914) first recorded this species from Trinidad as *Phlebodes tiberius*, taken in St. Ann's Valley (G. E. Tryhane).

Male. Antennae dark above; shaft UNS weakly chequered; club UNS pale brown. UPF brown with yellow spots; costa tawny from near base to end cell, brighter distally; a variable tawny area basal to stigma in lower space 1B. A three part stigma: space 2 basal to the yellow spot grey with a narrow black border; a small grey spot below this in the upper half of space 1B, also with black margin; a narrow black streak below this, running basal to the spot in lower space 1B to vein 1. UPH brown, the disc slightly tawny, with a trace of discal spots in spaces 3 and 4. UNS of head pale, tawny on palpi; body brown; abdomen pale with narrow brow ventral line, and broader ventro-lateral and lateral lines, tapered distally. UNF dark brown in basal half, paler in distal half; yellow spots as UPF except no spot in space 1B. UNH distinctive: margin (except space 2) and spaces 1B and 1C brown; disc and spaces 1A and 2 to margin yellow-brown; pale discal spots in spaces 3-6, more distinct in 3-4. F 14-15 mm.

Fig. 7. *Saturnus reticulata reticulata* male; UPS, Lalaja Ridge, 17.xi.1980; UNS, Arena Forest Reserve, 2.x.1982.

Female. UPF brown with white spot in space 1B and white hyaline spots in spaces 2-7 or 8; costa variably tawny from base to middle. UPH brown with diffuse light brown spots in spaces 3-5. UNF no spot in space 1B; dark brown, light brown along costa, yellow-brown at apex and narrowly at margin, extending further towards disc along the veins. UNH brown with pale veins; margin paler at subveins; white spots in spaces 1C-7. F 14-15 mm.

The male due to the yellow spots, UPF three part stigma and distinctive UNH is readily identified, but the female is superficially similar to several females from genera Group J. *Vehilius s. stictomenes* (Butler) is smaller, lacks any yellow colouring, and has elongate spots UPH and UNH, but is most easily separated by the pale veins in the distal half UNF. Several others, such as *Morys* spp. and *Cobalopsis* spp. have a pale spot in space 1B UNF, less pale veins, and often a lilac or purple sheen UNH.

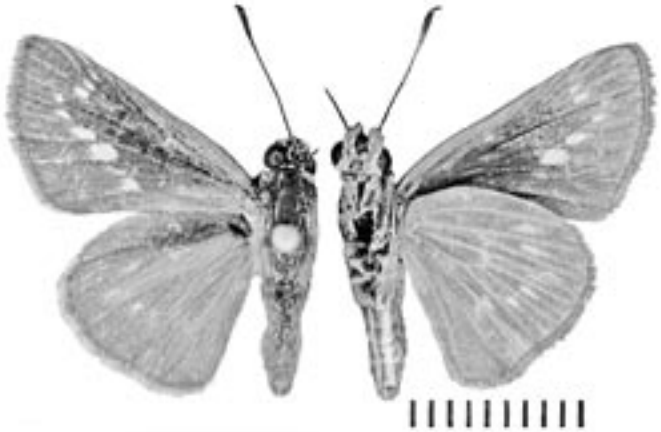

Fig. 8. *Saturnus reticulata reticulata* female; UPS, Parrylands, 2.ii.1980; UNS, Sangre Grande, 25.i.1980.

As with the last, this species seems particularly common in collections from Trinidad, with 20 of the 28 specimens of this subspecies in the NHM being from Trinidad (Evans 1955). This species is widespread and quite common in forests of Trinidad. It seems to be commoner than *S. s. saturnus* above 1,000 ft., and is regularly found on the ridges of the Northern Range. Although it is normally found resting on vegetation along forest paths and clearings, occasionally it comes to flowers such as eupatorium.

I reared this species once, but made only brief notes and took no photographs. I collected a mature larva in a leaf fold on a grass, *Setaria ?poiretiana*, at Sangre Grande, 25.i.1980. The larva measured 25 mm; head black with a brown X on the face; black dorsal plate T1; body dull grey-green, with a thin white lateral stripe and a broad white dorso-lateral stripe, leaving a clear, dark green dorsal line. The pupa was formed between a portion of leaf and the base of the rearing container, suspended from the leaf, supported by the cremaster and a weak silk girdle. The pupa was 25 mm x 5 mm at the widest; a 1 mm frontal spike; thorax and appendages white, abdomen cream; as the pupa matured, the thorax turned dark, but the abdomen

stayed cream coloured; spiracle T1 inconspicuous, pale brown; proboscis sheath extending 2.5 mm beyond wing cases; pupa covered with white waxy powder. The date of pupation was not recorded, but an adult female emerged 11.ii.1980.

219. L6/1 *Quinta cannae* (Herrich-Schäffer 1869)
Figs. 9-15.

This common and widespread species is found from Mexico to Argentina, but not in the Caribbean islands (Evans 1955). Kaye (1904, No. 257) included this species in his first list of Trinidad butterflies as *Cobalus cannae*.

Male. Antennae dark, pale below end of shaft and club. UPS brown. UPF brown with white hyaline spots in spaces 2 (excavate on outer margin), 3 and 6-8. The male brand lies above vein 1 UPF and is covered by hairbrushes over the basal half of space 1B and vein 1. UPH brown, sometimes with a visible trace of the UNH discal band. UNS head and body pale brown, lighter on head. UNF spots as UPS; disc and dorsum blackish brown; costa and apex to space 6 dark chestnut; marginal line dark, narrowly lilac before this, fading to brown in older specimens; distal half of spaces 4 and 5 brown before lilac margin; distal half of space 1B paler. UNH variegated brown, chestnut and pale brown, although variable in contrast and extent of markings: marginal line and end of subveins dark; border to margin pale brown with lilac tint in fresh specimens; space 1B brown; remainder of UNH chestnut brown except for orange tinted brown spots in a row from space 1C to space 7, base of space 7 and cell. Female similar, but larger and wings more rounded; white opaque spot in space 1B F; distal half of space 1B UNF whitish brown; spots in spaces 1C to 7 UNH tend to run into each other. F male 16 mm, female 18 mm.

This is not a very distinctive species, but the combination of size, white hyaline spots, and especially the variegated UNH should enable it to be recognised.

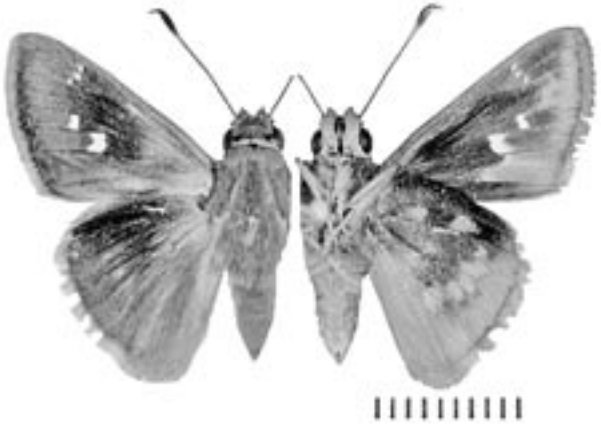

Fig. 9. *Quinta cannae* male; UPS and UNS, St. Benedict's, collected as caterpillar on ornamental *Canna* sp., 6.x.1995, MJWC ref. 95/35.

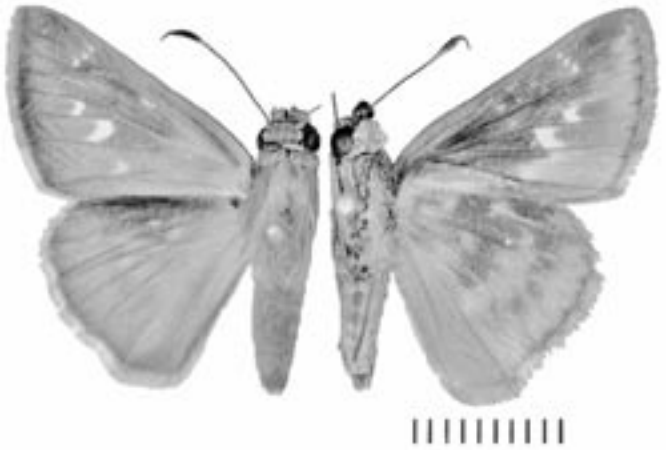

Fig. 10. *Quinta cannae* female; UPS, Curepe, caterpillar on topitambo, 11.ii.1980; UNS, Parrylands, 3.iii.1980.

