

Revision of the Genus *Amarygmus* Dalman and related genera. LXII. The Amarygmini of Borneo (Coleoptera: Tenebrionidae), part III

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Abstract

The following 22 new species of *Amarygmus* Dalman, 1823 (Col., Tenebrionidae, Amarygmini) from Borneo are described and illustrated: *A. alces* n. sp. (Sarawak, Sabah), *A. apicicornis* n. sp. (Sabah), *A. avunculus* n. sp. (Sarawak), *A. benevolus* n. sp. (Sarawak), *A. chrysidis* n. sp. (Sabah), *A. circaeus* n. sp. (Sabah), *A. comitus* n. sp. (Sabah), *A. deceptus* n. sp. (Sabah), *A. ino* n. sp. (Sabah), *A. maitlandicus* n. sp. (Sabah), *A. mendax* n. sp. (Sabah), *A. mnester* n. sp. (Sabah), *A. naidis* n. sp. (Sarawak), *A. quantulus* n. sp. (Sabah), *A. sappirus* n. sp. (Sabah), *A. semele* n. sp. (Sabah), *A. seminolus* n. sp. (Sabah), *A. tawauensis* n. sp. (Sabah), *A. ulfilatis* n. sp. (Sabah, Sarawak, Peninsular Malaysia, South Thailand), *A. variegatus* n. sp. (Sabah), *A. vestigator* n. sp. (Sabah), *A. violacolor* n. sp. (Sabah). Annotations, illustrations and additional records are given for *A. cinctopunctatus* Pic, 1938, *A. nepenthes* Bremer, 2011, and *A. hongii* Bremer, 2011.

Key words: Coleoptera, Tenebrionidae, Amarygmini, *Amarygmus*, Borneo, new species.

Zusammenfassung

Folgende 22 neue Arten der Gattung *Amarygmus* Dalman, 1823 (Col., Tenebrionidae, Amarygmini) aus Borneo und der Malayischen Halbinsel werden beschrieben und abgebildet: *A. alces* n. sp. (Sarawak, Sabah), *A. apicicornis* n. sp. (Sabah), *A. avunculus* n. sp. (Sarawak), *A. benevolus* n. sp. (Sarawak), *A. chrysidis* n. sp. (Sabah), *A. circaeus* n. sp. (Sabah), *A. comitus* n. sp. (Sabah), *A. deceptus* n. sp. (Sabah), *A. ino* n. sp. (Sabah), *A. maitlandicus* n. sp. (Sabah), *A. mendax* n. sp. (Sabah), *A. mnester* n. sp. (Sabah), *A. naidis* n. sp. (Sarawak), *A. quantulus* n. sp. (Sabah), *A. sappirus* n. sp. (Sabah), *A. semele* n. sp. (Sabah), *A. seminolus* n. sp. (Sabah), *A. tawauensis* n. sp. (Sabah), *A. ulfilatis* n. sp. (Sabah, Sarawak, Halbinsel Malaysia, Süd-Thailand), *A. variegatus* n. sp. (Sabah), *A. vestigator* n. sp. (Sabah), *A. violacolor* n. sp. (Sabah). Anmerkungen, Abbildungen und neue Nachweise werden angeführt für *A. cinctopunctatus* Pic, 1938, *A. nepenthes* Bremer, 2011 und *A. hongii* Bremer, 2011.

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1 Introduction

In the first and second parts of the revision of Amarygmini of Borneo (BREMER 2010a, 2011) a key to the genera of Amarygmini was published, two new genera of Amarygmini (each with one new species) and 79 new species of *Amarygmus* Dalman, 1823 were described.

In this third part 21 new species of *Amarygmus* are described from Borneo, and one from Borneo, Peninsular Malaysia and Thailand. Additionally, annotations are made on three already described *Amarygmus* species from Borneo.

In another paper (BREMER 2010b) a new species of *Cephalamarygmus* Bremer, 2001 (from Borneo and Sumatra), and one new species of *Amarygmus* (from Peninsular Malaysia and Borneo) have been published.

Currently I know 214 species of *Amarygmus* from Borneo, but several undescribed species are awaiting description. They will be described in part IV of this series on the Amarygmini of Borneo. Part V will provide a determination key to the Bornean species of *Amarygmus*.

Abbreviations of depositories

CFI	Collection of Dr. ANDREAS FLOREN, University of Würzburg, Germany (material of this paper is now deposited in ZSM)
CG SMNS	Collection of Dr. ROLAND GRIMM, Neuenbürg, Germany Staatliches Museum für Naturkunde, Stuttgart, Germany
SSB	Collection of STANISLAV BEČVÁR, České Budějovice, Czech Republic
ZSM	Zoologische Staatssammlung, München, Germany
ZSMB	Author's collection (later to be deposited in ZSM)

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My particular thanks are due to Dr. R. GRIMM who essentially contributed to this work. The valuable material which he collected in Sabah and Sarawak was extremely rich in species and specimens. Another important species-rich material was provided by Dr. A. FLOREN who investigated the insect fauna of tree canopies in Sabah.

Thanks are extended to my son, ULF BREMER (formerly Kota Kinabalu, now Shanghai) who also collected many amarygmine specimens in Sabah, and to FRANK FORMAN (Schledehausen) who prepared the figures of this paper.

2 Methods

Morphometry

“Body length” represents the distance between the middle of anterior edge of the pronotum and the apices of elytra, “body width” the maximum width across the elytra, “length of elytra” the distance between the base of the scutellum and the apices of the elytra (measured in dorsal view), “length of pronotum” the distance between the middle of their anterior and posterior edges (measured in the plain through these points).

Data on the labels

The data on the labels are given in the original language and with the abbreviations as used by the collectors.

3 Descriptions of new Bornean species of *Amarygmus*

Amarygmus alces n. sp.

(Fig. 1A–H)

Holotype (♂): Borneo, Malaysia, Sarawak, Bako Nat. Park, 6.–7.XII.2010, R. GRIMM (CG).

Paratype: Kinabalu NP [Sabah], 6° 5' N 116° 33' E, lowland mixed Dipterocarp forest, B 11, 30.III.1998, A. FLOREN (1 ♂ CFI).

Etymology

Alces, Ἄλκις = Greek prename.

Diagnosis

Small, elongate oval, upperside markedly lustrous, dark green, with some iridescence, legs brown. Elytra with striae with medium-sized punctures; intervals nearly flat on disc, somewhat convex laterally, barely punctured. Frons not very wide. Antennae of medium length.

This new species has some similarity to *A. nitens glabratus* Bremer, 2010 (BREMER 2010a: 212–214). The latter taxon has the same body shape, but is much larger (body length 5.25–5.73 mm), the colour of the upperside is coppery without a greenish tinge, and the frons is wider.

Concerning the similarity to *A. comitus* n. sp. see diagnosis under this species.

Description

Measurements: Body length: 4.12 + 4.35 mm. Body width: 2.22 + 2.30 mm. – **Ratios**: Pronotum: width/length 1.75 + 1.96; width hind corners/width front corners 1.68 + 1.78. Elytra: length/width 1.53 + 1.56; length elytra/length pronotum 3.40 + 3.63; maximum width elytra/maximum width pronotum 1.21 + 1.23.

Colouration: Upperside dark green, very shining, with a low degree of iridescence; scutellum brown; legs brown; antennomeres 1–5 brown, 6–11 black. Underside brown.

Head: Frons not wide, as wide as length of antennomere 5, with well separated, minute punctures. Genae slightly raised, terminating anteriorly approximately at the level of the middle part of fronto-clypeal suture. Frontoclypeal suture moderately incised and depressed in the middle. Clypeus moderately stretched forwards, slightly convex transversely and longitudinally; punctures somewhat larger and narrower than those of frons. Mentum anteriorly widened, with slightly bent sides; lateral margins flat, lustrous, space in between convex transversely, dull. Underside of neck irregularly and coarsely punctured. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Relatively short. Convex transversely, less convex longitudinally. Widest at base, slightly converging and bent anteriorly. Hind corners angular, obtuse in dorsal view; front corners not visible in dorsal view, rounded in anterior view. Anterior margin straight in dorsal view. Lateral and anterior margins bordered. Lateral borders in dorsal view very narrowly visible in the posterior fourth. Front corners with an angle of about 100° in lateral view; hind corners angular and obtuse. Surface with indistinct, minute punctures.

Scutellum: Triangular, impunctate.

Elytra: Elongate oval, relatively narrow. Markedly convex transversely, less convex longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders rounded. Apices mutually rounded. Lateral edges in dorsal view very narrowly visible in the middle. Striae slightly incised on disc, moderately incised laterally; about 24 medium-sized punctures in row 4; their distance on disc in row 4 varies between 1 and 4 diameters of a puncture. Intervals with tiny, distant punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards, narrowing towards apophysis in the middle. Apophysis broadly oval; lateral margins along procoxae markedly lifted, space in between consisting of a deep, median groove.

Mesosternum: Anterior margin of hind part excavated in the middle; surface uneven.

Metasternum: Anterior margin between mesocoxae rounded, bordered. With a few medium-sized punctures just behind the median border, otherwise metasternum im-

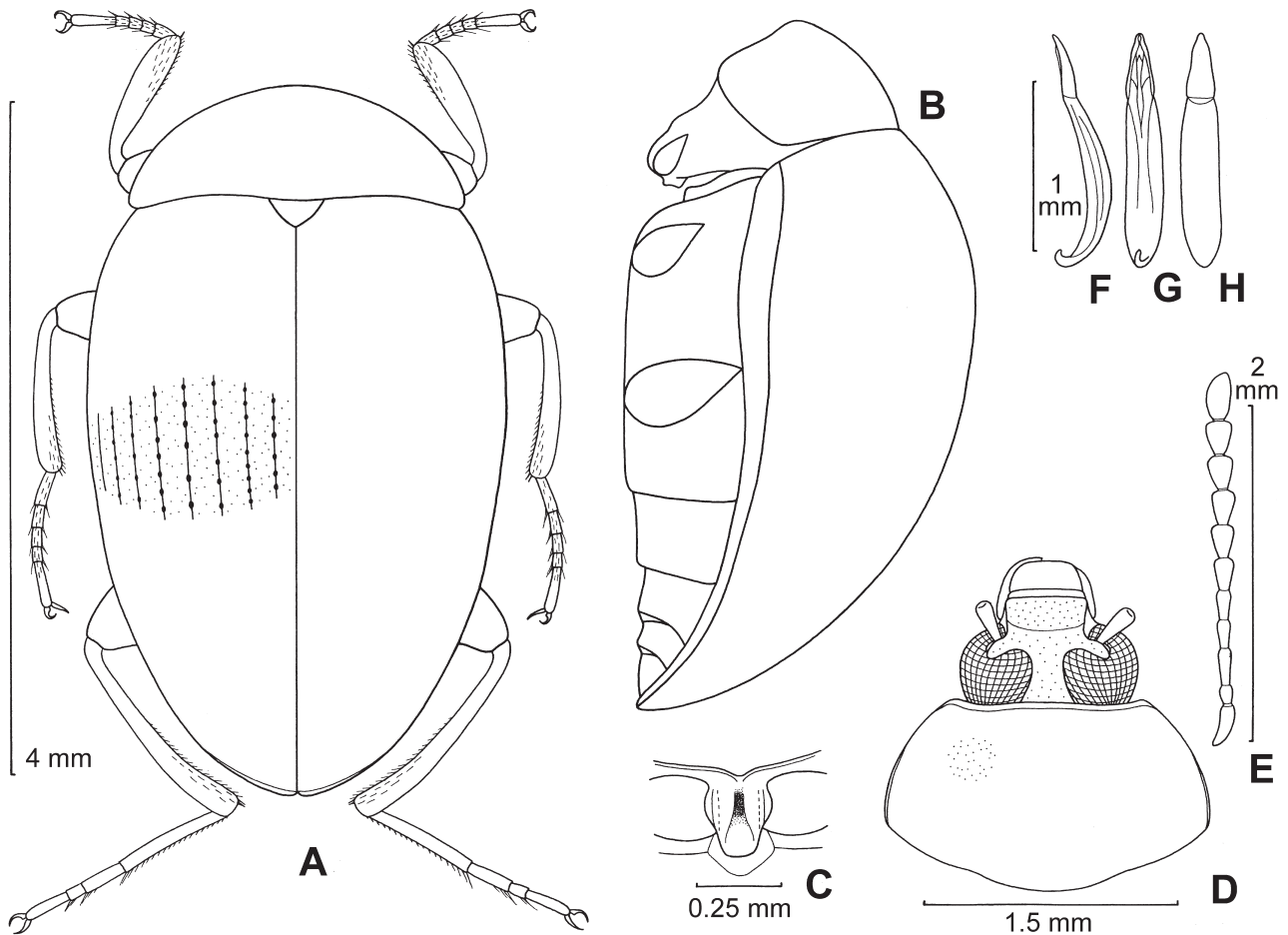


Fig. 1. *Amarygmus alces* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Prosternal apophysis. **D** Head and pronotum. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

punctate. Median line deeply incised in the posterior three-fourths.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, broadly bordered. Inner rim of anterior border behind metacoxae punctured. Sternites 1–4 impunctate, sternite 5 with minute, distant punctures and posteroapically with a faint depression.

Antennae: Reaching to anterior two-fifths of elytra. Length/width ratio of antennomeres 1–11 equals to $11:4\frac{1}{2} / 6:4 / 11:4 / 7:4 / 8:4 / 8:5 / 8:6 / 9:6 / 11:6\frac{1}{2} / 10:6\frac{1}{2} / 13:6\frac{1}{2}$.

Legs: Short. Femora thickened towards the second third and gradually thinned apically. Base of protibiae thin, then markedly thickened and slightly bent towards apex, mainly on outer side; mesotibiae also thickened apically, moderately bent; metatibiae straight in basal half, somewhat incurved in apical half. Male protarsomeres not widened. Lengths of protarsomeres 1–5 as 3:3:3:3:12; lengths of mesotarsomeres 1–5 as 11:6:5:4:12; lengths of metatarsomeres 1–4 as 30:12:6:12.

Aedeagus: See Fig. 1F–H.

Amarygmus apicicornis n. sp.

(Fig. 2A–F)

Holotype (sex not determined): MK [= Mt. Kinabalu, Sabah], Monggis [= Biological Station at 200 m], My, $6^{\circ} 13' N$ $116^{\circ} 44' E$, *Lithocarpus* spec. 128, 23.IX.2006, A. FLOREN (CFI).

Etymology

Apicicornis (Lat.) = apex, the utmost; cornu, the horn (in insects also the antennae).

Diagnosis

Tiny, somewhat elongate oval. Markedly convex transversely and longitudinally. Elytra with rows of small, inconspicuous punctures and with flat intervals. Frons relatively narrow, with fronto-clypeal sulcus deeply and broadly incised. Antennae of medium length, antennomeres 1–6 yellow, 7–10 black, 11 uniformly yellow. Legs short. Metatarsomere 1 as long as combined length of

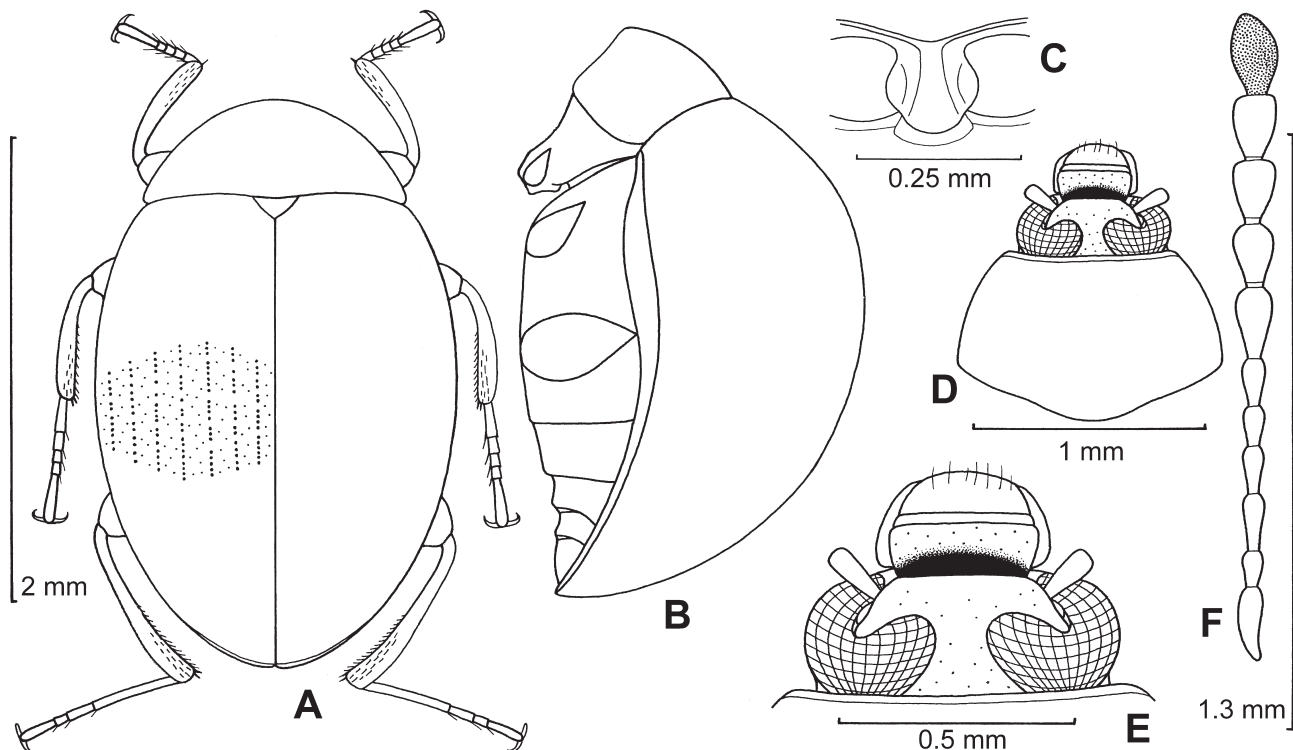


Fig. 2. *Amarygmus apicicornis* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Prosternal apophysis. **D** Head and pronotum. **E** Head. **F** Antenna (shaded antennomere 11 yellow).

metatarsomeres 2–4. Upperside lustrous; elytra yellow, pronotum and upperside of head brown.

Body shape, elytral puncture rows, flat intervals, and shape and length of antennae show a similarity to the species which formerly had been grouped under *Pseudamarygmus* Pic, 1915, like *Amarygmus niasensis* (Pic, 1915) (redescription see BREMER 2002: 11–13) and, first of all, *A. pallidior* Bremer, 2011 (BREMER 2011: 236–238).

A. pallidior has the same colouration of the upperside, about the same body length (2.53 mm) and the same deeply incised fronto-clypeal suture as in the new species, but the elytra are somewhat longer (length/width 1.45), the punctures of the elytral rows are smaller, the distance between these punctures is wider, and the colour of antennomere 11 is not uniformly yellow.

Description

Measurements: Body length: 2.49 mm. Body width: 1.52 mm. – Ratios: Pronotum: width/length 1.77; width hind corners/width front corners 1.62. Elytra: length/width 1.36; length elytra/length pronotum 3.32; maximum width elytra/maximum width pronotum 1.38.

Colouration: Upperside lustrous; colour of elytra, pronotum, head and antennae see diagnosis above. Underside

brown, lustrous. Femora and tibiae brown, tarsi yellow. Antennomeres 1–6 yellow, 7–10 black, 11 uniformly yellow.

Head: Eyes large. Frons relatively narrow, about as wide as length of antennomere 4, with a few tiny punctures. Genae terminating at the level of the middle part of fronto-clypeal suture, they are not raised. Fronto-clypeal suture very wide, very deep, present across the whole width of head; anterior margin of frons nearly straight, sharply sloping down to the deep groove; anterior border of fronto-clypeal suture towards clypeus like a half-circle. Clypeus situated on a level lower than frons, wide and very short, impunctate. Mentum reversely trapezoidal, with flat, lustrous lateral margins; space in between opaque, slightly convex transversely. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Markedly convex transversely, less so longitudinally. Widest at base, anteriorly narrowing and somewhat bent. Hind corners angular and broadly obtuse in dorsal view; front corners rounded. Anterior margin straight. Lateral and anterior margins bordered. Lateral borders narrowly visible in dorsal view. Front and hind corners in lateral view rounded, obtuse. Surface with widely separated, small, inconspicuous punctures.

