

Nine new species of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae) from the Philippines

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Nine new species of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae) from the Philippines are described and illustrated: *P. kraslavae* sp. n., *P. marinduquensis* sp. n., *P. cabrasae* sp. n., *P. nitcisi* sp. n., *P. antonkozłovi* sp. n., *P. shavrini* sp. n., *P. anichtchenkoi* sp. n., *P. valainisi* sp. n., and *P. pseudapoensis* sp. n. *Pachyrhynchus reticulatus cruciatus* Schultze, 1923, described as a subspecies of *P. reticulatus*, raised to the species level, *P. cruciatus* Schultze, 1923 stat. n. The distribution of all species is mapped.

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

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INTRODUCTION

The genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae) belongs to the subfamily Entiminae and the tribe Pachyrhynchini comprises 14 genera mainly from the Philippines (Alonso-Zarazaga & Lyal, 1999; Yap & Gapud, 2007; Yoshitake, 2013). Members of the genus *Pachyrhynchus* as some related taxa of the tribe Pachyrhynchini (*Metapocyrtus* Heller, 1912, *Expachyrhynchus* Yoshitake, 2013) are wingless, have striking, sometimes bizarre patterns of brightly coloured scales,

often with strong intraspecific variation between local populations. Some described species have a similar coloration and location of bright spots and scales similar as the some members of the genus *Doliops* Waterhouse, 1841 (Cerambycidae: Lamiinae); data about mimicry between species of *Pachyrhynchus*, *Metapocyrtus* and *Doliops* were provided by Starr & Wang (1992), Barševskis (2013, 2014) and Barševskis & Jaeger (2014).

The genus *Pachyrhynchus* is represented in the Oriental fauna by more than 100 species,

distributed from Japan (Ryukyu Islands) to Australia and it is more common for the Philippine archipelago (Schultze, 1923), which may be regarded as the center of the diversity (Starr & Wang 1992) and a good example of taxa with restricted distributions and great zoogeographical significance (Link & Zettel, 2012). The genus has attracted attention of entomologists: for example, nine species (Yoshitake, 2012) and three species (Bolino & Sandel, 2015) were described from the Philippines in recent years.

During the study of large material from the Philippines on the genus *Pachyrhynchus* which is deposited in our institutional collection (DUBC), five new species were found from Mindanao Island, one from Marinduque, one from Mindoro, one from Luzon and one from Visayas, Samar. The goal of our paper is to provide with descriptions of these nine species. Besides that, *Pachyrhynchus reticulatus cruciatus* Schultze, 1923, which was described as a subspecies of *P. reticulatus*, raised to the species level.

MATERIAL AND METHODS

The studied material is deposited in the following collections:

DUBC - the beetles collection of Daugavpils University, Institute of Life Sciences and Technology, Coleopterological Research Centre, Ilgas, Daugavpils District, Latvia (A.Barševskis);

SMTD - Senckenberg Natural History Collections Dresden, Museum of Zoology, Dresden, Germany (O. Jäger).

The laboratory research and measurements have been carried out using *Nikon AZ100*, *Nikon SMZ745T* and *Zeiss Stereo Lumar V12* digital stereomicroscopes, NIS-Elements 6D software. The habitus photograph was obtained with a digital camera Canon EOS 6D with Canon MP-E 65 mm macro lens, using Helicon Focus auto montage and subsequently was edited with

Photoshop. The maps of the Philippine archipelago have been drawn using the software *ArcGis 10*.

The following measurements are used in this paper and abbreviated as follows: LB - length of body; LE - length of elytra; WE - maximal width of elytra; LP - length of pronotum; WP - maximal width of pronotum; LR - length of rostrum; WR - maximal width of rostrum. All measurements are given in millimeters. The measurement methodology follows Yoshitake (2013).

RESULTS

Pachyrhynchus kraslavae sp. n.
(Fig. 1)

Type material. Holotype, male: Philippines: Mindanao Isl., Compostela Valley, Mabini, 02.2014, local collector leg. (DUBC).

Distribution: Philippines: Mindanao Island (Fig. 9).

Description. Measurements: LB: 13.7; LE: 7.4; WE: 5.2; LP:4.1; WP:3.8; LR:1.3; WR:1.4.

Habitus dorsally as in Fig. 1A; habitus laterally as in Fig. 1B.

Body and legs metallic purple; body surface mostly very glossy and with wide spots of yellow scales. Eyes, antennae and tarsomeres black. Head with several sparse, oval scales. Each side of rostrum covered with small, oval scales, apical part of rostrum with elongate yellow scales. Median part of pronotum with slightly impressed transverse band of greenish scales, connected with large round spots of yellow scales laterally. Transverse band in middle portion of pronotum with small longitudinal keel. Apical part of femora with irregular yellow scaly spots. Elytra with several scaly spots and transverse band; background of these markings with greenish luster: 1) ovate spot on basal part of each elytron extends at a

slight transverse angle from interval II to lateral margin; 2) wide transverse band in middle part of elytra; 3) apical triangular marking, with rounded angles, extends from apex of elytron to apical third of elytra. Median and apical markings are connected by a marginal stripe laterally.

Head with shallow groove-shaped impression between eyes, with coarse punctures. Eyes relatively large, moderately prominent from outline of head. Rostrum with very fine sparse pubescence, covered by brown sparse setae apically, with shallow impression in basal half, weakly bulging in apical part. Apical bulge of rostrum flattened dorsally, faintly impressed in middle part; dorsal part of rostrum interrupted by weak transverse groove. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with sparse very short pubescence and with long setae; apical antennomeres club-shaped, subellipsoidal. Fu-

nicular segment I nearly twice as long as wide, slightly longer than II; segment II 1.5 times as long as wide, 1.4 times as long as III; segments III - VII slightly wider than long; club subellipsoidal, nearly 1.5 times as long as wide, nearly as long as funicular segments V to VII combined.

Pronotum subspherical, widest behind middle, with very fine and sparse punctation.

Scutellum small, rounded apically.

Elytra with fine punctures and pubescence; intervals of elytra smooth, with coarse punctures in slightly impressed rows.

Legs wide, with strongly clavate femora. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femora thinly covered with short hairs and hair-like scales along

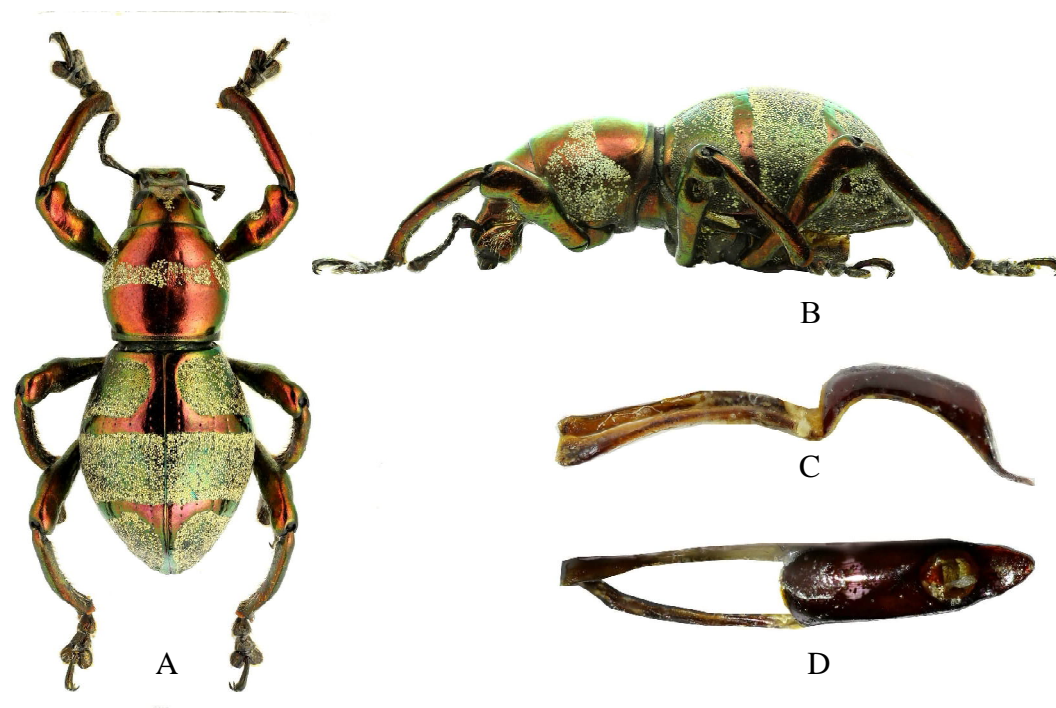


Fig. 1. *Pachyrhynchus kraslavae* sp.n. (holotype): A - dorsal view, B - lateral view, C - aedeagus (lateral view), D - aedeagus (dorsal view)

posterior margins. Tibiae with sparse pubescence, mingled with long hairs; each tibia fringed with long hairs along internal margin, sparsely mingled with stout hairs. Tarsomeres covered by sparse pale pubescence.

