

To the knowledge of genus *Pericalus* W. S. MacLeay, 1825 (Coleoptera, Carabidae, Lebiini) of the Philippines

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The species of the Lebiine genus *Pericalus* W.S. MacLeay, 1825 from Philippines are reviewed: *Pericalus (Coeloprosopus) levifrons* Heller, 1916; *P. (C.) philippinus* Heller, 1916; *P. (C.) undatus* Chaudoir, 1848 and *P. (C.) signatus* Jedlička, 1936. *P. (C.) mariaarquizae* sp. n. from Samar Island is described. New species closely related to *P. (C.) signatus* from Palawan Island, but differ in the shape of the anterior elytral spot, and in the colouration of the appendages. The male of *P. (C.) levifrons* is described for the first time. New distribution data and images of all species are provided.

Key words: Coleoptera, Carabidae, Lebiini, *Pericalus*, *Coeloprosopus*, new species, new sites.

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INTRODUCTION

The genus *Pericalus* W.S. MacLeay, 1825 has a vast range within the Oriental region, occurring from India to Taiwan, and south to Celebes (Sulawesi) and the Philippines. Recently, he was at the center of attention of various scientists (Baehr 1994, 2000, 2003; Fedorenko 2017; Shi & Liang, 2018). The genus divided in two well distinguished subgenera: *Pericalus* s. str. that includes 18 species with wide, depressed elytra and with wide lateral margins of pronotum; and

Coeloprosopus Chaudoir, 1842 that includes 20 small, convex species with pronota bearing narrow, linear lateral margins. Only latter subgenus is known from Philippines and represented by five species, including newly described here.

MATERIAL AND METHODS

This study was based on a total of about 120 specimens, including the primary type.

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.

The material from the following institutional and private collections has been examined:

DUBC - Daugavpils University Beetle Collection (Latvia)

NMPC - National Museum of Natural History, Prague (Czech Republic)

cRS - Collection Riccardo Sciaky (Milan, Italy)

High-resolution habitus images of *Pericalus* species, including type specimens and additional material, are available at <http://www.carabidae.pro>.

***Pericalus (Coeloprosope) mariaarquizae* sp.n.**
(Figs 1-2, 8-11)

Material. Holotype male: Philippines, E Visayas, Samar, Lope de Vega, May 2017, local collector (DUBC). Paratypes: 1 female - Philippines, E Visayas, Samar, Hinabangan, IV.2014, local collector (DUBC); 1 male - idem. but XII.2014 (DUBC); 1 female - Philippines, Samar, IV.2013 (DUBC); 1 m, 1 f - Samar, Eastern Visayas, Oct. 2013 (cRS).

Diagnosis: Species of the *klapperichi*-subgroup (sensu Baehr 1994) which includes *P. (C.) klapperichi* Jedlicka, 1953 (New Britain), *P. (C.) cuprascens* Baehr, 2000 (Biak Island), *P. (C.) novaeirlandiae* Baehr, 2003 (New Ireland) and here included in this subgroup *P. (C.) signatus* Jedlička, 1936 (Palawan). At first glance distinguished from *P. (C.) cuprascens* by a combination of dark colour of all tibiae and tarsi, and green luster of elytra, i.e. in *P. (C.) cuprascens* legs and antennae completely reddish, elytra black. New species is similar to *P. (C.) novaeirlandiae*, sharing a legs coloration pattern, but can be diagnosed easily

