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# From deforestation to recovery: one new species and new record of the genus *Metapocyrtus* Heller, 1912 (Coleoptera: Curculionidae: Entiminae: Pachyrhynchini) from Negros Island, Philippines with the review of type material

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**Abstract:** As recently as the late nineteen century, Negros Island of the Philippines was still virgin forest. Unfortunately, due to combined effects of commercial logging, population growth and large-scale agriculture, only 4% of the primary rainforest remained by the end of twentieth century. Here we report on the recovery of rainforest entomofauna. One new species of the genus *Metapocyrtus* Heller, 1912 from the Island of Negros, Western Visayas, the Philippines has been described, and one species known only from a type specimen, has been rediscovered after nearly one century. *M. (Trachycyrtus) augustanae* **sp. n.** was found in the Northern Negros National Park, along with the rediscovered *M. (Orthocyrtus) bifoveatus*, Schultze 1923. The species *Eumacrocyrtus canlaonensis* Shultze 1924. also has been collected on high elevation of the mount Canlaon and an addendum to its original description has been provided here. At the end we discuss similarity between monospecific genus *Eumacrocyrtus* Schultze 1924 and the species *Orthocyrtus bifoveatus* either as a synapomorphy which would require inclusion of the genus *Eumacrocyrtus* into the genus *Metapocyrtus* and the subgenus *Orthocyrtus*, or as mimicry between two species.

Keywords: Entiminae, Pachyrhynchini, *Metapocyrtus, Eumacrocyrtus,* new species, Philippines, taxonomy.

## 1. Introduction

Negros Island of the central Philippines, suffered drastic deforestation through the twentieth century. Only 4% of the primary rainforest survived on the mountain tops by the end of the century. Pachyrynchini are an attractive tribe of flightless Entiminae weevils mostly restricted to the Philippine archipelago (Heller, 1912; Schultze, 1925; Heller, 1929), with few species recorded in Taiwan and Japan (Starr and Wang, 1992; Yoshitake et al. 2012) as the northern distribution border, and Papua New Guinea and the Solomon Islands as the southern distribution border (Gressitt, 1956). Mentioned

authors from the first quarter of the twentied century surveyed the island of Negros and found twelve species of the genus *Metapocyrtus*, the most diverse and complex genus in the tribe Pachyrhynchini, with currently recognized seven subgenera and more or less 300 species that have unique and colorful body designs (Yap and Gapud, 2007). Among the subgenera, *Trachycyrtus* have the pronotum and elytra that are granulated or subrugosely punctured. This group of weevils can be found in low lying dense undergrowth, bushes, shrubs or even in agricultural areas. Although, very attractive and becoming pests, only few local taxonomists provide much attention to these weevils (Cabras et al. 2016; Cabras et al. 2012; Cabras et al. 2022). While mountain primary rainforest started recovery in the early 21<sup>st</sup> century, lowland rainforest is gone. We were interested to find out how many of the originally described *Metapocyrtus* species from Negros, still could be found. In the process, we discovered a species new to science. We also located a relatively large high altitude population of a species previously known only from a single lowland specimen. These findings provide a moderate hope that most of Negros Pachyrynchini managed to survive extreme deforestation. In this paper, we will focus on taxonomical description and re-description of species we found.

In recent years, dry specimens obtained by local collectors and distributed internationally by specimen dealers, can often be found online, but the collecting data are vague, inaccurate, incomplete and often missing (Terzin, unpublished data). The description of new species should be discouraged from such material. On the other hand, the Republic of the Philippines has a strict and robust mechanism for collecting-permit issuance, which is the major obstacle to more extensive exploration of this amazing hot-spot of biodiversity.

#### 2. Material and Methods

Thanks to several months spent in the application process, both authors were granted permit by the authorities (Department of Environment and Natural Resources – DENR) to enter areas of the two national parks in the Northern Negros (Figure 3d). Namely, in Mount Canlaon National Park and Northern Negros National Park, they were allowed to collect and record specimens in the primary rainforest, which survived heavy deforestation of 20<sup>th</sup> century. Furthermore, in both collecting expeditions, the authors were accompanied by DENR authorities, who monitored our activity and ensured safety.

