

TO THE KNOWLEDGE ON THE GENUS *PACHYRHYNCHUS* GERMAR, 1824 (COLEOPTERA: CURCULIONIDAE: PACHYRHYNCHINI), CORRECTIONS AND ADDITIONS ON THE *PACHYRHYNCHUS SPECIOSUS* SPECIES GROUP

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This short paper comprises additional data on *Pachyrhynchus speciosus* species group early described by W. Schultz. Current study revealed, that *Pachyrhynchus speciosus* group includes 13 species instead of 6 listed by Schultz. Those species are: *P. cabrasae* Rukmane & Barševskis; *P. circulimaculatus* Yoshitake; *P. davaoensis* Schultz; *P. kraslavae* Rukmane & Barševskis; *P. miltoni* Cabras & Rukmane; *P. notocruciatus* Yoshitake; *P. octoannulatus* Yoshitake, Bollino, Sandel; *P. postpubescens* Schultz; *P. regius* Schultz; *P. samarensis* Schultz; *P. speciosus* Waterhouse; *P. tadauchii* Yoshitake; *P. yoshitakeorum* Yoshitake, Bollino, Sandel. *P. absurdus* Schultz and *P. latifasciatus* has been excluded from the *P. speciosus* species group. Faunistic data, as well as comments and photographs of all species within *speciosus* group are provided. Key for the *speciosus* species group is included. In addition, male of *P. circulimaculatus* Yoshitake, 2019 is described for a first time.

Key words: Pachyrhynchini, *Pachyrhynchus*, Taxonomy, Philippines, Biodiversity.

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INTRODUCTION

The genus *Pachyrhynchus* Germar, 1824 currently comprises 155 known species (Rukmane 2018) distributed mainly on the Philippine islands, with few species distributed on Taiwan and Indonesia (Tseng et al. 2018). Many new species and subspecies has been described within past few years (Rukmane & Barševskis 2016; Barševskis 2016; Cabras & Rukmane 2016; Bollino, Sandel & Rukmane 2017), yet, due the polymorphism and complexity of the current genus, many taxa still require additional study. To facilitate

understanding of the current genus, Heller were the first to divide species into species groups (Heller, 1912) and Schultz continued (Schultz, 1923), nevertheless, in weight of the new species described and additional distributional data available, some of the species groups require a revision with corrections and additions. Such is the *speciosus* species group early described by Schultz.

In his early monograph, Schultz described *Pachyrhynchus speciosus* group, which included following species: *P. postpubescens* Schultz.,

P. speciosus Waterh., *P. samarensis* Schultze., *P. regius* Schultze., *P. absurdus* Schultze., *P. latifasciatus* Waterh.. Author listed general characters and a key to the species of the *P. speciosus* species group. In current paper, I also included general characters and key for the species, mainly based on those given by Schultze, yet, with some general corrections and additions. *Pachyrhynchus speciosus* species group include species that are hard to identify, yet, those species are rather frequently present along different mountain habitats of the Mindanao PAIC. Nerveless such grouping of the particular species with homogenous set of same morphological characters is artificial, key for the species, as well as explanation on each particular member of the current group will help to improve understanding and clarify identification process not only for the experts of the current group, but also for all interests on the regular basis.

As some of the authors still continue on describing species based on single male or female exemplar, it is sometimes necessary to compile their work and add additional information on opposite sex. Such is the case with *P. circummaculatus* Yoshitake, 2019 that was described recently, based on a single female exemplar. Nerveless this species was found by me back in 2016, when I sent photos of female to honorable Dr. Hiraku Yoshitake, author decided to ignore the fact, that DUBC has number of specimens of current species (see description part) and described it without any references. After this act of ignorance, I decided to compile his work with lacking data that is included in the current paper as complete description of male of *P. circummaculatus*.

MATERIALS AND METHODS

Abbreviations of the museum collections used in current study:

BMNH – British Museum of the Natural History, London, England.

CMUZM – Central Mindanao Zoological Museum, Davao, Philippines.

DUBC – Daugavpils University Beetle Collection,

Daugavpils, Latvia.

