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The skipper butterflies (Hesperiidae) of Trinidad. Part 1, Introduction and Pyrrhopyginae

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The skipper butterflies (Hesperiidae) of Trinidad

PART I. INTRODUCTION AND PYRRHOPYGINAE

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CURRENTLY, there is no work available dealing with the skipper butterflies of Trinidad, although they make up over a third of our butterfly fauna. Malcolm Barcant's *Butterflies of Trinidad and Tobago* (1970) covers only butterflies other than skippers. It is hoped that this paper will make a start to remedying that situation.

The division of Lepidoptera into two sub-orders Rhopalocera (Butterflies) and Heterocera (Moths) is a largely artificial one based on the biases of early collectors. In fact, the Lepidoptera can be divided into 17 super-families of which 15 are moths and 2 are butterflies. The two butterfly superfamilies are the Hesperoidea and Papilionoidea, i.e. skippers and the rest (those dealt with by Barcant). There is therefore some justification for the current trend to ignore skippers when dealing with butterflies. The real reasons are, however, that skippers are thought to be difficult to identify, all look the same and are mostly dull brown. I hope to show that they are mostly not so difficult to identify, extremely varied in appearance and include many colourful species (as well as a lot of dull brown ones).

Any experienced butterfly collector has no difficulty in recognizing a skipper, but for the beginner, perhaps, it is not so simple. In general, skippers are robust (i.e., have a relatively large body for the wing size), have a fast, buzzing flight and are fond of flowers and "sunbathing" (resting in the sunshine with wings spread). When in doubt, it is necessary to look at the antennae. The antennae of skippers are wide apart at their bases, while in other butterflies they are close together. Skippers, like other butterflies, have clubbed antennae. They differ in that often the tip of the club is pointed and that, at least for those species found in Trinidad, the antennae are hooked or bent either before or in the club. The reflexed, or bent part, is termed the apiculus. The antennae have an area on the end of the club bare of scales, termed the nudum. The distribution of the nudum (i.e., number of segments on the club and number on the apiculus) is often critical in generic determination.

Increasingly, it has become necessary to use features of the genitalia of insects in taxonomic studies and in Lepidoptera the characters of the male have been used extensively in classification and to separate species. Very similar species will often have markedly different genitalia. The theory of this is that the male and female genitalia work on a lock and key basis. This means that it is impossible for a male to pair with a female of a different species, albeit identical in appearance, because the bits simply will not fit together.

Those who study skippers are fortunate in that the genitalia of the male are easy to examine, particularly if they are extruded in fresh specimens. Put at its simplest, the genitalia consist of a central aedeagus, dorsal processes (the uncus and