This species is widespread but occasional in Trinidad, occurring in forests, swamp margins (Cock 1982a), disturbed areas and suburban situations.

Fig. 11. *Quinta cannae* male; collected as fifth instar caterpillar on ornamental *Canna* sp., St. Benedict's, Pax Guest House, 6.x.1995, MJWC ref. 95/35.

Moss (1949) reared this species from *Carex* sp. (Cyperaceae) and from arrowroot (*Maranta arundinacea*) in Belem (= Pará, Brazil) and illustrates the caterpillar, which is compatible with that described below.

The records of Janzen and Hallwachs (2005) suggest that the normal food plant in Guanacaste Conservation Area, Costa Rica, is *Thalia geniculata*, but they also found it on arrowroot, *Maranta arundinacea*, and once on *Calathea villosa* (all Marantaceae); they do not record it from *Canna* spp. (Cannaceae) although they do record other Hesperiidae from this host.

In Trinidad, I have reared this species from an ornamental *Canna* sp. (St. Benedict's, Pax Guest House, MJWC ref. 95/35; Valencia, iv.1982, no ref. no.) and

topitambo, *Calathea allouia* (Curepe, MJWC ref. 80/1). I have not examined *Thalia geniculata* in Trinidad, but it is likely to be a food plant for *Q. cannae*. S. Alston-Smith (pers. comm.) has reared this species also from *Calathea lutea*. The following account is based on the first of my rearings listed above.

The pupal shelter is lined with white waxy powder, and the pupa is also loosely covered especially on the thorax and dorsal surface of the abdomen. Several strands of silk over the front of the thorax hold the pupa in place. Male pupa 25 mm; smooth, no projections, no frontal spike; proboscis extends 6 mm beyond wing cases, almost reaching cremaster; uniformly off-white, slightly yellowish brown; spiracle T1 light brown, slightly projecting.

Fig. 12. *Quinta cannae* pupa; collected as fifth instar caterpillar on ornamental *Canna* sp., St. Benedict's, Pax Guest House, 6.x.1995, MJWC ref. 95/35.

The fifth instar shelter is a simple flap, made by cutting two notches from the edge of a leaf and folding the shelter lid upwards, or sometimes downwards (Greeney and Jones type 9); it is similar to that of *Calpodes ethlius* (Stoll), which also feeds on *Canna* spp. (Cock 2003). Male fifth instar caterpillar grows to 32mm. Head rounded triangular in outline, but narrower than many Hesperiinae, indented dorsally at vertex; ground colour white; posterior margin narrowly black; broad black line from apex of epicranium laterally, widening to stemmata; a broad green-brown patch in centre of face, narrow at vertex, widening to width of base of clypeus and extending over mouth-parts. T1 concolorous. Body dull translucent green, with subcutaneous fat bodies giving a strongly grainy texture. Trachea visible through cuticle, and a distinct tracheal line; spiracles pale, conspicuous as the centre of a radiating star of trachea. Anal plate semi-circular, with diffuse pale border and fringe of erect setae. All legs concolorous. Male gonads dorsally in segment A5: green, not very conspicuous. Wax glands not recorded.

The early instars make Greeney and Jones (2003) type 6 shelters (one-cut fold) and type 9 shelters (two-cut unstemmed fold) as shown in Fig. 15.

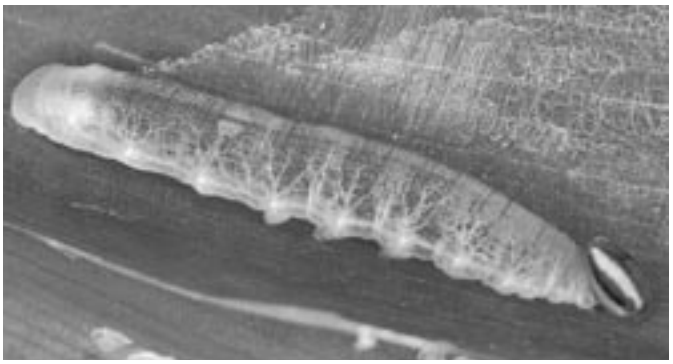

Fig. 13. *Quinta cannae* caterpillar instar 5; collected on ornamental *Canna* sp., St. Benedict's, Pax Guest House, 6.x.1995, MJWC ref. 95/35.

Fig. 14. *Quinta cannae* caterpillar instar 5, detail of head; collected on ornamental *Canna* sp., St. Benedict's, Pax Guest House, 6.x.1995, MJWC ref. 95/35.

Fig. 15. *Quinta cannae* caterpillar; shelters on *Canna* sp., St. Benedict's, Pax Guest House, 6.x.1995. Shelter in centre is type 9, and shelter on right is type 6 (Greeney and Jones 2003).

Cynea Evans 1955

This genus is similar to *Quinta* Evans above, but the antenna are longer (more than half the length of the costa), and the head is usually greenish. Six species are found in Trinidad. *C. anthracinus holomelas* (Mabille)

and *C. irma* are plain brown above, while the other four species are brown with white hyaline spots. Identification characteristics are discussed under each species.

The food plants known to me are Marantaceae and Zingiberaceae. In addition to the two Trinidad species, *C. irma* and *C. diluta* treated below, I have reared the mainland species *Cynea cynea* (Hewitson) in Colombia from *Phaeomeria speciosa* and *Alpinia purpurata* (Zingiberaceae, both introduced ornamentals).

220. L7/1 *Cynea anthracinus holomelas* (Mabille 1891)

Figs. 16-17.

In Evans (1955) and hence Cock (1982b), this subspecies is treated as *Cynea anthracinus luctatus* Schaus, but Mielke and Casagrande (2002) point out that this is a synonym of *holomelas* (Mabille). This uncommon subspecies is found from Costa Rica to Guyana to Peru based on ten specimens in the NHM (Evans 1955), and it also occurs in Suriname (de Jong 1983). The nominate subspecies, *anthracinus* (Mabille), was described from Colombia, but appears to be restricted to Guatemala, suggesting the type may have been mis-labelled (Evans 1955).

Male. UPS dark brown, no markings. Brands, two dark streaks, one under the basal portion of vein 2, the other matching above vein 1. UNF brown, unmarked. UNH brown; the margin broadly slightly paler; yellow suffusion in the distal half of space 1C; cilia brown, except margin of spaces 1A and 1B yellowish. F 20 mm.

Fig. 16. *Cynea anthracinus holomelas* male; UPS and UNS, Waller Field, 5.xii.1981, June and Floyd Preston (the apparently pale veins, especially UPF, are an artefact as the specimen is rather rubbed).

Female. UPS dark brown; faint indication of spots in spaces 6-8; distal section of vein 1B UPH yellowish. UNF brown; faint spots in spaces 6-8. UNH brown; pale marginal band from space 1A, becoming diffuse and narrow in space 2, and fading out in space 3.

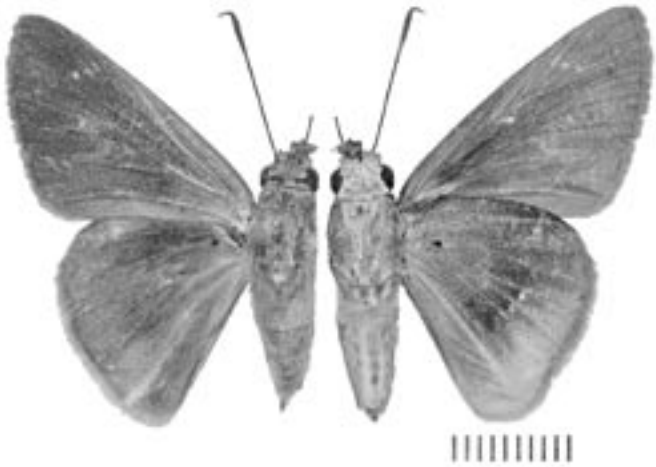

Fig. 17. *Cynea anthracinus holomelas* female; UPS and UNS, Grande Ravine, iii.1995, S. Alston-Smith (specimen in SAS).

Trinidad specimens seem darker than the mainland form of this subspecies, and may represent an island form or subspecies. Thus, Evans (1955) refers to the male as having the "UNH outer third more or less paler, may be pale dots in spaces 2 and 3; UNF may be some yellow scaling at apex", and the female "UNH outer third yellow, inwardly edged with faint whitish spots in spaces 2-5".

