

# BULLETIN OF THE ALLYN MUSEUM

3701 Bayshore Rd.  
Sarasota, Florida 33580

Published By  
The Florida State Museum  
University of Florida  
Gainesville, Florida 32611

Number...68

19 March 1982

---

## TWO NEW SUBSPECIES OF *HELICONIINAE* (*LEPIDOPTERA: NYMPHALINAE*) FROM TOBAGO, WEST INDIES

Malcolm Barcant

731 West Daugherty, Lakeland, Florida 33805

### INTRODUCTION

#### *Geographical*

The island of Tobago is mountainous and volcanic in origin. Together with Trinidad, 18 miles to the southwest, it forms the last vestige of the great Andean range which curves to the northeast in Colombia, runs eastwards along Venezuela's northern coastal edge and then dwindles in declining heights through the northern ridges of Trinidad, finally plunging into the Atlantic at the northeastern point of Tobago. Both of these islands are intimately connected geologically with South America, and their fauna and flora are closely related to one another and to that of that vast continent just a few miles to the south. Populations in Tobago, however, are sparse and in the case of the *Lepidoptera* amount to less than 20% of the specific count to be found on Trinidad, which is more densely covered with rain forests and jungles.

#### *Comparative Heliconius Residents*

*Heliconius erato adana* Stichel and *H. melpomene flagrans* Stichel are prominent and widely distributed residents in Trinidad, the latter species tending to be somewhat localised. They occur there in a size and pattern typical of similar races to be found in the foothills of the northern Andes, some South American coastal areas and in Central America (Emsley, 1964). The ground colour in both species is matt black and the large forewing red discal bands are constant in size. It is not surprising that the two species also occur in Tobago with similar patterns, but with other features so strikingly different that they rate subspecific designation.

The two races in Tobago are abnormally small, but like their counterparts in Trinidad, are remarkably constant in size. Very slight deviations in the linear contours of the red bands can occur in both sexes of both races, but the general overall pattern of the band in each case tends to be stabilised. Other characteristics are further described in the text.

### Collectors' Observations

Although the Tobago populations have not been adequately described and named, it must be mentioned that some limited recognition of their differences from those in Trinidad had been realised in the past:

1) W.J. Kaye (1921) mentions in his Trinidad list that *H. melpomene* in Tobago is like a dwarf race of *H. m. euryades* Riffarth.

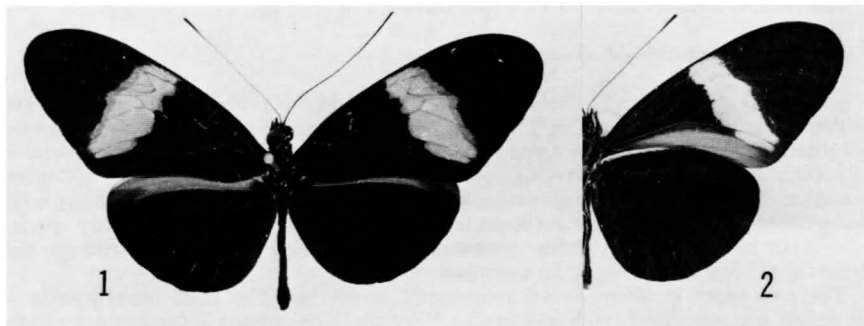
2) Sheldon, in Alford (1949) lists both *erato* and *melpomene* as much smaller races than those of Trinidad, stating that *erato* is locally common and *melpomene* rather rare, though the two often fly together.

3) A. Hall (*in litt.*) confirms *erato* from Tobago as small with a strong gloss and narrow red bands, noting also its occurrence on Little Tobago to the southeast of Speyside. He suggested "*tobagoensis*" as the subspecific name of this race, but did not formally describe it.

My own captures of *erato* at King's Bay in August, 1969, in bright afternoon sunlight brought instant on-the-spot recognition of Hall's observations and my own confirmation of the existence of races in Tobago constantly distinct from those in Trinidad.

### Life Histories, Habits and Habitats

There appear to be no records of any work having been done on the early stages of the two Tobago races. Their normal habitat follows the same pattern as that shown for the Trinidad races. Both races are well distributed throughout the island and are likely to be found in any damp shady area from sea level to the heights of Tobago, even to the summit of Pigeon Peak (1800 ft. = 545 m.). *H. erato* shows some preference for more open spaces and the partly sunlit sides of both hilly and low level tracks. Brooding occurs in semiforested areas where host plants (*Passiflora* spp.) occur, and the butterflies are particularly attracted to flowering shrubs, e. g., *Lantana*, *Bidens* (roadside daisy) and other Compositae. In a climate uniformly tropical, breeding takes place throughout the year but is most prolific during the rainy season (July to December) when growth of the host plants is abundant. At this time, specimens are fresh and in good condition with brilliant red bands and outstanding blue gloss. In the dry season (January to June), there is a lowered population and those individuals found tend to have faded red bands, and much of the blue gloss is gone. The flight of both subspecies is slow and erratic, and there is a strong tendency for the butterflies to congregate at dusk, settling on bare dried twigs in protected undergrowth for the night's rest.