Scutellum: Triangular, impunctate.

Elytra: Somewhat elongate oval. Very convex transversely, distinctly convex longitudinally. Maximum width and height near the middle. Shoulders not prominent. Apices mutually rounded. Lateral edges not visible in dorsal view. Punctures of the rows small, inconspicuous, their distance on disc in row 4 approximately 1–2 times diameter of a puncture. Intervals flat, punctured with minute, inconspicuous punctures which are more widely separated than those of the rows.

Prosternum: Anterior margin laterally narrowly bent upwards, this border interrupted in the middle; a blunt keel extending over the whole apophysis; lateral margins along procoxae widened and broadly lifted upwards; in between with a median groove and a blunt keel; apex rounded.

Mesosternum: Anterior margin of hind part barely excavated in the middle; lateral margins of hind part somewhat raised towards the smooth median part.

Metasternum: Anterior margin between mesocoxae rounded and bordered. Disc with a few small punctures and small hairs. Median line slightly incised in the posterior half.

Sternites: Anterior margin of sternite 1 between mesocoxae oval, narrowly bordered. Sternites impunctate.

Antennae: Of medium length, reaching middle of elytra. Last five antennomeres clearly longer and wider than antennomeres 1–6. Relative lengths of antennomeres 1–11 as 7:4:6:3½:3½:3½:6:6:6:5½:10.

Legs: Short. Femora thickened towards the second third. Protibiae slightly bent; mesotibiae somewhat more bent than protibiae; metatibiae compress, straight in anterior half, somewhat incurved in apical half. Lengths of metatarsomeres 1–4 as 17:6:3½:8.

Amarygmus avunculus n. sp.
(Fig. 3A–E)

Holotype (♀): Borneo, Malaysia, Sarawak, Kubah Nat. Park, HQ vic., 50 m, 13.–14.XII.2010, R. GRIMM (CG).

Etymology

Avunculus (Lat.) = mother's brother.

Diagnosis

Small, markedly oval and convex. Elytra with striae and relatively large, mostly rhombic striae punctures; intervals on disc flat. Frons extremely narrow. Antennae of medium length. Protibiae straight; mesotibiae slightly bent in basal two-fifths, straight in apical three-fifths; metatibiae straight in basal half, somewhat incurved in apical half. Relatively long metatarsomere 1. Elytra coppery, lustrous; pronotum green, lustrous; legs brown.

Amarygmus avunculus n. sp. belongs to a group of species which have an extremely narrow frons and either ely-

tral striae or rows of punctures. Species with elytral striae are *A. avunculus* n. sp. from Borneo, *A. powanus* Masumoto et Makihara, 1997 from Borneo, Sumatra and Peninsular Malaysia (descriptions see MASUMOTO & MAKIHARA 1997 and – under the synonymous name *A. malayanus* – BREMER 2002: 25–27 and BREMER 2006: 21, fig. 5), *A. astudior* Bremer, 2006 from Sumatra (BREMER 2006: 16–17, fig. 1), *A. intermedius* Bremer, 2011 from Sarawak and Peninsular Malaysia (BREMER 2011: 223–224), *A. tenuifrons* Bremer, 2006 from Sarawak (BREMER 2006: 19–21, fig. 4), *A. benevolus* n. sp. from Sarawak, *A. erilis* Bremer, 2010 from Kalimantan (BREMER 2010a: 189–191), *A. deceptus* n. sp. from Sabah, *A. sarawakensis* Bremer, 2010 from Sarawak and Peninsular Malaysia (BREMER 2010a: 233–235), and *A. seminolus* n. sp. from Sabah.

A. powanus and *A. astudior* have approximately the same body length as *A. avunculus*, but the elytral striae are stronger incised, the elytral intervals are more closely punctured, and the pronotum is not brightly green.

A. intermedius is somewhat larger (body length 5.65–6.05 mm), the elytra are longer and less convex, the striae punctures are round and more closely set, the green colour of the pronotum is less bright, and the mesotibiae are markedly bent.

A. tenuifrons has about the same body length as *A. avunculus*, but possesses longer, uniformly blue and somewhat dull elytra.

A. deceptus has a similar size and a similar shape of antennae and legs, but the maximum elytral width is posterior to that of *A. avunculus*, the elytral striae are more incised, the striae punctures are smaller, round and more closely set, and the colour of the elytra is brown.

A. benevolus and *A. erilis* are of similar size, but their elytra are more elongate and their maximum width and height is posterior to that of *A. avunculus*, their elytral punctures have the tendency to be more round than those of *A. avunculus*, and their pronotum is not green.

A. sarawakensis is much smaller than *A. avunculus* (body length 3.22–3.70 mm), the elytra are longer and narrower, and the mesotibiae are markedly bent.

A. seminolus is also much smaller than *A. avunculus* (body length 3.00–3.24 mm), the upperside is anthracite coloured, and the elytral intervals are closely punctured.

Description

Measurements: Body length: 5.18 mm. Body width: 3.21 mm. – Ratios: Pronotum: width/length 1.94; width hind corners/width front corners 1.82. Elytra: length/width 1.37; length elytra/length pronotum 3.53; maximum width elytra/maximum width pronotum 1.33.

Colouration: Upperside see diagnosis above, elytra reflecting violet in view from the front. Underside dark brown, legs brown. Antennomeres 1–5 brown, 6 dark brown, 7–11 black.

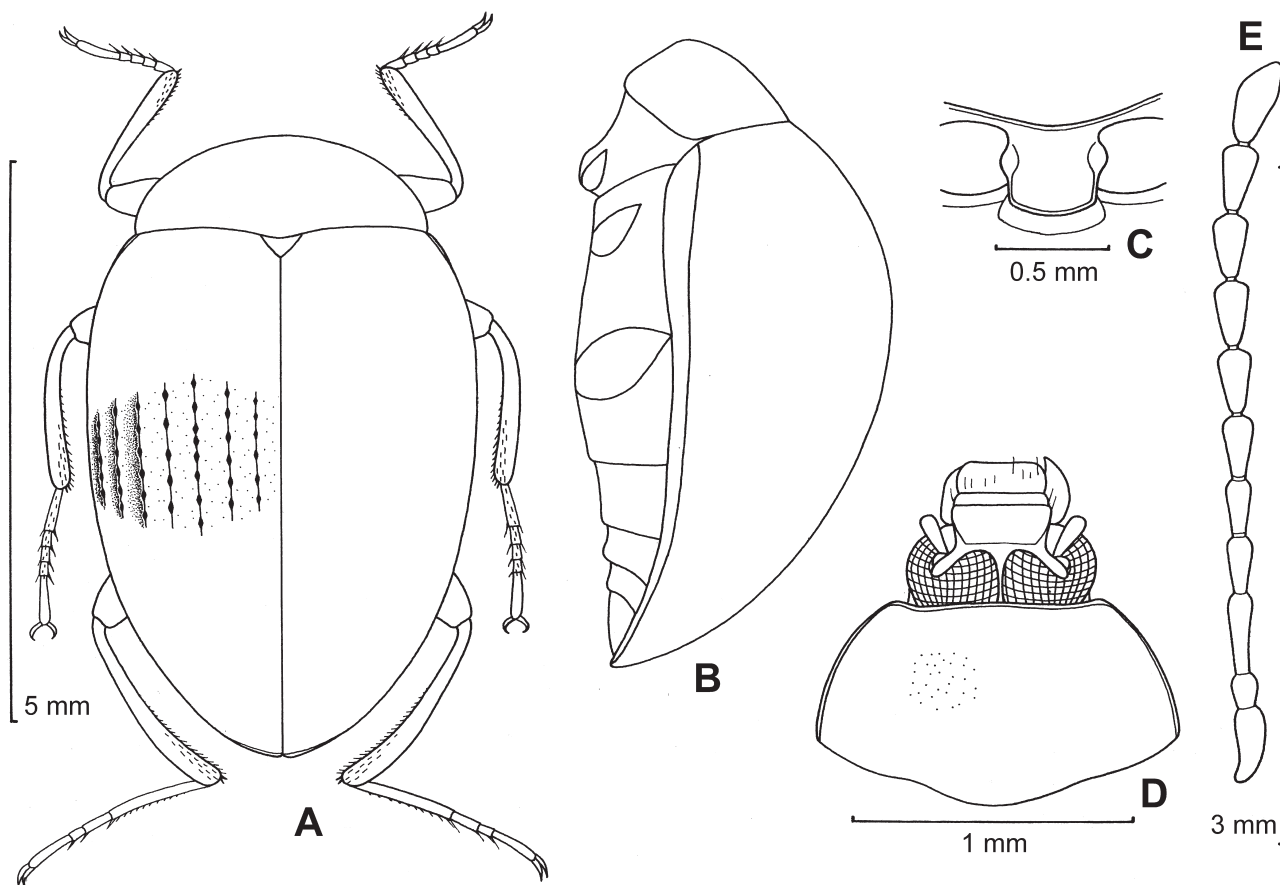


Fig. 3. *Amarygmus avunculus* n. sp. – A Habitus, ♀. B Body, lateral view. C Prosternal apophysis. D Head and pronotum. E Antenna.

Head: Frons extremely narrow, width less than diameter of an ocellus. Genae narrow, slightly raised, anteriorly terminating at the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture is situated quite close to anterior edge of eyes, its middle part straight and somewhat incised. Clypeus clearly stretched forwards, somewhat convex transversely and longitudinally, covered with small, well separated punctures. Mentum reversely trapezoidal, with flat, lustrous lateral margins; space in between opaque, slightly convex transversely. Underside of neck with large, closely set punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Convex transversely and longitudinally. Widest at base. Hind corners angular, somewhat obtuse; front corners rounded in dorsal view. Anterior margin slightly excavated and slightly protruded towards head in the middle. Lateral and anterior margins bordered. Lateral borders very narrowly visible in dorsal view. Front corners in lateral view nearly angular, somewhat obtuse; hind corners angular, obtuse. Surface with small, well separated punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Oval, markedly convex transversely and longitudinally. Maximum width and height at the end of the anterior third. Shoulders somewhat prominent. Apices mutually rounded. Lateral edges narrowly visible at the shoulders and near apex. Surface with slightly incised striae and large, rhombic strial punctures; these punctures becoming smaller towards the apex and nearly disappearing in the more and more deeply incised striae; about 24 punctures in stria 4. Intervals nearly flat at disc, laterally and near apex somewhat convex; intervals with tiny, widely separated punctures which just become visible at 50-fold magnification.

Prosternum: Anterior margin continuously and narrowly bent upwards. Apophysis wide, short, slightly projecting beyond procoxae posteriorly; lateral margins along procoxae widened and raised like a button; space in between with a wide, shallow median groove; apex widely rounded.

Mesosternum: Hind part wide, short; its anterior margin moderately excavated in the middle, lateral margins with a few small granules, centre smooth.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Two transverse rows of large punctures anteriorly, remaining metasternum impunctate. Median line slightly incised.

Sternites: Anterior margin of sternite 1 between meta-coxae ogival, broadly bordered. Sternites somewhat opaque, impunctate.

Antennae: Reaching middle of elytra. Length/width ratio of antennomeres 1–11 equals to 13:7 / 7:5½ / 16:5 / 11:5½ / 12:5½ / 13½:5½ / 14:6 / 13:7 / 15:7 / 14½:7½ / 20:7½.

Legs: Short. Femora thickened like a club towards the second third. Shape of tibiae see diagnosis above. Lengths of protarsomeres 1–5 as 6:5:5:4:19; lengths of mesotarsomeres 1–5 as 16:9:7:7:19; lengths of metatarsomeres 1–4 as 38:11:8:19.

Amarygmus benevolus n. sp.

(Fig. 4A–E)

Holotype (♀): Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 30–210 m, 30.XI.–5. XII.2010, R. GRIMM (CG).

Paratype: Same data as holotype (1 ♀ ZSMB). – Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 10–200 m, 23.–27.III.2009, R. GRIMM (1 ♀ CG). – Bor-

neo, Malaysia, Sarawak, Kubah NP, Matang Wildlife Centre vic., 50–100 m, 28.–31.III.2009, R. GRIMM (1 ♀ ZSMB, 1 ♀ CG).

Etymology

Benevolus (Lat.) = benevolent.

Diagnosis

Small, somewhat elongate oval, distinctly convex. Elytra with incised striae and medium-sized strial punctures; intervals on disc slightly convex. Frons very narrow. Antennae of medium length. Upperside coppery, lustrous with low iridescence. Legs brown. Metatarsomere 1 long.

A. benevolus n. sp. belongs to a group of oval species with elytral striae and a very narrow frons. For the differential diagnosis of these species – as far as they may occur on Borneo – see under *A. avunculus* n. sp.

Concerning body shape, lustre of upperside, width of frons, and antennae, *A. benevolus* is very similar to *A. erilis* Bremer, 2010 from South Kalimantan (BREMER 2010a: 189–191), but the shape of the prosternal apophysis is different and the elytral punctures are somewhat smaller. *A. erilis* is known only from the female holotype, so it cannot be entirely ruled out that *A. benevolus* might be a subspecies of *A. erilis*.

Concerning size and shape, *A. benevolus* is also similar to *A. deceptus* n. sp. from Sabah; this latter species has nar-

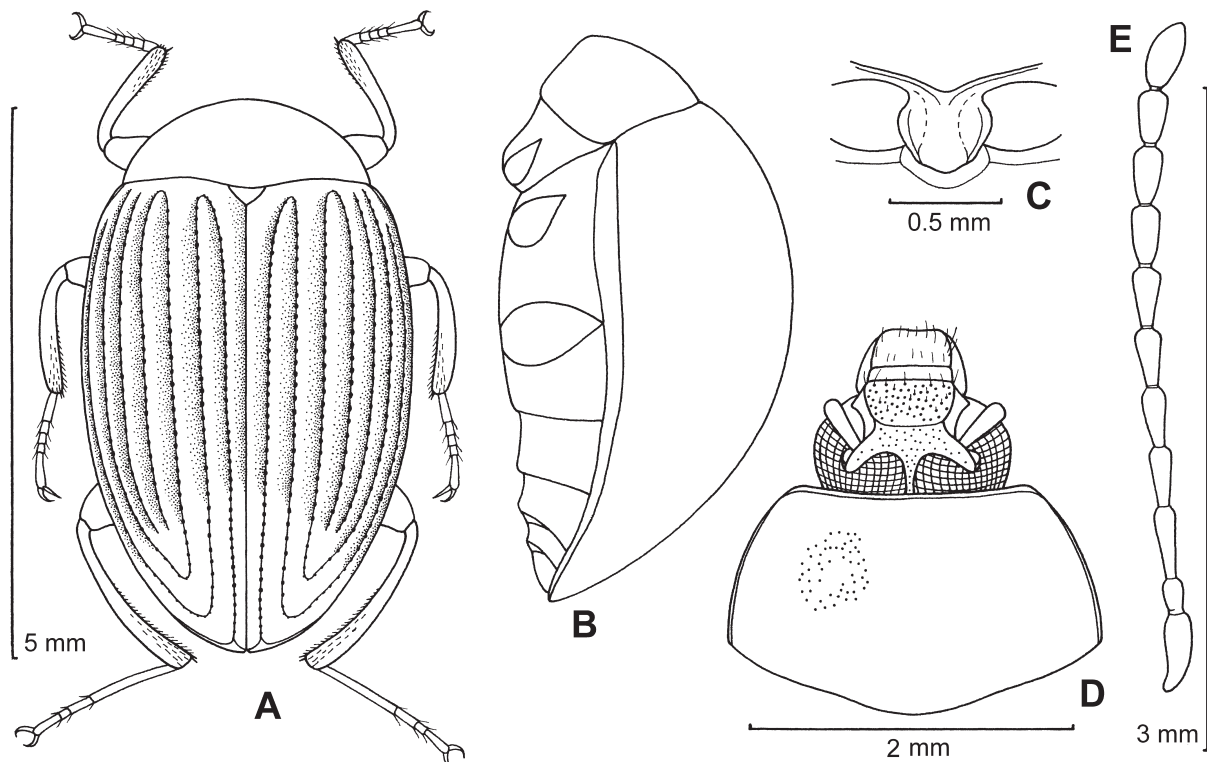


Fig. 4. *Amarygmus benevolus* n. sp. – A Habitus, ♀. B Body, lateral view. C Prosternal apophysis. D Head and pronotum. E Antenna.

rower light brown elytra and a shorter darker brown pronotum with the lateral margins more bent.

Description

Measurements: Body length: 4.78–5.17 mm. Body width: 2.84–2.92 mm. – Ratios: Pronotum: width/length 1.87–1.94; width hind corners/width front corners 1.71–1.87. Elytra: length/width 1.41–1.48; length elytra/length pronotum 3.39–3.58; maximum width elytra/maximum width pronotum 1.25–1.28.

Colouration: See diagnosis above, pronotum with a slightly green tinge, scutellum brown. Antennomeres 1–4 brown, 5 dark brown, 7–11 black. Underside brown.

Head: Frons very narrow, as wide as two ocelli, with small, but distinct punctures. Genae short, moderately raised, anteriorly terminating somewhat behind the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture slightly incised. Clypeus moderately stretched forwards, moderately convex transversely, with small, distinct, relatively closely set punctures which are the origin of tiny hairs. Mentum anteriorly widened, with slightly bent sides and rounded transition between lateral margins and base; lateral margins flat, with small punctures; space in between opaque, somewhat convex transversely. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Markedly convex transversely, slightly convex longitudinally. Widest at base, anteriorly narrowing and slightly bent. Hind corners angular, obtuse; front corners broadly rounded. Anterior margin straight. Lateral and anterior margins continuously bordered. Lateral borders very narrowly visible on the whole length in dorsal view. Hind corners in lateral view obtuse, angular; front corners obtuse, rounded. Surface with small, relatively widely separated punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Somewhat oval, markedly convex. Maximum width and height approximately in the middle. Shoulders somewhat prominent. Apices mutually rounded. Lateral edges narrowly visible in the posterior half in dorsal view. Surface with somewhat incised striae with medium-sized, mostly round strial punctures; their distance on disc in row 4 about 1–1½ times diameter of a puncture; about 32 punctures in row 4. Intervals slightly convex on disc, posterolaterally slightly more convex, with tiny, distant punctures.

Prosternum: Anterior margin narrowly bent upwards, interrupted in the middle where a short keel originates. Apophysis short, lateral margins along procoxae rounded and lifted; space in between with a wide median groove; apex straight.

Mesosternum: Short. Anterior margin of hind part somewhat excavated in the middle.

Metasternum: Lustrous. Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with me-

dium-sized, closely set punctures, posterior part impunctate. Median line narrowly and shallowly incised.

Sternites: Somewhat opaque. Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternite 1 with a few minute punctures, otherwise sternites impunctate.

Antennae: Reaching towards middle of elytra. Length/width ratio of antennomeres 1–11 equals to 15:6 / 8:4½ / 16:4½ / 12:4½ / 14:5 / 13½:6 / 14:6 / 14:6 / 13:6 / 12:6 / 17:6.

Legs: Short. Femora thickened like a club towards the second third. Protibiae nearly straight; mesotibiae moderately bent; metatibiae straight in basal half, incurved in apical half. Lengths of protarsomeres 1–5 as 4:3:3:3:18; lengths of mesotarsomeres 1–5 as 10:6:5:4:18; lengths of metatarsomeres 1–4 as 36:11:5:16.

Amarygmus chrysidis n. sp.

(Fig. 5A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Keningau, 300 m, Lux, 26.–28.I.2010, R. GRIMM (CG).

Etymology

Chrysis, Χρυσίς, gen. chrysidis = Greek female prename.

Diagnosis

Small, somewhat elongate oval. Elytra with rows of medium-sized, distinct punctures. Frons of medium width. Antennae of medium length. Protibiae slightly bent in basal two-fifths, straight in apical three-fifths. Mesotibiae moderately bent, metatibiae distinctly bent. Male protarsomeres 1–3 not widened and male protibiae not widened on inner side. Metasternum bare. Upperside coppery, lustrous; femora and tibiae dark brown, nearly black.