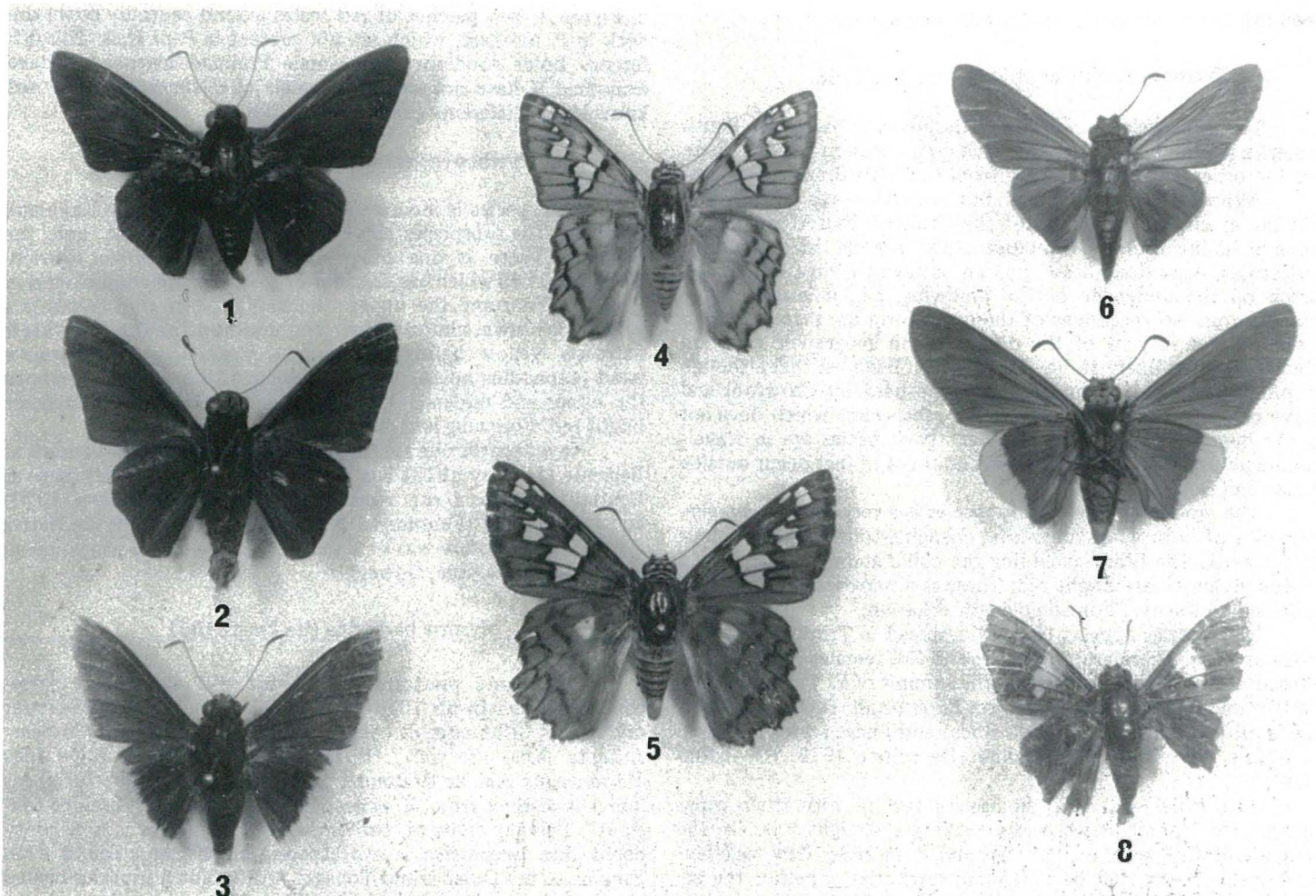
gnathos) and a pair of lateral claspers. By grasping the clasper of a fresh specimen with fine forceps it is a simple matter to pull out the genitalia so that they project beyond the end of the abdomen. They will normally stay extended and the specimen can then be set and dried as usual. The genitalia can be examined either on the set specimen or the left clasper can be broken off and gummed onto the data label (so that its inner surface can be seen) for examination with a hand lens or microscope. In the great majority of cases the characters of the clasper are sufficient to recognize the species (e.g. Figure 2).

It is, to my mind, absolutely essential that specimens be mounted on entomological pins rather than in the Riker mounts advocated by Barcant and widely used by amateurs in Trinidad. By using pins, both the data label and removed portions of genitalia can be permanently attached to the specimen. Also, it is a great deal easier to examine the underside of a pinned specimen (which is often critical for species separation). Furthermore, the use of cotton wool as a backing agent for Riker mounts will rapidly denude specimens of legs as they are moved about and these too are often of great help in identifying genera and should be preserved whenever possible. If Barcant has done us a great service in writing his illustrated book on the butterflies of Trinidad and Tobago, he has also done a disservice in recommending the use of a storage method more suited to the stamp collector type display than to a scientific collection.

Apart from Crowfoot who published an early list in 1893, the only person to publish seriously on all the butterflies of Trinidad is William Kaye who produced a list (1904), additions (1914), a catalogue (1921) and supplement (1940). Kaye must have referred to the works of Draudt (in Seitz, 1924) and the volumes on butterflies in *Biologia Centrali America* by Godman and Salvin (1897 - 1901) and perpetuates many of the errors in these works. This also explains the use of the names of some Central American species and subspecies for Trinidad forms. Barcant (1970) lists the additional names of Kaye's supplement with those of his catalogue and adds two new species to give a complete list of the Hesperidae (with numerous spelling mistakes), but otherwise largely ignores them.

In the 1950s Brigadier W.H. Evans published his *Catalogue of the American Hesperidae* in four volumes. When this is studied, it is apparent that there are many species from Trinidad in the British Museum (some described as new by Evans) which are not included by Kaye. Evans' work has been my main guide in studying skippers and preparing this paper.

