

**Research article**Submitted: July 13<sup>th</sup>, 2021 – Accepted: August 28<sup>th</sup>, 2021 – Published: November 30<sup>th</sup>, 2021

DOI: 10.13133/2284-4880/542

**Review of *Eudyasmus*, with descriptions of a new species from Waigeo Island, Indonesia, and a closely related new genus (Coleoptera: Curculionidae, Molytinae, Eudyasmini)**Gregory SETLIFF<sup>1,\*</sup>, Lorenzo PANCINI<sup>2,3,\*</sup>, Andrea BRAMANTI<sup>4,\*</sup><sup>1</sup>Kutztown University, 15200 Kutztown Road, Kutztown, Pennsylvania, 19530, USA – setliff@kutztown.edu<sup>2</sup>World Biodiversity Association Onlus c/o Museo Civico di Storia Naturale, Lungadige Porta Vittoria 9, Verona, Italy<sup>3</sup>Via di Pontignale n.34/1, Firenze, 50142, Italy – lorenzopancini74@gmail.com<sup>4</sup>Via dei Salesiani n.25, Pietrasanta (Lucca), 55045, Italy – andrea.bramanti@gmail.com

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**Abstract**

*Eudyasmus* Pascoe, 1885 (Curculionidae: Molytinae, Eudyasmini), an endemic weevil genus from New Guinea, is reviewed. The genus is redescribed, all previously described species are diagnosed, and lectotypes are designated for three species. Prior to this study, *Eudyasmus* was only known from Papua New Guinea but is reported here for the first time from the Indonesian part of New Guinea based on the description of *Eudyasmus basalis* Pancini & Bramanti **sp. nov.** from Waigeo Island, West Papua Province. A new genus, *Protrachyasmus* Setliff **gen. nov.**, is described to accommodate *Eudyasmus planidorsis* Heller, 1908, which is non-congeneric with the four remaining *Eudyasmus* species. A species level identification key, distribution map, and illustrations are provided for all species of these two closely related genera.

**Keywords:** biodiversity, endemic species, New Guinea, new record, species discovery, taxonomy, weevils.<http://zoobank.org/urn:lsid:zoobank.org:pub:77BF395D-D0BA-469C-B96D-C8256CB15DC1>**Introduction**

New Guinea, located in the Indo-Australian region, is the second largest island in the world and is considered an incredibly rich reservoir of biodiversity (Gressitt 1967). The main island and the adjacent archipelago are characterized by dense forests, grassy plateaus, and high mountain ranges (Gressitt 1966). The island of New Guinea comprises two countries, the West Papua Province of Indonesia and Papua New Guinea. Together they are considered one of the largest tropical wilderness areas globally, because large portions of the island's forests remain intact and harbor high biodiversity and endemism (Mittermeier et al. 1998). Weevils (Coleoptera: Curculionidae) are particularly well-represented in the Indo-Australian region and many New Guinean genera are endemic (Oberprieler et al. 2007; Setliff 2007, 2009; Pullen et al. 2014).

The subject of this review is the weevil genus *Eudyasmus* Pascoe, 1885. It is endemic to New Guinea and is poorly known (Setliff 2012) mostly because specimens

are rarely collected and are poorly represented in historical collections. For this review, the genus will be redescribed, all previously described species will be diagnosed, and one new species described. Lectotypes will be designated for three species to better circumscribe and maintain nomenclatural stability. The four previously described species of *Eudyasmus* were originally collected in what is now Papua New Guinea, an independent state that includes the eastern half of the New Guinea island. The new species, described herein, was instead collected on Waigeo Island (West Papua Province, Indonesia) in the western half of New Guinea (Fig. 1). Specimens of the new species were identified by the second author among undetermined Papuan Curculionidae in the Museo Civico di Storia Naturale “Giacomo Doria”, Genoa, Italy.

Pascoe (1885) described *Eudyasmus* for *E. albertisii* Pascoe, 1885. He considered the genus to be superficially similar in appearance to *Arachnobas* Boisduval, 1835 but more closely allied with the genus *Cyamobolus* Schönherr, 1837, distinguishing it from the latter by the rostral canal

that does not reach the mesosternum and which is open posteriorly (i.e., mesoventral receptacle not fully enclosing the tip of the rostrum when the head is in the repose position). Faust (1898) described *E. praecox* Faust and Heller (1908a) described *E. planidorsis* Heller. In a subsequent work, Heller (1908b) proposed a close relationship between *Eudyasmus* and *Asyteta* Pascoe, 1865 (1908b). In yet another paper, Heller (1914) further discussed the affinities between *Eudyasmus*, *Asyteta*, and *A. philippinica* Heller, 1913 (later transferred to the genus *Panopides* Pascoe, 1871 in Setliff 2008) with *Cyamotrox* Heller, 1914 and *Cyamobolus*. Lea (1928) compared *Eudyasmus* to *Asyteta*, and noted that *Eudyasmus*, *Asyteta*, and *Cyamobolus trivittatus* (Pascoe, 1885) (a syn. of *Asyteta compressipes* (Chevrolat, 1877)) share a circular carinae on the vertex, although this feature is less evident in *Eudyasmus*. Heller (1935) described *E. simplex* Heller and provided a key to the four species.

No other contributions on the genus were published until 2008, when Setliff (2008) proposed the crowned weevil generic group, united by the presence of a circular bulge in relief or a circular or semi-circular crown-like carinae on the vertex. This group included the genus *Eudyasmus* (Setliff, 2008). Setliff subsequently redefined the crowned weevils, provided a key to separate its genera, and hypothesized evolutionary convergence among the following genera that he incorporated into the subtribe Cryptorhynchina: *Asyteta*, *Eudyasmus*, *Cyamomistus* Heller, 1929, *Panopides*, *Nothotragopus* Zimmerman, 1994, and *Glochinorhinus* Waterhouse, 1853 (Setliff 2012). The morphological phylogenetic analyses of the crowned weevil genera in that paper revealed a sister-group relationship between two species of *Eudyasmus*: *E. albertisii* and *E. praecox*, while the other two species, *E. simplex* and *E. planidorsis*, formed a polytomy with the Australian genus *Glochinorhinus*. In the course of the present study, *E. planidorsis* was found to differ morphologically from the rest of *Eudyasmus* necessitating the description of a new genus herein to accommodate this misplaced species. Removing the non-congeneric species to a new genus and reevaluating *E. simplex* helped to clarify the generic concept of *Eudyasmus* that is presented in this contribution. A phylogenetic reevaluation of the *Glochinorhinus* + *Eudyasmus* clade is beyond the scope of the present study but we consider the three remaining species of *Eudyasmus* congeneric. Furthermore, *Eudyasmus* and the new genus described herein distinctly differ from *Glochinorhinus*, which has a well-developed mesoventral receptacle and several synapomorphies in the antennae, tarsi, and male rostrum that uniquely distinguish it from the taxa treated here (see Setliff 2012).

Currently, *Eudyasmus* is placed in the subfamily Molytinae (Lyal 2014) and Eudyasmini, a tribe established by Legalov (2018), with *Eudyasmus* as its only genus and based on the condition of the metaventrite being shorter

than first ventrite. Legalov (2018) considered Eudyasmini close to Arachnopodini and Gasterocercini. According to Legalov (2018), the Eudyasmini differ from Gasterocercini by having the metaventrite shorter than the first ventrite and by the arcuate rostrum, while they differ from Arachnopodini by the presence of the rostral canal and the femora (and tibiae) lacking two strips of curved hair-like bristles (Legalov 2018, and private communication, 2021). Riedel et al. (2016) recovered a monophyletic crowned weevil clade in their molecular phylogenetic study of the Cryptorhynchinae. Unfortunately, *Eudyasmus* was not included in that study. However, the close relationship of *Eudyasmus* (the type genus of Eudyasmini) with *Asyteta* and *Panopides*, the two crowned weevil genera that were included in the Riedel et al. (2016) study was already established by Setliff (2012). Furthermore, our reexamination of all six crowned weevil genera revealed that they all share the feature of a metaventrite that is shorter than the first ventrite and rostrum curved. Thus, we transfer the remaining five genera of the crowned weevil group *sensu* Setliff 2012 (*viz.* *Asyteta*, *Cyamomistus*, *Glochinorhinus*, *Nothotragopus*, and *Panopides*) to Eudyasmini, new tribal placements.