Concerning size, shape and elytral punctation, *A. expeditus* Bremer, 2010 (BREMER 2010a: 193–195) is very similar to *A. chrysidis*, but the frons is distinctly wider and the male protibiae are widened on inner side.

A. vespertinus Bremer, 2010 (BREMER 2010a: 244–246) is similar, too, but the punctures of the elytral rows are smaller, the elytral intervals are more closely punctured, and the fronto-clypeal suture is less deep incised.

A. sodalis Bremer, 2002 (BREMER 2002: 42–44), which has the frons nearly as wide as in *A. chrysidis*, is also similar, but the elytra are more convex, the punctures of the elytral rows are somewhat wider separated, the legs are yellowish brown, and the inner side of male protibiae is clearly widened.

Description

Measurements: Body length: 4.78 mm. Body width: 2.82 mm. – Ratios: Pronotum: width/length 2.15; width hind corners/width front corners 1.75. Elytra: length/width

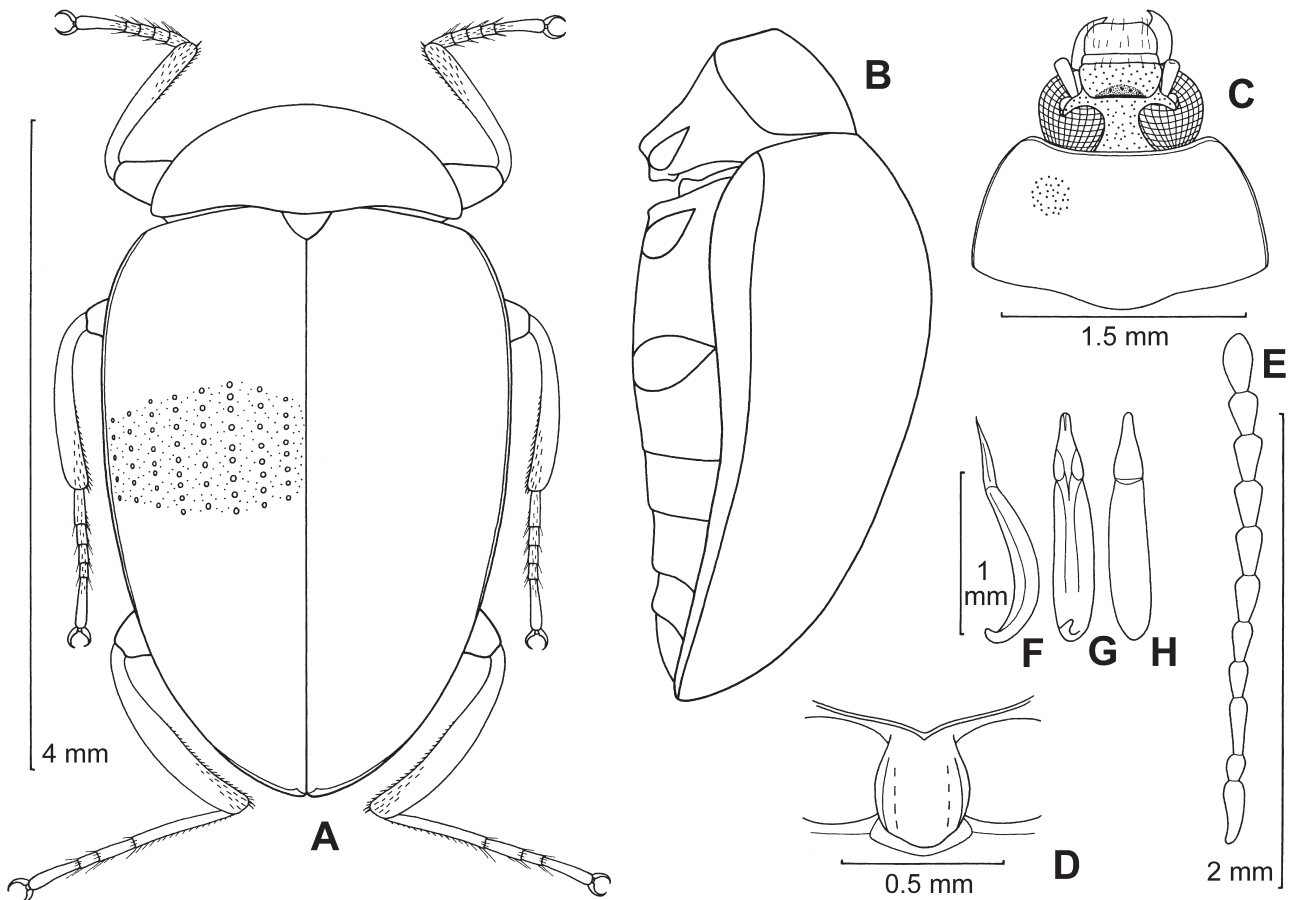


Fig. 5. *Amarygmus chrysidis* n. sp. – A Habitus, ♂. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna. F Aedeagus, lateral view. G Aedeagus, ventral view. H Aedeagus, dorsal view.

1.46; length elytra/length pronotum 4.07; maximum width elytra/maximum width pronotum 1.29.

Colouration: Upperside, femora and tibiae see diagnosis above. Tarsi brown. Antennomeres 1–4 brown, 5 dark brown, 6–11 black (apical part of antennomere 11 brightened). Underside brown, lustrous.

Head: Frons of medium width, as wide as length of antennomere 3, with indistinct, minute punctures. Genae small, slightly raised, anteriorly terminating approximately at the level of middle part of fronto-clypeal suture. Fronto-clypeal suture markedly incised in its middle part. Clypeus moderately stretched forwards, somewhat convex longitudinally, slightly convex transversely, with small, distinct, relatively closely set punctures. Mentum somewhat widened anteriorly, with rounded lateral margins and with a rounded transition between lateral and basal margins; lateral margins flat, lustrous, space in between slightly lustrous, convex transversely. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide. On the disc slightly convex transversely, laterally clearly bent downwards; slightly convex

longitudinally. Widest at base, anteriorly somewhat narrowing, posterior three-fifths with straight sides, anterior two-fifths bent. Hind corners angular with an angle of about 100°; front corners angular in dorsal view, more obtuse than hind corners. Anterior margin slightly excavated. Lateral and anterior margins bordered. Lateral borders very narrowly visible in their posterior three-fourths in dorsal view. Front and hind corners obtuse in lateral view, front corners rounded; hind corners angular. Surface with small, not very closely set punctures which become smaller towards middle.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Oval. Maximum width and height at the end of the anterior third. Moderately convex transversely and longitudinally. Shoulders slightly prominent. Apices mutually rounded. Lateral edges narrowly visible in dorsal view. Surface with rows of medium-sized, distinct punctures which become evanescent near apex; their distance on disc in row 4 about 1–2 times diameter of a puncture; about 24 punctures in row 4. Intervals flat, with minute, distinct, not very closely set punctures.

Prosternum: Anterior margin narrowly bent upwards, with a short, narrow keel towards apophysis in the middle. Apophysis rounded, flat, lateral margins along procoxae only slightly lifted, hence median groove shallow and wide.

Mesosternum: Anterior margin of hind part widely excavated in the middle. Surface smooth.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc vaulted, anterior part with three rows of medium-sized punctures, posterior part with tiny, widely separated punctures. Median line translucent.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. With minute, widely separated punctures on anterior part of sternite 1. Posterior part of sternite 1 and sternites 2–5 with tiny punctures which only become visible at 50-fold magnification.

Antennae: Of medium length, reaching to anterior two-fifths of elytra. Length/width ratio of antennomeres 1–11 equals to $9:4\frac{1}{2} / 5:4 / 11:3\frac{1}{2} / 8:4 / 8:4\frac{1}{2} / 8:5 / 10:5\frac{1}{2} / 10:5\frac{1}{2} / 9:5\frac{1}{2} / 9:5\frac{1}{2} / 12:5\frac{1}{2}$.

Legs: Short. Femora thickened like a club towards the second third. Protibiae slightly bent in basal two-fifths, straight in apical three-fifths, not thickened on inner side of apical half in males. Mesotibiae moderately bent; pro- and mesotibiae with an area of short, closely set, recumbent hairs on inner side apically. Metatibiae distinctly bent. Protarsomeres 1–4 with brush-like pilosity on soles. Lengths of protarsomeres 1–5 as 3:3:3:3:13; lengths of mesotarsomeres 1–5 as 11:7:6:4:15; lengths of metatarsomeres 1–4 as 26:10:6:15.

Aedeagus: See Fig. 5F–H.

Amarygmus circaeus n. sp.
(Fig. 6A–D)

Holotype (probably ♂ because of the brush-like pilosity of the soles of protarsomeres 1–4): Kinabalu NP [Sabah], My, 6° 3' N 116° 55' E, *Ficus* spec. 98, 14.IX.2006, A. FLOREN (CFI).

Paratypes: Same data as holotype (1 specimen, sex not determined ZSMB). – Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *A. lagenocarpa* 18, 18.IX.2006, A. FLOREN (1 specimen, sex not determined CFI).

Etymology

Circaeus (Lat., poetical) = enchanting.

Diagnosis

Tiny, oval, markedly convex transversely and longitudinally. Elytra short, with rows of medium-sized, relatively closely set punctures and with flat intervals. Pronotum with widely separated, distinct punctures. Frons very wide. Metatibiae distinctly bent. Black elytral maculae on yellow ground as shown in Fig. 6A.

A. circaeus n. sp. is the smallest species currently known in *Amarygmus*. It is very similar to *A. variegatus* n. sp. which is only slightly larger. This latter species has also a wide frons, short elytra, antennae of similar length and a yellow ground colour with black maculae, but the central elytral macula (if present) has a longitudinal shape, the pronotum is nearly unpunctured, and the metatibiae are less bent.

Description

Measurements: Body length: 1.79–1.82 mm. Body width: 1.21–1.23 mm. – **Ratios:** Pronotum: width/length 2.23–2.40; width hind corners/width front corners 1.71–1.81. Elytra: length/width 1.23–1.25; length elytra/length pronotum 3.58–3.90; maximum width elytra/maximum width pronotum 1.25–1.31.

Colouration: Ground colour of elytra yellow, lustrous; elytral base and apex black, each elytron with a transverse black macula. Central part of pronotum yellowish red, lateral parts yellow. Upperside of head black. Antennomeres 1–6 yellow, 7–11 black. Legs yellow. Underside yellow, lustrous.

Head: Upperside very lustrous. Frons very wide, with a few small, irregularly set punctures. Eyes relatively small and laterally projecting beyond lateral outline of genae like a button. Genae short and narrow, anteriorly terminating at the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture translucent. Clypeus short, with small punctures which are the origin of short hairs. Underside of neck nearly impunctate, lustrous. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Short, not very wide. Moderately convex transversely, slightly convex longitudinally. Widest at the angular and obtuse hind corners, anteriorly narrowing and bent. Front corners narrowly rounded. Anterior margin somewhat excavated. Lateral and anterior margins continuously bordered. Lateral borders visible in dorsal view. Front and hind corners narrowly rounded and slightly obtuse in lateral view. Surface with small, distinct, irregularly but widely separated punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, distinctly convex transversely, somewhat less convex longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders rounded. Apices mutually rounded. Lateral edges not visible. Surface with rows of medium-sized punctures; their distance on disc in row 4 about twice the diameter of a puncture. Intervals everywhere flat, impunctate (at 50-fold magnification).

Prosternum: Anterior margin narrowly and continuously bent upwards. Apophysis ascending between anterior margin and level along procoxae; markedly descending posterior to procoxae so that its apex is nearly invisible;

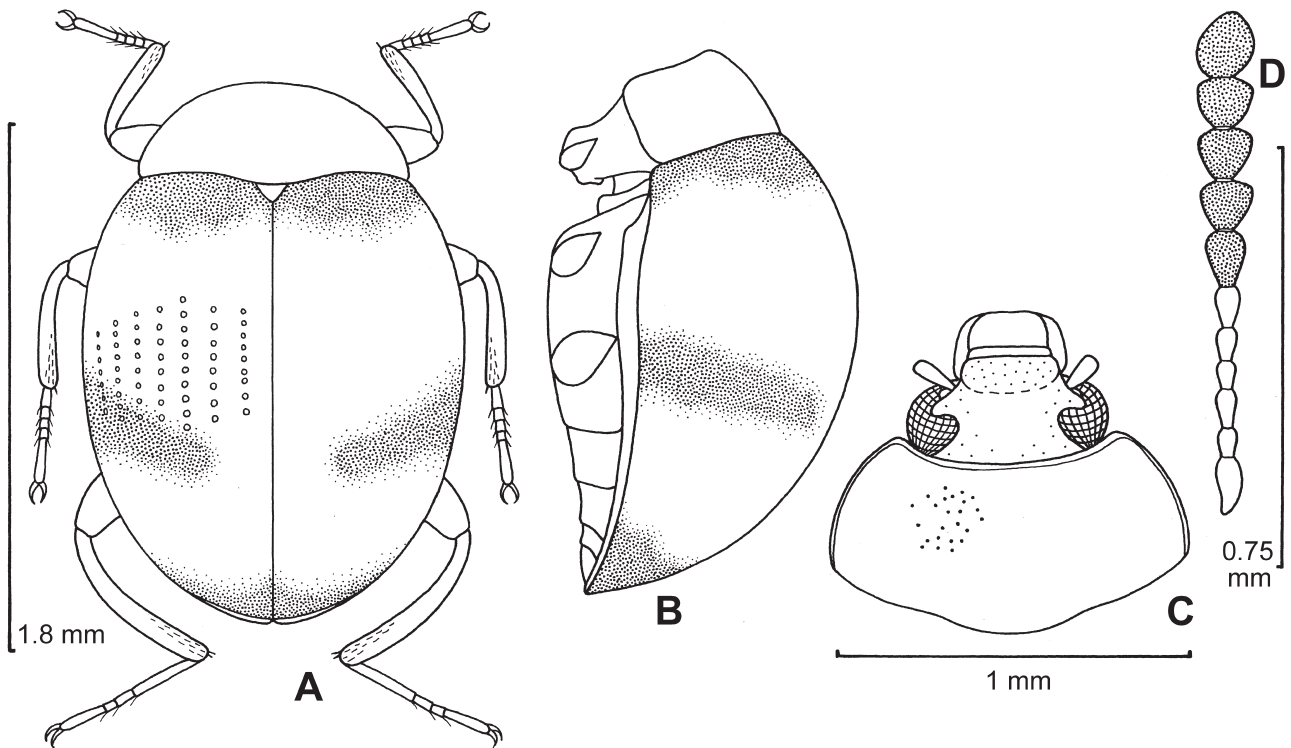


Fig. 6. *Amarygmus circaeus* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Antenna. – Black maculae on elytra and black coloured antennal segments shaded.

widened along procoxae and its lateral margins distinctly lifted and broadened; space in between with a deep median groove.

Mesosternum: Anterior margin of hind part without an excavation in the middle. Lateral margins sharply raised.

Metasternum: Anterior margin between mesocoxae rounded, broadly bordered. Disc impunctate. Median line narrowly incised over the whole length of metasternum.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, bordered; lateral parts of anterior border behind metacoxae punctured. Sternites impunctate.

Antennae: Of medium length, reaching to anterior third of elytra. Antennomeres 7–11 clearly wider than antennomeres 1–6. Relative lengths of antennomeres 1–11 as 5:1½:4:3:3:3:5:4½:4½:4:6.

Legs: Short. Femora thickened like a club towards the second third. Protibiae nearly straight. Mesotibiae slightly bent. Metatibiae clearly bent. Lengths of metatarsomeres 1–4 as 9:4:2:7.

Amarygmus comitus n. sp.
(Fig. 7A–E)

Holotype (♀): Kinabalu NP [Sabah], 6° 5' N 116° 33' E, lowland mixed Dipterocarp forest, B 11, 30.III.1998, A. FLOREN (CFI).

Etymology

Comitus (Lat.) = companion.

Diagnosis

Small, elongate oval. Elytra with distinct striae with punctures which look like small widenings of the striae; intervals with distinct, small punctures. Frons relatively narrow. Antennae of medium length. Elytra dark brown to black, very lustrous, with metallic shine; pronotum dark green; femora and tibiae brown to dark brown (the left elytron of the holotype is altered and markedly chagreened).

Because of the structure of the elytral striae and the punctuation of the intervals *A. comitus* belongs to the species group near *A. sobrinus* Bremer, 2002 (BREMER 2002: 41–42), but its elytra are much longer than in other species of this group. Concerning shape, size, length, width of frons and shape of antennae, *A. comitus* resembles *A. alces* n. sp., but *A. alces* has markedly larger punctures in the elytral striae and the lateral elytral intervals are more convex.

Description

Measurements: Body length: 4.16 mm. Body width: 2.18 mm. – **Ratios:** Pronotum: width/length 2.07; width hind corners/width front corners 1.64. Elytra: length/width

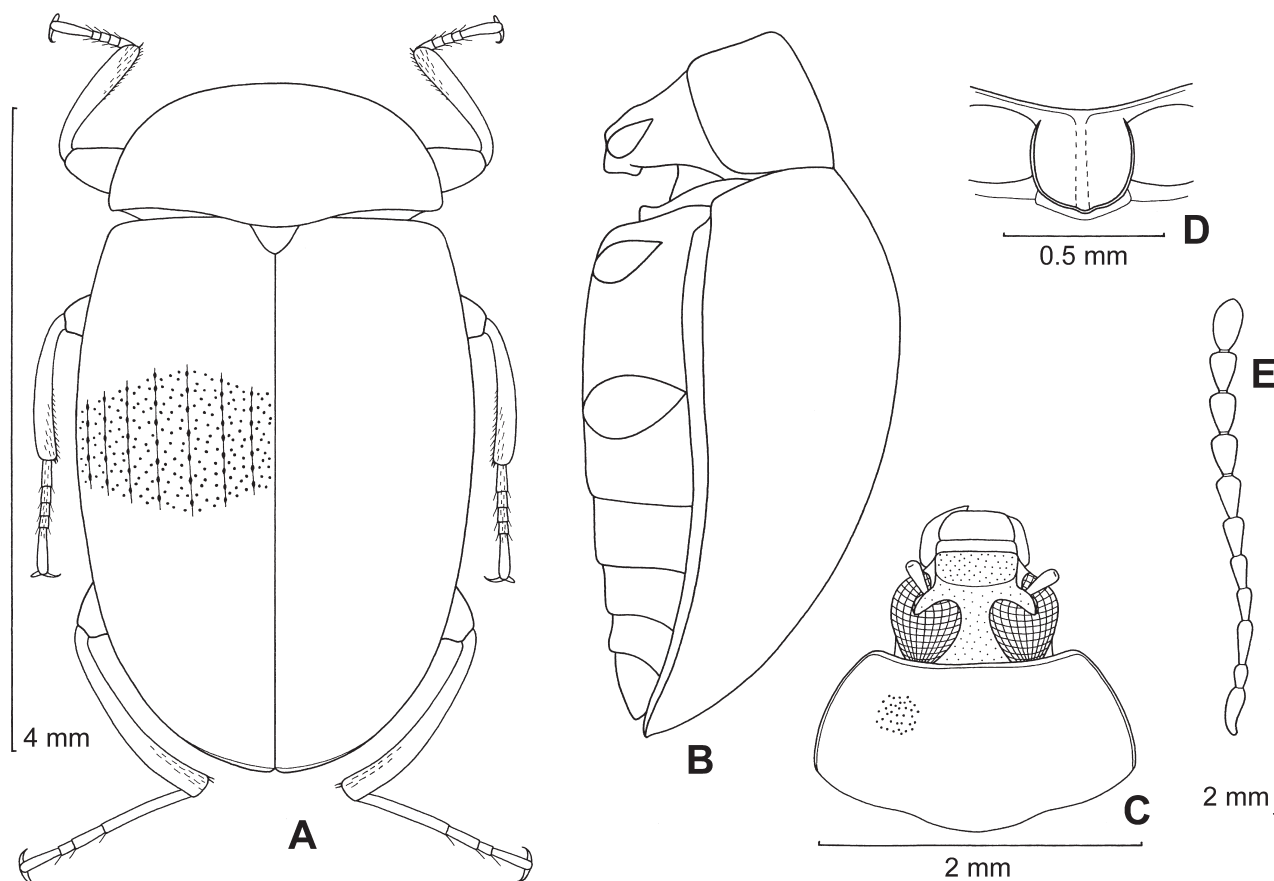


Fig. 7. *Amarygmus comitus* n. sp. – A Habitus, ♀. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna.