Members of three subfamilies of Hesperidae are present in Trinidad: Pyrrhopyginae, Pyrginae (Pamphilinae of Kaye) and Hesperinae. The first of these is dealt with here.



THE Skipper butterflies of Trinidad.

Pyrrhopyginae

This subfamily is easily recognizable by the antennae. As can be seen in the plate of Trinidad species, the clubbed part of the antennae is entirely in the apiculus (i.e. reflexed part). In the other subfamilies the club begins before the apiculus. Other characters include the very long forewing cell which is longer than the dorsum (hind edge of wing) and more than two-thirds as long as the costa (front edge of wing) and the position of vein 5 of the forewing which at its origin is nearer to vein 4 than to vein 6 (also true of Hesperinae; see Figure 1).

The adult butterflies are large, robust, fast fliers. They feed readily from flowers, *Eupatorium* spp. being particularly attractive. There are seven species of four genera known from Trinidad out of a total of some 150 species of 20 genera for South and Central America. The subfamily is restricted to the Neotropical region. Since they are large and conspicuous, few new species are likely to be found for Trinidad, although further species of the "phidias form" of *Pyrrhopyge* (see below) may turn up.

I am familiar with only one of the life histories. The larvae of *Pyrrhopyge phidias* are hairy and live in a leaf roll of *Vismia* sp. Doubtless, the whole subfamily feeds on dicotyledons (cf. the Hesperinae which are restricted to monocotyledons).

Pyrrhopyge

This is a genus of large, robust, fast flying skippers, often bright with metallic colours. Evans recognizes 58 species of which four are recorded from Trinidad. Three of these are remarkably similar in appearance, although clearly different on the basis of the genitalia. To understand this a little better, it is necessary to examine variation of the genus throughout the Neotropics.

Early this century, the genus *Pyrrhopyge* was neatly divided up into species on the basis of external appearance. Thus, our three similar species were treated as one species by Kaye and identified as *P. charybdis* Hewitson, presumably from Draudt's section on the Hesperiidae in Seitz. However, when taxonomists started to examine the genitalia of butterflies, they found that these species could be divided up into a number of different species. For one part of Brazil, for example, one species was found to be really seven distinct species. More remarkably, it was found that these genitalia patterns repeated themselves in the old species. So, in fact, instead of several species, each of constant appearance and restricted to a particular geographic area, there are several wide-ranging species, which in a given area all resemble each other, but vary from place to place. It is difficult to say what evolutionary advantage there is in the close resemblance of these geographic forms.

To further confuse the issue, there are a number of species in other subfamilies of the Hesperiidae which have the same markings as species of *Pyrrhopyge*. One example of this is seen in Trinidad: *Pyrogypsiopsis socrates* Menetries (Hesperinae) closely resembles the three similar species of *Pyrrhopyge*. (In fact, this resemblance is more apparent in the museum than in the field where the species behave differently.)

Trinidad's three similar species are of the "phidias form" i.e., they are dark metallic blue-green apart from the red head and tip of the abdomen and the white cilia. They can be distinguished by minor differences in appearance, but since a number of other species of the *phidias* form occur in Guyana and Venezuela and may also occur here, the genitalia of all males should be examined (see Figure 2 for the known Trinidad species).

I have seen several species of this genus feeding on damp sand beside streams in Ecuador and Peru. Although I have not

seen this behaviour in Trinidad it may well occur.

Pyrrhopyge phidias phidias Linnaeus 1758

The subspecies *phidias* is widespread in northern South America (Colombia to Suriname including northern Brazil). There are ten other subspecies ranging from southern Brazil to Mexico.

Although he himself had not seen it, Kaye included *P. phidias* in all his catalogues of the Trinidad butterflies on the basis of its inclusion by Crowfoot in the original list of Trinidad butterflies. Seitz describes *P. phidias* as having a large white basal patch on the underside of the hindwing, i.e., it is one of the *bixae* forms. No specimens of the *bixae* form are recorded from Trinidad, nor in view of the discussion on geographic variation above, are they likely to be. Accordingly, I suggest that although *P. phidias* occurs in Trinidad, the name used by Crowfoot and Kaye refers to a different species (or subspecies) which does not occur here. *P. phidias* and the next two species are in Kaye's catalogue under *P. charybdis* which does not in fact occur outside Brazil and Bolivia.