Some specimens were hand-picked from the vegetation. Others were collected in a net spread beneath a tree branch which was shaken with a metal hook attached to a long bamboo stick. All collected specimens were initially preserved in 70% ethyl alcohol and dry-mounted on card squares. GPS data were determined using hand-held unit Garmin Oregon 650 equipped with the BirdsEye Satellite Imagery. The holotype of the new species is deposited in the first author's research collection, Augustana Faculty, University of Alberta, Alberta, Canada. Specimens of the species previously known but recaptured after long time, were deposited in the Museum of Natural History, University of the Philippines, Los Baños, The Philippines; at the Senckenberg Natural History collections, Dresden, Germany; and in the authors' personal research collection.

The body length of specimens was measured from the anterior border of the eyes excluding the rostrum, to the apex of the elytra, as customary for the curculionids. Elytral width is the maximum width, as measured in dorsal view. Habitus images of the species larger than the field of view of the microscope (*O. bifoveatus* and *E. canlaonensis*) were taken with a Cannon EOS 50D SLR camera, equipped with a Cannon 100 mm macro lens and mounted on a Manfrotto tripod or with Olympus TG-5 digital camera using microscope function with z stack capability. Microphotographs and habitus images of small, newly described species were taken using a Leica S8AP0 stereo microscope equipped with a Leica DFC425 digital camera using software LAS V3.7. Figures were processed using Adobe Photoshop elements 6.0.

Map by Maphill free online maps under licence https://creativecommons.org/licenses/by-nd/3.0/. Acronyms for the depositories of the material are as follows:

- SMTD Senckenberg Natural History collections previously registered as Staatliches Museum fur Tierkunde, Dresden, Germany (coden as noted in Arnett et al. (1993)).
- UPLBMNH Museum of N. H., U. of the Philippines, Los Baños, The Philippines (coden recently modified from UPPC noted in Arnett et al. (1993)).

# 3. Results

# 3.1. Description of new species

*Metapocyrtus (Trachycyrtus) augustanae* **sp. n.** (Figure 1)

**Type locality:** Philippines, Negros Island, Negros Island, Northern Negros National Park. **Geographical coordinates:** N: 10° 37' 36"; E: 123° 14' 14" **The date of collection:** January 29, 2017.



**Figure 1.** Habitus of new species *Metapocyrtus* (*Trachycyrtus*) *augustanae* **sp. n.** holotype. Dorsal (A) and lateral (B) habitus. Dorsal (C) and lateral (D) view of head and rostrum.

**Type material.** Holotype  $\mathcal{Q}$ , leg. S. Bangoy (Terzin T. research collection, Augustana, University of Alberta).

**Measurements:** Length: holotype female 6.6 mm LB. Elytra at widest point 1.52x as wide as pronotum. Pronotum and elytra measurements are as follows: 2.1 mm WP and 1.9 mm LP, 3.2 mm WE and 3.8 mm LE.

**Description.** Body gray-black, small sized. Rostrum (Figure 1c and 1d) longer than wide; 0.83x as wide as long, widest at apex, at base 0.69x as wide as at the apex. Dorsal side of rostrum almost flat, without visible median depression but slightly depressed toward midline, dorsolateral edges sharp, not bulging. Rostrum separated from head by transverse furrow. Lateral surface without longitudinal depression between eye and upper margin of scrobe in profile (Figure 1d). Scrobes dorsally well visible, laterally short. Several prominent yellow seteae projecting from apex. Antennae redish-brown with