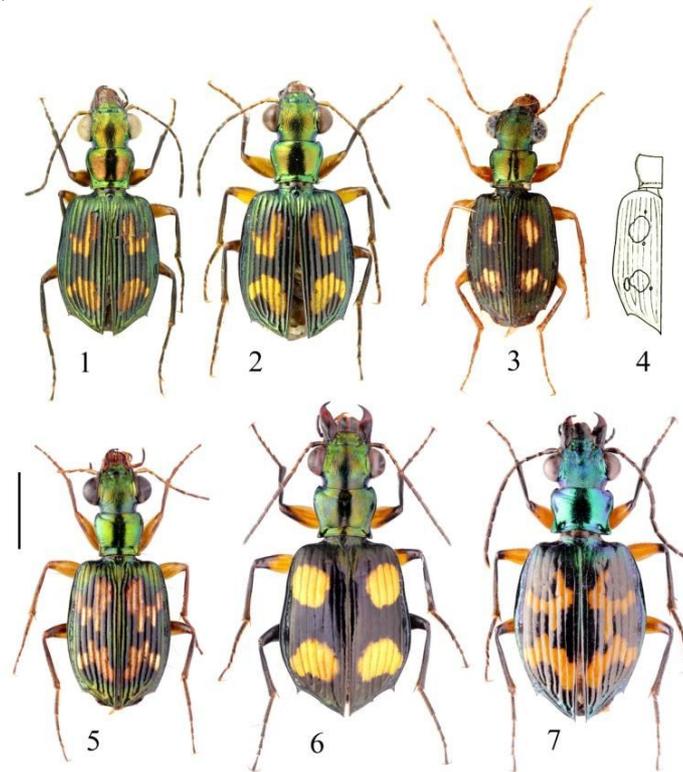
by greenish elytra and smaller body size 6-6.8 mm, i.e., *P. (C.) novaeirlandiae* has black elytra and body size 7.6-7.8 mm. From *P. (C.) klapperichi* distinguished by dark tibiae and tarsi, by have convex intervals of elytra and by distinctly excised anterior elytral spot. New species is closer geographically and morphologically to *P. (C.) signatus*, can be distinguished by distinctly excised anterior elytral spot, and by dark antennae, tibiae and tarsi.

Description: Measurements. Length: 6-6.8 mm; width: 2.7 mm. Ratios: Width/length of prothorax: 1.3; width head/prothorax: 1.32-1.4.

Colour and pattern. Head golden-cupreous with dark green clypeal suture. Pronotum with golden-cupreous shine, at the base and margins of pronotum with slight greenhue. Labrum yellowish-reddish. Elytra green with slight golden tinge, in the middle between the spots black. Elytral spots light orange. Ventral side dark green. Basal antennomere light reddish with dark ventral side, three following antennomeres light reddish with dark apices, apical antennomere spicuous. Mandibles and palpi blackish brown. Profemur yellowish with posterior side darkened, mesofemur yellowish with slightly darkened apical half of anterior margin, metafemur yellowish with dark apical fourth, all tibiae and tarsi darkened. Elytral spots large, anterior spot triangular, situated on 3rd-6th intervals, anteriorly deeply excised. Posterior spot large, reniform, situated on 2-6th intervals.

Head. Wide, eyes very large. Surface covered with coarse, irregular punctures and wrinkles. Microreticulation shallow, irregular, more distinct in female. Surface rather dull in comparison with pronotum.

Pronotum. Comparatively narrow, apex gently excised, basal sinuosity fairly deep, posterior angles large, acute, moderately projecting laterally and posteriorly. Anterior transverse sulcus almost indistinct, posterior sulcus deep,



Figs 1-7. Habitus of *Pericalus* (*Coeloprosumus*) species from Philippines: 1 – *P. (C.) mariaarquiza* sp. n. (Holotype); 2 – *P. (C.) mariaarquiza* sp. n. (Paratype, male); 3 – *P. (C.) signatus* Jedlička, 1936 (Holotype); 4 – *P. (C.) signatus* (elytral pattern, drawing from Baehr, 1994); 5 – *P. (C.) undatus* Chaudoir, 1848; 6 – *P. (C.) levifrons* Heller, 1916; 7 – *P. (C.) philippinus* Heller, 1916. Scale bar 2 mm.

disk markedly convex, lateral sulcus very narrow. Microreticulation indistinct, surface shiny, with somewhat irregular transverse wrinkles and fine, sparse punctures.