Aedeagus relatively short, curved in lateral view. Lamella subtriangular, rounded apically (Fig. 1 C, D).

Female unknown.

Differential diagnosis. *Pachyrhynchus kraslavae* sp. n. is similar in general appearance to *P. speciosus samarensis* Schultze, 1923 (Fig. 12), which was described from Samar Island. The new species is easily distinguishable from *P. speciosus samarensis* by the unique scaly markings on the pronotum and elytra: median part of pronotum (see dorsally) of *P. kraslavae* sp. n. with transverse band of yellow scales (compared taxa with longitudinal band of yellow scales), and with round spot of yellow scales on lateral sides of pronotum.

Etymology. The name *kraslavae* dedicated to the beautiful Latvian town Krāslava, in which were born and lived both authors of this paper.

***Pachyrhynchus marinduquensis* sp. n.**
(Fig. 2 A,E; 3 A, B)

Type material. Holotype: Male: Philippines: S Luzon, Marinduque Isl., Buenavista 07.2015, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Paratypes: 11 males: Philippines: S Luzon, Marinduque Isl., 03.2014 (1), 04.2014 (1), local collector leg.; Boac, 07.2014 (1), 08.2014 (2), local collector leg.; Buenavista, 03.2013 (2), 08.2013 (1), 07.2014 (1), local collector leg.; Mt. Malindig, 06. 2015 (2), local collector leg.; [ex Prof. A.Barševskis coll.]; 3 females: Philippines: S Luzon, Marinduque Isl., Boac, 06.2014 (1), local collector leg.; Buenavista 07.2013 (1), 08.2013 (1), local collector leg. [ex Prof. A.Barševskis coll.] (all in DUBC).

Distribution: Philippines: Marinduque Island (Fig. 4).

Description. Measurements (n=5): LB: 11.6 (mean 11.78); LE: 6.9 (mean 6.85); WE: 4.8 (mean 4.74); LP: 3.3 (mean 3.18); WP: 3.3 (mean 3.34); LR: 1.2 (mean 1.23); WR: 1.3 (mean 1.3).

Habitus as in Fig. 2A; habitus laterally as in Fig. 2E.

Body and legs black; body surface with pale yellowish, greenish or pink scale stripes forming a net-shaped pattern on elytra. Head black, glossy. Eyes protruded, hemispheric, black. Head between eyes with longitudinal central line of oval pale scales. Apical bulge of rostrum flattened dorsally. Each side of rostrum covered with small, oval and round scales. Rostrum in basal half with oblong depression and median groove. Antenna black. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with very short sparse pubescence and with long setae; apical antennomere club-shaped, covered with very fine golden pubescence.

Pronotum subspherical, widest behind middle, with very fine sparse punctuation, with pale scale line along anterior margin, median portion of pronotum with slightly impressed transverse, curved band of pale scales, which circumscribe five bare black spots dorsally: two at anterior margin, which at anterior part are confluent, two isolated spots at posterior margin and one small square spot at disc of pronotum.

Elytra with reticulate net-shaped stripes of pale scales. Each elytron divided by stripes of pale scales in nine irregular black bare spots, some of which sometime slightly confluent and two additional sutural black spots on each elytron. Intervals of elytra smooth, with coarse punctures in slightly impressed rows.

Legs wide, with strongly clavate femori. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femori thinly covered

with short hairs and hair-like scales along posterior margins. Tibiae with sparse pubescence and long setae; each tibia fringed with long setae along internal margin, sparsely mingled with stout setae. Tarsomeres covered by sparse pale pubescence.

Aedeagus relatively short, in lateral view curved. Lamella subtriangular, sharp apically (Fig. 3A, B).

Differential diagnosis. *Pachyrhynchus marinduquensis* sp. n. is similar in general appearance to *P. reticulatus* Waterhouse, 1841 (Fig. 2 C, G), which was described from Luzon Island. The new species is easily distinguishable from *P. reticulatus* by the shape of the male *aedeagus* (Fig. 3 A, B, E, F) and some other morphological characters. Outer margin of front femori of *P. marinduquensis* sp.n. with stripe of pale scales (*P. reticulatus* without pale scales or with some rudimentary small spots of pale scales). New species relatively slender as *P. reticulatus*, eyes more extended but legs and tarsomeres more slender and narrower.

Etymology. The name of the new species is derived from the name of the island, type locality of the new taxon.

***Pachyrhynchus cruciatus* Schultzze, 1923 stat. n.**
(Fig. 2 B, F; 3 C, D)

Examined material. 5 specimens: Philippines: Luzon Isl., Sierra Madre, Aurora, Dingalon, 07.2013 (1), 08.2013 (2), 05.2014 (1), 05.2015 (1), local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Distribution: Philippines: Luzon Island (Fig. 4).

Description. Measurements (n=5): LB: 12.63; LE: 7.13; WE: 5.57; LP: 3.62; WP: 3.92; LR: 1.35; WR: 1.41.

Habitus as in Fig. 2B; habitus laterally as in Fig. 2F

Body and legs black; body surface with pale yellowish or greenish scale stripes forming net-shaped pattern on elytra. Head black, glossy. Eyes flattened, not extended laterally, black. Head between eyes with longitudinal central line of oval pale scales widened in frontal part. Apical bulge of rostrum flattened dorsally. Each side of rostrum covered with small, oval and round scales. Rostrum in basal half with oblong depression and median groove. Antenna black. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with sparse very short pubescence and with long setae; apical antennomere club-shaped, covered with very fine golden pubescence.

Pronotum subspherical, widest behind middle, with very fine, sparse punctation, with pale scale line along anterior and lateral margins, dorsal part of pronotum with slightly impressed cruciform-shaped pale scales confluent with anterior and lateral margins and circumscribe four bare black spots dorsally, without one small squarish spot at disc of pronotum.

Elytra with reticulate net-shaped stripes of pale scales. Elytra with lines circumscribing bare areas not crossing at distinct angles, forming transverse cells. Intervals of elytra with microsculpture and with coarse punctures in slightly impressed rows.

Legs wide, with strongly clavate femora. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femora thinly covered with short hairs and hair-like scales along posterior margins. Tibiae with sparse pubescence and with long hairs; each tibia fringed with long setae along internal margin, sparsely mingled with stout setae. Tarsomeres covered by sparse pale pubescence.

Aedeagus relatively elongated, in lateral view curved. Lamella sharp, subtriangular, slightly rounded apically (Fig. 4).

Differential diagnosis. *Pachyrhynchus cruciatus* Schultzze, 1923 stat. n. is similar in gen-

eral appearance to *P. reticulatus* Waterhouse, 1841 (Fig. 2 C, G) (Luzon Island), *P. marinduquensis* sp. n. (Marinduque Island) (Fig. 2 A, E) and *P. cabrasae* sp. n. (Mindanao Island) (Fig. 2 D, H). This species is clearly distinguishable from the compared species by the characteristic shape of the pronotum with slightly impressed cruciform shaped pale scales, as well as by the different shape of the aedeagus (see Fig. 3 C, D).

Taxonomic note. This species was originally described by Schultz (1923) as a subspecies of *P. reticulatus cruciatus* Schultz, 1923. As a result of our comparative morphological studies, we raise its taxonomic status to the species level.

***Pachyrhynchus cabrasae* sp. n.**
(Fig. 2 D, H; 3 G, H)

Type material. Holotype: Male: Philippines: Mindanao Isl., Bukidnon, Mt. Kalatungan, 600-1000 m a.s.l., 07.2014, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Paratypes: 5 males: Philippines: Mindanao Isl., Bukidnon, Cabanglasan, 06.2014 (1), 07.2014 (2), 08.2015 (2), local collector leg. [ex Prof. A.Barševskis coll.]; 11 females, Philippines: Mindanao Isl., Bukidnon, Cabanglasan, 01.2014 (1), 02.2014 (1), 06.2014 (1), 08.2014 (2), 09.2014 (1), 08.2015 (3), 11.2015 (1), local collector leg. [ex Prof. A.Barševskis coll.] (all in DUBC).