long scape, reaching posterior margin of eye (Figure 1c), longer than funicle; club not prominent. Head and rostrum black, frons wider than the eyes. Medial groove between eyes sharp but shallow. Head and rostrum not decorated with scales. Instead, around ten yellow setae protrude from frons on each side of midline between the eyes. From small depressions on dorsal and lateral side of rostrum protrude individual white setae of the equal length (Figure 1c and 1d). Eyes oval, black, not prominent from outline of head. Pronotum integument blackish, with shiny tubercles, and light-yellow round scales, distributed more-less evenly between tubercles (Figure 1a and 1b). Elytra at the widest point 1.55x as wide as pronotum. Elytra integument blackish, rough, without visible striae, mostly without scales but with individual round light-yellow scales diffusely, more or less evenly distributed (Figure 1a and 1b). Each small depression in elytra occupied by a single short seta. Elytra are hard and do not appear inflated dorso-ventraly. Suture visible (Figure 1a). At the posterior midline, with suture running in between, each elytron is equipped with a single prominent tubercle from which protrude several individual long light-brown setae, bent toward each other in the upper portion (Figure 1b). This paired structure is known from several other species of the genus *Metapocyrtus*, and in most cases is female specific, representing sexual dimorphism. Underside black without markings. Posterior declivity slightly elongated, not bifurcated. Posterior of abdomen ends under sharp angle with angled roundedged ridge which dorsally starts with the false spinneret structure (Figure 1b). All three pairs of legs black, without scaly markings, covered with evenly distributed white and yellowish setae. Tibiae not serrated along internal margins. Underside of tarsus covered in dense yellowish-gray mat

**Etymology.** The newly described species is dedicated to a home institution of the first author, Augustana faculty of the University of Alberta, to honour sabbatical research opportunity that the first author was provided with. Augustana is a rural campus of the University of Alberta, hosting about 1000 students in the city of Camrose, Alberta, Canada.

**Bionomy.** (Figure 3a and 1b). Single type specimen was collected in a primary rainforest at 1400 m above the sea level.

**Differential diagnosis.** Light scales diffusely distributed across gray-black integument, not forming any particular pattern. Small size but clearly different from *M. (Trachycyrtus) nanus* Boheman, 1845.

#### 3.2. Rediscovery and redescription

Metapocyrtus (Orthocyrtus) bifoveatus Schultze, 1925 (Figure 2)

**Locality of rediscovered species:** Philippines, Negros Island, Northern Negros National Park. **Geographical coordinates:** N: 10° 37' 36"; E: 123° 14' 14" **The date of collection:** Afternoon, April 06, 2016.

**Material examined**. Single type male specimen from 1925. is hosted at Senckenberg Natural History collections (SMTD), Dresden, Germany. Additional specimens  $\sigma$  and  $\varphi$ , leg. T. Terzin research collection; one  $\sigma$ , leg. T. Terzin (SMTD); one  $\sigma$ , leg. T. Terzin (UPLBMNH). Here described is the first record of a female specimen.

**Measurements:** Length: female 13.5 mm LB; male 12 mm LB. Elytra at widest point 2.00x as wide as pronotum. The rest of measurements are provided for a female specimen only, as previously unknown: 3.5 mm WP and 4 mm LP, 7 mm WE and 8 mm LE.

**Description.** Body large to medium sized. Rostrum (Table 1-1 on right) longer than wide; 0.85x as wide as long, widest at apex, at base 0.82x as wide as at the apex. It has median depression, dorsolateral edges sharp, no basal constriction. Rostrum separated from head by shallow transverse furrow. Lateral surface lacking longitudinal depression between eye and upper margin of scrobe in profile. Several prominent yellow seteae projecting from apex. Antennae with scape long, reaching posterior margin of eye, not longer than funicle; club long, semi-prominent. Anterior part of head between the eyes and rostrum black. Frons, brown or black; wider than the eyes. (Table 1-1 on right).

