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A new species of the genus *Pericalus* MACLEAY, subgenus *Coeloprosopus* CHAUDOIR, from New Ireland, Bismarck Archipelago

(Coleoptera, Carabidae, Lebiinae)

Martin BAEHR

Abstract

Pericalus novaeirlandiae sp. n. from New Ireland, Bismarck Archipelago, is described and included in the most recent key to the subgenus *Coeloprosopus*. The new species belongs to the *klapperichi*-subgroup in the sense of BAEHR (1994) which so far is recorded from Biak Island and New Britain, though not from New Guinea. The biogeographical impacts of this distribution pattern are discussed.

Introduction

Within material of carabid beetles from New Guinea, New Britain, and New Ireland kindly loaned by A. WEIGEL, Pössneck, a new species of the subgenus *Coeloprosopus* CHAUDOIR of the Oriental genus *Pericalus* MACLEAY was observed that is described herein.

The genus *Pericalus* has a vast range within the Oriental region, occurring from India to Taiwan, and south to Sulawesi and the Philippine islands. It crosses the borders of the Oriental region in New Guinea and New Britain, but has not yet been recorded from Australia. Slightly more than 30 species have been described so far (LORENZ 1998) that divide in two well distinguished subgenera: *Pericalus* s. str. includes wide, usually blackish or dark blueish, depressed species with more or less oval-shaped elytra and wide, cordiform pronota bearing wide lateral margins. *Coeloprosopus* CHAUDOIR includes more convex, commonly greenish species with narrower pronota bearing narrow, linear lateral margins. Although it was thought hitherto that only species of the latter subgenus have crossed Wallace's line from the northwest, BAEHR (2000a) recently has shown that a species of the subgenus *Pericalus* s. str., namely *P. violaceus* Andrewes, occurs on Sulawesi. Nevertheless, the subgenus *Coeloprosopus* still has the wider range, because a number of species occur on Sulawesi, New Guinea, New Britain and, as demonstrated in the present paper, even on New Ireland.

The subgenus *Coeloprosopus* is apotypic in certain aspects as compared with the nominate subgenus, and at the same time it is more speciose and the species are still more closely related which probably is due to more recent taxonomic diversification. Including two recently described species, *P. (Coeloprosopus) nigripes* BAEHR (BAEHR 2000a) and *P. (s. str.) imitator* BAEHR (BAEHR 2000b), and the raise of the subspecies *P. (s. str.) guttatus violaceus* ANDREWES to full specific status (BAEHR 2000b), now 33 species are recorded of the genus *Pericalus* of which 14 belong to the nominate subgenus and 19 to the subgenus *Coeloprosopus*.

This description is rendered a further supplement to my revision of the subgenus *Coeloprosopus* (BAEHR 1994). Measurements and technics were conducted in the same way as in that paper. The holotype was kindly presented to Zoologische Staatssammlung München (ZSM), paratypes are shared with the collection A. WEIGEL, Pössneck (CWP), and the working collection of M. BAEHR, Zoologische Staatssammlung München (CBM).

The habitus photo was made using a conventional camera, then digitalized and improved with photo paint.

