

## A new species of *Protilema Aurivillius, 1908* (Insecta: Coleoptera: Cerambycidae) from New Guinea

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### Abstract

*Protilema telnovi* sp. nov. from the Cyclops Mountains (Indonesia, Papua) is described as new for science and figured. A determination key to the genus *Protilema* is given.

### Zusammenfassung

*Protilema telnovi* sp. nov. von Cyclops Gebirge (Indonesien, Papua) wird neu für die Wissenschaft beschrieben und abgebildet. Ein Bestimmungsschlüssel für die Arten der Gattung *Protilema* wird beigefügt.

**Key words:** Lamiinae, Morimopsini, Indonesia, Papua, taxonomy, key

### Introduction

Only three endemic genera of the tribe Morimopsini Lacordaire, 1869 are known to inhabit New Guinea: *Protilema Aurivillius, 1908* and the monobasic *Protilemoides Kriesche, 1923* and *Spinocentruopsis Breuning, 1979*. The last genus was erroneously described again with the same name by MINET (1987), and seems to be closely related to, maybe conspecific with, *Protilemoides*, whose type was unknown to these authors.

Including the species described herein, the genus *Protilema* includes nine endemic wingless species with restricted distribution in mountainous areas. Seven of them occur in New Guinea, mostly in Papua, and the other two on the adjacent islands. The majority of the species were described from a few specimens and/or from imprecise localities; some types are damaged, missing some parts of the body, and others may be lost. Apart from BREUNING's monograph (1950) and subsequent descriptions (BREUNING, 1979; VITALI & MENUFANDU, 2010; WEIGEL, 2015), no further observations have been provided.

### Material and Methods

The genitalia were dissected, purified in a KOH-solution and mounted dry on a label pinned under the specimen. The nomenclature is according to EHARA (1954). The photos of the type were taken with a CMOS Camera mounted on a Keyence VHX 6000 digital microscope equipped with a VHX-S660E free-angle observation system, a VH-ZST 20-2000x double zoom objective, 2D/3D image stitching system and stacking system taking to 200 images at 2 million pixels of resolution, owned by the National Museum of Natural History of Luxembourg.

### Results

#### *Protilema telnovi* sp. nov.

**Holotype.** ♂, Indonesia, E. New Guinea, Papua Prov., Sentani, Cyclops mts., 02°31'S, 140°31'E, 600–860 m, 3.IV.2018, primary lowland rainforest, valley of montane river, leaf litter, D. Telnov leg., deposited in Naturkundemuseum Erfurt, Germany.

The holotype is missing the right protarsus.

The beetle was collected around midday in a deep layer of a semidry leaf litter accumulated at the base of large granite stones along a montane river (Fig. 6). This area was extensively searched after the discovery of the specimen, but no further examples were found (D. Telnov pers. comm.).

**Derivatio nominis.** This new species is dedicated to Dr. Dmitry Telnov, collector of the species, as well as explorer and enthusiastic entomologist, eminent specialist in Anthicidae and executive editor of the series "Biodiversity, Biogeography and Nature Conservation in Wallacea and New Guinea".

**Description.** Male; body length 11 mm.

Body opaque brown; labrum, palps and mandibular bases shiny chestnut-brown; mandibular apices black; antennomeres V–XI and tarsi reddish brown. Body covered with a fine pubescence incorporating mud; in



INDONESIA E, New Guinea, Papua  
Prov., Sentani, Cyclops mts, 02°31'S,  
140°31'E, 600-860 m, 03.IV.2018,  
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montane river, leaf litter, leg. D.Telnov

HOLOTYPE  
*Protilema*  
*telnovi mihi*  
det. F. VITALI 2018

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1



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Fig. 1. *Protilema telnovi* sp. nov., dorsal view (the black line represents 1 mm)

Fig. 2. *Protilema telnovi* sp. nov., lateral view (the black line represents 1 mm).

Fig. 3. Labels of the new species.

addition, antennomeres I-IV, legs and lobes of the elytral ridges covered with raised short black setae.

Head not reclined; labrum transverse, anteriorly bilobed, smooth except for a transverse row of fine points; forehead squared, with two large bulges in the middle; antennal tubercles very prominent, inflated, narrowly separated and leaving a fairly long parallel space between them; inter-antennal furrow deep; eyes coarsely faceted, strongly reniform; inferior eye-lobes only slightly wider than the upper ones, as long as cheeks.

