

## LITERATURE CITED

- CHAMBERS, D. S., 1963. Evening mating in *Hypaurotis crysalus* (Lycaenidae). J. Lepid. Soc., 16: 200 ("1962").
- DONAHUE, J. P., 1962. Observations and records of butterflies attracted to light in India. J. Lepid. Soc., 16: 131-135.
- HESSEL, J. H., 1965. Multiple capture of *Hypaurotis crysalus* at light. J. Lepid. Soc., 19: 55-56.
- PHILLIPS, L. S., 1962. *Nymphalis j-album* captured at fluorescent light in Chicago. J. Lepid. Soc., 15: 101.
- THRONE, A. L., 1961. *Lycaenopsis pseudargiolus* in light trap. J. Lepid. Soc., 14: 242.
- WELLING, E. C., 1963. Rhopalocera attracted by ultraviolet light in Central America. J. Lepid. Soc., 17: 37-38.

---

BIONOMIC NOTES ON HAETERINI AND BIINI IN  
VENEZUELA (SATYRIDAE)

JOHN H. MASTERS<sup>1</sup>

P.O. Box 7511, St. Paul, Minnesota

HAETERINI

Four genera, *Pierella* Westwood, *Haetera* Fabricius, *Dulcedo* d'Almeida and *Cithearias* Hübner (= *Callitaera* Butler), comprise the Haeterini, the most primitive tribe of Satyridae. All of the Haeterini have distinctive wing shapes with short, narrow forewings and seemingly enlarged hindwings. *Haetera*, *Cithearias* and *Dulcedo* are the only clear-winged Satyridae (see Figure 1, *Cithearias andromeda* Fabricius). All of the known species are Neotropical and are found on the forest floors of dense tropical and subtropical forests.

Virtually nothing has been published concerning the habitat and habits of these butterflies. I have found only brief notes by Weymer (*in*: Seitz, 1909) and Brown (1942). Both mention that these satyrids inhabit forested areas, fly near the ground and are difficult to see or follow in flight. Weymer mentions that members of the genus *Cithearias* (given as *Callitaera*) prefer the early morning hours for flight.

After having the opportunity to observe several of these species in Venezuela (1965 and 1966 in Bolivar and 1968 in Barinas), I can add somewhat to these statements. Determinations of my specimens were made by Michael Clifton of the British Museum (Natural History) who is currently preparing a taxonomic revision of the tribe.

The species that I observed seemed to be strictly limited to denser

---

<sup>1</sup> Research Associate, Section of Insects and Spiders, Carnegie Museum, Pittsburgh.

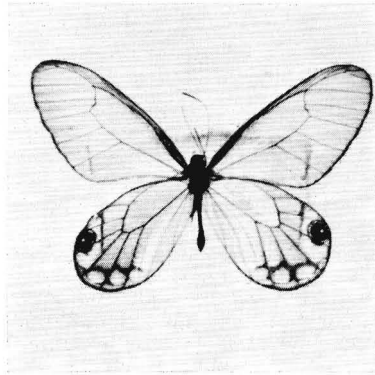


Figure 1. *Cithearias andromeda* Fabricius. 88 kilometers south of El Dorado, Bolivar, Venezuela; 20 Feb. 1966 (J.H.M.) Natural Size.

selva (low and tropical forests) where they flew close to the forest floor and nearly always lit on the ground. They were distinctly matinal and crepuscular in habit, flying during both early morning and evening hours. However, *Pierella* species, and to a lesser extent the others, would fly throughout the day during inclement weather. All of the species were attracted to fruit, but to catch them at it was difficult. Normally fruit bait is placed in the center of a small area from which all leaves and underbrush have been cleared and then those species that are attracted, including *Taygetis*, *Euptychia*, *Caligo*, *Morpho*, etc., are easily netted. *Haetera* and *Cithearias* species are attracted to fruit but will not alight in a cleared patch of ground but will alight around its edge instead where they can be perfectly camouflaged. Of course, if the bait is placed on uncleared ground, they blend into the background so well that they are completely inconspicuous while visiting it. The use of bait traps would seem to be the answer (for a description of bait traps and their use see Rydon, 1964), but the effectiveness of most traps depends upon butterflies to fly upward when disturbed. While most butterflies do fly upward when disturbed, the Haeterini fly horizontally and close to the ground and thus cannot be taken in any ordinary sort of trap. The best method of collecting them is to spread fruit on the ground to attract them into the area, and to then walk through the tract at dusk flushing them and carefully stalking them.