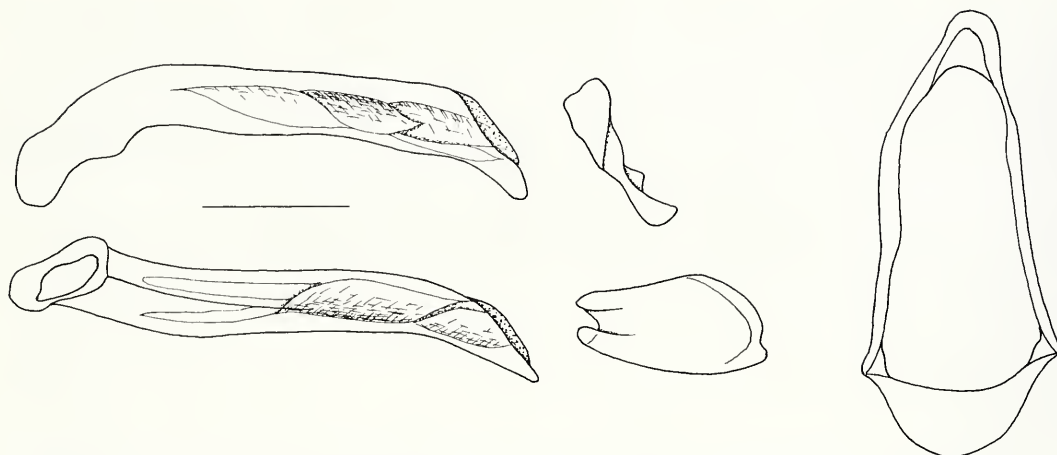


Fig. 1. *Pericalus novaairlandiae* sp. n. Male genitalia: Aedeagus, parameres, and genital ring. Scale: 0.5 mm.

Genus *Pericalus* MACLEAY, subgenus *Coeloprosopus* CHAUDOIR

An extensive diagnosis and reference of the relevant literature was given in my revision (BAEHR 1994).

Pericalus novaairlandiae sp. n.

Figs 1-3

Types. **Holotype:** ♂, PNG: New Ireland Pr. Hans Meyer Range 60 km SE Namatanai Hirudan River 50 m/ 04°00'41"S, 152°50'79"E 9.III.2000, leg. A. Weigel fields & gardens/KL (ZSM). – **Paratypes:** 2♂♂, same data (CBM, CWP).

Diagnosis: Species of the subgenus *Coeloprosopus* and within this, of the *klapperichi*-subgroup (sensu BAEHR 1994) which includes *Pericalus klapperichi* JEDLIČKA from New Britain and *P. cuprascens* BAEHR from Biak Island near the northwestern coast of New Guinea. The new species is distinguished from both mentioned species by slightly larger size, comparatively narrower pronotum, more decidedly V-shaped anterior elytral spot, and dark colour of posterior legs and of all tibiae.

Description

Measurements. Length: 7.6-7.8 mm; width: 2.9-3.1 mm. Ratios: Width/length of prothorax: 1.20-1.21; width head/prothorax: 1.35-1.36.

Colour and pattern (Figs 2, 3): Head green with cupreous shine, though clypeus unicoloured green. Labrum yellowish-reddish. Pronotum green with slight golden to cupreous hue. Elytra black, light elytral spots flavous to light reddish. Basal antennomere light reddish, at upper and lower surfaces piceous, three following antennomeres light reddish with dark apices, apical antennomeres piceous. Palpi piceous, though basal palpomeres of both, labial and maxillar palpi, light reddish. Profemur and mesofemur yellowish, tibiae and tarsi of both, the anterior and middle legs darkened. Posterior legs piceous throughout, though with rather conspicuous light knee. Elytral spots large and wide, anterior spot triangular, anteriorly moderately excised, posterior spot large, reniform, as figured in Fig. 2. Anterior spot comparatively short and wide, on 4th-8th intervals, or even overlapping onto 3rd interval, abruptly shortened from 5th interval. Posterior spot situated on 3rd-7th intervals.

Head: Wide, eyes very large and remarkably protruding. Surface covered with many coarse, irregularly longitudinal and oblique wrinkles. Microreticulation present, isodiametric, though indistinct. Surface rather dull.

Pronotum: Moderately wide, though slightly narrower than in related species, fairly depressed. Lateral border near apex convex, prebasal sinuosity rather deep, basal angles large, rather acute, laterally rather projecting, though not much projecting posteriorly. Anterior transverse sulcus shallow, posterior

