

***Rhopalodes lecorrei*, a new moth species from French Guiana (Lepidoptera: Geometridae: Larentiinae: Trichopterygini)**

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Received 12 September 2011, revised 3 November 2011

Abstract. A new species of geometrid moth, *Rhopalodes lecorrei* sp. nov. is described from French Guiana. The wing pattern, venation, and male and female genitalia of the new species are described, illustrated, and compared to allird species.

Key words: Geometridae, Trichopterygini, new species, *Rhopalodes lecorrei*.

INTRODUCTION

Guenée (1858: 360, pl. 20, fig. 2) described a new genus and new species, *Rhopalodes castniata* Gn., basing on a single female specimen from Brazil. He paid much attention to the unique character of antennae, which are cylindrical, thickening from base to apex like in Castniidae and ending in a pointed tip just like in some Hesperiiidae (Rhopalocera). In the descriptions of the following genera, *Sauris* Guenée and *Remodes* Guenée (Guenée, 1858: 361–364), the author paid attention to very long palpi of moths, to the presence of a ‘lobe appendiculaire’ in the males of the described species, but mentioned also the presence of one pair of spurs in the hind legs of *Sauris* (like in *Rhopalodes*) and the absence of spurs in *Remodes*.

Snellen (1874: 77, pl. 6, fig. 2) presented the first description of a male from another species, *Rhopalodes patrata* Snellen, corrected one error by Guenée (concerning hind legs of *Rhopalodes*, which bear two pairs of spurs) and paid attention to the analogous shape of the antennae in the oriental species of *Remodes*.

The publications on further species, *Rhopalodes lobophoraria* Oberthür from Peru (Oberthür, 1881: 37, pl. 10, fig. 10), *Rhopalodes argentina* Berg, 1883 and *R. muscosaria* Berg, 1885 from Argentina (Berg, 1883: 164, 1885: 273) were fairly detailed, whereas the following descriptions by Dognin and Warren concentrating on the wing pattern (*Lobophora ebriola* Dognin, 1892, *Lobophora? parecida* Dognin, 1892, *Lobophora rosula* Dognin, 1892, *L. ligereza* Dognin, 1893 from South Ecuador) resulted in that *Rhopalodes seminivea* Warren, 1900 from Bolivia and *R. variegata* Warren, 1900 from South Brazil appeared later synonymous with, respectively, *R. ligereza* and *R. argentina* (Scoble, 1999).

Later on, Warren (1904, 1907), Bastelberger (1908a, 1908b), and Dognin (1911, 1913 (as *Anaitis subrufata*), 1923) added descriptions of new species of *Rhopalodes* from Peru, Bolivia, Paraguay, Ecuador, and Colombia. Prout (1910) described one additional species from Argentina and commented the build of antennae within the genus, noting that their subapical thickening is not universal in *Rhopalodes*. Warren (1900, 1904, 1907) classified *Rhopalodes* in his subfamily Trichopteryginae.

A total of 16 species are now grouped within *Rhopalodes* (Scoble, 1999). A large anal lobe in the modified male hind wing (although small in *R. otophora* Prout, 1910) and fine pointed antennae are distinguishing characters for the genus. The species of the southern group, inhabiting Argentina, Paraguay, and Bolivia (*P. argentina*, *P. muscosaria*, *P. otophora*), appear smaller in size and predominantly grey-patterned on wings, the Andean complex of the species (now mostly pictured on the BOLD taxonomy homepage (<http://www.boldsystems.org/views/taxbrowser>) (visited 31.07.2011)) and that of the Simpsonian Institution (USNM Geometridae Primary Type Specimens, http://entomology.si.edu/Lepidoptera/geos/Collections_Leps_GeoTypes.html (visited 31.07.2011)): *P. nigrifasciata* Bastelberger, *P. patrata*, *P. subrufata* Dognin in Colombia; *P. ebriola*, *P. ligereza*, *P. parecida*, *P. rosula*, and *P. uniformis* Dognin in Ecuador; *P. concinna* Dognin, *P. lobophoraria*, *P. perfusa* Warren, and *P. vexillata* Bastelberger in Peru) being larger in measurements and more variegated in pattern, including rosy or red elements on wings. The olive green pigment, which is often prevalent in the ground colour of wings, seems apt to fading due to moisture and/or during time in collections. The new taxon *Rhopalodes lecorrei* shares its variegated facies with montane species.

