

THE SKIPPER BUTTERFLIES (HESPERIIDAE) OF TRINIDAD PART 9, GENERA GROUP E CONCLUDED (THIRD SECTION) WITH A DESCRIPTION OF A NEW SPECIES OF *CLITO*

MATTHEW J. W. COCK
CABI Bioscience UK Centre (Ascot)
Silwood Park, Buckhurst Road, Ascot, Berks SL5 7TA, UK

Introduction

This is the ninth in a continuing series on the identification and biology of the Trinidad HesperIIDae. It continues directly from part 8 (Cock 1996). In the next part I plan to treat the remaining Pyrginae, comprising Evans' (1953) genera groups F and G.

I reiterate my thanks to Dr C. Dennis Adams, Mrs Yasmin Comeau, Bhorai Kallou and Winston Johnson of the National Herbarium who identified the plants from which I reared HesperIIDae in Trinidad. Mr Carlos Lopez-Vaamonde kindly checked my translation of the description of the biology of *Antigonus erosus* from Comstock and Vazquez (1961). 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).

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).

107. E46/1 *Milanion hemes hemes* Cramer 1777

Plates 1-5

This subspecies occurs in Venezuela, Trinidad, the Guianas (TL Surinam) and at the mouth of the Amazon. Kaye (1914) records two Trinidad specimens in the collection of H J Adams; subsequently (Kaye 1921) he records additional specimens from Fondes Amandes (E J Patterson) and Ariapita Road (W J Kaye).

The sexes are similar. This species is dark brown above with white markings; below it is a lighter shade of brown, but the markings are similar apart from an expanded white spot in space 1B UNF, and the bases of both wings are slightly paler. Illustrations in Barcant (1970, Fig.4, No. 2) and Lewis (1973, Plate 83, No. 38). No costal fold; F ♂ 13 mm, ♀ 12-13 mm.

This seems to be an occasional, but widespread species, although perhaps over-represented in collections since it is so distinctive. It is perhaps more common in the north than in the south. Most records are from forests at intermediate altitude, the highest altitude from which I have seen a specimen being 518 m or 1700 ft. Almost all captures are of isolated

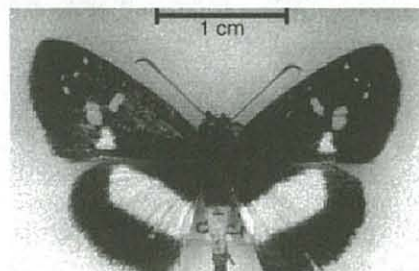


Plate 1 *Milanion hemes* ♂, Cumberland Hill, 14.xii.1978

specimens, and all 24 specimens for which I have data were captured between late November and mid-April, suggesting that it flies predominantly during the dry season.

At Belem, Moss (1949) records the food plant to be *Rollinia orthopetala* and other Annonaceae, but gives no other details. In Trinidad, SAS and I have the food plant to be *R. multiflora*, known locally as wild cashimar or wild sugar apple (Freeman and Williams 1928). In February 1994 I collected larvae and pupae on this food plant above Mount St Benedict's and above Fort George, and reared out several specimens. The plants used were all saplings growing beside paths; they were no more than a metre tall, with leaves 25-35 mm wide and 80-150 mm long. The details of the larval and pupal shelters are noteworthy and distinctive.

The eggs are small with about 14 ribs; they are laid on the leaf lamina UNS, towards the base, 1-2 per leaf. The final larval instar (Plate 2) is about 20 mm long; the head is chordate in shape, and rounded; the surface is covered with rugose dark projections; the head is light brown, with the posterior margin dark brown; the face is covered with pale speckles, and the most conspicuous feature is a white, vertical streak near the apex on each side of the face. The body is dull green with a heavy overlay of white speckles. The pupa is 14 mm long, rounded with a short, blunt frontal spike; cremaster long (1 mm) and slender; colour yellowish white, except abdominal spiracles, proboscis sheath distally, and three inter-segmental areas are black.

The stage I shelter (Plate 3) is a 6 mm diameter circular flap cut from the middle of the leaf lamina and folded under as a convex cup; all of the flap and the corresponding leaf UPS area except the line along which the larva rests are skeletonised. There is little or no feeding associated with the stage I shelter apart from the skeletonising of the shelter, suggesting that during this stage the larva may not leave the shelter, and only feeds within it.

The stage II shelter (Plate 4) is normally made upon the same leaf as the stage I shelter. It is about 15 mm x 7 mm; a wide flap is cut from the edge of the lamina to the leaf mid-

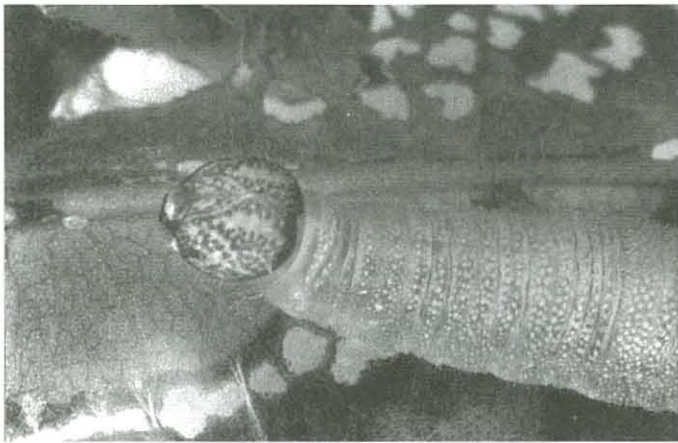


Plate 2. *Milanion hemes* fifth instar larva collected on *Rollinia multiflora*, behind Mount St. Benedict's on Mt. Tabor Track, 28.ii.1994

rib and is folded under along a short join incorporating a main vein, and then shaped by the larva as follows. At the distal end a notch about 3 mm long is cut into the end, parallel to the mid rib, and the sides pulled together to form a keel, usually with the leaf-flap on one side of the notch projecting, which causes the shelter to be raised from the leaf UPS. At the basal end an arc is cut from the side away from the shelter hinge, about 3 mm short of the basal end of the

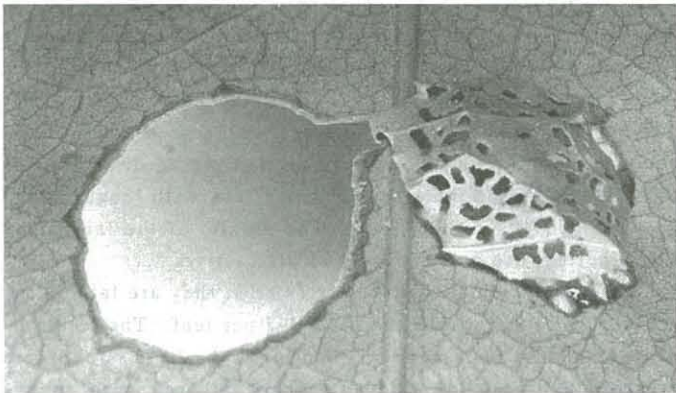


Plate 3. *Milanion hemes* stage I shelter on *Rollinia multiflora*, behind Mount St. Benedict's on Mt. Tabor Track, 28.ii.1994

shelter; the shelter is attached to the leaf UPS along this arc, leaving the basal portion of the flap free. The larva skeletonises the shelter flap and the leaf UPS except for a central line under which it rests; there is additional feeding nearby on the same leaf.

The stage III shelter (Plate 5) is formed on a different leaf, and it is also used for pupation. A large flap about 35 mm long is cut from the margin to the mid-rib, and folded under joined along most of its length along the mid-rib, old shelters may split along the mid-rib. The flap and leaf are consumed to the extent that both are about 10 mm wide; an arc is cut from about 5 mm from each end of the flap, curved from near the flap outer margin to the mid-rib; the shelter is then formed by attaching the inner edge of each arc to the leaf UPS, leaving the remainder of the flap loose at each end of the shelter, but joined to the shelter at each side. The whole of the

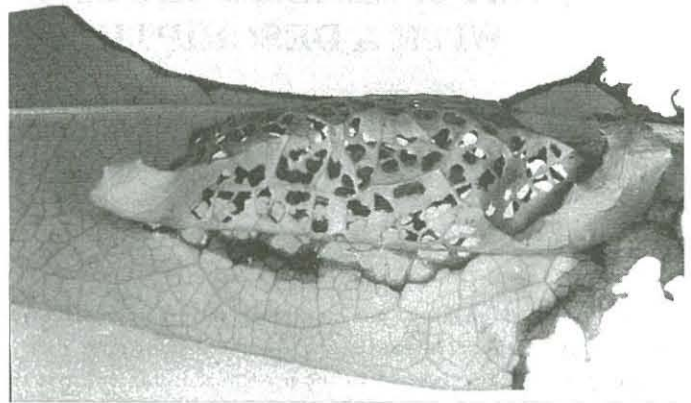


Plate 4. *Milanion hemes* stage II shelter on *Rollinia multiflora*, behind Mount St. Benedict's on Mt. Tabor Track, 28.ii.1994

shelter flap is skeletonised apart from the two loose bits of leaf at each end; the shelter leaf UPS is skeletonised in irregular patches along each margin of the shelter, leaving the central area under which the larva rests and the pupa is formed. Further feeding distal and basal to the shelter leaves only the basal portion of the leaf intact, so that the shelter then looks like a skeletonised fragment attached to the mid-rib. At pupation the inside of the shelter, but not the pupa, is lined with a loose white waxy powder.

I have examined Moss's material in the NHM. The pupa is formed in a globular shelter up to 3 cm long, with a fine lattice-work of small holes except over the area where the pupa occurs. Thus, there seems to be differences between the pupal shelters from the two areas, perhaps associated with the different food plant species.