The ground colour of this species is a very dark blue-green. The cilia of both wings are white, changing to the ground colour at the apex. The head (excluding the collar and eyes) and the tip of the abdomen are bright red. There is a narrow fringe of white cilia behind the eye. Forewing length ♂: 24mm.

This species appears to be widespread in Trinidad although not common. There are nine males and five females in the British Museum; I have two males from the summit of El Tucuche (June 1979); one male caught feeding on *Eupatorium* flowers in Parrylands oilfield (January 1980, J. Boos) and I have seen a male and a female from Morne Catherine (December 1976, S. Alston-Smith).

The males will sun themselves resting with their wings spread, the leading edges nearly making a straight line. On the summit of El Tucuche *P. phidias* and *P. thericles* flew together. The males seemed to be defending territories; whether the aggression was purely intra-specific or, more likely inter-specific, I could not tell owing to the great similarity of these two species.

The larvae of this species feed on *Vismia cayennensis* Pers (Hypericaceae). Initially, feeding in a small folded over-flap of leaf, as they grow the larvae change to a leaf roll in which they pupate. The mature larva is about 4cm long, it is red with a narrow, yellow transverse band across the middle of each segment. It is thickly hairy with short red hairs and longer white ones. The head is brown and hairy with narrow, dark, vertical lines anteriorly. The pupa is reddish brown with short red hairs which are absent from the elytra and appendage covers. A vertical stripe through the eye and the intersegmental areas of the abdomen are yellowish orange. It would be most interesting to know the life histories of the other similar species of *Pyrrhopyge*.

Pyrrhopyge proculus proculus Hopffer 1874

The subspecies *proculus* is found from Colombia to Guyana. There are four other subspecies in South America. Evans reports one male in the British Museum from Trinidad and it is the only record of which I am aware. This species can be distinguished from *P. phidias* and *P. thericles* since the termen of the hindwing is narrowly white before the cilia, whereas this white is absent from the other two species. Further captures are desirable to confirm this species as breeding in Trinidad.

Pyrrhopyge thericles ronda Evans 1953

This subspecies is endemic to Trinidad. Seven other subspecies occur in South America from Brazil northwards. All the records I have of this species are from hilltops of the Northern Range: El Tucuche (March, June 1979), Morne Catherine (August 1979) and Morne Bleu (January 1928, Sir Norman Lamont). Its behaviour and resting position are similar to those of *P. phidias*. To distinguish this species from *P. phidias* it is necessary to examine the underside of the head. As can be seen

in Figure 3, two patches of red scales extend centrally down the neck in *P. thericles*, which are not present in *P. phidias*. This difference holds good for all the male Trinidad specimens I have examined. I have not seen the female of *P. thericles*, so do not know if this difference holds good in that sex.

Pyrrhopyge amyclas amyclas Cramer 1779

This species is incorrectly spelt as *P. amycles* by Kaye and Barcant. The subspecies *amyclas* is from Venezuela and the Guianas. There is one other subspecies, *denticulata* Herrich-Schaeffer 1869 which has a narrower yellow band and is found in Ecuador, Peru and the upper Amazons. The ground colour is a very dark brown, almost black. The underside of the forewing is narrowly yellow before the termen. There is a broad yellow band (expanding apically) at the termen of the hindwing on both the upper and underside. The head and tip of the abdomen are bright red. Forewing length ♂: 22mm.

Kaye records one specimen taken by Sir Norman Lamont at Bellevue (January 1915) but incorrectly gives the species range as Central America. I can record one capture (September 1979) and one sighting (February 1980) both on the edge of the Nariva Swamp. The capture was of a male feeding with its wings spread on *Cordia* (black sage) flowers.

