

A new species of the subgenus *Orthocyrtus*, genus *Metapocyrtus* (Coleoptera, Curculionidae, Entiminae, Pachyrhynchini) from Mindanao, with notes on its ecology

Analyn Anzano Cabras, Maurizio Bollino, Milton Norman Medina

Cabras A.A., Bollino M., Medina M.N. 2018. A new species of the subgenus *Orthocyrtus*, genus *Metapocyrtus* (Coleoptera, Curculionidae, Entiminae, Pachyrhynchini) from Mindanao, with notes on its ecology. *Baltic J. Coleopterol.*, 18(1): 39- 46.

A new species of *Metapocyrtus* belonging to the subgenus *Orthocyrtus* is described from Mindanao, and its habitat is briefly described.

Analyn Anzano Cabras, Math and Science Department, University of Mindanao, Davao City, Philippines, E-mail: ann.cabras24@gmail.com

*Maurizio Bollino, c/o Museo di Storia naturale del Salento, 73021 Calimera (Lecce), Italy. E-mail: m.bollino@tin.it *Corresponding author*

Milton Norman Medina, Research and Publication Center, University of Mindanao, Davao City Philippines, Email: mnd_medina@umindanao.edu.ph

INTRODUCTION

Compostela Valley Province is part of the Eastern Mindanao Biodiversity Corridor, which is one of the last remaining intact forests in the Philippines (Philippine Eagle Foundation et al., 2008), home of several threatened, rare and endemic species, and mostly entomologically underexplored. From this area, and following in our study of fauna of Pachyrhynchini of less sampled areas of the Philippines (Bollino and Sandel, 2015; Bollino, Sandel and Rukmane, 2017), we identified a new taxon belonging to the genus *Metapocyrtus* Heller, 1912, subgenus *Orthocyrtus* Heller, 1912. Up to now (Yap, 2008; Yoshitake, 2017) the subgenus consists

of 34 species and 3 subspecies, of which 21 were described from Luzon, 9 from Mindanao and surrounding islands (Siargao, Dinagat, Bucas Grande), 5 from Visayas (Bohol, Negros, Samar, Leyte), and 3 are known only from a generic "Philippines". All *Orthocyrtus* species share the following combination of three morphological characters highlighted by Heller (1912) and Schultze (1925), plus a fourth character observed during the present research:

- 1) Large species, with a few exceptions
- 2) Rostrum of medium length, dorsally straight, mostly in a plane with front, exceptionally slightly concave; at base the sides rectangularly declined

- 3) Female, with a few exceptions, without any secondary sexual structural characters aside from stouter form, and similar to the male
- 4) Everted endophallus with general pattern as in Figure 3B

MATERIALS AND METHODS

The specimens in CMUZZM were collected through beating sheet or handpicking, and killed in vials with ethyl acetate. Morphological characters were observed under Luxeo 4D and Nikon SMZ745T stereomicroscopes. All images were obtained as indicated in Bollino & Sandel (2017). Measurements mentioned in this paper are abbreviated as follows: 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; WE - maximum width across the elytra; LP - pronotal length, from the base to apex along the midline; WP - maximum width across the pronotum; LR - length of rostrum; WR - maximum width across the rostrum. All measurements are given in millimetres and follow the measurement methodology of Yoshitake (2013).

The specimens are deposited in the following collections:

CFS - private collection of Franco Sandel, Miane, Italy

CMUZZM - Central Mindanao Zoological Museum, Davao, Mindanao, The Philippines

KUM - the Kyushu University Museum, Fukuoka, Japan

MBLI - private collection of Maurizio Bollino, Lecce, Italy

NIAES - National Institute for Agro-Environmental Sciences, Tsukuba, Japan

SMTD - Senckenberg Natural History Collections, Dresden, Germany

Results

Metapocyrtus (Orthocyrtus) mansaka sp.n. (Fig. 1A-D)

Holotype (Fig. 1A-B), male: Philippines - Mindanao / New Albay / (Compostela) / V-VII.2017 / coll. Bollino. Presently in MBLI, it will be deposited in SMTD.