1.54; length elytra/length pronotum 3.74; maximum width elytra/maximum width pronotum 1.18.

Colouration: Elytra, pronotum, femora and tibiae see diagnosis above. Tarsi light brown. Antennomeres 1–4 brown, 6 dark brown, 7–11 black. Underside brown, lustrous.

Head: Frons relatively narrow, approximately as wide as length of antennomere 4, with indistinct, minute punctures. Genae very narrow, barely raised, anteriorly terminating at the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture well incised across the head. Clypeus short, barely convex, punctures as on frons. Mentum reversely trapezoidal, with flat, lustrous lateral margins; space in between moderately opaque, slightly convex transversely. Underside of neck with large, transversely arranged, very closely set punctures. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Distinctly convex transversely, less convex longitudinally. Widest at base, anteriorly narrowing and bent. Front corners rectangular; hind corners angular,

slightly obtuse. Anterior margin slightly excavated. Lateral and anterior margins bordered. Lateral borders narrowly visible in dorsal view. Front corners rounded in lateral view, slightly obtuse; hind corners moderately angular. Surface with small, distinct, relatively closely set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Elongate oval; markedly convex transversely, moderately convex longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders slightly prominent. Apices mutually rounded. Lateral edges narrowly visible in the posterior third in dorsal view. Striae distinct and with small rounded widenings; distance between them on disc in stria 4 about 3 times diameter of a widening. Intervals flat, also laterally, with small, distinct punctures.

Prosternum: Anterior margin narrowly bent upwards, with a short keel towards apophysis in the middle. Apophysis flat with a low, narrow median keel, shape as shown in Fig. 7D.

Mesosternum: Hind part short, wide; its anterior margin widely excavated in the middle, lateral margins somewhat higher than its centre.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with medium-sized, widely separated punctures which become smaller posteriorly. Median line translucent.

Sternites: Anterior margin of sternite 1 between meta-coxae oval, narrowly bordered. Sternites impunctate.

Antennae: Of medium length, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 8:4 / 6:3½ / 11:3 / 7½:3 / 8½:4 / 10:4½ / 11:6 / 12:6 / 11:6½ / 10:6½ / 14:6½.

Legs: Short. Femora thickened towards the second third. Protibiae nearly straight; mesotibiae moderately bent; metatibiae slightly bent in basal half, markedly incurved in apical half. Lengths of protarsomeres 1–5 as 3:3:3:3:13; lengths of mesotarsomeres 1–5 as 9:5:4:3½:13; lengths of metatarsomeres 1–4 as 27:9:5:12.

Amarygmus deceptus n. sp.
(Fig. 8A–H)

Holotype (♀): Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *Lithocarpus lampadarius* 31, 23.IX.2006, A. FLOREN (CFI).

Paratypes: Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *Lithocarpus* 34 spec. 1, 23.IX.2006, A. FLOREN (1 ♂ + 2 specimens, sex not determined, ZSMB).

Etymology

Deceptus (Lat.) = deception.

Diagnosis

Of medium size, elongate oval. Elytra with somewhat incised striae and small strial punctures; the intervals on disc flat to moderately convex, with minute, distinct punctures. Frons very narrow in both sexes. Antennae relatively long, obviously of same length in both sexes. Legs short, male protarsomeres not enlarged, metatarsomere 1 very long. Upperside very lustrous; elytra auburn, pronotum filthy green to somewhat darker brown than elytra; legs lighter brown than elytra; antennomeres 1–5 light brown, 6–11 dark brown. Metasternum bare in males.

A. deceptus n. sp. belongs to a group of oval species with elytral striae and a very narrow frons. For the differential diagnosis of these species – as far as they may occur on Borneo – see under *A. avunculus* n. sp.

A. benevolus n. sp. resembles *A. deceptus* in size and body shape, for the differences see under *A. benevolus*.

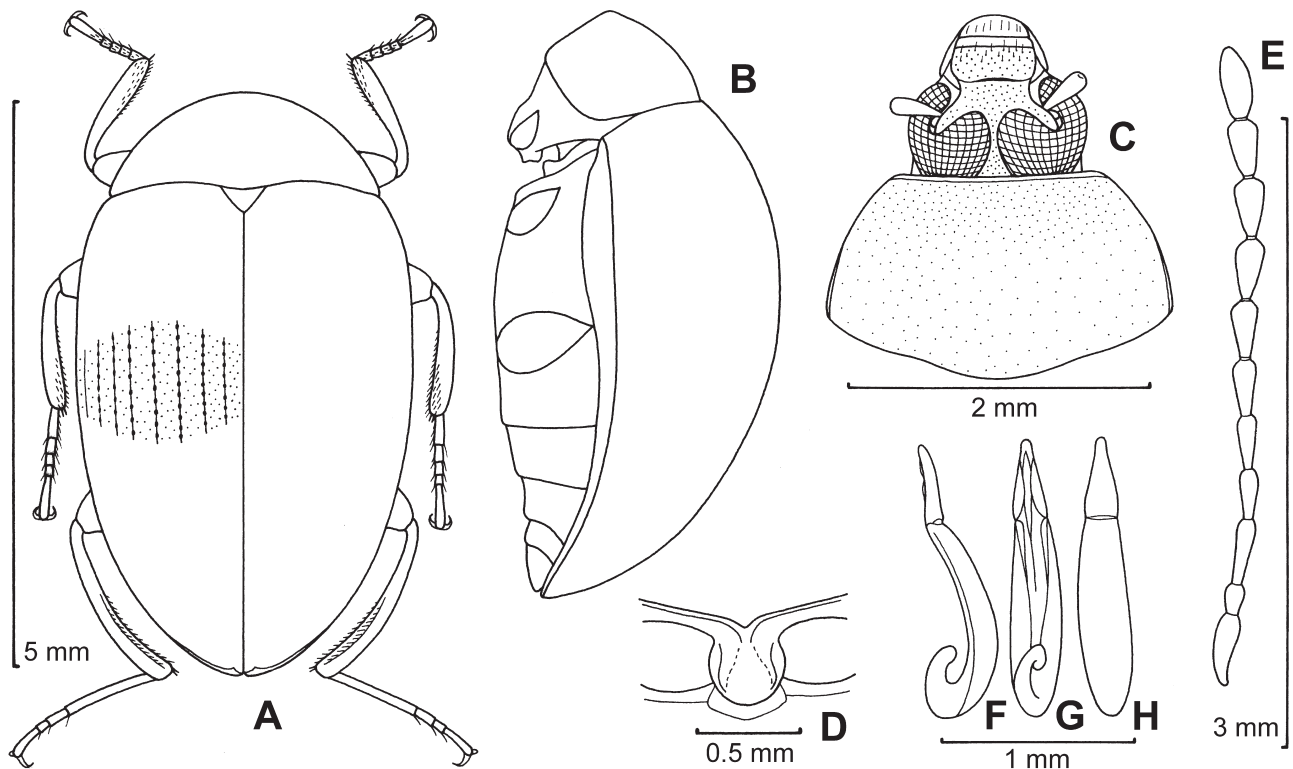


Fig. 8. *Amarygmus deceptus* n. sp. – A Habitus, ♂. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna. F Aedeagus, lateral view. G Aedeagus, ventral view. H Aedeagus, dorsal view.

A. powanus Masumoto & Makihara, 1997 (for details see BREMER 2002: 25–27 and BREMER 2009: 30) is also similar to *A. deceptus*, but the elytral intervals are more closely punctured, the elytra are wider and shorter, and the male protarsomeres 1–3 are moderately enlarged.

A. intermedius Bremer, 2011 (BREMER 2011: 223–224) has body shape, width of frons, elytral striae and colour of legs as in *A. deceptus*, but it is somewhat larger (body length 5.65–6.05 mm), the body is slightly wider, the striae punctures are larger, meso- and metatibiae are more bent, the pronotum is brightly green, and the elytra are black.

Description

Measurements: Body length: 4.94–5.02 mm. Body width: 2.72–2.96 mm. – Ratios: Pronotum: width/length 1.81–2.00; width hind corners/width front corners 1.71–1.75. Elytra: length/width 1.40–1.51; length elytra/length pronotum 3.52–3.53; maximum width elytra/maximum width pronotum 1.22–1.25.

Colouration: Upperside see diagnosis above. Underside brown, metasternum lustrous, sternites opaque.

Head: Frons as wide as two ocelli, with small, distinct, moderately closely set punctures. Genae narrow, anteriorly terminating posterior to the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture translucent. Clypeus stretched forwards, convex transversely, covered with small, irregularly set punctures. Mentum reversely trapezoidal, with slightly bent sides; lateral margins flat, lustrous, space in between moderately convex, opaque. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Relatively narrow. Convex transversely, less convex longitudinally. Widest at base, anteriorly narrowing, posterior three-fourths with straight margins, anterior fourth bent. Front corners rounded; hind corners angular, obtuse. Anterior margin nearly straight or slightly excavated. Lateral and anterior margins bordered. Lateral borders very narrowly visible on their whole length in dorsal view. Front and hind corners angular and obtuse in lateral view. Surface with minute, indistinct punctures.

Scutellum: Triangular, impunctate.

Elytra: Oblong, oval. Markedly convex transversely, less convex longitudinally. Maximum width and height anterior to the middle. Shoulders somewhat prominent. Apices mutually rounded. Lateral edges very narrowly visible near shoulders and in the apical part in dorsal view. Surface with somewhat incised striae with small, round punctures; distance of punctures on disc in row 4 about 1–2 times diameter of a puncture; about 29 punctures in row 4. Intervals on disc flat, laterally slightly convex; covered with minute, not very closely set, distinct punctures.

Prosternum: Anterior margin narrowly bent upwards, interrupted in the middle where a blunt keel extends to-

wards apophysis. Apophysis short, nearly round, lateral margin along procoxae raised, space in between with a wide, median groove; surface with a few short, semi-erect hairs.

Mesosternum: Hind part short, its anterior margin deeply excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with some small punctures, rest of disc with tiny, widely separated punctures. Median line translucent.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites impunctate. Sternite 5 posteromedially not depressed in males.

Antennae: Reaching to middle of elytra. Length/width ratio of antennomeres 1–11 in the female holotype equals to 14:5½ / 7:4½ / 16:4 / 11:4 / 13:4½ / 13:5 / 15:5½ / 15:6 / 14:6½ / 13:6½ / 18:6, of antennomeres 1–8 in male to 16:5½ / 7:5 / 17:4½ / 11:5 / 14:5 / 13:5½ / 15:6 / 15:6.

Legs: Short. Femora moderately thickened towards the second third. Protibiae straight; mesotibiae slightly bent; metatibiae straight in basal half, incurved in apical half. Lengths of male protarsomeres 1–5 as 5:5:5:5:16; lengths of mesotarsomeres 1–5 as 12:7:5:4:16; lengths of metatarsomeres 1–4 as 37:11:6:16.

Aedeagus: See Fig. 8F–H.

Amarygmus ino n. sp.

(Fig. 9A–E)

Holotype (♀): Kinabalu NP [Sabah], My, 6° 3' N 116° 55' E, *Ficus* spec. 98, 14.IX.2006, A. FLOREN (CFI).

Etymology

Ino, Ἰνώ (Greek mythology) = daughter of Kadmos and Harmónia.

Diagnosis

Small, oval, not very convex. Elytra with striae and striae punctures. Frons of medium width. Antennae of medium length. Legs short. Disc of elytra reddish brown, pronotum and lateral parts of elytra greenish blue and lustrous; legs yellowish brown.

Concerning body shape, size, and colouration of upperside, *A. ino* n. sp. is very similar to *A. cinaediae* Bremer, 2004 (BREMER 2004a: 107–109), but the striae are less incised in *A. cinaediae*, the striae punctures are more widely separated, the lateral margins of the pronotum are straight in the anterior half, and the antennae are shorter.

A. votivus Bremer, 2010 (BREMER 2010a: 252–254) has the same size and body shape as *A. ino* and the colouration of pronotum and elytra is also similar, but the elytra of *A. votivus* have puncture rows and femora and the tibiae are darker.

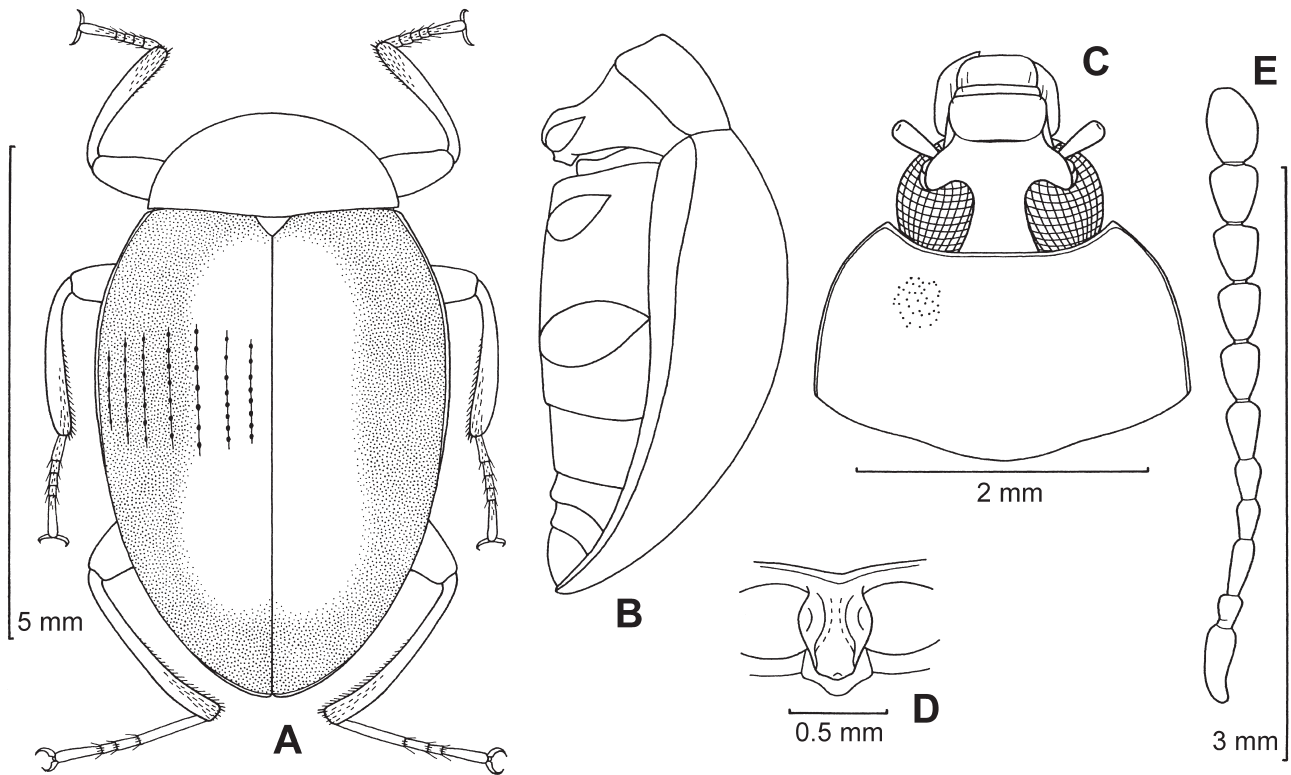


Fig. 9. *Amarygmus ino* n. sp. – A Habitus, ♀. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna.

A. affectus Bremer, 2010 (BREMER 2010a: 164–166) shows the same colouration of upperside and the same body shape as *A. ino*, but it is much smaller (body length 3.97–4.47 mm) and has rows of elytral punctures.

For differences to *A. maitlandicus* n. sp., see under this species below.

Description

Measurements: Body length: 5.41 mm. Body width: 3.27 mm. – Ratios: Pronotum: width/length 1.88; width hind corners/width front corners 1.67. Elytra: length/width 1.35; length elytra/length pronotum 3.53; maximum width elytra/maximum width pronotum 1.40.

Colouration: Frons, pronotum, elytral shoulders and lateral parts of elytra greenish blue, lustrous; disc of elytra reddish brown, moderately lustrous. Genae and clypeus brown. Underside and legs light brown, lustrous. Antennomeres 1–5 light brown, 6 brown, 7–11 black, opaque.

Head: Frons of medium width, as wide as combined length of antennomeres 3+4; with tiny, widely separated punctures. Genae clearly raised, anteriorly terminating at the level of the median part of fronto-clypeal suture. Clypeal suture moderately depressed and somewhat incised. Clypeus moderately stretched forwards, slightly

convex transversely, punctures somewhat larger and closer set than on frons. Mentum widened anteriorly, with bent, flat lateral margins and rounded transition between lateral margins and basal margin; space between lateral margins opaque, convex. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide. Slightly convex transversely and longitudinally, but areas near front corners flattened. Widest at base, anteriorly somewhat narrowing and bent. Hind corners angular, obtuse; front corners somewhat stretched forwards, nearly rectangular in dorsal view. Anterior margin clearly excavated. Lateral and anterior margins bordered. Lateral borders visible in dorsal view. Front and hind corners angular in lateral view. Front corners rectangular; hind corners obtuse. Surface with small, indistinct, relatively closely set punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, moderately convex transversely and longitudinally. Maximum width and height slightly anterior to the middle. Shoulders angular, obtuse in dorsal view, not prominent. Apices mutually rounded. Lateral edges narrowly visible in dorsal view. Surface with moderately incised striae and rhombic, medium-sized strial punctures; their distance on disc in row 4 about 1–2 times diameter of

a puncture. Intervals flat on disc, laterally slightly convex; with tiny, widely separated punctures which just become visible at 50-fold magnification.

Prosternum: Anterior margin continuously bent upwards. Apophysis elongate, moderately wide; lateral margins slightly widened along procoxae and its margins distinctly raised; space in between with a deep median groove; sides posterior to procoxae somewhat narrowing; apex rounded, with a median nose.

Mesosternum: Anterior margin of hind part excavated in the middle; lateral parts with an uneven surface.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with medium-sized, posterior part with minute punctures. Median line slightly incised.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, bordered. Disc of sternites impunctate.

Antennae: Of medium length, reaching to anterior two-fifths of elytra. Length/width ratio of antennomeres 1–11 equals to 15:6½ / 7½:6 / 12:6 / 9:6 / 9:6½ / 13:8 / 15:9 / 16:9 / 15:9 / 14:11 / 16:12.

Legs: Of medium length. Femora clavate towards the second third. Protibiae moderately bent; mesotibiae moderately bent in basal half, nearly straight in apical half, with semi-erect, hairs of medium length on inner side of apical half; metatibiae slightly bent in basal half, clearly incurved in apical half. Lengths of protarsomeres 1–5 as 7:6:5:4:16; lengths of mesotarsomeres 1–5 as 11:7:6:5:18; lengths of metatarsomeres 1–4 as 30:12:9:20.

Amarygmus maitlandicus n. sp.

(Fig. 10A–E)

Holotype (♀): Borneo, Sabah, Banjaran Maitland [= 4° 55' N 116° 37' E], So...[illegible], 22.II.1993, IVO JENIS leg. [right tibiae, left antennomeres 8–11, right antennomeres 7–11 missing] (ZSMB).

Etymology

Maitlandicus = from Banjaran [mountains] Maitland, the type locality.

Diagnosis

Of medium size, oval. Elytra with striae of rhombic, closely set punctures; disc of elytra reddish brown, lateral parts and along median suture bluish. Pronotum with a brown disc and bluish lateral and frontal parts. Frons of medium width. Legs of medium length.

A. maitlandicus n. sp. belongs to a group of species with a similar shape and colouration, like *A. ino* n. sp. and *A. cinaediae* Bremer, 2004.

Concerning body shape and colouration of upperside, *A. cinaediae* Bremer, 2004 (BREMER 2004a: 107–109) is

very similar to *A. maitlandicus*, but *A. cinaediae* is smaller (body length 5.33–5.73 mm), the striae are less incised, and the stria punctures are more widely separated.

Also *A. ino* n. sp. has a similar shape and elytral striae with rhombic punctures, but *A. ino* is smaller (body length 5.41 mm), more oval, protibiae and mesotibiae are bent, and the femora and tibiae are light brown.

