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Koleopterologische Rundschau	84	1–6	Wien, September 2014

A new species of the *Perigona parvicollis*-lineage from Borneo (Coleoptera: Carabidae)

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Abstract

A new species of the *Perigona parvicollis*-lineage (Coleoptera: Carabidae: Lebiinae: Perigonini) is described from Borneo: *P. crockerensis* sp.n. The new species is differentiated from the other species of the *P. parvicollis*-lineage.

Key words: Coleoptera, Carabidae, Lebiinae, Perigonini, *Perigona*, Borneo, new species.

Introduction

The carabid tribe Perigonini includes small, characteristically shaped beetles which occur on all continents, but are far most common in tropical regions. The mostly small, more or less depressed, *Trechus*- or *Tachys*-like beetles are easily identified by the elongate, conical terminal palpomeres, short frontal furrows, and the wide, depressed, usually pilose apical marginal channel of the elytra.

Perigona CASTELNAU, 1835 is the main genus of the tribe with numerous species throughout the world; most of these, however, occur in the tropics. The genus has been divided into several subgenera (see LORENZ 2005), which some authors even consider as distinct genera. The new species belongs to the nominate subgenus and therein to a group of small species, which are characterized by the loss of the anterior discal seta on the elytra, so that only two setae on each elytron are left. The nominate subgenus *Perigona* presently covers about 90 described species. However, as in all genera of Perigonini, the number of yet unknown or undescribed species in *Perigona* is supposed to be large, because, apart from the African Perigonini, which were revised by BASILEWSKY (1989), and those of the southern Oriental, the Papuan, and the Australian Regions, which were recently revised by BAEHR (2013a–b) no recent comprehensive work has been published on the tribe.

The keys of JEDLIČKA (1964) for the East Asian species and of ANDREWES (1929) for the Sumatran species are of some use, although they either are rather outdated or not complete even for the then described species. Moreover, these keys make no use of genitalic characters. However, the male genitalia in most *Perigona* species are complexly structured and thus give an excellent tool for differentiation of the externally usually very similar species. Indeed, certain species are barely distinguishable without consideration of the genitalia.

Most *Perigona* species occur in litter in more or less dense forest, as far as it has been recorded; therefore specimens usually are collected by special sampling methods, e.g. Berlese extraction or sifting ground litter. Most species can fly, so they are also encountered in flight intercept traps and at light. Because such sampling methods have been employed in few areas and moreover, usually rather casually, the taxonomic knowledge on this group is not satisfactory and rather fragmentary. In the eastern part of the world this applies particularly for the species from mainland Asia and the northern parts of the Indonesian and Philippine Archipelagos, where probably many undescribed species exist.

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While sorting unidentified material of Oriental Carabidae of the Naturhistorisches Museum Wien, I found two specimens of *Perigona* from Borneo, that, at the first glance were recognized as belonging to a new species. This species is described in the present paper and differentiated from the most similar species.

Methods

For the taxonomic treatment standard methods were used. The genitalia were removed from specimens relaxed for a night in a jar under moist atmosphere, then cleaned for a short while in hot 10 % KOH. The habitus photograph was obtained by a digital camera using ProgRes CapturePro 2.6 and AutoMontage and subsequently was worked with Corel Photo Paint X4.

Measurements were taken using a stereo microscope with an ocular micrometer. Length has been measured from the apex of the labrum to the apex of the elytra. Length of pronotum was measured along midline. Length of elytra was taken from the most advanced part of the humerus to the most advanced part of the apex.

The holotype is stored in the Naturhistorisches Museum Wien (NMW), the paratype in the working collection of the author in the Zoologische Staatssammlung, München (CBM).

Genus *Perigona* CASTELNAU, 1835

Perigona CASTELNAU 1835: 151. – LORENZ 2005: 438; BAEHR 2013a: 4.

TYPE SPECIES: *Perigona pallida* CASTELNAU, 1835 (by monotypy).

DIAGNOSIS: Characterized by the *Trechus*-like body shape, by lack of elongate frontal furrows, by elongate and acute terminal palpomeres, and by the wide depressed, usually pilose subapical marginal elytral channel.

Perigona crockerensis sp.n.

(Figs. 1–2)

Holotype ♂: "MALAYSIA: Sabah Crocker Range 17.6.1996 Mawar Waterfall env. (9c) / vegetation debris and forest litter around fallen trees" (NMW). **Paratype** ♀, same data (CBM).