Mysoria barcastus alta Evans 1951

The names previously used for this species are somewhat confused. In his 1914 list Kaye lists *M. venezuelae* Scudder saying it is "Not rare. St. Ann's Valley, behind Botanic Gardens; Ariapita Road (Several)". In the 1940s supplement Kaye adds *M. barcastus* Mabille & Boulet saying "It is very doubtful if this insect is distinct from *M. venezuelae*. The characters are not constant". Barcant omits *M. barcastus* from his list. It is now considered that *venezuelae* is a subspecies of *barcastus* found from Panama to the Guianas and Tobago. A different subspecies named *alta* is found in Trinidad which differs from *venezuelae* in being smaller and darker, owing to the cilia of the forewing being entirely dusky, and more or less darkened on the hindwings. Four other subspecies are found from Mexico to Argentina.

The wings are dark blue-green, giving way to iridescent dark green towards the bases. The cilia match the ground colour except for a short section on the termen of the hindwing, near the tornus. On the underside of the hindwing there is a red streak along the costa (more pronounced in the male) and a broad yellow band along the termen, narrowing to terminate at the tornus. The termen is narrowly white in the tornal half. The body has red spots at the base of the wings (underside), laterally on the abdomen, on the underside of the head and the collar. The tip of the abdomen is mauve above and red below. Forewing length ♂: 21mm; ♀: 25mm.

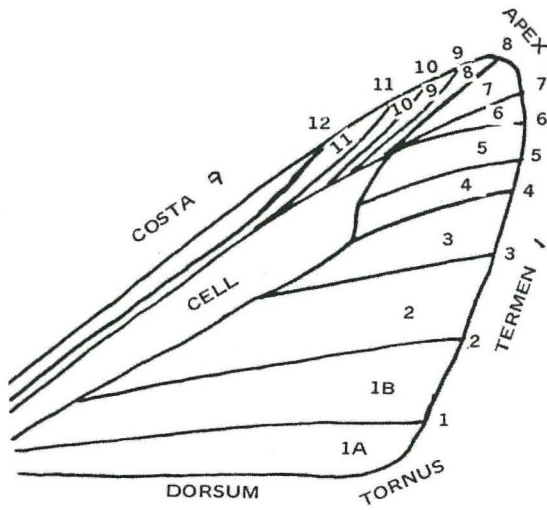
This species is widespread in Trinidad but seldom common. It can be taken feeding at flowers (e.g., avocado, *Eupatorium*) and rests either with its wings spread or with them above its head. On the Field Naturalists' trip to Moruga Bouffe (February 1980) the males were common in the Bouffe clearing.

Moss (1949) records finding "half a dozen mauve larvae, rather hairy and prettily belted with lemon-yellow. They were feeding on small bushes of *Casearia minima* (Flacourtaceae) on waste ground". Likely host plants in Trinidad are Wild Coffee, *C. sylvestris* Sw., and Pipe Wood, *C. guianensis* (Aubl.) Vrb.

Myscelus amystis amystis Hewitson 1867

In Kaye's 1914 and 1928 catalogues the male of this species is given as *M. hages* Godman and Salvin while the female is described as a new species *M. rogersi* Kaye. In the 1940 supplement Kaye deletes *M. rogersi*, realizing his error; *hages* is a subspecies of *M. amystis* from Central America. The subspecies *amystis* is from Colombia, Venezuela and Trinidad. A further four subspecies of this species extend its range to Argentina.

Figure 1



Venation of *Pyrrhopyge phidias*. The numbering of the veins (around periphery) and the spaces (between veins) follows the system used by Evans (1951 et seq.). Forewing length 24 mm.

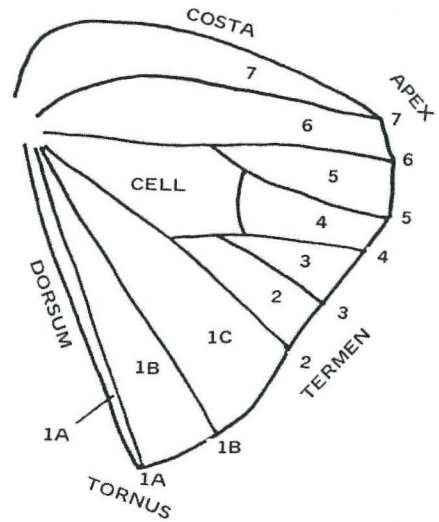


Figure 2 The claspers of skipper butterflies.

