

# TWO NEW SPECIES OF *MESENE* FROM WESTERN ECUADOR (LEPIDOPTERA: RIODINIDAE)

JASON P. W. HALL AND KEITH R. WILLMOTT

Dept. of Entomology and Nematology, University of Florida, Gainesville, Florida 32611, USA

**ABSTRACT.**— Two new species of *Mesene* Doubleday 1847 are described from western Ecuador, and a new generic combination is proposed for *Synargis cyneas* (Hewitson, 1874).

**KEY WORDS:** Bolivia, Brazil, Costa Rica, Guyana, hilltopping, *Mesene babosa* n. sp., *Mesene citrinella* n. sp., Mexico, Neotropical, *Nymphidium*, *Nymula*, Panama, perching behavior, Peru, *Symmachiini*, *Synargis*, taxonomy.

The genus *Mesene* Doubleday, 1847, is distributed from Mexico to Brazil and contains approximately 25-30 species. The exact number is unclear, however, as many species have strongly differentiated subspecies and sympatric forms, resulting in chaotic arrangements in most museums. Stichel described a large number of species during the early part of the century, but since then very little attention has been focused on the genus (only Brévignon and Gallard, 1993). Here we describe two new species from western Ecuador, with notes on closely related species, and move the taxon *Synargis cyneas* (Hewitson, 1874), into the genus *Mesene*.

## *Mesene babosa* Hall & Willmott, new sp.

Fig. 1a,b; 4

**Description.**— MALE: forewing length 14.5mm (Paratype males 11mm and 13mm and paler yellow recto color). Forewings with almost straight outer margin, hindwings rounded. *Recto*: forewing ground color orange-yellow with broad, even black outer margin and costa; apical tip of yellow area curves in towards costa. Hindwing ground color orange-yellow with broad, even black outer margin. *Verso*: forewing and hindwing same pattern as above, ground color slightly less orange, basal area of hindwing black. Labial palpi black. Eyes brown and bare. Frons black. Antennae black and white banded, black clubs. Thorax recto orange brown, verso black, abdomen recto dark orange, verso cream. Legs yellow-cream, except femur black. Genitalia (Fig. 4): valvae single lobed, reduced, pedicel with sharp bend beneath valvae, aedeagus with long lateral spine.

FEMALE: unknown.

**Types.**— *Holotype* ♂: ECUADOR.— Carchi Prov., nr. Lita, Rfo Baboso ridge to east, 900m, 11 Jul 94 (K. R. Willmott). To be deposited in the Natural History Museum, London, England (BMNH).

*Paratypes*: 4 ♂, same data as above (1 ♂ to be deposited in the National Museum of Natural History, Washington, USA (USNM), 3 ♂ deposited in the collection of the authors).

**Etymology.**— This species is named after the Rfo Baboso which flows several hundred meters beneath the ridgetop type locality.

**Diagnosis.**— This species is closest to *Mesene silaris* Godman & Salvin, 1878 (= *Mesene icterias* Stichel, 1910, **syn. nov.**), *M. leucopus* Godman & Salvin, [1886] and *M. citrinella* n. sp. (see

below), the only species in the genus which have yellow males (see D'Abrera, 1994: 1027 for illustrations of *M. silaris* and *M. leucopus*). *Mesene silaris* (Costa Rica to Peru, Guianas) has distinctly less yellow on both fwr and hwr; the yellow area on the fwr ends roundly, not in a point as in *M. babosa* n. sp., and the middle of the outer forewing margin of the male is slightly concave with small areas of white fringe. *M. leucopus* (Guatemala) is similar in pattern to *M. silaris*, but has more rounded wings and a rounded yellow area on the hwr. In addition, all three species show clear genitalic differences in the shape of the valvae and pedicel, and internal aedeagus morphology (see Fig. 4-7).

**Discussion.**— The type locality is a wide (15m) path cut along the top of a ridge. Males of *M. babosa* were only encountered perching on two small bushes along this path approximately 1 km apart, where several males could be observed at once, flying and interacting with one another in the late afternoon, from 1400-1600h. Upon revisiting the site on March 25 of the year subsequent to that of the original captures, males were again found perching on exactly the same bushes. When not interacting with other males, they flew rather slowly with a fluttery "moth-like" wingbeat and came to rest underneath leaves with their wings open.

## *Mesene citrinella* Hall & Willmott, new sp.

Fig. 2a,b; 5

**Description.**— MALE: forewing length 11.5mm. Forewings with rounded outer margin, hindwings rounded. *Recto*: forewing ground color lemon yellow, outer margin, costa and apical area black; outer edge of yellow area scalloped. Hindwing ground color lemon yellow, broad black outer margin. *Verso*: same pattern and color as recto. Labial palpi yellow. Eyes brown and bare. Frons yellow. Antennae black and white banded, black clubs. Thorax and abdomen recto yellow, verso yellow. Legs yellow. Genitalia (Fig. 5): valvae simple and reduced, pedicel with sharp bend beneath valvae, aedeagus lacking lateral spine but possessing two sclerotized internal structures.

FEMALE: unknown (but see discussion below).