Other species with a similar colouration of upperside, *A. vanus* Bremer, 2010 (BREMER 2010b: 59–60), *A. affectus* Bremer, 2010 (BREMER 2010a: 164–166), and *A. votivus* Bremer, 2010 (BREMER 2010a: 252–254), have elytral rows of punctures and not elytral striae as *A. maitlandicus*.

Description

Measurements: Body length: 6.61 mm. Body width: 3.82 mm. – Ratios: Pronotum: width/length 1.76; width hind corners/width front corners 1.80. Elytra: length/width 1.38; length elytra/length pronotum 3.22; maximum width elytra/maximum width pronotum 1.33.

Colouration: Upperside slightly lustrous. Disc of elytra and pronotum brown with a reddish tinge, lateral parts (and frontal part of pronotum) with a bluish colouration; a bluish colouration is also present on elytral interval 1. Frons with a bluish tinge, genae and clypeus brown. Femora and tibiae black, tarsi brown. Antennomeres 1–3 brown, 4–7 black. Underside dark brown.

Head: Frons of medium width, somewhat narrower than combined length of antennomeres 2 + 3 (like 25 : 27), covered with small, indistinct punctures. Lateral margins of genae clearly raised, anteriorly terminating in front of the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture arched, depressed and slightly incised. Clypeus distinctly convex longitudinally, slightly convex transversely, with small, distinct punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Convex transversely, less so longitudinally. Widest at base, anteriorly narrowing and bent, but only slightly bent in the anterior half. Hind corners angular, obtuse; front corners acute and pointed. Anterior margin excavated. Lateral and anterior margins narrowly bordered. Lateral borders visible in dorsal view. Front corners with an angle of about 85° in lateral view; hind corners angular and very obtuse. Surface impunctate.

Scutellum: Triangular, impunctate.

Elytra: Somewhat oblong, oval. Moderately convex transversely and longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders slightly prominent. Apices mutually rounded. Lateral edges narrowly visible in dorsal view. Surface with clearly incised striae and with medium-sized, rhombic stria punctures, their distance on disc approximately half diameter of a puncture; about 35 punctures in stria 4. Intervals nearly flat, impunctate.

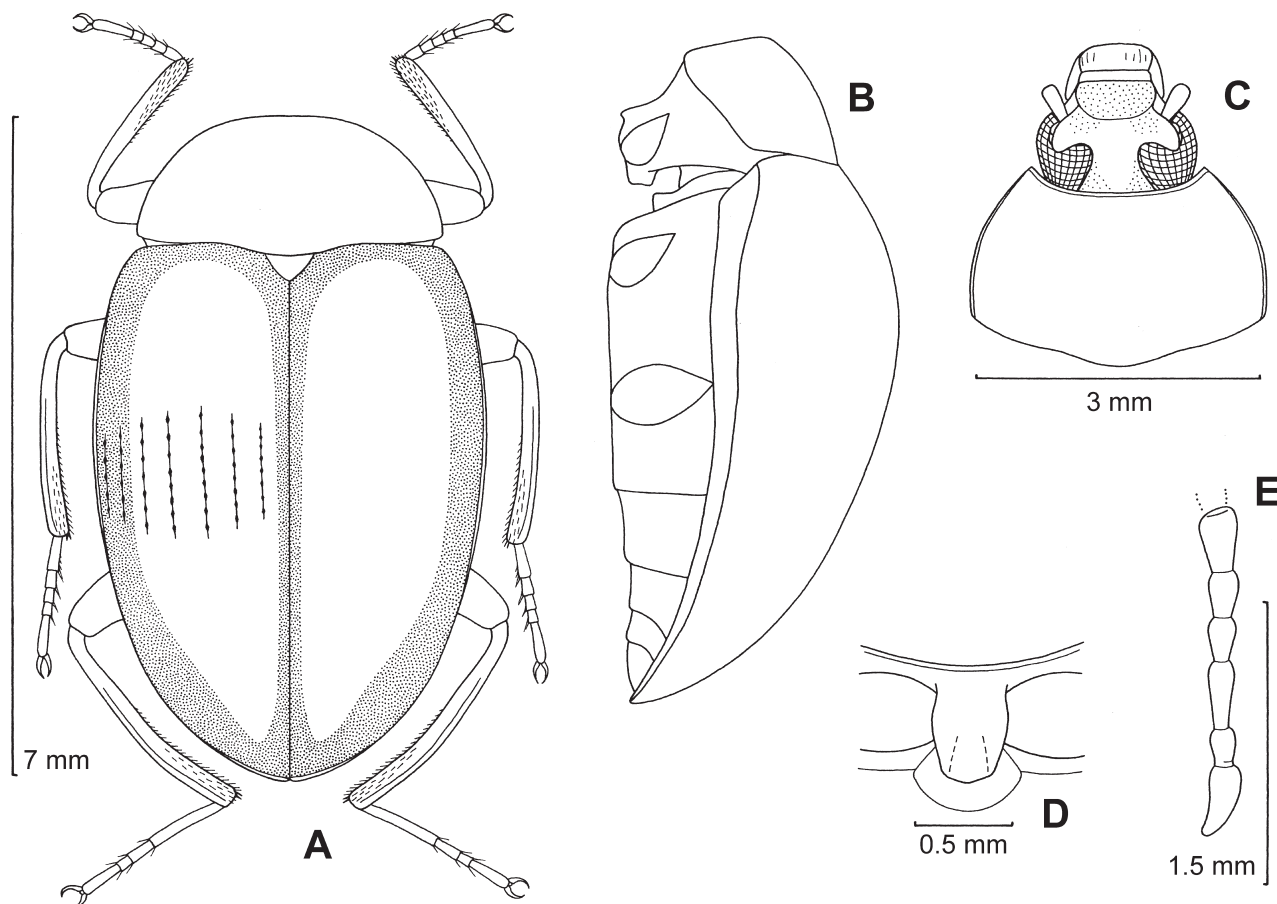


Fig. 10. *Amarygmus maitlandicus* n. sp. – **A** Habitus, ♀ (shaded parts of elytra with bluish colouration). **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

Prosternum: Anterior margin continuously bent upwards. Apophysis of medium width and length, horizontally somewhat projecting posteriorly; lateral margins along procoxae slightly widened but barely lifted upwards; space in between without a median groove; sides posterior to procoxae straight and slightly narrowing; apex widely pointed; bottom of apophysis strongly microreticulated and opaque.

Mesosternum: Hind part short, its anterior margin markedly excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, narrowly bordered. Disc with a few tiny punctures. Median line neither incised nor depressed.

Sternites: Faintly microreticulated. Anterior margin of sternite 1 between metacoxae ogival, narrowly bordered. Sternites impunctate.

Antennae: Length/width ratio of antennomeres 1–7 equals to 15:8 / 10:7 / 17:7 / 13:7 / 12:7½ / 14:9 / 16:12.

Legs: Of medium length. Femora thickened like a club towards the second third. Pro- and mesotibiae straight.

Metatibiae straight in basal half, slightly incurved in apical half. Lengths of protarsomeres 1–5 as 7:7:5:5:22; lengths of mesotarsomeres 1–5 as 17:10:6:6:21; lengths of metatarsomeres 1–4 as 38:11:8:22.

Amarygmus mendax n. sp.
(Fig. 11A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Keningau, Lux, 300 m, 26.–28.I.2010, R. GRIMM (CG).

Paratype: Kinabalu NP [Sabah], Sorinsim, SW III 40 years, Bergil [= *Vitex pinnata* (L.), Verbenaceae] 3, 6.III.1996, A. FLOREN (1 ♀ CFI).

Etymology

Mendax (Lat.) = deceiver.

Diagnosis

Of medium size, somewhat elongate oval and markedly convex transversely. Elytra with narrow striae with narrow,

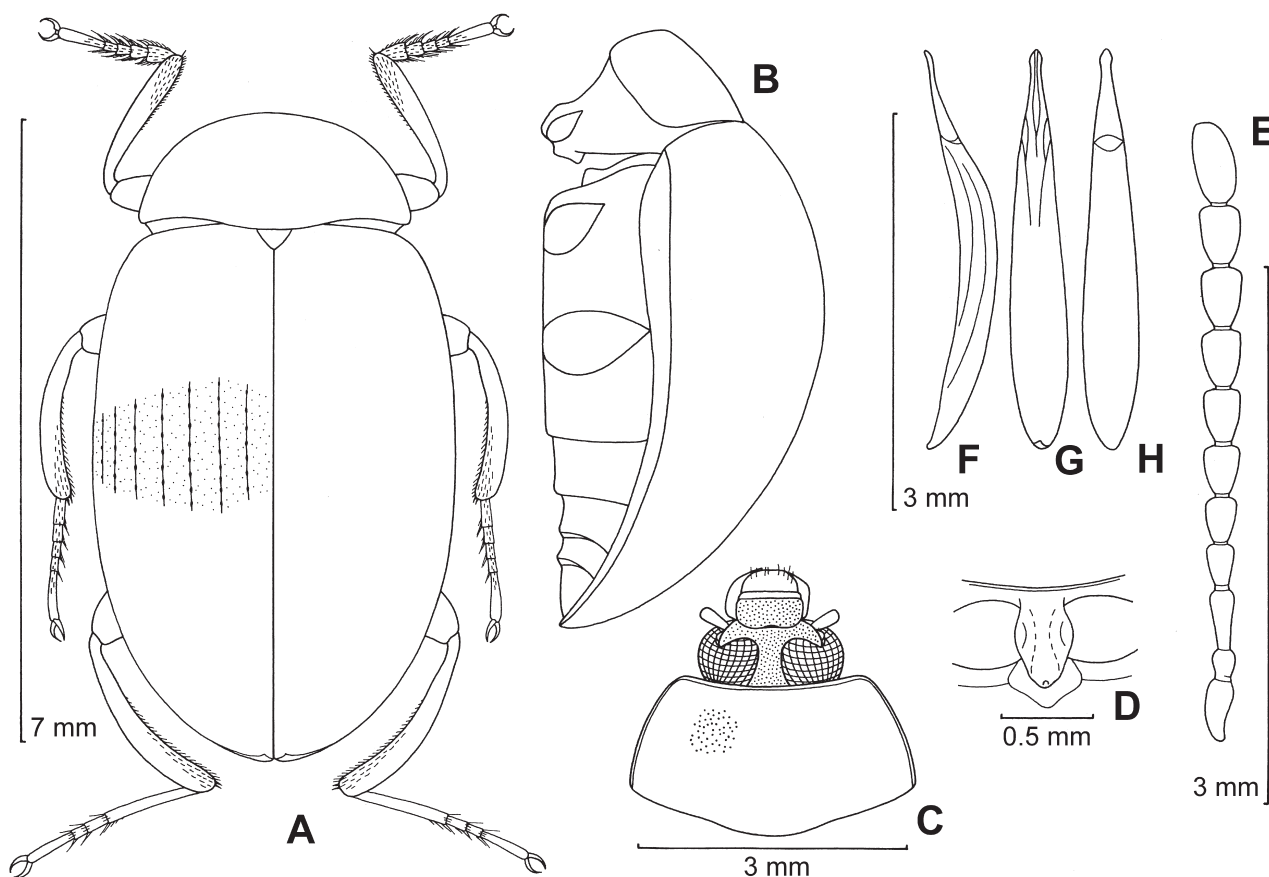


Fig. 11. *Amarygmus mendax* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

rhombic widenings; intervals flat and barely punctured. Male protarsomere 1 clearly widened and with laterally somewhat projecting hairs, protarsomeres 2 + 3 less widened. Frons not very wide. Antennae relatively short. Legs short. Sternite 5 posteromedially somewhat depressed and with semi-erect hairs of medium length in males. Upperside green, somewhat lustrous. Female paratype somewhat more stout than male holotype, its frons slightly wider.

A. mendax n. sp. resembles *A. muluensis* Bremer, 2010 (BREMER 2010a: 206–208). It has a similar shape, a similar elytral striation with rhombic widenings of the striae, and a similar colouration. However, *A. muluensis* is larger (body length 8.52 mm), and the widenings of the elytral striae are larger.

A. neotericus Bremer, 2010 from Sumatra (BREMER 2010b: 48–50) is also similar concerning shape, elytral striae, width of frons, and shape of legs. However, *A. neotericus* is slightly smaller (body length 5.89 mm), shows iridescence of different colours on the elytral intervals which have more closely set punctures, and the antennae are somewhat shorter.

A similar striation of elytra and antennae of similar length and shape are also found in *A. klossi* ssp. *purpureo-saturalis* Pic, 1951 from Java and Borneo (redescription see BREMER 2004b: 26–27, fig. 13). This taxon is clearly wider oval and somewhat larger (body length 7.70–8.93 mm) than *A. mendax*.

Description

Measurements: Body length: 6.45 + 7.17 mm. Body width: 3.74 + 4.28 mm. – Ratios: Pronotum: width/length 2.05 + 2.17; width hind corners/width front corners 1.85 + 1.95. Elytra: length/width 1.43 + 1.43; length elytra/length pronotum 3.80 + 3.94; maximum width elytra/maximum width pronotum 1.27 + 1.29.

Colouration: Upperside green, with some luster but without iridescence on elytra. Hind part of pronotum with a weak violet iridescence. Underside lustrous, brown. Femora and tibiae darker brown than underside, tarsi lighter brown.

Head: Frons not very wide, somewhat narrower than length of antennomere 3 (like 12:15), covered with

minute, closely set punctures. Lateral margins of genae slightly raised, anteriorly terminating somewhat in front of the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture very slightly incised in its middle part, but clearly depressed; genae and clypeus forming a semi-circle. Clypeus moderately stretched forwards, covered with small, closely set punctures. Mentum anteriorly widened, with bent sides and rounded transition between sides and base; lateral margins flat, lustrous, space in between somewhat lustrous, convex transversely. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide, moderately convex transversely, slightly convex longitudinally. Widest at base. Anteriorly narrowing, nearly straight in the posterior three-fifths, bent in the anterior two-fifths. Hind corners angular, obtuse; front corners widely rounded. Anterior margin somewhat excavated. Lateral and anterior margins continuously bordered. Lateral borders narrowly visible in dorsal view. Front corners narrowly rounded and obtuse in lateral view; hind corners angular, obtuse. Surface with small, moderately closely set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Slightly elongate oval. Markedly convex transversely, moderately convex longitudinally. Maximum height at the beginning of the second third, maximum width near the middle. Shoulders somewhat prominent. Apices mutually rounded. Lateral edges very narrowly visible in dorsal view. Surface with narrow, somewhat incised striae in which narrow, rhombic widenings represent indistinct punctures. Intervals flat, with tiny, not very closely set punctures which become visible at 50-fold magnification.

Prosternum: Anterior margin continuously and narrowly bent upwards, not narrowing towards apophysis in the middle. Apophysis oval; lateral margins along procoxae slightly lifted; space in between with a shallow median groove.

Mesosternum: Hind part narrow and slightly raised ventrad; median part smooth. Anterior margin of hind part somewhat excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, faintly bordered. Metasternum with a few tiny punctures. Median line neither incised nor depressed.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, narrowly bordered. Inner rim of anterior border behind metacoxae punctured. Sternites 1–4 impunctate. Male sternite 5 posteromedially somewhat depressed and covered with semi-erect hairs of median length.

Antennae: Not very long, reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 14:7 / 9:6 / 15:6 / 11:6½ / 12:8 / 12:9 / 13:9½ / 14:10 / 14:10 / 13:10 / 21:11.

Legs: Short. Femora thickened towards the second third. Protibiae nearly straight, thickened anteriorly. Meso- and metatibiae bent. Lengths of protarsomeres 1–5 as

7:7:6:5:22; lengths of mesotarsomeres 1–5 as 12:10:7:7:24; lengths of metatarsomeres 1–4 as 42:12:9:26.

Aedeagus: See Fig. 11F–H.

Amarygmus mnester **n. sp.**
(Fig. 12A–E)

Holotype (♀): Kinabalu NP [Sabah], My, 6° 3' N 116° 55' E, *Ficus* spec. 98, 14.IX.2006, A. FLOREN (CFI).

Etymology

Mnester (Greek/Lat.) = suitor.

Diagnosis

Of medium size. Frons relatively wide. Antennae of medium length. Elytra very long with mucro-like apices, narrow striae and small strial punctures. Upperside very lustrous and iridescent, elytra brown, pronotum dark green.

A. assessorius Bremer, 2010 (BREMER 2010a: 166–168) and *A. neglectus* Bremer, 2011 (BREMER 2011: 233–235), both from Sabah, have approximately the same body shape. However, both species possess elytral rows of punctures, they are larger (body length of *A. assessorius* 6.85 mm, of *A. neglectus* 7.84 mm), and they do not have mucro-like elytral apices.

Description

Measurements: Body length: 6.01 mm. Body width: 3.03 mm. – **Ratios:** Pronotum: width/length 2.00; width hind corners/width front corners 1.67. Elytra: length/width 1.74; length elytra/length pronotum 4.40; maximum width elytra/maximum width pronotum 1.27.

Colouration: Upperside very lustrous, with a marked iridescence. Elytra brown, metallic, pronotum and head dark green, nearly black. Femora and tibiae dark brown, tarsi light brown. Antennomeres 1–5 light brown, 6 dark brown, 7–11 black (apical half of antennomere 11 brightened). Underside brown.

Head: Frons nearly as wide as combined length of antennomeres 3+4, with tiny, distant punctures. Genae barely raised and scarcely separable from frons, anteriorly terminating at the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture slightly incised. Clypeus moderately stretched forwards, flat, with tiny, distant punctures. Mentum reversely trapezoidal, with flat, lustrous lateral margins; space in between less lustrous, slightly convex transversely. Underside of neck with large, closely set punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Relatively narrow, convex transversely, somewhat less convex longitudinally. Widest at base, anteriorly narrowing and bent. Front and hind corners angular, obtuse, hind corners more obtuse than front corners. An-

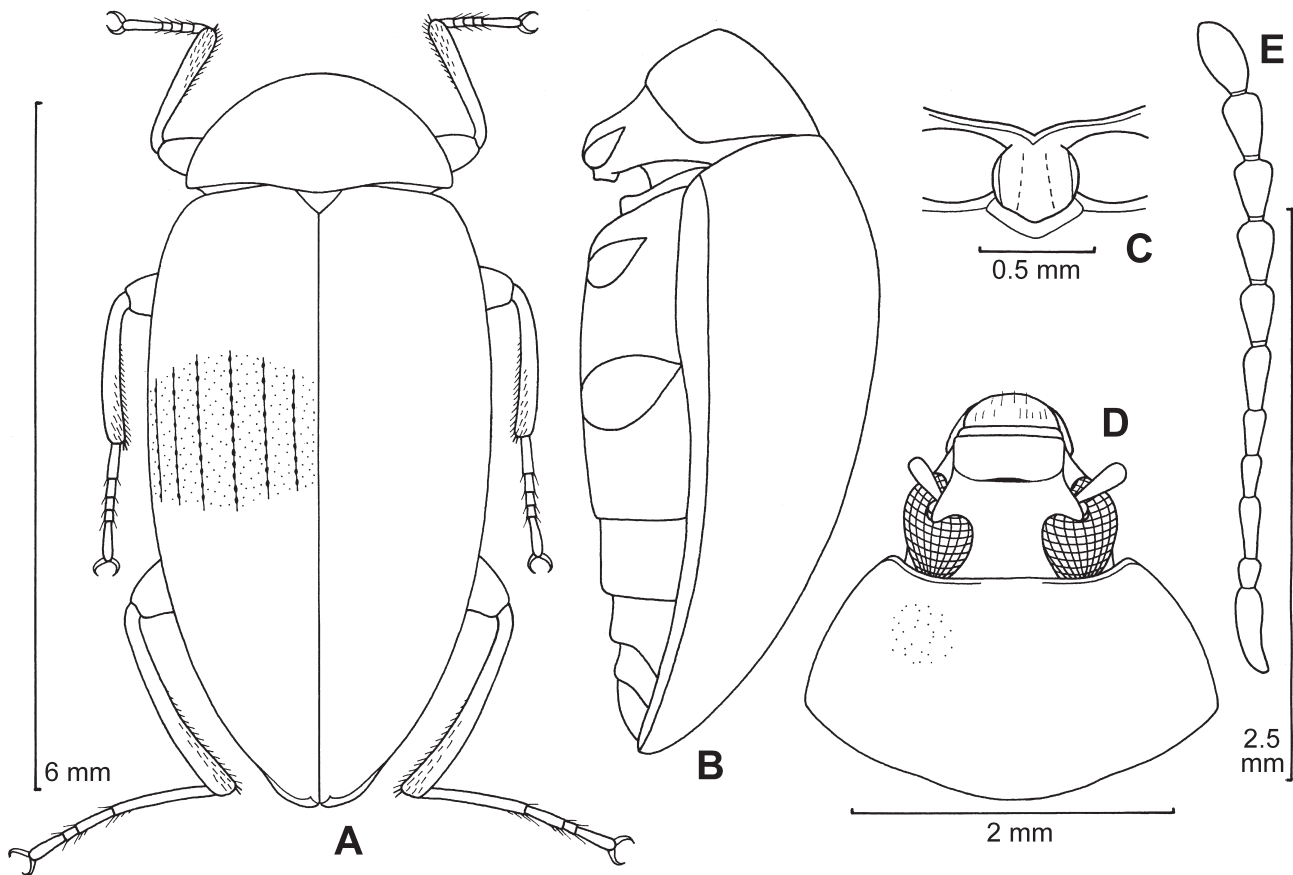


Fig. 12. *Amarygmus mnester* n. sp. – A Habitus, ♀. B Body, lateral view. C Prosternal apophysis. D Head and pronotum. E Antenna.

anterior margin nearly straight. Lateral and anterior margins bordered, but border of anterior margin weakened in the middle. Lateral borders barely visible in dorsal view. Front corners nearly rectangular and slightly rounded in lateral view; hind corners angular and more obtuse. Surface with tiny, indistinct punctures.

