

***Pachyrhynchus obumanuvu* sp. nov., a new species of easter egg weevil (Coleoptera, Curculionidae, Entiminae, Pachyrhynchini) from Mindanao Island, Philippines**

Analyn Anzano Cabras, Milton Norman Medina, Joshua Donato, Matthew H. Van Dam

Cabras A. A., Medina M. N., Donato J., Van Dam M.H. 2021. *Pachyrhynchus obumanuvu* sp. nov., a new species of easter egg weevil (Coleoptera, Curculionidae, Entiminae, Pachyrhynchini) from Mindanao Island, Philippines. *Baltic J. Coleopterol.*, 21(1): 43–48.

Pachyrhynchus obumanuvu sp. nov., a new easter egg weevil discovered from the remaining forest patches in Davao region in Mindanao Island, Philippines is described, and a brief note of its ecology is also presented.

Keywords: biodiversity, novel species, taxonomy, urban biodiversity, weevils

Analyn Anzano Cabras, Milton Norman Medina. Coleoptera Research Center, University of Mindanao, Davao City, Philippines, e - mail: ann.cabras24@gmail.com

Joshua Donato. Euro Generics International Philippines Inc.- Foundation, Davao City, Philippines

Matthew H. Van Dam. Entomology Department, Institute for Biodiversity Science and Sustainability, California Academy of Sciences, 55 Music Concourse Dr., San Francisco, California, 94118, U.S.A

INTRODUCTION

The genus *Pachyrhynchus* Germar in the tribe Pachyrhynchini is among the most extensively studied weevils in the Philippines. It is currently comprised of 145 species distributed in the oceanic islands of the Philippines, Ryukyu Island, Green and Orchid Island in Taiwan, and Talaud and Moluccas Island in Indonesia. Roughly 93% of which are Philippine endemics (Schultze, 1923; Yoshitake, 2013; Rukmane, 2018). The genus is

flightless with a narrow geographic range and high island endemism. Studies on this genus have advanced tremendously in the last decade with the discovery of many species including members of the *schoenherri* species group (Yoshitake, 2012; Rukmane, 2016; Bollino et al., 2017). This group is distinguished from the rest of the *Pachyrhynchus* by a set of characters provided by Bollino et al. (2017). The *schoenherri* species group is exclusively distributed in the Greater Mindanao Pleistocene Aggregate Complex which

includes the islands of mainland Mindanao, Leyte, Samar, Surigao, Bucas Grande, Bohol, Dinagat, and Basilan among others (Sinha, 2006; Bollino et al., 2017). With the recent materials collected in Davao City, a new species is described herein with notes of its ecology.

MATERIALS AND METHODS

The specimens deposited in the University of Mindanao Coleoptera Research Center were collected through sheet beating and handpicking and killed in vials with ethyl acetate. Morphological characters were observed under Luxeo 4D and Nikon SMZ745T stereomicroscopes. The illustrations, as well as the treatment of the genitalia, were identical to those described by Yoshitake (2011). Images of the habitus and genitalia were taken using a Nikon D5300 digital camera with a Sigma 18–250 macro lens. All images were stacked and processed using a licensed version of Helicon Focus 6.7.0 and Photoshop CS6 Portable software. Label data are indicated verbatim. Measurements mentioned in this paper are abbreviated as follows:

/ different lines

// different labels

â arithmetic mean rounded to one decimal place;

LB body length, from the apical margin of pronotum to the apex of elytra;

LE elytral length, from the level of the basal margins to the apex of elytra;

LP pronotal length, from the base to apex along the midline;

LR length of rostrum;

WR maximum width across the rostrum;

WE maximum width across the elytra;

WP maximum width across the pronotum.

Comparative materials and specimens used in the study are deposited in the following institutional collections:

CASENT California Academy of Sciences Entomological Collection;

DUBC Daugavpils University Beetle Collection, Daugavpils, Latvia;

MBLI private collection of Maurizio Bollino, Lecce, Italy;

SMTD Senckenberg Natural History Collections, Dresden, Germany;

UMCRC University of Mindanao Coleoptera Research Center, Davao City Philippines.

TAXONOMY

***Pachyrhynchus obumanuvu* Cabras, Donato, Medina, & Van Dam sp. nov.**

(Fig. 1 A–D)

Material. Holotype (Fig. 1A, C), male: Philippines – Mindanao / Davao City/ vi.2019 / Lg. M.P./ coll. UMCRC (typed on white card) // HOLOTYPE male / *Pachyrhynchus obumanuvu* / CABRAS, DONATO, MEDINA, & VAN DAM 2021 (typed on red card). Presently in UMCRC, it will be deposited in Philippine National Museum of Natural History (PNMNH) under the National Museum of the Philippines (NMP).