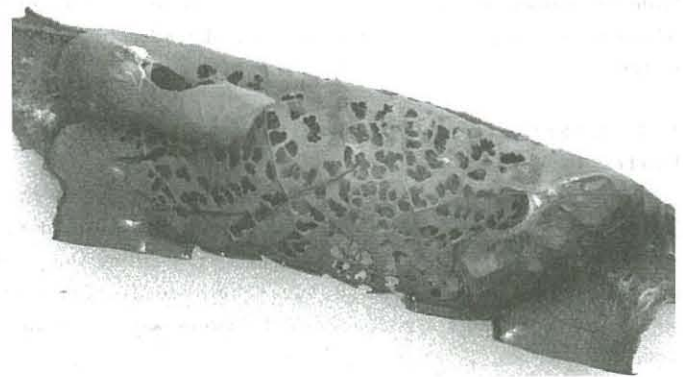


Plate 5. *Milanion hemes* stage III shelter on *Rollinia multiflora*, behind Mount St. Benedict's on Mt. Tabor Track, 28.ii.1994

Mylon

All members of this genus are predominantly white with varying diffuse brown markings. Two species, *lassia* and *ander* have white hyaline apical spots in F spaces 6-9, while the remaining three, *meinippus*, *pelopidas* and *jason* do not. *M. lassia* is smaller than *M. ander* and has a relatively clearly defined white discal band which extends to the costa. In *M.*

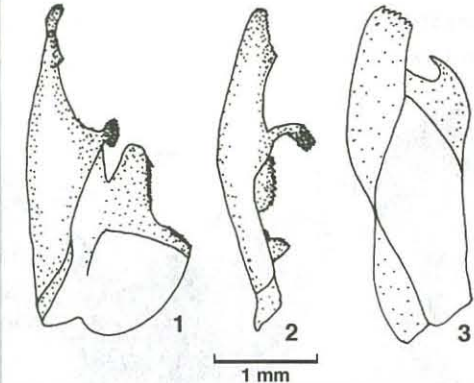
ander, which is a darker species, the discal band is shaded brown towards the costa. *M. menippus* is similar in size to *M. ander*, but not as dark. It has a more or less clear white discal band UPF, whereas in *M. pelopidas* and *M. jason* the band is filled with diffuse brown markings.

M. pelopidas and *M. jason* are very similar, although the genitalia are different: the cuiller of *M. pelopidas* is long, narrow and tapered, while that of *M. jason* is short broad and rounded. The character given by Evans (1953) seems effective: the dark bar at end of the F cell is directed to the outer edge of the discal spot in space 1B in *M. pelopidas*, and towards the middle or inner edge of this spot in *M. jason*.

The life history does not seem to have been recorded for

Figures 1-2, Left valve of male genitalia of *Mylon pelopidas* Fabricius, Chacachacare Is., nr lighthouse on flowers of *Chromolaena odorata*, 7.i.1982 M.J.W.Cock.

1, Internal view.
2, Ventral view.



3, Male genitalia of *Mylon jason* Ehmann (redrawn from Evans 1953, not to scale. (left valve, internal view, diagrammatic).

any member of this genus, and so the observations recorded here are of particular interest. The food plants found thus far in Trinidad are all Malpighiaceae or Combretaceae.

108. E50/1 *Mylon lassia* Hewitson 1868

Plates 6, 7

No subspecies are recognised of *M. lassia*, which is found

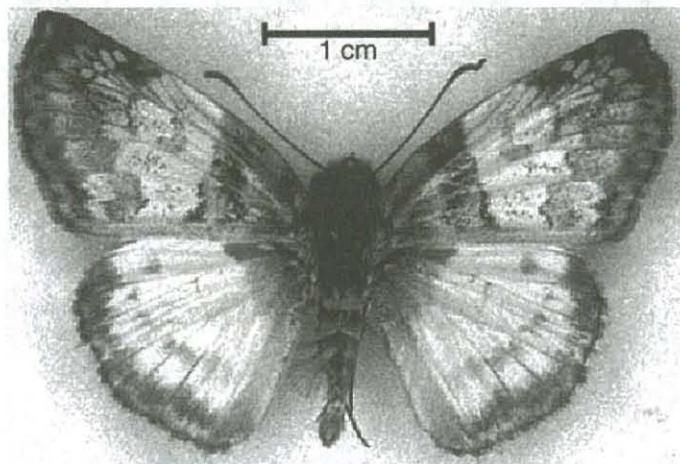


Plate 6 *Mylon lassia* ♂, Brigand Hill, 19.viii.1981

from Mexico to Ecuador (TL) and Trinidad. *Mylon pulcherius* Felder is a synonym described from Mexico which Crowfoot

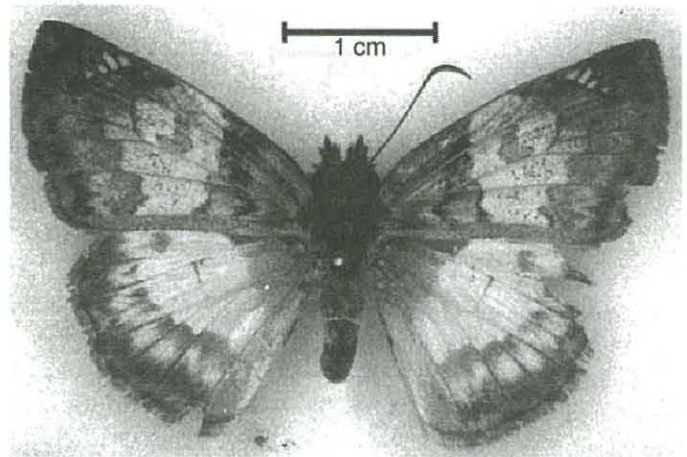


Plate 7 *Mylon lassia* ♀, Curepe, 9.xi.1980

(1893) recorded from Trinidad and Kaye (1904, 1921) lists without further comment. Kaye (1940) recorded *M. lassia* under its correct name as "rather a common species" with several records.

The female of this species is larger than the male and more heavily marked in brown. The colours are white and brown as shown. Illustration in Lewis (1973, Plate 83, No. 60, as *M. pulcherius*, a synonym). No costal fold; F ♂ 18 mm, ♀ 21 mm.

I have relatively few records of this species, and consider it scarce, contrary to Kaye's opinion above. Most specimens are from the Northern Range where I have records from Morne Bleu, Maupertuis, Hololo Mountain Road, Fort George, St Ann's, Symonds Valley and Calvary (near Arima). Away from the Northern Range, I have specimens from Curepe and Brigand Hill; Kaye (1940) records a specimen from Tabaquite (9.iv.1922 F.W. Jackson) and there are two males from Caparo in the NHM.

SAS has reared this species from Andrew's Trace on an as yet un-named plant, where it feeds on the light yellow-green flush leaves. Pupation takes place in the final larval shelter.

109. E50/7 *Mylon ander andrea* Evans 1953

Plates 8, 9

Judging by the specimens in the NHM, this is a very rare subspecies, represented by a male from Colombia and a female, perhaps mis-labelled, from Brazil. The nominate subspecies, *ander* Evans, is more common and found in the Upper Amazon, Peru, Bolivia and south Brazil (Evans 1953). This species was recently added to the Trinidad list (Cock 1982b).

Another white and brown species, with the female larger and more heavily marked. No costal fold; F ♂ 21 mm, ♀ 24 mm.

As recorded in Cock (1982b), I took a male and a female on the summit of Cumberland Hill (2.viii.1981). S Alston-Smith has since taken more specimens at the same locality (xi.1993), and it has also been taken on Morne Catherine (Charles De Gannes) and Rio Claro-Guayaguayare Road (x.1993, SAS).

SAS tells me that Charles De Gannes observed a female oviposit on *Brysonimia coriacea* var. *spicata* (Malpighiaceae)

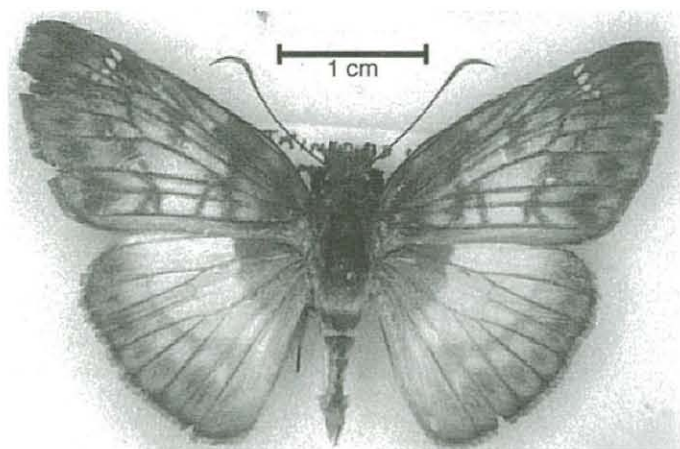


Plate 8. *Mylon ander andrea* ♂, Cumberland Hill, 2.viii.1981

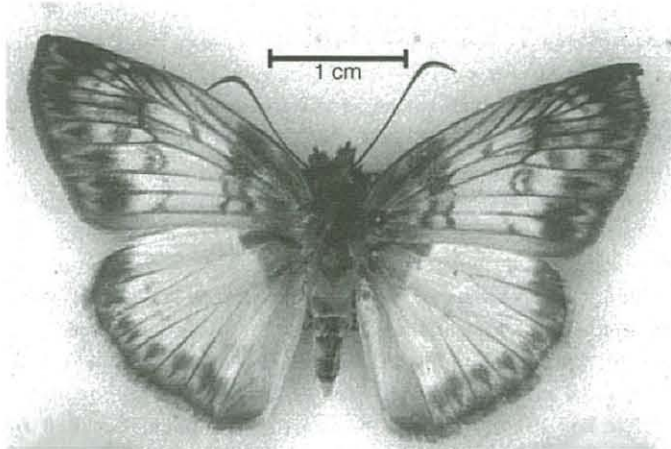


Plate 10. *Mylon menippus* ♂, Rio Claro-Guayaguayare Road, milestone 4-5, 17.ix.1978

