

## Two new species of the genus *Pachyrhynchus* Germar, 1824 (Curculionidae: Entiminae: Pachyrhynchini) from the Luzon Island, Philippines

Anita Rukmane-Bārbale

Rukmane-Bārbale A. 2020. Two new species of the genus *Pachyrhynchus* Germar, 1824 (Curculionidae: Entiminae: Pachyrhynchini) from the Luzon Island, Philippines. *Baltic J. Coleopterol.*, 20(2): 179-184.

Two new species of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae: Entiminae: Pachyrhynchini) from the Luzon Island (Philippines) are described and illustrated: *P. bollinoi* sp. nov. and *P. cinereomaculatus* sp. nov.. Photos of habitus for both sexes as well as eversion of endophallus is provided.

Key words: Coleoptera, Curculionidae, Pachyrhynchini, *Pachyrhynchus*, fauna, taxonomy, new species, Luzon, Philippines

*Anita Rukmane-Bārbale. Daugavpils University, Institute of Life Sciences and Technology, Coleopterological Research Center, Vienības Str. 13, Daugavpils, LV-5401, Latvia, e-mail: anitakraslava@inbox.lv*

### INTRODUCTION

The genus *Pachyrhynchus* Germar, 1824 (Entiminae: Pachyrhynchini) is widely studied in recent past (Yoshitake, 2012; Rukmane, 2019; Bollino *et. al.*, 2017, 2020) as a result more than 50 new taxa are described, new data on host plants as well as new distributional, ecologic and faunistic records are compiled.

To date, genus currently includes 160 species about 100 of which are distributed at Greater Luzon (Luzon, Catanduanes, Marinduque, Polillo, and several small islands). In the current study method of eversion of endophallus was used to compare several closely related species from central part of the Luzon Island. Study revealed, that two species differ from previously known, those species are described and illustrated herein.

### MATERIAL AND METHODS

The study was based on specimens deposited at the Daugavpils University Beetle Collection (DUBC – Daugavpils, Latvia).

The laboratory research and measurements have been carried out using Nikon SMZ 745T and NIS – Elements 6D software. The illustrations were made using digital camera Canon EOS 6D with Canon MP-E 65mm macro lens, using stack shot system and Helicon Focus auto montage, subsequently was edited using Photoshop. The maps of the Philippine archipelago have been drawn using *ArcGis 10* software.

All measurements are in millimetres, abbreviations and measurement technology follow Bollino et. al. (2017).

Technology for eversion of endophallus follow Janovska et. al. (2013).

## RESULTS

### *Pachyrhynchus bollinoi* sp. nov.

Fig. 1A-B, 2A-E, 3A-C

**Type material. Holotype: Male:** “PHILIPPINES / Luzon, Mt. Province, Barlig / VII. 2018 / local collector leg.” (white rectangular label); “HOLOTYPE / *Pachyrhynchus bollinoi* / Rukmane-Bārbale, 2020 / (red rectangular label).

**Paratypes (16 males, 5 females):** 1 male: “PHILIPPINES / N Luzon, Mt. Province, Barlig / IX. 2015 / local collector leg.”; 1 male, 2 female, same label, but XI. 2015; 3 male, 1 female, same label, but VII. 2016; 3 male, same label, but IV. 2017; 1 male, same label, but VII. 2017; 1 male, same label, but X. 2017; 1 male, same label, but VII. 2018; 1 male: “PHILIPPINES / N Luzon, Nueva Vizcaya, Kayapa / XI. 2015 / local collector leg.”; 1 male: “PHILIPPINES / N Luzon, Ifugao, Banaue / VI. 2016 / local collector leg.”; 2 female, same label, but VII. 2016; 1 male, 1 female, same label, but IX. 2016; 1 male, same label, but X. 2017. All on white rectangular labels, with additional red label: “PARATYPE / *Pachyrhynchus bollinoi* / Rukmane-Bārbale, 2020/.

**Distribution.** Luzon Island.

**Description.** Male. Measurements (n=6): LB: 12.7-13.8 (holotype 12.7, mean 13.12); LR: 1.8-2 (holotype 1.9, mean 1.9); WR: 2-2.2 (holotype 2.1, mean 2.1); LP: 3.8-4.5 (holotype 4.4, mean 4.15); WP: 3.8-4.2 (holotype 4.2, mean 4.03); LE: 8.5-9 (holotype 8.5, mean 8.75); WE: 5.1-5.8 (holotype 5.3, mean 5.53).

