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Hypandrium as a key character in resolving species-level taxonomy on the example of *Perisama oppelii* (Latreille) (Lepidoptera: Nymphalidae, Biblidinae)

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Abstract

A detailed comparative study of the subspecies of *Perisama oppelii* (Latreille, [1809]) is carried out. Ten out of eleven subspecies are illustrated, including the females of *P. o. bleuzeni* Attal & Crosson du Cormier, 1996 and *P. o. cristal* Attal & Crosson du Cormier, 1996 for the first time. Male genitalia of *P. o. amalia* Oberthür, 1916, *P. o. bleuzeni*, *P. o. cristal*, *P. o. erebina* Oberthür, 1916, *P. o. oppelii* (Latreille, [1809]), *P. o. viridinota* Butler, 1873, and *P. o. xanthica* (Hewitson, 1868), as well as female genitalia of *P. o. bleuzeni*, *P. o. cristal* and *P. o. oppelii* are also presented for the first time. Based on the characters of hypandrium, a separate specific status is proposed for *P. bleuzeni* stat. n. Taxonomical value of the hypandrium is evaluated. The co-evolution of male and female genitalia is discussed.

Key words: systematics, *Perisama bleuzeni* Attal & Crosson du Cormier n. stat., male genitalia, female genitalia, adult morphology

Introduction

Biblidinae is a diverse and widespread group of butterflies, whose taxonomical status of sub-family is well supported by both, morphological and molecular data (Brower 2000; Wahlberg *et al.* 2003). The subfamily comprises over 30 genera, arranged in six tribes: Biblidini, Epicaliini, Ageroniini, Epiphiliini, Eubagini and Callicorini (Wahlberg & Brower 2007). Callicorini is a strictly neotropical tribe, containing nine genera: *Diaethria* Billberg, 1820, *Callicore* Hübner, [1819], *Orophila* Staudinger, [1886], *Mesotaenia* Kirby, 1871, *Antigonis* Felder, 1861, *Haematera* Doubleday, [1849], *Paulogramma* Dillon, 1948, *Catacore* Dillon, 1948, and *Perisama* Doubleday, [1849]. The genus *Perisama* includes about one hundred taxa, the vast majority of which inhabit medium and high elevations of Andean montane forests, with the noticeable exception of *Perisama tepuinensis* Attal & De Marmels, 2012 from the Guyana Shield in SE Venezuela. The statuses of taxa within *Perisama* are a matter of an ongoing discussion resulting in frequent changes in the number of species and subspecies recognized in consecutive revisions, for example 42 species, 52 (non nominotypical) subspecies and 35 individual forms in Attal & Crosson du Cormier (1996), 31 species and 58 (non nominotypical) subspecies in Lamas (2004), and 42 species, 62 (non nominotypical) subspecies and 24 individual forms in Attal & Crosson du Cormier (2010). *Perisama oppelii* is a widespread species (Fig. 5) with distinct, diagnostic colour pattern characters: bright yellow hindwing underside, with almost parallel and slightly wavy lines on the hindwing and no submarginal dots. Sexual dimorphism little marked, expressed mostly in slight differences of wing shape and size, females being somewhat larger. Females of *Perisama* are generally rare in collections, and so far they have been described or illustrated for 27 (less than 30%), taxa only. Prior to this study, there has been no description of female genitalia of any species of *Perisama*.

Until now, 16 subspecies and individual forms of *P. oppelii* were described, nine of which are recognized as valid subspecies by Attal & Crosson du Cormier (2010): *P. o. amalia* from the Río Magdalena valley in Colombia (Fig. 1D), *P. o. angustifasciata* Röber, 1924 from "Upper Rio Negro", Eastern Colombia, *P. o. bleuzeni* from the Cordillera de Mérida in Venezuela (Fig. 1A, 2A, 3, 4), *P. o. cristal* from SW Ecuador (Fig. 1F, 2C), *P. o. eminens*