Paratypes. 4 males, 3 females: same data with holotype. Presently in UMCRC; 2 males, 2 females, same data with holotype/ coll. CASENT; 1 female, Philippines- Mindanao / Cabanglasan / Bukidnin / X. 2014/ coll. Bollino; 1 female, Philippines- Mindanao / Cabanglasan / Bukidnin / IX–XI. 2016/ coll. Bollino.

Diagnosis: *Pachyrhynchus obumanuvu* sp. nov. is closely related to *Pachyrhynchus ardentius* Schultze, 1919 from Siargao Island and *Pachyrhynchus corpulentus* Schultze, 1922 from Bukidnon. The new species differs from *P. ardentius* and *P. corpulentus* by having a pair of elongated spots on both sides of the middle disc, instead of the subtriangular scaly patch in *P. ardentius* and thin longitudinal stripe in *P. corpulentus*. The unique elytral markings with the absence of median spots and presence of extra sub-basal and subapical spots in *P. obumanuvu* sp. nov. sets it apart from *P. ardentius* and *P. corpulentus*.

Description. Dimensions : LB: 11.0–13.5 (holotype 13.5 mm, â:13.14). LR: 1.9–2.0

(holotype 2.0 mm, \hat{a} : 1.99). WR: 1.9–2.0 (holotype 2.0 mm, \hat{a} : 1.99). LP: 3.5–4.0 (holotype 4.0 mm, \hat{a} : 3.93). WP: 4.0–4.5 (holotype 4.5 mm, \hat{a} : 4.43). LE: 8.3–9.5 (holotype 9.5, \hat{a} : 9.33). WE: 5.4–6.0 (holotype 6.0, \hat{a} : 5.91). N=7.

Integument dark burnished red with a weak greenish sheen. Body dorsal surface, rostrum, head glossy, and ventral surface moderately shiny.

Body mostly subglabrous with very fine hairs and lustrous yellow green to turquoise recum-

bent round scales. Head subglabrous, with sparse minute hairs on ventral side and scaly markings of metallic light yellow-green, recumbent, and round to elliptic scales forming the following: a) two small spots in the forehead between eyes, and b) subelliptic patch on lateroventral parts behind eyes; forehead between eyes weakly depressed; lateroventral parts wrinkled. Rostrum as long than as wide (LR/WR: 1.0), weakly depressed on basal half, apical half weakly bulging with nearly obscure sulcus towards margin, dorsum with very minute pubescence, lateral surface with a patch of dense, shiny

