

## A new genus and species of Physocrotaphini from New Guinea (Coleoptera: Carabidae: Anthiinae)

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Anichtchenko A., Sciaky R. 2017. A new genus and species of Physocrotaphini from New Guinea (Coleoptera: Carabidae: Anthiinae). *Baltic J. Coleopterol.*, 17(2): 129 - 135.

*Anguloderus* gen. nov. and *mirabilis* n. sp. from Western Papua (Indonesia) is described. The new genus is distinguished from all known Physocrotaphini genera by a plurisetose ligula, combined with very large body size and very peculiar shape of pronotum. A new key to all the known genera of Physocrotaphini is proposed, along with some data about the mysterious genus *Holoponerus* Fairmaire, 1883.

Key words: Coleoptera, Carabidae, Anthiinae, Physocrotaphini, Western Papua, Indonesia, new genus, new species

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### INTRODUCTION

The rather small tribe Physocrotaphini is distributed in the Oriental and Australian regions from India, through the Indonesian Archipelago to north-eastern Australia. The tribe includes five genera with about 42 species (Moore 1998; Baehr 2004, 2005; Sabu *et al.* 2008; Anichtchenko 2017), of which 34 species belongs to the large genus *Pogonoglossus* Chaudoir, 1862. This last genus includes species of very different size and shape. Some are so aberrant that in future this genus will probably need to be split into different subgenera or even

genera (Baehr 2005). Most of the species of this tribe are only known from few or even single specimens.

Therefore, the discovery of a new physocrotaphine species in New Guinea is not too surprising. In many morphological characters the new species is outstanding and not comparable to any of the described species of Physocrotaphini. Therefore, a new genus is being described to accommodate this new species.

From New Guinea, so far 13 species of the genus *Pogonoglossus* and three species of the genus *Schuelea* Baehr, 2004 have been described (Darlington 1968, Baehr 1987, 1995, 2004, 2005).

## MATERIAL AND METHODS

Measurements: body length, from anterior margin of clypeus to apex of elytra along suture; length of pronotum, along midline; width of pronotum, at widest point; length of elytra, from his base to apex along suture; and width of elytra, at widest point. All measurements are reported in millimeters.

Abbreviation of specimen depository:  
RSC - Riccardo Sciaky Collection, Milano (Italy).

High-resolution habitus images of new genus and species are available at the "Carabidae of the World" web project (<http://www.carabidae.org>).

## TAXONOMY

Since Moore (1998) provided a detailed analysis of the tribe, and a key to the genera was recently proposed by Anichtchenko (2014), only a modified key to genera of the tribe is added here.

### Key to the genera of the tribe Physocrotaphini

1. Ligula prominent and distinctly longer than paraglossae  
*Helluodes* Westwood, 1846
- Ligula truncate and distinctly shorter than paraglossae 2
2. Ligula plurisetose (12 long setae).....  
.....*Anguloderus* **gen. n.**
- Ligula bisetose 3

3. Ligula stout and of uniform width from base to apex 4
- Ligula slender and gradually widening towards apex 5
4. Mentum with bifid median tooth; labrum with anterior angles rounded; anterior margin straight.....  
.....*Physocrotaphus* Parry, 1849
- Mentum with simple, long median tooth; labrum with anterior angles pointed, asymmetrical, right angle longer than the left; anterior margin with deep triangular incision.....  
.....*Foveocrotaphus* Anichtchenko, 2014
5. Antennae longer, extending beyond the base of pronotum by 2 - 3 antennomeres; dorsal and ventral surfaces of antennomeres 5-11 devoid of impressions at base; antennomeres 2-11 with apical ring of elongate setae; mandibles long, narrow and feebly arcuate; anterior transverse sulcus of pronotum feebly developed. Clypeus bisetose .....  
.....*Pogonoglossus* Chaudoir, 1862
- Antennae shorter, extending beyond the base of pronotum by only the last; dorsal and ventral surfaces of antennomeres 5-11 bi-impressed at base; antennomeres 2-11 without apical ring of setae; mandibles short, wide and feebly arcuate; anterior transverse sulcus of pronotum very deep. Clypeus with 4-5 setae on either side in addition to the erect pilosity....  
.....*Schuelea* Baehr, 2004

### *Anguloderus* new genus

Type species *Anguloderus mirabilis*, sp. nov., by monotypy.

**Diagnosis.** In overall appearance similar to *Foveocrotaphus*, *Schuelea* or some large species of *Pogonoglossus*. These genera can

be diagnosed easily by median tooth of mentum, with apex simple in *Foveocrotaphus*, *Shuelea* and *Pogonoglossus*, while *Anguloderus* **gen. n.** has bifid apex. In the shape of mentum, the new genus is similar to the genus *Physocrotaphus* Parry, with a single species (*P. ceylonicus* Parry, 1849) from Sri Lanka, but it can be easily distinguished by its plurisetose ligula with 12 long setae.