Body black, surface strongly shiny, except underside with weaker luster. Body elongated, with

opaque blue markings of round to elliptic recumbent scales.

Head sparsely very minutely pubescent, without scally markings, minutely punctured; each side laterally covered with short blue to silver hair-like scales on gena and behind antennal scrobe, and covered with silver long hair-like scales before the scrobe. Forehead flattish, nearly three times as wide as eye width; eyes relatively small, slightly prominent from outline of the head; outline of each eye highest just in the middle. Rostrum slightly wider than long (WR/LR 1.1); dorsum with fine puncture, with deep sub-triangular impression on basal part, weakly bulging on apical part; dorsal contour of rostrum nearly straight in basal part, weakly increased to apical part. Antennae slender, mingled with long silver hairs on all antennomers and apical half of scrobe; antennomers I-II slightly longer than wide, longer than III-VII; III-VII subequal in length, nearly as long as wide; club sub-oval, nearly twice as long as wide.

Prothorax with the following six scally markings: 1) two spots on disc from behind the middle to apical ½ each redirected laterally; 2) one roundish spot at each latero-basal edge of disc; 3) broad lateroventral stripe on each side. Prothorax nearly same length and width (LP/WP 1.03); dorsum minutely punctured; dorsal contour highest at the basal ½; sides gently raised from constricted base, widest at basal ½ then gently convergent apical to apical ½, then slightly widened to apex; apical margin straight, basal margin curved.

Each elytron with the following ten scally markings: 1) two big ovate patches on basal ½; 2) big ovate patch just before the middle, redirected laterally; 3) two small round patches on median part; 3) two sutural patches – one sub-medial, one near apex; 4) two big ovate patches on apical part; 5) subtriangular patch near apex redirected laterally. Elytra without pubescence in general, with short rare hairs along the apex. LE/WE 1.58, wider than prothorax (WE/WP 1.37), more than twice as long as prothorax (LE/LP 2.11), smooth, without puncture intervals; dorsum moderately con-

