

Notes on Butterflies Seen or Collected on a Short Visit to Nevis, W.I., including the Life History of *Epargyreus zestos* Geyer (Hesperiidae)

Matthew J.W. Cock

CABI Bioscience Switzerland Centre,
1 Rue des Grillons, CH-2800 Delémont, Switzerland

ABSTRACT

Since nothing has been hitherto recorded about the butterflies of the Caribbean island of Nevis, these observations are of interest. Food plants, descriptions and illustrations are given of the early stages of the hesperiids *Epargyreus zestos* Geyer, *Urbanus proteus domingo* Scudder, *Pyrgus oileus* Linnaeus, *Calpodus ethlius* Stoll, *Panoquina sylvicola woodruffi* F.E. Watson and *Nyctelius nyctelius* Fabricius. *Epargyreus zestos* is compared with the closely related *E. clarus* Cramer, and the other species are compared with the Trinidad fauna and published descriptions. Records of a further 17 butterfly species are listed.

INTRODUCTION

During a visit to Nevis, 7-11 November 1995, on a mission to look at pests of coconut, I was able to make some limited observations on the butterflies of the island, with particular interest to the Hesperiidae. I stayed at the Golden Rock Hotel (c. 260 m or 850 ft. on the southeast side of the island), an old sugar estate, with secondary forest extending upwards on the slopes of the main peak of the island. Most observations were made on the nature trail at the hotel, either early in the morning (before 07.45h) or late afternoon (after 17.00h). Observations at other locations were on a casual basis in the course of my work. Eight species of Hesperiidae and 15 other butterflies were recorded, making a modest total of 23 records. In contrast, 10 days collecting in neighbouring St. Kitts in December 1935 by A. Hall produced 36 species (Hall 1936). Life history information was recorded for six Hesperiidae, two of which were not reared and are identified from the larva.

Nothing seems to have been recorded specifically about the butterflies of Nevis (Smith *et al.* 1994; Lamas *et al.* 1995) although the fauna of neighbouring St Kitts is quite well known (Hall 1936; Riley 1975; Smith *et al.* 1994). There is no reason to expect that any of the species recorded from St. Kitts will not be found in Nevis since they are only separated by three kilometres of sea, and all of the species I record here from Nevis are already known from St. Kitts. Very few Nevis specimens were noted in the collec-

tion of the Natural History Museum, London (NHM) during a somewhat cursory inspection, and representative material from my visit will be deposited there. In view of this surprising dearth of information, my limited observations should be of interest. The plates all show material that I reared from Nevis, except as indicated.

LIFE HISTORY OBSERVATIONS

Epargyreus zestos Geyer

Smith *et al.* (1994) note that "no detailed account of the life history has been published [of *E. zestos*], although the larvae of this species use several woody legumes, including *Galactia spiciformis* (Scott 1986) as foodplants," and that "full details of the life history and food plant preferences of this species would be

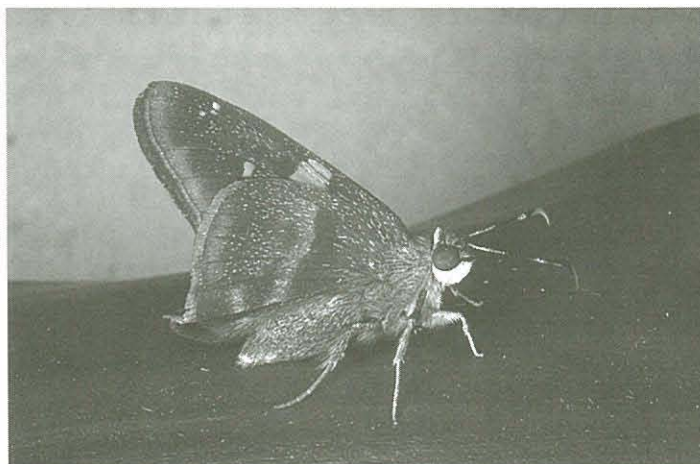


Plate 1. Adult female *Epargyreus zestos*.

of value in assessing its relationship with its close congener, *E. clarus*" Cramer. Accordingly, I present here my observations based on several larvae that I found at Golden Rock Hotel, one of which was reared through to adult (Plate 1).

Food plants. No adults were seen, but larvae were quite common on the legume vines, *Galactia longiflora* and *Centrosema virginianum*, in open patches and along a pathway in secondary forest.

Pupa 19mm. Smoothly contoured, no projections; head across the eyes almost as wide as the thorax, which is only slightly narrower than the widest part at A2-3. Ground colour light brown with dark brown dots and speckles; the only distinct markings a brown, shiny stripe down middle of the eye. Head with indistinct markings anteriorly between eyes: spot adjacent to anterior margin of eye, another more ventral and separated from eye, and an indistinct spot centrally between these four; surface of head and thorax irregularly striated with slightly darker brown; appendages more or less striated transversely; wings with striations mostly at right angles to nearest margin; abdomen with dark speckling more intense towards posterior margin of segments; laterally on A4-8 a diffuse, double line; ventrally on A4-5 a transverse, rounded bar with parallel arcs at each end; ventrally a small dark rectangle anterior to cremaster. Spiracle T1 dark brown, conspicuous; other spiracles dark, but inconspicuous. No trace of white waxy powder on pupa or shelter (Plate 2).

Larval shelters. Shelter I a small triangle cut from within the area of feeding and folded over dorsally; about 5 mm on longest axis. Shelter II similar but with a notch cut from one edge and the shelter keeled

along notch; 11 mm on longest axis. Shelter III a large triangular fold from lamina edge, held with silk threads around margin; longest axis 19mm. The final larval shelter is between two leaves. The mature larva would not settle to form a pupal chamber until I provided it with some soil surface leaf litter, in which it formed a flimsy cocoon and pupated; I conclude that pupation is normally in or on the soil.