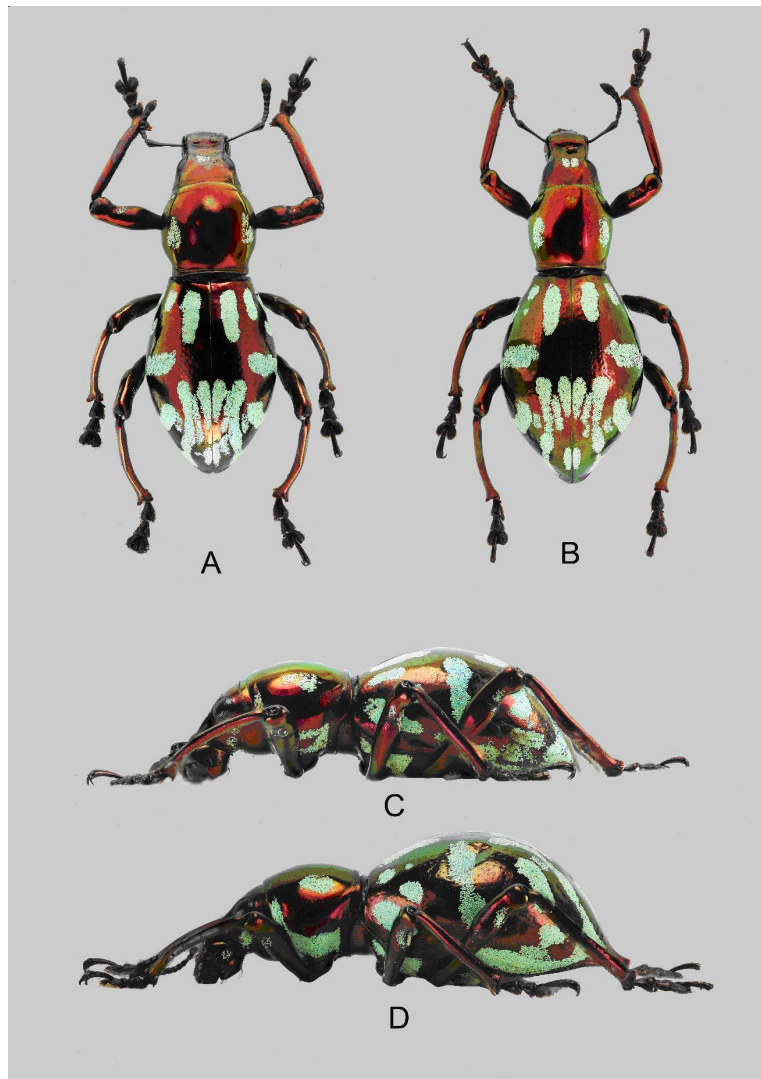


Fig. 1. *Pachyrhynchus obumanuvu* sp. nov. - A, C, Holotype male; A, dorsal view, C, lateral view. B, D, Paratype female; B, dorsal view, D, lateral view

light-yellow recumbent scales, and long brown hairs at the anterolateral margin. Eyes small-sized and feebly convex. Antenna strongly clavate, scape shorter than the funicle, with sparse, fine and very minute hairs towards the apex. Funicle with longer suberect brown hairs. Funicular segment I nearly 1.5 time longer than wide; segment II slightly longer than segment I, nearly twice longer than wide; segments III-VI nearly as long as wide; segment VII slightly longer than wide; club sub-ovoid, nearly twice longer than wide.

Prothorax subglobular, slightly wider than long (LP/WP: 0.88), mostly glabrous, widest at middle, weakly convex, and with metallic light yellow-green, and turquoise round scales. Prothorax with the following scaly markings of metallic light yellow-green and turquoise round scales: a) thin band at the lateral side of anterior margin, b) two elongated spots on both sides of the middle of disc, and c) thick patch in lateroventral stripe before the coxa confluent with the short scaly band on anterior margin.

Elytra ovate (LE/WE:1.58), wider and twice longer than prothorax (WE/WP: 1.33, LE/LP: 2.38), glowing red, sub-glabrous, moderately convex with

very minute and sparse punctures and pubescence. Each elytron has scaly patches of metallic light yellow-green, and turquoise recumbent round scales forming the following: a) three sub-basal patches with the dorsal and lateral patch both elliptical, and the middle subcircular, b) one small sub circular patch just below or at times in between the middle sub-basal patch and the lateral elliptical patch, c) median transverse band extending from middle towards lateral side but not reaching margin, d) antemedian stripe in the lateral margin extending towards apex, e) postmedian subsutural stripe extending towards apex confluent with the antemedian, lateral margin stripe, f) thin elliptical stripe between the subsutural and sutural patches, g) postmedian elliptical patch along suture, h) subapical elliptical patch along suture, i) oblique reniform subapical patch, and j) thin elliptical subapical spot near the lateral margin.

Legs with moderately clavate femora. Femora covered with lustrous light-yellow and turquoise round scales towards apical margin. Tibiae covered with subrecumbent brown bristles, and moderately serrate along inner edge. Fore and mid tibiae bear a mucro at apex. Tarsomeres covered



Fig. 2. Male genitalia of *Pachyrhynchus obumanuvu* sp. nov.: A. penis in lateral view, B. idem. in dorsal view, C. sternite IX in dorsal view

with dense pubescence. Coxae with sparse brown hairs. Mesepisterna with round scaly patch of light yellow and greenish round scales. Metasternum moderately rugose on disc, covered with light yellow and greenish round scales. Ventrite I weakly rugose, feebly depressed on disc with scaly spot of yellow and greenish round scales on both distal ends. Ventrite II nearly covered with light

yellow and greenish round scales. Ventrites III-V bare. Apical half of Ventrite V with sparse subrecumbent brown hairs. Male genitalia as shown in Figure 3A–C.

Female. Dimensions: LB: 12.0-13.5 mm (\hat{a} :13.0); LR: mm 1.9; WR: 1.9; LP: 3.5; WP: 4.0; LE: 8.5-9.4 (\hat{a} : 8.77). WE: 6.5. N=5

Habitus as shown in Figure 1A-D.

Females differ from males by having wider elytra (LE/WE: 1.31-1.44) and weakly bulging Ventrite I on disc. Otherwise mentioned, similar to the male.