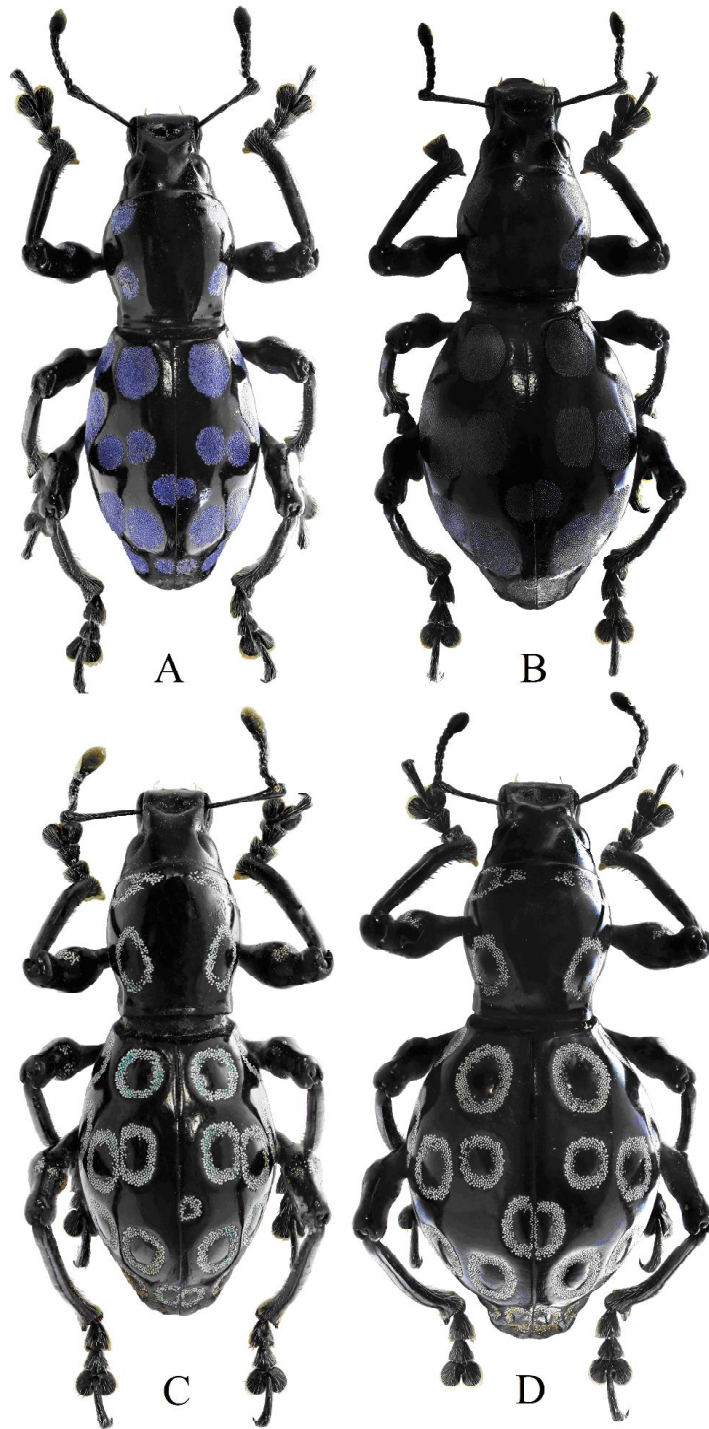


Fig. 1. Habitus of *P. bollinoi* sp. nov. (A – male, B – female); Habitus of *P. cinereomaculatus* sp. nov. (C – male, D – female)

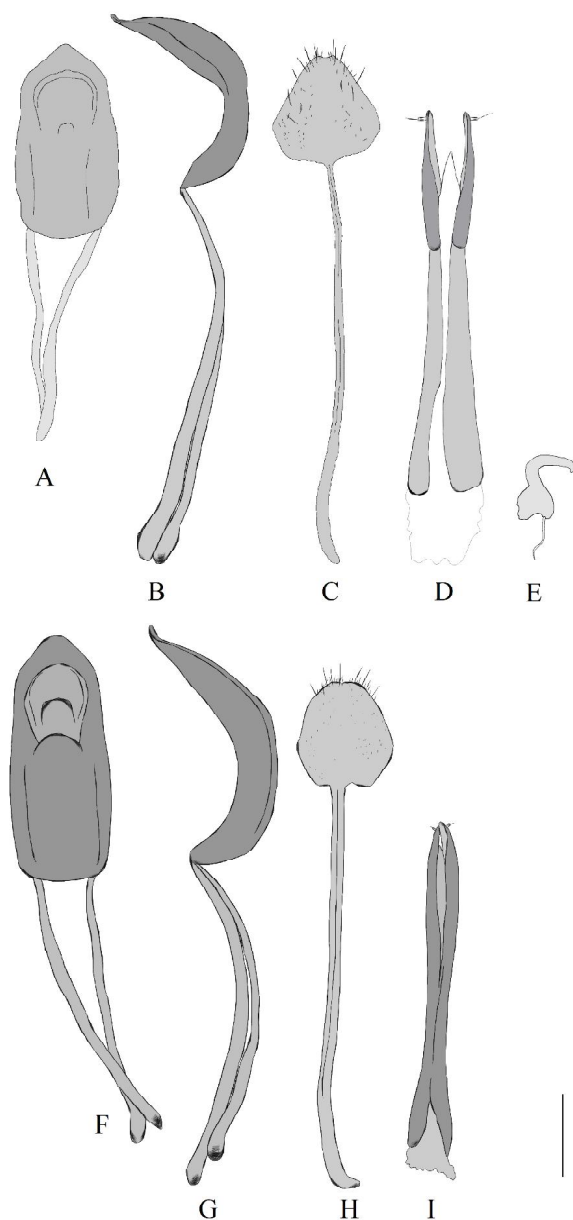


Fig. 2. A – E genitalia of *P. bollinoi* sp. nov.; A – aedeagus in ventral view; B – aedeagus in lateral view; C – sternite VIII; D – ovipositor; E – spermatheca; F – I genitalia of *P. cinereomaculatus* sp. nov.; F – aedeagus in ventral view; G – aedeagus in lateral view; H – sternite VIII; I – ovipositor

vex; dorsal contour highest at the middle; sides gradually raised from base, widest just in the middle, then narrowed to apical area and nearly straight to apex.

Hind femora with opaque blue roundish scale line along inner margin. Mid and fore femora with roundish patch of scales along apical impression. Tibiae with long hairs at base and internal margins, mingled with short hairs in all length.

Genitalia as illustrated (2A-E), endophallus as illustrated (3A-C).