Scutellum: Triangular, impunctate.

Elytra: Elongate oval, apices somewhat mucro-like stretched backwards. Convex transversely, moderately convex longitudinally. Maximum width and height slightly anterior to the middle. Shoulders rounded. Lateral edges narrowly visible in the posterior third in dorsal view. Surface with faintly incised striae, with small, elongate, relatively closely set widenings as puncture equivalents. Intervals on disc flat, posterolaterally slightly convex, with tiny, indistinct punctures.

Prosternum: Anterior margin narrowly bent upwards, this border widely interrupted in the middle. Apophysis short, laterally rounded, and lateral margins slightly lifted; space in between with a shallow, wide median groove;

apex widely pointed; surface uneven because of its punctured bottom.

Mesosternum: Anterior margin of hind part with a shallow median excavation.

Metasternum: Anterior margin between mesocoxae rounded, faintly bordered, circumventing a somewhat lifted bump of the anterior apophysis. Disc with tiny, distant punctures. Median line translucent.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites less lustrous than metasternum, with minute, indistinct punctures.

Antennae: Reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 18:5 / 7:4 / 13:4 / 10:4 / 10:4½ / 12:6 / 13:6½ / 14:7 / 13:7 / 13:7 / 17:8.

Legs: Short. Femora thickened like a club towards the second third. Protibiae straight; mesotibiae slightly bent; metatibiae straight in basal half, slightly incurved in apical half. Lengths of protarsomeres 1–5 as 4:4:4:3:16; lengths of mesotarsomeres 1–5 as 15:8:5:4:16; lengths of metatarsomeres 1–4 as 39:16:6:18.

Amarygmus naidis n. sp.

(Fig. 13A–H)

Holotype (♂): Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 30–210 m, 30.XI.–5. XII.2010, R. GRIMM (CG).

Etymology

Naïis, gen. naïdis = nymph of water and spring.

Diagnosis

Small, elongate oval. Elytra with faint striae which connect medium-sized, distinct punctures; intervals on disc flat, laterally somewhat convex, with minute, distinct, not very closely set punctures. Pronotum short. Frons relatively narrow; clypeus situated on a lower level than frons. Antennae of medium length. Male protibiae somewhat bent and thickened, male meso- and metafemora with short, projecting hairs on the back, male protarsomeres 1–3 not widened. Upperside dark green, very lustrous, with some transversal bands of iridescence.

By size, body shape, punctuation of elytra, and length and shape of antennae, *A. naidis* belongs to the species group around *A. proventus* Bremer, 2002 (see BREMER 2002: 33–35).

Concerning the somewhat bent male protibiae and the shape of meso- and metatibiae it especially looks like *A. proventus*. However, the frons of *A. naidis* is clearly narrower than that of *A. proventus*, and the elytra are somewhat narrower.

A. abditus Bremer, 2007 (BREMER 2007: 3–6) has the male protibiae less distinctly bent as in *A. naidis*, it is smaller (body length 3.04–3.13 mm), and the elytra are shorter.

The following small species with elytral striae also have a narrow frons: *A. subtilis* Bremer, 2001 from South Sumatra (BREMER 2001: 99, fig. 7), *A. miser* Bremer, 2011 from Borneo and Peninsular Malaysia (BREMER 2011: 229–231), *A. invenustus* Bremer, 2011 from lowland rain forest of Sabah (BREMER 2011: 224–226), *A. singulus* Bremer, 2010 from Sabah (BREMER 2010a: 235–237), and *A. urbanus* Bremer, 2010 from Sarawak and Sabah (BREMER 2010a: 239–241).

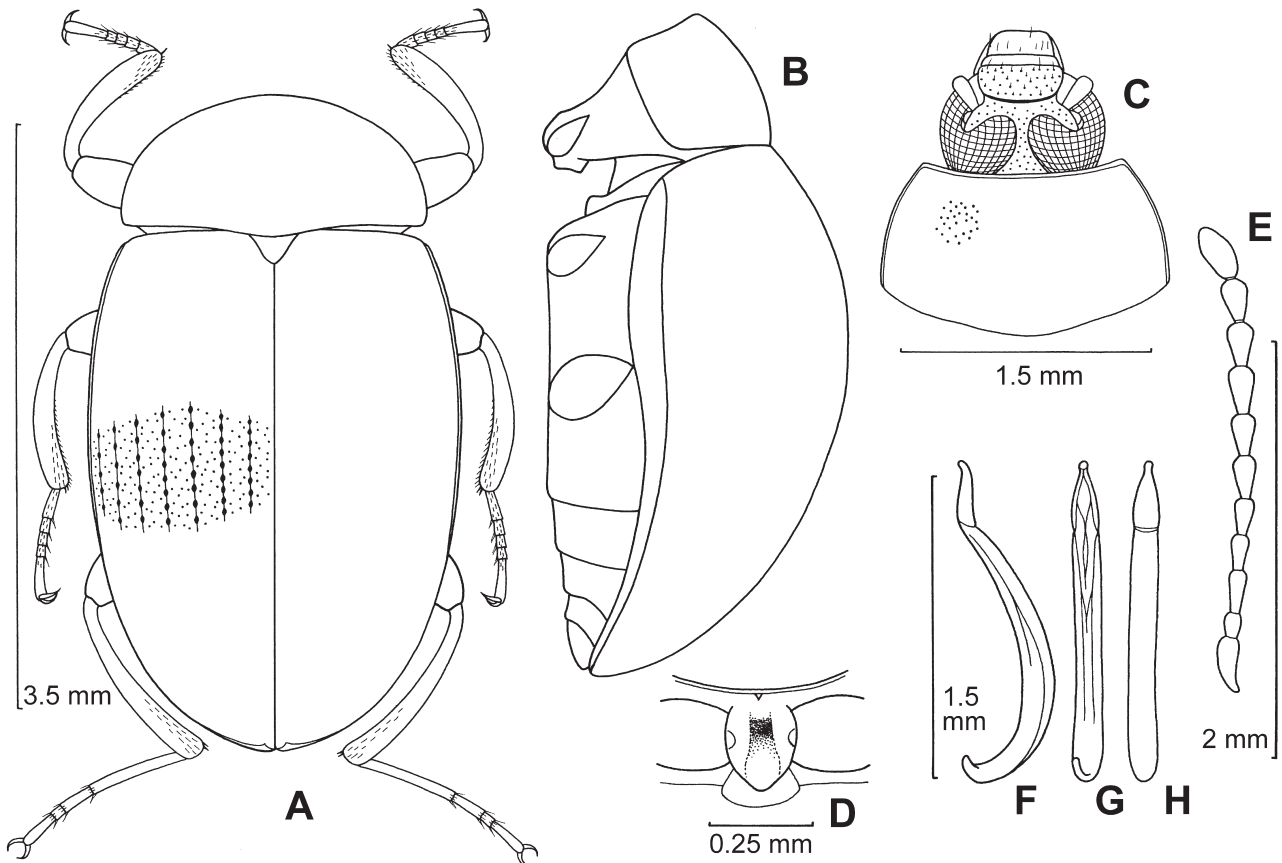


Fig. 13. *Amarygmus naidis* n. sp. – A Habitus, ♂. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna. F Aedeagus, lateral view. G Aedeagus, ventral view. H Aedeagus, dorsal view.

A. subtilis has a narrower frons than *A. naidis*, the male protibiae are less bent, the pronotum is less closely punctured, and the maximum elytral width is more anteriorly situated.

A. miser has approximately the same antennal length and the same shape of head (especially the level of frons and clypeus) as *A. naidis*, but it is somewhat smaller (body length 3.00–3.26 mm), less lustrous, and the maximum elytral width is situated clearly more anterior to that of *A. naidis*.

A. invenustus has approximately the same size (body length 3.70 mm), however, the elytral striae are more incised, the punctures of the elytral striae are barely visible, the maximum elytral width is situated more anterior to that of *A. naidis*, and the antennae are shorter.

A. singulus has a more oval elytral shape with a maximum width anterior to that of *A. naidis*, the elytra are shorter, and the elytral striae have smaller punctures.

A. urbanus is slightly smaller than *A. naidis* (body length 3.00–3.38 mm), the maximum elytral width is situated in front of that of *A. naidis*, the punctures of the elytral striae are smaller, the upperside is less lustrous, frons and clypeus are at the same level, the antennae are shorter, and the male protibiae are not bent and widened.

Description

Measurements: Body length: 3.65 mm. Body width: 2.10 mm. – Ratios: Pronotum: width/length 1.87; width hind corners/width front corners 1.69. Elytra: length/width 1.44; length elytra/length pronotum 3.39; maximum width elytra/maximum width pronotum 1.26.

Colouration: Upperside dark green, lustrous, with transverse bands of iridescence. Underside brown, lustrous. Femora and tibiae dark brown, tarsi lighter brown. Antennomeres 1–4 brown, 5 dark brown, 6–11 black.

Head: Frons relatively narrow, with small, relatively closely set punctures. Genae moderately narrow, anteriorly terminating at the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture somewhat depressed. Clypeus situated on a lower level than frons, moderately stretched forwards, slightly convex transversely, with small, distinct, closely set punctures. Mentum reversely trapezoidal, with flat, lustrous lateral margins; space in between opaque, slightly convex transversely. Underside of neck with large, shallow, transversely arranged, closely set punctures. Outer surface of mandibles with a longitudinal sulcus, apically bifid.

Pronotum: Not very wide. Markedly convex transversely, moderately convex longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners angular, obtuse; front corners angular, slightly obtuse. Anterior margin slightly excavated. Lateral and anterior margins bordered. Lateral borders narrowly visible in dorsal view. Front and

hind corners angular in lateral view. Front corners with an angle of about 100°; hind corners more obtuse. Surface with distinct punctures of medium size.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Somewhat elongate oval. Distinctly convex transversely, moderately convex longitudinally. Maximum width and height approximately in the middle. Shoulders slightly prominent. Apices mutually rounded. Lateral edges very narrowly visible in dorsal view. Surface with slightly incised striae with distinct, medium-sized, slightly rhombic punctures; distance between punctures on disc approximately 1–2 times diameter of a puncture; about 30 punctures in row 4. Intervals with minute, not very closely set punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards, with a short keel towards apophysis in the middle. Apophysis oval, somewhat horizontally projecting posteriorly; lateral margins along procoxae shortly lifted like a button; space in between with a wide, opaque, median groove.

Mesosternum: Hind part short, its anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with some medium-sized, distinct punctures which are the origin of recumbent hairs of medium length; punctures becoming smaller posteriorly. Median line translucent.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Rim on inner side of border punctured, also laterally. Disc of sternites with tiny, distant punctures which are the origin of tiny, recumbent hairs.

Antennae: Reaching to anterior two-fifths of elytra. Length/width ratio of antennomeres 1–11 equals to 9:4 / 9:5 / 7:3½ / 11:3 / 8:3½ / 9:4½ / 9:5 / 10:5½ / 10:5½ / 9½:5½ / 14:5½.

Legs: Short. Femora thickened towards the second third. Male protibiae clearly bent and thickened; meso- and metatibiae markedly bent. Lengths of protarsomeres 1–5 as 3:3:3:3:13; lengths of mesotarsomeres 1–5 as 11:4½:3:3:13; lengths of metatarsomeres 1–4 as 22:9:5:12.

Aedeagus: See Fig. 13F–H.

Amarygmus quantulus n. sp.

(Fig. 14A–E)

Holotype (♀): Sabah, Poring Spring, *Aporusa* sp., lower montane > 650 m, mixed Dipterocarp fst. [= forest], Fog. A72/F1, 23.III.1993, A. FLOREN (CFI).

Paratype: Same data as holotype [head missing] (1 ♀ ZSMB).

Etymology

Quantulus (Lat.) = surprisingly small or large.

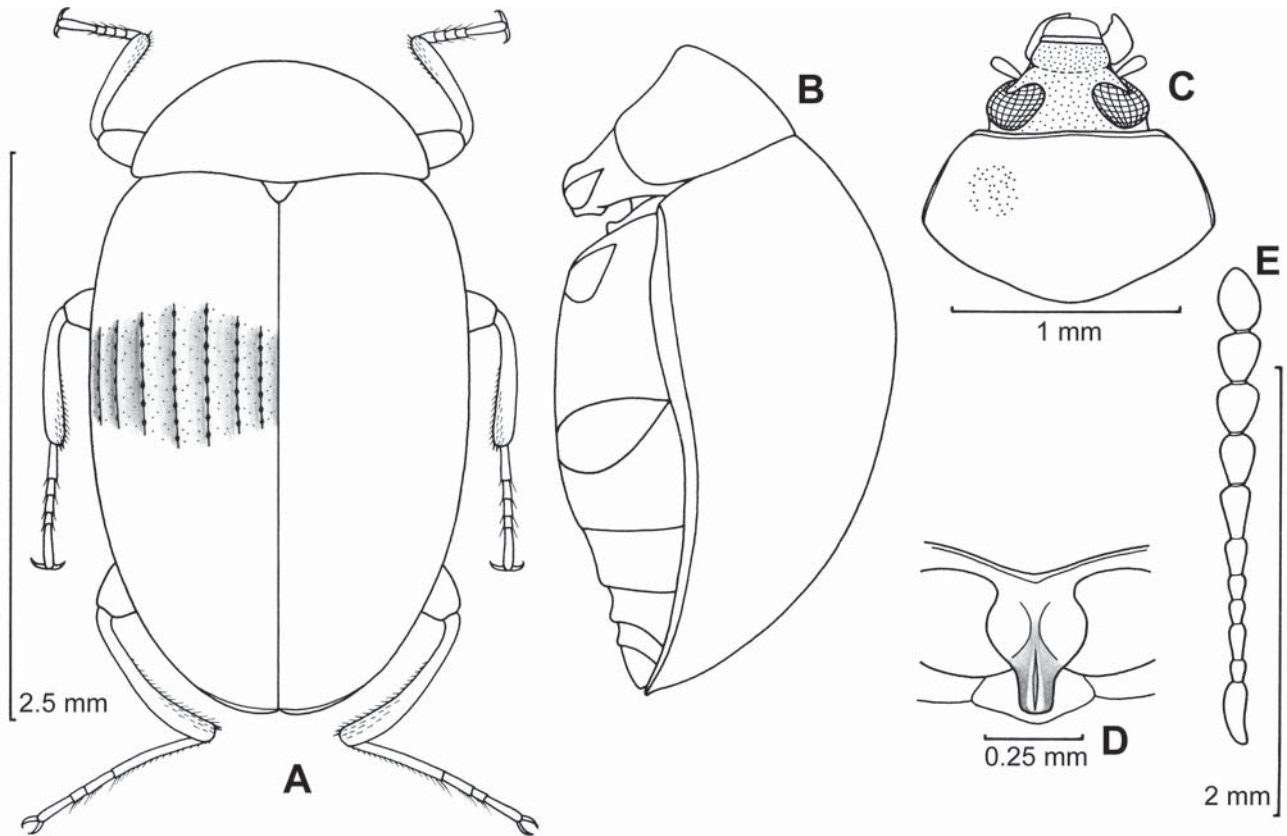


Fig. 14. *Amarygmus quantulus* n. sp. – A Habitus, ♀. B Body, lateral view. C Prosternal apophysis. D Head and pronotum. E Antenna.

Diagnosis

Tiny, ovate. Elytra with not very deeply incised striae which connect round, small punctures; intervals nearly flat, with a few minute punctures. Frons not very wide. Antennae short. Upperside uniformly dark coppery, legs light brown.

Concerning size, shape of body and legs, elytral striae and colouration, *A. quantulus* is similar to *A. fraterculus* Bremer, 2002 from Borneo and Sumatra (BREMER 2002: 23–25), but *A. fraterculus* has a brownish interval 1 on the elytra, the punctures of the elytral rows are larger, the pronotal punctures are much coarser, and the antennae are longer.

Another very similar species is *A. astutus* Bremer, 2011 from Sarawak (BREMER 2011: 201–202). This species also has uniformly dark coppery coloured elytra and light brown legs, and shows about the same size and shape as *A. quantulus*. However, the punctures of the elytral striae of *A. astutus* are somewhat larger, the pronotal punctures are coarser, the mesotibiae are more bent, and the prosternal apophysis is of different shape.

Description

Measurements: Body length: 2.65 + 2.76 mm. Body width: 1.58 + 1.65 mm. – Ratios: Pronotum: width/length 1.88 + 1.97; width hind corners/width front corners 1.62 + 1.67. Elytra: length/width 1.40 + 1.44; length elytra/length pronotum 3.53 + 3.70; maximum width elytra/maximum width pronotum 1.31 + 1.35.

Colouration: Elytra and pronotum uniformly dark coppery, moderately lustrous; frons greenish, genae and clypeus dark coppery; underside and legs light brown, lustrous; antennomeres 1–5 yellow, 6 brown, 7–11 black.

Head: Frons of medium width, as wide as combined length of antennomeres 3 + 4, somewhat microreticulated, with a few minute punctures. Genae narrow, anteriorly terminating at the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture slightly incised. Clypeus moderately stretched forwards, with some tiny punctures. Mandibles with a longitudinal groove on outer surface, apically bifid.

Pronotum: Markedly convex transversely, moderately convex longitudinally. Widest at base, anteriorly narrow-

ing and bent. Hind corners angular, obtuse; front corners also angular but not as sharply angular as hind corners, very obtuse in dorsal view. Anterior margin straight. Lateral and anterior margins continuously bordered. Lateral borders very narrowly visible in the posterior half in dorsal view. Front corners widely rounded in lateral view; hind corners moderately angular, obtuse. Surface with minute, indistinct, widely separated punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, markedly convex transversely, moderately convex longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders somewhat prominent. Apices mutually rounded. Lateral edges narrowly visible in the posterior third in dorsal view. Surface with slightly incised striae with round punctures of medium size; their distance on disc in stria 4 about $1\frac{1}{2}$ –2 times diameter of a puncture; about 24 punctures in stria 4. Intervals on disc nearly flat, laterally slightly convex; with a few minute punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards, slightly narrowing towards apophysis in the middle. Apophysis small. Lateral margins along procoxae clearly widened and raised like a button, space in between with a deep median groove; sides posterior to procoxae somewhat narrowing, lateral margins situated on a deeper level than the centre; apically with a lifted median nose.

Mesosternum: Surface of hind part rough; its anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior half with small, widely separated punctures. Median line neither incised nor depressed, only translucent.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. With a few small punctures just behind the anterior margin of sternite 1, additionally a few punctures on sternite 5, otherwise impunctate.