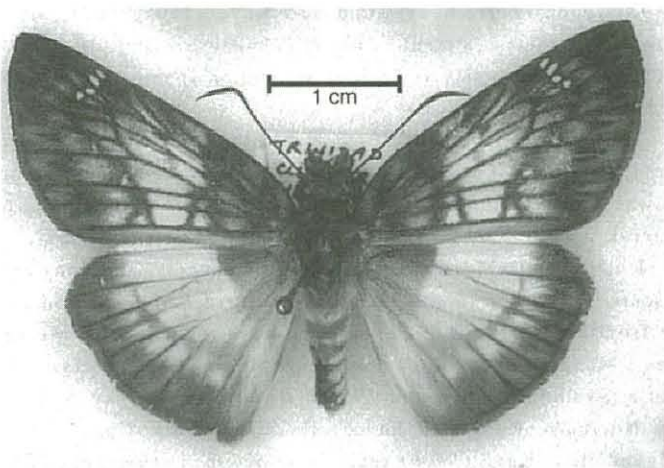


Plate 9. *Mylon ander andrea* ♀, Cumberland Hill, 2.viii.1981

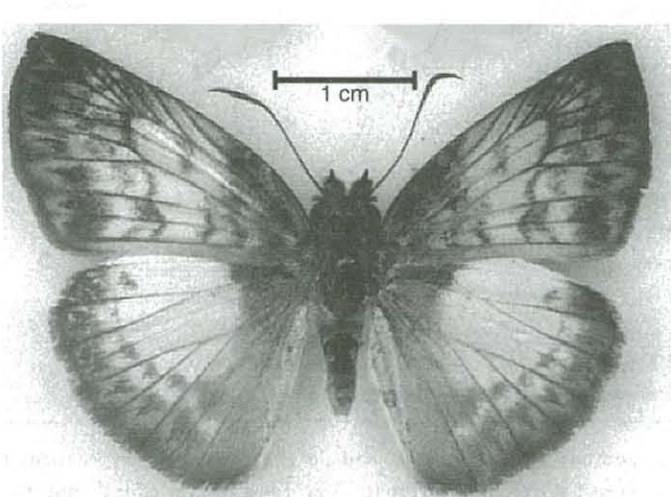


Plate 11. *Mylon menippus* ♀, Arima-Blanchisseuse Road, 19.iv.1982

on Morne Catherine (vii.1992). The young larvae are yellow green with a brown head. According to Williams (1929), "*B. spicata*" is widespread on poor soils.

110. E50/8 *Mylon menippus* Fabricius 1776
Plates 10-14

This common and widespread species is found from Mexico to Argentina (TL Surinam). Kaye (1940) records it, under its synonym *Eudamidas melander* Cramer, as "a fairly common species", with records from the south of Trinidad.

A third white and brown species, and once again the female is larger and more heavily marked than the male. Illustration in Lewis (1973, Plate 83, No. 59, as *M. melander*, a synonym). No costal fold; F ♂ 21 mm, ♀ 22-23 mm.

This species seems to be more common in the south of Trinidad than in the north: I have 11 records from the south, one from Central and three from the north. Six of my seven specimens were taken at *Eupatorium* flowers, and I suspect from the dates of capture of the earlier collectors that they had similar experiences. All records are from relatively undisturbed forest areas.

In October 1988, SAS reared this species from two Malpighiaceae on Morne Catherine: *Hiraea fagifolia* and

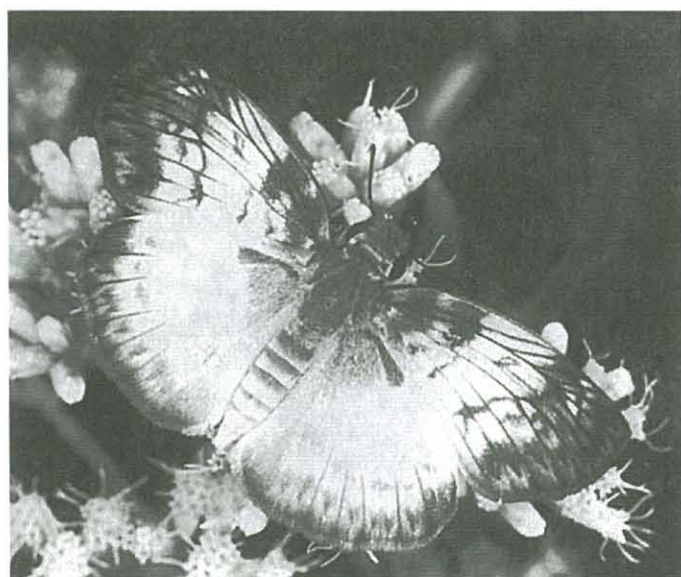


Plate 12. *Mylon menippus* male at flowers of *Austroeupatorium inulaefolium*, Brasso, 11.x.1993

Stigmaphyllon convolvulifolium, while I have reared a specimen collected on *H. fagifolia* on Mt. Tamana (14.x.1995). *S. convolvulifolium* is widespread in dry places in Trinidad, while *H. fagifolia* seems more localised (Williams 1929). The following account is based upon the specimen which I reared.

The final larval shelter was an elongate triangle cut diagonally from the edge of the leaf lamina and folded over upwards with the short side adjacent to the lamina edge; it was hinged along a major leaf vein, and held over the leaf with several strands of silk extending from the margins of the flap over the leaf surface.

The final instar larva (Plate 28) measured 22 mm. Head chordate, broadly indent at vertex and flattened dorsally; rugose, shiny; black, strikingly marked in white: a broad white band across face, extending along epicranial suture to vertex, and laterally with dorsal and ventral extensions towards the posterior margin of the head; within the white band is a black band across the frons, extending laterally across the epicranium, this lateral portion deeply divided by a white projection towards the frons. T1 concolorous with body. Body dull, translucent green; dorsal line slightly darker due to absence of underlying fat bodies; broad, yellow dorso-lateral line composed of vertical marks on anterior half of T2-A8, a typical segment having one quadrate mark and four narrow vertical bars. Spiracles pale, at centre of star of trachea, and linked by weak line of trachea visible through cuticle. Legs and prolegs concolorous.

The pupa (Plate 14) measures 18 mm and is supported at the cremaster and with a Y-shaped silk girdle. It is smoothly con-

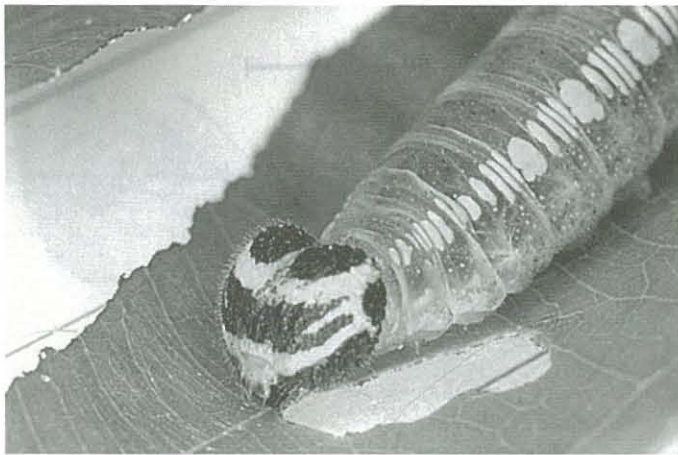


Plate 13. *Mylon menippus* fifth instar larva collected on *Hiraea fagifolia*, Mt. Tamana, 14.x.1995

toured, the eyes slightly protuberant; a few weak setae on eyes. The cuticle is transparent showing the underlying green colour; black markings as follows: a thin line along the costa F; spot at base of F; spot dorsally on frons; row of three spots across front of head, the central one displaced ventrally; faint spot posterior and ventral to eye. Spiracle T1 projecting, conspicuous; black posteriorly and laterally, pale anteriorly. Abdomen spiracles concolorous. Pupation lasted 18 days.

111. E50/10 *Mylon pelopidas* Fabricius 1793
Plates 15, 16

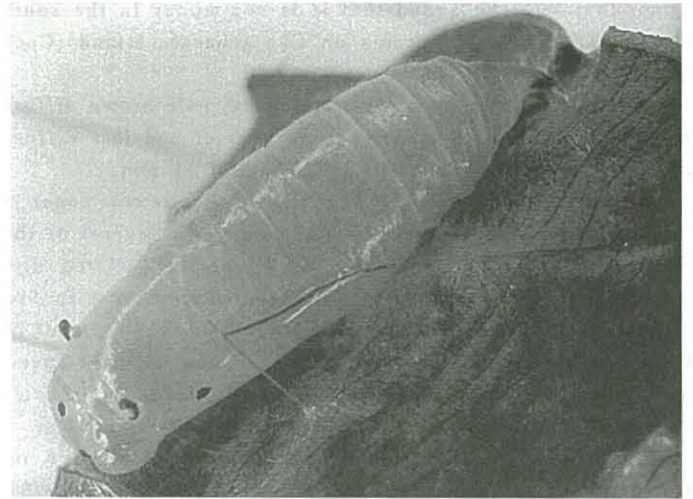


Plate 14. *Mylon menippus* pupa, collected as larva on *Hiraea fagifolia*, Mt. Tamana, 14.x.1995

This is another common and widespread species, found from Mexico to Paraguay (TL "Indiis"). Kaye (1904) lists this

