A new species of the genus *Erebaces* Pascoe, 1871 (Curculionidae: Molytinae: Cryptorhynchini) from the Philippines

Lorenzo Pancini\(^1,2\)

\(^1\)World Biodiversity Association Onlus c/o Museo Civico di Storia Naturale, Lungadige Porta Vittoria 9, Verona, Italy.
\(^2\)Via di Pontignale n.34/1, Firenze, 50142, Italy.
Email: lorenzopancini74@gmail.com

Abstract

*Erebaces kidapawanus* sp. nov. from Mindanao (Philippines) is described and illustrated. The genus *Erebaces* Pascoe, so far restricted to the Papua biogeographic province and Moluccas (Indonesia), is recorded in the Philippines for the first time.

Keywords: Biodiversity, beetles, Mindanao, species discovery, new record, weevils.

Introduction

The Philippines is considered one of the 18 mega-diverse tropical countries globally, due to its high biodiversity and species endemism (Olivieri et al., 1998). Mindanao is the second largest island in the Philippines, and it is characterized by dense forests and important mountain ranges. Mindanao probably originated from the accretion or integration of several islands which contributed to its complex biodiversity and unique species composition (Hall, 1998; Heaney et al., 1998). The current overexploitation of the natural environment, associated with habitat fragmentation and invasive species are seriously threatening local biodiversity, especially anthropogenic activities (Mohagan et al., 2020).

Curculionidae Latreille, 1802 is one of the most species-rich families among Coleoptera (Oberprieler et al., 2007) including several hundred species in the Philippines archipelago (Heller 1912; Schultze 1917, 1919, 1922). However, a great majority of the weevils still remain unknown and, given the rate with which the natural environment is degraded in the area, we may expect that many species to be seriously threatened or even go extinct before being recognized. For this reason, describing new species is a substantial contribution that may help to prevent species extinction by notifying the scientific and local communities of its existence.

The genus *Erebaces* Pascoe, 1871 (Molytinae: Cryptorhynchini Schönherr 1825: Tylodina Lacordaire 1866) was originally recorded in Papua New Guinea (and adjacent islands) and the Moluccas (Alonso-Zarazaga & Lyal 1999; Setliff 2007). *Erebaces angulatus* Pascoe and *E. pleuricausta* Pascoe from Bacan and Morotai Islands (Moluccas, Indonesia) were the first species described in the genus (Pascoe, 1871). Afterwards, in 1885, Pascoe described *E. ater* Pascoe and *E. beccarii* Pascoe, both from Biak Island (Papua Province, Indonesia). In 1974 Zimmerman published a short review of the genus where, in addition to redefining the generic characters, he provided a key to the described species, designated *E. angulatus* as type-species of the genus, and placed *E. beccarii* in synonymy with *E. ater* (Zimmerman, 1974). *Erebaces* can be separated from the other Indo-Pacific genera, such as *Hexymus* Pascoe 1871 and other Tragopus-like weevils (Pascoe, 1871) thanks to the following characters: eyes finely faceted, protruding (toothed) elytral humeri, the deep rostral canal with mesothoracic receptacle open posteriorly,
and extending to the hind margin of the mesocoxae and the first ventrite, placed on a much lower level (when viewed laterally) than the other ventrites (Zimmerman, 1974).

The ongoing study of series of weevils collected in Mindanao has allowed for the identification of one species of Erebaces new to science. This taxon, described hereina, represents the first record of this genus in the Philippines.

Material and Methods
Specimen morphology was observed under an LW-Scientific Z-2 stereomicroscope. Photos were taken with a Canon M-100 digital camera mounted on a macro bellows equipped with a Nikkor 50 mm enlarging lens. All images were stacked using a licensed version of the software Zerenestacker 8. The holotype after study and description, has been glued on entomological cardboard; the paratype was pinned through the right elytron. Specimens are provided with two labels, one red for the holotype/paratype and one white label reporting collecting data. During the study of the new species, two specimens which present the same pattern of two pale-yellow bands on the pronotum (Fig. 4A-B) were also examined, one of these identified as Tragopus Schoenherr sp. (Fig. 4A). The morphological terminology used in this description follows Lyal C.H.C. (ed.).

Collection acronyms:
CMNC: Canadian Museum of Nature, Ottawa, Canada
MSNG: Coll. Museo Civico di Storia Naturale “Giacomo Doria”, Genoa, Italy
UMCRC: Coleoptera Research Center, University of Mindanao, Philippines

The following symbols and abbreviations are used in the text:
/ = different lines
// = different labels
LB = length of the body in dorsal view, from the vertex to the apices of elytra
WE = maximum width across the elytra, measure of the interval between the humeral callus
OI = ocular index (ocular distance index), is calculated by measuring the minimum distance between the eyes, and dividing this value by the maximum dorsal width across the eyes. The quotient resulting from this division is then converted into an index by multiplying by 100 (Campbell & Marshall, 1964).