Shared	character	E. canlaonensis	O. bifoveatus
1.	Pronotum has anterior collar about 0.2 mm wide, sharply carved in the integument.		
2.	Diffuse distribution of scales across the dorsal surface of elytra, but achieved in different ways since in <i>E.</i> <i>canlaonensis</i> they do not touch each other and are smaller and less iridescent.		
3.	Paired dorso-lateral clearings without scales on elytra.		
4.	On the ventral side, both species have a very distinctive covering made of elongated orange-yellow scales. Posterior declivity is different.		
5.	Aedeagus, complete lateral view (top) and dorsal view (without median lobe apodeme and flagellum) units are mm.		
6.	Both species live on high elevation.	2000 m	1400 m
7.	Important for the consideration of mimicry: Both species are found at the same time (March-April).	Image n/a	Image n/a
8.	Important for the consideration of mimicry: Both species are frequent in small areas where they live, but overall are scarce.	Image n/a	Image n/a

**Table 1.** Characters shared by *Eumacrocyrtus canlaonensis* Schultze 1924 and *M. (Orthocyrtus) bifoveatus* Schultze 1923.

Medial groove between eyes sharp. Frons between the eyes and posterior dorsal surface of rostrum decorated with a scaly patch along midline (Table 1-1 on right). Eyes oval, semi-prominent from outline of head. Head in profile, bearing few metallic green and blue scales beneath the eye. Pronotum shiny, smooth, rusty brown, dorsally without scales, with the exception of anterior collar which is decorated with individual metallic green and blue scales (Table 1-1 on right). Pronotum ventro-laterally covered in dense metallic green, blue and yellow scales (Figure 2c and 2d). Elytra integument reddish-brown to black, smooth, covered in round metallic mixed green and blue scales. Two areas on lateral side of the elytra are not covered in scales and integument appears as shiny brown spots. Suture accented (Figure 2c).



**Figure 2.** Habitus of rediscovered species *Metapocyrtus (Orthocyrtus) bifoveatus* Schultze 1925. Type specimen label (A). Species is known from a single, male, type specimen in poor condition, with lateral habitus represented on (B). Lateral habitus of freshly collected female specimen (C). Lateral habitus of freshly collected male specimen (D). Dorsal view of female thorax and elytra (E). Dorsal habitus of a male (F).

In lateral view, ventral edge of elytra covered in denser green and blue scales mixed with metallic yellow scales and appears lighter than the dorsal surface along anterior two thirds of the length.

Underside of thorax and abdomen as illustrated (Table 1-4 on right). Coxae of hind legs wider positioned than coxae of first two pairs of legs. Widening coincides with the lateral widening of elytra in medial region. Posterior area of prosternum, metaventrite and ventrites 1 and 2 covered in dense, yellow scales. Scales limited to intercoxal space (Table 1-4 on right). The rest of underside black. All three pairs of legs reddish brown with joint between tibia and femur black in freshly collected specimens, while whole legs are black in type specimen (Figure 2). Tibia of front legs finely serrated along internal margins (Figure 2c). Underside of tarsus covered in dense gray mat.

**Bionomy.** All freshly collected specimens were found in a primary rainforest at 1400 - 1450 m above sea level. Area is covered in dense undergrowth vegetation due to good light penetrability. The trees have much smaller diameter than on Mount Canlaon, in appearance resembling the secondary forest (Figure 3a and 3b). The probable reason for this is poor biodegradation in soil which is covered in thick layer 50 cm or more of poorly degraded foliage. Species was not observed on lower elevations but was relatively frequent at 1400m. Collecting area is difficult to approach due to dense vegetation and unstable ground covered in a thick layer of foliage accumulated between the tree roots. Type specimen was collected in lowland area of Faraon (Figure 2a) which is now deforested.



Figure 3. Pictured are biomes of M. (Trachycyrtus) augustanae sp. n. and M. (Orthocyrtus) bifoveatus Schultze, 1925. (panels A, B and yellow dot on the map) in the Northern Negros National Park (NNNP) as well as biome of Eumacrocyrtus canlaonensis Schultze 1924 (panel C and red dot on the map) on the Canlaon mount. Elevation is 1200-1400 m above sea level for yellow dot and 2000 m for red dot. In NNNP undergrowth is well developed due to the penetrability of sunlight (A). Trees have small diameter and from distance look like a secondary forest (B). Canlaon mount also contains primary rainforest but the size and diameter of trees is much bigger. However, at the high elevation where specimens were collected, trees have dwarfing tendency with many thick horizontal branches completely covered in moss. That is the exact place where specimens of E. canlaonensis were collected (C). Negros Island belongs to Visayas Islands of the central Philipinnes (D). Species distribution represented with dots. Map by Maphill free online maps under licence https://creativecommons.org/licenses/by-nd/3.0/.