Female. Measurements (n=5): LB: 14.9-16.1 (mean 15.58); LR: 2.1-2.3 (mean 2.2); WR: 2.2-2.4 (mean 2.3); LP: 4.3-4.8 (mean 4.48); WP: 4.4-4.9 (mean 4.66); LE: 10.5-11.5 (mean 11.02); WE: 7-7.9 (mean 7.42). Elytra more strongly convex dorsally, much wider than in males.

**Differential analyses.** *Pachyrhynchus bollinoi* sp. nov. from the first view might be confused with *Pachyrhynchus pinorum* species complex by elytral scally markings and shape of apical area, but judging by the shape of everted endophallus species are distinct: in lateral view first and second ventral growth as well as two lateral growths are much smaller in *P. bollinoi* sp. nov. (Fig. 3.1-3.2). Additionally, species within *Pachyrhynchus pinorum* species complex have markings at apical part of the disc medially, while *P. bollinoi* sp. nov. lack any scally markings on apical part of the disc, but have four scally spots on disc, two just after the middle each redirected laterally and one along each latero-basal part of the disc. This feature is common for two more species: *P. tetramaculatus* Rukmane, 2019 and *P. cinereomaculatus* sp. nov.. Together with different elytral ornamentation, *P. tetramaculatus* Rukmane, 2019 have narrower apical area in both sexes, as well as widened elytra along apical 1/3 to 1/2; on contrary elytra of *P. cinereomaculatus* sp. nov. is strongly widened along the middle, feature is more strongly expressed in females

(*P. bollinoi* sp. nov. LE/WE 1.49; *P. cinereomaculatus* sp. nov. LE/WE 1.27).

**Etymology.** The new species was dedicated to brilliant specialist in the field of entomology, person who was first to use eversion technology for the genus *Pachyrhynchus*, also to amazing colleague and friend Dr. Maurizio Bollino (Lecce, Italy), as an appreciation of his immeasurable contribution to study of the genus.

***Pachyrhynchus cinereomaculatus* sp. nov.**

Fig. 1C-D, 2F-I

**Type material. Holotype: Male:** “PHILIPPINES / N Luzon, Ifugao, Banaue / VIII. 2016 / local collector leg.” (white rectangular label); “HOLOTYPE / *Pachyrhynchus cinereomaculatus* / Rukmane-Bārbale, 2020 / (red rectangular label).

**Paratypes (2 females):** 1 female: “PHILIPPINES, Luzon / Nueva Vizcaya, Kasibu / X. 2012 / local collector leg.”; 1 female: “PHILIPPINES, Luzon / Aurora, V. 2014 / local collector leg.” (both on

white rectangular labels). With additional red label: “PARATYPE / *Pachyrhynchus cinereomaculatus* / Rukmane-Bārbale, 2020 /

**Distribution.** Luzon Island.

**Description.** Male. Measurements (n=1): LB: 13.0; LR: 1.9; WR: 2.2; LP: 4.5; WP: 4.0; LE: 8.6; WE: 6.5.

Body black, shiny, with light grey to silver markings of round to elliptic recumbent scales.

Head nearly without pubescence, dorsally without markings. Horehead more than three times as wide as eye width; eyes small, nearly not prominent from outline of the head; outline of each eye highest just before the middle. Rostrum slightly wider than long (WR/LR 1.16); dorsum nearly without puncture, with sub-otriangular impression on basal half, apical half flattish; dorsal contour of rostrum nearly straight in basal half, slightly decreased to apical half. Antennae mingled with rare silver hairs; antennomer I longer than II, 2 times as long as wide; antennomer II 1.5 times as long as wide, longer than III-VII;