NIAES – National Institute for Agro-Environmental Sciences, Japan.

SMTD – Staatliches Museum für Tierkunde, Dresden, Germany.

All material from DUBC listed in current paper is collected by local collectors, with exception of *P. miltoni* Cabras & Rukmane, 2016 collected by A. Rukmane and A. Barševskis.

Current species group is named in order of the year of description, respectively, first described species within this species group was *P. speciosus*.

RESULTS

The *speciosus* species group, according to available referral data, is restricted to Mindanao PAIC (Mindanao, Samar, Leyte, Bohol Islands). The species of this group share the following combination of morphological characters:

1. Integument dark glowing red, coppery or black, shiny, with golden or greenish tingle.
2. Eyes relatively small, moderately convex from outline of head.
3. Elytra subspherical, widest at the middle, gradually rounded towards apex.
4. Elytra with at least three cross bands, first and third interrupted at the suture.
5. Prothorax with at least one longitudinal or transverse line on disc and big roundish patch of scales at each of the lateral sides.
6. Male aedeagal body with very similar or same shape.

In his early monograph Schultze included two species that does not correspond to the characters listed upwards, those are *P. latifasciatus* Waterhouse, that is rather closely related to *P. erichsoni* species and *P. absurdus*, which belong to *absurdus* group, sharing distinctive characters of male genitalia and shape of elytra. Species assigned to *speciosus* group are listed in alphabetical order:

1. *Pachyrhynchus cabrasae* Rukmane & Barševskis, 2016

Fi. 1A.

Type locality: Mindanao Island, Bukidnon, Mt. Kalatungan. Type in DUBC, examined.

Material examined: [PHILIPPINES] Mindanao, Bukidnon, Cabanglasan / I. 2014 (1) / II. 2014 (1), VI. 2014 (2) / VII. 2014 (1) / VIII. 2014 (2) / IX. 2014 (1) / VIII. 2015 (6) / XI. 2015 (1) / IV. 2016 (2) / V. 2016 (4) / VI. 2016 (1) / VIII. 2016 (7) / IX. 2016 (2) / I. 2017 (1) / II. 2017 (3); Valencia / V. 2016 (1); Mt. Kalatungan / VI. 2014 (1). Total: 37 ex.

Note. According to my observations, because of the reticular-shape lines on the elytra, this species is frequently confused with *P. reticulatus* Waterhouse. Genital structures reveals, that this species is more closely related to *speciosus* group.

2. *Pachyrhynchus circulimaculatus* Yoshitake, 2019

Fig.3, 4.

Type locality: North Mindanao region. Type in NIAES.

Description. Male. Dimensions: LB: 11,90; LR: 2,00; WR: 1,80; LP: 3,70; WP: 3,90; LE: 8,10; WE: 4,80. N=1 for all measurements. Dorsal habitus as shown in Fig.A,B.

Integument dark coppery to reddish, elytra darker or same colour, strongly shiny; legs with green or coppery metallic lustre.

Body with markings of golden round to recumbent scales; head with lanceolate patch of narrow longitudinal scale line from vertex to base of forehead or sub basal part of rostrum; lateroventral parts each with scally patch on genae, mingled with hair-like scales; prothorax with fine longitudinal scally stripe from subbasal to subapical part, stripe extends in the middle; another dorso-lateral scally stripe on each side, stripe arcuate dorsally in lateral view across entire length; lateroventral part with big scally patch each; elytra with the same markings as in female (Yoshitake, 2019), except semi-circular marking on middle between intervals I and III, this marking varies depending on specimen,

marking can extend from interval I to II, from I to III or from I to IV, it can be dull inside or fulfilled with golden scales.

Rostrum slightly longer than wide, LR/WR 1,11; prothorax nearly same width and length, WP/LP 1,05; elytra significantly longer than wide, LE/WE 1,60; wider than prothorax, WE/WP 1,2; much longer than prothorax, LE/LP 2,18, narrower than in females. Rest same as in female. Genitalia as shown in Fig. 4.