## Material and Methods

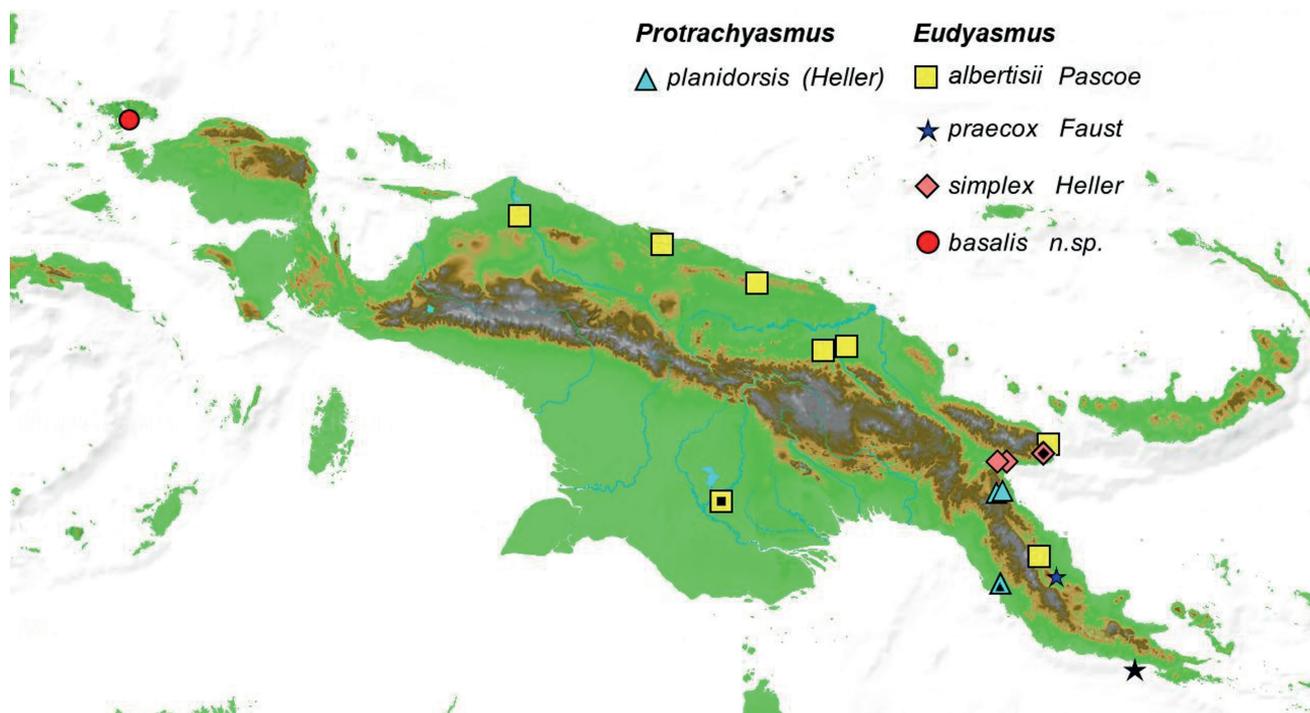
Specimens were observed under an LW-Scientific Z-2 and an Olympus SZX10 stereomicroscope. Digital images were taken with a Canon M-100 digital camera mounted on a macro bellows equipped with a Nikkor 50 mm enlarging lens and a Macropod Imaging System (Macroscopic Solutions, LLC) equipped with a Canon EOS 5D and a Canon MP-E 65 mm lens. All images were stacked using a licensed version of the software Zerenestacker 8 and Zerene Stacker (64 bit) version 1.04. Drawings of the genitalia and wing were made by hand and subsequently processed with a licensed version of the software Photoshop. The map was created using the MapCreator 3.0 Free Edition program. The holotype and paratypes were pinned through their right elytron. All specimens were provided with two labels, one red for the holotype / paratype and one white label reporting the collecting data. Lectotypes and paralectotypes were labeled with yellow and blue labels respectively. The morphological terminology used herein follows Lyal (Glossary of Weevil Characters. International Weevil Community Website. <http://weevil.info/glossary-weevil-characters> (accessed 05/04/2021)).

### Collection acronyms:

BMNH: The Natural History Museum, London, UK

BPBM: Bernice P. Bishop Museum, Honolulu, USA

BRAA: Bramanti Andrea and Alessandro private collection, Pietrasanta (Lucca), Italy



**Fig. 1** – Distribution of the species of *Eudyasmus* Pascoe, 1885 and *Protrachyasmus* Setliff **gen. nov.** Filled in symbols = type locality. Base map from MapCreator 3.0.

CMNC: Canadian Museum of Nature, Ottawa, Canada  
 CMNH: Carnegie Museum of Natural History, Pennsylvania, USA

GPSC: Gregory P. Setliff private collection, Kutztown University, Pennsylvania, USA

LPPC: Lorenzo Pancini private collection, Florence, Italy

MFUZ: Museo Zoologico “La Specola”, Florence, Italy

MSNG: Coll. Museo Civico di Storia Naturale “Giacomo Doria”, Genoa, Italy

SDEI: Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany

SMTD: Staatliches Museum für Tierkunde, Dresden, Germany

USNM: National Museum of National History, Washington D.C., USA

*The following symbols and abbreviations are used in the text:*

/ = Different lines

// = Different labels

EL = Maximum length of elytra

EW = Maximum width across the elytra at the humeri.

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 and Marshall 1964).

PL = Maximum length of pronotum

PW = Maximum width of pronotum

RL = Maximum length of rostrum

RW = Maximum width of rostrum

TL = Length of the body in dorsal view, from the vertex to the apices of elytra

## Taxonomy

### *Eudyasmus* Pascoe, 1885

*Eudyasmus* Pascoe, 1885: 275.

**Type Species.** *Eudyasmus albertisii* Pascoe, 1885, by monotypy.

**Diagnosis.** *Eudyasmus* is similar in appearance to the genus *Panopides* and the species of *Asyteta* belonging to the *A. compressipes* group (Setliff 2009), but is easily distinguishable by having a flatter and more regular elytral and pronotal profile, by the small median horn-like protrusion at the base of the rostrum (males only), and by the mesoventral receptacle nearly obsolete. The key to the crowned weevil genera in Setliff (2012: 23) will separate *Eudyasmus* from the other related genera in the crowned weevil group (all of which have a well-developed mesoventral receptacle) except for the new genus described below. See Table 1 for diagnostic features used to distinguish these two closely related genera.

**Redescription.** Body elongate oval; TL 7.0–11.3 mm, EW 2.8–5.3 mm; males slightly larger than females on average. Pronotum and elytra subequal in width in dorsal view; humeri not produced. Integument dark reddish-brown to black with extremities lighter in color.

Vestiture composed entirely of non-iridescent scales, including small dark brown to black background scales interspersed with evenly distributed longer, suberect, yellowish-brown to white scales that are broadly lanceolate, capitate, or spatulate. Hair-like scales sometimes present on pronotum, venter, and legs. Pronotum and elytra usually variously marked with white vittae or maculae. Head visible in dorsal view; eyes large, finely faceted, not protruding beyond curvature of head, sub-rounded with posteroventral margin linear, interocular distance narrower than subbasal width of rostrum. Male rostrum compressed, shorter than pronotum, weakly arcuate, more abruptly bent at apex near antennal insertions; female rostrum more evenly curved. Male metarostrum carinate, pronotum rugose-punctate, bearing small, medial, horn-like protrusion near base; metarostrum smooth in females, finely punctate, pronotum lacking carinae or basal horn-like protrusion. Antennae inserted beyond middle of rostrum in males, near middle in females. Scape as long as or slightly shorter than funicle in both sexes. Pronotum bell-shaped in dorsal view; disk densely punctate; punctures crowded, evenly distributed, uniform in size; interspaces smooth and glabrous or weakly rugose. Pronotal disk with a very short, thin, glabrous, medial longitudinal carinae at apical margin reaching apical fifth, obliterated well before reaching middle of disk. Postocular lobes well developed with row of vibrissae. Prosternal canal with sides weakly carinate; mesoventral receptacle cup-shaped; open posteriorly, usually covered in long, hair-like scales (Fig. 13a). Pro- and mesocoxal cavities separated by less than half the width of a coxa, meso- and metacoxal cavities separated by at least half the length of a coxa or more. Metaventricle shorter than abdominal ventrite 1. Scutellum small, oval, wider than long, usually bearing at least some scales. Elytra with sides convex in dorsal view, evenly tapering to apex; with ten visible striae, tenth greatly reduced after basal third, appearing to join the ninth but is traceable to apex. Elytra with small flattened, glabrous area immediately posterior to scutellum on first two intervals of each elytron; elytral interval three weakly granulate and slightly elevated above adjacent intervals; intervals 5–8 not produced or forming a callus at declivity. Metathoracic wings fully developed (as in Fig. 6). Sclerolepidia not observed and most likely absent. Legs very long, hind femur capable of exceeding elytral apex by more than half its length, mesofemur also capable of exceeding elytral apex. Profemora edentate, meso- and metafemora with small subapical denticle on venter. Tibia strongly compressed throughout entire length; dorsal margin straight to convex. Protibia straight in apical third, weakly bent ventrad at extreme apex; uncus and premucro well developed; subapex with oblique row of short stout bristles ascending from near uncus to perpendicular angle of apex, forming tooth-like supra-uncal projection (see Fig. 12a, b). Tarsomere 1 elongate, 1.0–1.2 times longer than tarsomeres 2 and 3 combined; flattened;

tarsomere 2 trapezoidal, flattened; tarsomere 3 deeply bilobed; claws simple, free. Ventrite 1 greatly distended, at a much lower plane in lateral view than ventrites 2–5, about as long as remaining ventrites combined, intercoxal process broad; ventrites 2–4 with at least some scales (although they may have glabrous patches in the middle). Male and female genitalia as in Figs. 4–5.

**Distribution.** The genus is endemic to the Papuan subregion and is best known from lowland areas of New Guinea and its closest neighboring islands (Fig. 1).

***Eudyasmus basalis* Pancini & Bramanti sp. nov.**  
(Figs 2–6)

**Holotype.** (Figs 2a, 3a), ♂: **Indonesia:** Indonesia, Papua / Waigeo isl., Waisai env. / November 2019 (typed on white card). // Holotype male / *Eudyasmus basalis* / PANCINI & BRAMANTI, 2021 (typed on red card). Deposited in MSNG.

