

***Dirphia carimaguensis*,**
a new Hemileucinae from the Eastern Plains
of Colombia (Lepidoptera: Saturniidae)

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Abstract: A new species of the genus *Dirphia* is described from the Eastern Plains of Colombia. *Dirphia carimaguensis* new species belongs to the group of *D. tarquinia*. Within this group, it is closely related to: *D. tarquinia*, *D. lichyi*, and *D. barinasensis*, and may be separated from these species by its dull and light colour pattern, the brownish hindwings, and the shape of the sclerotized transtilla plate of the ♂ genitalia. The ♂ holotype and ♀ allotype are deposited in the Institute of Natural Sciences (ICN-MHN) of the Colombian National University, Santafé de Bogota, Colombia.

Résumé: Une nouvelle espèce du genre *Dirphia* est décrite des plaines orientales de Colombie. *Dirphia carimaguensis* nov. species appartient au groupe de *D. tarquinia*. A l'intérieur de ce groupe, elle est proche de *D. tarquinia*, *D. lichyi* et *D. barinasensis*, dont elle peut être séparée par la coloration très claire et terne des spécimens, les ailes postérieures brunes, ainsi que par la forme de la plaque ventrale sclérifiée de la transtilla des genitalia ♂. L'holotype ♂ et l'allotype ♀ sont déposés à l'Institut des Sciences Naturelles de l'Université Nationale de Colombie (ICN-MHN), Santafé de Bogota, Colombie.

Resumen: Se describe una nueva especie del genero *Dirphia* de los Llanos Orientales de Colombia. *Dirphia carimaguensis* nov. species pertenece al grupo de *D. tarquinia*. Dentro de ese grupo, esta relacionada con *D. tarquinia*, *D. lichyi* y *D. barinasensis*, de las cuales se puede diferenciar por la coloracion general mas clara, las alas posteriores café, asi que por la forma de la placa ventral de la transtilla en los genitalia ♂. El holotipo ♂ y el allotipo ♀ estan depostados en el Instituto de Ciencias Naturales de la

Zusammenfassung: Eine neue Art der Gattung *Dirphia* wird aus den östlichen Ebenen von Kolumbien beschrieben. *Dirphia carimaguensis* nov. species gehört zur Gruppe um *D. tarquinia*. Innerhalb dieser Gruppe ist die neue Art nahe verwandt mit *D. tarquinia*, *D. lichyi* und *D. barinasensis*, und kann von diesen unterschieden werden durch ihre helle Musterung, die dunkleren Hinterflügel und im männlichen Genital durch die Form der Transtilla. Männlicher Holotypus und weiblicher Allotypus werden an das Institute of Natural Sciences (ICN-MHN) der Colombian National University, Santafé de Bogota, Kolumbien gelangen.

Key Words: Orinoco bassin, Eastern Plains, Savannas, Colombia, *Dirphia*, *carimaguensis*, new species, taxonomy, Neotropical entomofauna.

Introduction

The genus *Dirphia* HÜBNER, 1819 (“1816”) originally was erected for four species: *Phalaena Attacus Tarquinia* CRAMER, 1775, *D. acidalia* HÜBNER, 1819 (“1816”), *Phalaena Attacus Speciosa* CRAMER, 1777 and *Phalaena Attacus Agis* CRAMER, 1775, although the latter ones are now included in other genera. It actually comprises about 40 medium-sized species (LEMAIRE 1996, LEMAIER 2002), mostly represented in South America with a clear preference for the Andean biogeographic province. They are represented in a wide range of habitats, from dry deciduous forests and savannas to wet and cloudy forests up to 2700m altitude.

Two main morphs may be distinguished within the genus. As stated by LEMAIER (2002), the group of *D. avia* (STOLL, 1780) shows an almost constant similarity with species of *Periphoba* HÜBNER, 1820 (“1816”) and other unocellate Hemileucinae. In some cases, the classification in *Dirphia* rather than in *Periphoba* is chiefly based on genitalia characters. The group of *D. tarquinia* is more characteristic, due to the Y-shaped discal spot on the forewings, a reminiscent of the *Cerodirphia* MICHENER, 1949 in the group of *Cerodirphia speciosa*, which contrasts with the dark median area (LEMAIRE 2002).