L5 27mm. Head oval, indent at vertex; rugose, shiny; reddish brown with large orange eye-spot in front of stemmata. T1 brown, yellow-orange ventrally. Body greenish white with yellow tint; indistinct, transverse, greenish micro-markings, especially on posterior margin of segments. Spiracles pale yellow, inconspicuous. Legs pale orange; prolegs yellowish. (Plate 3) (Plate 4).

L4 12mm (newly moulted). Head rounded; indent at vertex; smooth and shiny; deep chestnut brown; large yellow eye-spot anterior to stemmata. T1 black, brown ventrally. Body blue green; more opaque than



Plate 2. Pupa of *Epargyreus zestos*, lateral view, 19 mm.



Plate 3. Fifth instar larva of *Epargyreus zestos*, 27 mm.

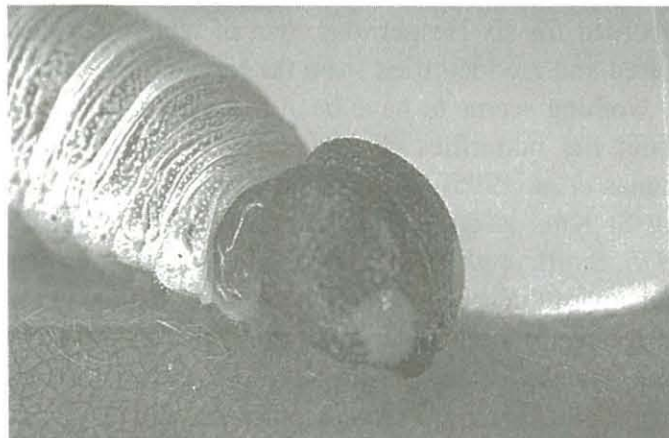


Plate 4. Fifth instar larva of *Epargyreus zestos*, showing detail of head and T1.

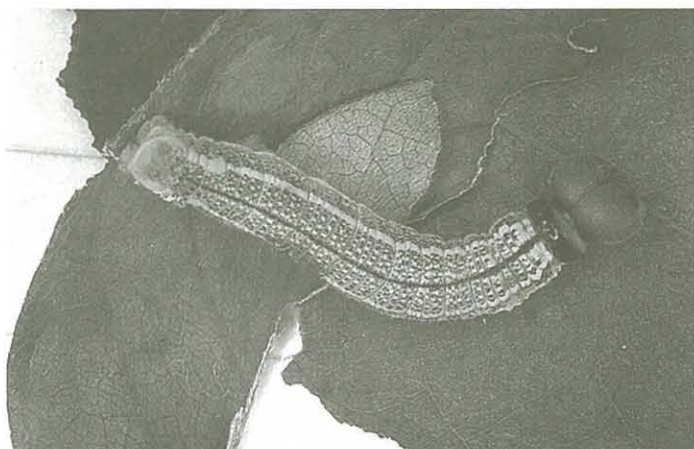


Plate 5. Fifth instar larva of *Urbanus proteus domingo*, 22 mm.

translucent; interrupted darker dorsal line; indistinct transverse lines of darker green - a broader one anteriorly and 3-4 very narrow ones on each segment; tracheal line visible. Spiracles pale, inconspicuous. T1 legs pale brown; T2-3 legs pale; prolegs conspicuously paler than body.

L3 9mm. Similar to L4, but head black with small brown eye-spots.

L2 7mm. Similar to L3, but head matt black with no eye-spots; body dark translucent green.

Ova laid on leaf under surface in the middle of the lamina.

Comments. The brief description of the larva of *E. clarus* given by Smith *et al.* (1994) is of a green larva with yellow-green stripes, clearly different from the fifth instar larva described and illustrated here, with the body nearly white. This species does not occur in Trinidad, and the one putative Tobago specimen is most probably mis-labelled (Cock 1986).

Urbanus proteus domingo Scudder

Field Observations. One male and two females taken at rest or at lantana flowers at Golden Rock Hotel. The male UPF spotting is very reduced.

Food plants. Larvae of this species were found in the garden of the Golden Rock Hotel on the ornamental legume, *Clitoria ternatea*, but not reared through.

Larval shelters. Shelter I is a triangular flap cut from the edge of the feeding area, about 5 mm on longest axis. Shelter II is a larger triangle, cut from the edge of the leaf lamina; longest edge (12 mm) is the lamina edge; 8 mm wide; keeled on shorter side.

L5 22mm. Head rounded, indent at vertex; slight-



Plate 6. Fifth instar larva of *Urbanus proteus domingo*, showing detail of head.

ly rugose, shiny; ground colour brown; black shiny spot over stemmata; black triangle on epicranium, one side parallel to, but separate from clypeal suture; mouthparts dark; area between the dark spots and the mouthparts red. T1 with broad, shiny, dark dorsal plate; ventrally salmon red. Body green with black and yellow speckles in irregular transverse rows; dorsal line clear of speckles and hence dark green; orange dorso-lateral line, which is yellow on T2, and thicker and brighter on A8-10 becoming more salmon in colour; ventro-lateral flange pale; gonads yellow-brown, indistinct. Spiracles brown. Legs black; prolegs salmon-orange (Plates 5&6).

L4 14-18mm. Similar to L5, except as follows. T1 grey-brown ventrally; spiracle brown with a black dot above and an orange spot below. Body green with yellow speckles only; dorso-lateral line is orange-yellow and orange on A8-9; yellow speckles paler laterally. Spiracles inconspicuous. T1-2 legs black; T3 legs dark distally; prolegs orange-brown.