Recently, Parra & Santos-Salas (1991) redescribed *Rhopalodes*, adding genitalic sketches for two species (*R. argentina* and *R. castniata*). Piñas (2006) pictured *R. patrata* Snellen and another, unnamed species from Ecuador. The former species is distinguished from the new one by the course of the antemedian border of the medial area of the forewing, slanted towards the tornus between the discal cell and the hind margin of the wing (compare pl. 6, fig. 2 in Snellen, 1874 and figs 256 and 257 in Piñas, 2006). It differs from the new species described below also in an incurved postmedial band, which is rectangularly indented at radial veinlets.

***Rhopalodes lecorrei*, sp. nov.**

Plate I, figures 1–7

Holotype: male, Fr. Guiana, Kaw Mts., 1.5 km SE Kouali Lounge, at light, 13-X-2006 (J. & V. Viidalepp leg.) (IZBE). *Paratypes*: 1 male, Fr. Guiana, Kaw Mts., Belizon rd., 26-XI-2002, at light (V. Soon leg.) // gen. prep. 7615 / (IZBE); 1 male, St-Laurent du Maroni / Piste Paul Ismand / PK 30. 3-II-86 // Guyane Francaise 1986 / Exped. H. Toulgoet / B. et J. Lalanne Cassou / Ch. Gibeaux; 1 male, Guyane Francaise 1989 / environs de Cayenne / H. de Toulgoet J. Navatte / B. et J. Lalanne Cassou // Piste de Kaw / PK 40 / 1-V-1989 // Photographed / for the

project / "Geometridae mundi"; 1 male, Guyane Francaise: Roura / environs de Coralle: 19.XII.1996 / piste du degrade correze, pk 0.1 / Récolte & coll. P. Kindl // [handwritten in blue on parchment paper] 19.12.96: 1 female, Guyane Francaise 1986 / Exped. H. de Toulgoet / B. et J. Lalanne Cassou / Ch. Gibeaux // St-Laurent du Maroni / Piste Paul Isnard / PK 61 4-II-86 // Photographed for the project "Geometridae mundi" / 5013 spec.; 1 female, Guyane Francaise / Piste Coralle P.K.2 / 22.IV.93 J. Navatte H. de Toulgoet // Photographed / for the project "Geometridae mundi" // gen. prep. 8295 / (all in ZSM). Holotype and one paratype deposited in coll. IZBE, now in Estonian University of Life Sciences, five paratypes in coll. Zoologisches Staatssammlung, München (ZSM).

DIAGNOSIS

The new species differs from *R. castniata* in wing shape (broader than in this species) and pattern, resembling *R. argentina* in facies and differing from both in male genitalic structures. *R. patrata* differs from *R. argentina* and *R. lecorrei* in lesser sclerotization of genitalia and absence of aedeagus appendix.

DESCRIPTION

Morphology: Male and female (Pl. I, figs 1, 5): wing span 31–33 mm, hind wing small, reaching the postmedial line at hind margin of forewing. Antennae thicker subapically, tip pointed, sickle-shaped (Pl. I, fig. 7). Palpi stout, black, with the 3rd segment grey, filiform, projecting about 1/3 length of eye diameter. Hind legs slender with two pairs of normal spurs. Venation of wings principally as described for the genus by Parra & Santos-Salas (1991: fig. 4), except that veins M_2 and M_3 in hind wing lie close and parallel to each other. Forewing with two accessory cells, while vein R_2 anastomoses with R_1 and then with R_{3-5} in a point of origin of R_5 ; M_1 from accessory cell, i.e. connate basally with R_{3-5} . Hind wing with Sc and fore margin of the discal cell running parallel and connected before the apex of discal cell by a quer bar formed by short stem of $R_1 + R_s$; Sc + R_s get warped and reach the apex of wing. Veins M_2 and M_3 are close and parallel to each other, CuA_1 and CuA_2 short and nearly perpendicular to anal margin of wing. The basal lobe is rocket-shaped (Pl. I, fig. 2).