This species was added to the Trinidad list on the basis of a male collected in the Waller Field area by June and Floyd Preston, 5.xii.1981 (Cock 1982b). S. Alston-Smith (pers. comm.) has several more recent specimens from Grande Ravine (female, iii.1995), Inniss Field (male, vii.1985), Los Bajos (female, i.1995), Moruga East (male, iii.1998) and Valencia (male, i.1986). Thus, it appears to be absent from the Northern Range, and found predominantly in the south.

S. Alston-Smith (pers. comm.) tells me that the males are highly territorial, patrolling a small area, and returning to the same perch after being disturbed. I have found no information on the food plants or life history.

221. L7/2 *Cynea cyrus hippo* Evans 1955

Figs. 18-19.

This subspecies was described from two males from Trinidad in the NHM (Evans 1955); the specimen labelled type was collected from the Northern Mountains, xii.1938-i.1939 (A. Hall), and the other Trinidad, 1,000 ft, 18.ii.1926 (W. J. Kaye). Subspecies *rhino* Evans occurs in French Guiana and the Amazon, while the nominate subspecies, *cyrus* (Plötz), is restricted to southern Brazil. De Jong (1983) suggests that specimens from Suriname are closer to ssp. *hippo* from Trinidad than ssp. *rhino* from French

Guiana.

Male. Antennae black, slightly paler at base of club UNS. UPS head, thorax blackish brown, with trace of green iridescence on head; UPS abdomen, wings, cilia dark brown. White hyaline spots F in spaces 2 (quadrate, from origin of vein 3), 3 (quadrate, separated by its own width from the spot in space 2), 6-8 (in a row, decreasing in size). UNS head and fore femora grey with slight green iridescence; UNS thorax brown, UNS abdomen pale with narrow brown ventral line. UNF brown, darker basally; the distal half of spaces 1A and 1B light brown; a short bare streak at the base of vein 1 against cell; cilia brown. One of the specimens in the author's collection matches Evans' (1955) description, having the UNH dark brown, with small yellowish spots in spaces 2 and 3. Two other specimens in the author's collection have space 1A to 1C paler, grading to a narrowly light brown tornus; an additional spot in space 5 and a trace of a spot in space 1C displaced slightly basally. F 20-21 mm.

Fig. 18. *Cynea cyrus hippo* male; UPS, Morne Bleu Textel Installation, 2.xii.1980; UNS, Andrew's Trace, 8.x.1994.

Female. Similar to male, but larger and wings more rounded. In addition, a quadrate white spot in space 1B F, against vein 1; UNF paler, the paler area in spaces 1A and 1B more pronounced; UNH as the two paler males described above, but paler, spots in 2, 3 and 5, and a more distinct diffuse spot in space 1C. F 23 mm. The female is recorded here for the first time.

Fig. 19. *Cynea cyrus hippo* female; UPS and UNS, Andrew's Trace, 8.ix.1979.

This species is commonest on the hilltops and ridge-tops of the Northern Range. Localities include Morne Catharine (male, 28.i.1980), North Post (SAS), summit of El Tucuche (2 males, 19.vi.1979), Andrew's Trace (female, 8.ix.1979; male, 3.xi.1980; male, 27.xi.1980; male, 8.x.1994), Morne Bleu Textel Installation (male, 3.xi.1980; male, 2.xii.1980; male, 20.i.1981) and Lalaja Ridge (male, 7.i.1980). S. Alston-Smith (pers. comm.) has also collected this species from the lowland localities Tucker Valley, Guapo and Arena Forest. All captures for which I have dates were between September and February. I have no information on the life history or food plants.

222. L7/3 *Cynea irma* (Möschler 1878)

Figs. 20-25.

This species is recorded from Mexico to southern Brazil (TL Colombia) but does not seem to be common anywhere in its range (Evans 1955). Kaye (1921, No. 394) records it from Trinidad as "*Rhinthon melius* (Geyer)", based on a F. W. Jackson specimen from St. Joseph. This was a mis-identification, since *Cynea melius* is similar to *C. irma*, but only found in southern Brazil. There are specimens from W. J. Kaye's collection in AME labelled *Metiscus atheas* (male, Trinidad, vi.[18]98, W. J. Kaye) and *Rhinthon melius* (female, Trinidad, i.1936, A. Hall).

Male. Antennae dark, club pale UNS. UPS dark brown; small pale brown opaque spots in spaces 6-8 UPF; hair brushes in basal portions of spaces 1A and 1B UPF. UNS head, thorax and abdomen grey-brown; a narrow, dark ventral line on abdomen. UNF dark brown basally, except spaces 1A and 1B brown; distal half of spaces 1A and 1B pale brown with a bronze tint; margin of spaces 2-4 lilac-brown, in spaces 2 and 3 separated from dark basal portion by an indistinct narrow, pale spot; apical area narrowly brown, lilac-brown at margin before this, brown

patch before this at apex, and basal to brown patch a pale triangle from space 6 to costa at end cell. UNH lilac-brown basally and at margin, divided by a band of deep purple brown, wide at costa, narrowing to space 1C; indistinct, small, pale spots in cell, and along outer border of discal band in spaces 1C to 5; spaces 1A, 1B and dorsal margin of 1C pale brown with bronze tint, paler patch in margin of space 1C. F 17 mm. Female similar to male, but wings more rounded, and no hair brushes UPF. F 17-18 mm.

Fig. 20. *Cynea irma* male; UPS, Point Gourde, 16.v.1999; UNS, Las Lomas, Spanish Farm, 17.xii.1980.

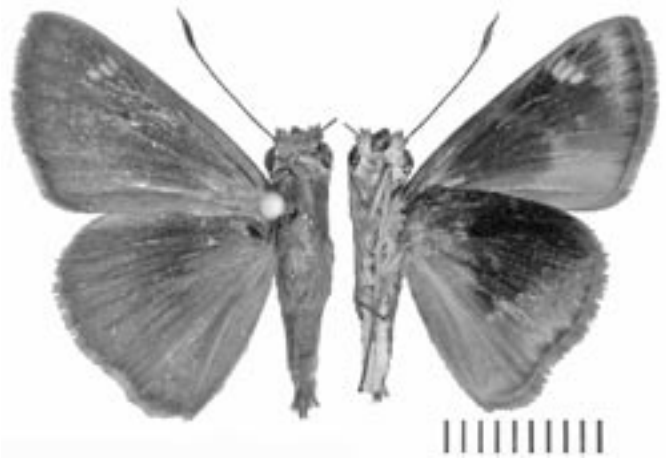

Fig. 21. *Cynea irma* female; UPS and UNS, Point Gourde, 12.vii.1997.

This is a widely distributed and occasional species in Trinidad, usually associated with lowland forest, but occasionally found on the ridges of the Northern Range.

Fig. 22. *Cynea irma* male; UNS, collected as fourth instar caterpillar on *Stromanthe tonkat,* Mt. Tabor, 13.vii.1997, MJWC ref. 97/208.

Host plant records from Janzen and Hallwachs' (2005) database show that *Calathea* spp. and *Maranta arundinacea* (both Marantaceae) are used as food plants in Costa Rica. In Trinidad, however, I have reared this species from another species of Marantaceae: *Stromanthe tonkat* (Mt. Tabor, MJWC ref. 97/208).

Pupal shelter lined with white waxy powder; pupa lightly covered with white waxy powder, densest on dorsum of thorax; cremaster hooked into a silk bar; several strands of silk over thorax. Pupa 25 mm; elongate, smoothly rounded, no projections, no frontal spike; proboscis extends to cremaster; pale light brown; spiracles T1 brown, conspicuous; other spiracles inconspicuous.

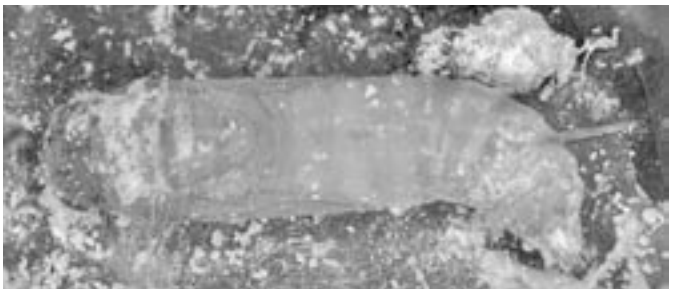

Fig. 23. *Cynea irma* pupa, dorsal view with ventral proboscis sheath projecting at right; collected as fourth instar caterpillar on *Stromanthe tonkat,* Mt. Tabor, 13.vii.1997, MJWC ref. 97/208.