Material examined: [PHILIPPINES] / Mindanao, Agusan / VI.2016 (1♀); Mindanao, Agusan, Rosario / VIII.2018 (1♂) / IX.2018 (1♂) / X.2018 (2♂). Total: 5 ex.

3. *Pachyrhynchus davaoensis* Schultze, 1934

Fig.1B.

Type locality: Mindanao Island, Prov. Bukidnon, Mt. Apo. Type in SNTD, examined.

Material examined: [PHILIPPINES] / Mindanao, Agusan, Sibagat / VI. 2015 (1) / X. 2015 (1) / VI. 2016 (1); Bukidnon, Cabanglasan / I. 2014 (1) / VI. 2014 (2); Cotabato, Tboli / II. 2014 (2); Davao, Kapatagan / V. 2016 (1); Mt. Apo / VI. 2014 (1) / IX. 2014 (1); Surigao, Esperanza / VI. 2013 (1) / V. 2014 (3) / VI. 2014 (3) / VIII. 2014 (1) / IX. 2014 (1) / X. 2015 (2); San Miguel / VI. 2014 (2) / VIII. 2016 (1); Tandag / V. 2014 (1) / VIII. 2016 (2) / X. 2017 (1). Total: 27 ex.

4. *Pachyrhynchus kraslavae* Rukmane & Barševskis, 2016

Fig.1C.

Type locality: Mindanao Island, Compostela Valley, Mabini. Type in DUBC, examined.

Material examined: [PHILIPPINES] / Mindanao, Agusan, Borbon / IX. 2018 (3) / X. 2018 (2); Mindanao, Agusan, San Francisco / X. 2017 (2); Compostela Valley, Mabini / II. 2014 (1); New Albay / VIII. 2013 (2); Lanao, Kapatagan / VII. 2018 (1); Surigao, Tandag / X. 2017 (1). Total: 12 ex.

5. *Pachyrhynchus miltoni* Carbas & Rukmane, 2016

Fig.1D.

Type locality: Mindanao Island, Marilog District, Davao City. Type in CMUZM, examined.

Material examined: [PHILIPPINES] / Mindanao, Davao, Marilog Distr., Baganihan / 26.-27. III. 2018 / A. Barševskis leg. / 28. III. 2018 / A. Rukmane leg. Total: 2 ex.

6. *Pachyrhynchus notocruciatus* Yoshitake, 2017

Type locality: Mindanao, Mt. Apo. Type in NIAES.

7. *Pachyrhynchus octoannulatus* Yoshitake, Bollino, Sandel, 2019

Fig. 1E-F.

Type locality: Mindanao Island, Lanao Del Sur, Wao. Type in NIAES.

Material examined: [PHILIPPINES] / Mindanao, Lanao, Wao / VII. 2016 (4) / VIII. 2016 (1) / IX. 2016 (2) / X. 2016 (4) / XI. 2016 (4) / I. 2017 (11) / II. 2017 (6) / V. 2017 (3) / X. 2017 (1) / XI.