L3 7mm (newly moulted). Head rounded, oval; strongly indent at vertex; matt brown; diffuse dark band across lower face interrupted by orange-brown eye-spot anterior to stemmata; posterior margin dark. T1 shiny black. Body opaque, dark green, covered with yellow speckles to give a yellow-green appearance; dorsal line darker; a narrow, yellow dorso-lateral line, which on A8-9 is wider and orange. T1 legs brown; T2-3 legs pale brown; prolegs concolorous. Spiracles inconspicuous.

L2 6mm. As L3 but head entirely black.

Ova laid on leaf under surface in mid-lamina. Transparent, with 12 moderately strong ribs.

Comments. Subspecies *domingo* is found in Bahamas and the Antilles, while, the nominate subspecies occurs widely on the mainland and in Trinidad. I have reared ssp. *proteus* in Trinidad (Cock unpublished) and the mature larva does not differ significantly from that described here. Riley (1975) states that the larval colouring of ssp. *domingo* varies from place to place. My own observations of subspecies *domingo* in New Providence Island, Bahamas (Cock 1998), support this; fifth instar larvae on *Desmodium tortuosum* (Leguminosae) were distinctly blue-green in body colour compared to the yellow-green described above, the lateral stripe was red rather than yellow or orange, and the eye spot on the head was less vividly coloured.

Smith *et al.* (1994) state that the pupa is covered anteriorly in a whitish, waxy powder, but in the material I have reared from Trinidad and the Bahamas the pupa is completely covered with white, waxy powder (Cock, unpublished).

Pyrgus oileus Linnaeus

Field Observations. Four males were collected at Golden Rock Hotel roosting at dusk on the tips of grass inflorescences in a grassy patch that caught the last of the sun. Males were caught at Clark's Estate and at the Department of Agriculture above Charlestown, and two females at St Thomas Anglican Church (on *Tridax* flowers) (Plate 7).

Food plants. Larvae on *Sida rhombifolia* (Malvaceae) at Golden Rock Hotel.

Pupa 14mm. Rounded, smooth, short; cremaster elongate; covered with long, semi-erect, pale setae except on appendages and stripe down centre of eye;

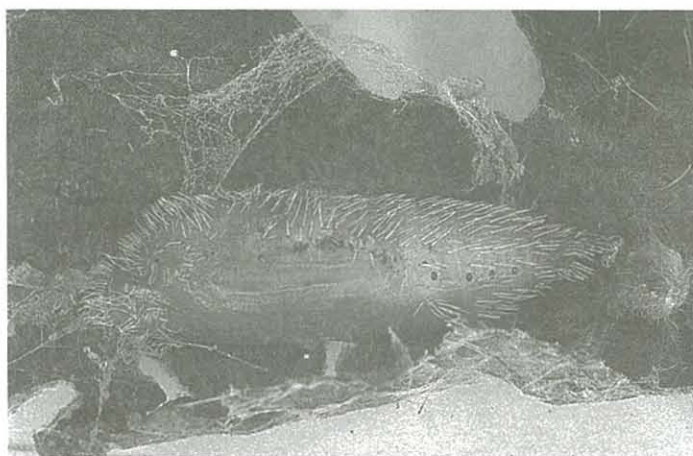


Plate 8. Pupa of *Pyrgus oileus*, lateral view, 14 mm.

proboscis extends to end of wings only. Colour khaki-green on thorax, head, appendages; pale yellow-green on abdomen; brown tinge to front of head. Sub-dorsal black dots on A2-A5; irregular black marking on abdomen along dorsum of wing; dorsal line on abdomen slightly darker; cremaster brown. Spiracle T1 slightly protuberant, light brown with outer margin dark brown; abdomen spiracles black and quite conspicuous (Plate 8).

Larval shelters in folded leaves.

L5 14mm. Head rounded, flattened dorsally; broadly indent at vertex; rugose matt black; covered with short, pale, erect setae. T1 brown; posterior margin dark; dorsal line white; paler laterally; pale spiracle; band of long, pale, erect setae around middle of segment. Body opaque yellow-green; covered with scattered pale spots with long and short, pale, erect setae; dorsal line slightly darker. Spiracles pale, inconspicuous. Gonads yellow-orange, faintly visible. T1 legs dark; T2-3 legs pale brown, darker distally; prolegs concolorous.

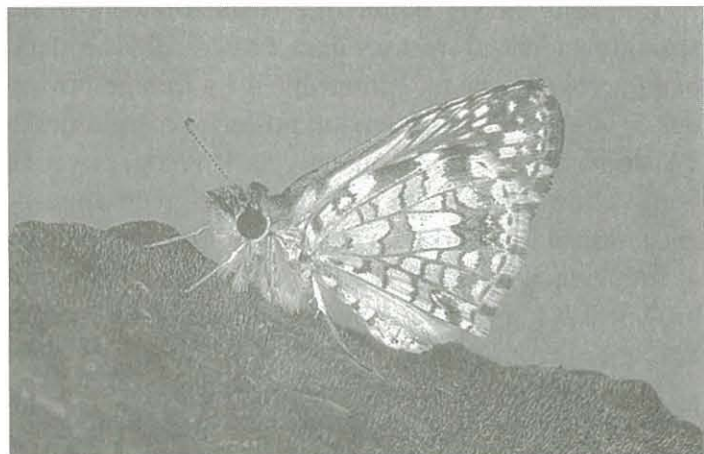


Plate 7. Adult male *Pyrgus oileus*.