It is easily distinguishable from all other described genera by its very large body size and its unique shape of pronotum, with anterior angles long and projecting forward. For a detailed description see the description of the single species, *Anguloderus mirabilis* sp. nov., below.

Beyond the known genera, there is another enigmatic genus, tentatively attributed to Physocrotaphini, but of uncertain position: it is *Holoponerus* Fairmaire, 1883 from Duke of York Island (New Britain). This genus was originally described as *Pamponerus* Fairmaire, 1881, but later changed into *Holoponerus* for a problem of primary homonymy. Fairmaire (1881, 1883) approached *Holoponerus* to *Catascopus*, implicitly including it among Lebiini rather than among Physocrotaphini, which is probably the reason why Csiki (1932) did not consider it as a member of Helliudini (=Physocrotaphini). Anyway, the unique type specimen *H. godeffroyi* was lost in the firebombing of Hamburg during World War II in 1943 (Moore 1998). The pronotum, certainly the most peculiar feature of *Anguloderus*, was described in the original diagnosis of *Pamponerus* (Fairmaire 1881) as: "... prothorax lateribus fere foliaceus, postice angustatus; ...", then, in the diagnosis of the species: "... prothorace lateribus oblique expansis, antice rotundatis, basi sinuatis, angulis acutis, ...".

Later, when changing the name into *Holoponerus* (Fairmaire 1883) it was redescribed as: "Prothorax lateribus foliaceus, basin versus sinuatus, angulis posticis fere acutis, antice late emarginatus", then in the

description of the species as "... prothorace lateribus oblique explanato, antice rotundato, postice angustato, margine postico ad angulos obliquato, angulis fere rectis, acutis, anguli anticis magnis, obtuse lobatis, dorso medio tenuiter sulcatulo; ...". So, nowhere in the description of this genus there are characters that seem to approach it to *Anguloderus*, since the pronotum is described in a completely different way. Darlington (1968) and Moore (1998) suggested that *Holoponerus* could be another *Pogonoglossus*-like carabid with foliaceous pronotum, prominent and long mandibles and distinctly angulated genae.

**Etymology.** *Anguloderus* is a noun derived from Greek and it means "with an angulose neck", alluding to the angulose shape of the pronotum. The noun is masculine.

**Distribution.** Known only from Fakfak regency of West Papua province of Indonesia.

***Anguloderus mirabilis* new species**  
(Figs. 1-5)

**Holotype,** male: West Papua, Fak-Fak region, Fak-Fak, VI.2001 (RSC).

#### **Description**

**Measurements.** Length: 21 mm; width: 6.5 mm. Ratios width / length of pronotum: 1.3; width of pronotum / width of head: 0.9; length / width of elytra: 1.76.

**Colour.** Uniformly black, except dark brown labrum and dark red spot on forehead.

**Head.** Large, slightly narrower than pronotum, widest between eyes. Upper surface of head without punctures, smooth, shiny, with weak polygonal microreticulation between vertex and occipital sulcus; with two superficial, elongate divergent frontal impressions; neck separated from vertex by a very deep, transverse, straight occipital sulcus. Eyes relatively small,



Fig. 1. Habitus of *Anguloderus mirabilis* gen. n. and sp. n.

semicircular; laterally, behind the eyes, there are two remarkably rounded foveae. Genae convex, large and sparsely setose; 2-3 lateral setiferous pores elevated in form of small denticles. Anterior supraorbital seta removed from supraocular sulci and situated near inner margin at about anterior third of eye, posterior supraorbital seta posteriomedially removed from eye and situated at anterior margin of transverse sulcus. Clypeus smooth, with one long exterior seta and one very short interior seta on either side. Labrum 6-setose; anterior margin bisinuate on each side; lateral margins parallel,

serrate in apical half. Mandibles long, left one with inner side almost straight in basal half and gradually incurved apically; ventral furrows long. Right mandible with lateral incision in the midlength. Both mandibles with strong dorso-lateral ridge in basal half. Palpi narrow and elongate, apical palpomere with sparse and short pilosity. Mentum with bifid tooth, with 2 very long and 1-2 shorter setae on either side apically and 5-7 rather long setae on either side basally. Ligula rather short, transverse, with 12 long setae, paraglossae apically separated from glossa, membranous, very narrow, distinctly longer than ligula (Fig. 3). Lacinia elongate, with a dense row of very elongate teeth. Galea narrow, slightly curved. Antennae elongate, surpassing base of pronotum by three antennomeres; pilose from antennomere 1; scape elongate; antennomere 2 more than half the length of



Fig. 2. *Anguloderus mirabilis* gen. n. and sp. n. pronotum and abdomen ventrally.