*Haetera piera piera* (Linnaeus)

This species was encountered in heavy selva in both Bolivar and Barinas. *H. piera*, with transparent wings just shaded with yellow, appears ghost-like in flight, just a flicker of yellow moving across the

leaves. They fly slowly and alight often, but it is difficult for the eye to follow them in flight and, unless you actually see them alight, they are virtually impossible to detect on the ground. They were usually encountered as solitary individuals, but the presence of fruit (natural or bait) on the forest floor would concentrate them into a given area. In 1966, a single male of *piera* was taken at heliotrope (Masters, 1968), a bait normally employed to attract Ithomiidae. This might be another source of evidence of the close phylogenetic relationship of these primitive Satyridae to the Ithomiidae, a relationship pointed out by Fox (1956). However rather than being attracted to the heliotrope the satyr was probably attracted to traces of fruit on it as heliotrope and fruit baits had been spread along the trail at the same time.

*Cithearias andromeda* Fabricius

*Cithearias andromeda* (= *esmeralda* Dbl.) was found in the same habitat in Bolivar as *H. piera* but was much scarcer and less apt to venture into an open area. *C. andromeda* (figure 1) also has transparent wings, but shaded with purple instead of yellow, a combination that makes it even more difficult to observe and follow in the selva. Its flight is also slow, and apparently its primary defence against predation is the inconspicuous character of nearly colorless, transparent wings.

*Pierella astyoche* Erichson

This species was encountered in heavy selva in Bolivar but was much more prone to come out along trails or to enter small clearings, thus being much more in evidence and more frequently encountered than *H. piera* or *C. andromeda*. *Pierella astyoche* is a quite active flier and males are fond of flying quickly up and down a forest trail close to the ground. Each male seemed to have its own section of path to patrol and this activity suggests a form of reconnaissance for females. Interest in patrolling decreased when fruit was spread on the trail and *astyoche* was less shy in coming to bait than the clear-winged species. The best method of capturing them, however, was to note the path of a patrolling male and to then wait along it to intercept the butterfly in flight. Peak flight for *P. astyoche* was from late afternoon until dusk, but a few individuals seemed to fly throughout the day. On cloudy days they would fly in numbers all day long, and, along with *Taygetis* species, would be virtually the only butterflies encountered on the forest floor.

*Pierella hyalinus hyalinus* Gmelin

*Pierella hyalinus* is a large attractive species with deep blue on the

hindwings. *P. hyalinus* is sympatric with *astyoche* in Bolivar and has similar habits, but the two could be readily distinguished on the wing because of the large size and blue of the rarer *hyalinus*.

#### BIINI

A single unique species, *Bia actorion* (L.) (= *actoriaena* Hübner), comprises the Biini.

#### *Bia actorion actorion* (Linnaeus)

The geographical range of *Bia actorion* is limited to the lowland rain forests of the Amazon and Orinoco basins. I found the specific habitat preference of *B. actorion* to be those areas where enough sun penetrates to the forest floor to provide a thick and heavy undergrowth rather than those areas where the canopy is complete and prevents enough sunlight to reach the ground to allow for much undergrowth. Solitary individuals of *B. actorion* were encountered along trails or in clearings where they would alight about three feet above the ground among underbrush. They quickly fly to the base of a bush when alarmed where they are either perfectly concealed or impossible to get at with a net. *Bia actorion* is very striking during flight because of the nearly iridescent upper wings that flash in the sunlight, giving the appearance of a miniature *Morpho*. When the insect alights, the flashing blue suddenly disappears, which undoubtedly adds to the deception as the cryptic undersides blend into the background.

#### LITERATURE CITED

- BROWN, F. M., 1942. Notes on Ecuadorian Butterflies, V. J. New York Ent. Soc., 50(4): 309-333.
- FOX, R. M., 1956. A monograph of the Ithomiidae (Lepidoptera). Part 1. Bull. American Mus. Nat. Hist., 111: 1-76.
- MASTERS, J. H., 1968. Collecting Ithomiidae with heliotrope. J. Lepid. Soc., 22(2): 108-110.
- RYDON, A., 1964. Notes on the use of butterfly traps in East Africa. J. Lepid. Soc., 17(4): 51-58 ("1963").
- SEITZ, A., 1909. Gross-schmetterlinge der Erde, 5. Kernen, Stuttgart.