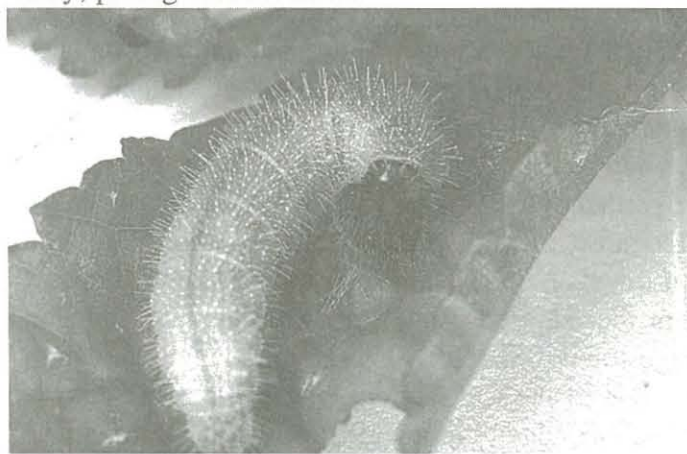


Plate 9. Fifth instar larva of *Pyrgus oileus* 14 mm.



Plate 10. Adult female *Pyrgus orcus*, collected as a larva, 11.x.1993, Trinidad, Rio Claro - Guayaguayare Road, _ mile north of Saunders Trace, on *Sida rhombifolia*, M.J.W. Cock (Ref. 93/10).

L4 10mm. Similar to L5 but T1 all dark; body more blue-green (Plate 9).

Comments. In Cock (2000), I incorrectly stated that *P. oileus* can be distinguished from the otherwise very similar *P. orcus* by a brown spot in space 8 of the UNH of *P. orcus* which is absent in *P. oileus*; in fact it is the other way round, the spot is present in *P. oileus*, and absent in *P. orcus* as stated by Evans (1953). This can be seen clearly by comparing the plates of *P. oileus* reared in Nevis and *P. orcus* reared in Trinidad (Plate 10).

The larva and pupa described here from Nevis agree with the detailed descriptions of the same species from Jamaica by Panton (1897) as *P. montivagus* Reakirt, a synonym (the description is repeated in Brown & Heineman 1972). The larva of *P. oileus* is indistinguishable from that which I described and

illustrated for *P. orcus* (Cock 2000). There appear to be differences in pupal colouring between *P. oileus* and my colour description of *P. orcus*, but based on Panton's description of pupal colour changes during development of *P. oileus*, I now suspect that the colour description which I gave for *P. orcus* was of a young pupa which subsequently would have turned dark like that described and illustrated here of *P. oileus*.

Calpododes ethlius Stoll

Field Observations. One seen at *Asystasia* flowers at Golden Rock Hotel (Plate 11).

Food plant. Larvae of all sizes on ornamental canna (*Canna* sp., Cannaceae) at Golden Rock Hotel, and larval shelters seen on canna at several other places on the island.

Pupa 37mm. Elongate, smooth; frontal spike 2mm, upturned at tip, brown; proboscis sheath, which is brownish distally, extends beyond cremaster tip by 4 mm. Colour whitish green, at least partially due to a light layer of white waxy powder, which is heavier on the inside of the pupal shelter. A row of four dots across the front margin of the collar, the outer ones just dorsal and posterior to the eye, the inner ones evenly spaced. A row of black, dorso-lateral dots, sin-

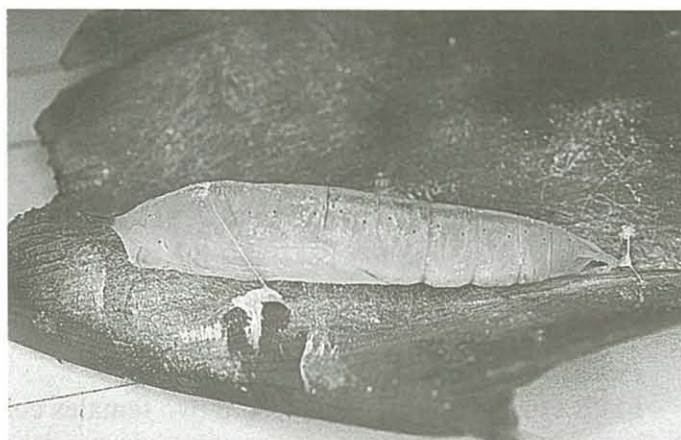


Plate 12. Pupa of *Calpododes ethlius*, lateral view, 37 mm.

gle on T2 and T3, double on A1-6, single on A7; those on T2 and T3 in middle of segment; those on A1-A6 equally spaced, the anterior one displaced dorsally; those on A7 near posterior margin (Plate 12).

Larval shelters a fold from the edge of the leaf, often with feeding at one end. Pupation in the final larval shelter. Smaller shelters are usually made with a notch cut from the leaf margin at each end.



Plate 11. Adult male *Calpododes ethlius*.

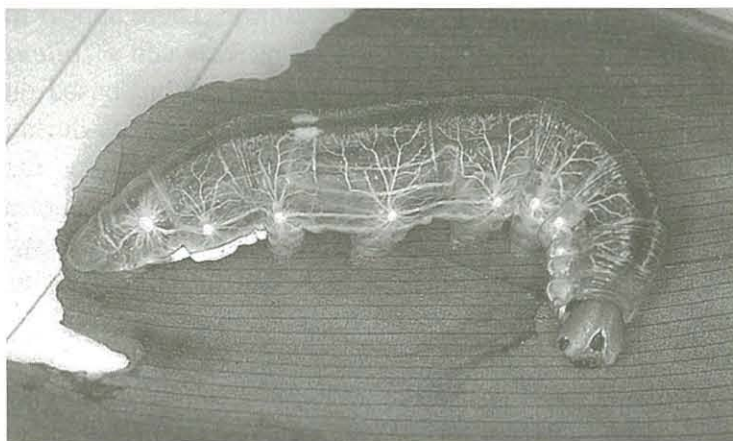


Plate 13. Fifth instar larva of *Calpodex ethlius*, 40 mm.