Antennae eleven-segmented, reaching the apical sixth of the elytra; scape cylindrical, fairly bowed and strongly inflated at the inner apex; pedicel one-fifth as long as scape; antennomere III as long as scape, 2.5 times as long as IV; antennomere IV twice as long as pedicel; antennomere V more than one-half as long as scape; antennomeres VI-X progressively shortened; antennomere XI as long as IV (antennomere proportions according to the formula: 5.0: 1.0: 5.0: 2.0: 2.6: 1.75: 1.75: 1.6: 1.5: 1.3: 2.0).

Prothorax as long as wide, sub-cylindrical; feebly convex at apical and basal margins; sides armed with a blunt conical tooth; disc with an elongate tubercle in the middle and six similar tubercles (two basal, two lateral and two apical) arranged in a hexagonal shape around the median one. Scutellum extremely reduced, strongly transverse, nearly 3 times as wide as long.

Elytra elongate, parallel-sided, 1.8 times as long as wide at humeri, evidently wider than prothorax at base; base concave, humeri prominently lobed; sides with a lateral ridge formed of 10-11 lobes (the ridges are not symmetrical!) reaching the apex, vertically declivous laterally; apex separately acuminate forming a squared tooth; disc uneven, covered with sparse impressed points at the bottom of each depression.

Legs relatively long, sublinear; femora very weakly fusiform; pro- and mesotibiae feebly bowed; metatibiae slightly sinuate; tarsi narrow; metatarsomere I as long as V, nearly twice as II or III; claws widely divergent.

Ventral side smooth; procoxal cavities posteriorly closed, mesocoxal cavities exteriorly open; visible urosternites covered with fine pubescence.

Genitalia. Median lobe (Fig. 4) 2.4 mm long, light testaceous, slightly curved, restricted from base to apex, bilobed at apex, 0.8 times as long as the median struts. Tegmen (Fig. 5) 2.7 mm long, testaceous; ringed part 1.5 times as long as root, laterally geniculated, posteriorly converging and united for one-half of its length;

parameres without basal-piece, triangular, straight, dorsally slightly convex, densely covered with testaceous setae at the apex.

**Differential diagnosis.** Most of the species of the genus *Protilema* are known only from type specimens, and from one or the other sex; however, the distinctive elytral sculpture allows easy identification.

*Protilema telnovi* sp. nov. is characterised by small body size, inferior eye-lobes being nearly as long as cheeks, antennomeres I-IV with erect pubescence, antennomere III as long as scape and 2.5 times as long as IV, pronotum with raised pubescent tubercles, and elytra with lateral ridge fragmented into lobes reaching the apex, which is toothed.

Among its known congeners, the new species seems to be closely related to *P. papus* Vitali & Menufandu, 2010 from Waigeo Island (Indonesia, West Papua, Raja Ampat Is.). This species differs in the inferior eye-lobes being shorter than the cheeks, antennomere III scarcely shorter than the scape and nearly twice as long as IV, and the lateral ridge not reaching the apex.

All other congeners can be distinguished from the two aforementioned species in the lateral elytral ridge not being fragmented into tubercles.

Moreover, *P. rotundipennis* Breuning, 1947 from Ferguson Island (Papua New Guinea, D'Entrecasteaux Islands) differs from all its congeners in its crenulate elytral ridges and rounded elytral apex. Due to the latter character, it appears to be the most archaic species of the genus.

*P. olemehli* Weigel, 2015 from the Maoke Mountains (Indonesia, Papua) differs in the black integument, the glabrous antennae, antennomere III shorter than scape and 1.7 times as long as IV and the lateral ridge forming only two wide lobes.

*P. gigas* Aurivillius, 1908 from the Sattelberg Mountains (Papua New Guinea, Morobe) differs in the larger body size (~3 cm), the wider body, glabrous antennae and antennomere III being twice as long as scape.

*P. humeridens* Aurivillius, 1925 from Mount Bolan (Papua New Guinea, Morobe, Saruwaged Mountains) differs in antennomere III being scarcely longer than scape, and 1.5 times as long as IV, the elytra with long acute humeral teeth and the lateral ridge becoming dorsal in the apical fifth.

*P. montanum* Kriesche, 1923 from Schrader Range (Papua New Guinea, Enga, Sepik Mountains) differs in



Fig. 4. Median lobe (the black line represents 100  $\mu$ m), a – dorsal view, b – lateral view. Fig. 5. Tegmen (the black line represents 100  $\mu$ m), a – dorsal view, b – lateral view.

the inferior eye-lobes longer than cheeks and the antennae as long as the body.