Fifth instar caterpillar 35 mm, quite similar to that of *Quinta cannae*. Head rounded triangular, indent at vertex; relatively narrow; marked in black and white; posterior margin narrowly black; a broad black line from apex of epicranium, laterally, over stemmata to mouth-parts; the white area between this line and the posterior margin

sullied; epicranial suture black; a black triangle in centre of face, from just below vertex, covering clypeus and extending narrowly onto epicranium, and over mouth-parts; a broad, sharply defined pure white line between the lateral black line and the triangle on the face. T1 concolorous with body. Body when recently moulted pale translucent green, the fat bodies giving it a grainy texture. The mature caterpillar is pale translucent brown, with a pink tinge; the grainy texture is pronounced; there is an intermittent slightly darker dorsal line, and two irregular, diffuse and intermittent lateral lines. All legs concolorous; spiracles inconspicuous. Wax glands a series of distinct ventro-lateral patches just below ventro-lateral flange on segments A4-A7.

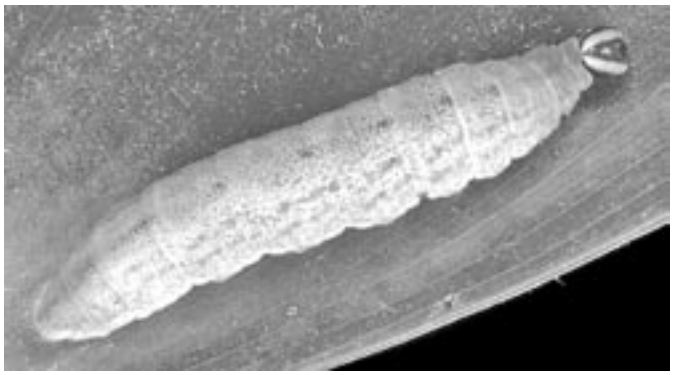

Fig. 24. *Cynea irma* caterpillar instar 5; collected as fourth instar on *Stromanthe tonkat,* Mt. Tabor, 13.vii.1997, MJWC ref. 97/208.

Fig. 25. *Cynea irma* caterpillar instar 5, detail of head; collected as fourth instar on *Stromanthe tonkat,* Mt. Tabor, 13.vii.1997, MJWC ref. 97/208.

Fourth instar shelter 130 mm long; made by eating from near the basal angle, inwards to reach the mid-rib 55 mm from the leaf base, and the distal flap folded over upwards (Greeney and Jones type 6); much of the margin of the other half of the leaf was eaten. Mature fourth instar caterpillar 23 mm; head black, with a small brown streak near the apex of the epicranium; body dull, pale translucent green; T1 concolorous; all legs pale; spiracles pale.

223. L7/8 *Cynea popla* Evans 1955

Figs. 26-28.

This species was described from Trinidad and seems common in Trinidad, Venezuela and Guyana, with scattered records from Colombia, Panama, the mouth of the Amazon and southern Brazil (Evans 1955). There is a male from W. J. Kaye's collection in AME, which he labelled *sylvia / bistrigula* (Tabaquite, 18.i.1921, W. J. Kaye). *Phanis sylvia* Kaye is a synonym of *Morys geisa geisa* (Möschler), (Evans 1955; Cock 1982b). Kaye did not include this specimen or *Cynea bistrigula* (Herrich-Schäffer) in his catalogues.

Male. Antennae dark, with club pale beneath. UPS dark brown, with weak green iridescence on head. UPF white hyaline spots in spaces 2 (under origin of vein 3, narrow or very narrow, normally obliquely angled), 3 (small or very small) and 6 (dot); dark hair brushes at base of spaces 1A and 1B. UNS of head, thorax and abdomen pale brown with dark ventral line on abdomen. UNF brown, basal third darker, spaces 1A and 1B paler distally. UNH brown, spaces 1A to 1C paler; pale spots in end cell and spaces 2, 3 and 5, and sometimes a diffuse trace in 1C and 6. Female similar but wings more rounded. F 15 mm.

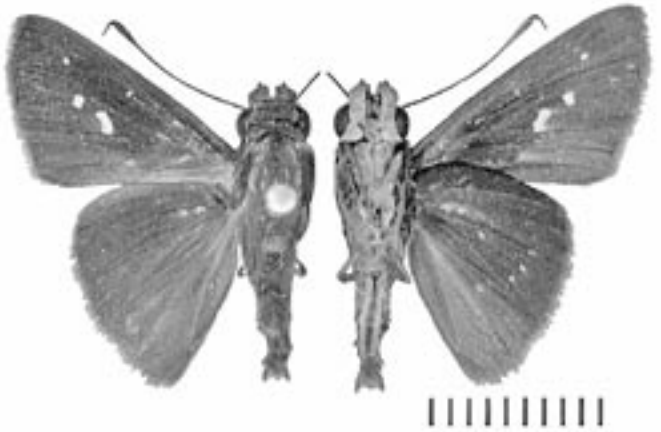

Fig. 26. *Cynea popla* male; UPS and UNS, Lower Morne Catharine, 17.i.1988.

Fig. 27. *Cynea popla* males; UPS, Arena Forest, Nr Parrotts Ride, 8.x.1994; UNS, Parrylands, 26.iii.1980.

Fig. 28. *Cynea popla* female; UPS and UNS, Mt. Tamana, 14.x.1995.

Cynea popla is similar to *C. bistrigula*, but lacks the purple tint UNS of that species, and the oblique spot in space 2 seems diagnostic. This spot is consistently rather narrow, of even width, slightly arced and angled, whereas in *C. bistrigula*, the spot may be wide or narrow, may be of even width or tapered towards the dorsum, and is either directed at right angles to dorsum, or angled slightly outwards. UNH is a richer brown in *bistrigula.*

Kaye (1940, No. 394b) records *Cynea megalops* (Godman) (as *Rhinthon megalops*) from a specimen taken at 1500 ft on El Tucuche, 4.iv.1922 by F. W. Jackson. *Cynea megalops* has the UPS unmarked dark brown, but is unlikely to be a Trinidad species, being recorded only from Mexico, Costa Rica and Ecuador by Evans (1955). I have not found Jackson's specimen in either the NHM or HEC. The only specimen in the NHM from this group which matches the data is a male *S. r. reticulata*, but it is unlikely that this would have been misidentified since the two species are very different. Hence, in Cock (1982b) I treated this record as probably referring to one of the three small *Cynea* spp. from Trinidad: *C. popla, C. bistrigula* or *C. diluta*. However, if the UPS of Kaye's species were plain brown like *C. megalops*, it may be that some other species was involved.

This is a widespread and occasional species in lowland forests of Trinidad, with just a few records from above 1,000 ft. I have no information on the life history or food plants.

224. L7/12 *Cynea bistrigula* (Herrich-Schäffer 1869)
Figs. 29-30.

Evans (1955) records this species from Venezuela to southern Brazil (TL unknown), but not Trinidad.

Sheldon (1936) recorded this species from Tobago, on the basis of a W. J. Kaye specimen taken at Bacolet. I have seen no specimens of *C. bistrigula* from Tobago, but there is a W. J. Kaye specimen of *C. diluta* from Tobago in AME, so it seems most likely that this is the specimen referred to, and the record from Tobago is actually of *C. diluta*.

Cock (1982b) added this species to the Trinidad list, with several records from Parrylands, Arena Forest Reserve and Chaguaramas.

Male. Antennae dark, apiculus brown. UPS dark brown, with weak green iridescence on head; UPF white hyaline spots in spaces 2 (just distal to origin of vein 3, wider towards costa and tapering to dorsum), 3 (small) and 6 (dot); dark hair brushes at base of space 1A, but almost absent in space 1B. UNF blackish brown; distal half of spaces 1A and 1B paler. UNH dark brown with a deep purple wash; absent in spaces 1A, 1B and dorsal margin of 1C; small yellowish spots in spaces 3 and 5, and indistinct diffuse spot in middle of space 1C; the spots may not be obvious in worn specimens. Female similar, but wings more rounded and spot in space 2 F more regular. F 15 mm. The purple wash UNH, and tapered spot in space 2 F should distinguish this species from *C. popla*.