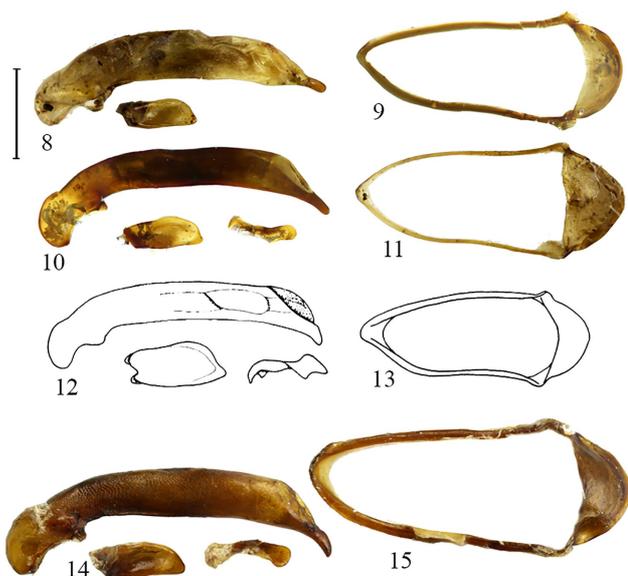
Elytra. Moderately wide, in males and females lateral border almost evenly rounded. Lateral apical spines fairly elongate, sutural spines short. Elytral striae very deep, smooth, intervals convex. 3rd interval quadripunctate, both anterior punctures situated on 3rd stria in anterior third, both posterior punctures situated in 2nd stria in posterior third and very close to apex. Microreticulation distinct, very transverse, giving the surface a remarkably sericeous lustre, glossy on suture and sides.

Male genitalia (Figs 8-11). Genital ring narrow and elongate, rather parallel, apex pointed. Aedeagus narrow and elongate, in ventral view slightly sinuate, apex long and narrow, parallel sided, moderately bent down, point rounded.

Female genitalia. As in all members of the genus.

Distribution. Known only from two localities on Samar Island.

Etymology. The species is named after Dr. Maria Linda B. Arquiza, Vice President for Research and Publication Center of the University of Mindanao for her unwavering



igs 8-15. Aedeagus, paramera and genital ring structure: 8-9 – *P. (C.) mariaarquiza* sp. n. (Paratype); 10-11 – *P. (C.) mariaarquiza* sp. n. (Holotype); 12-13 – *P. (C.) signatus* (drawings from Baehr, 1994); 14-15– *P. (C.) levifrons* Heller, 1916. Scale bar 0.5 mm.

support to the advancement of coleopterological studies in the Philippines.

***Pericalus (Coeloprosopus) levifrons* Heller, 1916 (Figs 6, 14-15)**

Material: 2f - Philippines, C Visayas, Samar, Hinabangan, XII.2014; 3 ex - Cabanglasan, Bukidnon, Mindanao, aug.2014; 3 ex - idem. but July 2014; 10ex - Masara, Compostela Valley, Mandanao, May 2014; 12 ex - idem. but April 2014; 2 ex - idem. but July 2014; 3 ex - idem but August 2014; 7 ex - Panamokan, Bukidnon, Mindanao, August 2014; 3m - idem but March 2014; 3 ex - idem. but April 2014; 2 ex - idem. but June 2014; 3 ex - idem. but July 2014; 2 ex - idem. but December 2014; 3 ex - Apo Mt., Kidapawan, South Cotobato, Mindanao, April 2014; 2 ex - idem. but August 2014; 1 ex - idem. but June 2014; 2 ex - Balingasag, Misamis

Oriental, Mindanao, August 2014; 2 ex - idem. but July 2014; 4 ex - Kalatungan, Bukidnon, Mindanao, August 2014; 3 ex - Dayhilayan, Bukidnon, Mindanao, March 2014; 1 ex - Intavas, Bukidnon, Mindanao, March 2014; 1f - Philippines, Mindanao, Sitio Bitaugan, Kawa-Kawa river, 24-26.III.2018, Anichtchenko A. leg. (DUBC).