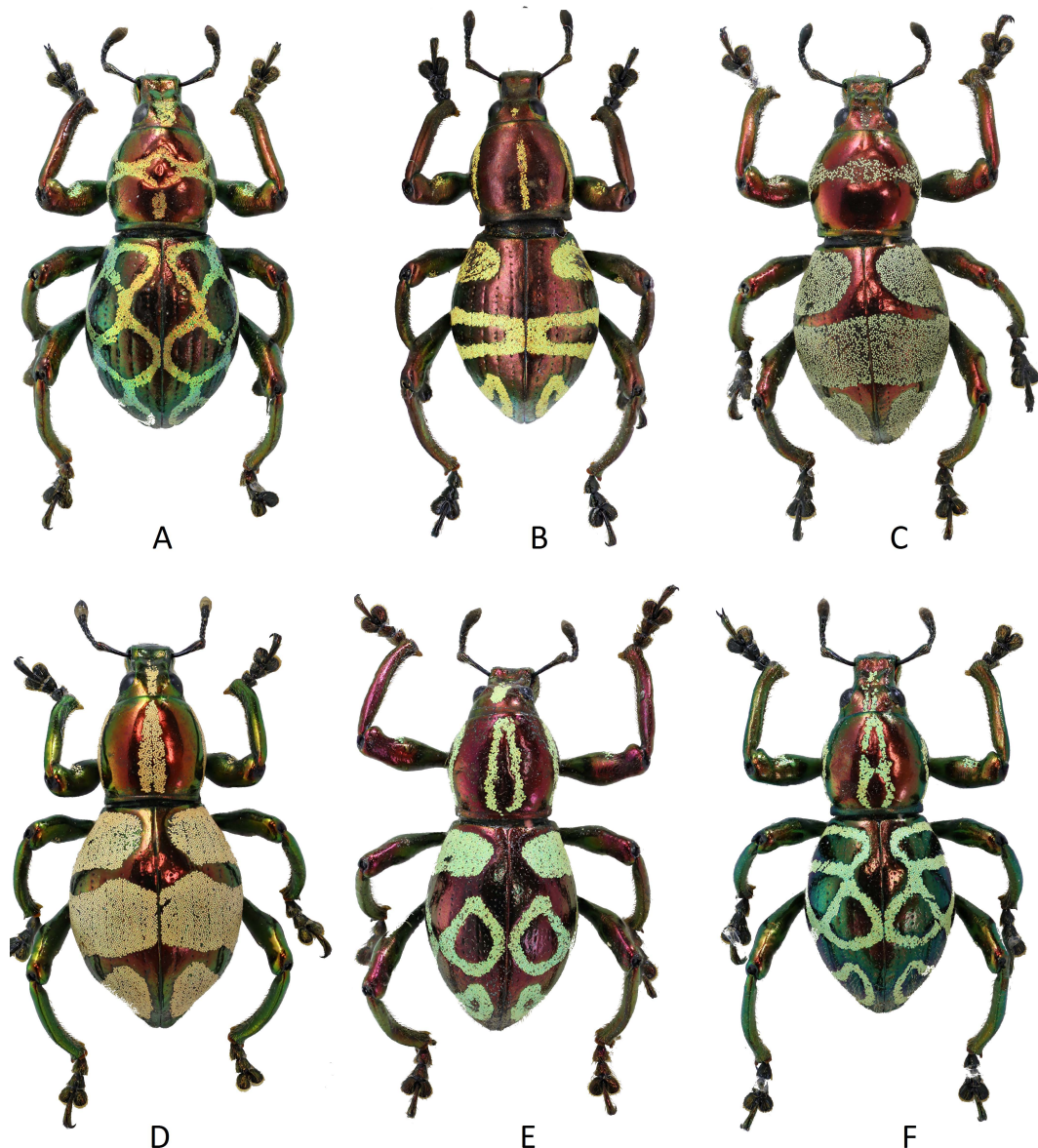


Fig. 1. Dorsal habitus of the *Pachyrhynchus* species, all males. A – *P. cabrasae*; B – *P. davaoensis*; C – *P. kraslavae*; D – *P. miltoni*; E – *P. ocromaculatus*; F – *P. ocromaculatus*.

2017 (3) / III. 2018 (4) / XI. 2018 (2). Total: 45 ex.

8. *Pachyrhynchus postpubescens* Schultzze, 1922
Fig.2A.

Type locality: Mindanao Island, Prov. Bukidnon, Lindabon. Type in SNTD, examined.

Material examined: [PHILIPPINES] / Mindanao, Bukidnon, Cabanglasan / V. 2014 (1) / VI. 2014 (1) / VIII. 2014 (4) / X. 2015 (1) / V. 2016 (4); Intavas / VII. 2014 (6) / VIII. 2014 (3) / VIII. 2015 (4) / X. 2015 (1) / XII. 2015 (2); Kalatungan / VI. 2014 (1) / VII. 2014 (1); Mt. Dulang / VII. 2016 (1); Panamokan / VII. 2015 (3); San Fernando / II. 2014 (1). Total: 34 ex.

9. *Pachyrhynchus regius* Schultzze, 1922

Fig.2B-C.