**Sex dimorphism.** This is the first record of a female specimens, since species was originally described based on a single male type specimen. Female slightly bigger with different posterior body outline both in dorsal and lateral projection than male (Figure 2c-e). Female has more prominent vertical ridge. Posterior elytral declivity not bifurcated, slightly elongated in female (Table 1-4 on right ventral view and Figure 2c lateral view) and not elongated in male (Figure 2d). Posterior of abdomen ends abruptly with two elytra converging in a sharp vertical ridge covered in distinct setae (Figure 2c). The same feature is present but less prominent in males.

**Differential diagnosis.** Dorsal surface of elytra smooth, evenly covered with mixed metallic green and blue round scales, with the exception of four dorso-lateral bold spots. Abdomen ends with sharp vertical ridge covered in setae. Distinct patch of yellow scales on prosternum, metaventrite and ventrites 1 and 2 (Table 1. 4 on right). This is the only known species of the subgenus *Orthocyrtus* from Negros Island and also the largest *Metapocyrtus* species on the Island. The only possible confusion regarding size and patterns is with *Eumacrocyrtus canlaonensis* Schultze 1924 (Table 1) and *M.* (*Trachycyrtus*) corpulentus Schultze, 1934. However, in *T. corpulentus* integument is not smooth.

**Mimicry.** Possible Mullerian model-mimic of *Eumacrocyrtus canlaonensis* Schultze, 1924 (Figure 4). However, at the present time two species do not live at the same place. *M. (Orthocyrtus) bifoveatus* most likely had been used to have larger areal before deforestation. For details regarding possible mimicry see discussion and Table 1.

Eumacrocyrtus canlaonensis Schultze, 1924 (Figure 4)

**Locality:** The Philippines, Negros Island, Canlaon Mount. **Geographical coordinates:** N: 10° 27' 03"; E: 123° 08' 20" **The date of collection:** Sunset, March 30, 2016.



**Figure 4.** Habitus of *Eumacrocyrtus canlaonensis* Schultze 1924. Collecting data of the type specimen (A). Lateral habitus of the type specimen (B). Dorsal habitus of a freshly collected specimen (C). Lateral view of head and rostrum of a freshly collected specimen (D).

**Examined material:** Two specimens labeled as types and several additional specimens, all collected in 1924. are hosted at Senckenberg Natural History collections (SMTD), Dresden, Germany. Several fresh specimens of both sexes were collected on a single, high altitude location (2000 m) on Canlaon Mount leg. T. Terzin (UPLBMNH) and (UASM).