Distribution: Philippines: Mindanao Island (Fig. 4).

Description. Measurements (n=5): LB: 13.67 (mean 13.15); LE: 8.53 (mean 7.95); WE: 5.73 (mean 5.83); LP: 3.73 (mean 3.76); WP: 4.2 (mean 4.02); LR: 1.47 (mean 1.58); WR: 1.6 (mean 1.55).

Habitus dorsally as in Fig. 2 D; habitus laterally as shown in Fig. 2 H.

Body and legs metallic gold, very shiny; body surface with pale yellowish, greenish or pink metallic shiny scale stripes forming a net-shaped pattern on the elytra. Head massiv, golden red, very glossy. Eyes slightly flattened, not hemispheric, black. Head between eyes with double longitudinal median line of oval pale scales. Apical bulge of rostrum flattened dorsally, with intensive punctation. Each side of rostrum covered with small, oval and round scales. Rostrum in basal half with oblong depression and median groove. Antenna black, except first metallic gold antennomere. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with very short sparse pubescence and with long setae; apical antennomere club-shaped, covered with very fine pubescence.

Pronotum subspherical, widest in the middle, with very fine, sparse punctation, without pale scale line along anterior margin, median part of pronotum with slightly impressed transverse, curved band of pale scales, which circumscribe five bare black spots dorsally: two at anterior margin, confluent at anterior part, two isolated spots at posterior margin and one small square spot at disc of pronotum.

Elytra with reticulate net-shaped stripes of pale metallic scales. Each elytron divided by stripes of pale scales in nine irregular, isolated, metallic dark, bare spots, and two additional sutural spots on each elytron. Intervals of elytra smooth, with coarse punctures in slightly impressed rows.

Legs massive, wide, with strongly clavate femori. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femori thinly covered with short setae and hair-like scales along posterior margins. Tibiae with sparse pubescence, mingled with long setae; each tibia fringed with long setae along internal margin, sparsely mingled with stout setae. Tarsomeres covered by sparse pale pubescence.

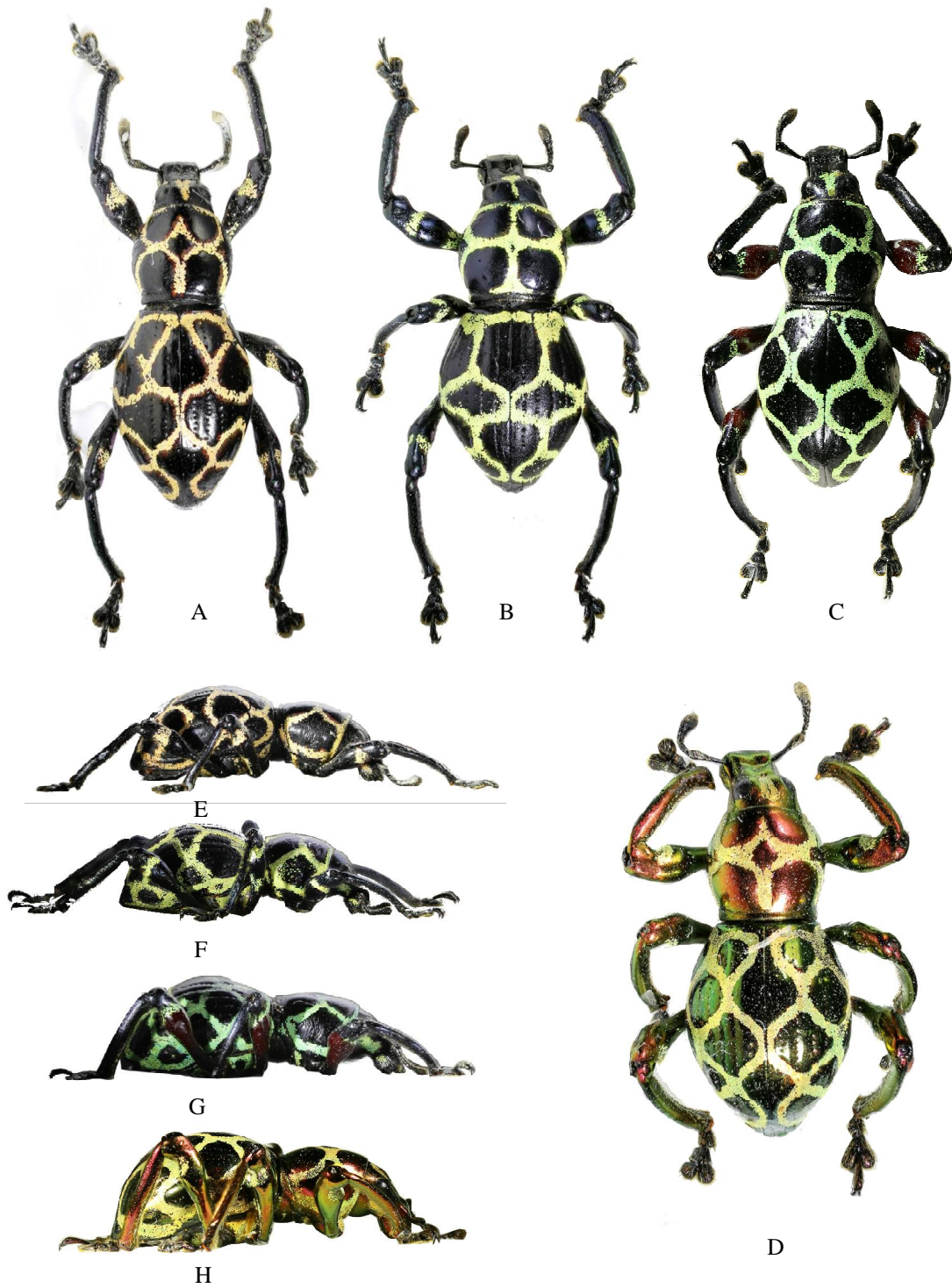


Fig. 2. *Pachyrhynchus marinduquensis* sp.n. (A - dorsal view, E - lateral view); *P. cruciatus* Schultz, 1923 stat.n. (B - dorsal view, F - lateral view); *P. reticulatus* Waterhouse, 1841 (C - dorsal view, G - lateral view); *P. cabrasae* sp.n. (D - dorsal view, H - lateral view)

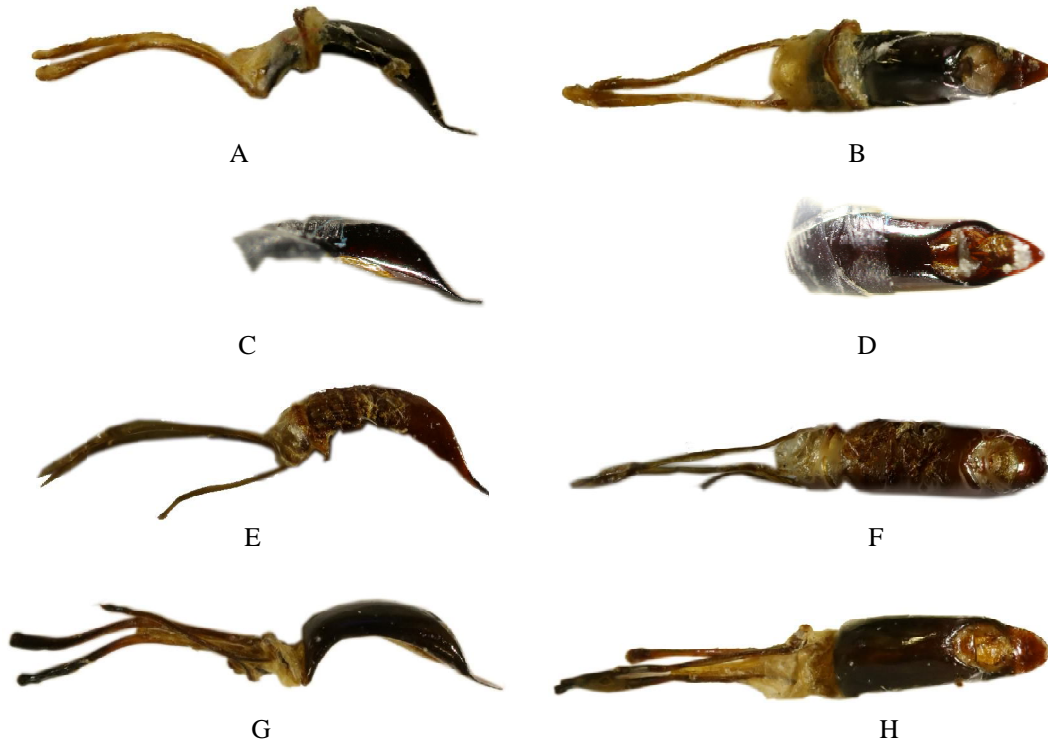


Fig. 3. Aedeagus: *Pachyrhynchus marinduquensis* sp.n. (A - lateral view, B- dorsal view); *P. cruciatus* Schultz, 1923 stat.n. (C- lateral view, D - dorsal view); *P. reticulatus* Waterhouse, 1841 (E - lateral view, F - dorsal view); *P. cabrasae* sp.n. (G - lateral view, H - dorsal view)

Aedeagus relatively short, in lateral view curved. Lamella subtriangular, apically rounded (Fig. 3 G, H).