L5 40mm. Head triangular, rounded; indented at vertex; very slightly rugose, rather shiny; light brown with narrow, oval, black mark over stemmata and over upper half of clypeus. T1 with broad, dorsal plate, black at lateral extremities. Body dull, translucent green with transparent cuticle; diffuse, pale, sub-dorsal line defines unmarked dorsal line; trachea very evident, including tracheal line; malpighian tubules visible; gonads pale yellow; ventrally paler and more opaque. Wax glands develop ventro-laterally from posterior margin A7 to anterior margin A9. T1 legs brown; T2-3 legs and prolegs concolorous.

L4 24mm. Similar to L5 but head chestnut brown with similar markings; T1 dorsal plate all black (Plate 13).

Comments. Although I have reared this species in Trinidad, I only prepared very brief notes at the time. Those notes however agree with the descriptions given here. Judging from the literature (e.g. Brown & Heineman 1972; Smith *et al.* 1994) the colour of the larval head may vary in tone.

Panoquina sylvicola woodruffi Watson

Field Observations. A male and two females collected at Golden Rock Hotel at rest on vegetation. (Plate 14).

Food plants. Larvae and pupae found on the grass, *Panicum maximum* (Poaceae) at Golden Rock Hotel.

Pupa formed on UNS of slightly flexed leaf with no shelter as such; held by cremaster and a single strand of silk over thorax. Length 31mm; elongate, smooth, fairly slender; frontal spike straight, 2.5mm. Green; narrow, faint, pale sub-dorsal and dorso-later-



Plate 14. Adult male *Panoquina sylvicola woodruffi*.

al lines extend from thorax along abdomen. Spiracles inconspicuous (Plate 15).

Larval shelters are leaf rolls.

L5 34mm. Head rounded triangular, flattened on top, slightly indent at vertex; matt surface; light green, no markings; stemmata brown. T1 concolorous with body. Body mat opaque whitish green, strong yellow tint on T2, T3 and posterior sections of A1, A2; scattered darker speckles; dorsal line slightly darker green; faint, but sharply defined, broad, pale sub-dorsal stripe. Spiracles pale, inconspicuous, weakly linked by pale lateral line. Ventro-lateral flange present, white. All legs concolorous with body. Anal plate narrow, the clasper protruding at base on each side; narrow, pale sub-dorsal line. Male gonads pale, indistinct. Wax glands developed ventro-laterally on anterior portion of A7 and A8 (Plate 16).

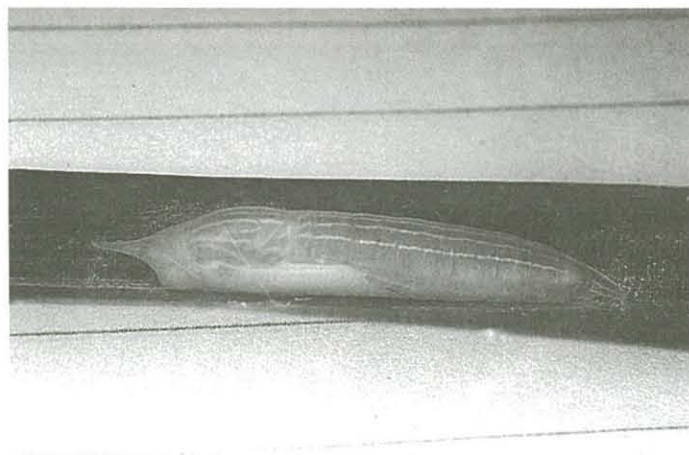


Plate 15. Pupa of *Panoquina sylvicola woodruffi*, dorso-lateral view, 31 mm.

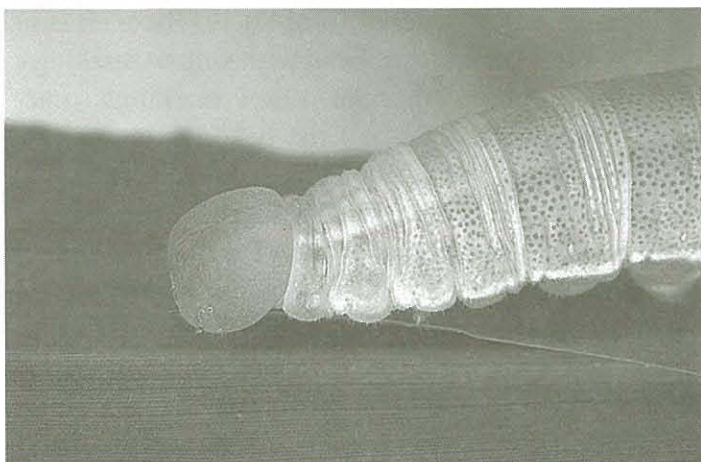


Plate 16. Fifth instar larva of *Panoquina sylvicola woodruffi*, detail of head and T1.

L4 25mm. Similar to L5, but head has an indistinct, narrow dark line forming a bell-shaped curve with its peak between the frons and the vertex, expanding laterally to stemmata; sub-dorsal line more contrasting and more yellow (Plate 17).