Redescription. Species was originally described in Schultze (1924). Here provided is additional information based on freshly collected material which was compared with the type specimens. Body, large sized. Length: average male length 13 mm; average female length 14.5 mm. Rostrum (Table 1. 1 left) longer than wide; 0.75x as wide as long, widest at apex, at base 0.86x as wide as at the apex. Rostrum with median depression, dorsolateral edges sharp, no basal constriction. Rostrum separated from head by shallow transverse furrow. Lateral surface lacking longitudinal depression between eye and upper margin of scrobe in profile (Figure 4d). Several prominent yellow seteae projecting from apex. Dorsal surface of rostrum and head without scales (Table 1. 1 left). Antennae with scape long, reaching the margin of head, longer than funicle; club long, not prominent. Head and rostrum black. Frons wider than the eyes. Medial groove between eyes not sharp. Eyes oval, semi-prominent from outline of head. Head in profile is bearing patch of elongated light scales beneath eye (Figure 4d). Pronotum shiny, rusty brown with two lateral depressions, dorsally without scales, ventro-laterally covered in dense semi-metallic gray-bluish scales. Elytra at the widest point 1.67x as wide as pronotum. Elytra integument dark brown or black, smooth, covered in round semi-metallic gray-bluish scales (Figure 4b). Three areas on lateral side of the elytra are not covered in scales and appear as shiny black spots (Table 1. 3 left). Suture barely visible. Metaventrite and ventrites 1 and 2 covered in dense, elongated orange-yellow scales. Scales limited to intercoxal space (Table 1. 4 left). The rest of underside black. Coxae of hind legs much wider positioned than coxae of first two pairs of legs. Widening coincides with the lateral widening of elytra in medial region. Posterior elytral declivity drastically elongated and bifurcated (Table 1. 3 and 4 left). All three pairs of legs: femur reddish brown, tibia and tarsus black. Tibia of front legs finely serrate along internal margins. Underside of third tarsite covered in dense gray mat.

**Intraspecific variability.** Several specimens, both males and females appear melanistic, having black pronotum and femur. Sex dimorphism, apart from the size difference between males and females where females are regularly larger, not existent.

**Bionomy.** All freshly collected specimens were found in a primary high-altitude rainforest at 2000 m above the sea level. Species not recorded at lower elevations. The area is moist plateau with many ponds and mud pits (Figure 3c) 4 km away from the volcanic crater of the Mount Canlaon. Rainforest in this area is ancient and untouched by human activity. Trees are smaller than on lower elevations, with many horizontal branches covered in dense moss. Specimens were hand-picked from a low tree branches. Species was not observed on lower elevations and was very frequent at the collecting site. Due to volcanic eruption at the time of our expedition (Mount Canlaon eruption of March 30, 2016), we were unable to examine broader area and higher elevations due to safety issues.

**Differential diagnosis.** Sutural beginning of posterior elytral declivity is drastically extended, bifurcated at the end and covered in distinct setae (Figure 4c) and (Table 1. 3 and 4 left). Abdomen is flattened as in the genus *Macrocyrtus* but dorsally not regularly oval. Third pair of coxae much wider positioned than the first two pairs. Distinct patch of elongated orange-yellow scales on metasternum and ventrites 1 and 2.

**Mimicry.** Possible Mullerian mimicry of *M. (Orthocyrtus) bifoveatus* Schultze, 1923 (Figure 2) as mentioned above and in the discussion.

**Checklist** of the *Metapocyrtus* species known from Negros Island, the Philippines, including here described new species but excluding the genus *Eumacrocyrtus*.

Twelve species of the genus *Metapocyrtus* were known from Negros Island prior to new species discovery:

Metapocyrtus (Dolichocephalocyrtus) negrosensis Schultze, 1925.

Metapocyrtus (Metapocyrtus) elongatus Schultze, 1925.

*Metapocyrtus (Metapocyrtus) pilositibialis* Schultze, 1925.

Metapocyrtus (Metapocyrtus) puncticollis Heller, 1912.
Metapocyrtus (Metapocyrtus) reyesi Schultze, 1925.
Metapocyrtus (Metapocyrtus) reyesi Schultze, 1925 ssp. daconus Schultze, 1934.
Metapocyrtus (Metapocyrtus) virgatus Heller, 1912.
Metapocyrtus (Orthocyrtus) bifoveatus Schultze, 1925.
Metapocyrtus (Trachycyrtus) augustanae sp.n., 2023.
Metapocyrtus (Trachycyrtus) concinnus Waterhouse, 1843.
Metapocyrtus (Trachycyrtus) magnigibbicollis Schultze, 1925.
Metapocyrtus (Trachycyrtus) nanus Boheman, 1845.
Metapocyrtus (Trachycyrtus) socius Schultze, 1925.

