

NOTES ON *HAETERA* FROM COLOMBIA, WITH DESCRIPTION OF THE IMMATURE STAGES OF *HAETERA PIERA* (LEPIDOPTERA: NYMPHALIDAE: SATYRINAE)

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ABSTRACT.— The early stages and a larval food plant are reported for the first time for *Haetera piera* (Linnaeus) from the upper Amazon. The life history is fully described from material collected at Puerto Nariño, Amazonas, in South eastern Colombia. The larval food plant of *H. piera* is *Spathiphyllum wallisii* (Araceae), a new host plant family record for the Neotropical Satyrinae.

KEY WORDS: Amazon, Araceae, Arecaceae, biology, Central America, Costa Rica, Cyperaceae, *Dulcedo*, Ecuador, Gramineae, Haeterini, Heliconiaceae, larvae, life history, Marantaceae, Neckeraceae, Neotropical, *Paradulcedo*, Peru, *Pierella*, Poaceae, *Pseudohaetera*, Selaginellaceae, South America.

The genera *Haetera* Fabricius, *Pseudohaetera* Brown, *Cithaerias* Hübner, *Dulcedo* d'Almeida, *Paradulcedo* Constantino, and *Pierella* Herrich-Schäffer, comprise the Haeterini, the most primitive tribe of Satyrinae inhabiting the Neotropical Region (Miller, 1968; Masters, 1970; D'Abrera, 1989; Constantino, 1992). The host plants of Neotropical Satyrinae are mostly grasses and bamboos (Poaceae), but also include Marantaceae, Arecaceae, Cyperaceae, Selaginellaceae and Neckeraceae (De Vries, 1987). About the Haeterini, almost nothing is known about the host plants or early stages. The only few records available include palm trees of the genus *Geonoma* and *Welfia* (Arecaceae) for *Dulcedo polita* (Hewitson) (De Vries, 1987); *Heliconia* (Heliconiaceae) and *Calathea* (Marantaceae) for *Pierella luna* Fabricius (De Vries, 1985); *Heliconia* (Heliconiaceae), *Calathea* (Marantaceae), *Asterogyne* (Arecaceae) and *Panicum* (Poaceae) for *Pierella helvina incanescens* Godman & Salvin (DeVries, 1985) and undetermined grasses (Poaceae) for *Pierella hyalinus fusimaculata* Brown (Urich & Emmel, 1990). Since no records on the early stages of Neotropical *Haetera* exist, the present paper constitutes the first report of immature stages and larval food plant for *H. piera* on *Spathiphyllum wallisii* (Araceae).

The genus *Haetera* is widespread throughout much of Central America and South America inhabiting the lowland rain forests. Their flight is close to the ground, but erratic in its course. Like most of the Haeterini, this butterfly can be recognized by their largely transparent wings with delicate colors and two bold ocelli on the outer margin of the hindwings.

There are only two recognized species in the genus, *Haetera macleaniana* Bates distributed from Costa Rica to Western Colombia and North Western Ecuador and *Haetera piera* (Linnaeus) distributed throughout the Orinoco and Amazon basins. The early references mention also *Haetera hypaesia*

Hewitson and *H. polita* Hewitson, but these species have been placed in the genera *Pseudohaetera* Brown, 1942, and *Dulcedo* d'Almeida, 1951, respectively.

METHODS

Field observations were made at three localities on the Amazon basin in Colombia; Amazonas: Puerto Nariño, Río Loreto Yacu, 70m; San Martín de Amacayacu, Río Amacayacu, 70m and Leticia, Río Amazonas, 70m in lowland tropical wet forest. Adults of *H. piera* were very abundant flying close to the ground in trails inside the forest at these localities. At Puerto Nariño I witnessed egg-placement (oviposition) behavior in *H. piera* and conducted a study of the early stages by confining recently deposited eggs in small glass jars with fresh cuttings of the larval food plant. These cuttings were replaced every two days. The rearing of the first instar was conducted at Leticia (Amazonas) and the second instar to adult was completed at Cali (Valle) at room temperature and 80% R.H.