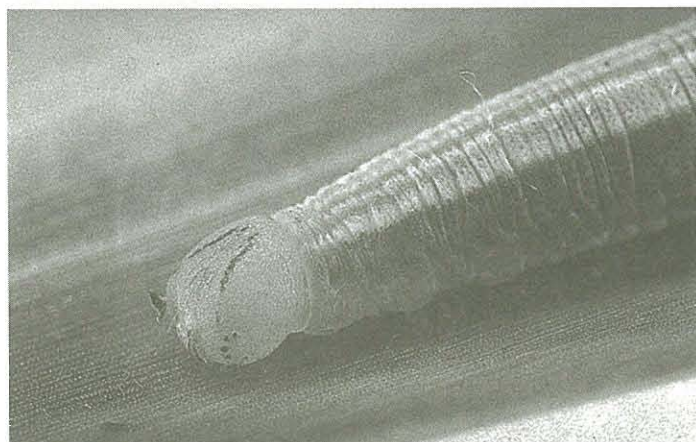


Plate 17. Fourth instar larva of *Panoquina sylvicola woodruffi*, detail of head and T1.

L3 17mm. Similar to L4 except bell-shaped line very dark and sharply defined; additional black line on head from vertex, laterally down the side of the head (Plate 18).

L2 6mm. Similar to L3, but lines on head not so strong and sharp, and line more of an inverted-V than a bell-shaped curve (Plate 19).

Comments. Brown and Heineman (1972) present a description of the early stages based on the notes of T.H. Jones on this subspecies from Puerto Rico. The L1 has a black head, and the L2 has two narrow dark lines down each side of the head, but in subsequent instars these lines disappear. In contrast, the dark

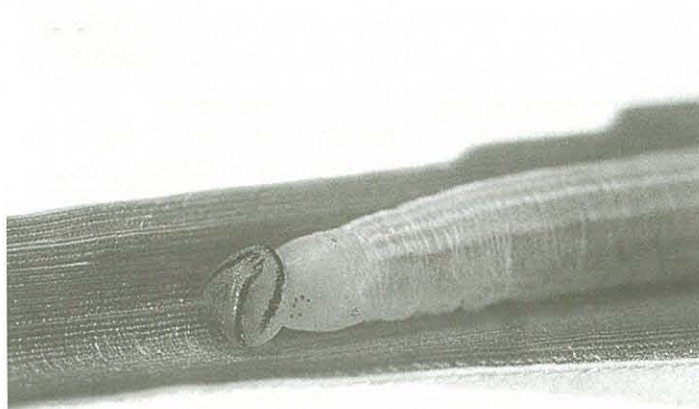


Plate 18. Third instar larva of *Panoquina sylvicola woodruffi*, detail of head and T1. This larva is about to moult to the fourth instar and the developing head capsule of the fourth instar, and the stemmata on it, is visible through the larval skin behind the head.

lines on the head of Nevis material persisted into the third instar, one dark line is still found in the fourth instar, and only in the fifth instar is the head plain green. Apart from this the two descriptions are comparable. This species also occurs in Trinidad where I have reared it from maize (Cock unpublished) but did not record details of the life history.

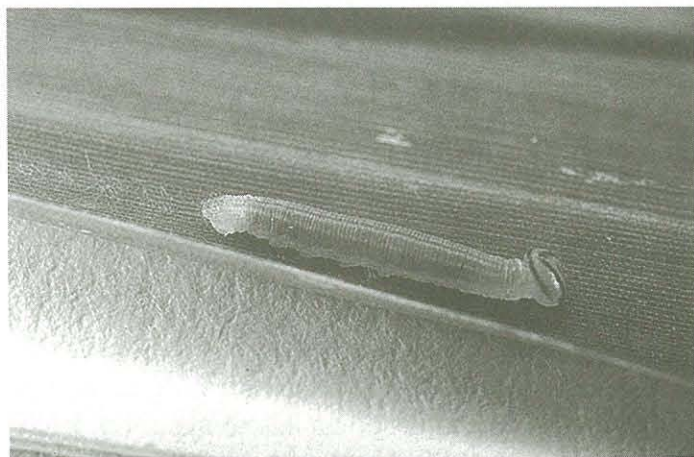


Plate 19. Second instar larva of *Panoquina sylvicola woodruffi*, 6 mm.

Nyctelius nyctelius Latreille

A single larva collected on *Panicum maximum* was not successfully reared through. My identification is based upon the description and illustrations in Jones & Walcott (1922) as *Prenes ares* Felder, a synonym of *N. nyctelius*, and comparison with material, which I reared in Trinidad. Without adult material, I cannot

say which form or subspecies of *N. nyctelius* this represents (see Cock, this issue), but from the locality it should have been the nominate subspecies.

L5 22 mm (newly moulted). Head oval, wider at base, slightly indent at vertex; light yellow brown; yellow stripe each side of epicranial suture; yellow stripe along exterior margin of clypeus, divided from the former by a narrow brown line; brown stripe down epicranial suture; upper half of frons brown; a broad, brown stripe lateral to the yellow stripes; a black oval covering the stemmata is surrounded by an orange halo, which is conspicuous anteriorly. T1 with black dorsal plate. Body greenish white; T2-A7 corrugated except for the anterior portion; smooth except for pale setae on anal plate. Legs dark; prolegs concolorous with body. Spiracles pale, inconspicuous (Plate 20).

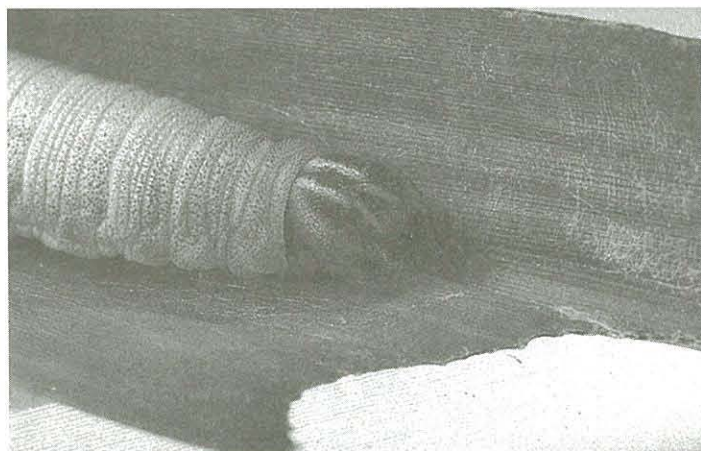


Plate 20. Fifth instar larva of *Nyctelius nyctelius*, detail of head and T1.