Markings: Thorax dorsally greyish, metathorax with white transverse line, abdomen long, grey, posterior margins of tergites lined whitish. Forewing ground colour whitish grey (Pl. I, figs 1, 5), pattern greenish grey, except that the distalmost line of the medial field blackish and submarginal wavy line whitish grey. The black border of the medial field thin, but thickened dentate inwards along veins, darkest between veins M_1 and M_3 , and broadest between CuA_1 and An. Basal field with four wavy transverse lines, inner and outer borders of the medial area triple. Distal field, between vein M_3 and tornus suffused brown. Fringe short, grey, with

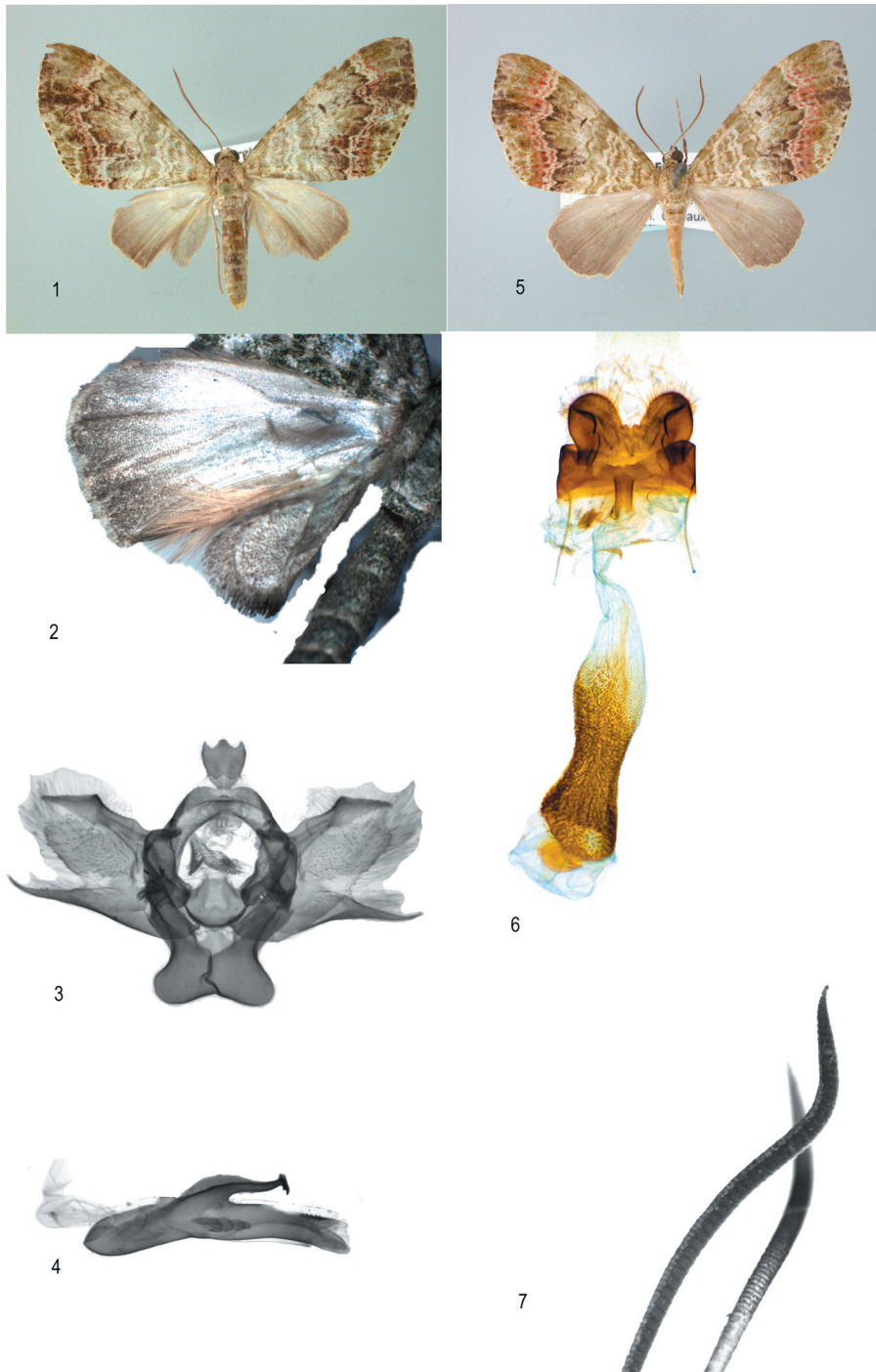


Plate I. *Rhopalodes lecorrei* sp. nov.: fig. 1: male paratype; fig. 2: lobed hind wing of male paratype; fig. 3: male genital armature, ventral aspect; fig. 4: aedeagus, lateral aspect; fig. 5: female paratype; fig. 6: female genitalia; fig. 7: antennae of male holotype.