Differential diagnosis. *Pachyrhynchus cabrasae* sp. n. is similar in general appearance to *P. reticulatus* Waterhouse, 1841 (Fig. 2 C, G) and *P. marinduquensis* sp. n. (Fig. 2 A, E), known from Luzon and Marinduque Islands respectively. The new species is easily distinguishable from *P. reticulatus* and *P. marinduquensis* sp. n. by the shape of the aedeagus (Fig. 3) and some other morphological characters: body, legs and tarsomeres of *P. cabrasae* sp. n. more massive, metallic gold, very shiny (body of compared species are black), pronotum without pale scale line along anterior margin.

Etymology. This species named after our colleague, the Philippine entomologist Analyn Cabras in appreciation of cooperation.

***Pachyrhynchus nitcisi* sp. n.**
(Fig. 5)

Type material. Holotype: Male: Philippines: Mindanao Isl., Sarangani, Malungon, 600-900 m., 04.2014, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Paratypes: 10 males: Philippines, Mindanao Isl., Agusan del Sur, Sibagat, 06. 2015 (4), local collector leg; Sarangani, Malungon, 500 - 900 m., 04.2014 (3), 05.2014 (1), 07.2014 (1), 10.2015 (1), local collector leg. [ex. Prof. A. Barševskis coll.] (DUBC). 16 females, Philippines, Mindanao Isl., Agusan del Sur, Sibagat, 06. 2015 (1), local collector leg; Sarangani, Malungon, 600

- 900 m., 05.2014 (3), 06.2014 (3), 07.2014 (2), 08.2014 (1), 06.2015 (2), 07.2015 (1), 10.2015 (1), local collector leg. [ex Prof. A.Barševskis coll.] (all in DUBC).

Distribution: Philippines: Mindanao Island (Fig. 9).

Description. Measurements (n=5): LB: 13.5 (mean 14.06); LE: 7.5 (mean 8.08); WE: 5.3 (mean 6.04); LP: 3.9 (mean 3.72); WP: 4 (mean 3.98); LR: 2.2 (mean 1.96); WR: 2.4 (mean 2.2).

Habitus dorsally as in Fig. 5A; habitus laterally as in Fig. 5B.

Body and legs metallic purple gold, very shiny; body surface with pale yellow-greenish, shiny scale spots. Head massive, golden red, very glossy. Eyes flattened, not hemispheric, black. Head between eyes with two small, oval or slightly elongated spots of pale scales. Apical bulge of rostrum flattened dorsally, with intensive fine punctation. Each side of rostrum in basal and frontal side covered with small, oval and round scales continuing under eyes as band. Rostrum in basal half with oblong depression and median groove. Median part of rostrum with deep transverse depression. Antenna black, with small antennomeres. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with sparse very short pubescence and with long setae; apical antennomere club-shaped, covered with very fine golden pubescence.

Pronotum subspherical, widest in middle, with very fine, sparse punctation, with two discally interrupted transversal spots in lateral portion. Anterior and posterior margin of pronotum without pale scales, shiny.

Elytra with spots of pale yellow-greenish scales. Each elytron with eight spots of pale scales: one smaller spot dorsally and one larger spot laterally at base of elytron, one transverse spot laterally in median part of elytron, two preapical spots and two additional sutural spots on each elytron. Intervals of elytra smooth, with fine punctures in slightly impressed rows.

Legs thin, with strongly clavate femori. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femori thinly covered with short setae and hair-like scales along posterior margins. Tibiae with sparse pubescence, mingled with long setae; each tibia fringed with long setae along internal margin, sparsely mingled with stout setae. Tarsomeres black. with metallic purple luster. covered by



Fig. 4. Distribution of *Pachyrhynchus marinduquensis* sp.n., *P. cruciatus* Schultz, 1923 stat.n., *P. reticulatus* Waterhouse, 1841 and *P. cabrasae* sp.n.

Aedeagus short, in lateral view curved. Lamella short and wide, subtriangular, slightly rounded apically (Fig. 5 C, D).

Differential diagnosis. *Pachyrhynchus nitcisi* sp. n. is similar in general appearance to *P. eos* Heller, 1924. The new species is easily distinguishable from *P. eos* by the shape of the *aedeagus* and by the shape of smaller spots on body surface, filled with scales (spots of *P. eos* are partially filled or only with scaled contours). Besides that, frons of the new species with two separated spots, while those of *P. eos* with one continuous spot.

Etymology. This species is named after our colleague, the biologist and GPS specialist Māris Nitcis (Daugavpils, Latvia) in appreciation of cooperation.

***Pachyrhynchus antonkozlovi* sp. n.**
(Fig. 6)

Type material. Holotype: Male: Philippines: Mindanao Isl., Sarangani, Malungon, 09.2014, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Paratype: Male: Philippines: Mindanao Isl., Sarangani, Malungon, 12.2014, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Distribution: Philippines: Mindanao Isl. (Fig. 9).

Description. Measurements (n=2): LB: 12.5 (mean 11.9); LE: 7.2 (mean 6.6); WE: 5 (mean 4.85); LP: 2.8 (mean 2.65); WP: 3.1 (mean 3.05); LR: 1.6 (mean 1.65); WR: 1.4 (mean 1.35).

Habitus as in Fig. 6A; habitus laterally as in Fig. 6B.

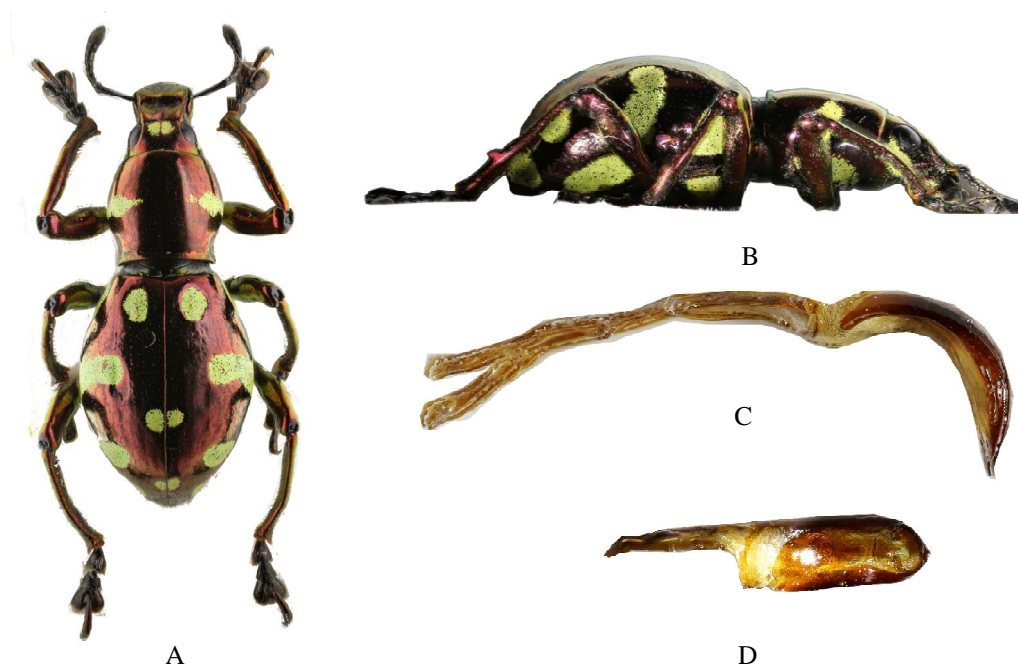


Fig. 5. *Pachyrhynchus nitcisi* sp.n. (holotype): A - dorsal view, B - lateral view, C - aedeagus (lateral view), D - aedeagus (dorsal view)

Body and legs metallic purple gold, very shiny; body surface with pale greenish, shiny scale spots. Head golden purple, very glossy, with sparse, fine punctuation. Eyes slightly extended laterally, hemispheric, black. Head between eyes without spots of pale scales, under eyes laterally with rudimental small spot of pale scales. Apical bulge of rostrum convex, flattened dorsally, with dense fine punctuation. Each side of rostrum not covered with small, oval and round scales, smooth. Rostrum in basal half with oblong depression and median groove. Middle part of rostrum with deep transverse depression. Antenna black, with small antennomeres. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with very short sparse pubescence and with long setae; apical antennomere club-shaped, covered with very fine golden pubescence.

