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A perfect mimicry of two cloud forest pierids: *Leptophobia eleone*
and *Catasticta revancha* new sp.
(Lepidoptera: Pieridae)

FERNANDO REY C. ¹ and TOMASZ W. PYRCZ ²

1. Laboratorio de Entomología, Universidad Nacional Experimental del Táchira, Apdo. 436, San Cristóbal, Táchira, Venezuela.
2. Zoological Museum of the Institute of Zoology, Jagiellonian University, Ingardena 6, 30-060 Kraków, Poland E-Mail: pyrc@zuk.iz.uj.edu.pl , perolito@polbox.com.pl.

ABSTRACT. A new species of *Catasticta* (Pieridae), *C. revancha*, is described from the cloud forest of the Tamá range in Venezuela. Its mimetic resemblance to the sympatric *Leptophobia eleone*, expressed by wing colour pattern and also habitat preference and behaviour, is discussed.

Key words: Entomology, taxonomy, behaviour, Venezuela, *Catasticta revancha* n. sp., cloud forest, colour pattern, endemic, isolation, *Leptophobia eleone*, mimicry, pierids, warning colours

INTRODUCTION

The Tamá Range is the north-easternmost part of the Andean Eastern Cordillera which extends into the Venezuelan State of Táchira. It is a relatively little isolated and not particularly high mountain chain and its highest peaks reach slightly above 3600 m a.s.l. Nevertheless, its cloud forest and paramo fauna of Lepidoptera reveal a considerable ratio of endemic taxa at a specific and even generic level (PYRCZ et al., in press). With the notable exception of the apparently relict genus and species *Tamania jacquelinae* (PYRCZ, 1995), most endemics of the Tamá show close affinities with species occurring either in the Cordillera de Mérida (situated just north of the San Cristóbal depression), or with the rest of the Colombian Eastern Cordillera. This however is not the case with the new species of *Catasticta*, described herein,

whose closest ally occurs as far away as southern Ecuador. This new species is unique for its amazing mimetic resemblance to another montane pierid, *Leptophobia eleone* DOUBLEDAY (see: D'ABRERA, 1981).

Catasticta revancha REY & PYRCZ n. sp.

DIAGNOSIS

The closest ally of this new species is clearly *Catasticta poujadei* DOGNIN, from southern Ecuador, which shares a similar pattern but differs in that its ground colour is white while in *Catasticta revancha* it is lemon yellow. The new species from Venezuela is also smaller and has a less pointed forewing apex and no dentate hindwing margin. Both species belong in the *clara* group of the invalid sub-genus *Hesperochoia* of *Catasticta* as defined by REISSINGER (1972).

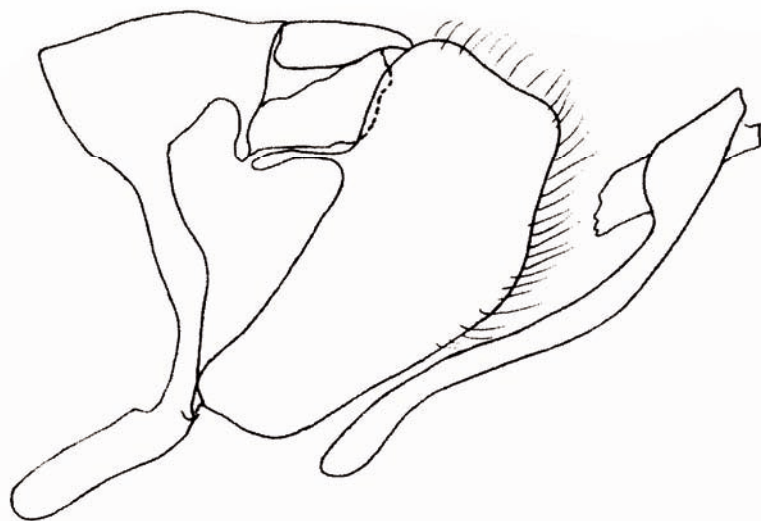
DESCRIPTION

MALE: (Figs 1A & B) **Head:** Eyes chestnut, naked. Palpi yellow costally, black dorsally, palpal hair long, half length of palpi, yellow and black, terminal tufts black. Antennae to two thirds costa, shaft laterally yellow and black, club concave (spoon-shaped), prominent, black. **Thorax:** dorsally black covered with loose grey hair. Ventrally covered with dense pale yellow hair, particularly thick along hind tibia. **Abdomen:** Dorsally black, slightly hairy. Ventrally and laterally, yellow on lower one third. **Forewing:** length 19.5 mm (n = 4). Wing shape triangular. Upperside ground colour rich lemon yellow, a grey black area extending from base into discal cell from root of vein Cu2 to mid cell on costa, with diffused outer margin. An intensely black patch on outer margin of discal cell, connected along costa with a black subapical, apical, submarginal and marginal area. A series of five submarginal yellow dots, largest of all in cell Rs and M1 triangular. Outer margin delicately scalloped. Fringes short, yellow. Underside ground colour paler lemon yellow. Black elements of colour pattern reflected from upperside, paler altogether, except patch on outer margin of discal cell. Faint dark submarginal and marginal area showing through from upperside. Black markings along the veins in subapical area. V-shaped black marginal line. **Hindwing:** Ground colour rich lemon yellow, same as on forewing. Basal area black. Pattern of underside black lines faintly showing through. Marginal black dots on veins. Underside ground colour pale yellow. Pattern of black lines same as in related species, such as *Catasticta poujadei*.

MALE GENITALIA: (Fig. 3) Main structures similar in shape to related species of the subgenus *Hesperochoia*, for example *C. chrysolopha* KOLLAR.