**Paratypes.** (3♂, 5♀): 1♂, **Indonesia:** Indonesia, Papua / Waigeo isl., Waisai env. / October 2018 (LPPC); 1♂, 1♀: Indonesia, Papua / Waigeo, Waisai env. / December 2019 (BRAA); 1♂, 1♀: Indonesia, Papua / Waigeo isl., Waisai env. / October 2020 (GPSC); 1♀: Indonesia, Papua / Waigeo isl., Waisai env. / December 2019 (MFUZ); 1♀: Indonesia, Papua / Waigeo isl., Waisai env. / December 2019 (MSNG); 1♀: Indonesia, Papua / Waigeo isl., Waisai env. / December 2019 (CMNC); (all typed on white card). // Paratype, male or female / *Eudyasmus basalis* PANCINI & BRAMANTI, 2021 (for each paratype; typed on red card).

**Diagnosis.** *Eudyasmus basalis* sp. nov. is similar to *E. albertisii* and *E. praecox* in the shape of the body and legs and in the lateral stripe of whiteish scales which extends from the posteroapical margin of each side of the pronotum to the metacoxae, and it is similar to *E. simplex* due to the presence of a transverse band of whiteish scales across the elytral base. However, *E. basalis* differs from the first two species due to the presence of a single band of pale yellowish-brown scales on the basal margin of the elytra and by the absence of dorsal longitudinal stripes of whitish scales on the pronotum and elytra. It differs from the latter in having a wider basal band on the elytra and in the absence of the black spot formed by broadly spatulate scales on the elytral humeri that are present in *E. simplex*.

**Description.** Holotype ♂, TL 10.7 mm, EW 4.7 mm. Integument matt black, more glossy on striae and in interspaces between punctures of posterobasal side of pronotum. Vestiture of pronotal and elytral discs primarily comprised of very small, rounded matt black to pale yellowish-brown scales, latter mostly concentrated on punctures of interstriae and in transverse band on basal margin of elytra, between first and fifth interstria which includes scutellum; punctures of pronotum and interstriae, and granules of elytral striae each bearing one pale-white

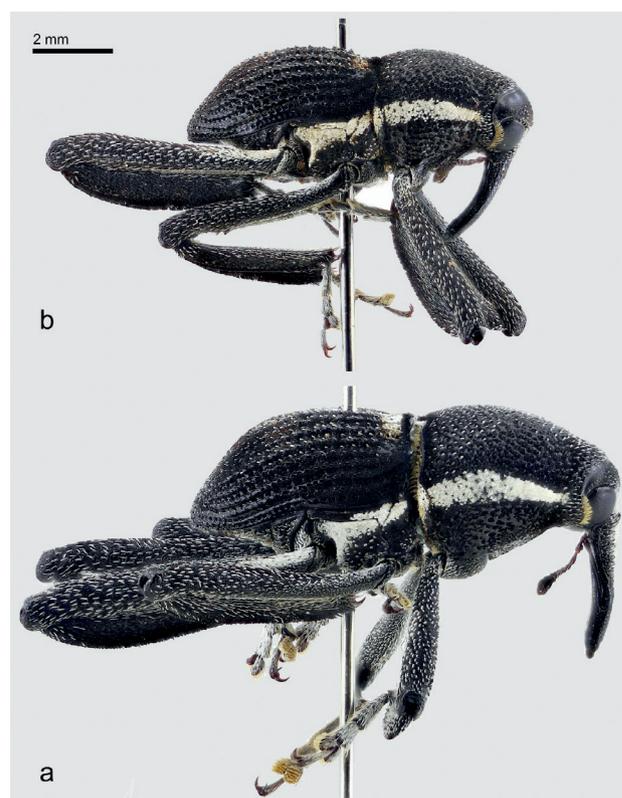


**Fig. 2** – *Eudyasmus basalis* sp. nov.; **a**, Holotype male, dorsal view; **b**, Paratype female, dorsal view.

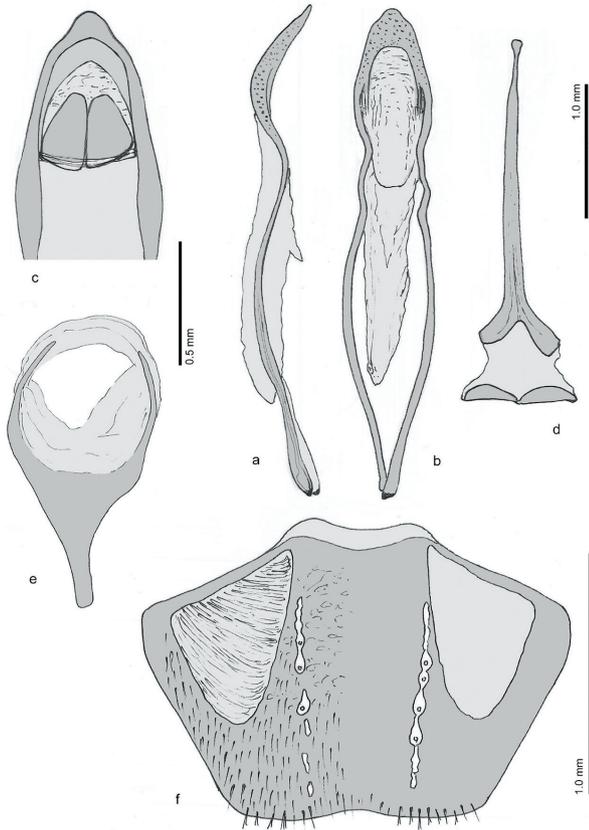
decumbent seta; head densely clothed in small primarily matt black scales, with scattered pale-white scales mainly concentrated on the inner margins of eyes and frons; basal half of rostrum clothed with elongate pale-brown setae; scape and antennal segments reddish-brown; club black, covered with very thin and adherent setae. Body in lateral view densely covered with same matt black scales present on dorsal side, but lacking pale-white setae on punctures and granules of pronotum and elytra; wide whitish scaled stripe extended from posteroapical margin of pronotum to metacoxae. Legs densely covered with long matt black lanceolate scales mixed with pure whitish scales of same shape, latter more concentrated on inner margins of mesotibiae and metatibiae and proximal apex of meso- and metafemur, shorter and spatuliform matt black scales form brush-like crest on external margin of all tibiae. Tarsi covered with small, elongate, adherent scales and longer raised bristles, both white. Ventral surface with mesoventrite, metaventrite and first ventrite covered with light brown setae; ventrites two, three and four covered with scattered pale-white oval scales, ventrite five entirely covered with same scales.

Body elongate-oval; head visible from above; eyes large, finely faceted, flattened, not protruding beyond curvature of head, sub-rounded with posteroventral margin linear, interocular distance narrower than subbasal width of rostrum, OI 15.1; vertex finely punctate, interspaces between punctures of irregular size, slightly raised, forming vaguely circular bulged area; frons flattened with small elliptical fovea covered by scales. Rostrum weakly arcuate, sub-parallel, RL 3.2 mm, RW 0.9 mm, moderately widened, depressed at apex, small posteriorly directed glossy black oblong calloused horn-like prominences placed at its base; metarostrium deeply rugose-punctate with suprascrobal carinae smooth, poorly developed; prorostrum with obsolete central carina, coarsely punctate, with deeper punctures on lateral margins; rostrum

ventrally smooth, with small, scattered punctures along entire length; scrobe lateral-oblique, partially concealed beneath sides of rostrum; scape not reaching eye, slightly arcuate, clavate at apex. Antennae long, slender; inserted beyond middle of rostrum, composed of seven segments, setose, articles one and two longer, article one conical, two oblong, three to seven moniliform, the seventh weakly transverse, club oval. Pronotum with a thin glossy black carinae in the apical fifth; bell-shaped, slightly longer than wide, PL 4.9mm, PW 4.7 mm, slightly constricted at apex, broadest at base, slightly convex in lateral view, coarsely punctate with circular punctures, each bearing anteriorly directed decumbent scale, anterolateral side with smaller punctures, without scales and larger interspaces; apical margin rounded, basal margin trisinate; post-ocular lobe greatly developed, with fine vibrissae covering part of posteroventral portion of eye when the head is in resting position. Rostral canal not exceeding level of procoxae, wide and shallow, open, with smooth lateral carinae, mesoventral receptacle obsolete. Scutellar area depressed; scutellum strongly transverse, much wider than long, bulbous, raised from elytral plane, tomentose, concolourous with adjacent area. Elytra semi-elliptical, EL 6.1mm, EW 4.7 mm, moderately convex in lateral view, base slightly sinuate, humeri subcontiguous with posterolateral sides of pronotum, ten striae, all visible from base to apex, more attenuate



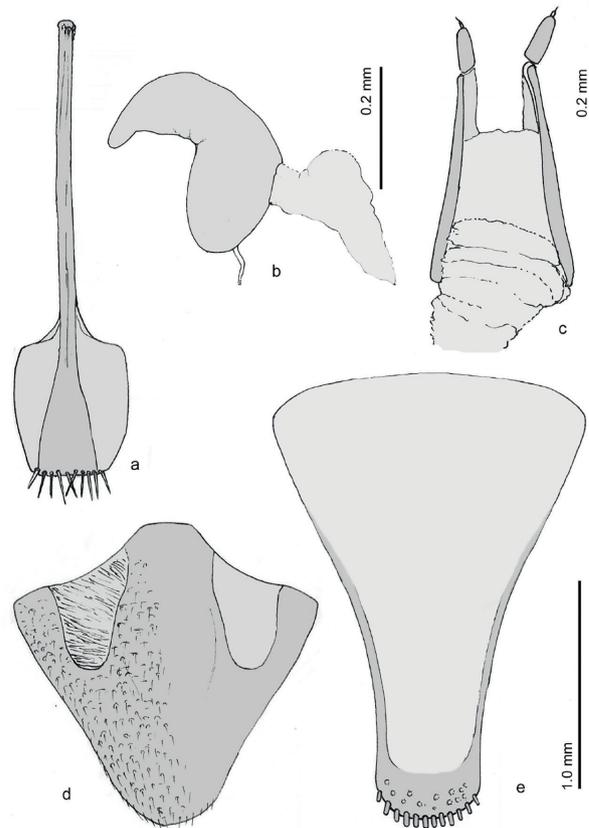
**Fig. 3** – *Eudyasmus basalis* sp. nov.; **a**, Holotype male, lateral view; **b**, Paratype female, lateral view.