Pronotum subspherical, slightly flattened, widest in median portion, with very fine, sparse punctuation, in the middle with transversal band

of pale scales. Anterior and posterior margin of pronotum without pale scales, shiny.

Elytra at the basis and in the middle with transverse band of pale scales, widely interrupted near suture dorsally. Each elytron apically with V-shaped spot of pale scales widely interrupted at lateral margin. Intervals of elytra smooth, with fine punctures in slightly impressed or not impressed rows.

Legs thin, with strongly clavate femora. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femora thinly covered with short setae, without scales along posterior margins. Tibiae with sparse pubescence, mingled with long setae; each tibia fringed with long setae along internal margin, sparsely mingled with stout setae. Tarsomeres black, with metallic purple luster, covered by sparse brown pubescence.

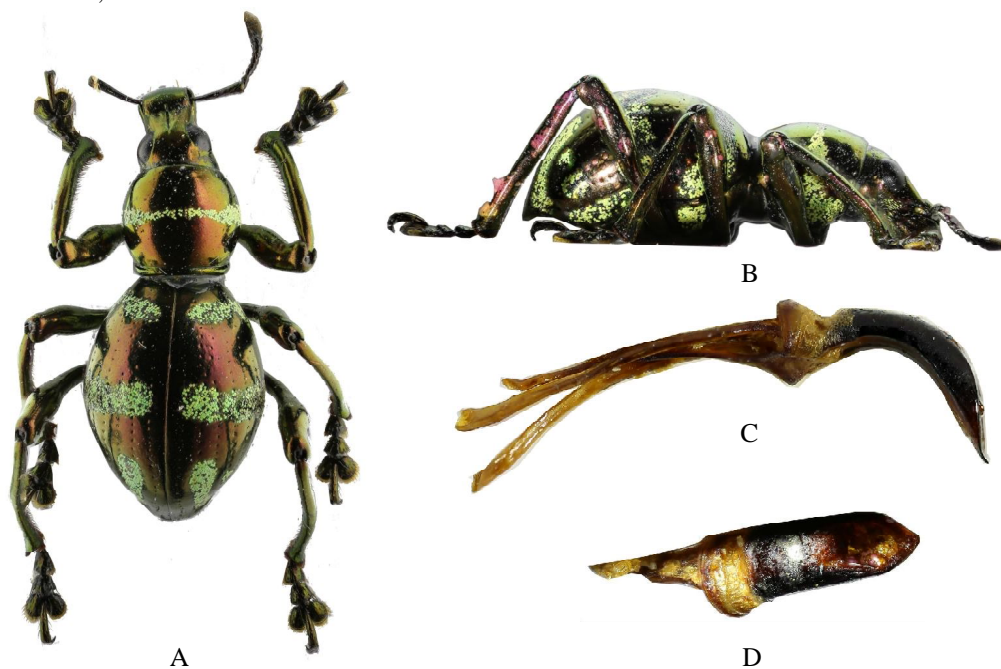


Fig. 6. *Pachyrhynchus antonkozlovi* sp.n. (holotype): A - dorsal view, B - lateral view, C - aedeagus (lateral view), D - aedeagus (dorsal view)

Aedeagus short, in lateral view curved. Lamella short and wide, slightly rounded apically (Fig. 6 C, D).

Differential diagnosis. *Pachyrhynchus antonkozlovi* sp. n. is similar in general appearance to *P. signatus* Schultze, 1919 from Siargao and Bucas islands, which has a single transverse band on the elytra and one interrupted transverse band on the pronotum, but the new species has two transverse bands and a V-shaped spot on the elytra and one transverse band on the pronotum. The new species is similar in general appearance also to *P. noaki* Yoshitake, 2012 from Mindanao, which has one uninterrupted band on the elytra and without transverse band on the pronotum.

Etymology. This species is named after our colleague, Russian entomologist and excellent beetles collector Anton Kozlov (Moscow, Russia) in appreciation of cooperation.

***Pachyrhynchus shavrini* sp. n.**
(Fig. 7 A, E; 8 A, E)

Type material. Holotype: Male: Philippines: E. Visayas, Samar Isl., Lope De Vega, 03.2016, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Paratypes: 12 males: Philippines, E. Visayas, Samar, Hinabangan, 06.2014 (2), 08.2014 (1), 03.2016 (1), local collector leg; Lope de Vega, 03.2016 (3), 04.2016 (4), local collector leg; Mabarut, 06.2015 (1), local collector leg; 1 female, Philippines: E. Visayas, Samar Isl., Lope De Vega, 03.2016, local collector leg. [ex Prof. A.Barševskis coll.] ; 7 males, Philippines: E. Visayas, Samar Isl., Hinabangan, 08.2014 (1), 11.2015 (1), 03.2016 (1), local collector leg; Lope de Vega, 03.2016 (2), 04.2016 (2), local collector leg. [ex Prof. A.Barševskis coll.] (all in DUBC).

Distribution: Philippines: Samar Island (Fig. 10).

Description. Measurements (n=5): LB: 15.1 (mean 15.16); LE: 7.8 (mean 8.02); WE: 5.7 (mean 5.78); LP: 3.5 (mean 3.88); WP: 4. (mean 4.28); LR: 1.9 (mean 1.88); WR: 2.2 (mean 2.12).

Habitus as in Fig. 7A; habitus laterally as in Fig. 7E.

Body and legs of holotype and one paratype black, three paratypes metallic purple gold, very shiny; body surface with pale greenish, shiny scale spots. Head black or golden purple, very glossy, with sparse, fine punctation. Eyes flat, not extended laterally, black. Head between eyes with wide longitudinal band of pale scales, which is divergent near apical bulge. Head laterally under eyes and on lateral sides of rostrum with pale scales. Apical bulge of rostrum convex, flattened dorsally, with intensive fine punctation. Rostrum in basal half with oblong depression and median groove. Middle part of rostrum with deep transverse depression. Antenna black, with small, delicate antennomeres. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with very short sparse pubescence and with long setae; apical antennomere club-shaped, covered with very fine golden pubescence.

Pronotum massive, subspherical, slightly flattened, widest in middle, with very fine, sparse punctation, in median portion with impressed longitudinal band and two symmetrically arranged longitudinally curved spots of pale scales. Anterior margin of pronotum with narrow transverse stripe of pale scales, posterior margin without transverse stripe, only with small triangular widened basis of middle line.