Paratypes (57 males, 43 females): 4 males, 4 females, Philippines - Mt. Candalaga, Maragusan, Compostela Valley, Mindanao Island / September, 2016 / Kim Jumawan; 2 females from Cagan, Compostela Valley, all in CMUZZM; 9 males, 4 females, same data as HT; 1 male, 1 female, Philippines - Mindanao I. / Masara - Compostela Valley / February 2014 / coll. Bollino; 2 males, Philippines - Mindanao / Prosperidad / (Agusan del Sur) / March 2016 / coll. Bollino; 2 males, Philippines - Mindanao / Compostela / Pantukan / IX.2015 / coll. Bollino; 2 females, Philippines - Mindanao / Pantukan / Compostela / X.2015 / coll. Bollino; 1 male, 1 female, Philippines - Mindanao / Masara / (Compostela) / III.2016 / coll. Bollino; 1 male, 1 female, Philippines - Mindanao / Masara (Compostela Valley) / September 2014 / coll. Bollino; 1 male, Philippines - Mindanao / Mt. Apo - Davao del Sur / III. 2013 / m 1400 - Leg. loc. people / coll. Bollino; 1 female, Philippines - Mindanao / Compostela Valley / Masara / IX.2015 / coll. Bollino; 1 male, 1 female, Philippines - Mindanao / Davao del Sur / Kapatagan / IX.2015 / coll. Bollino, all in MBLI; 1 male, 1 female, Philippines - Mindanao Island / Compostela Valley / Masara - II.2014 / Coll.Sandel; 1 male, 1 female, Philippines - Mindanao Island / Compostela Valley / Masara - VII.2014 / Coll.Sandel; 5 males 3 female, Philippines - Mindanao Island / Compostela Valley / Masara - XI.2014 / Coll.Sandel; 1 male, 1 female, Philippines - Mindanao Island / Compostela Valley / Masara - XII.2014 / Coll.Sandel; 1 male, 2 females, Philippines - Mindanao Island / Compostela Valley / Masara - XII.2015 / Coll.Sandel; 1 male, Philippines -