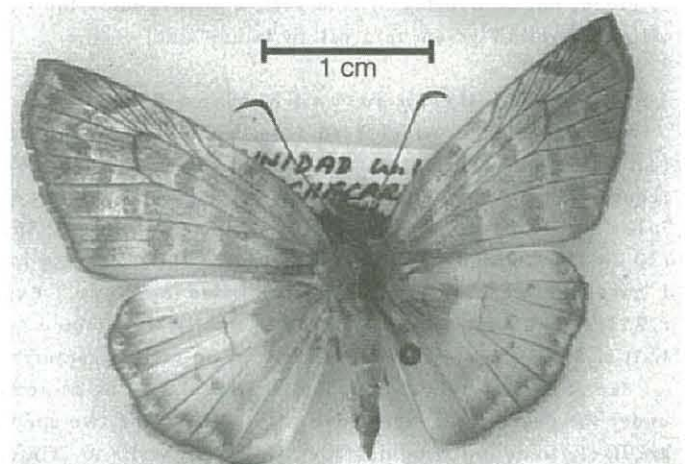


Plate 15. *Mylon pelopidas* ♂, Chacachacare ls., nr. lighthouse, 7.i.1982

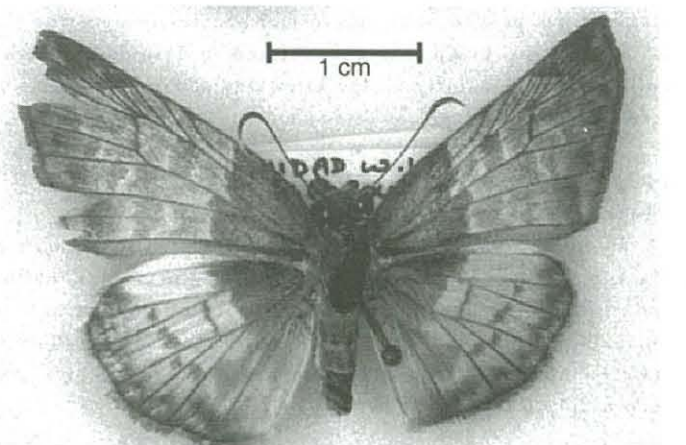


Plate 16. *Mylon pelopidas* ♀, Moruga Bouffe, 23.v.1982

species under its synonym *Eudamidas ozema* Butler and records a capture by WE Broadway, and another from

Tunapuna; later he added that it is commoner in the south (Kaye 1921). It also occurs on Chacachacare Island (Cock 1982a).

This is a white species, overlaid with pale brown diffuse markings; the female is larger with heavier and less diffuse markings. No costal fold; F ♂ 19-21 mm, ♀ 21 mm.

I agree with Kaye (1921) that this species is commoner in the south, but even there it is not common. Several of the locality records suggest this species is more associated with disturbed forest than the last, e.g. secondary forest in San Miguel Valley, Arima, Maraval, Waller Field, near summit of Chacachacare Island, Moruga Bouffe. Although I have specimens taken at flowers of *Eupatorium* and *Cordia*, this species does not seem to be so closely tied with flowers as the last.

SAS has reared this species from larvae collected on *Combretum fruticosum* (Combretaceae) at Los Bajos (ii.1990). *C. fruticosum* occurs on hillsides and in thickets in moist and dry districts (Williams 1932). The larvae of *M. pelopidas* have the head chordate, light brown, with the vertex dark brown and five streaks, one centrally, and two laterally, angled inwards towards mouth parts; the body ground colour is green, but an overlay of fine yellow dots renders the overall effect yellow-green; thin yellow lateral line.

112. E50/11 *Mylon jason* Ehrmann 1907

This species is widespread from Guatemala to Paraguay (TL Venezuela), but not common in collections. Kaye (1940) records it from Trinidad, under the name *Eudamidas macaira jason*, on the basis of specimens collected from Port of Spain (10.vii.1927, Forbes) and St. Ann's (27.iii.1929, Huntingdon). I have not seen the two specimens listed by Kaye. Evans (1953) lists a female from Trinidad in the NHM collected by A Hall at St Ann's, xi-xii.1931. I know of no further captures.

Very similar to the last, but distinguished as indicated under the generic account above. In the field the two species are likely to be indistinguishable. On recent visits to Trinidad I have made a point of collecting specimens that appear to be *M. pelopidas* in the hope of finding *M. jason*, but thus far all material has proved to be the former species, suggesting that *M. jason* is not commonly encountered in Trinidad. Further collecting, particularly on the hills around Port of Spain may lead to the rediscovery of this species.

113. E52/1 *Clito trinidadensis*, n. sp.

Plates 17, 18

In Cock (1982b), I listed this species as *C. littera littera* Mabille, a new record for Trinidad. On closer examination, and in light of de Jong's recent description of *C. jonkersi* from Surinam (de Jong 1983), I am now of the opinion that the material from Trinidad also represents a new species, and accordingly I describe it here.

Description. Male. Plates 10-11. F 16-17 mm. UPF brown; diffuse dark brown pre-discal fascia in space 1; similar sub-marginal fascia; margin slightly paler, crossed by dark brown veins; white hyaline spots in spaces 1-8 and cell: space 1 a

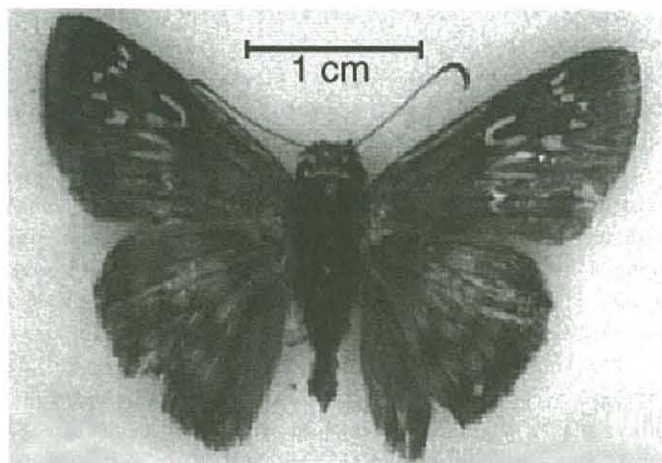


Plate 17. *Clito trinidadensis* n. sp. paratype ♂, La Laja Ridge, 17.iii.1982

double arc spot at centre, space 2 a basal V-shaped spot, space 3 a basal quadrate spot, spaces 4-8 a row of spots except that of space 5 displaced distally, a U shaped spot at end cell. UPH brown; discal area, consisting of a patch in space 1C at about 1/3, distal half of cell, spot near base of space 2, base of spaces 3-6, and quadrate spot across space 7 at 1/2, pale, semi-hyaline, tinted violet-blue with brown veins; pale brown marginal and sub-marginal fascias. UNF light brown; brown sub-marginal fascia; margin crossed by brown veins; space 1A to 4/5 near white; space 1B distal to hyaline spot pale brown except submarginal line and vein 1B which are brown. UNH

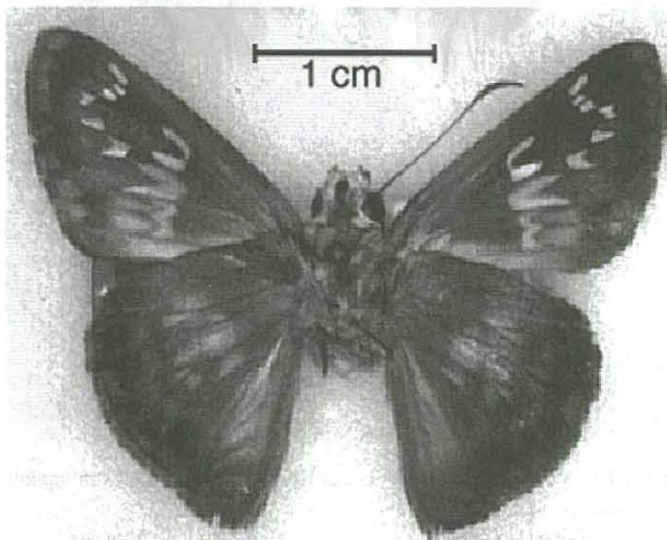
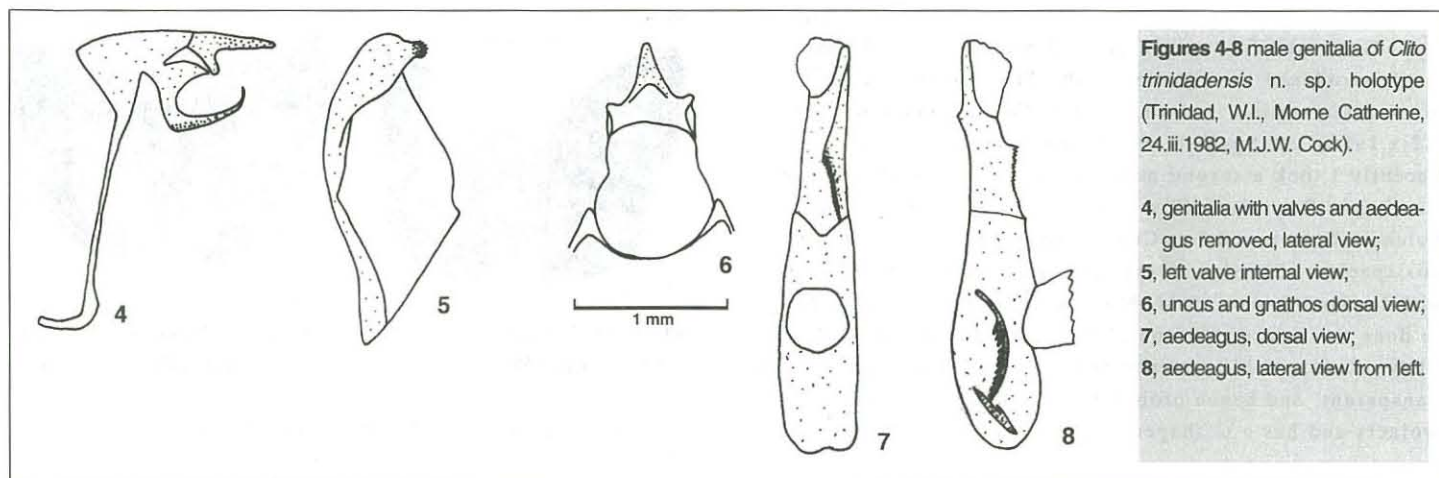


Plate 18. *Clito trinidadensis* n.sp holotype ♂ UNS, Morne Catherine, 24.iii.1982;

brown; spaces 1A, 1B and 1C pale brown in basal 2/3; disc as UPH but paler violet with brown veins; dark brown sub-marginal fascia. Fringe of wings brown. Body above brown, except margin of collar, eyes and segments of labial palpi which are pale. Thorax below grey-brown; head below white. Antennae dark except anterior margin of shaft which is chequered with white, and pure white basally; nudum dark chestnut brown, 21 segments of which 2-6 could be considered on



Figures 4-8 male genitalia of *Clito trinidadensis* n. sp. holotype (Trinidad, W.I., Morne Catherine, 24.iii.1982, M.J.W. Cock).