Elytra with many longitudinal and with one transverse stripe of pale scales. Basal parts of each elytron dorsally with five or six, sometimes merged longitudinal bands, which end before the hemiddle of elytra near transverse band. Apex of elytra with V-shaped band connected laterally with the transverse band and with two shorter strips not connected with either the V-shaped or

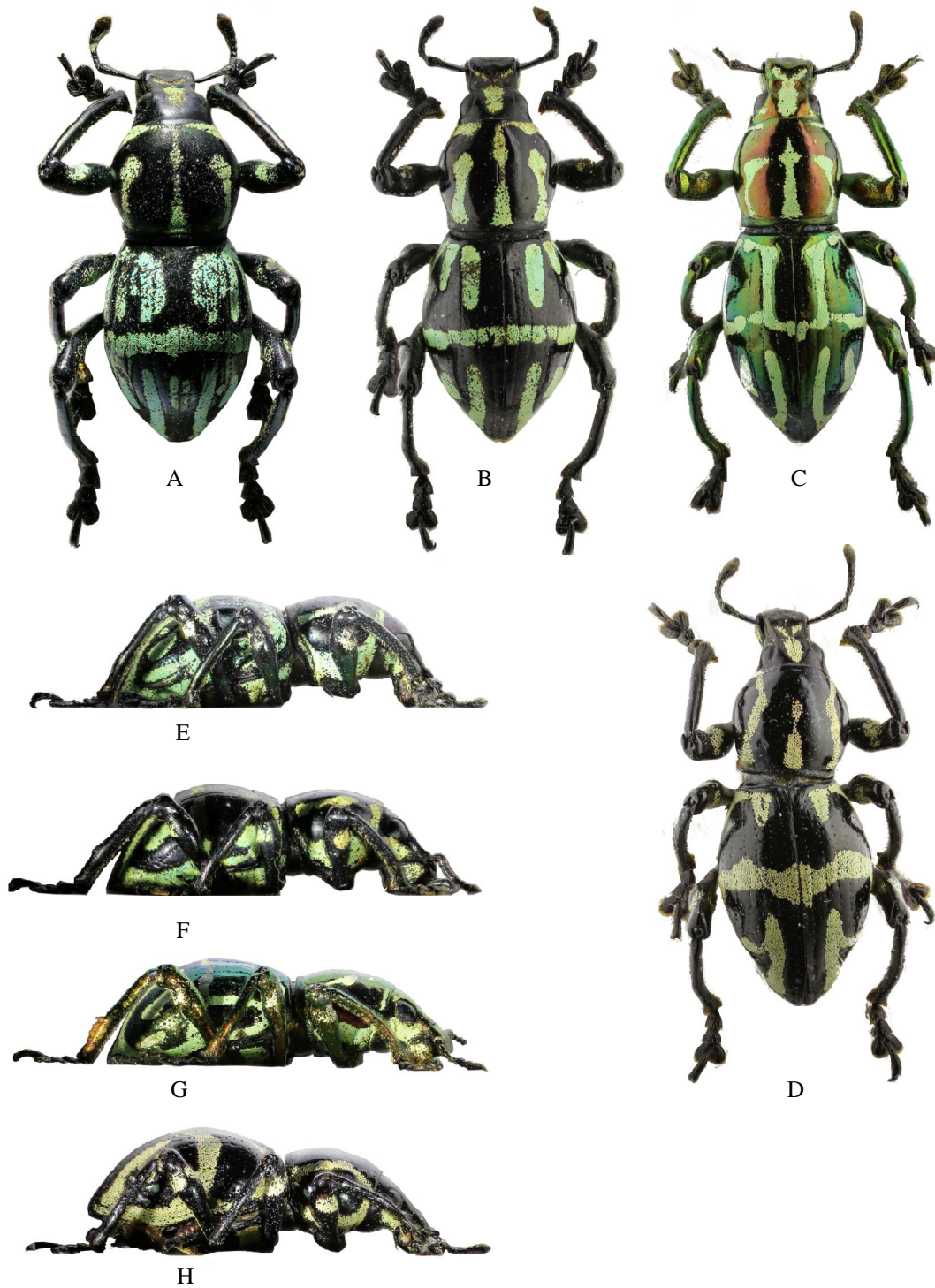


Fig. 7. *Pachyrhynchus shavrini* sp.n. (A - dorsal view, E - lateral view); *P. cumingi* Waterhouse, 1841. (B - dorsal view, F - lateral view); *P. anichtchenkoi* sp.n. (C - dorsal view, G - lateral view); *P. valainisi* sp.n. (D - dorsal view, H - lateral view)

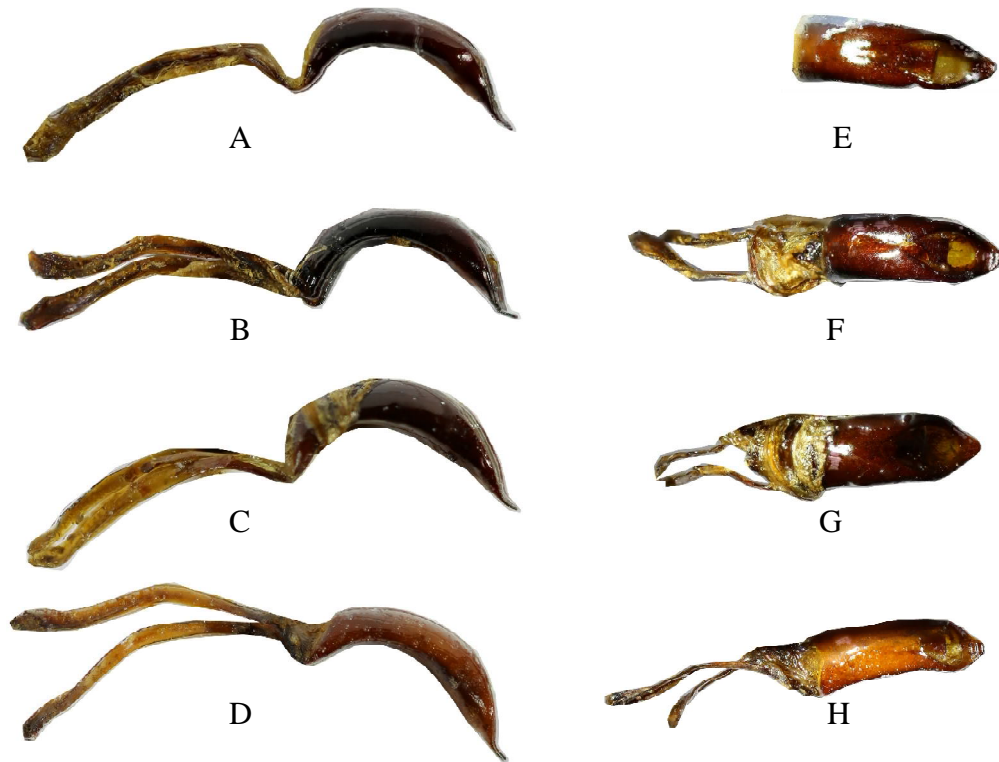


Fig. 8. *Aedeagus*: *Pachyrhynchus shavrini* sp.n. (A - dorsal view, E - lateral view); *P. cumingi* Waterhouse, 1841. (B - dorsal view, F - lateral view); *P. anichtchenkoi* sp.n. (C - dorsal view, G - lateral view); *P. valainisi* sp.n. (D - dorsal view, H - lateral view)

the transverse band. Intervals of elytra smooth, with fine punctures in slightly impressed rows.

Legs thin, with strongly clavate femori. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femori thinly covered with short setae and scales along posterior margins. Tibiae with sparse pubescence, mingled with long setae; each tibia fringed with long setae along internal margin, sparsely mingled with stout setae. Tarsomeres black or with metallic purple luster, covered with sparse brown pubescence.

Aedeagus elongate, in lateral view curved. Lamella elongate, slightly rounded apically (Fig. 8).

Differential diagnosis. *Pachyrhynchus shavrini* sp. n. is similar in general appearance to *P. cumingi* Waterhouse, 1841 (Bohol Island), *P. anichtchenkoi* sp. n. (Mindanao Island), and *P. valainisi* sp. n. (Mindoro Island), which have different pattern of elytra and other shape of the *aedeagus*. Elytral differences appear in Fig. 7. Basis of each elytron of new species with five to six short elongated stripes not connected with transverse band at the middle (basis of each elytron of *P. anichtchenkoi* sp. n. with two longitudinal stripes connected with transverse band at the middle of elytra; each elytron of *P. cumingi* with three short sometime merged stripes not confluent with transverse line at the middle of elytra; Basis of each elytron of *P. valainisi* sp. n. with two very short stripes of

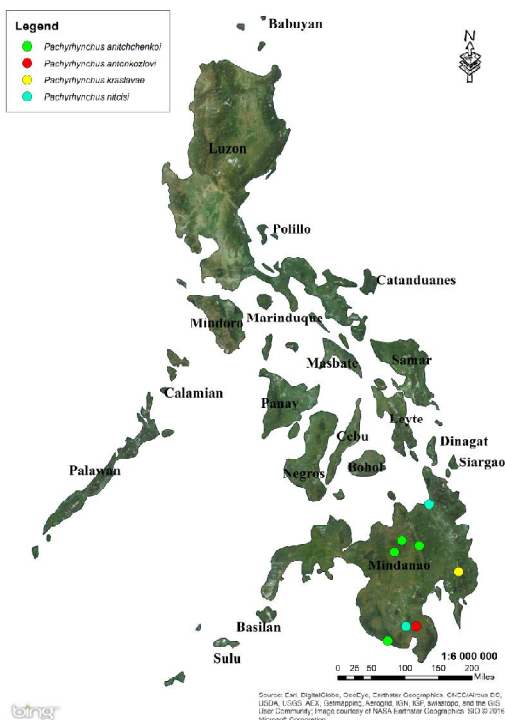


Fig. 9. Distribution of *Pachyrhynchus anichtchenkoi* sp.n. , *P. antonkozlovi* sp.n. , *P. kraslavae* sp.n. and *P. nitcisi* sp.n.

pale scales not connected with curved dorsally middle band).