Comments. Species previously known by single female, described from “Mindanao: Butuan” (Heller, 1916; Baehr, 1994). The study of a large amount of material showed that the species is very variable. Body size can vary from 6 to 9.5 mm; coloration of head and pronotum from green to copper; intervals of elytra from flat to moderately convex in small specimens. The extreme forms differ so much that at first I tried to find reliable differences to divide them into two species. However, the study of a large number of material shows that there are all morphological transitions. Differences in structure of aedeagus, other than size, were not found.

Male genitalia (Figs. 14-15). Genital ring narrow and elongate, rather parallel, apex rounded. Aedeagus narrow and elongate, in ventral view slightly sinuate, apex long and narrow, strongly bent down, point acute.

Distribution. Species is widely distributed in Mindanao Island. It is also found in Samar Island. Based on Pleistocene aggregate island complex (PAIC) model, Mindanao Island used to be connected to Samar as well as Leyte, Bohol and several small islands in between thus explains the similarities of species found on these islands.

***Pericalus (Coeloprosopus) philippinus*
Heller, 1916 (Fig. 7)**

Material: 1 m - Sierra Madre, Nagtipunan, Quirino, Eastern Luzon, January 2015; 2 f - Pola, Ifugao, North Luzon, August 2014; 1 m - Dindin, Isabela, Eastern Luzon, August 2014; 2m 1f - Belance, Nueva Viscaya, North Luzon, March 2014; 1f - Philippines, N. Luzon, Mt. Province, Mt. Polis, V.2014; 1m - Philippines, N Luzon, Mt. Province, Barlig, VII.2014; 2f - Philippines, N Luzon, Nueva Viscaya, Dupax del Sur, V.2014; 1m Philippines, N Luzon, Kalinga, Pinukpuk, VIII.2014; 1m 2f - Banaue, Ifugao, North Luzon (DUBC).

Distribution. The species current distribution is limited to Luzon Island.

***Pericalus (Coeloprosopus) signatus* Jedlička,
1936 (Figs 3-4, 12-13)**

Material: Holotype male (Fig. 3) - N. Palawan, Binaluan, nov-dec. 1913, leg. G. Boetticher", "Pericalus undatus v. signatus Jedlicka, Type" (NMPC).

Comments. Not with standing of Martin Baehr (1994) statement "Types not seen", the specimens studied by him (4 males and 2 females), have the same label data as Holotype and belongs to the type series. Description made by Martin Baehr on base of this specimens, perfectly fit with Holotype. Cites of *P. (C.) signatus* for Samar (Baehr, 1994) should be attributed to *P. (C.) mariaarquiza* sp. n.

***Pericalus (Coeloprosopus) undatus* Chaudoir,
1848 (Fig. 5)**

Material: 7ex - Canlaon Mt., 900-1000m, Negros, August 2014; 4 ex - Dumaguete, Negros Oriental, Central Visayas, August 2014; 2m - idem but April 2014; 1f - idem but May 2014; 1 f - idem but July 2014; 2 ex - Hungduan, Ifugao, North Luzon, February 2018; 1m -

Dindin, Isabela, Eastern Luzon, August 2014; 2 ex - Philippines, N Luzon, Ifugao, III.2014; 2m, 1f - Philippines, Mataas, Antique, XI.2017; 1 f - Philippines, Visayas, Panay, Iloilo, XII.2017; 1 m - Philippines, Luzon, Quirino, Nagtipunan, Tapsoy, Sierra Madre, October 2015.

Distribution. This species current range is still limited to Luzon, Negros and Panay. Panay is an additional record for this species since it was previously documented only in Luzon and Negros (Baehr, 1994). It is not surprising that the species also occurs in Panay since these two islands once formed the Greater Negros-Panay when they were connected through land bridges in the last Pleistocene epoch (Sinha & Heaney, 2006).

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