**Types.**— *Holotype* ♂: ECUADOR.— Esmeraldas Prov., km 44 rd. Lita-San

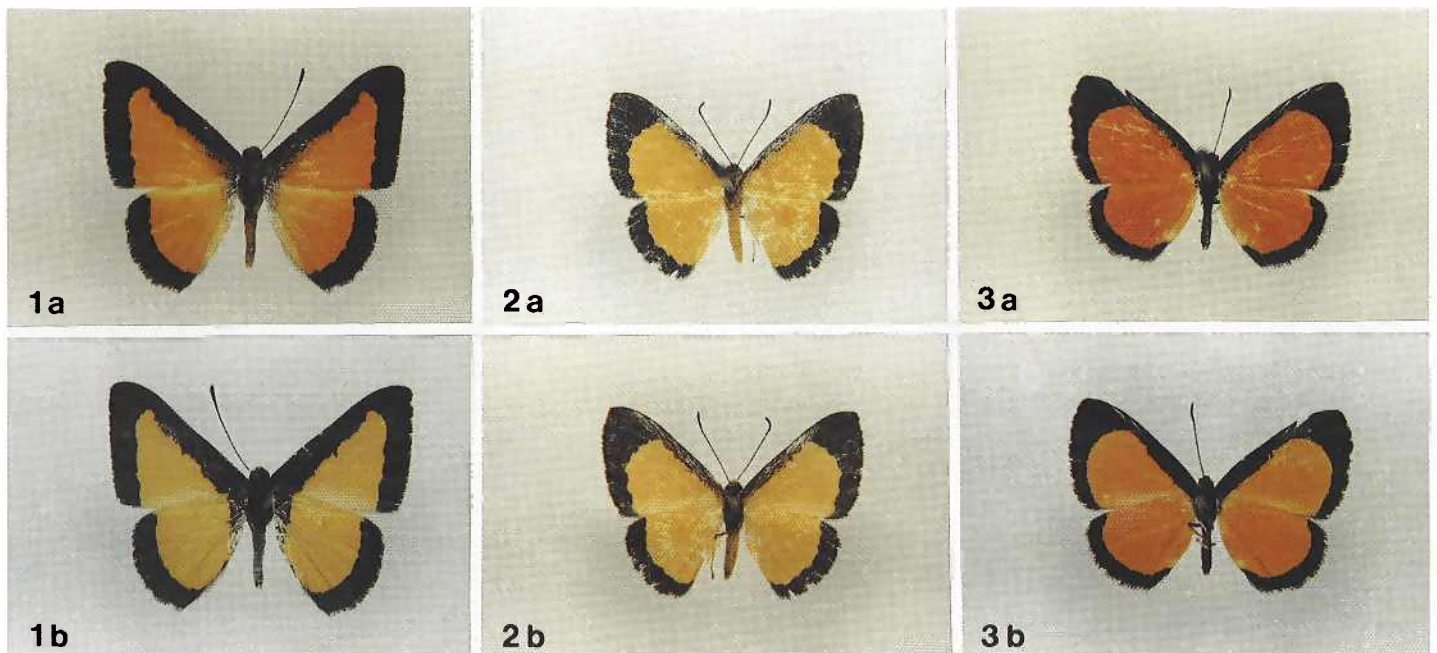


Fig. 1-3. 1. *Mesene babosa* Hall & Willmott, holotype male: a) recto; b) verso. 2. *Mesene citrinella* Hall & Willmott, holotype male: a) recto; b) verso. 3. *Mesene cyneas* (Hewitson, 1874), Ecuadorian male: a) recto; b) verso.

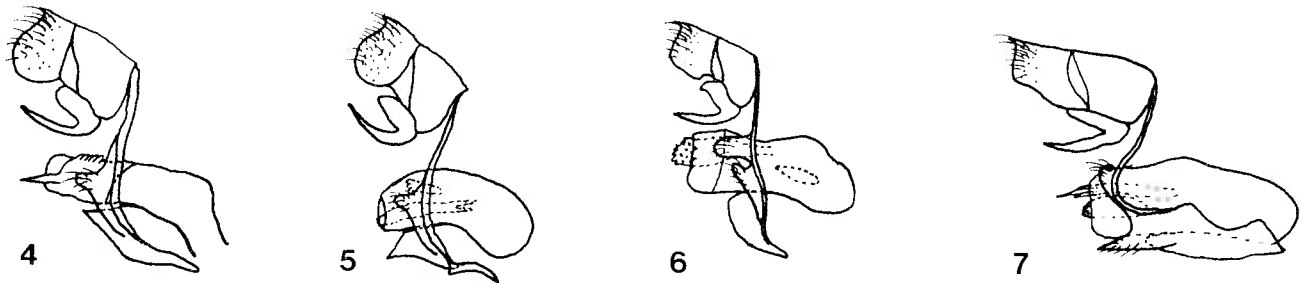


Fig. 4-7. Male genitalia, lateral view: 4. *Mesene babosa* Hall & Willmott. 5. *Mesene citrinella* Hall & Willmott. 6. *Mesene silaris* Godman & Salvin, 1878. 7. *Mesene leucopus* Godman & Salvin, [1886].