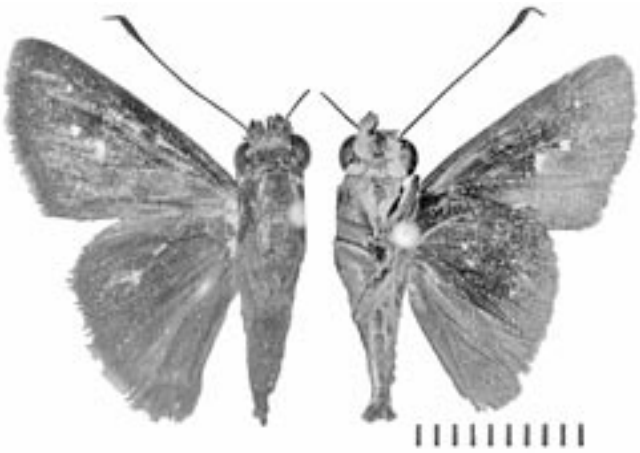

Fig. 29. *Cynea bistrigula* male; UPS, Cuare Valley, 18.i.1980; UNS, Parrylands, 7.xi.1980.

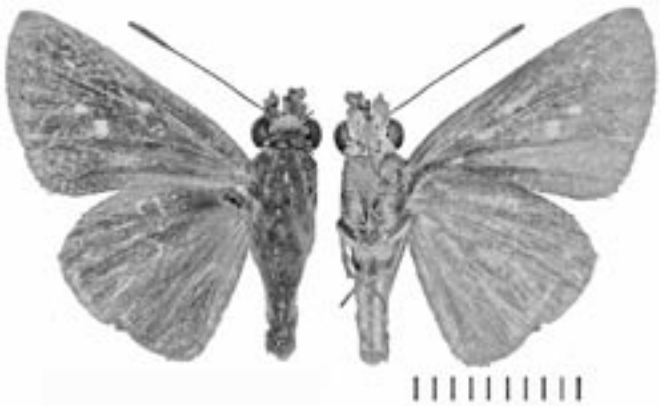

Fig. 30. *Cynea bistrigula* female; UPS and UNS, Parrylands, 26.iii.1980.

This species seems to be scarce in the north of Trinidad, but occasional in lowland forest of the centre and south of the island.

Although *C. bistrigula* was not included in Moss (1949), he did rear this species: there is a male with associated pupal remains in the NHM. It was reared on ground bamboo, which I believe may be the name he used for *Olyra* spp. (see comments under *Orses cynisca* (Swainson) in Cock (2005)). The emerged pupa is light brown; no frontal spike; the proboscis sheath extends to the cremaster; eye (apart from a shiny vertical stripe down middle) and sub-dorsal areas on thorax with erect setae with trapped white waxy powder.

225. L7/13 *Cynea diluta* (Herrich-Schäffer 1869)
Figs. 31-33.

The range of this species extends from Honduras to southern Brazil (Evans 1955). Kaye (1940, No. 394a) records *Cynea cynea* (as *Rhinthon cynea*) from Trinidad, noting specimens from Matura (26.i.1921, W. J. Kaye) and Arima (26.xi.1920, W. J. Kaye). I have not located these specimens; although there is a W. J. Kaye specimen in AME also collected 26.xi.1920 but at P[ort] O[f] S[pain], identified by Kaye as "*Rhinthon diluta*". Since Kaye (1921, 1940) does not otherwise record *C. diluta*, I think he may have misidentified his material as *C. cynea*.

As noted under *C. bistrigula* above, the W. J. Kaye record of *C. bistrigula* from Tobago reported by Sheldon (1936) almost certainly refers to *C. diluta*. In any event, *C. diluta* is a Tobago species on the basis of the specimen in AME referred to under *C. bistrigula* above.

Male. Antennae dark, pale UNS at base of club. UPS dark brown; weak green iridescence on head. F with white hyaline spots in spaces 2 (beyond origin of vein 3, narrow, inner and outer margins more or less concave), 3 (close to spot in space 2 compared to other *Cynea* spp. but separated by at least the width of the spot in space 2, shape similar to spot in space 2), 6 (narrow, at right angles to costa), 7 (small, slightly basal to spot in space 6) and 8 (sometimes reduced to a trace, displaced slightly outward from the spot in space 7); brown hair brushes at base of space 1A and a small one at the base of 1B (variable). Evans (1955) notes that the apical spots F may be reduced or absent. UNF dark brown, paler in distal third; small dark patch at base of space 1B. UNH dark brown, with sometimes a trace of pale spots at end cell and in spaces 1C, 2, 3 and 5. Female similar but wings more rounded, UNH spots more marked. F male 17 mm; female 18 mm. *Cynea diluta* is larger than *C. popla* and *C. bistrigula*, and at least for the Trinidad specimens that I have seen, has two or three apical spots, rather than just one. It is smaller than *C. cyrus hippo*, and the white hyaline spots are narrow, not quadrate.

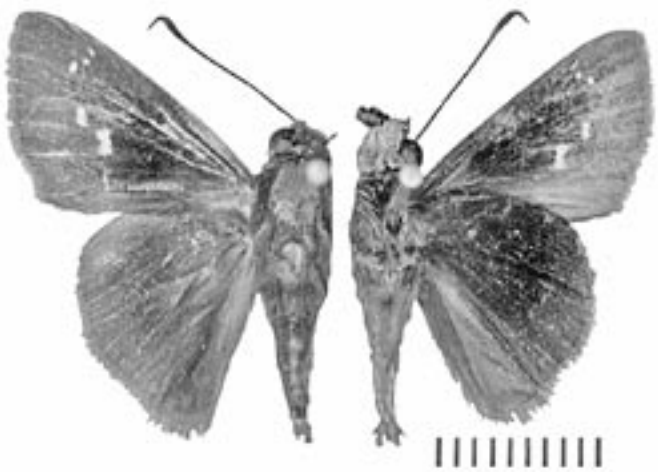

Fig. 31. *Cynea diluta* male; UPS, Andrew's Trace, 9.iv.1980; UNS, Andrew's Trace, 8.x.1994.

Fig. 32. *Cynea diluta* female; UPS, Trinity Hills, 4.iv.1982; UNS, Port of Spain, 9.x.1995.

This occasional species is most frequently encountered on the forested ridges and hilltops of the Northern Range (summit of El Tucuche, Andrew's Trace, Morne Bleu Textel Road, Lalaja Ridge), with scattered records from Port of Spain, Curepe, Spanish Farm and the Trinity Hills.

In the NHM there are specimens from Guyana, reared on a "wild monocot, ?Zingiberaceae", by H. E. Box, 10.iii.1924 (species XV). I have reared this species once from a caterpillar collected on *Renealmia alpinia*, a large species of Zingiberaceae (Morne Bleu Textel Road, MJWC ref. 94/64), and S. Alston-Smith (pers. comm.) has reared it from a pink ornamental ginger lily (*Alpinia* sp.; Zingiberaceae).

Pupal shelter lined with white waxy powder; some powder on the pupa, particularly on the head and thorax, caught in the erect setae of the eyes and dorsal part of thorax. Pupa 22 mm; elongate, smooth, no projections, no frontal spike; proboscis sheath extends to tip of cremaster;

head, thorax and cremaster brown, appendages light brown, abdomen whitish brown; spiracles T1 light brown and slightly protuberant.

Fig. 33. *Cynea diluta* pupa; collected as fourth instar caterpillar, on *Renealmia alpinia*, Morne Bleu Textel Road, 8.x.1994, MJWC ref. 94/64.

Unfortunately I was unable to make any observations on the living fifth instar caterpillar. The cast caterpillar skin and head capsule are covered with white waxy powder in the pupal shelter, so details are not entirely clear. The cast head capsule is narrow, as for others of the genus; head rugose, with inconspicuous short setae; brown, with a pale brown line from apex of epicranium to stemmata, running just lateral to the clypeus.

Fourth instar caterpillar collected in a simple leaf flap shelter folded under leaf lamina. Fourth instar caterpillar 23 mm when mature; head uniform dark brown; body dull translucent green.

226. L8/1 *Rhinthon cubana osca* (Plötz 1883)
Figs. 34-37.

The nominate subspecies, *cubana* (Herrich-Schäffer), is restricted to Cuba and Jamaica, while subspecies *osca* is found from Mexico to Ecuador, Trinidad and Tobago (Evans 1955). Schaus (1902) described *Thracides biserta* from Trinidad; this is a synonym (Evans 1955).

Sheldon (1936) records this species from Tobago as *Rhinthon chiriquensis* (Mabille), which is a synonym, citing his capture of a specimen at 400 ft. at the back of Agenza, near Speyside. I have not seen this specimen, but there is a female collected by A. Hall from Speyside, ii.1932 in the NHM. Sheldon (1936) goes on to state, "It occurs in Trinidad, from which Mr. Kaye has specimens, as well as in Tobago", yet Kaye (1921, 1940) did not record this species from Trinidad, although there were specimens in his collection, including one labelled *Rhinthon chiriquensis* (a synonym of *R. cubana* – see above). Possibly he confused this species with *Naevolus orius orius* (Mabille) (= *Cydrus naevolus* Godman) (Genera Group J) since one of his *R. cubana* specimens in AME is labelled *Cydrus naevolus*.