RESULTS

Egg-placement behavior and larval food plant

On 12 June 1992 at 10:00 h, I observed a single female of *H. piera* ovipositing on an undetermined *Spathiphyllum* sp. (Araceae) in a light gap within a trail near Puerto Nariño. A single egg was laid on the underside of the blade. She then flew off and repeated the behavior on nearby individuals of the same plant. Although oviposition behavior was observed on other members of the Araceae, such as *Philodendron* sp. and *Dieffenbachia* sp., no eggs were laid on these plants. I collected a single egg and kept it in a moist container with leaf cuttings of the larval food plant. Once the first instar hatched, the larva was exposed to



Fig. 1-3. Larval morphology of *Haetera piera*: 1. Fourth instar larva (Puerto Nariño, Amazonas, Colombia); 2. Head capsule (frontal view) of same larva; 3. Pupa (dorso-lateral view).

different fresh leaf cuttings of several plant species in order to determine the host range of *H. piera*. These plants included *Spathiphyllum*, *Philodendron* and *Dieffenbachia* (Araceae), *Heliconia* (Heliconiaceae), *Calathea* (Marantaceae), *Welfia* (Arecaceae) and two undetermined grasses (Poaceae).

These plants were chosen because they were the most abundant in the forest floor where *H. piera* flies. The larva rejected all the leaf samples except the Araceae. Slight attempts to feed on

Philodendron and *Dieffenbachia* were observed but the larva finally chose *Spathiphyllum* sp. as the food plant.

These observations include the Araceae as new food-plant family records for Neotropical Satyrinae. The first instar was reared on an undetermined *Spathiphyllum* in Leticia, but due to the inconvenience to obtain fresh leaf cuttings of the same larval food plant, the larva was transferred to *Spathiphyllum wallisii*, known locally as "white Anthurium", to complete the life cycle under greenhouse conditions in Cali.

Description of early stages

Egg: The egg is spherical, about 1 mm in diameter, smooth in surface texture and white. The egg hatched on 18 June 1992, or 6 days after being laid.

First instar larva: The first instar is about 7mm long just after hatching. Head: The head capsule is shiny black and conspicuously "lobed" laterally making it wider than the trunk. The head capsule is granulate and bears two square bumps on the epicranium. The face bears two horn-like protuberances arising laterally. Body: Translucent and cream in color without any marks, two short black tails born high up on the dorsum. The first instar larva lasted 7 days.

Second instar larva: Just after molt from the first instar, the larva is about 11mm long. Head: Now the head capsule is bilobed in general appearance, dull black with two large, stout horns that bear accessory spikes on the shafts and tips; each side of head has two flat spines brown-red in color. Body: beige in color with black spiracles. The second instar larva lasted 4 days.

Third instar larva: The general appearance of the third instar larva is very similar to that of the previous instar, but the body assumes a thicker profile, and the annules on the body segments are more prominent. The head capsule is still granulate with two black horns, the side of the face is now brown with the spines white in color. Body: Pale green spiracles black and tails longer and brown-reddish in color. The third instar larva grows to about 18mm in 4 days.

Fourth instar larva (Fig. 1): The fourth and last instar larvae attains a body length of about 29mm. The head capsule (Fig. 2) is now white-cream and granulate with two stout horns that bears a dorso-lateral accessory spike white in color. Tip of horns with a crown of white granulations. The side of the shafts are black. Labrum and half of front black in color. Each side of head has a prominent curve spine and bears three large rounded granulations. Body: The dorsal and lateral area of the body is dark green in color. The subdorsal area is ornamented with