Lorenzo, La Punta, 300m, 21 Jun 94 (J. P. W. Hall). To be deposited in the BMNH.

**Paratypes:** 3 ♂, same data as above (1 ♂ to be deposited in the USNM, 2 ♂ deposited in the collection of the authors).

**Etymology.**— The name is derived from the Latin word "citrus", meaning citrus tree, with reference to the lemon yellow coloration of this species.

**Diagnosis.**— *Mesene citrinella* n. sp. is most easily distinguished from similar species (mentioned above) by the entirely yellow thorax, abdomen, palpi and frons. The yellow areas of the wings are much more extensive than in *M. silaris* and *M. leucopus*, and its rounded shape is obviously different to that of *M. babosa*. Again, there exist clear genitalic differences in the shape of the valvae and pedicel, and internal aedeagus morphology (see Fig. 4-7).

**Discussion.**— This species was encountered only at a single perching site in a ridgetop light gap, a bush about 6m high. Each afternoon from 1600-1730h, with remarkable regularity, several individuals could be found flying quite slowly at a fixed height from the ground. Individuals always perched under the same few leaves with their wings open.

In the Zoologische Museum, Humboldt Universität, Berlin, Germany, there is a female *Mesene* specimen curated as *Synargis cyneas* (Hewitson, 1874) from Chiriquí, Panama, which looks very much as though it could be the female of *M. citrinella* n. sp. Although it does closely resemble female *S. cyneas*, it differs in having a totally yellow thorax and abdomen, "scalloped" distal edges of the forewing recto yellow area, and lacks the black border which extends halfway along the anal margin. These are all characteristics of *M. citrinella*, and it is thus possible that this species is more widely distributed, from Costa Rica and Panama to western Ecuador.

***Mesene cyneas* (Hewitson, 1874), n. comb.**

Fig. 3a,b

*Nymphidium cyneas* Hewitson, 1874

*Nymula cyneas* (Hewitson, 1874).— Stichel, 1911

*Synargis cyneas* (Hewitson, 1874).— Hemming, 1967

During a recent visit to Ecuador we captured two specimens which looked and behaved just like a species of *Mesene*, in an

east Andean cloudforest site at 1350m. At the time we were also aware that these specimens were reminiscent of the taxon *cyneas* described by Hewitson in 1874 (illustrated by D'Abrera, 1994: 1009; incorrectly figured as a male). This species was described in *Nymphidium* on the basis of a female from Bolivia, and subsequently moved into the genus *Nymula* Boisduval, [1836] (now considered a synonym of *Synargis* Hübner, [1819]) by Stichel (1911), who placed it in an *incertae sedis* section, uncertain of its affinities. A search through the collections of the BMNH uncovered two male specimens similar to ours, curated as female *Mesene celetes* Bates, [1868]. These specimens are both from Chanchamayo, Peru, and are slightly larger than Ecuadorian specimens. The patterns of all these male specimens are identical to that of the female *M. cyneas* type and other similar female specimens, but males are orange while females are pale yellow. This species is apparently very rare, an inhabitant of cloudforests, and is known so far from Ecuador to Bolivia. Dissection of the male confirmed that this species belongs in the *Symmachiini* Bates, 1859, as defined by Harvey (1987), since it possesses androconial patches on the anterior margins of abdominal segments 4, 5 and 6. This arrangement is characteristic of *Mesene*, as are the genitalia and external morphology.

#### ACKNOWLEDGEMENTS

We would like to thank Philip Ackery for giving us access to the collections and allowing us to photograph specimens at the Natural History Museum, London. We are very grateful to Matthias Nuß, graduate student at the Zoologische Museum, Berlin, for showing us around the collections, allowing us to borrow abdomens of type specimens, and providing us with food, accommodation, camera and advice during our brief visit. We thank INEFAN and the Museo Nacional de Ciencias Naturales for arranging the necessary permits for research in Ecuador, and the Department of Zoology, Cambridge University, for providing a grant from the Balfour-Browne Fund to assist KRW with the costs of field work.

This is Florida Agricultural Experiment Station Journal Series number R-04798.

#### LITERATURE CITED

**D'Abrera, B.**

1994. *Butterflies of the Neotropical Region, Part VI. Riodinidae*. Victoria, Australia: Hill House. Pp. 880-1096.

**Brévignon, C., and J.-Y. Gallard**

1993. Description de nouveaux Riodinidae provenant de Guyane Française. *Bull. Soc. Sci. Nat. (Paris)*, 77:20-24.

**Harvey, D. J.**

1987. *The Higher Classification of the Riodinidae (Lepidoptera)*. Austin: Univ. Texas (Ph.D. Dissertation). 216pp.

**Hemming, A. F.**

1967. The generic names of the butterflies and their type-species (Lepidoptera: Rhopalocera). *Bull. Br. Mus. (Nat. Hist.), Ent.* (London), Suppl. 9:1-509.

**Stichel, H.**

1911. Lepidoptera Rhopalocera. Fam. Riodinidae. In *Genera Insectorum*, 112 (B):239-452. Brussels: P. Wytzman.