**Fig. 4** – *Eudyasmus basalis* sp. nov. Male genitalia; a, Penis, lateral view; b, Penis, ventral view; c, Penis, apex in dorsal view; d, Spiculum gastrale; e, Tegmen; f, Tergite VII.

after declivity, foveate, with punctures of same size as pronotum but deeper, stria one depressed in basal half, striae from one to six each bearing posteriorly directed decumbent scale; elytral intervals as wide as striae, convex, granulose, with larger granules before declivity, very attenuate towards the apex, intervals from one to five each bearing one posteriorly directed decumbent seta. Pleural sclerite with margins entire, well-defined, lateral portion of mesoventrite very thin, hardly visible; mesanepisternum broad, trapezoidal; mesepimeron with subparallel side; metanepisternum thin, not concealed by elytra, sclerolepidia not observed on anapleural suture; lateral portion of metaventricle broad, square, with posterior margin strongly emarginate. Legs long, mesofemur and metafemur exceeding elytral apex; all femora sublinear, slightly curved in distal apex, profemora edentate all others dentate, not sulcate beneath; tibia strongly compressed, with well-developed uncus, and oblique, almost longitudinal setal brush of short, stout bristles near apex; inner margin linear, exterior margin of mesotibia moderately curved, strongly curved in protibia and metatibia; all tibia with well-developed premucro bearing long hair-like seta at inner apical margin. Tarsi long, setose; pro-tarsus and mesotarsus with tarsomeres one and five long,

as long as lengths of two and three together, tarsomere one 2.4 times as long as tarsomere two, which is dorsally compressed and 1.3 times as long as tarsomere three, tarsomere three bilobed, tarsomere five clavate; metatarsus longer than pro- and mesotarsus; tarsomere one as long as two and three together, tarsomeres two, three and five as for others tarsi. Tarsal claws free. Ventral side punctate, except ventrite two, three, four, and five which are smooth, punctures largely covered by setae, mesoventrite slightly convex, as wide as the mesocoxa; metaventricle short, narrower than mesocoxa; ventrite one as long as remaining ventrites together, intercostal process wide, obtusely angled; ventrite two slightly longer than three and four, ventrite five long as three and four together. Male genitalia (Fig. 4), penis oblong-oval, three times longer than wide at the base, strongly curved, apex rounded, pedon slightly constricted at base and wider in middle; aedeagal apodemes 2.3 times as long as aedeagal body; ostium wide, triangular, two osticular sclerites sub-triangular visible in dorsal view; spiculum gastrale with apodeme narrow at base and long as aedeagal apodemes, apical arms well-developed and relatively wide; tegminal apodeme shorter than width of tegminal ring, laterally compressed before apex; tergite VII transverse, 1.4 times as broad as long, covered with short, thin scattered setae, that are bi-trifid on posterior margin.



**Fig. 5** – *Eudyasmus basalis* sp. nov., Female genitalia; a, sternite VIII; b, spermatheca, lateral view; c, hemisternites; d, tergite VII; e, tergite VIII.

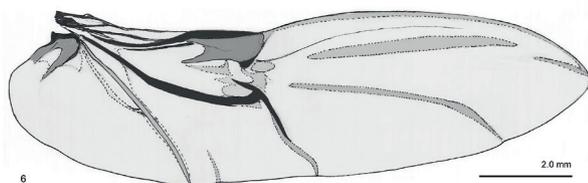


Fig. 6 – *Eudyasmus basalis* sp. nov., Metathoracic wing.



Fig. 7 – *Eudyasmus albertisii* Pascoe, 1885; a, Male, dorsal view; b, Female, dorsal view.

**Female.** Paratype, (Figs. 2b, 3b) TL 8.5 mm, EW 3.6 mm; almost identical to male, but smaller in size. Rostrum, RL 2.7 mm, RW 0.7 mm, smooth, with very small, scattered punctures from apex to base, which become deeper on sides of metarostum, the basal horn-like protrusion absent; pronotum slightly more constricted before apex, PL 3.7 mm, PW 3.5 mm; elytra EL 4.7 mm, EW 3.5 mm; ventrite one convex. Female genitalia (Fig. 5), hemisternite 4.0 times longer than styli, narrow, broadened at base; styli 3.2 times longer than broad, cylindrical, relatively wide, rounded at apex, each with small apical setae wider at base; tergite VIII 1.4 times as long as broad, with series of sub-rectangular scales on apical margin; sternite VIII 3.9 times as long as broad, apical plate spatulate, 3.6 times as long as apodeme, with series of pointed setae, tergite VII as long as broad.

**Type series variability.** Males vary in length from 10.0 to 10.7 mm, females from 8.2 to 8.5 mm. As has also been observed in some specimens of *E. praecox*, in three paratypes a denser concentration of yellowish-brown scales forms a vaguely rhomboidal to rounded spot on the elytral disc.

**Distribution.** INDONESIA: West Papua Province, Waigeo Island (Fig. 1).

**Etymology.** The epithet “*basalis*” (Latin, adjective: basal) refers to the transverse band of whitish scales across the basal margin of the elytra.

***Eudyasmus albertisii* Pascoe, 1885**

*Eudyasmus albertisii* Pascoe, 1885: 275

(Figs 7, 8, 12a,b)

**Specimens Examined. Papua New Guinea:** 1♂, N.G. / Fly River (handwritten in Pascoe’s hand on small blue oval) (BMNH); 1♀, 2♂ Papua New Guinea / E. Sepik Prov., Elem Vill / ca. 90 m. 18–21 Mar. 2003 / Coll. G.P. Setliff // Hand collected in primary / and secondary forest / nr. Yuat River / 143°56’E, 04°53’S (GPSC); 1♀, 2♂ NEWGUINEA / APO 565 [APO 565 = Army Post Office 565: Hollandia = Jayapura] // IV-1-45 / SG Jewett (USNM); 1♀, 1♂ NEWGUINEA / APO 565 // IV-10-45 / SG Jewett (USNM); 2♀, NEWGUINEA / Hollandia // II-4-12-45 / SG Jewett (USNM); 1♀, NEWGUINEA? / I-3-45 / SG Jewett (USNM); 1♀, Papua New Guinea / E. Sepik Province / Amboin Patrol Post / Karawari Lodge / Feb. 1983, A.C. Messer (USNM); 2♂, N. Guinea / Doria (handwritten in Faust hand) // Coll J. Faust / Ankauf 1900 (SMTD); 1♀, Kais. Wilhelmsland / Torricelli Gegirge / Dr. Schlaginhaufen (SMTD); 1♂, Bongu / Dtsch. N. -Gu // Schneider // Samml. KF. Hartmann / Ankauf 1941.1 (SMTD); 1♂, N. Guinea // Gehr. W. Müller / Vermäch. 1909 (SMTD); 1♂, Moroka, / Brit. N. G., / 3500 ft., X. 95. / (Anthony). // Coll J. Faust / Ankauf 1900 (SMTD); 1♂, Newguinea // v. Benningsen // Kani Geb // Coll v. Benningsen (SDEI); 2♀, N. Guinea Exped. / Mamberamo Riv. / W.C. v Herr Dez20- / Jan 21 Pionierbivak (SDEI); 2♂, 1♀, N. W. N. Guinea // ex Museo / Buitenzorg (SDEI); 1♀, Dtsch. N. / Guinea (SDEI). The holotype of *E. albertisii* was previously examined by the second author at the Museo Civico di Storia Naturale “Giacomo Doria”, Genoa, Italy, but the specimen was not borrowed for this study. The specimen that was examined from the BMNH had Pascoe’s distinctive specimen label and matched the type locality of the type.

**Diagnosis.** TL 7.0–11.3 mm, EW 2.8–5.3 mm. This species is most easily recognized by the large, oblique, oval, white macula on each side of the pronotum. These lateral maculae vary in size but nearly always start near the head and reach the middle of the pronotal sides. These maculae do not reach the basal margin as they do in *E. basalis* sp. nov. and *E. praecox*. The pronotal disk has a (sometimes faint) medial longitudinal vitta of whitish-tan scales that can run the full length of the pronotum or fade before reaching the basal margin. There is a transverse fascia across the entire basal margin of the elytra and a sutural stripe that starts in the just behind the post-scutellar depression near the apical margin and reaches the elytral apex. These dorsal pronotal and elytral markings are usually whitish in color, but can also be yellowish-white, tan, or rarely brown. The vestiture of the tibia

varies in this species as well; even among specimens from the same locality. Most specimens have a thick row of stout whitish scales along the dorsal edge of each tibia; however, these scales are dark brown in others. Similarly, some have, in addition to the darker background scales, evenly distributed, semierect, white, hair-like scales on flat surfaces of the tibia, whereas in other specimens the tibia will be almost entirely clothed in matte black or dark brown background scales only.