- 4, genitalia with valves and aedeagus removed, lateral view;
 5, left valve internal view;
 6, uncus and gnathos dorsal view;
 7, aedeagus, dorsal view;
 8, aedeagus, lateral view from left.

the club. Costal fold 5-6 mm; reaches level of club.

Male genitalia. Figures 4-8. Uncus with a pair of lateral lobes near base. Gnathos broad, turned up sharply at apex. Cucullus slender, the tip heavily toothed. No costal process. The aedeagus is pointed, with an angled ventral projection near apex, a sclerotized dorsal ridge towards the apex and a striking pectinate cornutus.

Female. Unknown.

Type material. Holotype male: TRINIDAD, W.I., Morne Catherine, 24.iii.1982, M.J.W. Cock. Paratype males: TRINIDAD, W.I., Northern Range, La Laja Ridge, 17.iii.1982, M.J.W. Cock; TRINIDAD, W.I., Morne Catherine, 28.i.1980, S. Alston-Smith; 3 ♂♂ TRINIDAD, W.I., El Tucuche, iii.1989, S. Alston-Smith. There are three specimens from Trinidad in the Angostura-Barcant collection in Laventille, Trinidad, but for lack of reliable data these are not included in the type series. The holotype will be deposited in the Natural History Museum, I retain the first paratype, and the remaining paratypes are in the collection of S. Alston-Smith, Petit Valley, Trinidad.

Diagnosis. In appearance this species is close to *C. littera* Mabille which occurs in Peru (ssp. *littera*), French Guiana (ssp. *anda* Evans) and Bolivia (ssp. *nebulosa* Draudt) (Evans 1953) and *C. jonkersi* de Jong from Surinam (de Jong 1983). It differs in the dusky discal band of the hindwing which is white in *C. jonkersi* and *C. littera anda*, and faint in *C. littera littera*. Hitherto, I have treated this species as *C. littera littera* (Cock 1982b), but the basal edge of the cell spot of the fore wing of *C. littera littera* is straight and perpendicular to the costa, whereas that of *C. trinidadensis* is somewhat rounded, but clearly angled to the costa.

The male genitalia are intermediate between those of *C. jonkersi* and *C. littera*. The uncus has a pair of lateral lobes apparent in dorsal and lateral view; *C. jonkersi* has similar, but less well developed lobes. The valve is closer to *C. littera*, although clearly differently proportioned, and lacks the costal process of *C. jonkersi*.

Discussion. de Jong (1983) pointed out that Evans' (1953) diagnosis of the genus *Clito* as having 16 nudum segments is erroneous, based upon the material in the NHM arranged by Evans which has 18-22 segments. The nudum of 21 segments for *C. trinidadensis* fits well in the range for the genus.

Habitat. The localities for the type series include a hill top and a ridge top of the Northern Range of Trinidad. The southern summit area of Morne Catherine at the time of these captures was a wide trail overshadowed by light semi-deciduous forest, although in recent years, some of this trail has been tarmaced and some has become overgrown. The La Laja Ridge site is a wide, open track bordered by a mixture of, at that time, abandoned smallholdings and relatively undisturbed forest. I don't know where on El Tucuche the remaining paratypes were collected. The fact that at least nine specimens of this species are now known from the island suggests this is not that rare a species within its selected habitat.

114. E52/3 *Clito clito* Fabricius 1787

Plate 19

Apart from a specimen from Guatemala, this species is restricted to Trinidad, the Guianas (TL French Guiana) and

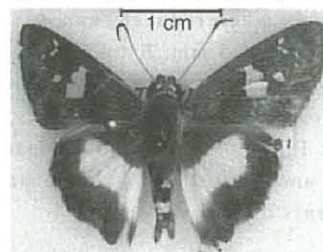


Plate 19. *Clito clito* ♂, Spanish Farm, 12.x.1980;

Brazil; apart from a series from Belem, it is rare. I recently added this to the Trinidad list (Cock 1982b). Life history and food plants unknown.

This is a dark brown species with white markings. The only species it might be confused with is *Milanion hemes*, but they can be separated by the markings, size and wing shape. I do not know the female. Illustration in Lewis (1973, Plate 81,

No. 47). Costal fold very narrow, 3 mm long. F ♂ 15 mm.

I introduced this species to the Trinidad list on the basis of a male which I took at *Cordia curassavica* flowers (12.x.1980) at Spanish Farm, Las Lomas (Cock 1982b). Recently I took a second male resting under a leaf in a sunlit clearing in Bush Bush (7.v.1995). SAS has seen specimens at Valencia Forest, and Las Cuevas Road, but has yet to capture this species. Clearly, a very rare species, perhaps associated with lowland forest. A.M. Moss reared this species, although he does not record the food plant or any details (Moss 1949). I have examined his material in the NHM. The pupal skin is transparent, and hence probably green in life; the T1 spiracle projects and has a C shaped rim.

114a. E52/5 *Clito zelotes* Hewitson 1873

Plates 20, 21

This rare species is known only from French Guiana and the Upper Amazon (Evans 1953). It has not previously been

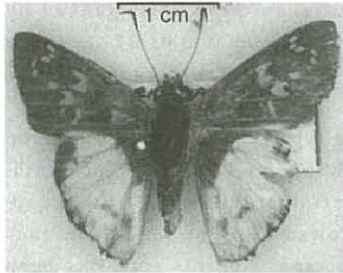


Plate 20 *Clito zelotes* ♂, Aripo Savanna, viii.1986, S. Alston-Smith

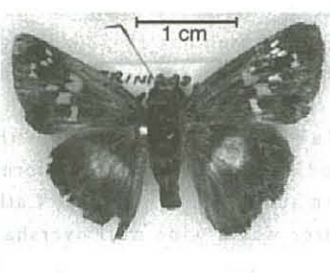


Plate 21 *Clito zelotes* ♀, Aripo Savanna, viii.1986, S. Alston-Smith

recorded from Trinidad (Cock 1982b). Indeed, the female described and illustrated here does not seem to have been previously recorded at all. This new record for Trinidad is based upon captures by S Alston-Smith at Waller Field and Aripo Savanna.

Male brown with white hyaline spots. The broad pale band H is yellow in spaces 1A-5, and white in spaces 6 and 7. The female has not been described before. It resembles the male, but the band H is much reduced, and white rather than yellow. Costal fold narrow, 5 mm; F ♂ 15 mm, ♀ 14.5 mm.

This rare and localised species is only known in Trinidad from the lowland forest of eastern Trinidad around Aripo Savanna and Waller Field. Captures were made in January 1986 (Waller Field) and August 1986 (Aripo Savanna). Life history and food plants unknown.

115. E53 *Xenophanes tryxus* Stoll 1780

Plates 22-24

This distinct species is the only one of the genus. It is common and widespread from Mexico to Argentina. Kaye (1904, 1921) records it as "a fairly common insect".

The ground colour of this species is brown, overlaid UPS with grey scales. The extensive pale hyaline markings F and H are distinctive. UNH broadly white except margin and narrow macular sub-marginal line. A distinctive species.

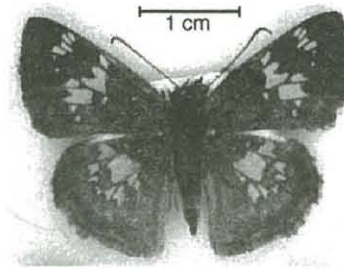


Plate 22 *Xenophanes tryxus* ♂, Cats Hill, 4.vii.1979;

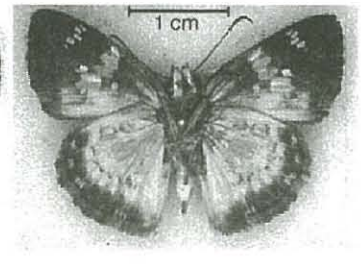


Plate 23 *Xenophanes tryxus* ♂, UNS, Moruga East, 24.ii.1980

Illustration in Lewis (1973, Plate 88, No. 34, ♀). No costal fold; F ♂ 14-16 mm, ♀ 15-15.5 mm.

This species is to be found occasionally in the lowlands of central and southern Trinidad, with just two records from the valleys of the Northern Range. It is found in open, disturbed situations including open secondary forest. A disproportionate number of captures seem to have been made close to the sea (e.g. Nariva Swamp, Irois Beach, Manzanilla, La Brea, Manzanilla Windbelt Reserve).

Moss (1949) found this species to feed upon *Malachra fasciata* (Malvaceae), and one or two other members of this family. He records the larva to be whitish green, freckled and slightly hairy with a rough, sepia-brown head, and the pupa to be hairy, warm brown, freckled and white powdered. In Rio Grande do Sul, Brazil, Biezanko (1963) and Biezanko and Mielke (1973) record the food plant as *Pavonia spinifex* (Malvaceae). In Texas, which is the northern limit of the range of this species, Kendall and Rickard (1976) found the food plant to be *Malvaviscus drummondii* (Malvaceae).