Type locality: Leyte Island, mountains near Cabalian. Type in SNTD, examined.

Material examined: [PHILIPPINES] / Mindanao, Agusan, Sibagat / XI. 2015 (1); San Fernando / II. 2014 (1); Leyte, Mahaplag, Hilusig / V. 2015 (1); Sogod / II. 2015 (3); Samar, Lope De Vega / VIII. 2016 (1); Marabot / IX. 2014 (1) / I. 2015 (1). Total: 9 ex.

Note. Faunistic data reveals, that this species, same as *P.speciosus*, is distributed not only on Mindanao Island, but also on close Samar and Leyte Islands.

10. *Pachyrhynchus samarensis* Schultzze, 1924
Fig.2D.

Type locality: Samar Island, Catarman. Type in SNTD, examined.

Material examined: [PHILIPPINES] / Samar, Lope De Vega / II. 2016 (1) / III. 2016 (1) / IV. 2016 (16) / V. 2016 (7) / VI. 2016 (3) / VII (5) / VIII. 2016 (6) / IX. 2016 (5) / X. 2016 (6) / XI. 2016 (6) / XII. 2016 (2) / I. 2017 (8) / II. 2017 (4) / III. 2017 (3) / VI. 2017 (1) / VII. 2017 (1) / X. 2017 (3). Total: 78 ex.

11. *Pachyrhynchus speciosus* Waterhouse, 1841
Fig.2E.

Type locality: Mindanao Island. Type in BMNH, examined.

Material examined: [PHILIPPINES] / Mindanao, Bukidnon, Cabanglasan / VI. 2014 (3) / I. 2016 (1) / II. 2016 (1) / V. 2016 (3) / IX. 2017 (1);

Davao, Mt. Apo / VI. 2014 (1); Sarrangani, Kiamba / XII. 2015 (1); Surigao, Tandag / V. 2014 (1); Visayas / V. 2014 (2); Samar, Hinabangan / V. 2013 (1) / VIII. 2013 (1) / X. 2015 (2) / II. 2016 (1) / V. 2016 (1) / VI. 2016 (1) / X. 2017 (2); Leyte, Sogod / II. 2015 (8) / V. 2016 (3); Mahaplag / X. 2017 (3). Total: 35 ex.

12. *Pachyrhynchus tadauchii* Yoshitake, 2012
Fig.2F.

Type locality: Mindanao Island, Prov. Surigao, Bislig. Type in NIAES.

Material examined: [PHILIPPINES] / Mindanao, Agusan, San Francisco / VII. 2014 (3) / VI. 2017 (4) / IX. 2017 (1); Bukidnon, Cabanglasan / III. 2014 (1) / IV. 2014 (1) / VIII. 2014 (1); Davao, Mt. Apo / VII. 2014 (3) / VIII. 2014 (2) / V. 2015 (1) / IX. 2015 (1); Mt. Matutum / VIII. 2017 (2); Sarrangani, Kiamba / X. 2015 (1) / XI. 2015 (1) / XII. 2015 (1) / I. 2016 (1) / VII. 2016 (2); Malungon / V. 2014 (1); Maitum / X. 2017 (1); Surigao, San Miguel / IV. 2016 (1); Tandag / VIII. 2013 (1) / X. 2017 (1); Davao, Kapatagan / XII. 2015 (1) / V. 2016 (1). Total: 33 ex.

13. *Pachyrhynchus yoshitakeorum* Yoshitake, Bollino, Sandel, 2019

Fig.2G.

Type locality: Central Visayas region, Bohol Island, Duero, Brgy., Payao, Sitio Pangpang. Type in NIAES.

Material examined: [PHILIPPINES] / Central Visayas, Bohol Island / 400-700m / VI. 2014 (2) / VIII. 2014 (1); Dinagat Island / Dinagat / 2. 2019 (3). Total: 6 ex.

Note. During my study, I found three specimens of presumably *P.yoshitakeorum* from Siargao Island, which is located on the east from the Bohol Island. Strange is the fact, that between those two islands is located Leyte Island, where species, for my best knowledge, is not present. As those specimens are collected by local collectors, I do not exclude possibility, that they are mislabelled, yet, it also might be new locality for the current species, this particular fact need more faunistic data to be approved.