**Distribution.** PAPUA NEW GUINEA: Morobe, Madang, East Sepik, Sandaun, and Western Provinces and INDONESIA: Papua Province (Fig. 1).

**Comments on Distribution.** This species is the most widely distributed in the genus. It is known from lowland and mid-elevation rainforest habitat throughout the north coastal region of Papua New Guinea and into the Indonesian side of the island along the same coast. Curiously, the type locality is in vicinity of the Fly River in the Western

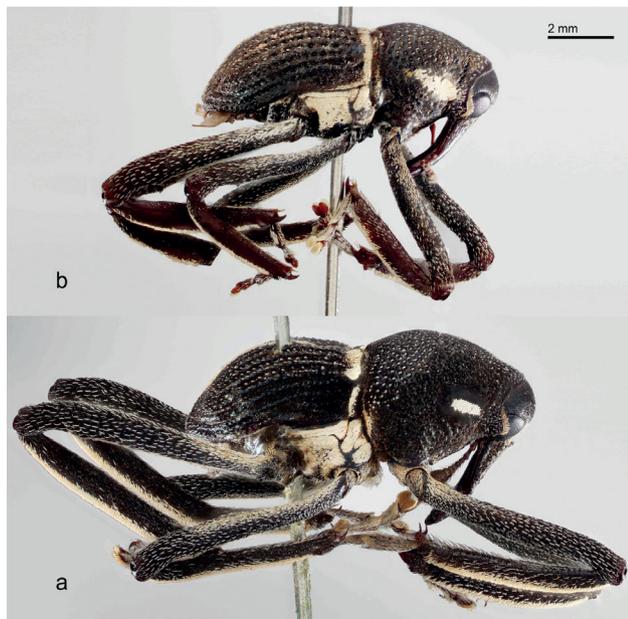


Fig. 8 – *Eudyasmus albertisii* Pascoe, 1885; a, Male, lateral view; b, Female, lateral view.



Fig. 9 – *Eudyasmus praecox* Faust, 1898; a, Lectotype male, dorsal view; b, same, lateral view; c, same, labels.

Province of Papua New Guinea, which is quite remote from the north coast specimens examined for this study. Several possible explanations for this disjunct distribution exist, including: imperfect sampling of the intervening lowland rainforest areas, *E. albertisii* belonging to a cryptic species complex, or Pascoe misreporting the type locality. Unlikely as it may be, perhaps this species made its way up the Fly River valley and crossed over the mountains to the Sepik River valley in the same way that Karius and Champion did in 1927 (Champion 1932). Future work will be required to solve this mystery.

#### *Eudyasmus praecox* Faust, 1898

*Eudyasmus praecox* Faust, 1898: 177  
(Fig. 9)

**Lectotype.** Papua New Guinea: 1♂, Mailu, / Brit. N.G., / July 95. // *praecox* Faust (handwritten) // Coll J. Faust / Ankauf 1900 // Type (on red card) // LECTOTYPE *Eudyasmus praecox* Faust (handwritten on yellow card) (SMTD). **New Lectotype Designation.** Faust's collection contains two specimens with "type" labels and we select this male specimen to be the name bearing type.

**Paralectotype.** 1♀, same label data as the lectotype // PARALECTOTYPE / *Eudyasmus praecox* Faust (handwritten on blue card) (SMTD).

**Other Specimens Examined.** Papua New Guinea: 1♂, NEW GUINEA, PAPUA / Kokoda – Pitoki / 450m. III-24-1956 // J. L. Gressitt / Collector (BPBM).

**Diagnosis.** TL 7.7–8.6 mm, EW 3.1–3.6 mm. This species is most easily confused with *E. albertisii* but can be distinguished from it and its other congeners by the solid medial longitudinal vitta of whitish-tan scales that runs the full length of the dorsum from the apex of the pronotum to the tip of the elytra. Like *E. albertisii* and *E. basalis* sp. nov. this species has oblique, white markings on each side of the pronotum. However, in *E. praecox* these markings form stripes that run laterally from the posteroapical margin of the pronotum (starting near the postocular lobes) reaching the dorsolateral basal margin and are visible in dorsal view near the base. There is no transverse fascia on the elytra in this species, however, there is a white, rectangular patch of scales laterally on each elytral humerus (adjoining the lateral stripe from the pronotum).

**Distribution.** PAPUA NEW GUINEA: Central and Oro Province (Fig. 1).

#### *Eudyasmus simplex* Heller, 1935

*Eudyasmus simplex* Heller, 1935: 198  
(Fig. 10)

**Lectotype.** Papua New Guinea: ♂, K. Wilhelmsland / Finshhafen // 1927 / 15 // Typus / *Eudyasmus simplex* Hr. (handwritten on red card) // LECTOTYPE *Eudyasmus simplex* Heller (handwritten on yellow card) (SMTD).

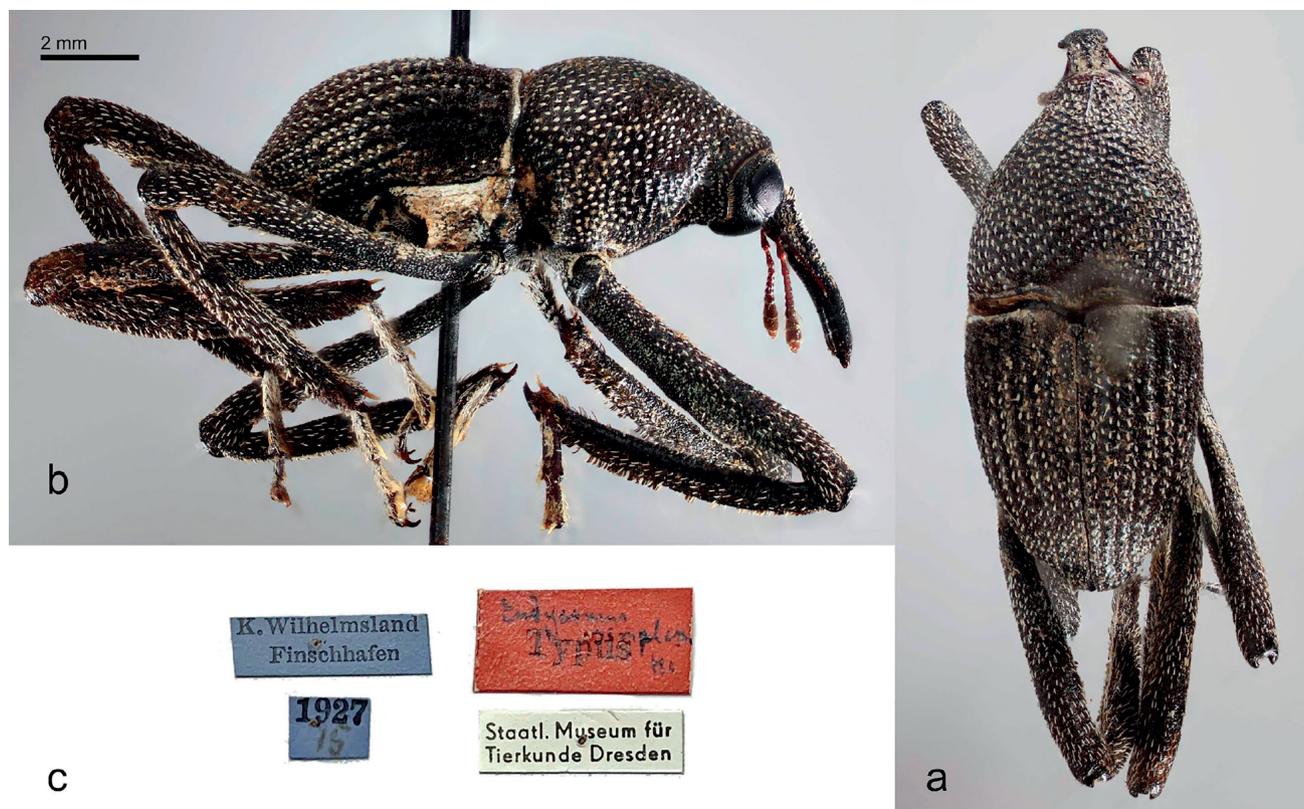


Fig. 10 – *Eudysamus simplex* Heller, 1935; a, Lectotype male, dorsal view; b, same, lateral view; c, same, labels.

**New Lectotype Designation.** Heller (1935) does not state how many specimens he had of *E. simplex*, so we have selected the only specimen labeled “Typus” in Heller handwriting as the Lectotype.

**Other Specimens Examined. Papua New Guinea:** 1♂, Nadzab, Markham / R. val. NGuinea / 13 July 1944 / K.V. Krombein // E. fork Ngafir / Cr. 1000 – 3000 ft / native trail // Ex Colln / KV Krombein (USNM); 1♂, New Guinea: NE / Bupu R., Sitium Vill. / 19 km NE of Lae, 30+ / forest, 15.IV – 15.V ‘70// N.R. Spencer / Light Trap / Bishop (BPBM); 2♀, Newguinea / v. Benningsen // Kani Geb // Coll v. Benningsen (SDEI).