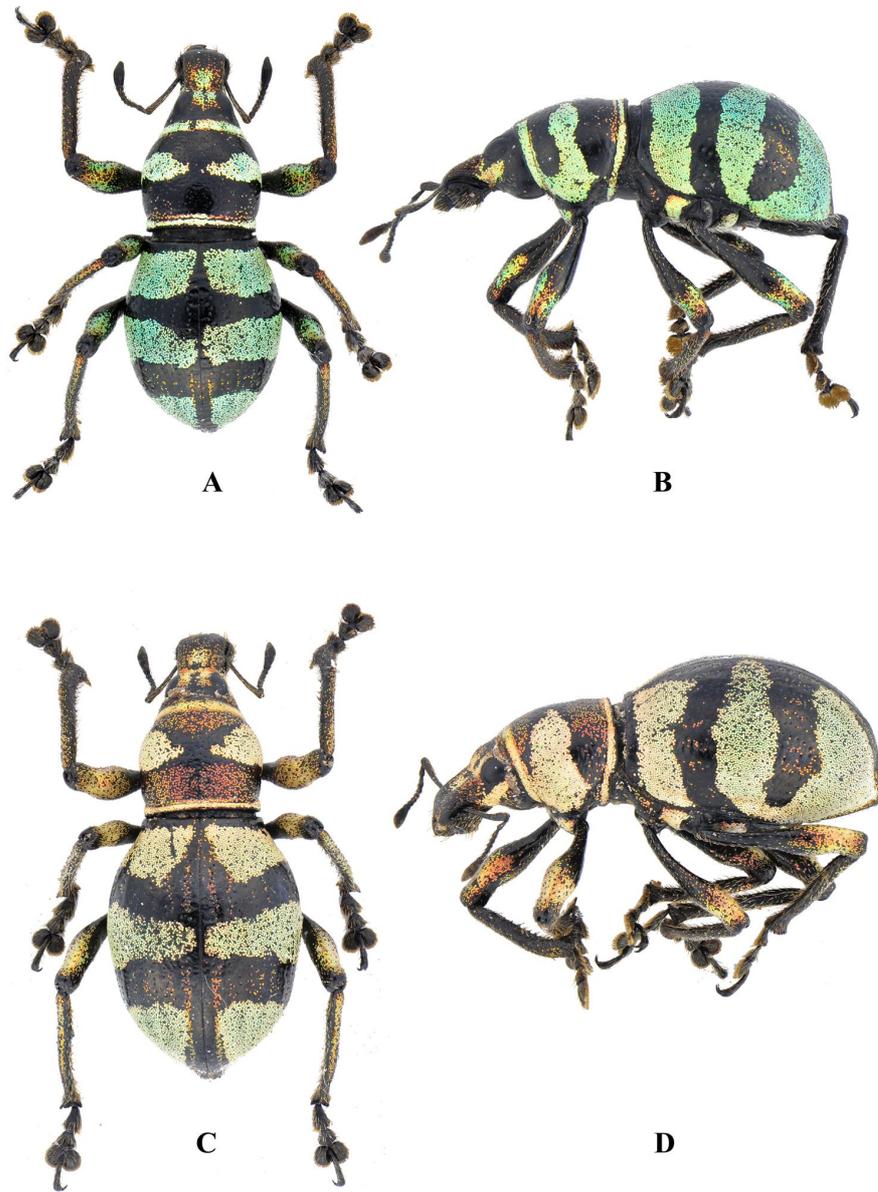


Figure 1

Fig. 1. A: *Orthocyrthus mansaka* Holotype; B: idem, lateral view; C: *Orthocyrthus mansaka* female; D: idem, lateral view