Etymology. This species is named after our colleague Alexey Shavrin (Daugavpils, Latvia) in appreciation of cooperation.

***Pachyrhynchus anichtchenkoi* sp. n.**
(Fig. 7 C, G; 8 C, G)

Type material. Holotype: Male: Philippines: Mindanao Isl., Bukidnon, Mt. Kalatungan, 600 - 1000 m.a.s.l., 04.2014, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Paratypes: 9 males: Philippines, Mindanao Isl., Bukidnon, Cabanglasan, 11.2015 (1), 12.2015 (1), local collector leg.; Intavas, 06.2014 (3), local collector leg.; Mt. Kalatungan, 600 - 1000

m., 04.2014 (2), 06.2014 (1), local collector leg.; Panamokan, 03.2014 (1), local collector leg.; 6 females: Philippines, Mindanao Isl., Bukidnon, Intavas, 06.2014 (1), 07.2014 (1), 08.2014 (1), 10.2015 (1), local collector leg., Mt. Kalatungan, 03.2014 (1), local collector leg.; Sarrangani, Kiamba, 10.2015 (1), local collector leg. [ex Prof. A.Barševskis coll.] (all in DUBC).

Distribution: Philippines: Mindanao Island (Fig. 10).

Description. Measurements (n=5): LB:12.9 (mean 14.34); LE: 7 (mean 7.88); WE: 4.3 (mean 5.33); LP: 3.6 (mean 3.7); WP: 3.7 (mean 3.88); LR: 1.9 (mean 1.9); WR: 1.8 (mean 1.94).



Fig. 10. Distribution of *Pachyrhynchus valainisi* sp.n., *P. shavrini* sp.n. and *P. pseudapoensis* sp.n.

Habitus as in Fig. 7C; habitus laterally as in Fig. 7G.

Body and legs metallic purple or green, very shiny; body surface with pale greenish, shiny scale spots (surface of holotype bicolor: head purple golden, elytra metallic green, very glossy; paratypes unicolor, purple golden). Head purple golden, very glossy, with sparse, fine punctuation. Eyes flat, not extended laterally, black. Head between eyes with wide longitudinal band of pale scales divergent near apical bulge. Head laterally under eyes and on lateral sides of rostrum with pale scales, with long hairs in frontal part. Apical bulge of rostrum convex, flattened dorsally, with intensive fine punctuation. Rostrum in basal half with oblong depression and median groove. Middle part of rostrum with deep transverse depression. Antenna black, with small, delicate antennomeres. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with sparse very short pubescence and with long setae; apical antennomere club-shaped, covered with very fine golden pubescence.

Pronotum subspherical, slightly flattened, widest in middle, with very fine, sparse punctuation, in middle with impressed longitudinal band and two curved spots of pale scales symmetrically arranged longitudinally convergent in frontal part. Anterior margin of pronotum with narrow interrupted stripe of pale scales transverse dorsally, posterior margin without transverse stripe, with small triangular widened basis of middle line.

Elytra with longitudinal and transverse stripes of pale scales. From each elytron basis dorsally leave one and laterally one longitudinal band, which connected with transverse band at middle of each elytron. Lateral portions of each elytron emarginated with stripe of pale scales. Apex of elytra with V-shaped band and two shorter strips not connected with either V-shaped or transverse band. One paratype with confluent apical bands. Intervals of elytra smooth, with very fine

punctures in slightly impressed or not impressed rows.

Legs thin, with strongly clavate femora. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femora thinly covered with short setae and scales along posterior margins. Tibiae with sparse pubescence, mingled with long setae; each tibia fringed with long setae along internal margin, sparsely mingled with stout setae and scales. Tarsomeres black or with metallic purple luster, covered by sparse brown pubescence.

Aedeagus short, in lateral view arched. Lamella short, apically slightly rounded (Fig. 8 C, G).

Differential diagnosis. *Pachyrhynchus anichtchenkoi* sp. n. is similar in general appearance to *P. cumingi* Waterhouse, 1841 from Bohol Island and *P. shavrini* sp. n. from Samar Island, and *P. valainisi* sp. n. from Mindoro Island, which have different pattern of elytra and other form of *aedeagus*. Elytral differences appear in Fig. 7. Each elytron of new species at the basis with two elongated stripes, which connected with transverse band at the middle, but elytra of *P. shavrini* sp. n. at the basis with five or six short longitudinal stripes, but each elytron of *P. cumingi* Waterh. three short, sometime merged stripes, which not confluent with transverse line at the middle of elytra. Each elytron of *P. valainisi* sp. n. at the basis with two very short stripes of pale scales which not connected with dorsally arched middle band.

Etymology. This species is named after our colleague Alexander Anichtchenko (Daugavpils, Latvia) in appreciation of cooperation.

***Pachyrhynchus valainisi* sp. n.**
(Fig. 7 D, H; 8 D, H)

Type material. Holotype: Male: Philippines: Mindoro Isl., Puerto Galera, 07.2014, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Paratype: Female: Philippines: Mindoro Isl., Baco, 10.2015, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Distribution: Philippines: Mindoro Isl. (Fig. 10).

Description. Measurements (n=2): LB:12.5 (mean 14.15); LE: 6.8 (mean 7.3); WE: 4.8 (mean 5.35); LP: 3.3 (mean 3.9); WP: 3.4 (mean 4.15); LR: 1.5 (mean 1.7); WR: 1.7 (mean 1.85).

Habitus as in Fig. 7D; habitus laterally as in Fig. 7 H.

Body and legs black, slightly shiny; body surface with pale yellow scale spots. Head black, with sparse, fine punctation. Eyes slightly extended laterally, black. Head between eyes with wide elongated longitudinal band of pale scales, which divergent near apical bulge or interrupted before apical bulge. Head under eyes laterally and on lateral sides of rostrum with pale scales, with long yellow brown setae frontally. Apical bulge of rostrum flattened dorsally, with dense fine punctation and with some yellow setae in frontal part. Rostrum in basal half with oblong depression and median groove. Median part of rostrum with deep transverse depression. Antenna black, with small antennomeres. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with sparse very short pubescence and with long setae; apical antennomere club-shaped, covered with very fine pubescence.

Pronotum subspherical, slightly flattened, widest in middle, or before middle, with very fine, sparse punctation, in middle with impressed longitudinal band reaches middle of pronotum and two symmetrically arranged longitudinally curved stripes of pale scales convergent or closer each other in frontal part and an anterior margin continue laterally as marginal stripe.

Elytra with longitudinal and transverse stripes of pale scales. Basis of each elytron with two short longitudinal bands ended behind shoulders and not connected with transverse arched band at middle of each elytron. Each elytron laterally emarginated with stripe of pale scales. Apex of elytra with V-shaped band from which in sutural part extending short appendix-shaped stripe. Intervals of elytra smooth, with very fine punctures in slightly impressed.

Legs thin, with strongly clavate femori. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femori thinly covered with short setae and scales along posterior margins. Tibiae with sparse pubescence, mingled with long setae; each tibia fringed with long setae along internal margin, sparsely mingled with stout setae and scales. Tarsomeres black, covered by sparse brown pubescence.

Aedeagus short, in lateral view curved. Lamella short, slightly rounded apically (Fig. 8 D, H).

Differential diagnosis. *Pachyrhynchus valainisi* sp. n. is similar in general appearance to *P. cumingi* Waterhouse, 1841 (Bohol Island), *P. shavrini* sp. n. (Samar Island) and *P. anichtchenkoi* sp. n. (Mindanao Island), which have different pattern of elytra and other shape of aedeagus. Elytral differences appear in Fig. 7. Each elytron of new species at the basis with two short stripes, which not connected with transverse band at the middle, and elytra of *P. shavrini* sp. n. at the basis with five or six short longitudinal stripes, but each elytron of *P. cumingi* Waterh. three short, sometimes merged stripes, which are not confluent with transverse line at the middle of elytra and *P. anichtchenkoi* sp. n., at each elytron with two elongated stripes, which are connected with transverse band at the middle of elytra.