**Diagnosis.** TL 7.1–11.1 mm, EW 3.0–5.1 mm. This species is nearly concolorous and lacks the distinct oblique macula or stripes on the sides of the pronotum and dorsum of its congeners. However, it does have a very thin transverse fascia of whiteish-tan scales across the elytral base and two of the five specimens examined in this study also have a very faint sutural stripe on the elytra. The most distinct feature of *E. simplex* is the solitary white scales that are situated in each of the punctures on the dorsum are broadly spatulate and stand out in sharp contrast to the otherwise uniformly dark background scales. But at the elytral humeri, these normally whitish scales are dark and match the color of the surrounding fuscous scales. This gives the appearance of a pair of large sub-triangular black patches at the elytral humeri that are not found in any other species.

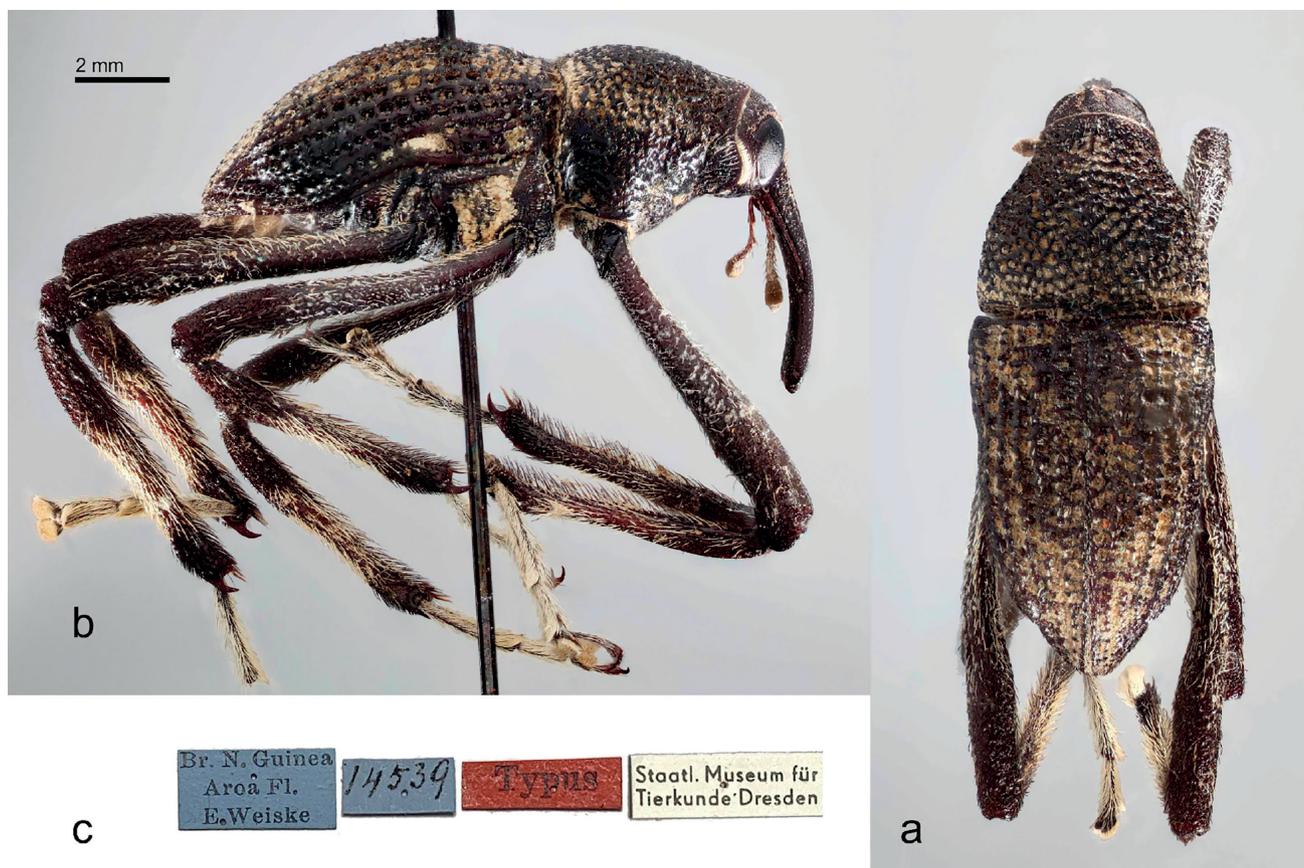
**Distribution.** PAPUA NEW GUINEA: Morobe Province (Fig. 1).

***Protrachyasmus* Setliff gen. nov.**

**Type Species.** *Eudysamus planidorsis* Heller, 1908, here designated.

**Diagnosis.** *Protrachyasmus* gen. nov. is included in the tribe Eudyasmini with the other crowned weevil genera (see discussion above). In the key to the crowned weevil genera provided in Setliff (2012: 32), it will key out to 2’ (*Eudysamus*). The new genus shares a close phylogenetic relation with *Eudysamus* (see Setliff 2012) but can be distinguished from that genus by the combination of characters presented in Table 1.

**Description.** Body elongate oval; TL 9.0–12.0 mm, EW 3.6–4.8 mm. Pronotum and elytra subequal in width; humeri not produced. Integument reddish-brown to dark brown. Vestiture composed of very small, patchy, appressed, yellowish-brown, translucent scales, some of which are iridescent green along edges under high magnification and non-iridescent scales including small, flocculent, background scales and longer, suberect, yellowish-brown to white, hair-like scales. Even longer and finer hair-like scales, also pale in color, are usually present on pronotum, venter, and legs. Head visible in dorsal view; eyes large, finely faceted, not protruding beyond curvature of head, sub-rounded with posteroventral margin linear, interocular distance narrower than subbasal



**Fig. 11** – *Protrachysmus planidorsis* (Heller, 1908) **comb. nov.**; **a**, Lectotype female, dorsal view; **b**, same, lateral view; **c**, same, labels.

width of rostrum. Male rostrum weakly compressed and arcuate, longer than pronotum; pronotum with short medial carinae terminating in a small bulb-like protrusion near base, either side of carinae weakly sulcate to metarostrium creating an inverted V-shaped elevation bearing the aforementioned carina; pronotum and metarostrium smooth in females, finely punctate, lacking carina and basal bulb-like protrusion. Antennae inserted beyond middle of rostrum in males, near middle in females. Scape longer than funicle in both sexes; longer than funicle plus basal segment of club in males. Pronotum bell-shaped in dorsal view; disk densely punctate, punctures large, crowded, irregularly spaced and coalescent; interspaces between punctures elevated, coarsely rugose; with a thin medial longitudinal carinae from apical margin to at least middle of pronotal disk, often reaching pronotal base. Postocular lobes well developed with row of short vibrissae. Prosternal canal a shallow trough with sides nearly obliterate; mesoventral receptacle obsolescent, lacking long hair-like scales (Fig. 13b). Pro-, meso-, and metacoxal cavities and metaventrite as in *Eudysamus*. Scutellum small, circular, lacking scales. Elytra in dorsal view with sides indented at apical third then tapering to declivity, more abruptly tapering from declivity to apex; with ten visible striae, tenth greatly reduced after basal third but is still traceably to apex. Interval three coarsely granulate, slightly raised above adjacent intervals in lateral view; intervals 5–8 slightly produced at declivity forming pair of

weak elytral calli. Metathoracic wings fully developed (Fig. 6). Sclerolepidia not observed. Legs thin and very hind, femur capable of exceeding elytral apex by more than half its length, mesofemur capable of exceeding elytral apex. All femora with single, small, subapical denticle on ventral margin. Tibia weakly compressed basally; protibia sinuate with dorsal edge emarginate at middle, apical third strongly bent ventrad; uncus and premucro well developed; lacking supra-uncal projection (Fig. 12c). Tarsomere 1 elongate, 1.5–1.6 times longer than tarsomeres 2 and 3 combined; flattened; tarsomere 2 trapezoidal, flattened; tarsomere 3 deeply bilobed; claws simple, free. Ventrite 1 punctate, weakly distended, on slightly lower plane in lateral view than ventrites 2–5, about as long as remaining ventrites combined, intercoxal process broad; ventrites 2–4 glabrous and impunctate, ventrite 5 punctate. Male and female genitalia are of the *Eudysamus* type (see Figs. 4–5) and do not differ in any significant way from this or any other genus in the crowned weevil group. See Setliff (2012) for a discussion of conserved genitalia among the crowned weevil genera.

**Distribution.** PAPUA NEW GUINEA (Fig. 1).

**Etymology.** The genus name is derived from the combination of the Greek prefix pro- (in this case loosely referencing the pronotum) and adjective trachy- (meaning rough) with -asmus (meant here to show this genus' close affinity with *Eudysamus*). The gender is masculine.