The first unambiguous published record of this species from Trinidad is that of Evans (1955), who lists three males from Trinidad. All were captured by A. Hall, two from St. Ann's, xi-xii.1931 and i-iii.1932, and the other just labelled Trinidad, i.1936. I have further records from Arima District, Fondes Amandes, Maraval, N. Hills and Mt. Tabor, and S. Alston-Smith (pers. comm.) has collected it from the north of Trinidad (Andrew's Trace, North Post, Petit Valley), central Trinidad (Mt. Tamana) and southern Trinidad (Inniss Field).

Male. Antennae dark, basal half of club UNS pale. UPS brown, the head with green iridescence. White hyaline spots F in space 2 (large, quadrate, below origin of vein 3), 3 (quadrate with inner and outer margin slightly concave, separated from the spot in space 2 by its own width), 6-8 (small, that in space 6 displaced outwards), and a double cell spot (the lower spot partially overlapping the spot in space 2). UPF a grey brand along middle third of vein 1; brown hair brushes in spaces 1A and 1B. UNS of head and fore femora grey; UNS of thorax and abdomen brown, the abdominal segments each with a pale posterior border. UPH brown; spaces 1A to 5 and cell overlaid with tawny hairs; small semi-hyaline spots in spaces 3 and 5. UNF brown, blackish on disc. UNH brown, with pale spots end cell and spaces 2, 3 and 5. F male 20 mm. Evans (1955) states that there is a spot in space 2 UPH, and UNF a white discal area in space 1B, but neither feature is present in the single specimen in the author's collection. Female similar to male, but not examined in detail.

Fig. 34. *Rhinthon cubana osca* male; UPS and UNS, Mt. Tabor, 1000 ft. 22.xi.1981.

In my experience this large species is uncommon in Trinidad, but S. Alston-Smith (pers. comm.) considers it occasional. My only capture (behind St. Benedict's, 1,000 ft., 22.xi.1981) was at 18:00 h, but others have not commented on the time of capture. Hernández (2001) writing about *R. cubana cubana* in Cuba comments, "This is a secretive and easily overlooked skipper, more likely

to be found by its larvae than by the infrequently seen adults". Nevertheless, as yet neither I nor S. Alston-Smith has been able to find caterpillars in Trinidad, in spite of regularly checking species of Marantaceae for caterpillars of Hesperiidae.

Hernández (2001) reports *Maranta arundinacea* (Marantaceae) as a food plant in Cuba. Similarly, in Costa Rica, *Maranta arundinacea* is the most commonly used food plant for this species in Janzen and Hallwachs' (2005) database; other food plants include *Canna indica* (Cannaceae), four species of *Calathea*, *Hylaeanthe hoffmannii* (Marantaceae), and *Heliconia latispatha* (Heliconiaceae). I have not reared this species in Trinidad, but have reared it in Colombia (Chinchiná, MJWC ref. 96/106), from caterpillars found on what appeared to be an ornamental *Calathea* sp.; the following notes and figures are based on this Colombian material.

Pupa 27 mm; elongate, tapered posteriorly; eyes slightly protuberant; no frontal spike; light brown, paler on abdomen; T1 spiracles large, brown. Pupa and inside of pupal shelter covered with white waxy powder.

Fig. 35. *Rhinthon cubana osca* pupa; collected as small caterpillar on Marantaceae sp., Chinchina, Colombia, 8.vii.1996, MJWC ref. 96/106.

The fifth instar caterpillar grows to 38mm; head rounded triangular, narrow, slightly indent at vertex; shiny rugose; black, with pale dull green stripe from behind vertex around neck just anterior to posterior margin; a pale white-green stripe from apex of epicranium, antero-laterally to join white mark anterior to ocelli; anterior to this a pale dull green stripe, elongate at each end; adfrontal areas dull green. T1 concolorous with body. Body dull translucent green, irregular subcutaneous yellowish dots and lines; diffuse white line along sub-tracheal flange. All legs concolorous; spiracles pale.

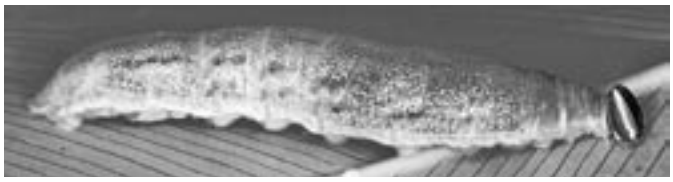

Fig. 36. *Rhinthon cubana osca* caterpillar instar 5; collected as small caterpillar on Marantaceae sp., Chinchina, Colombia, 8.vii.1996, MJWC ref. 96/106.

Fig. 37. *Rhinthon cubana osca* caterpillar instar 5, detail of head; collected as small caterpillar on Marantaceae sp., Chinchina, Colombia, 8.vii.1996, MJWC ref. 96/106.

In the earlier instars the head is shiny, black, and the body shiny translucent pale green.

227. L9/1 *Mucia zygia* (Plötz 1886)

Figs. 38-39.

The range of this species is from Mexico to Paraguay (TL unknown), including Trinidad and Tobago, but not the Caribbean islands (Evans 1955). Based on a specimen collected at Maraval, xi.1932-iii.1933 by A. Hall (in AME), Kaye (1940, No. 382c) records this species from Trinidad under the name *M. thyia* Godman, which is a synonym. Sheldon (1938) also uses this name to record his capture of a Tobago specimen from Scarborough; this is probably the male in the NHM from the Sheldon bequest, labelled Tobago.

Male. Antennae dark above; apiculus brown; shaft chequered below; club pale below. UPS dark brown, with an overlay of tawny hairs; cilia slightly paler brown, noticeably paler in spaces 1-2 UPF and 1C to apex UPH. White hyaline spots F in spaces 2 (beyond origin of vein 3; narrow to quadrate, obliquely angled) and 3 (separated from spot in space 3 by its own width); three-part dark stigma, against inner margin of spot in space 2, under basal portion of vein 2, and transversely across lower space 1B. UPH unmarked. UNS of body grey-brown. UNF brown; distal half spaces 1A and 1B paler; costa and apical area, extending as far as vein 2, overlaid with pale ochreous scales, dense along costa, but increasingly sparse apically and to vein 2; traces of paired darker spots in spaces 4-5 and 6-7. UNH overlaid with pale ochreous scales, but almost absent in distal half of space 1B and costa; black spots in spaces 2, 3 and 6, the latter with a slight corona of paler scales. Female very similar, but

wings slightly more rounded; white hyaline spots F slightly larger; dark spot in space 6 UNF may be hyaline; and dark spots UNF are stronger. F male, female 17 mm. Evans (1955) notes that the spotting in this species is variable, but the limited Trinidad material that I have examined is relatively constant, at least with regard to the black spots UNH which are diagnostic.

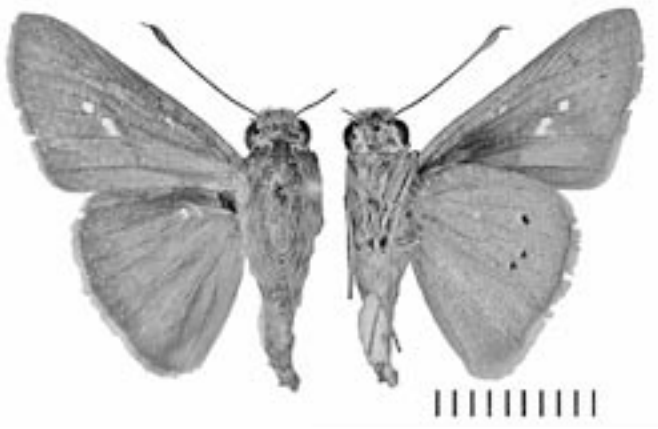

Fig. 38. *Mucia zygia* male; UPS, UNS, Arima, 18.xii.1981.