*P. strandi* Breuning, 1940 differs in antennomere III being twice as long as scape, the elytral ridge dorsal, reaching the mid-length of the elytra, and the elytral disc with a longitudinal series of tubercles.

*P. granulorum* Breuning, 1942 differs in the shorter obtuse elytral teeth and the elytra with a basal ridge beside the scutellum and a longitudinal series of discal and sutural tubercles.

**Remarks.** The genus *Protilema* exhibits a relict distribution in mountain and hill areas (Fig. 7), where it shows

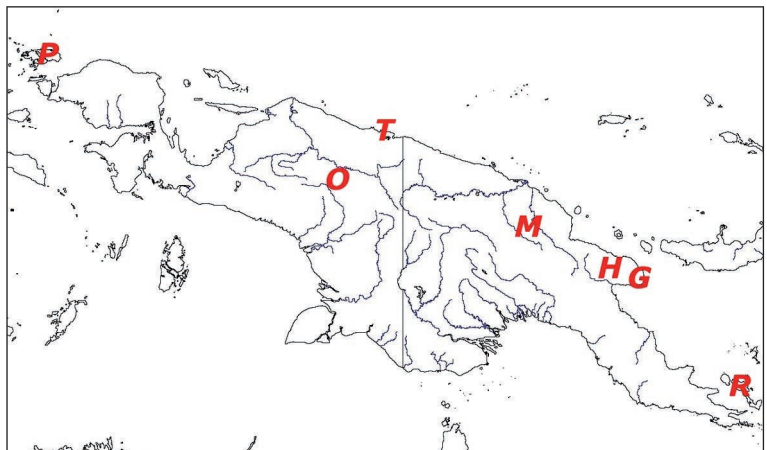
the same morphological adaptations (brachyptery, body granulation, antennal shortening) as the tribe Gyaritini. The genus presumably reached the islands adjacent to New Guinea during some glacial period, when these islands were connected to the New Guinea mainland, forming the Sahul Shelf (EARLE 1845). During this period, the distribution of *Protilema* is assumed to have been limited to the Central Range (New Guinea Highlands) and to the connected mountain ridges, not extension southwards. This hypothesis may explain its absence in Queensland, though Australia also was connected to the Sahul Shelf in the same epoch.

**Key to the genus *Protilema***

- 1 Elytra rounded at apex; 22 mm ..... *rotundipennis* Breuning, 1947
- Elytra truncated at apex ..... 2
- 2 Elytra with a straight lateral or dorsal ridge ..... 3
- Elytra with a lobed lateral ridge ..... 7
- 3 Elytral ridge short, located beside the scutellum; 17 mm ..... *granulosum* Breuning, 1942
- Elytral ridge reaching at least the elytral half ..... 4
- 4 Elytra ridge reaching the apex; 14 mm ..... *montanum* Kriesche, 1923
- Elytra ridge not reaching the apex ..... 5
- 5 Antennomere III scarcely longer than scape; 22 mm ..... *humericidens* Aurivillius, 1925
- Antennomere III twice as long as scape ..... 6
- 6 Body larger (29–31 mm); elytral ridge hardly reaching the apex ..... *gigas* Aurivillius, 1908
- Body smaller (21 mm); elytral ridge reaching the elytral half ..... *strandi* Breuning, 1940
- 7 Elytral ridge formed by two wide lobes ..... *olemehli* Weigel, 2015
- Elytral ridge formed by many small lobes ..... 8
- 8 Elytra ridge not reaching the apex; antennomere III nearly twice as long as IV; 15 mm .....
- ..... *papus* Vitali & Menufandu, 2010
- Elytra ridge reaching the apex; antennomere III 2.5 times as long as IV; 11 mm .....
- ..... *telnovi* sp. nov.



**Fig. 6.** Valley of montane river in Cyclops Mountains, Papua (near the locus typicus of *Protilema telnovi* sp. nov.) (photo: L. Wagner).



**Fig. 7.** Distribution of *Protilema* species in New Guinea. G: *P. gigas*; H: *P. humericidens*; M: *P. montanum*; O: *P. olemeihli*; P: *P. papus*; R: *P. rotundipennis*; T: *P. telnovi* sp. nov., *Protilema strandi* and *P. granulosum* were indicated generally from “New Guinea” without specific localities.

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