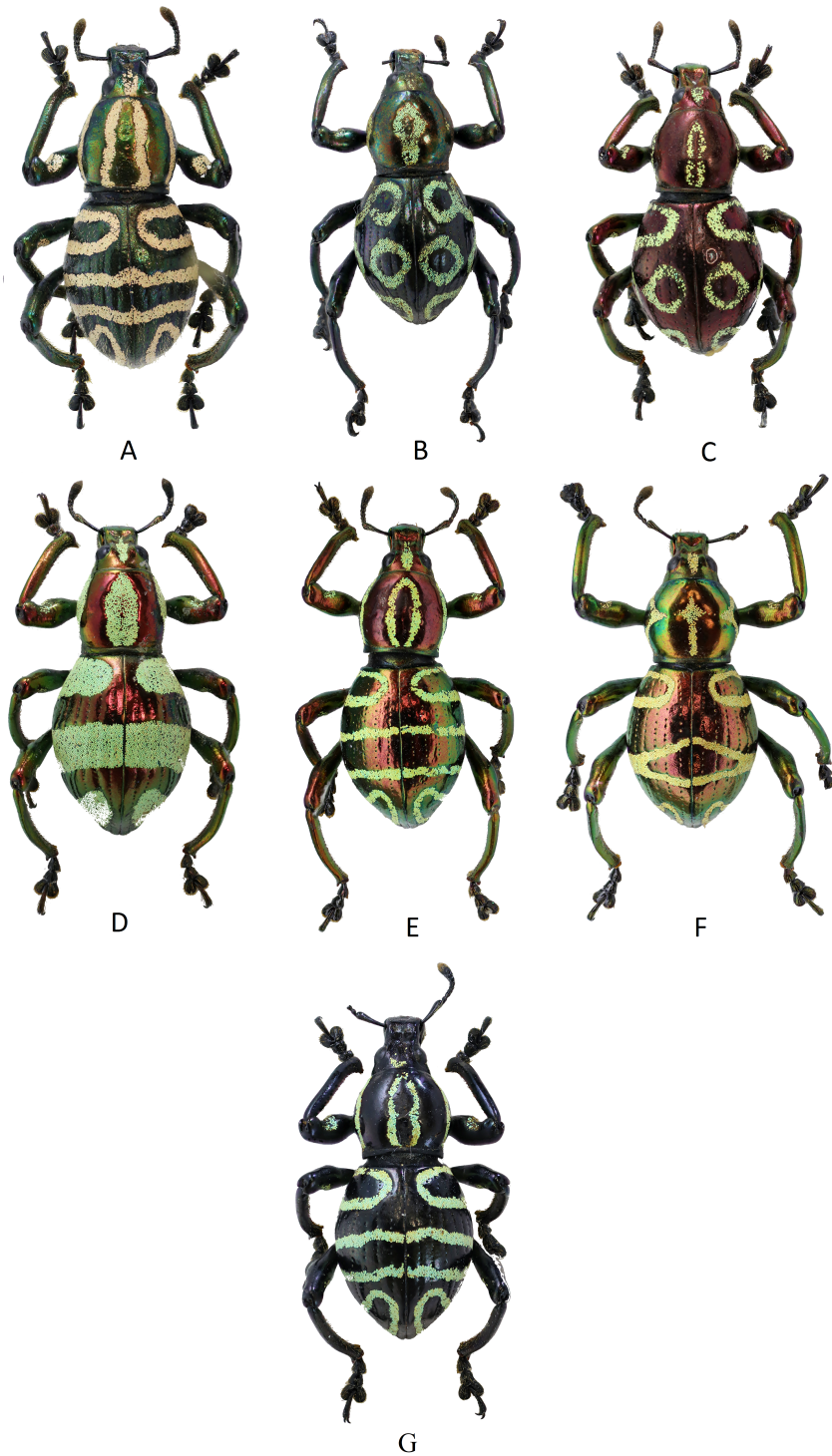


Fig. 2. Dorsal habitus of the *Pachyrhynchus* species, all males. A – *P. postpubescens*; B – *P. regius* (Mindanao); C – *P. regius* (Samar); D – *P. samarensis*; E – *P. speciosus*; F – *P. tadauchii*; G – *P. tadauchii*; H – *P. yoshitakeorum*.