Seventeen species were listed by LEMAIER (2002) as related to *D. tarquinia*, an additional one was recently described by Meister & Wenczel (2002). This last species, *D. barinasensis* MEISTER & WENCZEL, 2002, is closer to

D. tarquinia and *D. lichyi* LEMAIRE, 1971 than to any other species of the group. The three relatives form a complex of relatively large species distributed north to the Amazonian region, i.e. from the Guyanas to the Caribbean coastal region and the north of the Orinoco basin in Venezuela. The species described in this paper probably represents this complex in the western part of the Orinoco Llanos.

***Dirphia carimaguensis* DECAËNS, BONILLA, & NAUMANN new species**

Holotype ♂: Colombia, Meta department, Carimagua research station, 170m, at the public light of the station, iv 1995, leg. T. Decaëns in coll. T. Decaëns (genitalia prep. T. Decaëns # 123).

Paratypes (10 ♂♂, 8 ♀♀, all from two different localities in Colombia: 1 Meta department, Carimagua research station, 170m, different dates and collectors; 2 - Casanare department, Orocué, 150m, UV light, viii 2002, leg. T. Decaëns). Allotype ♀: Carimagua, UV light, vii 1999, leg. T. Decaëns & D. Bonilla in coll. T. Decaëns (genitalia prep. T. Decaëns # 126); 2 ♂♂, same data as the allotype; 2 ♂♂, Orocué, in coll. T. Decaëns; 1 ♂, Orocué, in coll. U. Brosch; 4 ♂♂, Carimagua, vii, ix and xi 1995, at public lights, leg. T. Decaëns in coll. F. Meister (genitalia prep. F. Meister # 60/02, 61/02); 1 ♂, Carimagua, viii 1995, leg. T. Decaëns in coll. S. Naumann (genitalia prep. S. Naumann # 671/01); 2 ♀♀, Carimagua, v 1993 and viii 1995, leg. T. Decaëns in coll. T. Decaëns; 1 ♀, same data as allotype, in coll. T. Decaëns; 1 ♀, Carimagua, iv 1996, leg. T. Decaëns in coll. U. Brosch; 2 ♀♀, Carimagua, xi 1995 and vii 1996, at public lights, leg. T. Decaëns in coll. F. Meister; 1 ♀, Carimagua, viii 1995, leg. T. Decaëns in coll. S. Naumann.

Type deposition: The holotype and allotype will be donated to the Institute of Natural Sciences (ICN-MHN) of the Colombian National University, Santafé de Bogota, Colombia (registration # ICN-L 17504). Paratypes will be deposited in the Muséum national d'Histoire naturelle of Paris (1 pair, donation # 1085), collections of T. Decaëns (3 ♂♂ and 2 ♀♀), S. Naumann (1 pair), U. Brosch (1 pair), and F. Meister (4 ♂♂, 2 ♀♀).

Etymology: This species is named in reference to the type locality, the research center of Carimagua, Meta, Colombia.

Fig. 1: *Dirphia carimaguensis* new species, holotype ♂ (dorsal, wingspan 78 mm).

Fig. 2: *Dirphia carimaguensis* new species, allotype ♀ (dorsal, wingspan 104 mm).

Fig. 3: *Dirphia carimaguensis* new species, holotype ♂ (ventral).

Fig. 4: *Dirphia carimaguensis* new species, allotype ♀ (ventral).

Fig. 5: *Dirphia carimaguensis* new species, paratype ♀ (dorsal, wingspan 106 mm) (Colombia, Meta Department, Carimagua Research Station, 150m, at public lights, v 1993, leg. T. Decaëns in coll. T. Decaëns).

Fig. 6: *Dirphia tarquinia* (CRAMER, 1775), ♂ (dorsal, wingspan 78 mm) (French Guyana, road of Cacao, reared on *Robinia* by J. Ciseski, emerged i 2000, leg. J. Ciseski in coll. T. Decaëns).

Fig. 7: *Dirphia tarquinia* (CRAMER, 1775), ♂ (dorsal, wingspan 73 mm) (same data).