**Table 1** – Diagnostic characters useful for separating *Eudyasmus* Pascoe, 1885 and *Protrachyasmus* Setliff **gen. nov.**

Characters	<i>Eudyasmus</i> Pascoe, 1885	<i>Protrachyasmus</i> Setliff <b>gen. nov.</b>
Scales on dorsum	with non-iridescent scales only	with both non-iridescent scales and sparse iridescent green scales
Shape of solitary scale in punctures on pronotum	broadly lanceolate, capitate, or spatulate	thin, hair-like
Male rostrum	shorter than pronotum, apex abruptly bent	longer than pronotum, apex evenly curved
Male antennal scape	as long as funicle	longer than funicle and basal segment of club combined
Dorsal longitudinal carinae on pronotal disk	restricted to apical 1/5	distinct at least to apical 1/2, sometimes reaching pronotal base
Puncture on pronotal disk	smaller, crowded, evenly spaced, uniform; interspaces smooth and glabrous to weakly rugose	larger, crowded, irregularly spaced and coalescent; interspaces elevated, coarsely rugose
Side of prosternal canal	carinate	obliterate
Mesoventral receptacle	cup-shaped; open posteriorly	obsolescent
Elytra (shape)	shorter; sides evenly curved; apex rounded, more truncate	longer; indented at basal third; apex produced, tapering
Prominence on third elytral interval	weakly granulate	coarsely granulate
Femora (dentition)	profemora edentate; meso- and metafemora dentate	all femora dentate
Protibia (shape)	compressed throughout length; dorsal edge straight to convex	compressed in basal 1/3; sinuate, with dorsal edge emarginate at middle
Protibia (apex)	not strongly curved in apical third; with supra-uncal projection	with apical third strongly curved ventrad; without supra-uncal projection
Protarsomere 1	1.0–1.2 times longer than tarsomeres 2+3	1.5–1.6 times longer than tarsomeres 2+3

***Protrachyasmus planidorsis* (Heller, 1908) comb. nov.***Eudyasmus planidorsis* Heller, 1908a: 19

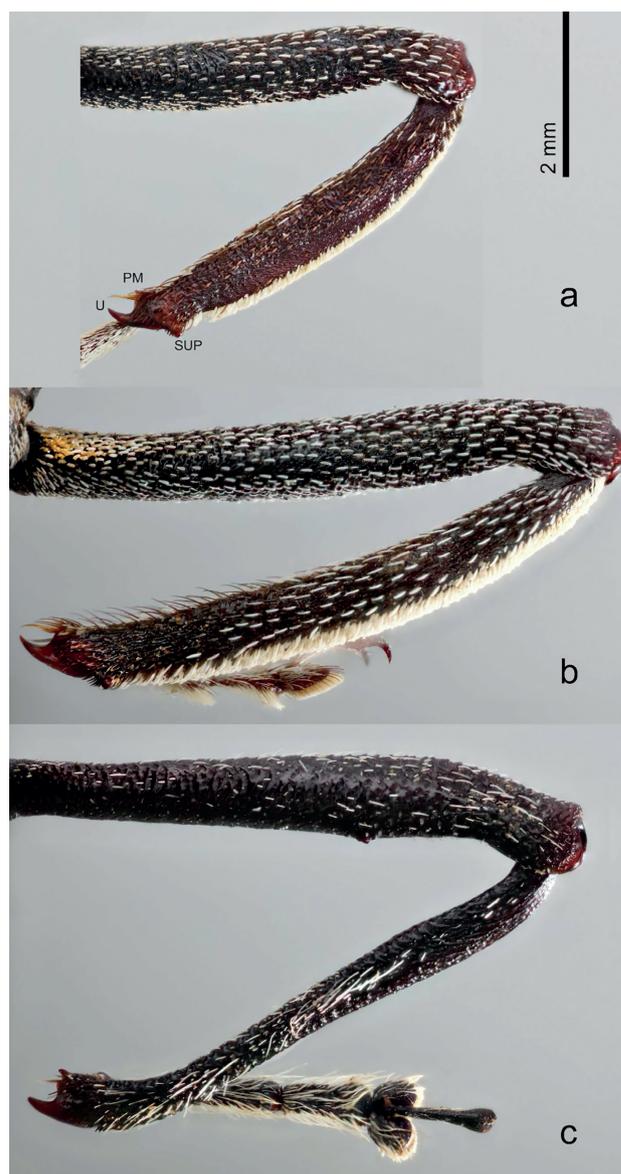
(Figs 11, 12c, 13b)

**Lectotype.** Papua New Guinea: 1♀, Typus (on red card) // Br. N. Guinea / Aroa Fl. / E.Weiske // 14539 // LECTOTYPE *Eudyasmus planidorsis* Heller (handwritten on yellow card) (SMTD). **New Lectotype Designation.**

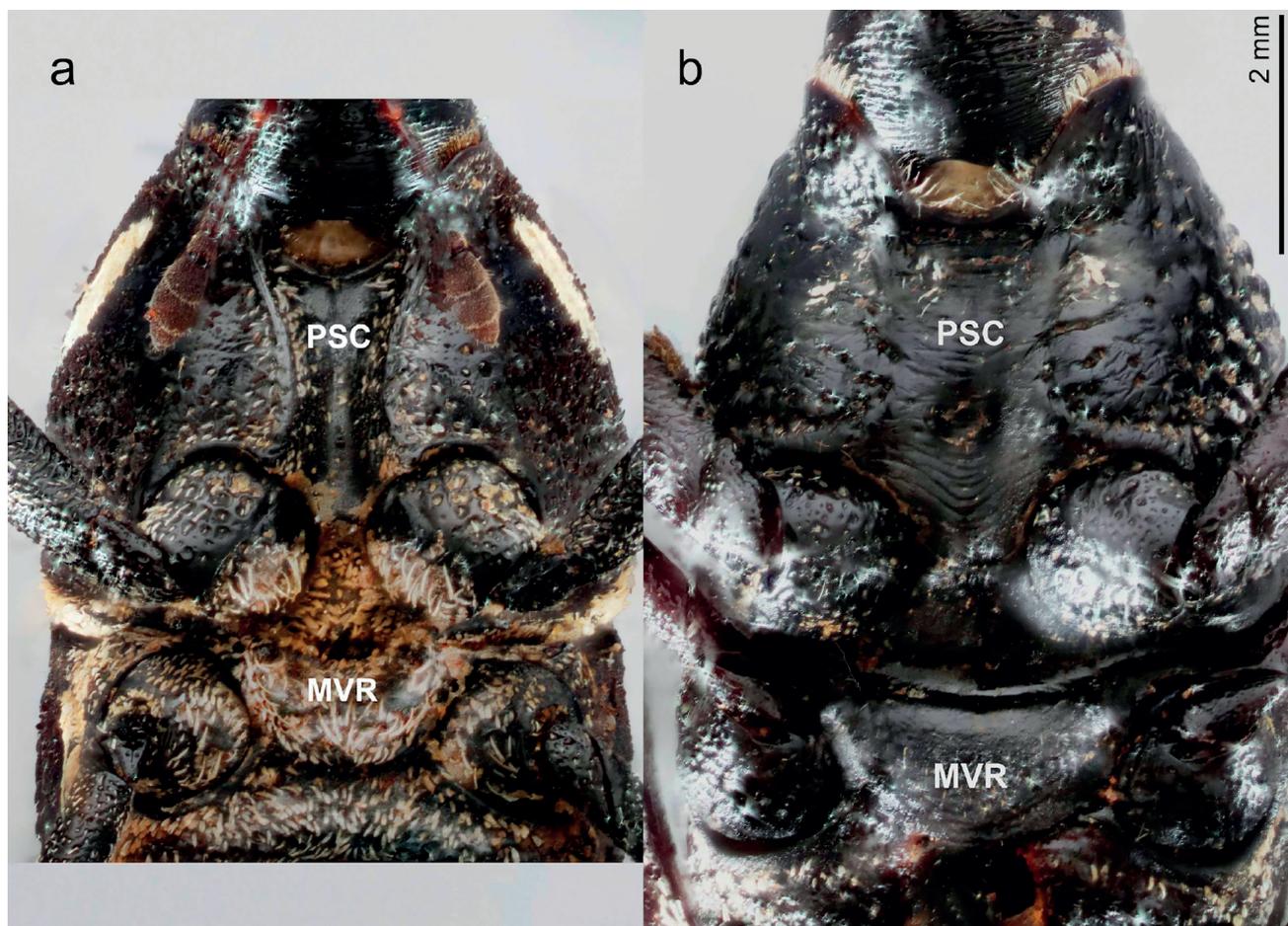
The specimen that Heller (1908) intended to be the holotype is ambiguous as two specimens bear red type labels. We have selected the female specimen labeled “Typus” to be the lectotype and the male specimen labeled “Cotypus” to be the paralectotype.

**Paralectotype.** 1♂, Cotypus! (on red card) // Br. N. Guinea / Aroa Fl. / E.Weiske // 14539 // PARALECTOTYPE / *Eudyasmus planidorsis* Heller (handwritten on blue card) (SMTD).

**Other Specimens Examined.** Papua New Guinea: 1♀, 1♂, PAPUA NEW GUINEA / Manki L.A., Bulolo / *Castanopsis* log / 16.XI.83 // J. Dobunaba Coll. / 2240 / C.I.E.A. 15819 // Pres by / Comm Inst Ent / B.M. 1984-1 (BMNH); 1♂, PAPUA NEW GUINEA / Morobe Province / Wau, Mt. Missim / 24 May 1984 2000m. / Coll. Chen Young (CMNH).



**Fig. 12** – Prothoracic leg details; **a**, *Eudyasmus albertisii* Pascoe, 1885, female (PM = premucro, U = uncus, SUP = supra-uncal projection); **b**, same, male; **c**, *Protrachyasmus planidorsis* (Heller, 1908) **comb. nov.**, male.



**Fig. 13** – Detail of pro- and mesothorax, ventral view (PSC = prosternal canal, MVR = mesoventral receptacle) – **a**, *Eudyasmus albertisii* Pascoe, male; **b**, *Protrachyasmus planidorsis* (Heller, 1908) **comb. nov.**, male.