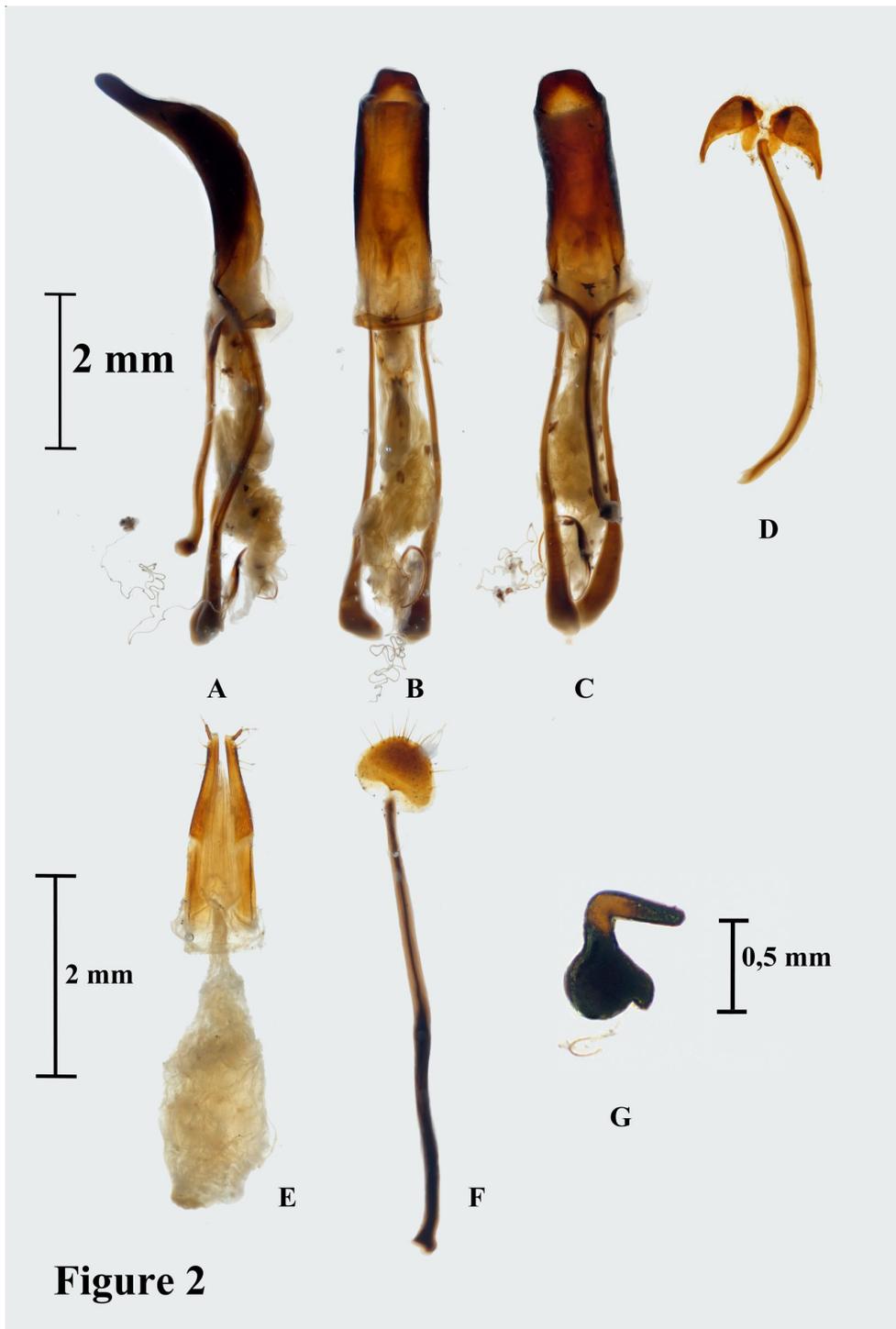


Figure 2
Fig. 2: Male genitalia and female terminalia of *Orthocyrthus mansaka* sp. nov. A: penis in lateral view; B: idem in dorsal view; C: idem in ventral view; D: sternite IX in dorsal view; E: ovipositor in dorsal view; F: sternite VIII in ventral view; G: spermatheca

Mindanao Island / Compostela Valley / New Albay - II.2016 / Coll.Sandel; 1 male, Philippines - Mindanao Island / Compostela Valley / New Albay - V.2016 / Coll.Sandel; 2 males, 3 females, Philippines - Mindanao Island / Compostela Valley / New Albay - XII.2016 / Coll.Sandel; 1 male, 1 female, Philippines - Mindanao Island / Compostela Valley / New Albay - IX.2016 / Coll.Sandel; 8 males, 7 females, Philippines - Mindanao Island / Compostela Valley / New Albay - IV.2017 / Coll.Sandel; 7 males, 4 females, Philippines -

Mindanao Island / Davao Oriental / Mati - .2017 / Coll.Sandel, all in CFS; 5 males, 2 females, Compostela Valley / Maco, Masara / X. 2015, all in NIAES; 1 male and 1 female, Compostela Valley / Masara / III. 2014; 1 male, Compostela Valley / Masara / II. 2017, all in KUM.

Diagnosis: *Metapocyrtus* (*Orthocyrtus*) *mansaka* n.sp. belongs to the subgenus *Orthocyrtus*, and differs from all other species of the subgenus for its elytral ornamentation.