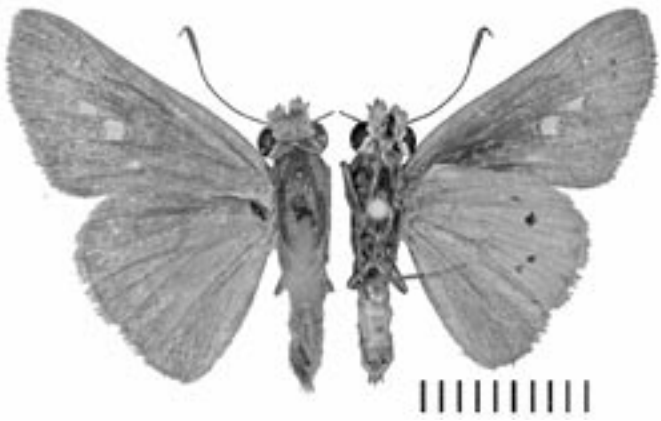

Fig. 39. *Mucia zygia* female; UPS, UNS, Brasso, 1.x.1994.

This species is associated with open disturbed areas in Trinidad, particularly at eupatorium flowers. S. Alston-Smith (pers. comm.) notes that it normally flies very close to the ground, making it easy to overlook, and this behaviour may reflect the use of low growing grasses as food plants. I have seen 14 specimens from the north (Andrew's Trace; Nr. Arima, Demerara Road; La Fillette Bay; Maracas-Caura Ridge; Maraval; North Post; "Northern Mts."; St. Ann's; and Toco). The specimen from Maraval, a female collected xi.1931-ii.1932 by A. Hall and now in AME, could be the specimen on the basis of which Kaye (1940) added this species to the Trinidad list, but the dates of collection differ – see above. I have also seen two specimens from central Trinidad (Brasso and Arena Forest), and two from the south (Vance River, and near Guapo).

I have not located any information on the food plants or life history.

228. L10/1 *Penicula bryanti* (Weeks 1906)

Figs. 40-41.

This species was described from Venezuela, and occurs from there south across the Amazon basin to Argentina (Evans 1955). *Euroto cocoa* Kaye is a synonym described from Trinidad (Kaye 1914) based on a K. St. A. Rogers specimen collected at Maraval River, 29.i.1913.

Male. Antennae dark above; base of club pale below; distal portion of shaft chequered below. UPS dark brown including cilia; black hair tuft over disk of UPH; angular dark brand at base of space 2, and short brands under basal portion of vein 2 and matching on vein 1; pale yellow hyaline spots F in spaces 2 (quadrate, oblique, outer margin excavate), 3 (quadrate, slightly separated from spot in space 2), 4 (partially overlapping spot in space 3), 6 and 7. With more material available, Evans (1955) notes that there may be spots in space 5, and rarely 1-2 cell spots. UNS head pale brown; UNS body brown; UNS abdomen white with a narrow brown ventral line. UNF dark chestnut brown, shading to black-brown on disk and dorsum; trace of spot in space 7; no spot in space 1B. UNH dark chestnut brown, brown in spaces 1A-1C; slightly diffuse pale yellow spots in spaces 2-6. Female similar, but wings more rounded, hyaline spots F slightly larger; faint spot in space 1B UNF; UNF apex and margin, all UNH paler with a lilac suffusion; spots UNH slightly stronger, and visible faintly UPH. F male 15 mm; female 16 mm. The hair tuft on the disk UPH male, and the placement of the spot in space 4 F partially overlapping the spot in space 3 should distinguish this species from similar ones in Trinidad.

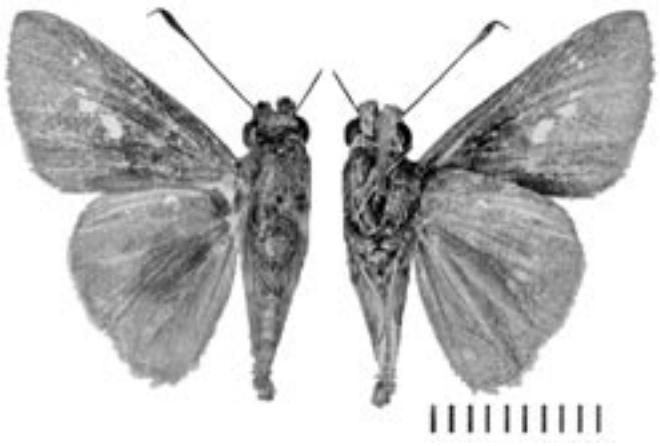

Fig. 40. *Penicula bryanti* male; UPS, UNS, Maracas Valley, 28.xii.1981.

Fig. 41. *Penicula bryanti* female; UPS, UNS, Brasso, 11.x.1993.

I have collected just four specimens of this species, three at flowers of eupatorium: Maracas Valley (male, 28.xii.1981) and Brasso (2 females, 11.x.1993), and the fourth at the edge of the swamp behind Las Cuevas Bay (male, 17.i.2004). These localities suggest that, like *M. zygia*, this species may be associated with open disturbed or grassy habitats. However, S. Alston-Smith (pers. comm.) has collected it from more forested habitats: North Post, Las Cuevas, Guanapo Valley, Inniss Field and Parrylands. The life history and food plants do not seem to have been recorded.

228a. L11/8 *Decinea lucifer* (Hübner 1831)
Figs. 42-43.

This species occurs from Mexico to Argentina (TL Suriname) (Evans 1955), but has not previously been reported from Trinidad (Cock 1982b).

Male. Antennae dark above; shaft chequered below; club pale below; apiculus brown. UPS dark brown with some tawny hairs; cilia brown UPF, paler UPH. White hyaline spots F in spaces 2 (under origin vein 3, large, quadrate, wider against vein 2), 3 (separated from and distal to spot in space 2) and 6-8 (dots in line, that in space 7 may be weaker); no stigma or brands. White hyaline spots H in spaces 2 and 3. Evans (1955) notes that F there may be 1-2 cell spots over the spot in space 2, and often a spot in space 1B, while the spotting H is variable, often including a cell spot and sometimes spots in spaces 4-6; however the single Trinidad specimen I have examined carefully does not show these features. UNF brown shading to black-brown on disk and dorsum; weak spot in middle of space 1B. UNH brown. F male 16 mm. Female similar, but wings more rounded, and there is a small pale spot UPF in space 1B. The white hyaline spots in spaces 2 and 3 H, if present, coupled with the strong spots F in spaces 2 and 3 should serve to identify this species in Trinidad.

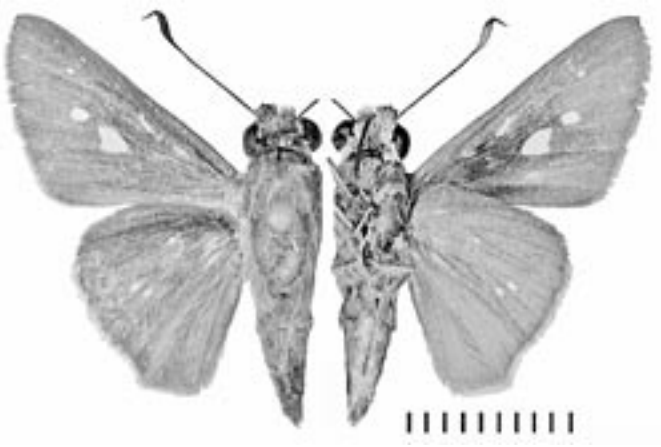

Fig. 42. *Decinea lucifer* male; UPS, UNS, San Rafael, 2.x.1982.

Fig. 43. *Decinea lucifer* female; UPS, UNS, Venezuela, in NHM collection.

I have seen just four specimens from Trinidad: west of San Rafael (male, 2.x.1982); Caltoo Trace (male, iii.2001; S. Alston-Smith, SAS); Palmiste (male, 25.iii.1930, N. Lamont, RSM); and Moreau (male, i.2000, S. Alston-Smith, SAS).

My specimen was taken at eupatorium flowers and, as with the preceding two species, an association with open disturbed grassy habitats may be possible.

Kendall and Rickard (1976) obtained ova from wild-caught females of *Decinea percosius (*Godman) in Texas. They reared these with rather limited success on several species of grass. It may well be that *Decinea* spp. feed on selected species of grass.

229. L15/1 *Orthos orthos orthos* (Godman 1900)
Figs. 44-45.

Evans (1955) treats this species as three subspecies, found from Panama to Argentina; the nominate subspecies is recorded from Panama (TL), Trinidad and Peru.

Kaye (1921, 1940) does not list this species, so two specimens in NHM listed by Evans (1955) are the first record from Trinidad. These two specimens were collected by A. Hall in the 1930s (male, "Northern Mountains", xii.1938-i.1939; female, St. Ann's, i-iii.1932), and Kaye

was probably not aware of them.