Figures 1-2: *Heliconius erato tobagoensis*, subspecies nova, Holotype ♂, upper (1) and under (2) surfaces; TOBAGO: sea level, "3-2-26" (W. J. Kaye).

## SYSTEMATIC DESCRIPTIONS

*Heliconius erato tobagoensis*, subspecies nova (Hall, *in litt.*)

### *Types and Locations*

This subspecies is represented by 39 males and six females taken in Tobago by six collectors at various times and distributed in collections as follows:

**HOLOTYPE** ♂: TOBAGO, sea level, "3-2-26" (W.J. Kaye), in Allyn Museum of Entomology.

**ALLOTYPE** ♀: TOBAGO: King's Bay, "8-11-69" (M. Barcant), in Angostura-Barcant collection, Trinidad.

**PARATYPES**: 5 ♂, same data as Holotype (Allyn Museum of Entomology); 1 ♂ 1 ♀, Speyside, TOBAGO, February, 1932 (A. Hall, Booth Museum, Brighton, England); 1 ♂, French Fort, TOBAGO, July, 1913 (W. E. Broadway [Joicey beg.] British Museum); 22 ♂, 4 ♀, Speyside, TOBAGO, February, 1932 (A. Hall, British Museum); 4 ♀, TOBAGO, February, 1932 (A. Hall, British Museum); 4 ♂, Scarborough TOBAGO, 1944 (W.G. Sheldon [Sheldon beg.], British Museum); 2 ♂ Scarborough TOBAGO, 1944 (W. G. Sheldon [Sheldon beg.], British Museum); 2 ♂, same data as Allotype (Angostura-Barcant collection, Trinidad); 3 ♂, Franklyn Road, Plymouth, TOBAGO, "9-12-79" (T. C. Emmel, T. C. Emmel collection, Gainesville, Florida).

### *Description of Holotype ♂*

**Dorsal side:** Small size of the butterfly is conspicuous compared to most other races of the species. From base to apex of forewing is 30 mm., that of hindwing is 18 mm. The overall ground colour is black with all wing areas superimposed with a dark metallic blue gloss, particularly noticeable in newly taken specimens exposed to direct sunlight. This gloss fades after years in storage. The discal red band of the forewing is comparatively narrow -- 5 mm. at its widest section. It is irregularly serrated along the basal side and more evenly convex distally where a central projection points to the apex. This distal side along its entire length consists of a 1 mm. border line of a lighter red shade than the remainder of the band. This band extends 12 mm. from the mid-costal edge to a rounded point 1 mm. from the margin just anterior to the tornus. A very thin black line separates the costal margin from the anterior edge of the band. The distal end of the cell, from Rs to Cu<sup>1</sup> extends within the red band, and there are no white interneural spots on the outer margin. The androconial patch is 4 mm. wide and extends from the base of the hindwing along its costa with the suggestion of a forklike break extending down from the apex.

**Ventral side:** The ground colour is pale matt black to dark gray with no iridescence. The forewing band is pale pink and narrower (3-4 mm.) than its dorsal counterpart, but otherwise consistent with the latter in shape. A fine greenish yellow line of scales runs along the hindwing costa for 6 mm. from its base to about  $\frac{1}{3}$  out the costa. Ventral forewing androconial scales are also present, extending from the base in a broadly convex line to the tornus, nearly reaching Cu of the cell and touching the lower "island" section of the red band below Cu<sup>2</sup>. The ventral side of the abdomen is black.

### *Description of Allotype ♀*

The only female available for description is the female in the Angostura-Barcant collection, Trinidad. The size and colour are identical to the male on both dorsal and ventral surfaces, but the red dorsal forewing band has a deep serration nearer the costal area and within the cell on its basal side. The distal side bulges out somewhat at midlength giving the band itself an overall contour not unlike a miniature map of Florida with the Panhandle removed. There are narrow bands of dark gray scales along the dorsal forewing costal and the ventral forewing inner margin, extending from the base to near the apex and tornus, respectively.

***Heliconius melpomene tessa*, subspecies nova**

Figures 3-4

*Types and Locations*

This subspecies is represented by eight males and two females taken in Tobago by three collectors and distributed in collections as follows:

HOLOTYPE ♂: TOBAGO:: Bacolet, "7-2-26" (W. J. Kaye), in collection of Allyn Museum of Entomology.)