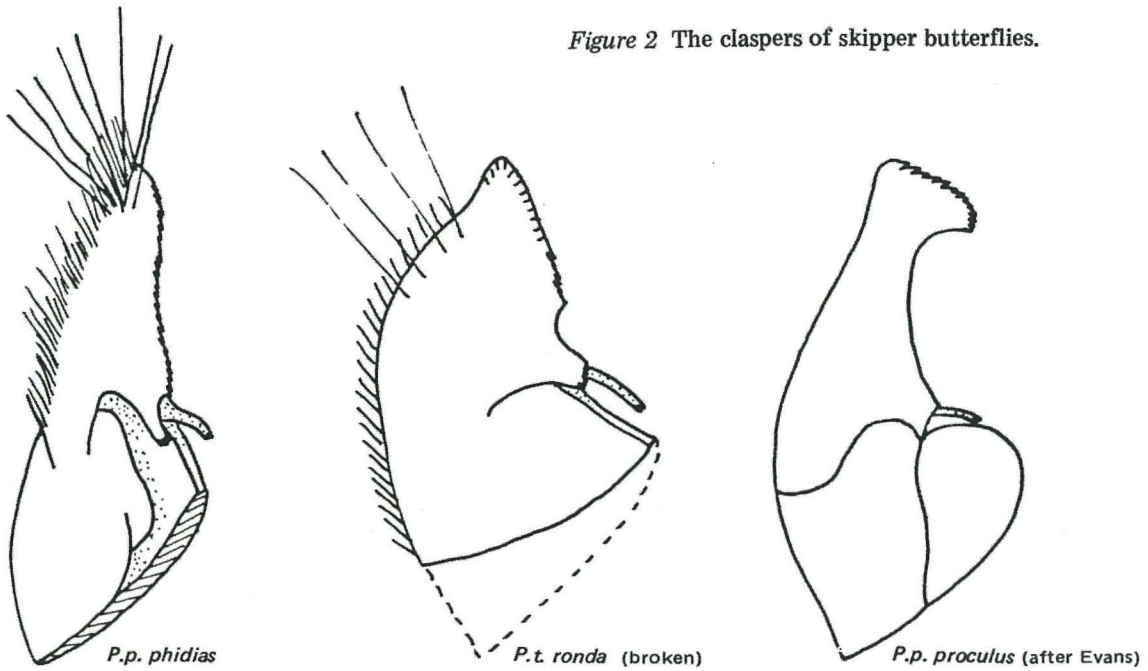
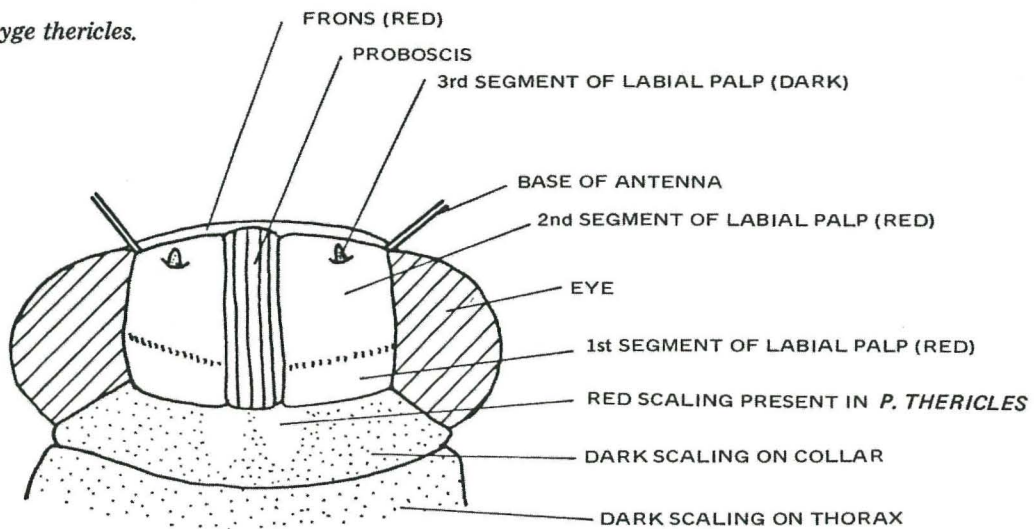


Figure 3 Head of *Pyrrhopyge thericles*.