In Trinidad, food plants include *Urena lobata*, *Malachra* sp. and *Hibiscus* sp. (all Malvaceae). I have reared a male found on *U. lobata* at Spanish Farm (collected 13.xi.1981), and reared a larva through to the distinctive pupa on *Malachra* sp. from Saunder's Trace (collected 11.x.1993), while SAS has reared this species from *Hibiscus* sp. On *U. lobata*, the larval shelter was a nearly square flap from the margin of the leaf, folded over onto the top of the leaf. Full grown, the larva (Plate 24) measured about 15 mm; the head was rugose, black, and chordate; body yellow-green dorsally, with dorsal line darker; a thin white dorso-lateral line; blue-

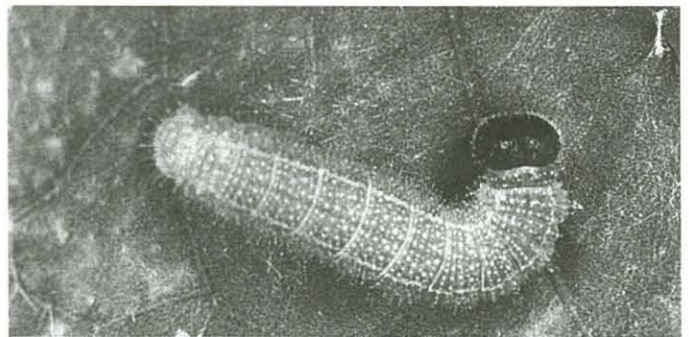


Plate 24. *Xenophanes tryxus* fifth instar larva collected on *Malachra* sp., junction of Rio Claro - Guayaguayare Road and Saunders Trace, 11.x.1993

green laterally with scattered short, fine, white setae arising from small white dots; T1 and all legs concolorous. Moss's pupal case preserved in the NHM is transparent brown, rounded and covered with long, brown, projecting hairs; loose white waxy patches are arranged in a pattern on the thorax and abdomen, patches on T, transverse lines on A1-3, transverse rows of patches on A4-8. My larva pupated on 26.xi.1981, and an adult male emerged eight days later.

One 10 mm field collected larva (Spanish Farm, 13.xi.1981) was parasitised by larvae of an externally feeding eulophid parasitoid, which pupated in the host shelter.

Antigonus

Biezanko (1963) records that another species of the genus, *Antigonus liborius areta* Evans 1953, feeds on *Chorisia speciosa* (Bombacaceae) and species of *Abutilon*, *Pavonia* and *Hibiscus* (Malvaceae). Both these families are quite closely related to Sterculiaceae, the family of the food plant given below for *Antigonus erosus*.

116. E55/1 *Antigonus nearchus* Latreille 1824 Plates 25, 26

This common and widespread species is found from Mexico to Paraguay (TL South America). Two males labelled Jamaica in the NHM are most probably mis-labelled (Brown and Heineman 1972). Kaye (1904, 1921) records this as a common species around Port of Spain.

This species shows strong sexual dimorphism. Male dark brown above with indistinct markings UPF: pale scales in basal band, apical patch and sub-marginal above tornus; grey-brown discal band from space 1B to costa (paler at costa), with a projecting extension in space 3; chestnut scales in sub-discal patch space 1B and at margin spaces 1B and 2. UPH with indistinct brown bands, clearest in spaces 2 and 3. UNF chestnut brown, brown basally; indistinct discal band and arced submarginal band from apex to tornus. UNH costal half chestnut brown, shading into pale brown at dorsum; irregular dark bands and patches except in spaces 1A and 1B. Female light purplish brown above with much clearer markings:

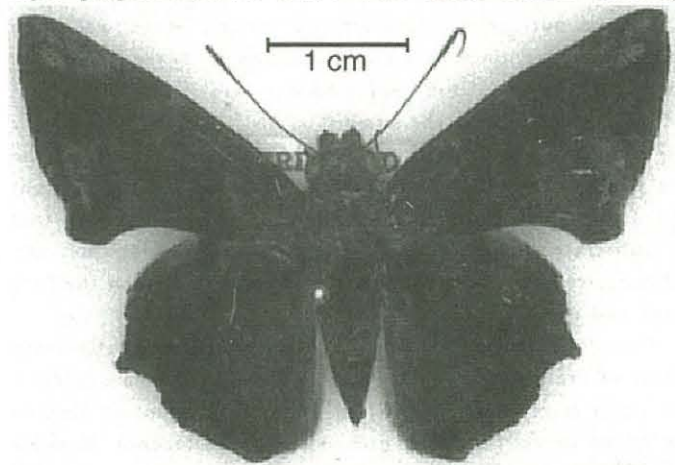


Plate 25. *Antigonus nearchus* ♂, Arima-Blanchisseuse Road, milestone 3.5, 5.x.1979;

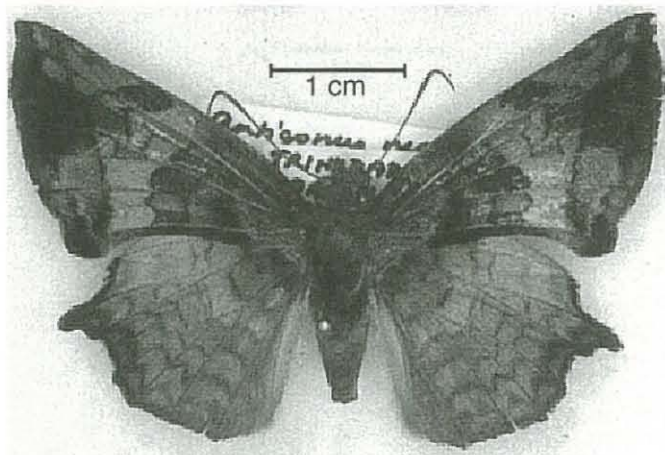


Plate 26 *Antigonus nearchus* ♀, Parrylands, 2.ii.1980

brown patches UPF sub-basally, termen, subapically and UPH along margin spaces 3-5. UNS light yellow brown, with narrow, brown irregular bands across both wings. The wings are broader, and the HW projection in space 6 is longer in the female. The wing shape and colouring is distinctive for this species. Illustrations in Riley (1975, Plate 22, Fig. 9, ♀) and Lewis (1973, Plate 80, No. 29, ♂). Narrow costal fold; F ♂ 21 mm, ♀ 23 mm.

I would normally regard this as an occasional species, but sometimes it can be common at *Eupatorium* flowers, especially in the south (e.g. in Parrylands in January 1988). It is widespread in or near forests in both the north and south, usually at low altitude, although I do have a specimen from 701 m or 2300 ft. (Morne Bleu), and there is a specimen labelled El Tucuche in the NHM (viii.1905, F Birch). In addition to regularly feeding on flowers, males can sometimes be found feeding on damp gravel beside streams (e.g. Arima Valley, 5.x.1979). This and the next are probably the only Trinidad species which I have observed to do this, although I have seen many other species do so in South America.

Kaye (1921) notes that the larva feeds on cashew, *Anacardium occidentale* (Anacardiaceae).

117. E55/2 *Antigonus erosus* Hübner 1812 Plates 27-35

This, like the last, is a common and widespread species. It is found from Mexico to Paraguay (TL unspecified). Kaye (1904, 1921) found this species frequent in the north of Trinidad, and Sheldon (1936, 1938) records it from Tobago (Cocoa Wattie, Roxborough, Scarborough).

This species is quite variable in the density of the markings and the extent of the hyaline markings of the female. It shows slight sexual dimorphism, the female normally having slightly hyaline pale markings in cell, and spaces 2 and 3, which are absent in the male. Male UPS dark brown with an overlay of grey-blue scales which define ground colour lines and bars, of which UPF two bars across end cell, and a broad submarginal line are the most distinct. UNS brown, yellow brown at margins; two violet discal spots space 1B UNH, and

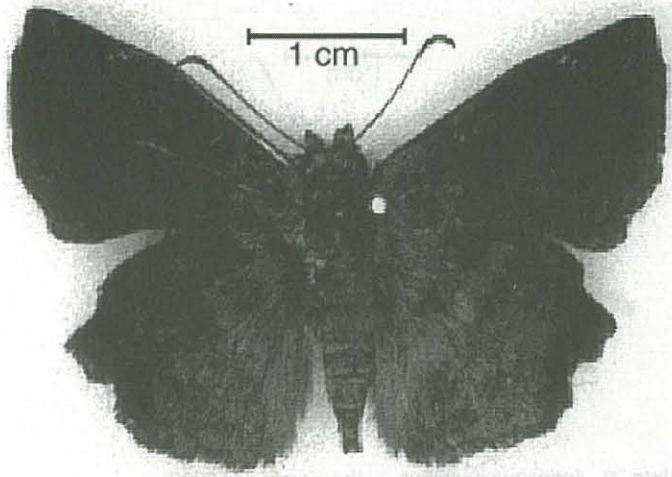


Plate 27. *Antigonus erosus* ♂, Parrylands, 20.i.1988;

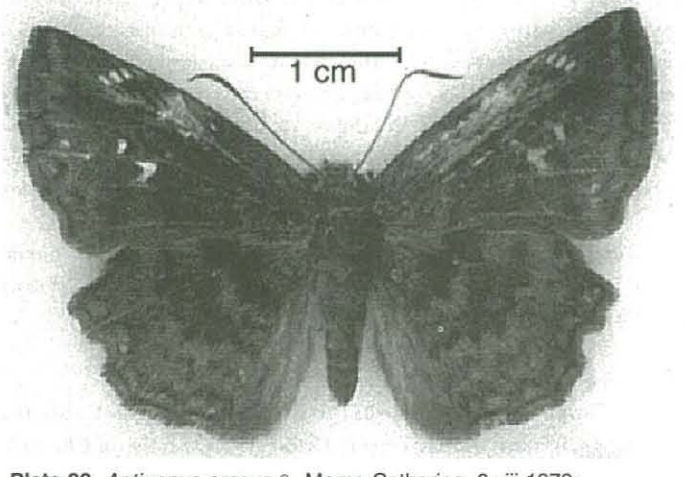


Plate 29. *Antigonus erosus* ♀, Morne Catherine, 6.viii.1979;