DIAGNOSIS: A species of the *P. parvicollis*-lineage in the sense of BAEHR (2013a), which is characterized by the presence of only two setiferous punctures on the elytral disk. Within this lineage it is a comparatively large species, distinguished from all other known species by the remarkably wide, cordiform prothorax which is decidedly wider in comparison to the head than in all other species; also from similarly sized species occurring in Borneo by shorter and wider elytra, and from those Bornean species of which the male genitalia are known, by the differently shaped and structured aedeagus, particularly by the remarkably carinate ventral surface and the spatulate apex. Measurements and ratios of the described species of the *Perigona parvicollis*-lineage from Borneo are presented in Table 1.

DESCRIPTION: Measurements. Body length: 3.05–3.10 mm; width: 1.40–1.45 mm. Ratios. Width/length of pronotum: 1.50–1.52; width of widest diameter/base of pronotum: 1.32–1.34; width apex/base of pronotum: 0.94–0.95; width pronotum/head: 1.40–1.41; length/width of elytra: 1.34–1.36.

Habitus and colour as in Fig. 2. Upper surface reddish-piceous, margins of pronotum very slightly darker. Ventral surface of head and prothorax dark reddish, on abdomen piceous. Clypeus, labrum, and mandibles red, palpi, antenna, and legs yellow.

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Head. Of average size, dorsal surface fairly convex. Eye (in group) comparatively large but laterally not much projected; orbit short, oblique. Labrum in middle straight; mandibles elongate, straight; palpi elongate, maxillary palpus sparsely pilose. Mentum with acute, unidentate tooth and two elongate setae. Antenna comparatively elongate, median antennomeres ca. 1.3 × as long as wide. Posterior supraorbital seta situated slightly behind posterior margin of eye. Frontal furrows shallow, fairly elongate, curved. Frons in middle with one or two very small, inconspicuous pit(s). Surface apparently impunctate, without microreticulation, very glossy.

Pronotum. Comparatively very wide, widest slightly in front of middle, dorsal surface moderately convex. Base rather wide, slightly wider than apex. Apex distinctly excised; apical angles slightly projected but rounded; lateral margins convex over most of their length, near apex oblique or even very slightly concave. Basal angles ca. 100°, angulate though at tip slightly obtuse; base in middle straight, laterally oblique. Apex and middle of base not margined, lateral margin and channel moderately wide, widened and deplanate basad. Anterior transverse sulcus very shallow, posterior sulcus rather deep, median line distinct, slightly impressed, abbreviated on both ends, but basally widened to a slightly elongate pit. Anterior marginal seta situated at or slightly in front of apical third, posterior marginal seta situated at basal angle. Surface impunctate, without microreticulation except for extremely fine and superficial transverse lines near middle of apex and of base, very glossy.

Elytra. Rather short and wide, widest slightly behind middle, dorsal surface rather convex. Humerus wide, slightly produced but widely rounded, lateral margins gently convex, apex obliquely convex and slightly incurved towards the suture. Lateral margin narrow, behind humerus very finely denticulate and sparsely setulose; subapical sulcus moderately wide. Striae barely recognizable. Elytra bipunctate, the anterior discal puncture situated about at middle, the posterior puncture about at apical seventh. Surface barely punctate, with traces of fine and superficial transverse lines which are more distinct near apex, very glossy.

Male genitalia (Fig. 1). Genital ring destroyed. Aedeagus large, in middle very wide, slightly curved, on left side bisinuate; ventral surface in basal half straight, in apical half gently concave, but in middle of apical half with a conspicuous, markedly protruded ridge. Apex fairly elongate, moderately wide, depressed, rather spatulate. Internal sac with several somewhat coiled, moderately sclerotized folds in middle and with a moderately sclerotized rod in apical part, but without any distinct dentations or spines. Both parameres stout, with asymmetrically convex apex.

Female gonocoxites. Much as figured in BAEHR (2013a: fig. 66): Gonocoxite 2 triangularly curved, with rather acute apex; with two small ensiform setae in the middle of the ventro-lateral margin, a large ensiform seta in the middle of the dorso-median margin, and two attached nematiform setae originating from a groove in the apical third of the median margin.

Variation. Very little variation noted.

DISTRIBUTION: Crocker Range, Sabah, northern Borneo. Known only from the type locality.