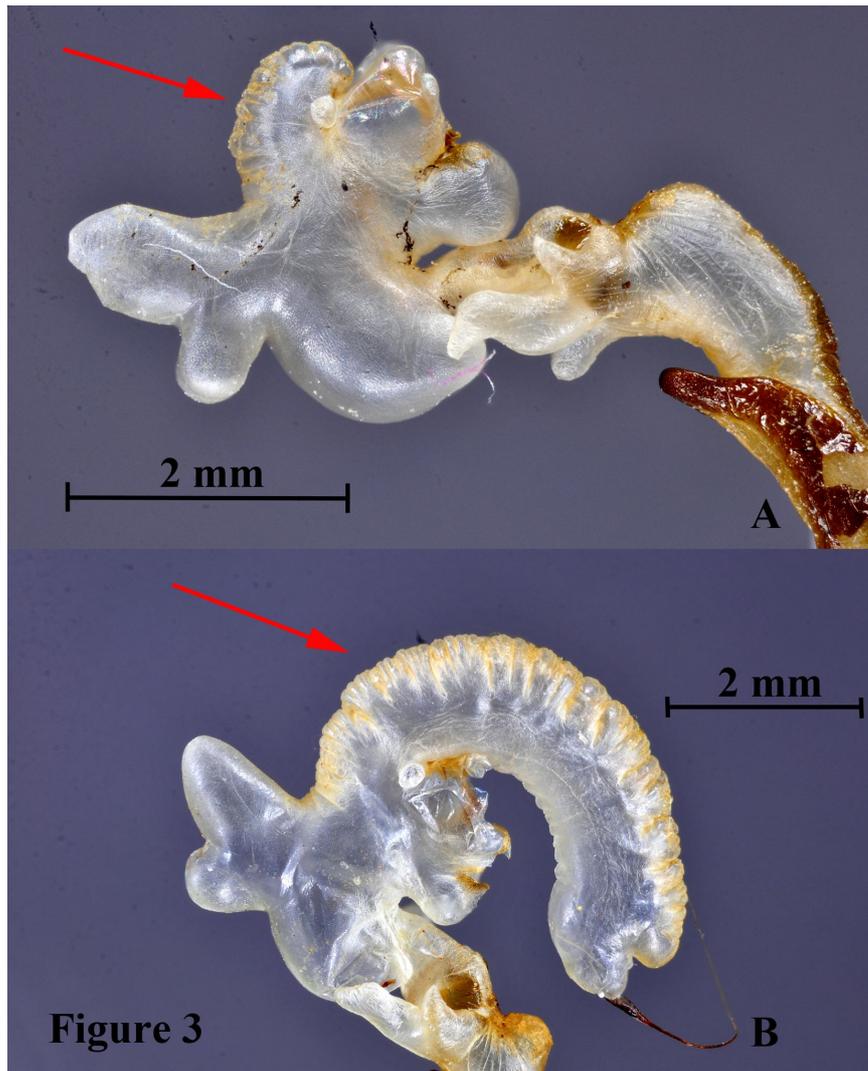


Fig. 3. A: everted endophallus of *Orthocyrtus mansaka* n.sp.; B: fully everted endophallus of *Orthocyrtus* sp. (Mindanao, Surigao del Sur).

Description: Dimensions: LB: 10.5-11.7 (holotype 11.5 mm). LR: 1.4-2.0 (2.0 mm). WR: 1.4-1.5 (1.5 mm). LP: 3.5-3.9 (3.8mm). WP: 3.9-4.0 (4.0 mm). LE: 7.4-8.1 (8.1). WE: 5.2-5.6(5.6). N=5.

Body metallic coppery brown; pronotum, head and legs coppery brown with weak lustrous of sparse pale yellow, green and reddish scales; body surface with weak lustrous with pale yellow, greenish to bluish and red scales. Eyes, antennae and tarsomeres black.

Head with the following markings: a) dense elongated yellow and green spot with tinge of red stripes under eye on each lateral side of rostrum, and b) elongated spot of yellow, green and red scales on front, extended to basal half of rostrum. Rostrum rugose, longer than wide

with minute light brown hairs in the latero-ventral part, and long light brown hairs towards the apex; dorso-apically slightly convex; prominent transverse basal groove, and longitudinal median groove forming a cross shape. Front with deep depression covered with dense scales. Eyes small and weakly convex. Antennal scape as long as the funicle plus club, with flattened hair and sparse scales. Funicular segments I and II almost of the same length, 3 times longer than wide; segments III - VII as long as wide; club subellipsoidal, nearly 3 times longer than wide.

Pronotum subglobular, widest at middle, weakly convex, glabrous, with very minute and sparse punctures and hairs; thin bands of pale yellow to green scales at the anterior and posterior