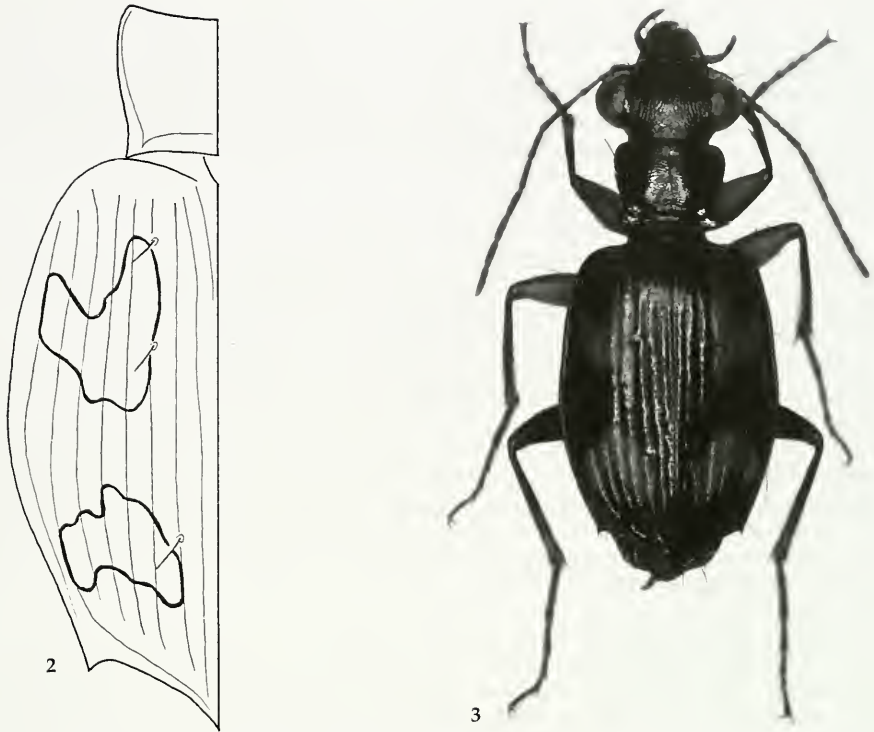


Fig. 2-3. *Pericalus novaeirlandiae* sp. n. 2. Pattern: left half of pronotum and elytra. Length of whole insect: 7.6 mm. 3. Habitus.

sulcus deep. Surface covered by fairly dense, moderately coarse, irregular wrinkles and by scattered, fine punctures, this microsculpture becoming weaker towards base. Microreticulation reduced, visible only at apex and near lateral margins. Surface glossy.

Elytra: Rather wide, markedly convex, in males (no females known!) posteriorly slightly widened, though in anterior third not compressed, lateral border evenly curved. Sutural apical spine short, lateral apical spine moderately short. Intervals moderately convex, striae fairly deep, rather distinctly crenulate. 3rd interval with 3 punctures, both anterior punctures situated in 3rd stria and at basal third, the posterior puncture near 2nd stria at posterior third. Striae distinctly incurved between first and second punctures and at position of third puncture. Microreticulation distinct though superficial, very transverse. Surface rather glossy.

♂ genitalia (Fig. 1): Genital ring narrow and elongate, rather parallel, apex evenly rounded. Aedeagus narrow and elongate, in ventral view slightly sinuate, apex short, moderately thickened and slightly bent down, but not hook-shaped. Parameres see Fig. 1, left paramere with markedly short but acute apex.

♀ genitalia: Unknown.

Variation: Very little variation noted.

Distribution: Southeastern part of New Ireland. Known only from type locality.

Collecting circumstances: Not recorded, but probably collected while running on tree trunks or on low plants in fields and gardens at low altitude.

Etymology: The name refers to the range of this species on the island of New Ireland.

Relationships: Certainly this species is most closely related to *P. klapperichi* JEDLIČKA from the neighbouring island of New Britain and *P. cuprascens* BAEHR from Biak Island off the northwestern coast of New Guinea, which together form the *klapperichi*-subgroup of the revision (BAEHR 1994). This relationship is corroborated by similar shape of pronotum and elytra, rather similar, characteristic shape of the elytral

spots, and very superficial elytral microreticulation in the three species mentioned. Surprisingly, however, in colour of surface and in shape of elytral spots *P. novaeirlandiae* is more similar to *P. cuprascens* than to the neighbouring *P. klapperichi*.

The range of the *klapperichi*-subgroup includes islands to the northeast and northwest of New Guinea, though, surprisingly enough, not New Guinea proper which is inhabited by *P. figuratus* CHAUDOIR. The latter species belongs to the *undatus*-subgroup that is characterized by remarkably serrate elytral spots and highly microreticulate surface and that includes species occurring on the Philippine islands, the Moluccas including Sulawesi, and New Guinea.