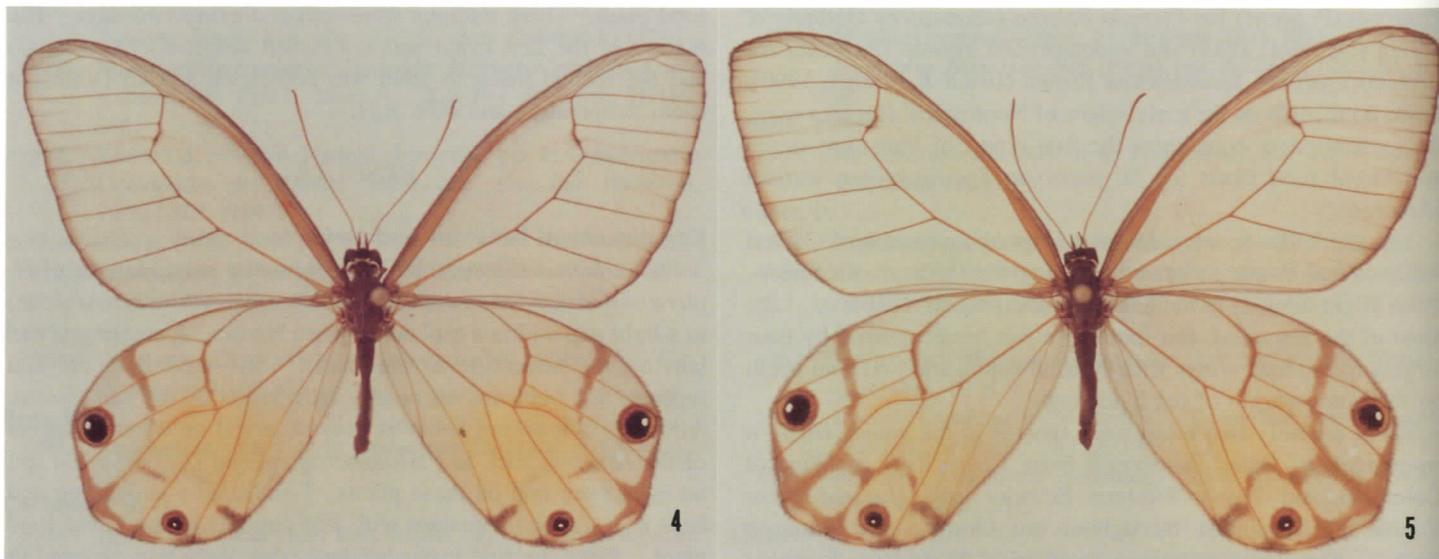


Fig. 4-5. Adults of *Haetera piera*: 4. Adult ♂ (Puerto Nariño, Amazonas, Colombia); 5. Adult ♀, same locality.

a broken "zig-zag" pattern white-cream in color which decreases in intensity towards the head. The tails are white-cream with granulations. The first through third body segment bears a ring of white granulations which is most noticeable in the first segment just behind the head. The spiracles are black with brown borders. The Fourth instar lasted 9 days. **Pupa** (Fig. 3): The pupa is brown all over with light brown lines on the abdomen which simulates the veins of a dry leaf. The wing pads are brown and becomes darker. When viewed through the light, the wing pads are transparent. Two lobes on thorax; head area is slightly bifid. The pupal stage lasted 14 days, and an adult male emerged on 27 July 1992.

Biology

The life cycles requires about 44 days from egg to adult, with the egg lasting six days, the larvae about 24 days, and the pupa 14 days.

Adults (Fig. 4-5) are large, transparent, satyrine butterflies, easily distinguishable by the presence of two ocelli and a yellow stain on the hind wing. The species has also a light-brown transverse line. The upper wings are completely transparent; sexes similar but female larger with the transverse line darker.

The adults of this species occur from sea level up to 400m elevation in the Amazon and Orinoco basins in South America. Another race, *H. piera ecuadora* Brown occurs from 400-1000m elevation in the eastern foothills of the Andes from central Perú to Colombia.

Hosts: *Spathiphyllum wallisii* and other related species in the family Araceae in Colombia.

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