3; antennomeres 3 and 4 of the same length, antennomeres 5 - 11 flattened, with a mat, strongly microsculptured stripe along middle of dorsal and ventral surfaces, laterally chagreened and setose.

**Pronotum.** Elongate, feebly wider than head, widest in anterior third. Apical margin extremely deeply excavate, with a dense fringe of short hairs medially, without marginal border. Anterior angles very long, acute, markedly

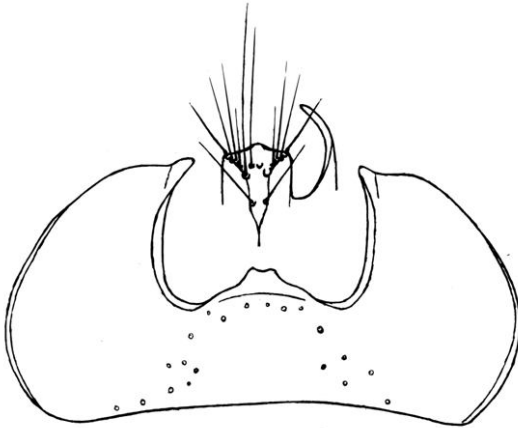


Fig. 3. Mentum, ligula and paraglossae of *Anguloderus mirabilis* **gen. n. and sp. n.**

projecting anteriorly. Lateral margins anteriorly rounded, in posterior third almost straight to posterior angles. Base wider than apex. Basal angles obtuse with tiny acute denticle. Anterior marginal seta situated at greatest pronotal width, posterior marginal seta situated at basal angle. Lateral explanation wide, lateral margin strongly reflexed, especially near anterior angles. Anterior and posterior transverse sulci shallow. Median line faintly impressed, neither attaining anterior nor basal margin. Basal grooves deep.

Disc of pronotum sparsely and irregularly punctate and pilose, weakly iridescent. Microreticulation well visible, compound of strongly transverse cells.

**Elytra.** Fairly elongate, parallel sided, laterally with slight sinuation in anterior third. Shoulder evenly rounded. Apex with wide membraneous area. Marginal channel very narrow anteriorly, relatively wide in the middle. Striae moderately impressed, superficially punctate, intervals feebly convex. Each interval with 2-3 irregular rows of setiferous pores from base to apex. Setae as long as first interval of elytra. Microreticulation fine, consisting of rather transverse meshes. Lateral margin not serrate, sparsely pilose. Wings fully developed.



Figs. 4-5. Aedeagus of *Anguloderus mirabilis* **gen. n. and sp. n.**: 4 - dorsal view; 5 - lateral view.

**Lower surface.** Propleura completely smooth. Prosternum irregularly punctate, with numerous moderately long setae throughout. Metasternum rather densely punctate and setose at sides, abdominal sternites with dense pilosity. Metepisternum very sparsely and finely punctate, elongate, more than twice as long as wide. Male sternites 2 and 3 with one large common median depression with dense cluster of long filamentous setae. Terminal sternite in male on either side with 2 elongate setae near margin.

**Legs.** Slender and elongate. Protibia sulcate on upper surface. Profemur with long and dense setae on ventral surface in basal third, mesofemur and metafemur with slightly less dense and shorter setae at base of posterior surface.

**Male genitalia.** Aedeagus elongate, lower surface almost straight, apex short and rounded. Inner sac without sclerotized pieces, but with rather complex folding. Left paramere large, with obliquely cut apex. Right paramere small and elongate (Figs. 4-5).

**Etymology.** The specific name of new species is derived from the Latin adjective *mirabilis*, that means “worth of admiration”.

## CONCLUSIONS

We refrain from trying to propose hypotheses on the origin and affinities among the genera of Physocrotaphini, since we are certain that our knowledge on this group is still very incomplete. The genus *Anguloderus* here with described seems to share some characters (foveae behind eyes, male sternite 3 with single oval depression bearing filamentous elongated setae, etc.) with *Foveocrotaphus* Anichtchenko, 2014 from Burma, but it could merely be a convergence.

The present discovery is not so surprising, considering that the peculiar life habits of these

carabids, subcortical predators, sometimes associated with termites (Moore 1998), make their finding often purely hazardous. The same occurs with another group of termitophile carabids, the Chlaeniinae: Rhopalomelini, which are almost always collected by chance and until recently were often known only upon the type material. So, we can hypothesize that future researches in the area inhabited by Physocrotaphini, maybe conducted in peculiar moments and with suitable methods, will lead to discover many more genera and species of this interesting and elusive group of Carabidae.

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Bulletin de l'Institut royal des Sciences  
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*Received: 21.12.2017.*

*Accepted: 30.12.2017.*

*Published: 31.12.2017.*

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