**Diagnosis.** TL 9.0–12.0 mm, EW 3.6–4.8 mm. The sparsely distributed miniscule, appressed, incrusting, translucent, yellowish brown scales some of which are iridescent green under high magnification on the pronotal and elytral disks, interspersed with semierect, hair-like, whitish scales, absence of large whitish macula or vittae, and the long hair-like scales on the tibia of all legs (especially dense through the middle) will separate this species from other similar species. The green iridescence can be difficult to see in some worn specimens (such as the type series) and are not visible except under high magnification. While this species lacks the large whitish macula or vittae commonly found in *Eudyasmus* species, there are several small whitish maculae that may escape the casual observer. There is a pair of small triangular maculae composed of whitish scales on the anterolateral region of the pronotum, anterior to the procoxae, ventral to the postocular lobes, and adjacent to the prosternal canal. There is a pair of very thin transverse rows of white to tan scales on the basal margin of the pronotum, dorso-laterally. There is also a triangular white macula on the side of each elytron at the indentation where the puncture of rows 9 and 10 start to coalesce in the basal 1/3 of

elytra. See the generic description, diagnosis, and Table 1 to further diagnose this species.

**Distribution.** PAPUA NEW GUINEA: Central and Morobe Provinces (Fig. 1).

**Natural History.** Two specimens of this species were taken on logs of *Castanopsis* sp. (possibly *Castanopsis acuminatissima* (Blume) A.DC. (Fagaceae)).

**Key to species of *Eudyasmus* Pascoe and *Protrachyasmus* Setliff gen. nov.**

1. Rostrum longer than pronotum, apex evenly curved in males. Prosternal canal and mesoventral receptacle nearly obliterated. Profemora with small denticle on ventral margin near apex. Protibia weakly compressed in basal 1/3 only, dorsal and ventral margins sinuate, apical third strongly curved ventrad. Tarsomere 1 longer than tarsomeres 2+3 combined (Papua New Guinea).....  
*Protrachyasmus planidorsis* (Heller, 1908) **comb. nov.**
- Rostrum shorter than pronotum, apex bent in males at insertion point of antennae. Prosternal canal with lateral sides carinate, mesoventral receptacle open posteriorly. Profemora edentate. Protibia strongly compressed

- throughout, dorsal margin straight to convex, apical third not strongly curved. Tarsomere 1 as long as tarsomeres 2+3 combined (*Eudyasmus* Pascoe, 1885).....2
2. Pronotum concolorous, without whitish oblique macula or longitudinal stripes. Elytral humeri darker than surrounding areas (Papua New Guinea).....  
.....*E. simplex* Heller, 1935
- Pronotum laterally with distinct oblique macula or longitudinal stripes of whitish scales.....3
3. Base of elytra without yellowish-white transverse band; whitish oblique stripe on sides of pronotum visible in dorsal view near base; fine yellowish-white stripe running medially from apex of pronotum to tip of elytral along suture (Papua New Guinea).....  
.....*E. praecox* Faust, 1898
- Base of elytra with yellowish-white transverse band; whitish oblique maculae or stripe on sides of pronotum not visible in dorsal view; medial stripe absent or incomplete, usually interrupted near scutellum, rarely complete.....4
4. Whitish macula on sides of pronotum short, usually restricted to apical half of pronotum in lateral view, not reaching base. Pronotal disk with medial stripe that is sometimes faint or lost in basal half. Elytra with distinct transverse basal band and yellowish-white stripe on elytral suture (Indonesia: Papua Province and Papua New Guinea).....  
.....*E. albertisii* Pascoe, 1885
- Pronotum dorsally without any markings, laterally with whitish bands reaching the base. Elytra with yellowish-white transverse band at base but no sutural stripe (Indonesia: Waigeo Island).....  
.....*E. basalis* Pancini & Bramanti **sp. nov.**
- Competing Interests.** The authors declared that no competing interests exist in the preparation of the manuscript.
- Acknowledgments** – The authors wish to express their gratitude to Robert S. Anderson (CMNC), Enrico Ruzzier (Università Degli Studi di Padova, Padova, Italy), and Andrei Legalov (Institute of Animal Systematics and Ecology, Novosibirsk, Russia) for valuable advice that helped us improve the manuscript, and Marilù Tavano (MSNG), Max Barkley and Chris Lyal (BMNH), K. Klass and O. Jäger (SMTD), curators at SDEI, G. Samuelson and S. Myers (BPBM), and Robert Davidson and Robert Androw (CMNH) for allowing us to study the specimens housed in their respective museum collections.
- References**
- Campbell J.M., Marshall J.D. 1964. The ocular index and its application to the taxonomy of the Alleculidae (Coleoptera). *The Coleopterists Bulletin*, 18(2): 42–42. Stable URL: <https://www.jstor.org/stable/3999323>
- Champion I. 1932. Across New Guinea from the Fly to the Sepik. Melbourne: Lansdowne Press. London. 267 pages.
- Faust J. 1898. Curculioniden aus dem Malayschen und Polyne-sischen Inselgebiet. IT. *Stettiner Entomologische Zeitung*, 59 (1–6): 140–213.
- Gressitt J.L. 1966. Epizotic symbiosis: the Papuan weevil genus *Gymnopholus* (Leptopiinae) symbiotic with cryptogamic plants, oribatid mites, rotifers and nematodes. *Pacific Insects*, 8(1): 221–280.
- Gressitt J.L. 1967. The role of the Papuan area in insect evolution and dissemination. *Mushi*, 40(8): 89–95.
- Heller K.M. 1908a. Vierter Beitrag zur Papuanischen Käferfauna. *Abhandlungen und Berichte des Königlichen Zoologischen und Anthropologisch-Ethnographischen Museums zu Dresden*, 12(1): 1–34.
- Heller K.M. 1908b. Synonymische und andere auf die Systematik bezügliche Notizien (Col.). *Deutsche Entomologische Zeitschrift*, (1): 58–59.
- Heller K.M. 1914. Coleoptera. Nova Guinea. Resultats des expédition scientifique Néerlandaise a la Nouvelle-Guinée en 1907 et 1909 sous les auspices du Dr. H.A. Lorentz, *Zoology*, 9: 615–666.
- Heller K.M. 1935. Coleoptera Curculionidae. Nova Guinea. Résultats des Expéditions Scientifiques à la Nouvelle Guinée 17(2): 155–202.
- Lea A.M. 1928. Australian Curculionidae of the subfamilies Hap-lonycides and Cryptorhynchides. *Transactions and Proceedings of the Royal Society of South Australia*, 52: 95–164.
- Legalov A.A. 2018. Annotated key to weevils of the world. Part 2. Subfamily Molytinae (Coleoptera, Curculionidae). *Ukrainian Journal of Ecology*, 8(4): 340–250.
- Lyal C.H.C. 2014. Molytinae Schoenherr, 1823, pp. 529–570. In: Leschen R.A.B. & Beutel R.G. (eds), *Handbook of Zoology, Coleoptera, Beetles Volume 3: Morphology and Systematics (Phytophaga)*. De Gruyter, Berlin, 675 pp.
- Mittermeier R.A., Myers N., Thomsen J.B., Da Fonseca G.A.B., Olivieri S. 1998. Biodiversity hotspots and major tropical wilderness areas: approaches to setting conservation priorities. *Conservation Biology*, 12: 516–520. Doi: <https://doi.org/10.1046/j.1523-1739.1998.012003516.x>
- Oberprieler R.G., Marvaldi A.E., Anderson R.S. 2007. Weevils, weevils, weevils everywhere. *Zootaxa*, 1668: 491–520. Doi: <https://doi.org/10.11646/zootaxa.1668.1.24>
- Pascoe F.P. 1885. List of the Curculionidae of the Malay Archipelago collected by Dr. Odoardo Beccari, L.M. D’Abertis, and others. *Annali del Museo Civico di Storia Naturale di Genova*, 22: 201–332.
- Pullen K.R., Jennings, D., Oberprieler, R.G. 2014. Annotated catalogue of Australian weevils (Coleoptera: Curculionoidea). *Zootaxa*, 3896: 1–481. Doi: [10.11646/zootaxa.3896.1.1](https://doi.org/10.11646/zootaxa.3896.1.1)
- Riedel A., Tänzler R., Pons J., Suhardjono Y.R., Balke M. 2016. Large-scale molecular phylogeny of Cryptorhynchinae (Coleoptera, Curculionidae) from multiple genes suggests American origin and later Australian radiation. *Systematic Entomology*, 41: 492–503. Doi: <https://doi.org/10.1111/syen.12170>
- Setliff G.P. 2007. Annotated checklist of weevils from the Papuan

region (Coleoptera: Curculionidae), *Zootaxa*, 1536: 1–296. Doi: 10.11646/ZOOTAXA.1536.1.1

Setliff G.P. 2008. Revision of the genus *Panopides* Pascoe (Coleoptera: Curculionidae: Cryptorhynchinae). *The Coleopterists Bulletin*, 62(1): 83–98. Doi: 10.1649/1044.1

Setliff G.P. 2009. Systematic studies of the Indo-Australian crowned weevils (Coleoptera: Curculionidae: Cryptorhynchinae). Retrieved from the University of Minnesota Digital Conservancy. 1–224. Stable URL: <https://hdl.handle.net/11299/98004>

Setliff G.P. 2012. Revision of *Asyteta* Pascoe, 1865, with comments on the phylogeny of the Indo-Australian crowned weevils (Coleoptera: Curculionidae: Cryptorhynchinae). *Zootaxa*, 3462(2): 1–125. Doi: 10.11646/ZOOTAXA.3462.1.1