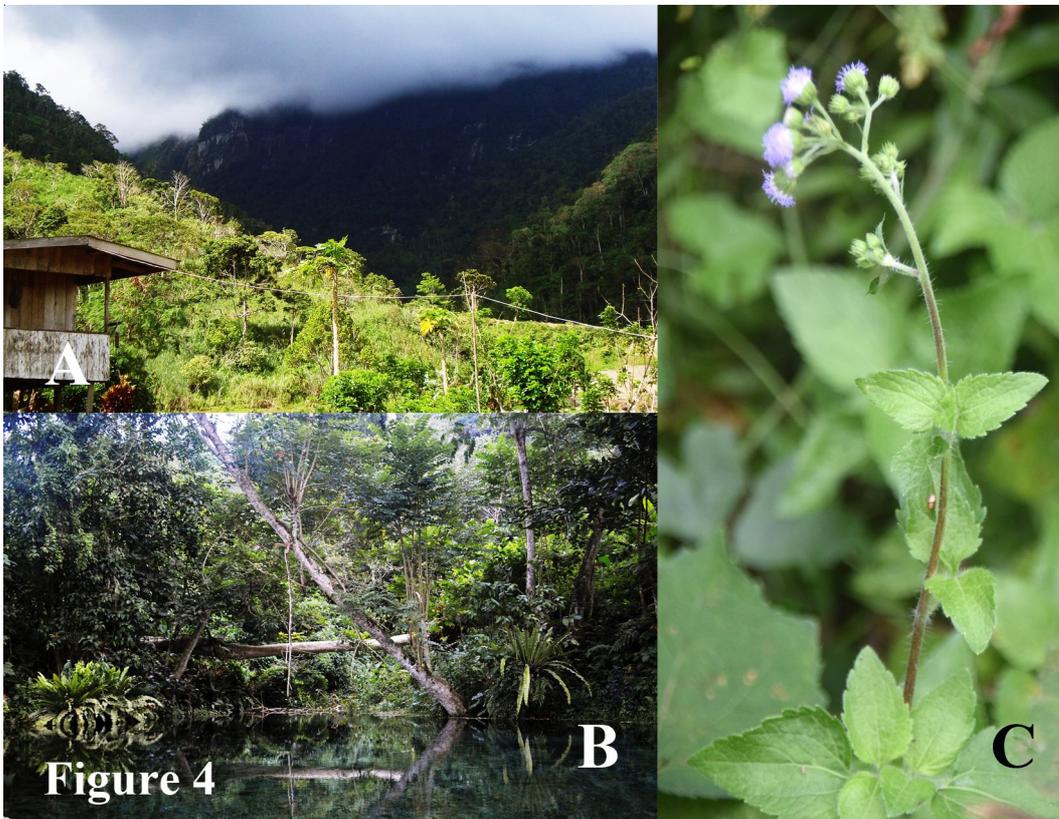


Fig. 4. Habitat in Cagan, Compostela Valley (A) and New Albay, Mt. Candalaga (B); Host plant *Ageratum conyzoides* (C)

margin; triangular bands on lateral sides reaching towards the dorsum, not touching each other.

Elytra with regular weakly striate-punctate intervals with sparse scales, moderately convex, with few short apical hair. Each elytron with three bands: 1) broad band on basal part transversely extending from interval II to lateral margin, but not confluent; 2) broad transverse band in the middle part of elytra, medially; 3) apical triangular marking extending from apex of each elytron to apical third, laterally connected with median marking. Underside weakly lustrous with pale yellow and green scales on the basal margin of the pronotum and latero-ventral side of ventrites 1 and 2.

Legs wide with strongly clavate femora. Tibiae serrate along internal edge. Middle and hind femora covered with short hairs and sparse scales along posterior margins. Each tibia fringed with pubescence along internal margin, sparsely mixed with short hairs. Apical part of femora with dense metallic yellow and red scales and short setae. Tibiae with sparse scales and short setae, with minute teeth and long hair in the inner edge.

Tarsomeres covered by sparse pubescence.

Male genitalia as shown in Figure 2 A-D. Everted endophallus as shown in Figure 3A. As underlined in other occasions (Bollino & Sandel, 2017), the procedure to obtain the eversion of the endophallus is not simple and easy at all, and this is especially true with *Orthocyrtus*. The red arrows in Figure 3 indicate the flagellar diverticulum which, in most case, everts only partially, except in very few samples. Despite the many dozens of attempts with *Orthocyrtus* specimens, we obtained the complete eversion of the flagellar diverticulum only in a couple of cases (Fig. 3B). Having examined the structure in nearly all the species belonging to the subgenus (including some undescribed taxa), we observed that its pattern is shared by all *Orthocyrtus* taxa, and by no other *Metapocyrtus* species.

Female. Dimensions: LB: 12.1-12.7: LR: 1.9-2.1. WR: 1.4-1.5. LP: 2.9-3.2. WP: 3.9-4.1. LE: 9.0-9.3. WE: 6.3-6.6. N=5.

Habitus as shown in Figure 1 C-D

Elytra slightly wider and longer than the male. Shape of the elytra imperfectly obovate if compared to the male, largest at the base (in the male it is largest in the middle). Pronotum slightly shorter than in the male, not perfectly subglobular. Otherwise mentioned, similar to male.