Results

Erebaces kidapawanus Pancini sp. nov.
(Figs.1-2)

Holotype: male; Philippines, Mindanao / Kidapawan, Cotabato / VII-2020, local collector legit. (typed on white card) // Erebaces kidapawanus Pancini, 2021 / Holotype male (typed on red card). Presently in UMCRC, to be deposited in the National Museum of Natural History (NMNH) under the National Museum of the Philippines (NMP).
Lumawig / via local collectors (typed on white card // Erebaces kidapawanus, 2021 / Paratype male (typed on red card) (1 male, CMNC).

**Description.** Holotype male, size: LB 10.5 mm, WE 6.0 mm. Integument black, antennae reddish-brown, fifth tarsomere black tending to brown. Head, metatrostrum, pronotum and elytra densely covered with rounded and glossy black scales, mostly concentrated on pronotal and elytral disc, gradually scattered on elytral lateral margins and pleura. On two elytral tubercles, just before declivity, scales dense, long and spatuliform. Legs with glossy black, rounded widely scattered scales, interspersed with long black lanceolate erect scales. Rounded pale-yellow scales on pronotal disc forming two broad lines that converge anteriorly from latero-basal margin to apex, in form of an inverted "V". Small, overlapping pale yellow scales located inside punctures of pronotum, elytral striae and legs; on legs these scales cover spaces between punctures, forming a homogeneous layer on tibiae, aggregate on femora forming irregular light-yellow spots. Ventral side covered with erect black setae, dense on metasternum, ventrite one and apex of ventrite five, less dense on coxae, ventrites three and four; scales absent on prosternum. Very small and overlapping pale yellow scales sparse on punctures of procoxae. Head visible from above; eyes large, finely faceted; interocular distance narrower than sub-basal width of rostrum, O1 34.4; frons flattened with a small elliptical fovea largely covered by scales; rostrum moderately arcuate, subparallel in dorsal view, slightly constricted at middle, slightly widened and depressed at apex, 0.9 times as long as pronotum; basal half to antennal insertions rugose-punctate, apical half with small close punctures; suprascostral carinae present but poorly developed. Antennae inserted at middle of rostrum; scrobe lateral; scape not reaching eye, slightly arcuate and clavate at apex; antennae setose, article one and two conical, article two 2.3 times as long as article one, three to seven moniliform, of equal length; article seven weakly transverse and contiguous to oval, compact club. Pronotum with base 0.6 times as wide as base of elytra and 1.1 times as long as wide at base, broadest at middle, slightly convex in lateral view, abruptly constricted towards head and at anterolateral pleural margin, coarsely punctate, each puncture bearing anteriorly directed decumbent scale, apical margin rounded, slightly emarginate at middle, basal margin truncate. Post-ocular lobe poorly developed, with fine vibrissae. Rostral canal strongly formed, glossy, free of scales, with granulose lateral carinae. Mesothoracic receptacle placed on a lower plane than mesosternal canal, hind margin exceeding midlength of mesoecoxae, elevated at apex above level of metasternum, closed posteriorly, but with hind wall slightly lowered at middle, with strongly raised lateral walls reaching procoxae. Scutellar area depressed, scutellum very small, tomentose, triangular, placed on a lower plane than elytra. Elytra 1.4 times as long as pronotum, flat in lateral view before declivity, which is steeply declivous, base strongly sinuate, humeri prominent, angulate, glossy at tip. Ten striae visible, tenth stria reaching mesoecoxae. Striae until declivity foveate with punctures very large, circular, and deep, each bearing one decumbent seta; striae feebly foveate, without decumbent setae on declivity. Elytral intervals characterized by oblong longitudinal calloused prominences covered with shiny granules, convex to moderately convex until declivity, almost flat and without granules on declivity. Intervals as follows: interval 1 depressed at base, convex until declivity, with row of shiny granules in second basal quarter; interval 2 with two large humps, first oblong, longitudinal, starting from base of elytra and surrounding depression of scutellar area; second hump, on which also interval 3 converges, larger and more prominent, placed at beginning of declivity, its granules not clearly distinct, covered by long semi-erect scales; interval 4 with prominence at middle of basal half; interval 5 with prominence narrower than others located at beginning of apical half, interval 6 with oblong prominence just behind humeri. Pleural sclerites coarsely punctate, lateral portion of mesoventrite rectangular; mesanepisternum broad, triangular; mesepimeron ascending, narrow, with subparallel side; metaventrite fused with metaneipistemum, lateral portion short. Legs long, metafemur
exceeding elytral apex, all femora sublinear, meso- and metafemur slightly curved at distal apex, not sulcate beneath, mesofemur with small median tooth; tibia linear, with well-developed uncus, meso- and metatibia with spurs at inner apical angle and comb of very short dark setae at apex. Tarsi long, setose, tarsomere one 2.0 times as long as tarsomere two, and 2.6 times as long as tarsomere three; tarsomere five 1.5 times as long as tarsomere one. Ventral side coarsely punctate; ventrites two, three and five smooth. Meso and metacoxae separated by distance shorter than width of mesocoxa. Metaventrite short, 0.5 times as long as mesocoxa, posterior margin of lateral portion of metaventrite protruding anterior to metacoxa, resulting ventrolateral tooth slightly produced. Ventrite one broad, 1.1 times as long as ventrite two, three, four and five together. Intercoxal process wide, obtusely triangular. Ventrite five 1.5 times as long as ventrite three and four together.