FEMALE: (Figs 2A & B) Sexual dimorphism slight. Female slightly larger than male. **Forewing:** length 20 mm (n=3). Black markings and yellow ground colour slightly paler. **Hindwing:** Ground colour of upperside slightly lighter, pale yellow.

IMMATURE STAGES AND HOSTS: Unknown.



1-3. *Catantia revancha* n. sp.: 1A (left) - male holotype, dorsal, 1B (right) - male holotype, ventral, 2A (left) - female allotype, dorsal, 2B (right) - female allotype, ventral, 3 - male genitalia

TYPES

Holotype male: Fundo Piedra Blanca, San Vicente de la Revancha, Parque Nacional El Tamá, Táchira, Venezuela, 2350 m, 10 April 1996, leg. T. PYRCZ & F. REY, depository: BMNH, London (U.K.); **Allotype** female: same locality, 06 June 1995, leg. F. REY, depository: BMNH, London (U.K.); **Paratypes**: 3 males and 2 females, same locality as primary types, depository: 1 male and 1 female MALUZ, Maracaibo (Venezuela), 1 male and 1 female coll. F. LA VILLA, Puerto Ayacucho (Venezuela), 1 male coll. MZUJ, Kraków (Poland).

ETYMOLOGY

This species is named after the Valley of San Vicente de la Revancha in the Tamá Range where all specimens were collected.

DISTRIBUTION

So far known exclusively from one site called Fundo Piedra Blanca just above the locality of San Vicente de la Revancha, El Tamá range, north-eastern extremity of the Eastern Cordillera, Táchira state, Venezuela, at 2350 m,

FLIGHT PERIOD

January - June.

REMARKS

This beautiful species is outstanding for its unique resemblance to another pierid *Leptophobia eleone*. The two species are similar in size, wing shape, yellow ground colour and pattern of the black markings. However, what is more striking is that they share the same habitat and flight pattern. *Leptophobia eleone* is a widespread species occurring on middle to high elevations in the Andes from Peru to northern Venezuela and Colombia. It is quite common in its habitat. It usually flies over open areas, marshy meadows, secondary bushes, and along streams and roads. Nevertheless, it does not fly over cultivated areas nor is it as abundant as *L. aripa*. It does not penetrate deep into cloud forests, contrary to most congeners such as *L. penthica* or *L. tovaria*. In San Vicente de la Revancha (El Tamá range) *L. eleone* is frequent throughout the year. *C. revancha* was observed and collected exclusively in one spot on the edge of remnant cloud forest situated below a steep limestone ridge, beside a mountain stream. All the specimens of *C. revancha* were collected during short periods of sunshine in the early afternoon (between 12.30 and 14.30) in precisely the same spot, when flying downhill over a marshy meadow along the forest edge. Their flight is slower and less erratic than that of *Colias* or *Tatochila* so they are quite easy to catch. *C. revancha* and *L. eleone* behave in exactly the same way but the latter species is far more frequent. *L. eleone* also occurs in other areas of San Vicente and El Tamá, while *C. revancha*, quite remarkably, is still only known from the same spot where the first specimen of this species was collected. *C. revancha* does not behave like other *Catasticta* which occur in the cloud forests of the Tamá range or elsewhere,

that is it was never seen to mud puddle, to hill top, fly around flowering trees or along mountain streams inside the cloud forest.

It is beyond any doubt that *C. revancho* is involved in a mimetic relationship with *L. eleone*, and it seems correct to suggest that the latter species is the model, while *C. revancho* is the mimic. *C. revancho* has a lemon-yellow ground colour, which is unique in its genus, and its flight pattern and habitat preference are, in our experience, distinct from other congeners. On the wing their resemblance is so perfect that even an experienced collector knowing what to expect cannot distinguish them. In fact, the first specimen collected was taken for a *L. eleone*, and ever since our hunting strategy has been to chase any lemon yellow butterfly as we could not rely on our "on the wing" identification. No species in the genera *Leptophobia* or *Catasticta* have yet been reported as unpalatable, even though they could well gain some secondary chemical protection from their cruciferous host plants which contain mustard oils (DEVRIES 1987). YOUNG (1972) suggested that *L. caesia* LUCAS could be unpalatable. However, we observed on several occasions loose wings of different species of *Leptophobia*, including *L. caesia* (in Colombia), which were definitely the remains of bird attacks. They were all white or grey deep-forest species. Nevertheless, we may not rule out that *L. eleone*, whose lemon yellow could be a warning colour, is at least less acceptable to vertebrate predators. In fact, we should also seek explanations other than classic Batesian mimicry. Perhaps in this particular mimicry system the signal receiver is not a predator but the model itself (see: WICKLER 1965, NIJHOUT 1991 and VANE-WRIGHT 1976). There are a few cases known to us of true Batesian mimicry among *Catasticta*, such as the females of *C. alma* HOPFFER, *C. strigosa* BUTLER or *C. pharnakia* FRUHSTORFER which mimic distasteful *Actinote* acraeains, or both sexes of *C. teutamis*, which mimic *Pereute* pierids which some authors consider to be unpalatable (see: DEVRIES, 1987).

The discovery of *C. revancho* in San Vicente is also very interesting for zoogeographical reasons. The nearest ally of this species is *C. poujadei* which is known from southern Ecuador and Peru, while in Colombia *C. revancho* has no close relatives. It would be tempting to consider this new species as an endemic of the Tamá range or even perhaps of the valley of San Vicente (because the parallel valley of Betania has been quite well sampled at similar elevations). However, due to its unusual behaviour and mimetic resemblance to *L. eleone*, *C. revancho* might have been overlooked in other places of the Colombian Eastern Cordillera.

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