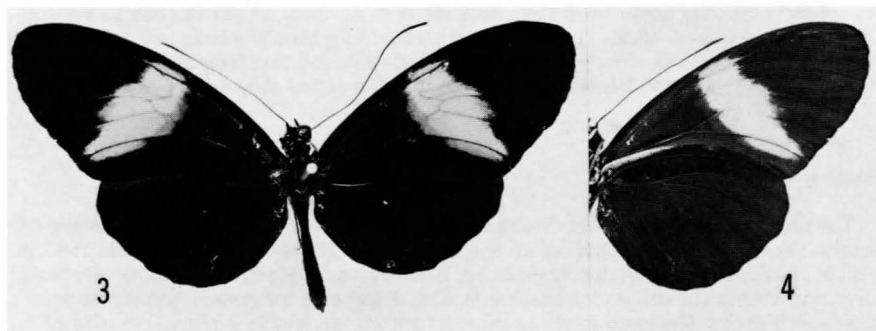
ALLOTYPE ♀: same data as Holotype, in collection of Allyn Museum of Entomology.

PARATYPES: 4♂, same data as Holotype (Allyn Museum of Entomology); 1♀, Speyside, TOBAGO, February, 1932 (A. Hall, Booth Museum, Brighton, England); 3♂, Franklyn Road, Plymouth, TOBAGO, "9-12-79" (T. C. Emmel, T. C. Emmel collection, Gainesville, Florida).

*Description of Holotype ♂*

**Dorsal side:** Basically similar in pattern to *H. erato tobagoensis*, but with typical characteristics of *melpomene*. It is slightly larger than *tobagoensis*, too, forewing 33 mm. and hindwing 21 mm. from base to apices. The forewing red band is 7 mm. at its widest midsection and 15 mm. long, beginning from 1 mm. in from costal margin and ending 1 mm. from the outer margin just above the tornus. The shape of this band can vary slightly among individuals, the Holotype being about average, this band begins near mid-costa with medium width and is conspicuously split after 1 mm. by the cell radial vein. Part of the band to 1/3 its width lies within the distal anterior part of the cell. The band then widens perceptibly at the disc. then starts narrowing to 3 mm. towards the outer margin where it is smoothly rounded and bisected by Cu<sub>2</sub>, giving an impression not unlike that of the snout of a dolphin. The pale gray androconial patch extends the length of the hindwing costa, to a maximum width of 3 mm., and does not quite reach the apex. The edge of the hindwing costa itself is a fine distinctive black line. There are very small, almost invisible, intervienal white dots on the outer margin. In fresh specimens, as in *tobagoensis*, the overall blue gloss persists. Marginally, *melpomene* differs from *erato* in its more rounded convex outline of both wings.

**Ventral side:** The ground colour is matt black to dark gray. As in *erato*, the forewing red band is narrower than its counterpart on the dorsal surface (5 mm.), and it is pale



Figures 3-4: *Heliconius melpomene tessa*, subspecies nova, Holotype ♂, upper (3) and under (4) surfaces; TOBAGO: Bacolet, "7-2-26" (W. J. Kaye).

pink. The general outline of the band, though, follows that of the dorsal side. A fine greenish yellow line of scales runs 12 mm. from hindwing base halfway out the costa. The gray scales of the androconia curve widely along the full length of the forewing inner margin, the top of the curve reaching the cell and finally descending to touch the lower marginal end of the band, ending at the tornus. The ventral side of the abdomen is yellow.

*Description of Allotype ♀*

The female is similar to the male in all respects, with the following slight differences: the forewing dorsal red band is shorter (14 mm.) and its lower section ends 2 mm. from the outer margin; the forewing bulges perceptibly at the outer margin just posteriad of the apex; a somewhat paler dark band runs along the costa of the hindwing; the fine greenish yellow band on the ventral hindwing costa is shorter (7 mm.,) to about 1/3 length of costa from base; and a paler blackish narrow band runs along the inner margin of the forewing.

#### ACKNOWLEDGMENTS

I would like to thank Dr. A. C. Allyn and Dr. L. D. Miller of the Allyn Museum of Entomology for providing type specimens for examination and for making publication of this paper possible. My thanks also go to Dr. K. S. Brown, Jr. of the Instituto de Biologia, Universidade Estadual de Campinas, Campinas, Brasil, for his assistance with locations and data on Paratypes.

#### BIBLIOGRAPHY

- Emsley, M. G., 1964. The geographical distribution of color pattern components of *Heliconius Crato* and *melpomene* with genetical evidence for the systematic relationship between the two species. *Zoologica* 49(3): 245-289.
- Kaye, W. J., 1921. A catalogue of the Trinidad Lepidoptera Rhopalocera. Mem. Dept. Agric. Trinidad and Tobago, 2: 1-163.
- Sheldon, W. G., 1949. A list with comments on the butterflies on Tobago. in C. E. R. Alford, *The Island of Tobago*. London, Longmans: 1 vol.

This public document was promulgated at a cost of \$257.00 or .428\* per copy. It makes available to libraries, scholars and all interested persons the results of researches in Entomology.