Fig. 8: *Dirphia tarquinia* (CRAMER, 1775), ♀ (dorsal, wingspan 87 mm) (same data).

Fig. 9: *Dirphia lichyi* LEMAIRE, 1971, ♂ (dorsal, wingspan 80 mm) (Venezuela, Aragua department, Cuao, viii 1994).

Fig. 10: *Dirphia lichyi* LEMAIRE, 1971, ♀ (dorsal, wingspan 115 mm) (same data).

Fig. 11: *Dirphia barinasensis* MEISTER & WENCZEL, 2002, paratype ♂ (dorsal, wingspan 79mm) (Venezuela, Barinas city, Edo Barinas, 180m, ex ova reared by B. Wenczel, emerged 09 iii 2000, leg. B. Wenczel in coll T. Decaëns).

Fig. 12: *Dirphia barinasensis* MEISTER & WENCZEL, 2002, paratype ♀ (dorsal, wingspan 102mm) (same locality, UV light, 17 iv 1998, leg. B. Wenczel in coll T. Decaëns).

Fig. 13: Well drained savanna vegetation and gallery forests of the Eastern Plains of Colombia.

Fig. 14: Flooded savanna vegetation and forest “island” of the Eastern Plains of Colombia.

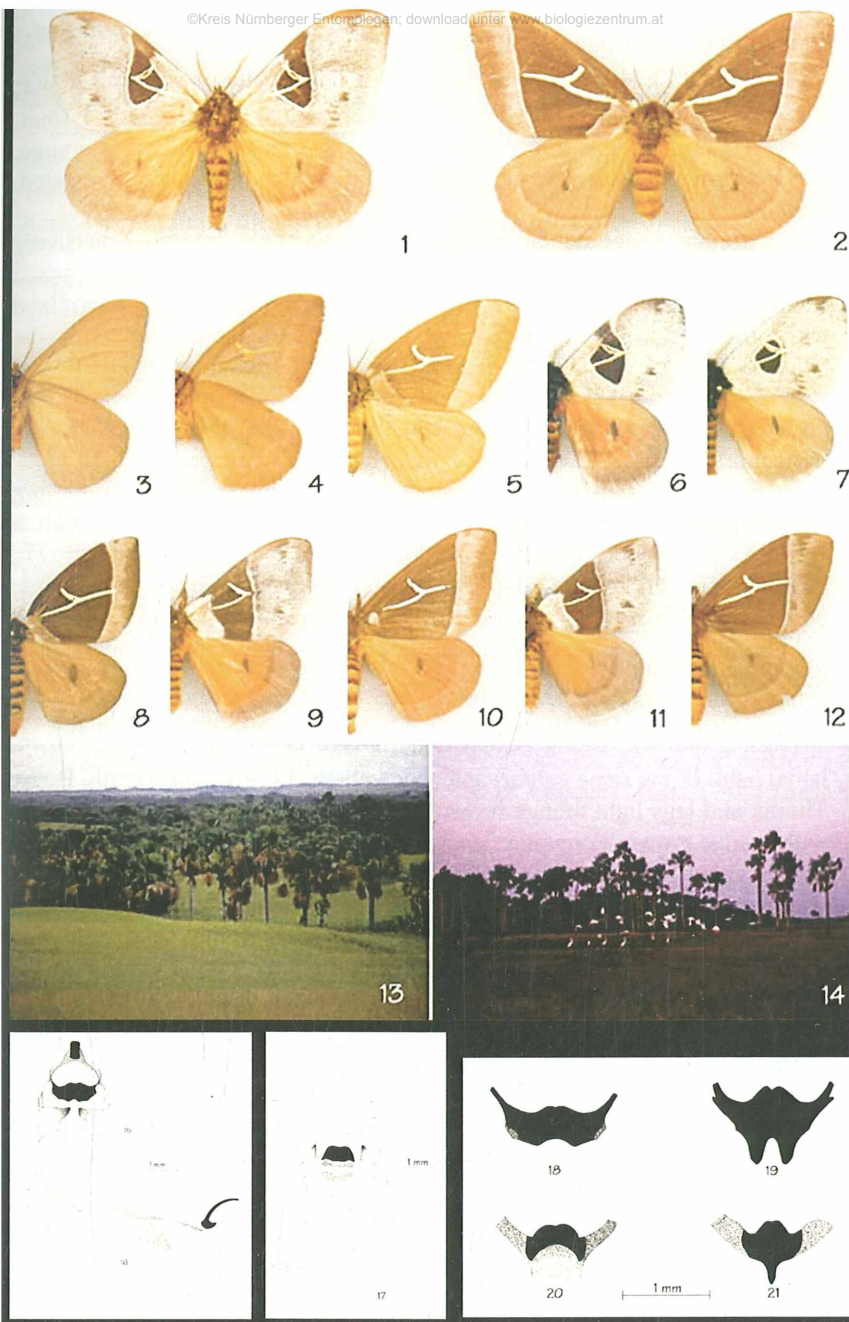
Genitalia drawings (figs. 15–21):