L4 20mm. As L5.

L3. Head dark, with brown stripes down each side of epicranial suture and clypeal margin, across clypeus, and indications down lateral margin of head. T1 a short, broad, black, shiny transverse plate, and two black lateral dots (one presumably T1 spiracle). Body greenish white with very short, dark, erect setae. T1 legs dark; T2-3 legs brown; prolegs concolorous with body. Spiracles inconspicuous; faint tracheal line.

L2 9mm. Head oval, black, shiny. T1 with black bar. Body opaque, pale blue-green. Larval shelter the rolled apex of a leaf.

Comments. The description in Jones & Walcott (1922) (which is repeated in Brown & Heineman

1972) is based on material from Puerto Rico. It is of a larva with a dark brown head with yellow markings, although it is noted that the yellow markings sometimes cover more than half the head, as is the case with my Nevis specimen. Jones & Walcott (1922) describe the body colour as bluish grey-green, whereas I describe it as greenish white. Trinidad material of this species which I also reared from *P. maximum* had the head almost entirely dark brown, with only minimal yellow lines each side of the epicranial suture and clypeus, however the body colour matches my Nevis material. Apart from the extent of the yellow markings of the head, the Nevis specimen, the Trinidad material and the Puerto Rico description all agree quite closely (Plate 21).

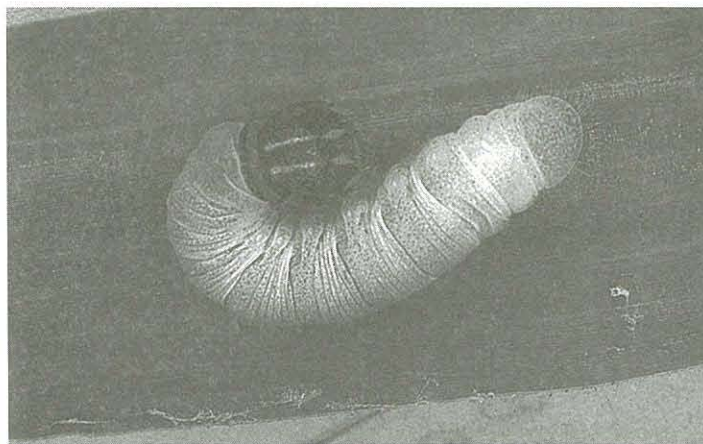


Plate 21. Fifth instar larva of *Nyctelius nyctelius nyctelius*, collected 11.x.1993, Trinidad, St. Benedict's, on *Panicum maximum*, M.J.W. Cock (Ref. 93/7), 18 mm.

FIELD OBSERVATIONS: HesperIIDae

I did not record *Wallengrenia ophites* Mabille during my visit but there is a specimen in the NHM from Nevis (Evans 1955).

Polygonus leo leo Gmelin. Two females collected at Golden Rock Hotel, one sunbathing at 06.45h, the other at lantana flowers at 07.30h.

Urbanus obscurus Hewitson. Two females collected, and others seen, at Golden Rock Hotel. Neither has spots present in cell or space 2; one has no spot in space 3, only apical spots.

Hylephila phyleus phyleus Drury. Evans (1955) lists a male from Nevis in the NHM. Two males and two females collected at Golden Rock Hotel (one

male collected roosting on low bush at height of about 35 cm at dusk); others seen. Abundant at St Thomas Anglican church (male and three females collected on *Tridax* flowers). Several seen at Four Seasons, Nisbet hotel (Beachlands Estate), Potworks Estate, Barnes Ghaut etc., flying low and rapidly over short vegetation, but not collected.

Nymphalidae

I follow current practice and treat this family in the broad sense to include the former families Danaidae and Heliconiidae, amongst others.

***Agraulis vanillae insularis* Maynard.** Single specimens seen near Zetlands Hotel and at Golden Rock Hotel; none collected. This subspecies occurs throughout the northern West Indies (Smith *et al.* 1994), including St. Kitts (Hall 1936).

***Anartia jatrophae jatrophae* Linnaeus.** One was seen at Four Seasons Resort at *Tridax* flowers; not collected. Riley (1975) and Smith *et al.* (1994) list this species from the Lesser Antilles as far north as St Kitts (Hall 1936) and Barbuda.

***Biblis hyperia* Cramer.** Three were seen at Golden Rock Hotel; none were collected. Recorded as abundant in St. Kitts (Hall 1936, as *Didonis biblis*).

***Danaus plexippus megalippe* Hübner.** Single specimens seen at Golden Rock Hotel, Clark's Estate, Barnes Ghaut, and Nisbet Hotel; none were collected. Riley (1975) and Smith *et al.* (1994) list this species as from the Lesser Antilles without mentioning specific islands, although it is recorded from St. Kitts (Hall 1936).

***Heliconius charitonia charitonia* Linnaeus.** Three specimens were collected at Golden Rock Hotel, and several others seen. Two show the FW spot of ssp. "*punctata* Hall", described from St. Kitts (Hall 1936), but probably just a clinal variant (Smith *et al.* 1994).