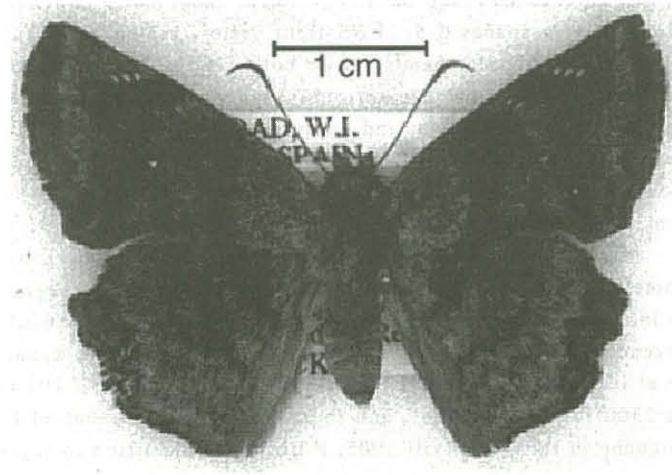


Plate 28. *Antigonus erosus* ♀, Port of Spain, reared from a larva collected on *Guazuma ulmifolia*, 10.x.1995

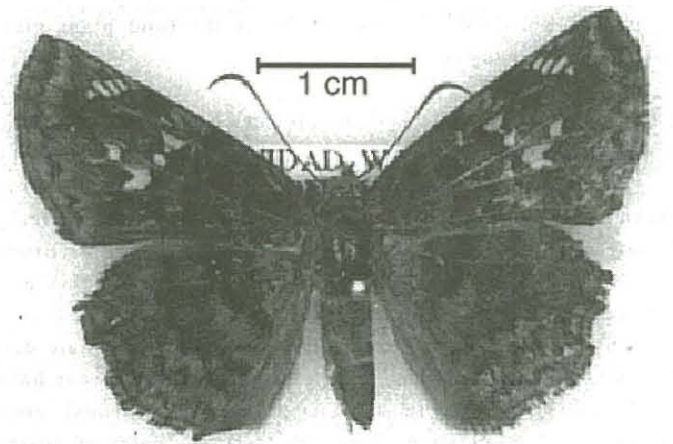


Plate 30. *Antigonus erosus* ♀, Port of Spain, 9.x.1995

a black spot at termen UNH. Female UPS dark brown, the overlay of grey-blue scales strong only in space 1B UPF and UPH; margins variable shaded chestnut brown. UNS light brown, with irregular brown bands on both wings; light violet discal bars across space 1B UNF, space 1A UNH yellow and dark spot termen UNH. The wing shape and colouring is distinctive for this species; *Noctuana stator* Godman and Salvin (Cock 1992) perhaps comes closest, but the wing shapes are different, those of *N. stator* projecting at end of veins 3 and 4 H, and angled at end of vein 6 F. Illustration in Smart (1976, Page 113, Fig. 42, ♂). Narrow costal fold; F ♂ 19 mm, ♀ 20 mm.

In Trinidad, this species is common and widespread, especially in and around secondary forest. Although it is mainly found in lowland situations, I have specimens from Morne Catherine (457 m or 1500 ft.), Mt. Tamana (305 m or 1000 ft.) and the summit of Brigand Hill. *A. erosus* is attracted to flowers and is sometimes common at *Eupatorium* flowers in the south. I have seen males drinking at mud puddles several times in the valleys of the Northern Range, and once at

Scotland Bay on the mud behind the beach (9.i.1981); this is probably the skipper which shows this behaviour most frequently in Trinidad. I once found a male feeding on fresh donkey droppings on the Blanchisseuse-Paria Bay Track (22.i.1980); this is the only instance of a skipper feeding on mammalian excreta which I have seen in Trinidad.

I have noticed a characteristic resting stage when the adult is inactive, once by a female resting for several hours on the Port of Spain Hilton roof walkway late in the afternoon, and once by a male on the summit of Mt. Tamana during very overcast and showery weather. In this position (Plate 32) the fore wings are held slightly raised, with the dorsum at right angles to the body, while the hind wings are pressed against the substrate and held with the dorsum tight against the abdomen, so that there is almost no overlap between the fore wings and the hind wings.

Comstock and Vazquez (1961) record and illustrate details of the biology of *A. erosus* in Mexico on an unidentified small tree. Subsequently, a larval food plant in Mexico was found to be *Guazuma ulmifolia* (Sterculiaceae) (Kendall and McGuire 1975). The same food plant is used in Trinidad where it is known as Bois l'orme or West Indian elm (Freeman and Williams 1928). SAS and I found larvae on this host in



Plate 31. *Antigonus erosus* ♀ in normal resting position (reared, Port of Spain 1.xi.1995)

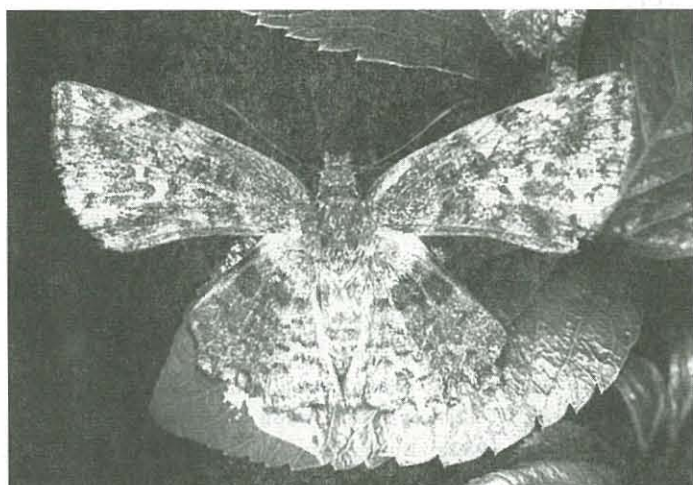


Plate 32. *Antigonus erosus* ♀ in long term resting position, Mt. Tamana, 12.xi.1995.

Parrylands (ii.1988) but failed to rear them. Subsequently SAS reared out a larva collected on this tree on Point Gourde (x.1993), and I have reared it from the same host and locality (14.vii.1996) as well as from a larva collected at Port of Spain, above the Hilton Hotel (10.x.1995). In Trinidad, *G. ulmifolia* is found on hillsides and in forests in moist and dry districts (Williams and Cheesman 1929). There is substantial variation in the foliage (Williams and Cheesman 1929) which I tentatively associate with plants growing in shade, small, thin, shiny leaves, and open sun, larger, thicker, mat leaves, so much so that initially I thought two different species were involved. The larval description below is based on the female specimen which I reared from Port of Spain which was collected from a plant growing beside the road above the Hilton in open sunlight. The description matches that of Comstock and Vazquez (1961) closely, although not exactly, e.g. the Mexican material has a narrow black dorsal plate on T1, whereas this is concolorous in Trinidad larvae.

The stage I shelter of the Port of Spain material is a small triangular flap (c. 8 x 4 mm) cut from the edge of the lamina near the base of the leaf; it is hinged on a leaf vein, opposite

the longest side, and folded over upwards; the larva ate a row of small holes along each side of the vein under the shelter. The stage II shelter is a pocket (c. 20 x 15 mm) between two leaves one on top of the other; the lower leaf has the shelter margin eaten very irregularly, and several holes on the UNS of the shelter, some bridged by one or two strands of silk; upper leaf has three small round holes adjacent to the edge of the shelter, and several large irregular holes adjacent to a vein on the opposite margin of the shelter. Shelter III is also between two leaves, the lower, small leaf completely covered by the upper leaf; the larva rests on the undersurface of the upper leaf.

Three final larval shelters of the Point Gourde material were also formed by attaching one leaf on top of another; one shelter had both leaves extensively perforated with round holes and lines, about 2mm wide; the second resembled the first, but the upper leaf had a broad central line without holes and the larva rested on the undersurface of this; the third shelter had no perforations at all in the leaves. I suspect that these differences merely reflected the maturity of the larva in the shelter, and by the time the larva is ready to pupate the whole shelter is perforated.

The final instar larva (Plate 33) measured 30 mm. The head is broad and chordate, slightly indent at vertex, apical portions flattened; posterior opening very narrow, half the width of the head; covered with short, scattered, pale setae; ground colour light brown; posterior margin dark brown; the head is decorated with rows of small protruding bumps (tubercles): a triple row parallel to the epicranial suture, converging to a double row near frons, the apical tubercles dark brown; a second triple row converging to a double row from the apex downwards and then angled inwards stopping short of the frons; the lateral portions of the epicrania are covered with semi-regularly arranged tubercles, but the pattern is not clear; each side of the frons there is a short grey streak. T1 concolorous with body. Body dull green, covered with scattered yellow dots to give a yellow-green appearance; dorsal line only slightly darker; narrow yellow dorso-lateral line; narrow, diffuse, pale ventro-lateral line; body covered with short, erect yellowish setae; anal plate slightly pointed.