This latter subgroup includes the most apotypic species of the whole subgenus, and probably it is the more apotypic adelphotaxon of the *klapperichi*-subgroup (BAEHR 1994). This would mean that both presumably most apotypic species groups occupy the outermost parts of the common range of the subgenus *Coeloprosopus*, and it is a clear argument for a west to east range extension of the subgenus which was combined with reasonable taxonomic radiation.

The occurrence of species of different subgroups on New Guinea and the surrounding islands, respectively, is most interesting in the light of modern ideas about paleogeographical history of the New Guinean faunal and floral subregion (e.g. DE BOER 1995). It is believed that this region is a conglomerate of various island arcs of different age and origin that during late Miocene and Pliocene combined to what is now New Guinea. Some of these arcs, however, failed to reach a firm contact to present New Guinea, and, apart from the islands of Bismarck Archipelago (New Britain, New Ireland, New Hanover and certain smaller ones) and the Admiralty Islands (Manus island and its surrounding islets), also Biak Island west of the northwest coast of New Guinea (but not neighbouring Japan island!) belongs to island arcs that originally were foreign elements (DE BOER 1995). Probably all these mentioned islands even were parts of the same insular arc.

It is, therefore, not too surprising to find some common faunal elements on Biak Island as well as on Bismarck Archipelago that differ from those found on New Guinea. The distribution pattern found in the subgenus *Coeloprosopus* well demonstrates these differences and thus suggests separate immigration events of stocks of the subgenus into New Guinea proper and into the northern insular arc. The latter immigration may have occurred from a different direction and at different time, but we do not yet have a conception when and from where the original stock of the *klapperichi*-subgroup arrived. For this purpose, better knowledge of the *Pericalus*-fauna of the Moluccas would be useful.

Recognition: When using the key in my revision (BAEHR 1994) the reader easily will reach either caption 12 or caption 18 which both refer to shape of the elytral spots and to superficial microreticulation of the elytra. The key thus has to be altered (similarly for caption 18!) as following:

12. Fore body bright green, elytra black, laterally more or less green; anterior elytral spot shorter, barely longer than wide, indistinctly V-shaped (BAEHR 1994, Fig. 30); aedeagus more sinuate, apex longer (BAEHR 1994, Fig. 11). New Britain. *klapperichi* JEDLICKA
- Fore body more or less cupreous, elytra uniformly black; anterior elytral spot longer, considerably longer than wide, more distinctly v-shaped (Fig. 2; BAEHR 1994, Fig. 31); aedeagus less sinuate, apex shorter (Fig. 1; BAEHR 1994, Fig. 12). Biak Island, New Ireland. 12a.
- 12a. Legs uniformly light reddish; anterior elytral spot more voluminous, anteriorly less distinctly V-shaped (BAEHR 1994, Fig. 31); apex of aedeagus longer, more deflected (BAEHR 1994, Fig. 12). Biak Island. *cuprascens* BAEHR
- Posterior legs dark, tibiae of all legs dark; anterior elytral spot more delicate, anteriorly more distinctly V-shaped (Fig. 2); apex of aedeagus shorter, less deflected (Fig. 1). New Ireland.
 *novaeirlandiae* sp. n.

Acknowledgements

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Zusammenfassung

Pericalus novaeirlandiae sp. n. aus Neumecklenburg im Bismarck Archipel wird beschrieben und in den neuesten Schlüssel für die Untergattung *Coeloprosopus* aufgenommen. Die neue Art gehört in die *klapperichi*-Artengruppe im Sinne von BAEHR (1994) die bisher von der Biak Insel und von Neupommern bekannt ist, jedoch nicht von Neu Guinea. Die biogeographische Bedeutung dieses Verbreitungsmusters wird diskutiert.

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Author's address:

Dr. Martin BAEHR
Zoologische Staatssammlung
Münchhausenstr. 21
D-81247 München, Germany
E-Mail: martin.baehr@zsm.mwn.de

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