***Junonia genoveva* Cramer.** Turner & Parnell (1985) recently separated this species from *J. evarete* Stoll. *Junonia genoveva* is the very common and widespread species often referred to as *Precis evarete* in the literature (e.g. Barcant 1970), whereas the true *J. evarete* is a much more localised species, associated with its food plant, black mangrove (*Avicennia germinans*, Verbenaceae). Its known range includes the east Coast of Central America, Florida, and the

Caribbean islands as far to the southeast as Barbuda (Smith *et al.* 1994).

Two *J. genoveva* were collected at Golden Rock Hotel, and others noted at Clark's Estate, St Thomas Anglican Church and Barnes Ghaut (common). I observed it frequently in all areas when driving around the island. Smith *et al.* (1994) list this species as from the Lesser Antilles without mentioning specific islands, although Hall (1936) notes it is very common on St. Kitts.

***Siproeta stelenes stelenes* Linnaeus.** One was seen near Zetlands Hotel, but not collected. Hall (1936) did not record this species from St. Kitts, although Smith *et al.* (1994) do so.

Lycaenidae

The following four species are all recorded from St. Kitts by either Hall (1936) and/or Smith *et al.* (1994).

***Strymon bubastus ponce* W.P. Comstock & Huntington.** Five (four males, one female) were collected at St Thomas Anglican Church at *Tridax* flowers. One was collected and others seen at Four Seasons Hotel again on *Tridax* flowers, and one seen at the Department of Agriculture above Charlestown.

***Leptotes cassius catilina* Fabricius.** Two males were collected at Golden Rock Hotel in the garden; one female at Barnes Ghaut. The male has the UPS uniformly blue.

***Hemiargus hanno watsoni* W.P. Comstock & Huntington.** One male was collected at Clark's Estate, two males at St Thomas Anglican Church and two females at Potworks Estate.

***Cyclargus thomasi woodruffi* W.P. Comstock & Huntingdon.** Two males were collected at Golden Rock Hotel in a scrub clearing. This would seem to be the southern limit of this subspecies and species.

Pieridae

Hall (1936) reported the following four species as common in St. Kitts.

***Ascia monuste eubotea* Godart.** This species was abundant everywhere. It was noted feeding at *Asystasia* flowers at Golden Rock. Roosting is low down (usually less than one metre) on vegetation, often in small groups of up to six; butterflies do not return to the same location on successive nights.

Eurema elathea Cramer. Three males caught and several more seen at St Thomas Anglican Church; one male at Golden Rock Hotel roosting on top of a grass inflorescence at dusk.

Eurema lisa euterpe Ménétriés. Common at Clark's Estate (four males and three females collected); also at St Thomas Anglican Church (one female collected) and observed at the Department of Agriculture, above Charlestown.

Phoebis sennae Linnaeus. Common everywhere; noted feeding at *Asystasia* flowers at Golden Rock Hotel.

ACKNOWLEDGEMENTS

Living material was imported into the UK and reared through for identification under MAFF License. I thank Yasmin Comeau and Winston Johnston of the Trinidad and Tobago National Herbarium who identified the food plants, *Centrosema virginianum*, *Clitoria ternatea* and *Galactia longiflora*. I thank Phillip Ackery for facilitating my visits to the NHM, on one of which I checked the identification of some of my Nevis material.

REFERENCES

- Barcant, M.B.** 1970. Butterflies of Trinidad and Tobago. Collins, London, UK. 314 pp.
- Cock, M.J.W.** 1986. The skipper butterflies (Hesperiidae) of Trinidad Part 4 Pyrginae (second section). *Living World. J. of the Trinidad and Tobago Field Naturalists' Club*, 1985-1986: 33-47.
- Cock, M.J.W.** 1998. Two species of Hesperiidae recently established on New Providence. *Bahamas J. of Science*, 5: 12-15.
- Cock, M.J.W.** 2000. The skipper butterflies (Hesperiidae) of Trinidad. Part 10, Pyrginae completed, Genera groups F and G. *Living World, J. of the Trinidad and Tobago Field Naturalists' Club*, 1999-2000, 49-71.
- Evans, W.H.** 1953. A catalogue of the American Hesperiidae 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), 246pp, plates 26-53.
- Evans, W.H.** 1955. A catalogue of the American Hesperiidae in the British Museum (Natural History). Part IV Hesperinae. British Museum (Natural History) Publication, London, UK. 499 pp., plates 54-88.
- Hall, A.** 1936. The butterflies of St. Kitts. *Entomologist*, 69: 274-278.
- Jones, T.H. and G.N. Walcott** 1922. The caterpillars which eat the leaves of sugar cane in Porto Rico. *J. of the Dept. of Agriculture and Labor of Porto Rico*, 6:38-50.
- Lamas, G., Robbins, R.G. and W.D. Field** 1995. Bibliography of butterflies. An annotated bibliography of the Neotropical butterflies and skippers (Lepidoptera: Papilionoidea and Hesperioidea). *Atlas of Neotropical Lepidoptera* Volume 124. Association for Tropical Lepidoptera & Scientific Publishers, Gainesville, Florida. 463 pp.
- Riley, N.D.** 1975. A field guide to the butterflies of the West Indies. Collins, London. 224 pp.
- Scott, J.A.** 1986. The butterflies of North America. A natural history and field guide. Stanford University Press, Stanford, California, USA. 583 pp.
- Smith, D.S., Miller, L.D. and J.Y. Miller** 1994. The butterflies of the West Indies and South Florida. Oxford University Press, Oxford, UK. 264 pp.
- Turner, T.W. and J.R. Parnell** 1985. The identification of two species of *Junonia* Hübner (Lepidoptera: Nymphalidae): *J. evarete* and *J. genoveva* in Jamaica. *J. of Research on the Lepidoptera*, 24: 142-153.