Male. Antennae dark above, distal part of shaft chequered below, base of club pale below; apiculus bright brown. UPS dark brown; white hyaline spots in spaces 2 (under origin vein 3; variable in width) and 3 (from origin of vein 4; quadrate, variable in size); no apical or cell spots; short brown brands against cell at base of space 2, over and under vein 2 from origin and above vein 1. UNS head grey-brown; UNS abdomen white with pair of sub-ventral brown lines. UNF brown with purple tint to apical area; basal and discal area blackish to dorsum; a large pale, diffuse spot with bronze tint in space 1B under spot in space 2. UNH plain brown, with a purple suffusion, missing in spaces 1A-1C. Female similar but wings more rounded, UPF a pale spot in space 1B under inner margin of spot in space 2, on vein 1, and UNF the pale spot in space 1B more extensive, extending to dorsum. F male 14 mm, female 15 mm. The combination of white hyaline spots in spaces 1 and 2 F, no apical or cell spots F, strong spot in space 1B UNF, and plain UNH with purple suffusion should facilitate recognition of this species.

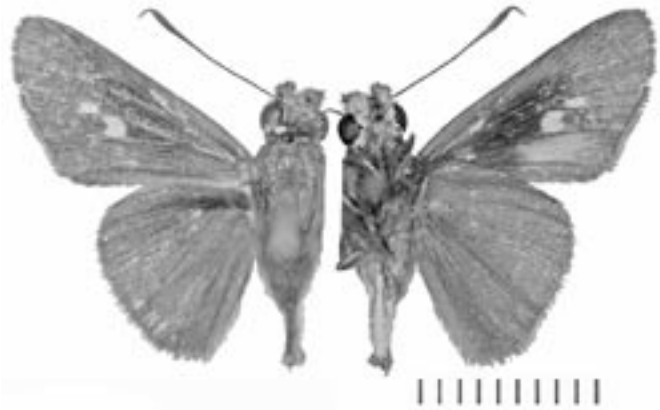

Fig. 44. *Orthos orthos orthos* male; UPS and UNS, west of San Rafael, 2.x.1982.

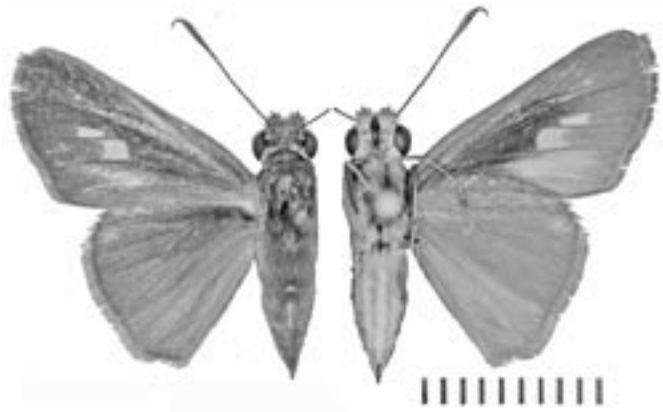

Fig. 45. *Orthos orthos orthos* female; UPS, UNS, Brasso, eupatorium flowers, 11.x.1993.

This species is most often found at eupatorium flowers at forest margins (Morne Bleu Textel Road, Maracas Valley, Cat's Hill, Rio Claro - Guayaguayare Road), but I also have records from more disturbed areas (Brasso, west of San Rafael), and one specimen from my light trap in Curepe (male, 8-14.xii.1981). The life history and food plants do not seem to have been reported, and I have no information.

230. L16/1 *Congo chydaea* (Butler 1870)

Figs. 46-47.

This common and widespread species is recorded from Mexico to Argentina (Evans 1955). A. Warren (pers. comm. 2005) has noted that females in Mexico have two very distinct forms of genitalia, suggesting that more than one species is involved in at least parts of its range. I have not examined the female genitalia of Trinidad material of this species.

Although there is a male collected by A. Hall in W. J. Kaye's collection in AME (Arima District: i-iii.1922) with an identification label as "*Prenes vala* Mabille", which is a synonym of *Congo chydaea*, Kaye (1921, 1940) did not record this species from Trinidad. Accordingly, Evans' (1955) listing of 13 males and 3 females from Trinidad in the NHM is the first record of this species from Trinidad. This material dates back to the 1890s, so it seems most likely that W. J. Kaye saw specimens, and it may well be they are represented under another name in his lists. As noted below, this is a difficult species to characterise, and doubtless this contributed to the confusion.

Male. Antennae dark above; shaft chequered below; club pale yellow-brown at base; apiculus bright brown. UPS dark brown; palpi above tawny; head with tawny spots around eyes; white hyaline spots in spaces 2 (under origin vein 2, curved, excavate on external margin), 3, 6-8 (very small, in a row, may be reduced or absent, especially that in space 8), and cell (close to origin vein 2, may be reduced, but at least a trace present in the specimens before me); there may be a trace of a pale spot in space 1B against vein 1; no brands; UPH may have very indistinct trace of UNH spots visible. UNS palpi pale, tawny distally; UNS head and fore femora pale; UNS thorax grey-brown; UNS abdomen narrowly pale brown with a weak ventral line. UNF brown, darker on disk and dorsum; diffuse pale spot in upper part of space 1B. UNH brown with a scattering of yellow scales, absent along vein 1B and costa; indistinct yellow spots at end cell and in spaces 1C to 6. Female similar but wings more rounded, and spots F reduced. F male 14-15 mm, female 15 mm. This is a rather undistinguished species, but the arrangements of spots, absence of brands in male,

and details of UNS colouring and marking may help with identification. Careful comparison with named material, or dissection of male genitalia may be necessary to confirm identifications.

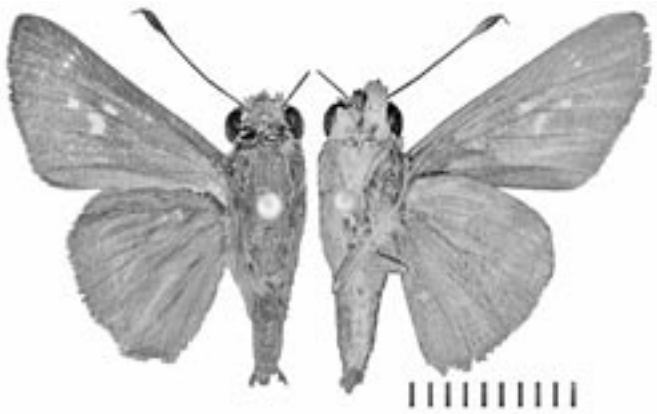

Fig. 46. *Congo chydaea* male; UPS, St. Benedict's, Alton Trace, 11.x.1993; UNS, Valencia Forest, 29.ii.1980.

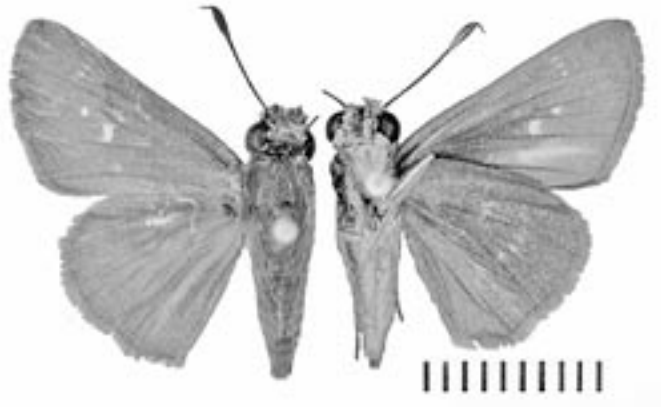

Fig. 47. *Congo chydaea* female; UPS Cunapo South Road, milestone 9.5, 5.ii.1980; UNS, Brasso, 11.x.1993.

This species is widespread in Trinidad; it is usually associated with forested areas and is regularly found on the ridges of the Northern Range. It comes to eupatorium flowers, and I have observed males resting in the last of the sunlight on Alton Trace above St. Benedict's.

Moss (1949) reared this species from *Calathea* (Marantaceae) in his garden in Belem (= Pará), and notes that "the larva is leaden-coloured, the pupa dull brown with a round head". There is also a record from sugar cane in Venezuela (Box and Guagliumi 1954), but given the difficulty of identification of this species, it would be desirable to confirm this record from voucher material or fresh rearing records. Janzen and Hallwachs (2005) list several rearing records in Costa Rica from two unidentified grasses. I have no information on the food plants or life history from Trinidad.

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