Fig. 15: *Dirphia carimaguensis* new species, holotype ♂ genitalia, ventral view aedeagus removed (genitalia prep. T. Decaëns # 123).

Fig. 16: lateral view of aedeagus.

Fig. 17: Genitalia of the allotype ♀ of *Dirphia carimaguensis* new species (genitalia prep. T. Decaëns # 126).

Fig. 18–21: Comparison of the transtilla ventral plates of the ♂ genitalia for *D. carimaguensis* and three related species. **Fig. 18:** *Dirphia carimaguensis* new species (genitalia prep. T. Decaëns # 127). **Fig. 19:** *D. barinasensis* (genitalia prep. T. Decaëns # 139). **Fig. 20:** *D. tarquinia* (genitalia prep. T. Decaëns # 130). **Fig. 21:** *D. lichyi* (genitalia prep. T. Decaëns # 128).



Decaens-carimaguensis

Description: Wingspan: ♂♂ 80–86 mm, ♀♀ 102–110 mm.

♂ (figs. 1 and 2): Head: dark reddish brown, labial palpi of the same colour; antennae yellow, 11.3–12.0mm in length, maximal rami length 1.1mm. Body: Thorax and legs dark reddish brown; abdomen dorsally dull orange, dorsally ringed with brown. Forewing: length 40–42mm, elongated, rounded

apex, straight edge; dorsal background colour light brown, extensively suffused with light gray scales in the antemedian and marginal areas; submarginal band distally irregular, with scarcer light scales, intermixed with brown in a variable extent; median area dark brown, lighter in the neighbourhood of the costa, reduced to a sub-triangular window that systematically reaches the costa but never the inner margin; ante- and postmedial lines whitish, edging the median area, the former sharply turned to the apex below the costa, the later largely preapical (17–18 mm); Y-shaped discal spot white, peduncle 1–4 mm, lower branch 9–12 mm over-hanging the inner line (1–5 mm), upper branch 5–6 mm with a conspicuous brown streak; underside uniformly light orange brown; margins grey. Hindwing: baso-median and postmedian areas dull orange; postmedial line brown; submarginal band greyish brown, suffused with light scales in its anal quarter; discal spot narrow, light brown; underside as in forewings.

♀ (figs. 3 and 4): Strong sexual dimorphism. Head: light orange brown, labial palpi of the same colour; antennae yellow, 12.5–14.2 in length. Body: Thorax and legs light orange brown; abdomen dull orange, dorsally dinged with orange brown. Forewing: length 52–58.5 mm; background colour light brown, slightly darker in the median area; antemedian area narrow, suffused with light pink scales; median area large and contrasting; postmedian area narrow, suffused with light pink scales on the submarginal band; ante- and postmedial lines white, the former oblique, the later almost parallel to the outer margin and preapical (11–12 mm); Y-shaped discal spot white, very large, reaching both the ante- and postmedial lines, peduncle 10–11 mm, lower branch 13–16 mm, upper branch 5–7 mm without inner streak; underside uniformly light orange brown. Hindwings: almost uniformly light orange brown; postmedial line indistinct, only slightly darker than the background colour; postmedian area concolourous to slightly lighter than the baso-median area; discal spot variable, from narrow to large, slightly darker than the ground colour; underside as in forewings.