Antennae: Relatively short, reaching to anterior fourth of elytra. Relative lengths of antennomeres 1–11 as $7:3\frac{1}{2}:5:3:3:3:6:6:6:8\frac{1}{2}$.

Legs: Short. Femora thickened like a club towards the second third. Pro- and mesotibiae slightly bent, metatibiae markedly bent. Lengths of metatarsomeres 1–4 as $17:7:3:9$.

Amarygmus sappirus n. sp.

(Fig. 15A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Gunung Emas, 1400 m, 4.II.2006, R. GRIMM (CG).

Etymology

Sappirus (Lat.) = sapphire.

Diagnosis

Small, oval, highly convex. Elytra with rows of medium-sized punctures. Frons not very wide. Antennae of medium length. Protibiae slightly bent; meso- and metatibiae moderately bent; male protarsomeres 1–3 not widened. Upperside clearly lustrous, elytra blue with a slight violet tinge and iridescence in lateral view, pronotum blue with yellow to red iridescence, femora and tibiae black.

Concerning size, bluish colour of upperside, and punctation of elytra, *A. sappirus* n. sp. is similar to *A. adelphus* Bremer, 2011 from Kalimantan (BREMER 2011: 194–195), however, the maximum elytral width of *A. adelphus* is near to the middle, the colour of the upperside is greenish blue, the frons is distinctly narrower, the penultimate antennomeres are somewhat longer, and the hindlegs are somewhat shorter.

A. sappirus n. sp. also resembles *A. delicatulus* Bremer, 2010 from lowlands of Sabah (BREMER 2010a: 182–184) in size, colouration, lustre, and rows of elytral punctures, but the frons of *A. delicatulus* is narrower, the punctures of the elytral rows are more widely separated, the maximum elytral width is situated in the middle, and the iridescence of the upperside is stronger.

Description

Measurements: Body length: 5.33 mm. Body width: 3.35 mm. – Ratios: Pronotum: width/length 1.91; width hind corners/width front corners 1.97. Elytra: length/width 1.33; length elytra/length pronotum 3.26; maximum width elytra/maximum width pronotum 1.28.

Colouration: Upperside, femora and tibiae see diagnosis above. Tarsi brown. Antennomeres black except antennomere 2 which is brown. Underside brown, lustrous.

Head: Frons not very wide, narrower than length of antennomere 3 (like 13 : 16), with small, not very widely separated punctures. Genae short, anteriorly terminating somewhat behind the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture arched, incised. Clypeus moderately stretched forwards, situated slightly below the level of frons, convex transversely, punctures as on frons. Mentum widened anteriorly, with flat, bent lateral margins and a rounded transition between lateral margins and apex; space between lateral margins lustrous, somewhat convex transversely, anterior margin deeply excavated. Underside of neck with large, transversely fused punctures. Mandibles with a sulcus on outer surface, apically bifid.

Pronotum: Regularly convex transversely and longitudinally. Maximum width at base, anteriorly narrowing and bent. Hind corners angular, obtuse; front corners widely rounded. Anterior margin slightly excavated. Lateral and anterior margins bordered. Lateral borders very narrowly visible in dorsal view. Front and hind corners obtuse in lateral view. Front corners widely rounded;

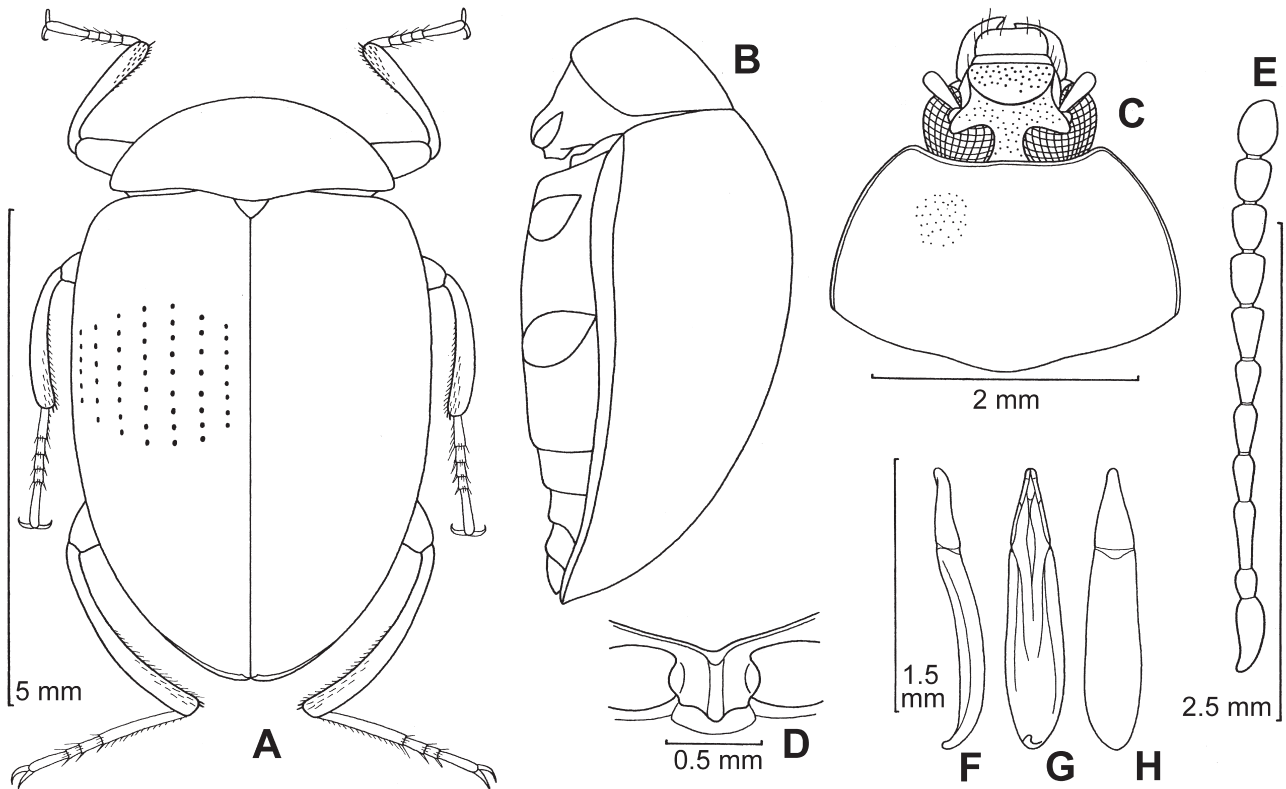


Fig. 15. *Amarygmus sappirus* n. sp. – A Habitus, ♂. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna. F Aedeagus, lateral view. G Aedeagus, ventral view. H Aedeagus, dorsal view.

hind corners angular. Surface with minute, widely separated punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Oval. Markedly convex transversely, somewhat less convex longitudinally. Maximum width and height at the end of the anterior third. Shoulders somewhat prominent. Apices mutually rounded. Lateral edges narrowly visible near apex in dorsal view. Surface with rows of medium-sized punctures which taper near apex, their distance on disc in row 4 about 2–4 times diameter of a puncture; about 23 punctures in row 4. Intervals flat, with widely separated, tiny punctures which just become visible at 50-times magnification.

Prosternum: Anterior margin narrowly bent upwards, interrupted by a short, blunt keel in the middle. Apophysis short, wide, shortly projecting posteriorly beyond procoxae; a median groove is barely present at the level of procoxae.

Mesosternum: Hind part short, nearly rectangular; its anterior margin slightly excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of metasternum with small, widely separated punctures, hind part with minute, widely separated punctures. Median line neither incised nor depressed.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites impunctate.

Antennae: Reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 17:6½ / 8:5½ / 16:5 / 11:5½ / 11:5½ / 10:5½ / 12:7 / 12:7½ / 11:8 / 11:8 / 15:8½.

Legs: Of medium length. Femora thickened like a club towards the second third. Shape of tibiae see diagnosis above, mesotibiae with hairs of medium length on inner side in apical half. Lengths of protarsomeres 1–5 as 6:6:5:5:19; lengths of mesotarsomeres 1–5 as 12:8:6:6:20; lengths of metatarsomeres 1–4 as 33:12:6:19.

Aedeagus: See Fig. 15F–H.

Amarygmus semele n. sp.
(Fig. 16A–G)

Holotype (♂): MK [= Mt. Kinabalu, Sabah] Monggis [= Biological Station at 200 m], My, 6° 13' N 116° 44' E, *Lithocarpus* spec. 128, 23.IX.2006, A. FLOREN [antennomeres 11 missing] (CFI).

Paratypes: Same data as holotype (1 specimen CFI, 1 specimen ZSMB, sex not determined).

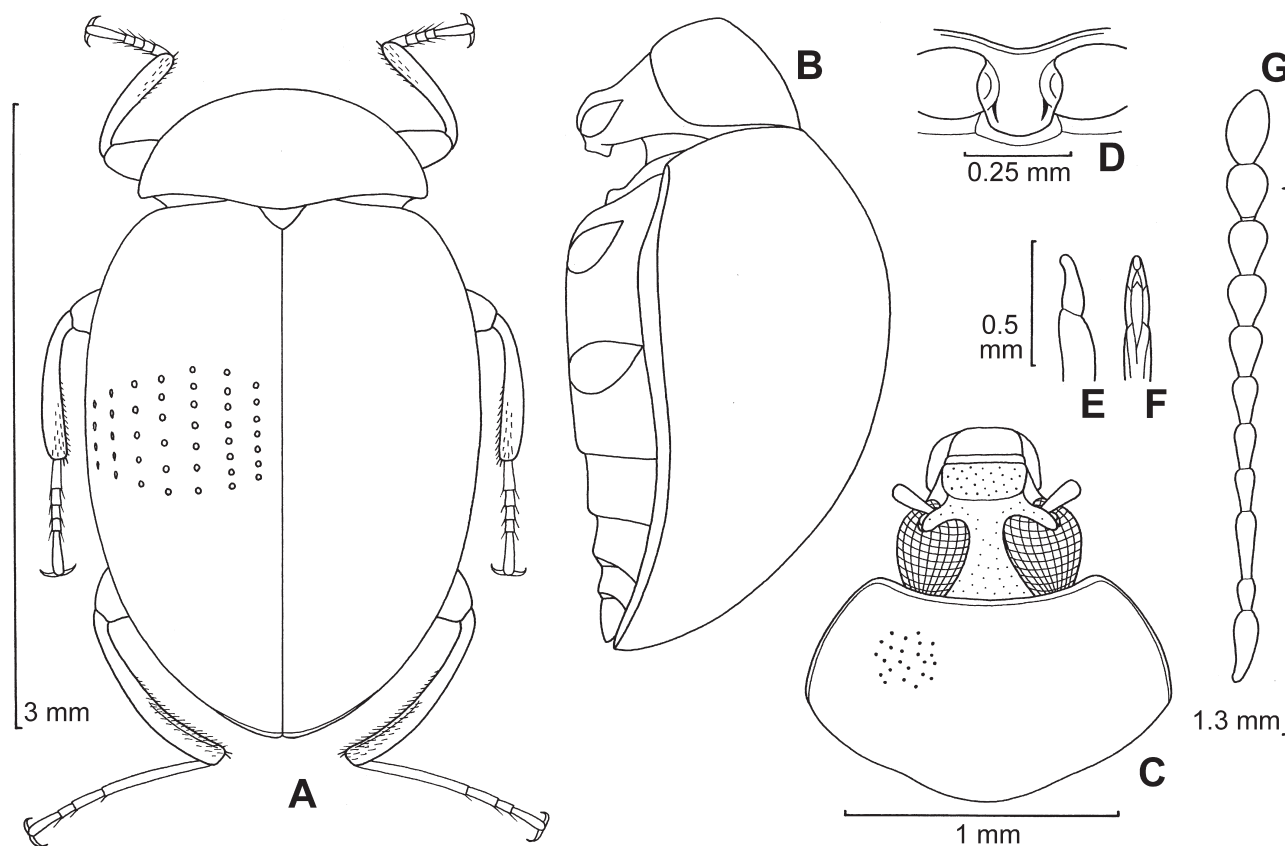


Fig. 16. *Amarygmus semele* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Aedeagus, lateral view. **F** Aedeagus, ventral view. **G** Antenna.

Etymology

Semele, Σεμέλη (Greek mythology) = daughter of Kadmos and Harmónia.

Diagnosis

Tiny, ovate. Characterized by yellow elytra and brown pronotum. Elytra with rows of medium-sized punctures and flat intervals. Frons relatively narrow; fronto-clypeal suture narrowly incised. Antennae of medium length; antennomere 11 brightened in the apical half. Legs short, metatibiae markedly bent; male protarsomeres 1–3 not widened.

Concerning colouration and body shape, *A. semele* n. sp. is very similar to *A. pallidior* Bremer, 2011 (BREMER 2011: 236–238) and to *A. apicicornis* n. sp.

A. pallidior is slightly smaller than *A. semele* (body length: 2.53 mm) and its fronto-clypeal suture is markedly deeper and broader incised.

A. apicicornis is also smaller than *A. semele* (body length 2.49 mm), has – like *A. pallidior* – a deep, groove-like fronto-clypeal suture, and its antennomere 11 is uniformly yellow.

Description

Measurements: Body length: 2.68–2.88 mm. Body width: 1.71–1.75 mm. – Ratios: Pronotum: width/length 1.97–2.16; width hind corners/width front corners 1.70–1.76. Elytra: length/width 1.33–1.36; length elytra/length pronotum 3.61–3.80; maximum width elytra/maximum width pronotum 1.29–1.38.

Colouration: Elytra yellow, pronotum and upperside of head brown, lustrous. Underside light brown, lustrous. Legs light brown. Antennomeres 1–5 yellow, 6 brown, 7–11 black (antennomere 11 brightened in its apical half).

Head: Frons relatively narrow, with tiny, well separated punctures. Genae narrow, barely raised, anteriorly terminating at the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture narrowly incised. Clypeus moderately stretched forwards, nearly flat, with widely separated, tiny punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide, short. Moderately convex transversely, slightly convex longitudinally. Widest at base. Anteriorly narrowing, with straight lateral margins in the posterior half, bent in the anterior half. Hind corners an-

gular, obtuse; front corners rounded and obtuse in dorsal view (not well visible in dorsal view because depressed ventrad). Anterior margin straight. Lateral and anterior margins bordered. Lateral borders narrowly visible in the posterior half only in dorsal view. Front and hind corners angular in lateral view. Front corners with an angle of about 100°; hind corners more obtuse. Surface with small, coarse, widely separated punctures.

Scutellum: Triangular, impunctate.

Elytra: Ovate. Maximum width and height at the end of the anterior third; markedly convex transversely, moderately convex longitudinally. Shoulders rounded, obtuse. Apices mutually rounded. Lateral edges not visible in dorsal view. Surface with rows of medium-sized punctures which are situated in some distance to each other and are partially connected by faint lines; about 24 punctures in row 4. Intervals flat, with tiny, but distinct, well separated punctures.

Prosternum: Anterior margin narrowly bent upwards, slightly narrowing towards apophysis in the middle. Apophysis moderately wide, oval; maximum width somewhat behind procoxae; lateral margins along procoxae raised, space in between with a wide median groove.

Mesosternum: Hind part short; its lateral margins somewhat lifted ventrad.

Metasternum: Lustrous. Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with widely separated, small punctures, posterior part with widely separated minute punctures. Median line neither incised nor depressed.

Sternites: Lustrous. Anterior margin of sternite 1 between metacoxae ogival, faintly bordered. Sternites 1–3 with widely separated, small punctures and recumbent tiny hairs. Sternite 4 impunctate. Sternite 5 with a shallow transverse impression.

Antennae: Of medium length, reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 7:4 / 5:2½ / 7:2 / 5:2 / 4½:2½ / 4½:3 / 5:4 / 6:4 / 6:4½ / 6:4½ / 8:5.

Legs: Short. Femora thickened like a club towards the second third. Protibiae slightly bent; mesotibiae moderately bent; metatibiae markedly bent. Metatarsomeres thin. Lengths of protarsomeres 1–5 as 2:2:2:2:10; lengths of mesotarsomeres 1–5 as 6:4:3:3:9½; lengths of metatarsomeres 1–4 as 20:6:3:10.

Aedeagus: See Fig. 16E, F.

Amarygmus seminolus n. sp.

(Fig. 17A–E)

H o l o t y p e (♀): Sabah, Umg. [environs] Kudat, Bäume am Strand, nachts, auf der Baumrinde [trees near beach, at night, on the bark of a tree], 16.II.2006, ULF BREMER leg. (ZSMB).

Paratypes: Borneo, Malaysia, Sabah, Kudat, Bak Bak, 14.–16.II.2006, R. GRIMM (1 ♀ + 2 specimens, sex not determined CG). – Pulau Gaya [island in front of Kota Kinabalu, Sabah], My, 6° 00' 85.6" N 116° 01' 22.8" E, *Elaeoca pendunculatus* 27, 22.VIII.2009, A. FLOREN (1 CFI). – Pulau Gaya, My, 6° 00' 85.6" N 116° 01' 22.8" E, *Elaeoca pendunculatus* 27, 22.VIII.2009, A. FLOREN (1 ♂ CFI).

Etymology

Seminolus (Lat.) = like a small plant seed.

Diagnosis

Tiny, elongate oval, markedly convex transversely. Elytra with well incised striae and small, closely set strial punctures; intervals closely punctured. Eyes nearly touching each other on frons. Antennae of medium length, in males slightly longer than in females. Legs short, mesotibiae nearly straight, metatibiae markedly bent. Upperside uniformly black (including elytral interval 1); antennomeres 4–11 black.

Concerning size, elytral structure, length of antennae and shape of legs, *A. seminolus* n. sp. is very close to *A. sobrinus* Bremer, 2002 (BREMER 2002: 41–42), but *A. sobrinus* has a brownish interval 1 and a brown scutellum, the pronotal base is mostly brownish, the frons is somewhat wider, and the elytra are somewhat shorter.

Concerning the uniformly coloured elytra, *A. seminolus* is also similar to *A. tawauensis* n. sp., but the mesotibiae of the latter species are markedly bent, the elytral striae are less incised, the punctures of the elytral striae are larger and less closely set, the elytral intervals are less closely punctured, the frons is slightly wider, antennomeres 4–11 are yellowish brown, and the lateral pronotal margins are uniformly bent on the whole length.

Description

Measurements: Body length: 3.00–3.24 mm. Body width: 1.75–1.87 mm. – Ratios: Pronotum: width/length 1.79–2.03; width hind corners/width front corners 1.45–1.59. Elytra: length/width 1.41–1.54; length elytra/length pronotum 3.55–3.83; maximum width elytra/maximum width pronotum 1.28–1.36.

Colouration: Upperside anthracite coloured, markedly microreticulated; femora brown, tibiae nearly black except their apical part which is brown; tarsi brown; antennomeres 1–3 brown, 4–11 black. Underside brown, lustrous.