Etymology. This species is named after our colleague Uldis Valainis (Daugavpils, Latvia) in appreciation of cooperation.

***Pachyrhynchus pseudapoensis* sp. n.**
(Fig. 11 A, B)

Type material. Holotype: Female: Philippines: Luzon Isl., North Luzon, 06.2005, local collector leg. [ex Prof. A.Barševskis coll.] (DUBC).

Distribution: Philippines: Luzon Island (Fig. 10).

Description. Measurements: LB: 14.3; LE: 8.6; WE: 6.2; LP: 3.4; WP: 3.7; LR: 1.8; WR: 2.1.

Habitus dorsally as in Fig. 11 A; habitus laterally as shown in Fig. 11 B.

Body and legs metallic purple gold, very shiny; body surface with pale greenish, shiny scale spots. Head purple gold, very glossy, with sparse, fine punctation. Eyes flat, not extended laterally, black. Head between eyes without longitudinal band or spot of pale scales. Head laterally under eyes and on lateral sides of rostrum with pale scales, in frontal part with long setae. Apical bulge of rostrum flattened, with intensive fine punctation. Rostrum in basal

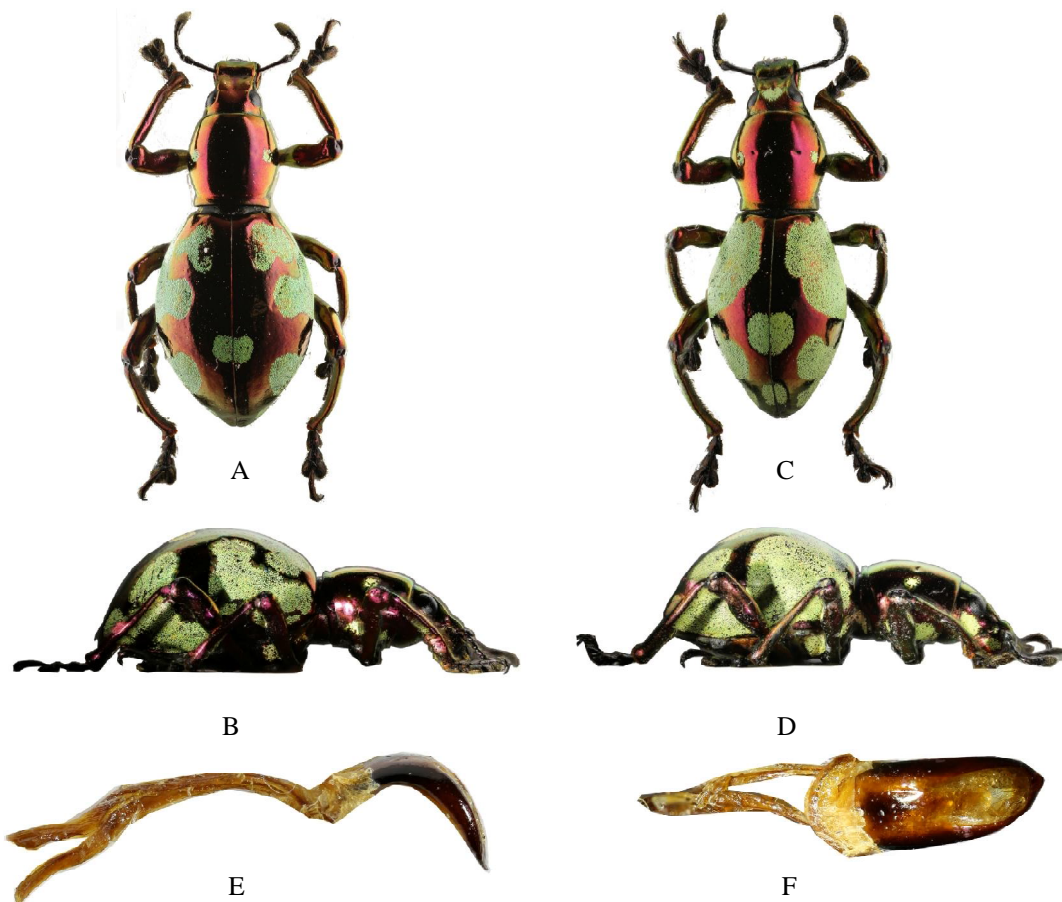


Fig. 11. *Pachyrhynchus pseudapoensis* sp.n. (holotype): A - dorsal view, B - lateral view; *P. apoensis* Yoshitake, 2012: C - dorsal view, *aedeagus* (lateral view), D - lateral view, E - *aedeagus* lateral view, F - *aedeagus* (dorsal view)

half with oblong depression and median groove. Median part of rostrum with deep transverse depression. Antenna black, shiny, with small antennomeres. Antennal scape short and stout, strongly clavate; remaining antennomeres small, with sparse very short pubescence and with long setae; apical antennomere club-shaped, covered with very fine golden pubescence.

Pronotum subspherical, slightly flattened, widest in middle, with very fine, sparse punctation, in lateral parts of dorsal disc with two small spots of pale scales. Anterior and posterior margins of pronotum without narrow

transverse stripe of pale scales, lateral margin below with marginal band of pale scales.

Elytra laterally with two large irregular spots of pale scales. One irregular spot situated laterally behind shoulders and very closely to first lateral spot, on one side almost confluent with it. Intervals of elytra smooth, with very fine punctures in not impressed rows.

Legs thin, with strongly clavate femora. Tibiae serrate along internal margins, strongly incurved apically. Middle and hind femora thinly covered with short setae and scales along posterior margins. Tibiae with sparse pubescence, mingled with long setae; each tibia fringed with long setae along internal margin, sparsely mingled with stout setae and scales. Tarsomeres metallic purple gold, covered with sparse brown pubescence.

Male unknown.

Differential diagnosis. *Pachyrhynchus pseudapoensis* sp. n. is similar in general appearance to *P. apoensis* Yoshitake, 2012 (Mindanao Island), which has different pattern of elytra. Elytral differences appear in Fig. 11. Each elytron of new species in apical part without two small sutural spots and head between eyes without spot of pale scales (elytra of *P. apoensis* with two small sutural spots and head between eyes and with slightly rounded spot of pale scales).

Etymology. The species is similar to *P. apoensis*, but it is a different species. *Pseudapoensis* means false *apoensis*.

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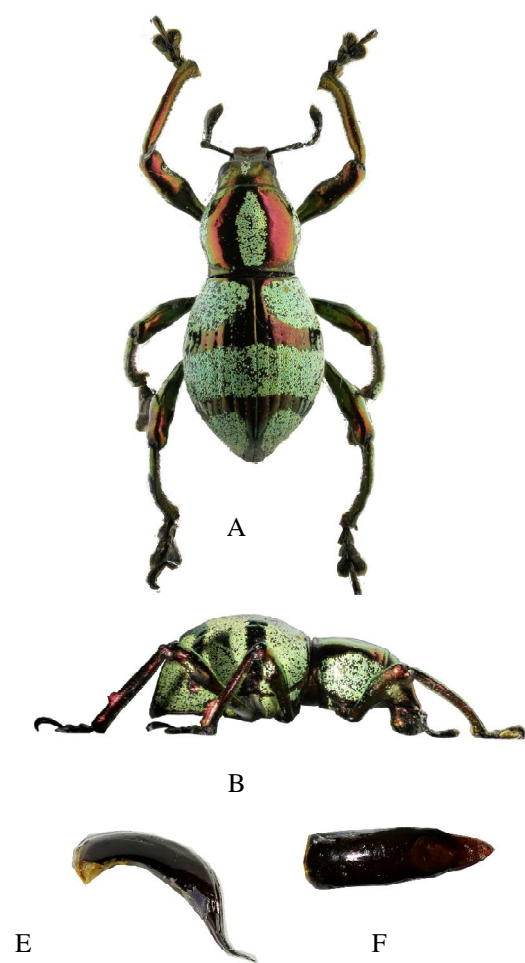


Fig. 12. *Pachyrhynchus speciosus samarensis* Schultze, 1923: A - B - habitus, E - F - aedeagus

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