*M.* (*Metapocyrtus*) virgatus Heller, 1912.; *M.* (*Trachycyrtus*) concinnus Waterhouse, 1843; and *M.* (*Trachycyrtus*) nanus Boheman, 1845 were also collected during our expeditions. Subgenera: *Artapocyrtus, Sclerocyrtus* and *Sphenomorphoidea* do not have known representatives on Negros Island (Yap 2008).

#### 4. Discussion

Possibility that rediscovered M. (Orthocyrtus) bifoveatus Schultze, 1925 represents a new subspecies, different from the type specimen, was considered on the basis that type specimen was collected in lowland location, Faraon area of the Negros Occidental (Figure 2a) which suffered total deforestation in XX century (Pedregosa-Hospodarsky et al. 2009). On the contrary, our freshly collected specimens are clearly high-altitude ones, with no record on elevations lower than 1400 m above the sea level. However, beside lighter, redish-brown integument of freshly collected specimens, as opposed to dark brown integument of the type specimen, we were not able to recognize any other morphological difference. That difference alone, in our opinion is not sufficient for the recognition of a new subspecies. Examined type specimen appears to be dissected for male genitalia, but aedeagus is missing from the collection. Aedeagus was dissected from freshly collected specimen (Table 1. 5 on right) but we were not able to compare it with type specimen. Schultze (1925) described species based on a single male specimen in a poor condition (Figure 2b). Given that original species was described based on a single specimen, and that we found the species locally abundant, at the elevation of 1400 m, it is likely that original finding was accidental, and that *M. bifoveatus* is originally a high elevation species, rather than the deforestation refugee. Another possibility is that in the time prior to the deforestation, species had broader, generalist distribution. Molecular study, including sampling of the type specimen and newly recorded specimens, should be performed in order to provide the answers. Since type specimen is old, it is not likely that sufficient molecular information could be retrieved from it, meaning that maybe we will never know. Anyhow, rediscovery of a rare, lowland species, found on relatively high elevation, gives a hope, that more lowland Pachyrynchini species of the Philippines, not seen since the first half of XX century, may still be around.

Need for taxonomic change or a case of mimicry?

During our two expeditions in Northern Negros, one on the Canlaon Mount and another in the Northern Negros National Park in March and April 2016., we encountered two relatively large, high elevation Pachyrynchini species, *M. (Orthocyrtus) bifoveatus* Schultze 1923 inhabiting Northern Negros National Park (NNNP) and *Eumacrocyrtus canlaonensis* Schultze 1924 inhabiting Canlaon mount. Canlaon and NNNP mountain regions are separated by Bago river and 12 km of lowland. Two species share several unique characters or synapomorphies (Table 1), based on which we concluded that they are sister species produced by allopatric speciation. Monospecific genus *Eumacrocyrtus*, should be dissolved since the species *E. canlaonensis* appears to belong to *Orthocyrtus* subgenus of the genus *Metapocyrtus*. The only prominent feature of *E. canlaonensis* which makes it different from most

*Metapocyrtus* species is very elongated posterior declivity. However, there is another *Metapocyrtus* species with similarly bizarre posterior morphology *M. Orthocyrtus tumoridorsum* Chevrolat 1881. demonstrating such tendency in the same subgenus *Orthocyrtus*. Therefore, we propose a taxonomic change to rename *Eumacrocyrtus canlaonensis* Schultze 1924 into *Metapocyrtus (Orthocyrtus) canlaonensis* Schultze 1924. Our opinion is that only molecular analysis can confirm or disprove taxonomic position of *Eumacrocyrtus canlaonensis* within the genus Metapocyrtus. Pachyrynchini are well known for their tendency for supposedly Mullerian mimicry within the tribe (Cabras and Medina, 2018).