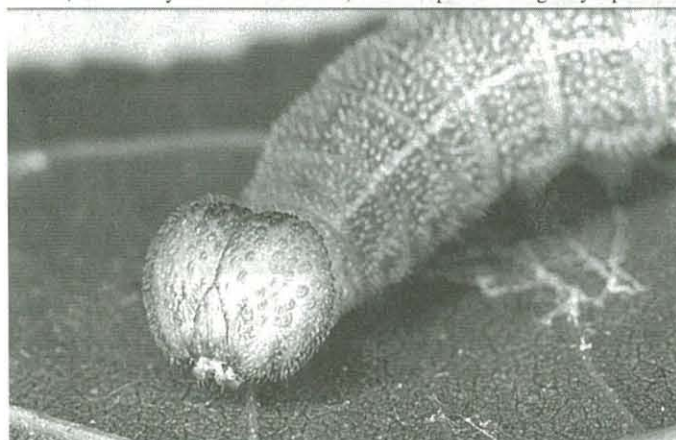


Plate 33. *Antigonus erosus* fifth instar female larva collected on *Guazuma ulmifolia*, Port of Spain, 10.x.1995

Spiracles more or less concolorous. Legs and prolegs concolorous.

The pupa (Plate 34) was formed in the last larval shelter, lined with brown silk and supported by the cremaster and a Y-shaped silk support. The pupa measured 18 mm; rounded with no projections; brown; whole surface covered with erect seta-like white waxy spikes, except for T1 spiracles, costal margin of wing cases and outline of appendages. The pupal stage lasted 15 days.

In contrast, mature larvae from Point Gourde (Plate 35) were smaller, measuring about 24mm. They resemble the

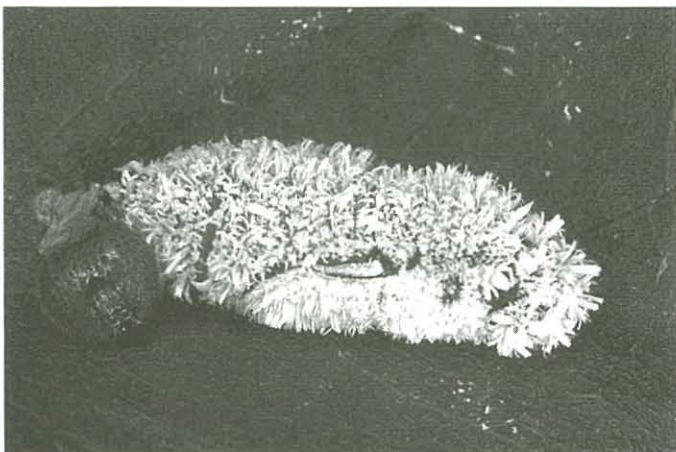


Plate 34. *Antigonus erosus* pupa, collected as larva on *Guazuma ulmifolia*, Point Gourde, 14.vii.1996

Port of Spain larva except that the head is darker brown, especially around the mouth parts, and the dorsal portion around each apex and across the vertex is black.

Further investigation is needed to understand the differences between the two types of larvae described above. As

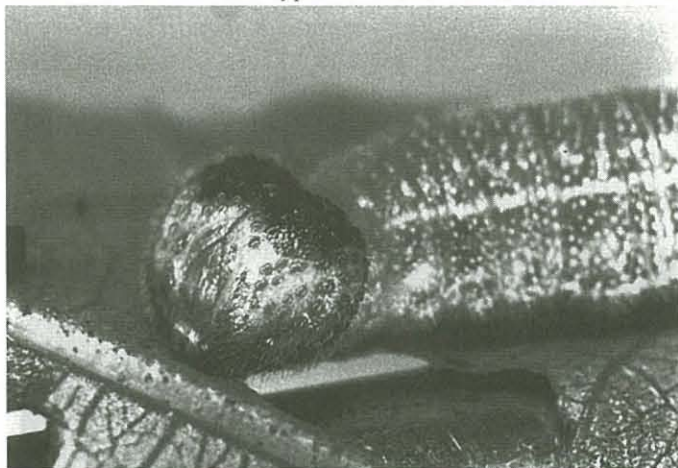


Plate 35. *Antigonus erosus* fifth instar male larva collected on *Guazuma ulmifolia*, Point Gourde, 14.vii.1996

noted, all three larvae from Point Gourde were males, whereas that from Port of Spain was female, so possibly these are sexual differences. Equally, it may be that the larvae are variable, like the adults.

E 58/2 *Zopyrion satyrina* Felder 1867

There are two female specimens of *Zopyrion satyrina* in the Lamont collection at UWI from Patos Is (Cock 1982b). These were collected vi.1918 by "CBW" (I assume this is C B Williams), when the island belonged to Trinidad and Tobago. There are no records from the country as recognised today. I am not familiar with this species or genus in the field.

Female UPS brown, light brown along margin; UNS light brown, striated with brown and chestnut brown UNH; a marginal dark spot in each space UNF and UNH, strongest in spaces 1C-3 and 5-6 UNH; UNH with indistinct discal and submarginal bands of chestnut brown with dark margins. Illustration in Lewis (1975, Plate 88, Fig. 36 UNS). Costal fold; F ♀ about 16 mm.

References

- Barcant, M.** 1970. *Butterflies of Trinidad and Tobago*. Collins, London.
- Biezanko, C.M.** 1963. Hesperiidae da Zona Sueste do Rio Grande do Sul. *Arquivos de Entomologia. Pelotas, Série A 6*: 1-24.
- Biezanko, C.M. and O.H.H. Mielke.** 1973. Contribuicao ao estudo faunistico dos Hesperiidae Americanos. IV Especies do Rio Grande Do Sul, Brasil, com notas taxonomicas e descricoes de especies novas (Lepidoptera). *Acta Biologica Paranaense, Curitiba, 2*: 51-102.
- Brown, F.M. and B. Heineman.** 1972. *Jamaica and its butterflies*. E.W. Classey Ltd. London.
- Cock, M.J.W.** 1982a. Butterflies from Chacachacare Island including three species new to Trinidad. *Living World. J. of the Trinidad and Tobago Field Naturalists' Club*, 1981-1982, p. 25.
- Cock, M.J.W.** 1982b. The skipper butterflies (Hesperiidae) of Trinidad. Part II. Systematic list of the Trinidad and Tobago species. *Occasional papers of the Dept. of Zoology, UWI, St. Augustine, No. 5*, 49 pp.
- Cock, M.J.W.** 1984. The skipper butterflies (Hesperiidae) of Trinidad. Part 3 Pyrginae (first section). *Living World. J. of the Trinidad and Tobago Field Naturalists' Club*, 1983-1984, pp. 38-42.
- Cock, M.J.W.** 1992. The skipper butterflies (Hesperiidae) of Trinidad Part 7, genera group E (first section). *Living World. J. of the Trinidad and Tobago Field Naturalists' Club* 1991-1992, pp. 46-56.
- Cock, M.J.W.** 1996. The skipper butterflies (Hesperiidae) of Trinidad. Part 8, Genera group E (second section). *Living World. J. of the Trinidad and Tobago Field Naturalists' Club* 1995-1996, pp. 27-35.
- Comstock, J.A. and L. Vazquez G.** 1961. Estudios de los ciclos biologicos en Lepidopteros Mexicanos. *Anales del Instituto de Biologia* 31: 349-448.
- Crowfoot, W.M.** 1893. Preliminary list of Trinidad butterflies. *J. of the Trinidad Field Naturalists' Club*, 1; 173-174.

- Evans, W.H.** 1953. *A catalogue of the American Hesperiiidae indicating the classification and nomenclature adopted in the British Museum (Natural History). Part III (Groups E, F, G) Pyrginae. Section 2.* London; British Museum (Natural History), 246 pp, 53 plates.
- de Jong, R.** 1983. Annotated list of the Hesperiiidae (Lepidoptera) of Surinam, with descriptions of new taxa. *Tijdschrift voor Entomologie*, 126: 233-268.
- Freeman, W.G.** and **R.O. Williams.** 1928 The useful and ornamental plants of Trinidad and Tobago. *Memoirs of the Dept. of Agriculture, Trinidad and Tobago*, 4, 192 pp.
- Kaye, W.J.** 1904. A catalogue of the Lepidoptera Rhopalocera of Trinidad. *Transactions of the Entomo. Soc. of London*, 1904: 159-224.
- Kaye, W.J.** 1914. Additions and corrections to my catalogue of the Lepidoptera Rhopalocera of Trinidad 1904. *Transactions of the Entomo. Soc. of London* 1913: 545-585, plate 30.
- Kaye, W.J.** 1921. Catalogue of the Trinidad Lepidoptera Rhopalocera. *Memoirs of the Dept. of Agriculture, Trinidad and Tobago*: 2, 163 pp.
- Kaye, W.J.** 1940. Additions and corrections to the recorded species of Trinidad butterflies. *Transaction of the Royal Entomo. Soc. of London*, 90, 551-573.
- Kendall, R.O.** and **W.W. McGuire.** 1975. Larval food-plants for twenty-one species of skippers (Lepidoptera: Hesperiiidae) from Mexico. *Bulletin of the Allyn Museum* 27, 7 pp.
- Kendall, R.O.** and **M.A. Rickard.** 1976. Larval food-plants, spatial and temporal distribution for five skippers (Hesperiiidae) from Texas. *J. of the Lepidopterists' Soc.* 30:105-110.
- Lewis, H.L.** 1973. *Butterflies of the World.* Harrap, London, 312 pp.
- Moss, A.M.** 1949. Biological Notes of some Hesperiiidae of the Amazon. *Acta Zoologica Lilloana, Tucuman*, 7, 27-79.
- Riley, N.D.** 1975. *A field guide to the butterflies of the West Indies.* Collins, London.
- Sheldon, W.G.** 1936. Tobago and its butterflies. *Entomologist* 69: 1-9.
- Sheldon, W.G.** 1938. Additions to the butterflies of Tobago. *Entomologist* 71: 29-31.
- Williams, R.O.** 1929. Geraniales. *Flora of Trinidad and Tobago* 1(2): 113-164.
- Williams, R.O.** 1932. Myrtales. *Flora of Trinidad and Tobago* 1(5): 322-332.
- Williams, R.O.** and **E.E. Cheesman.** 1929. Malvales. *Flora of Trinidad and Tobago* 1(2): 72-112.