COLLECTING CIRCUMSTANCES: Sampled from “vegetation debris and forest litter around fallen trees”, most probably in rain forest.

RELATIONSHIPS: The species is outstanding in its wide prothorax with wider base than in most other species of the *P. parvicollis*-lineage, and, in particular, in shape and structure of the aedeagus. The most similar species seems to be *P. kitchingi* BAEHR, 2013, likewise from northern Borneo which is easily distinguished from the new species by its narrower prothorax with narrower base as compared with the apex, and by the structure of the aedeagus.

ETYMOLOGY: The name refers to the occurrence of this species in the Crocker Range in Sabah, northern Borneo.

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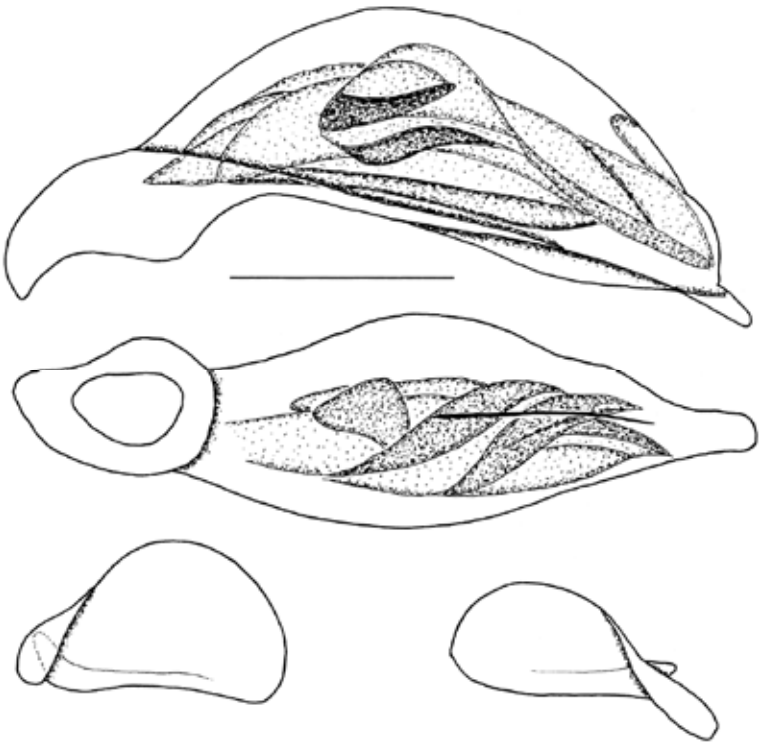

Fig. 1: *Perigona crockerensis* sp.n. Aedeagus, left side and ventral surface, and left and right parameres. Scale bar: 0.25 mm.

Table 1: Measurements and ratios of the described species of the *Perigona parvicollis*-lineage from Borneo. N: number of specimens measured; l: body length in mm; w/l pr: ratio width/length of pronotum; d/b pr: ratio width widest diameter/base of pronotum; a/b pr: ratio width of apex/base of pronotum; pr/h: ratio width pronotum/head; l/w el: ratio length/width of elytra.

	N	l	w/l pr	d/b pr	a/b pr	pr/h	l/w el
crockerensis sp.n.	2	3.05–3.10	1.50–1.52	1.32–1.34	0.94–0.95	1.40–1.41	1.34–1.36
borneensis BAEHR	6	2.80–3.00	1.34–1.36	1.24–1.26	0.98–1.00	1.30–1.34	1.39–1.44
cordata BAEHR	3	2.70–3.30	1.28–1.32	1.31–1.36	1.06–1.08	1.21–1.26	1.41–1.43
inquilina BAEHR	2	2.25–2.45	1.35–1.40	1.31–1.33	1.05–1.06	1.25–1.28	1.30–1.33
kitchingi BAEHR	2	2.35–2.60	1.45–1.47	1.32–1.33	1.00–1.01	1.33–1.38	1.33–1.35

Acknowledgements

I am indebted to Manfred A. Jäch and Harald Schillhammer (NMW) for the kind loan of the specimens.

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Fig. 2: *Perigona crockerensis* sp.n., holotype. Body length: 3.1 mm.

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Zeitschrift/Journal: Koleopterologische Rundschau

Jahr/Year: 2014

Band/Volume: 84_2014

Autor(en)/Author(s): Baehr Martin

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