Key to species of the *Pachyrhynchus speciosus* group:

1. General colour dark glowing red, coppery. Prothorax and elytra very strikingly marked with narrow scale stripes, bands or ring figures.....2

General colour black, body surface shiny. Prothorax and elytra marked with narrow scale stripes of greenish colour.....
*Pyoshitakeorum* Yoshitake, Bollino, Sandel

2. Prothorax dorsally with transverse scale line medially on disc.....3

Prothorax dorsally with two cross bands, one transverse, one longitudinal4

Prothorax dorsally with one longitudinal scale line6

Prothorax dorsally with two longitudinal scale lines, divergent at base, convergent toward and confluent at anterior margin9

Prothorax dorsally with an arrow-shaped figure10

3. Prothorax dorsally with one thick transverse line on medial portion of the disc. Line connected with big roundish patches laterally on each side.....*P.kraslavae* Rukmane & Barševskis

4. Elytra with three cross bands, first and third interrupted at suture.....5

Elytra with reticulate net-shaped lines of pale metallic scales. Each elytron divided in nine irregular, isolated, metallic dark, bare spots, and two additional sutural spots on each elytron*P.cabrasae* Rukmane & Barševskis

5. Second cross band on the medial portion of elytra small, triangular or pyramid-shape, wary in size from first two intervals up to lateral margins*P.tadauchi* Yoshitake

Second cross band on the medial portion of elytra big, forming of two parallel transverse lines that connects on lateral margin of each elytron..... *P.notocruciatus* Yoshitake

6. Line thick, wider on base and narrowing toward apical margin.....7

Line slender, continuous from basal to apical margin of prothorax.....8

7. Elytra with three cross bands, second cross band on the median portion of the disc hour-glass shaped.....*P.miltoni* Cabras & Rukmane

8. Elytra with three cross bands, all cross bands interrupted on suture or second crossband can

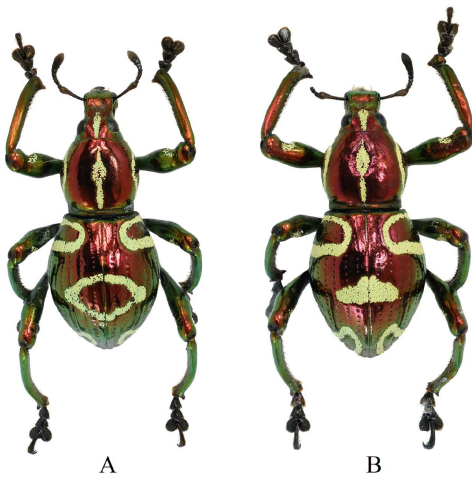


Fig. 3: Dorsal habitus of two different forms of *P. circulimaculatus* Yoshitake, 2019.



Fig. 4: Male genitalia of *P. circulimacularus*, A – aedeagal body in lateral view; B – aedeagal body in ventral view; C – sternite IX in dorsal view; D – tegmen.

be connected on suture by longitudinal stripe.....

.....*P.davaoensis* Schultze

Elytra with cross band on basal and apical part and a circular-shaped patch on disc medially...

.....*P.circulimaculatus* Yoshitake

9. Elytra with three cross bands of narrow scale lines.....

.....*P.postpubescens* Schultze

Elytra with eight cross bands of scally markings, each marking often enlarged and merged in varying degrees.....

....*P.octomaculatus* Yoshitake, Bollino, Sandel

10. Elytra with two large irregular ring figures on medial portion of the disc...*P.regius* Schultze

Elytra with three narrow or very broad band markings.....11

11. Elytra with very narrow crossbands

.....*P.speciosus* Waterhouse

Elytra with three very broad crossbands

.....*P.samarensis* Schultze

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