Figure 1. *Erebaces kidapawanus* sp. nov. - holotype male, dorsal view.
Figure 2. *Erebaces kidapawanus* sp.nov. - Paratype male, lateral view.

Figure 3. Male genitalia of *Erebaces kidapawanus* sp. nov.: A. penis in dorsal view, B. penis in lateral view.
Penis shown in figure 3 A-B. Penis oblong, 5.0 times longer than wide at the base, thin, squared and slightly rounded at apex, body slightly constricted in the middle; ostium wide, ogival-round; ostiolar sclerites triangular, emarginate at base; basal sclerites square, with long hook-shaped anteriorly directed process (visible in ventral view); apodemes of penis 0.9 times as long as penis body.

**Variation.** There is slight variation in size with two male paratypes from Kalinan measuring 12.5 mm and 11.0 mm. The pattern of elytral tubercles appears the same on all specimens. The other paratype from Kidapawan appears blackened due to fatty exudations of the elytra (Fig. 2).

![Figure 4. Mimicry complex with other Cryptorhynchini: A. Tragopus sp. from Wao, Lanao del Sur, B. Curculionidae sp. From Dominorog, Bukidnon.](image)

**Etymology.** The new species is named after its type locality Kidapawan.

**Notes.** Zimmerman (1974) stated that in Papuan Erebackes the mesosternal receptacle is “open behind, its caudal margin is moderately elevated above the level of the metastemum (as one views the insect on its back)”. This is not the case in E. kidapawanus where the mesosternal
receptacle is clearly closed posteriorly, although the middle of the hind margin is slightly lower that the lateral walls. Perhaps this is what Zimmerman (1974) meant as he does state that the caudal (hind) margin “is moderately elevated above the level of the mesosternum”, an apparent contradiction to his stating it is open behind.

This species is similar to E. pleuricausta Pascoe in the shape of the pronotum and the steep declivity of the elytra. The new species is easily recognizable from its congeners by the two, pale-yellow stripes on the pronotum, which converge from the latero-basal margin to the apex; these stripes do not extend onto the elytra. Other Erebaces do not have a similar pattern of scales on the pronotum.

Erebaces kidapawanus may be involved in a mimicry complex with other Cryptorhynchini. Two sympatric, but not closely related Cryptorhynchini from Mindanao (Fig. 4) show an almost identical pattern of two converging pale-yellow lines on the pronotum.

Although nothing is known of the biology of these weevils, similar rather large dark-colored, tuberculate cryptorhynchs such as *Tylodinus* Champion are known from the New World, where specimens are often collected on fruiting bodies of Xylariaceae fungi, especially those with the crustose fruiting bodies, which the black, tuberculate body form of the weevil greatly resembles (Luna-Cozar et al., 2014).

**Competing interests**

The author declared that no competing interests exist in the preparation of the manuscript.

**Acknowledgments**

My gratitude to Enrico Ruzzier (Università Degli Studi di Padova, Padova, Italy), Robert S. Anderson (Canadian Museum of Nature) and Christopher H.C. Lyal (The Natural History Museum, London) for the valuable advice that helped me improve the manuscript, and Marilù Tavano (Museo Civico di Storia Naturale “Giacomo Doria”, Genoa, Italy) for allowing me to study the specimens housed in museum collections. I also extend my gratitude to my daughter Giorgia Cantini for her support.

**REFERENCES**