♂ **genitalia** (fig. 18): Almost similar structure as the genitalia of *D. tarquinia*, but with significant differences: uncus simple and apically downcurved; ventral plate of the transtilla large and sclerotized; lateral arms posteriorly as long as the uncus apex; valves short and lobed, posteriorly fused with the lateral arms; juxta membranous. Aedeagus very large; vesica well developed, bifurcated, the upper branch with a strong curved hook-like cornutus, the lower one apically sprinkled with spiculae.

♀ **genitalia** (fig. 19): Similar as for *D. tarquinia*. Lamella antevaginalis relatively narrow; lamella postvaginalis with a large rounded sclerotized median shield; an- and postapophyses very long and subequal; ductus bursae and ductus seminalis membranous; corpus bursae narrow in its posterior half, very large in its anterior half.

Immature stages: Unknown.

Geographical distribution: To date, *D. carimaguensis* is known from the village of Orocué and the research station of Carimagua, two localities located 50 km away from each other on both sides of the Rio Meta. Both areas are included in the so called Llanos of the Orinoco basin, which correspond to a broad savanna area that covers the north-east of Colombia (i.e. the Eastern Plains) and the south-west of Venezuela. Natural vegetation slightly differs between both sites: well drained grassy savanna with gallery forests in Carimagua (fig. 16); flooded savanna (“esteros”) with forest “islands” and gallery forests in Orocué (fig. 17). These vegetation types are characteristic of the Eastern Plains of Colombia where they cover very large areas, so geographical distribution of *D. carimaguensis* is likely to be wider than actually known. On the other hand, we actually lack natural history data to specify if this species is rather associated to savanna or gallery forest vegetation.

Diagnosis: *D. carimaguensis* is nearest to *D. tarquinia* and *D. barinasensis* than to any other species of the group, although also closely related to *D. lichyi* (figs. 7–12). The extension of the ♂ forewing median area represents an intermediate between *D. tarquinia* and *D. lichyi*, thus resembling to some ♂♂ of *D. barinasensis* (e.g. the paratype illustrated by MEISTER & WENCZEL 2002: p. 24, fig. 3). On the other hand, ♀♀ are closer to *D. tarquinia*, due to the systematic presence of the light antemedian area. The species can also be identified by the general colour pattern of both sexes,

which is much duller and lighter with less orange parts than in the other three related species.

♂ genitalia, although very similar for species of the group, show specific characters in the shape of the transtilla ventral plate (MEISTER & WENCZEL 2002). In the case of *D. carimaguensis*, genitalia resembles much more that of *D. barinasensis*, due to the large and strongly sclerotized transtilla (figs. 20–23). Although slight individual variations were observed (e.g. between figs. 18 and 20), the extent of the sclerotized structure of the ventral plate of the transtilla differed from *D. barinasensis* by its lower longitudinal development (cf. figs. 20 and 21).

The four related species form an interesting complex that is distributed in the North of South America: *D. tarquinia* is known from the Guyanas region, *D. lichyi* from the coastal region of Venezuela and *D. barinasensis* from the foothills of the Venezuelan mountains. *D. carimaguensis* thus may represent this complex in the open savanna areas of the western Orinoco basin. Future distribution data will be necessary to specify the exact distributional relationships between these species, and especially between *D. carimaguensis* and *D. barinasensis*.

Acknowledgements: The authors wish to thank N. Betancourt and G. Escobar who discovered the first ♀ specimen on a corridor wall of Carimagua's laboratories, J.J. Jiménez and all the staff of the Carimagua Research Station for their help and friendship, F. Meister for helpful discussions, B. Wenczel and J. Ciseski for kindly providing specimens of *D. barinasensis* and *D. tarquinia* for comparison, and U. Brosch for useful comments on a preliminary version of this paper.

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Zeitschrift/Journal: [Galathea, Berichte des Kreises Nürnberger Entomologen e.V.](#)

Jahr/Year: 2004

Band/Volume: [15 Supp](#)

Autor(en)/Author(s): Decaens Thibaud, Bonilla Diego, Naumann Stefan

Artikel/Article: [Dirphia carimaguensis, a new Hemileucinae from the Eastern Plains of Colombia \(Lepidoptera: Saturniidae\) 13-21](#)