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### References

- 1. Arnett, R.H., Samuelson, G.A., Nishida G.M. (1993): The insect and spider collections of the world. Flora and Fauna Handbook 11, second edition, Sandhill Crane Press, Gainesville, Florida, United States of America.
- 2. Cabras, A.A., Medina, M.N.D. (2018): *Metapocyrtus (Artapocyrtus) willietorresi* sp. n. (Coleoptera: Curculionidae) from Southern Mindanao (Philippines), with notes on its ecology and mimicry complex. Baltic Journal of Coleopterology 18(2): 185 192.
- 3. Cabras, A.A., Nique, G., Mohagan, A. (2016): Diversity and distribution of Pachyrynchini (Coleoptera: Curculionidae: Entiminae) in Mt. Apo Natural Park, Philippines. Journal of Biodiversity and Environmental Sciences 8 (2): 312-319.
- 4. Cabras, A.A., Medina, M.N.D. Zhang, G. (2019): *Metapocyrtus kitangladensis* sp.n., a new *Pachyrhynchus cumingii* GR Waterhouse, 1841 mimic from Mindanao Island, Philippines. ZooKeys 853: 119-129.
- Cabras, A.A., Lam, A.W., Van Dam, M.H. (2021): *Metapocyrtus um* sp.nov., a new weevil species (Coleoptera, Curculionidae, Entiminae, Pachyrhynchini) from Davao City, Mindanao Island, Philippines. Zootaxa 5068 (4): 597-600.
- Cabras, A.A., Cudera, R., Mamon, J., Medina, M.N.D. (2022): Two new species of Metapocyrtus (Orthocyrtus) Heller, 1912 (Coleoptera, Curculionidae, Entiminae) from southern Mindanao, Philippines, with ecological notes. ZooKeys 1116: 133-147.
- 7. Gressitt, L.J. (1956): Some distribution patterns of Pacific islands faunae. Systematic zoology 5 (1):11-32+47.
- 8. Heller, K.M. (1912): Philippinische Russelkafer. Philippine Journal of Science Sect. D 7: 295-346.
- 9. Heller, K.M. (1929): Neue philippinische Russelkafer aus der Tribus Pachyrhynchini. Wiener Entomologische Zeitung 46 (1): 1-19.
- Nussler, H. (1988): Das Typenmaterial der Russelkafer des Staatlichen Museums fur Tierkunde Dresden (IV) (Insevta, Coleoptera: Curculionidae). Entomologische Abhandlungen Staatliches Museum fur Tierkunde Dresden 52(1): 2-27.
- 11. Pedregosa-Hospodarsky, M., Hospodarsky, P., Castro, D., Francis San Jose, P., Abalajon, J.M., Alpas, R., Perez, L.J. (2009): A faunal assessment of North Negros Natural Park (NNNP), Negros Island, Philippines. The Ruffor Small Grant Foundation.

- Schultze, W. (1924): A Monograph of the Pachyrrhynchid Group of the Brachyderinae Curculionidae: Part III The Genera Eupachyrrhynchus, Macrocyrtus, Eumacrocyrtus, Apocyrtus, Proapocyrtus, Pseudapocyrtus, Nothapocyrtus, and Exnothapocyrtus. Philippine Journal of Science, Manila, 25: 359-390.
- 13. 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 (2): 131-309.
- 14. Starr, C.K., Wang, H-Y. (1992): *Pachyrhynchini weevils* (Coleoptera: Curculionidae) of the islands fringing Taiwan. Quarterly Journal of the Taiwan Museum 45(2): 5-14.
- 15. Yap, S.A., Gapud, V.P. (2007): Taxonomic review of the Genus Metapocyrtus Heller (Coleoptera: Curculionidae: Entiminae). The Philippine Entomologist 21 (2): 115-135.
- 16. Yap, S.A. (2008): Checklist of the Metapocyrtus complex (Curculionidae: Entiminae: Pachyrrhynchini) of the Philippines. Asia Life Sciences 17 (2): 249-260.
- Yoshitake, H., Miyahara, S., Nishino, M., Suzuki, K. (2012): *Metapocyrtus (Trachycyrtus) hederaephilus* sp. nov. (Coleoptera, Curculionidae, Entiminae), a pest of the English Ivy cultivated in Mie Prefecture, Honshu, Japan. Japanese Journal of Systematic Entomology 18 (2): 261-267.