Female genitalia as shown in Figure 2 E-G

Etymology

The new species is named after the Mansaka indigenous group living in Maragusan and nearby areas.

Distribution

Metapocyrtus mansaka sp.n. is known from Compostela Valley, South Cotabato and Agusan del Sur. A single specimen of *Orthocyrtus* strongly reminiscent of *O. mansaka* from Tboli (South Cotabato) is present in MBLI. Due to its uniqueness, we refrain from including it in the type series of the new species.

Brief ecological notes

Metapocyrtus mansaka sp.n., which may be locally common, is typically found in secondary forests or forest edges along pristine creeks and rivers with abundant *Ageratum conyzoides*, on which the specimens are found feeding on the leaves. Specimens were observed by the first and third authors at low elevation during the months of April and May, corresponding to the summer season in the Philippines.

The locality of New Albay is covered by a secondary forest at the foot of Mt. Candalaga, with various falls, cold springs and rivers. Both falls and cold springs are touristic attractions under anthropogenic pressures, and forests in the area are being slowly logged to give way to banana plantations, thus touristic activities and logging are the most important threats to the populations of endemic species thriving in the area. The lower elevations of Mt. Candalaga host also the threatened plant *Rafflesia mira* Fernando & Ong, 2005 (Barcelona et al., 2009), famous for its flowers being within the biggest in the world. To date, there is no conservation initiative done on this mountain.

The new species was also documented in 2010 in the nearby of New Bataan, Compostela Valley, but the area was devastated by a strong typhoon in 2012, and we had no opportunities to re-survey on the status of the population.

ACKNOWLEDGMENTS

We wish to express our gratitude to Hiraku Yoshitake ((Tsukuba, Japan) for his help in various ways, and two anonymous reviewers for their suggestions.

REFERENCES

Bollino, M. and Sandel, F., 2015. Three new species of the genus *Pachyrhynchus* Germar, 1824 from Lubang Island (Philippines) (Curculionidae: Entiminae: Pachyrhynchini). *Munis Entomology and Zoology*, 10(2): 392-40

Bollino, M. and Sandel, F., 2017. Two new taxa of the Subgenus *Artapocyrtus* Heller, 1912, Genus *Metapocyrtus* Heller, 1912 from the Philippines (Coleoptera, Curculionidae, Entiminae, Pachyrhynchini). *Baltic Journal of Coleopterology*, 17(1): 1 -14

Bollino, M., Sandel, F. and Rukmane, A., 2017. New species of the genus *Pachyrhynchus*

Germar, 1823 (Coleoptera: Curculionidae) from Mindanao, Philippines. *Baltic Journal of Coleopterology*, 17(2): 189-204

Barcelona, J.F., Pelser, P.B., Balete, D.S. and Co, L.L., 2009. Taxonomy, ecology, and conservation status of Philippine *Rafflesia* (Rafflesiaceae). *Blumea*, 54: 77-93

Heller, K.M., 1912. Philippinische Rüsselkäfer. *Philippine Journal of Science, Section D. General Biology, Ethnology and Anthropology*, 7(5): 295-346; 7(6): 347-403, pl. I-II.

Philippine Eagle Foundation, Conservation International-Philippines, Department of Environment and Natural Resources. 2008. Eastern Mindanao Biodiversity Corridor Conservation Framework. Davao City, Philippines. 95 pp.

Schultze, W., 1925. A monograph of the pachyrrhynchid group of the Brachyderinae, Curculionidae: Part III. The genera *Apocyrtidius* Heller and *Metapocyrtus* Heller. *Philippine Journal of Science*, 26: 131-310, 12 pls.

Yap, S. A., 2008. Checklist of the *Metapocyrtus* Complex (Curculionidae: Entiminae: Pachyrrhynchini) of the Philippines. *Asia Life Sciences*, 17 (2): 249-260.

Yoshitake, H., 2017. Notes on Pachyrhynchini jewel weevils (Coleoptera: Cuculionidae: Entiminae) and other insects showing remarkable resemblance in color and body pattern characteristics. *Gekkan-Mushi*, 553: 22-40.

Received: 14.02.2018.

Accepted: 31.07.2018.

Published: 10.09.2018.