paired blackish dots at vein ends. Hind wing, costal half light grey, glossy, smoothly darker distally. Costal half of discal cell bearing long thin hairscales; anal margin of wing re-folded dorsally and hiding a tuft of long greyish yellow hairscales. Anal lobe large (3/5 length of the anal margin of hind wing), concolorous with centre of hind wing. Fringe short, uniformly yellowish grey, at anal lobe longer, pale grey. Hind wing without any transverse line. Underside both wings dull grey, basally paler, distal and basal edges of medial field weakly indicated in forewing and discal spot darker grey in hind wing. Female with wing pattern as in male.

Male genitalia (Pl. I, figs 3, 4): heavily sclerotized, similar to those of *R. argentina* (compare Parra & Santos-Salas, 1991: figs 1–3) but differing in shape of trifold uncus, bilobed and shorter saccus, in configuration of juxta and its lateral appendages, and in valve costa, hunched at middle. Aedeagus 1.8 mm long, provided with long dorsodistal projection of specific shape. Aedeagus distally with a dentate carina. Distal abdominal segment not modified in male.

Female genitalia (Pl. I, fig. 6): Ovipositor lobes sclerotized, rounded like mouse ears. Segment A7 as a chitinous ring, posterior and anterior apophyses short. Ostium sclerotized short tubular, distal half of bursa copulatrix membranous, anterior half densely spined, fundus membranous.

Biology: Mr V. Soon and the author have collected specimens after sunset at light in an undisturbed rich tropical forest in the Kaw Mountains in southern French Guiana, about at 300 m above sea level. Moths are on wings from October to December, in February, April, and May.

Etymology: The new species is dedicated to Mr Frédéric Lecorre for his attempts to protect undisturbed forests on the Kaw Mountains, French Guiana.

DISCUSSION

Revision of Neotropical Trichopterygini, started by L. Parra and his co-authors on material from Chile, has shown that about a half of the larentiine genera in this fauna belong to the tribe Trichopterygini (Angulo & Casanueva, 1981; Parra, 1991). Analysis of literature (Porzecanski & Cracraft, 2005; Noonan & Wray, 2006) indicates that from the hotspot in the subtropical part of South America, components of the ancient fauna have radiated northward along the eastern part of the continent and along the systems of the Cordilleras and Andes. An investigation of looper moths of the genus *Pyrochlora* Warren yielded a similar pattern (Viidalepp, 2009; Viidalepp & Lindt, 2010) An analysis of the available material of *Rhopalodes* revealed the presence of one species, *Rhopalodes lecorrei* sp. nov., in French Guiana, characterized by heavily sclerotized genitalic structures like in *R. argentina*. The montane species compared differ from *R. argentina* and *R. lecorrei* in a lesser sclerotization of genitalia and in the absence of aedeagus appendix. *Rhopalodes patrata* possesses a large juxta provided with lateral

appendages, superficially similar to labides that characterize other larentiine tribes such as Cidariini, Asthenini, and Melanthiini. The relations between *Rhopalodes* and other trichopterygine genera are discussed in another publication (Viidalepp, in press).

ACKNOWLEDGEMENTS

The new species is named in honour of Mr Frédéric Lecorre for his attempts to protect rich tropical forests in the Kaw Mountains, French Guiana. Mr Villu Soon collected the specimen that induced the present study. Dr A. Hausmann kindly lent for study specimens from the collection under his curation (ZSM, Munich) Research grant No. 7682 from the Estonian Science Foundation is thankfully acknowledged.

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**Uus vaksikuliik *Rhopalodes lecorrei* sp. nov. Prantsuse
Guajaanast (Lepidoptera: Geometridae: Larentiinae:
Trichopterygini)**

Jaan Viidalepp

On kirjeldatud Villu Sooni ja autori poolt Prantsuse Guajaanast kogutud materjalist uus vaksikuliik. Lisaks leiti mõned määramata isendid ka C. Herbulot' kollektsioonist (nüüd Münchenis ZSM-i kollektsioonis). On esitatud valmikute ja nende genitaalarmatuuride kirjeldus ning fotod.