The male above is yellow brown with black-edged hyaline spots on the forewing in spaces 1 — 9 and the cell. The veins, termen and costa are darkened. The hindwing has a hyaline spot in the cell and three dark bands of which only the outer is clearly defined. The veins, termen and costa are darkened. The cilia are dark at the veins and white in between. The underside ground colour is yellow, the veins are not darkened and the hindwing bands are clear. Forewing length ♂: 21mm.

The female is similar in general appearance to the male, but it is larger, the wings are more rounded and the ground colour is chestnut brown. The underside basally is yellow while the outer half is dull grey brown. Forewing length ♀: 25mm.

This species was thought to be restricted to the central southern part of Trinidad (west Moreau to Parrylands) where it is sometimes quite common; however, Scott Alston-Smith has recently taken a male at the Blue Basin falls, Diego Martin (March 1979).

A related species *M. pardalina guarea* Evans has been reared from *Guarea trichiliodes* L. (Meliaceae) by Moss (1949). The larva is "olive brown to greenish, ventrally pink with pinkish extremities and the head is warm brown, all being thinly adorned by long and very fine hairs . . . The pupa is dull brown and rather hairy." Redwood, *G. trichilioides* occurs in Trinidad, as does *G. glabra* Vahl. — both are possible food plants.

Aspitha aspitha parima Plotz 1886

Kaye, in the 1940 supplement, records one capture of this species (Morne Diable, January 1922, E.E. Fabian) under the name of *Yanguna rufescens* Riley; *rufescens* is now considered to be a subspecies of *A. aspitha* found in Brazil, while *parima* is also known from Suriname. There are no specimens of this species from Trinidad in the British Museum.

The ground colour is dark blue, almost black. There is a broad hyaline band on the forewing in the cell and spaces 2 and 1 (where it is narrower). The forewing cilia of space 1B are white, the remainder dark. The uppersurface hindwing has basal red markings in the cell and spaces 1B, IC and 2. The termen is jagged (not readily apparent in plate) and at least part of the cilia are white. The underside of the head and the forefemurs are conspicuously white. Forewing length ♂: 20mm.

I know of one recent capture of this species in Parrylands oilfield on *Eupatorium* flowers (January 1980, Julius Boos) where I also saw one a week later. This species would seem to be resident but rare in the south of Trinidad, and most easily caught at *Eupatorium* flowers. The larvae have been recorded as feeding on what may have been *Sapindus frutescens* Aubl. (Sapindaceae) in Brazil (Moss 1949). Moss records that "the larva is plentifully clothed with light pink hair on a deep maroon ground, including to bright crimson at the extremities. The head is ridged with curved lines and it is darker towards the mouth. The body is adorned laterally with six wedge-shaped marks of a very faint milky green hue on the central segments", (i.e., segments 5 — 10). *S. frutescens* does not occur in Trinidad, although the Soap berry or Soap tree, *S. saponaria* L. does and this may be the food plant here.

CHECKLIST PYRRIOPYGINAE OF TRINIDAD

- 1.+ *Pyrrhopyge phidias phidias* Linnaeus 1758
(=*P. charybdis* Hewitson; auct. Kaye partim)
- 2.* *P. proculus proculus* Hopffer 1874
(=*P. charybdis* Hewitson; auct. Kaye partim)
3. *P. thericles* Mabille 1871 *ronda* Evans 1951
(=*P. charybdis* Hewitson; auct. Kaye partim)

4. *P. amyclas amyclas* Cramer 1779
(=*P. amyles* Cramer; Kaye mis-spelling)
5. *Mysoria barcastus* Mabille & Boulet *alta* Evans
(=*M. venezuelae* Scudder; auct. Kaye)
6. *Myscelus amystis amystis* Hewitson 1867
(=*M. hages* Godman & Salvin; auct. Kaye)
(=*M. rogersi* Kaye)
7. *Aspitha aspitha* Hewitson 1866 *parima* Plotz 1886
(=*Yanguna rufescens* Riley; auct. Kaye)

Notes: species indented can be considered as synonyms from the Trinidad lists, auct. = as used by partim = part of that species

* needs confirmation

+ since Hesperidae are usually considered a separate superfamily, I start the numbering at 1 rather than continue from Barcant's list of the rest of the butterflies.

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