Etymology. The specific epithet is named after the Obu-Manuvu, one of the indigenous tribes of Davao City.

Distribution. *Pachyrhynchus obumanuvu* sp.nov. is known so far from Davao City.



Fig. 3. Ecological notes about *Pachyrhynchus obumanuvu* sp. nov.: A. Habitat in Davao City, B. *Procris urdanetensis* Elmer, C. *Elatostema* sp., possible food plant, D. bite marks on *Elatostema* sp., E. *P. obumanuvu* sp. nov. perching on the leaves, F. *P. obumanuvu* sp. nov. on stem

Notes on Distribution and Habitats

The specimens of *Pachyrhynchus obumanuvu* sp. nov. were collected in the western side of Davao City. The area is characterized by hilly topography and the vegetation type is a mixture of agricultural and secondary forests. The specimens were collected along a narrow trail in a steep mountain slope with lush vegetation of various species of ferns, aroids, orchids, and other shrubs. The authors could barely recognize the species of trees on the steep slope due to the lush ferns and shrubs. The new species was collected while perching on the leaves and stem of *Procris urdanetensis* Elmer (family Urticaceae), a Philippine endemic species,

and *Elatostema* sp. (family Urticaceae). There were lots of bite marks on the leaves of *Procris urdanetensis* Elmer and *Elatostema* sp. which suggest that it can be its food plant. The association of the endemic *Pachyrhynchus* species with endemic plants was also noted by Schultze (1923). The specimens were collected using a beating sheet and handpicking around 8:00 to 10:00 in the morning where they were found inactively perching. The authors do not wish to disclose the exact location in print to avoid over collection of the species by commercial collectors as in Pérez-García 2010, the GPS coordinates are available on the specimens' label data.

ACKNOWLEDGMENTS

We wish to express our gratitude to Dr. Guillermo P. Torres and Dr. Maria Linda Arquiza for the continuous support on our coleopterological research; the research team of the Coleoptera Research Center- to Mark John Pepito for the help in the collection of the specimens, Leslae Mantilla, Felix Landim, Datu Landim for the additional help during the field expedition. We are also grateful to Dr. Arvids Barševskis for the continuous support especially during our visit to Ilgas (Daugavpils, Latvia), to Dr. Hiraku Yoshitake during my visit to Institute for Agro-Environmental Sciences, NARO, Tsukuba, Japan (NIAES), and to Dr. Klaus-Dieter Klass and Olaf Jäger for their help during our visit to Senckenberg Natural History Collections, Dresden, Germany (SMTD). We would also like to thank Danilo Tandang of the Philippine National Museum for the plant identification. We wish to also extend our gratitude to Anita Rukmane-Barbel and Maurizio Bollino for their cooperation and helpful feedback, and the anonymous reviewers for helping improve the manuscript.

REFERENCES

Bollino, M., Sandel, & Rukmane. 2017. New species of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae) from Mindanao, Phil-

ippines. *Baltic Journal of Coleopterology*, 17(2): 189–204.

Pérez-García, E.A. 2010. El redescubrimiento de *Mexipedium xerophyticum* (Soto Arenas, Salazar & Hágsater) V.A. Albert & M.W. Chase. *Lankesteriana*, 9 (3): 557–563.

Rukmane A. & Barševskis, A. 2016. Nine new species of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae) from the Philippines. *Baltic Journal of Coleopterology*, 16 (1): 77–96.

Rukmane A. 2018. An annotated checklist of genus *Pachyrhynchus* (Coleoptera: Curculionidae: Pachyrhynchini). *Acta Biol. Univ. Daugavp*, 2018, 1(1): 63–68.

Schultze, W., 1923. A monograph of the Pachyrrhynchid group of the Brachyderinae, Curculionidae: Part I. *Philipp. J. Sci.*, 23: 609-673 + 6 pls

Yoshitake, H. 2011. A New Species of the Subgenus *Artapocyrtus* of the Genus *Metapocyrtus* (Coleoptera: Curculionidae: Entiminae) from Mindanao, the Philippines. *ESAKIA*, (50): 115–119.

Yoshitake, H., 2012. Nine new species of the genus *Pachyrhynchus* Germar (Coleoptera: Curculionidae) from the Philippines. *Esakia*, 52: 17–34.

Yoshitake, H., 2013. A New Genus and Two New Species of the Tribe Pachyrhynchini 811 (Coleoptera: Curculionidae) from Palawan Island, the Philippines. *ESAKIA*, (53): 1–8.

Received: 21.02.2021

Accepted: 26.08.2021

Published: 30.09.2021