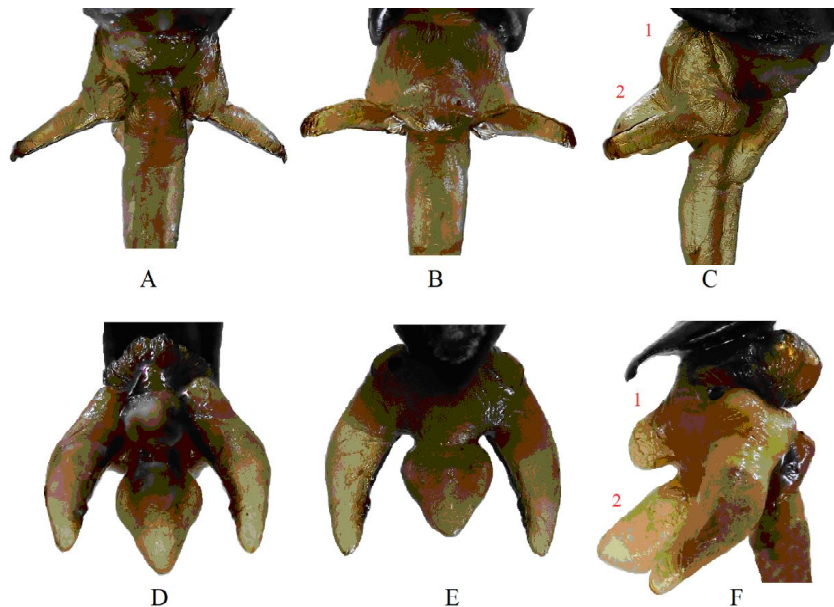


Fig. 3. A-C basal part of everted endophallus of *P. bollinoi* sp. nov.; 1 – 2 first two ventral growths; D – F basal part of everted endophallus of *P. pinorum* Pascoe, 1873

antennomers III-VII subequal in length, slightly wider than long; club nearly 2.5 times as long as wide.

Prothorax with the following six scally markings: 1) two elongated empty spots on disc at median part, each redirected laterally; 2) one triangular empty spot at each latero-basal edge of disc; 3) broad lateroventral stripe on each side. LP/WP 1.13; dorsal contour highest just before the middle; sides minutely raised from constricted base, then widest just before the middle, then gently convergent apicad to apical 1/3, then slightly widened to apex.

Each elytron with the following empty scale patches: 1) two round patches on basal 1/2; 2) three ovate patches at median part, displayed in transverse row from just after the suture to lateral margin; 3) two round patches on apical part; 4) two sutural patches, one just after the middle, one just before the apex; 5) one more patch laterally near apex; All patches of proximately same size except smaller sutural patches. Elytra very smooth, without punctured intervals. LE/WE 1.32, wider than prothorax (WE/WP 1.63), LE/LP 1.91; dorsal contour highest at the middle; sides gradually raised from base, widest just in the middle, then narrowed to apical area and rounded to apex.

Genitalia as illustrated (2F-I).

Female. Measurements (n=2): LB: 15.2-15.7 (mean 15.45); LR: 2.1-2.3 (mean 2.2); WR: 2.2-2.3 (mean 2.25); LP: 4.5-4.7 (mean 4.6); WP: 4.6-4.8 (mean 4.7); LE: 11.5-11.9 (mean 11.7); WE: 9.1-9.3 (mean 9.2). Elytra very strongly convex in dorsal contour, otherwise essentially as in males.

**Differential analyses.** *P. cinereomaculatus* sp. nov. is similar to *P. bollinoi* sp. nov. (see differential analyses upwards) and *P. tetramaculatus* Rukmane, 2019. From both species *P. cinereomaculatus* sp. nov. is easily distinguishable by very wide elytra together with characteristic markings on both elytra and pronotum.

**Etymology.** Species name is Latinised adjective of grey circles on body.

## REFERENCES

- Bollino M., Rukmane A., Mohagan N., 2020. Two new *Pachyrhynchus* (Curculionidae: Entiminae: Pachyrhynchini) from Misamis Occidental (Mindanao, The Philippines). *Zootaxa*, 4852(3): 323 – 332.
- Bollino M., Sandel F., Rukmane A., 2017. New species of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae) from Mindanao, Philippines. *Baltic Journal of Coleopterology*, 17(2): 189 – 204.
- Janovska M., Anichtchenko A. V., Erwin T. 2013. Significant new taxonomic tool for Carabidae (Insecta: Coleoptera): endophallus inflation methods revised. *Caucasian Entomological Bulletin*, 9(1): 39 – 42.
- Rukmane A., 2019. Four new species and two subspecies of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae: Pachyrhynchini) from Luzon Island, Philippines. *Baltic Journal of Entomology*, 19(2): 141 – 150.
- Yoshitake H., 2012. Nine new species of the genus *Pachyrhynchus* Germar (Coleoptera: Curculionidae) from the Philippines. *Esakia*, 52: 17 – 34.

Received: 07.10.2020

Accepted: 22.12.2020

Published: 30.12.2020.