Head: Frons very narrow, minimum width diameter of an ocellus; posterior part with small, not very closely set punctures. Genae very narrow, not raised. Fronto-clypeal suture neither incised nor depressed. Clypeus very short, impunctate. Mentum reversely trapezoidal, with flat, lustrous lateral margins; space in between opaque, convex

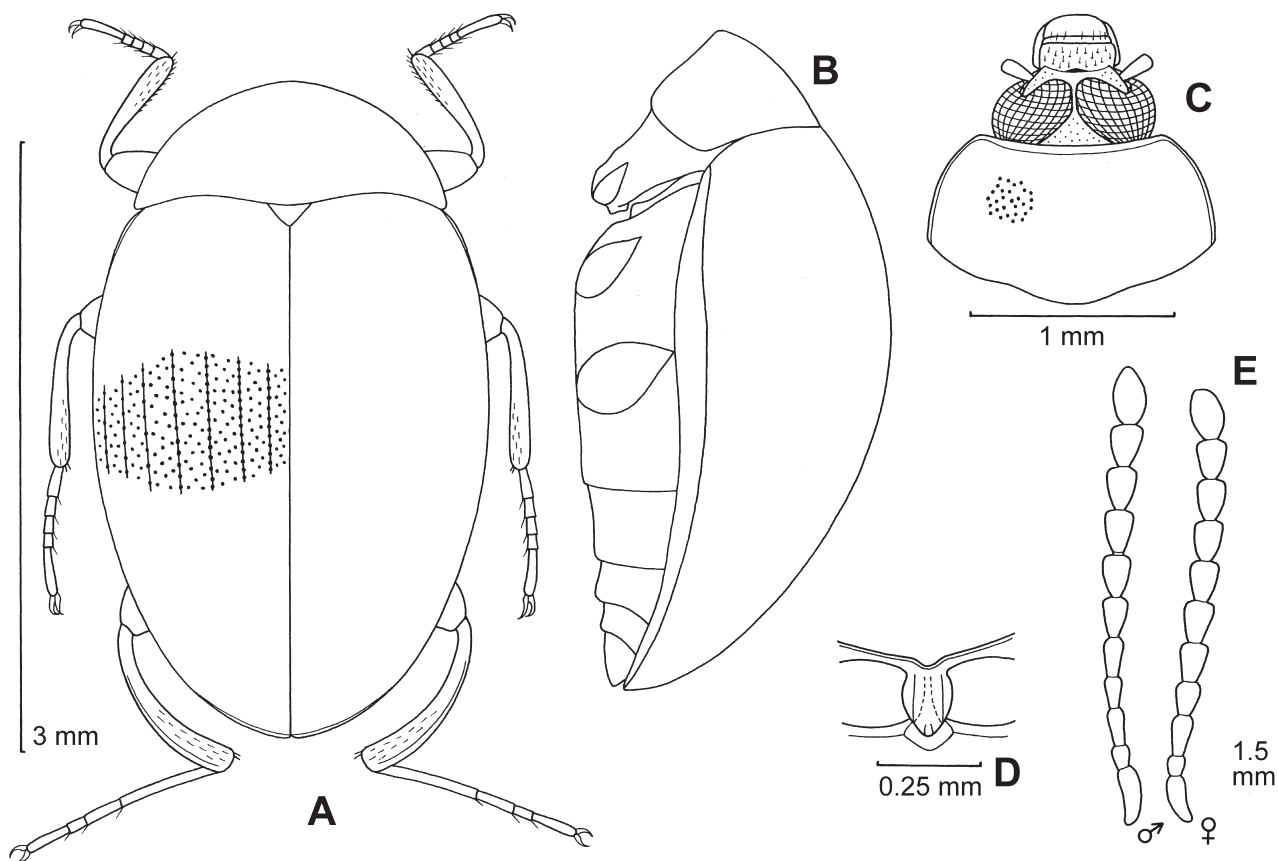


Fig. 17. *Amarygmus seminolus* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀.

transversely. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Narrow, short. Markedly convex transversely, less convex longitudinally. Widest at base, narrowing anteriorly with nearly straight margins. Hind corners angular, obtuse; front corners widely rounded. Anterior margin straight. Lateral and anterior margins bordered. Lateral borders narrowly visible in dorsal view. Front and hind corners obtuse in lateral view. Front corners rounded; hind corners angular. Surface with small, relatively closely set punctures on a microreticulated ground.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Elongate oval. Distinctly convex transversely, moderately convex longitudinally. Maximum width and height shortly anterior to the middle. Shoulders not prominent. Apices mutually rounded. Lateral edges barely visible in dorsal view. Surface with incised striae with small, round, closely set punctures; distance between punctures on disc usually less than diameter of a puncture. Intervals on disc flat, laterally somewhat convex, covered with distinct, relatively closely set punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards, narrowing towards apophysis in the middle, forming an obtuse angle. Apophysis narrowly oval; lateral margins along procoxae lifted upwards, space in between with a deep median groove; apical tip slightly lifted.

Mesosternum: Hind part narrowing towards base; anterior margin distinctly excavated in the middle.

Metasternum: Anterior margin between mesocoxae narrowly rounded, bordered. Disc impunctate.

Sternites: Anterior margin of sternite 1 between metacoxae narrowly ogival, bordered; inner rim of this border with small, closely set punctures. Sternites impunctate. Sternite 5 posteromedially not depressed in males.

Antennae: Of medium length, reaching to anterior third of elytra in males, to anterior fourth in females. Length/width ratio of antennomeres 1–11 in male equals to $8:3\frac{1}{2} / 5\frac{1}{2}:3 / 6:2\frac{1}{2} / 6:2\frac{1}{2} / 7:3 / 7:3 / 7:3\frac{1}{2} / 7:4 / 7:4\frac{1}{2} / 7:4\frac{1}{2} / 10:4\frac{1}{2}$.

Legs: Short. Femora somewhat thickened like a club towards the second third. Protibiae straight on outer side,

slightly thickened in apical half on inner side. Mesotibiae slightly bent. Metatibiae markedly bent and thickened anteriorly. Lengths of protarsomeres 1–5 as 2:2:2:2:8; lengths of mesotarsomeres 1–5 as 7:4:3:2:8; lengths of metatarsomeres 1–4 as 20:7:4½:9.

Amarygmus tawauensis n. sp.
(Fig. 18A–H)

Holotype (♀): Tawau Hills [Sabah], My, 4° 24' 35.1" N 117° 53' 52.3" E, *Microcos antidesmifolia* 60, 6.IX.2009, A. FLOREN (CFI).

Paratype: Tawau Hills [Sabah], My, 4° 24' 33.0" N 117° 53' 52.5" E, *Aporosa acuminatissima* 58, 6.IX.2009, A. FLOREN (1 ♂ ZSMB). – MK [= Mt. Kinabalu, Sabah] Monggis [= Biological Station at 200 m], My, 6° 13' N 116° 44' E, *Lithocarpus* spec. 128, 23.IX.2006, A. FLOREN (1 ZSMB, immature). – Kinabalu NP [Sabah], My, 6° 3' N 116° 55' E, *Ficus* spec. 98, 14.IX.2006, A. FLOREN (1 ♂ CFI) (immature).

Etymology

Tawauensis, derived from Tawau, the name of the type locality.

Diagnosis

Tiny, oval. Frons very narrow, about as wide as an ocellus in male, about as two ocelli in female. Elytra with moderately incised striae on disc and with small strial punctures; intervals with minute, not closely set punctures. Pronotum wide, short. Antennae of medium length, shorter in females than in males. Male protarsomeres 1–3 slightly widened. Legs short; male protibiae nearly straight in apical half on outer side, moderately thickened in apical half on inner side; meso- and metatibiae markedly bent. Upper side lustrous, barely microreticulated; along elytral suture without brightening.

A. tawauensis is very similar to *A. sarawakensis* Bremer, 2010 from Sarawak and the Malayan Peninsula (BREMER 2010a: 233–235), to *A. sobrinus* Bremer, 2002, from Sabah, the Malayan Peninsula and South India (BREMER 2002: 41–42), and to *A. seminolus* n. sp. from Sabah.

A. sarawakensis resembles the new species *A. tawauensis* in shape of body and legs, elytral striae and colouration, but *A. sarawakensis* is larger (body length: 3.22–3.70 mm) and its prosternal apophysis is more elongate.

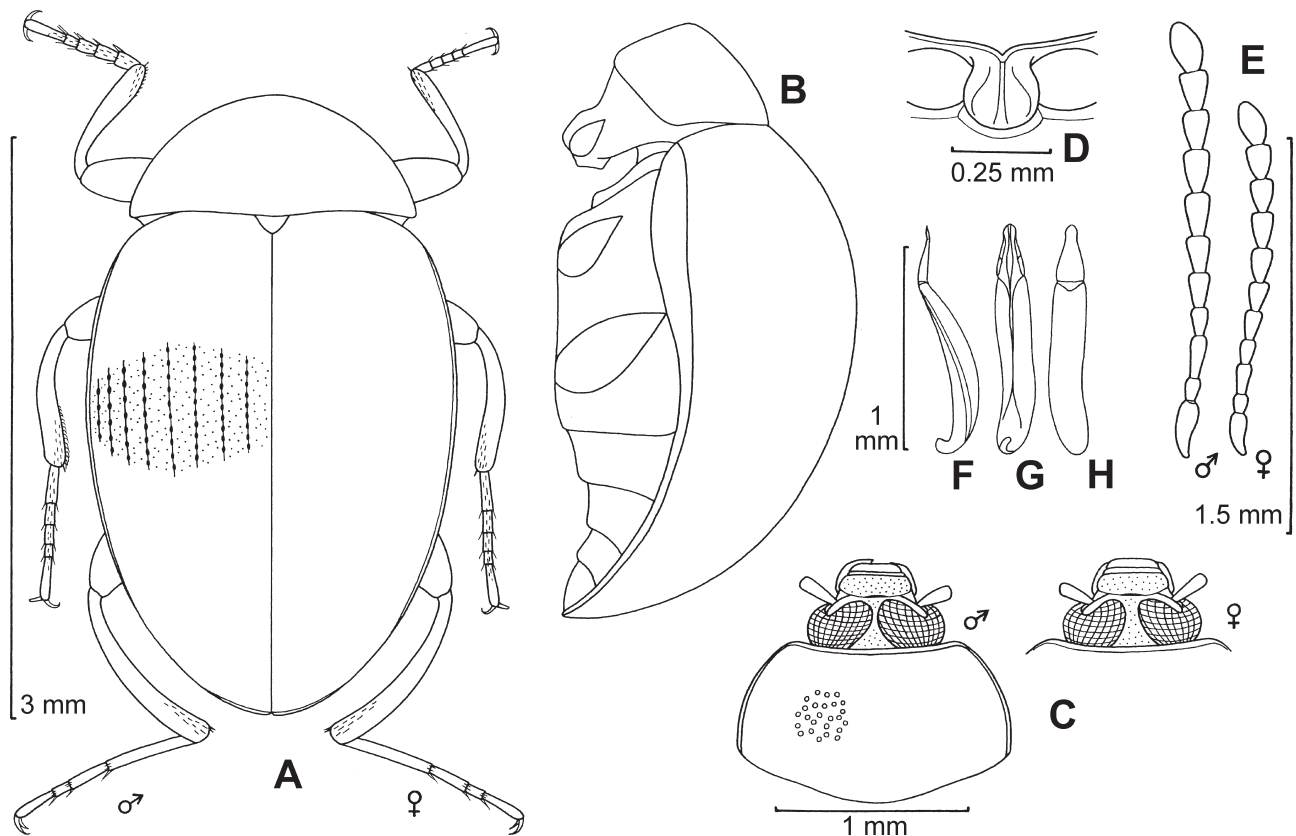


Fig. 18. *Amarygmus tawauensis* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum, left ♂, right ♀. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

A. sobrinus is similar to *A. tawauensis* concerning size (body length 2.55–3.05 mm), body shape, shape of legs including the slight widening of male protarsomeres 1–3, and width of frons. However, in *A. sobrinus* the upperside is strongly microreticulated, the elytral striae are markedly and narrowly incised with small punctures, the elytral intervals are more strongly punctured, a median keel on the prosternal apophysis is lacking, the metasternum is impunctate and without long hairs in males, and the intervals along the elytral suture show a brownish brightening.

For differences to *A. seminolus* n. sp. see diagnosis above under this species.

Description

Measurements: Body length: 2.65–2.99 mm. Body width: 1.60–1.82 mm. – Ratios: Pronotum: width/length 1.93–2.03; width hind corners/width front corners 1.73–1.78. Elytra: length/width 1.31–1.35; length elytra/length pronotum 3.49–3.52; maximum width elytra/maximum width pronotum 1.29–1.35.

Colouration: Upperside dark brown with metallic tinge, lustrous. Legs and antennae yellowish brown. Underside brown, lustrous.

Head: Frons very narrow, with small, coarse, moderately closely set punctures. Genae very narrow, barely raised, anteriorly terminating at the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture situated just in front of anterior margin of eyes, distinctly incised. Clypeus slightly stretched forwards, barely convex transversely and barely punctured. Mentum anteriorly widened, with flat, slightly bent, lustrous lateral margins, space in between convex. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Short, wide, moderately convex transversely and longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners angular, obtuse; front corners widely rounded. Anterior margin straight. Lateral and anterior margins bordered. Lateral borders visible in dorsal view. Front and hind corners rounded and obtuse in lateral view. Surface with coarse, relatively large punctures which are irregularly and not very closely set.

Scutellum: Triangular, impunctate.

Elytra: Oval. Convex transversely and longitudinally. Maximum width and height at the end of the anterior third. Shoulders not prominent. Apices mutually rounded. Lateral edges very narrowly visible in dorsal view. Surface with slightly incised striae with small, round punctures; their distance on disc about equal to the diameter of a puncture. Intervals on disc slightly noticeable, laterally clearly convex, with minute, distinct, not closely set punctures.

Prosternum: Anterior margin narrowly bent upwards; with a median process which extends over the whole apophysis as a low keel. Apophysis short, rounded; at the level

of procoxae with a median groove which is diverted into two lateral deepenings by the median keel.

Mesosternum: Hind part short, its anterior margin barely excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc with medium-sized punctures and thin, partially projecting, partially recumbent hairs of long size in males; the punctures are smaller in females and only with very short, recumbent hairs. Median line neither incised nor depressed.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Discs with tiny, widely separated punctures and with short, thin, semi-erect hairs.

Antennae: Reaching to anterior third of elytra in male, to anterior fourth in female. Length/width ratio of antennomeres 1–11 in male equals to 9:4 / 4:3 / 7:2½ / 5:2½ / 7:2¾ / 6½:3 / 8:3½ / 7½:4 / 7½:4½ / 7:4½ / 9:5, in female to 7:4 / 3½:3 / 5:2½ / 4:2½ / 5:3 / 5:3¾ / 6:4 / 5:4 / 5½:4½ / 5½:4½ / 9:5.

Legs: Short. Femora thickened like a club towards the second third. Tibiae see diagnosis above. Lengths of male protarsomeres 1–5 as 5:4½:4:3:10; lengths of mesotarsomeres 1–5 as 10:5½:5:4:10; lengths of metatarsomeres 1–4 as 21:9:5:11.

Aedeagus: See Fig. 18F–H.

Amarygmus ulfilatis n. sp.

(Fig. 19A–H)

Holotype (♀): Borneo, Sabah, Route Keningau→Papar, II.2000, M. SNIŽEK leg. [left metatarsomeres missing] (ZSMB).

Paratypes: Sabah, Poring Spring, *Aporusa* sp., lower montane > 650 m, mixed Dipterocarp fst. [= forest], Fog. A51/F2, 1.III.1992, A. FLOREN (1 ♂ CFI). – Borneo, Malaysia, Sarawak, Gunung Gading NP, 100–300 m, Lux, 23.–29.IX.2008, R. GRIMM (1 ♂ CG). – Malaysia-W, Cameron Highlands, Ringlet env., 15.IV.2000, M. SNIŽEK leg. (1 ♂ ZSMB). – S. Thailand, Betong, Gunung Cang Dun vill., Yala distr., 25.III.–22.IV.1993, Igt. JAN HORÁK (1 ♀ SSB).

Etymology

Dedicated to my son ULF BREMER, Shanghai, companion of many collection trips to Darfur, Namibia, Saudi Arabia, The Arab Emirates, and Borneo.

Diagnosis

Of medium size; elongate oval. Elytra with rows of small, not very closely set punctures; intervals flat and with minute punctures. Frons not very wide. Antennae short, in males slightly longer than in females. Protibiae slightly bent, meso- and metatibiae markedly bent. Male protarsomeres 1–3 not widened. Ground colour of upperside green, very lustrous, clearly iridescent with the tendency of forming longitudinal stripes and red colouration

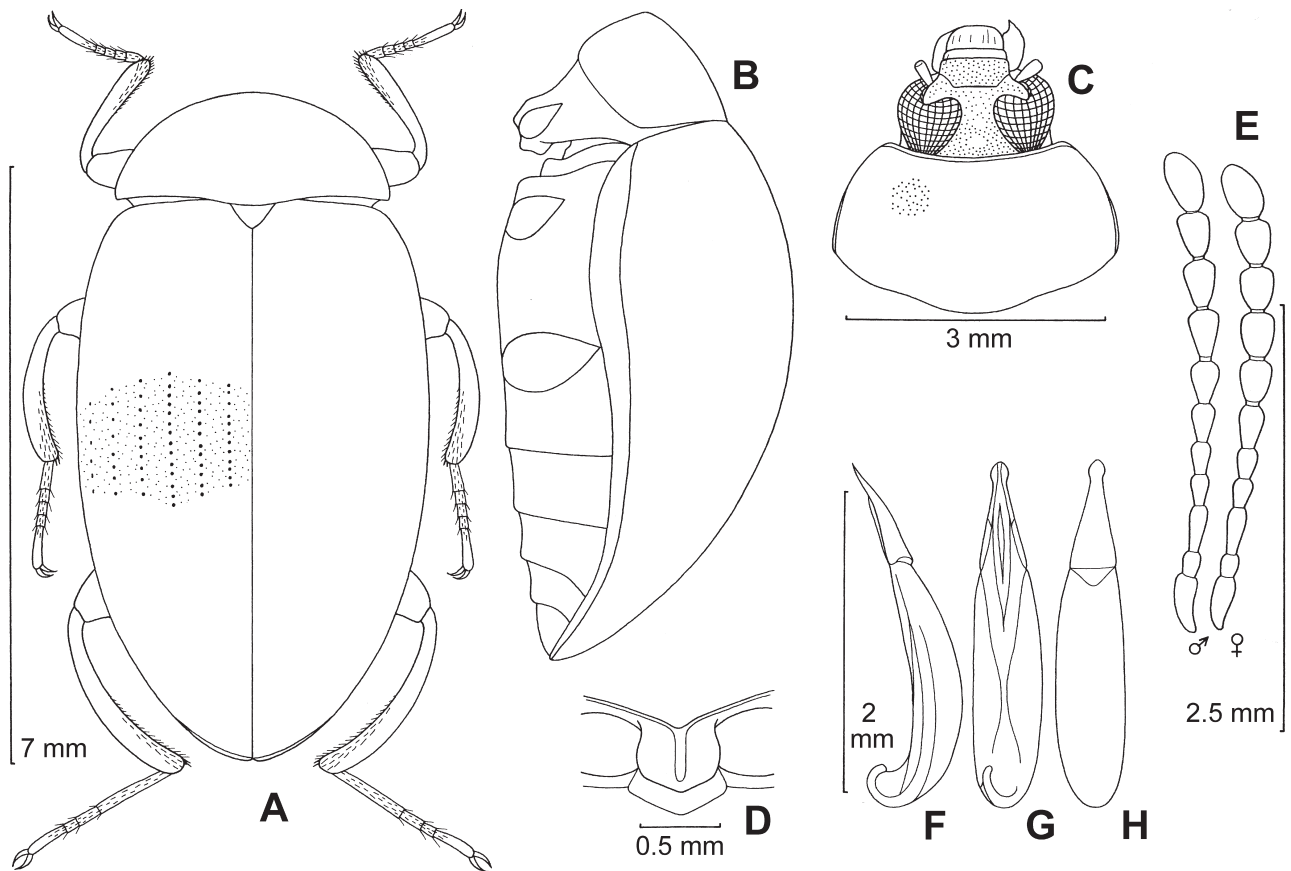


Fig. 19. *Amarygmus ulfilatis* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

of the punctures of the elytral rows. Femora and tibiae dark brown to black.

A. ulfilatis n. sp. is very similar to *A. centesimus* Bremer, 2004 from Borneo, Sumatra and the Malayan Peninsula (BREMER 2004b: 42–43, fig. 25). Both species have the elytral puncture rows reddish, and the antennal length and the shape of the legs similar. However, in *A. centesimus* the elytra are more convex and shorter (length/width 1.40–1.45), the punctures of the elytral rows are more distinct and more closely set, and the width of the frons is somewhat narrower.

Description

Measurements: Body length: 6.37–7.32 mm. Body width: 3.50–3.98 mm. – Ratios: Pronotum: width/length 1.93–2.10; width hind corners/width front corners 1.60–1.79. Elytra: length/width 1.49–1.54; length elytra/length pronotum 3.85–3.95; maximum width elytra/maximum width pronotum 1.26–1.30.

Colouration: Upperside see diagnosis above. Frons coloured as upperside, genae and clypeus black. Metasternum,

femora and tibiae black, tarsi dark brown, sternites brown.

Head: Frons not very wide, but wider than length of antennomere 3 (like 17 : 12), covered with minute, closely set punctures. Genae narrow, barely raised, anteriorly terminating in front of the level of the median part of fronto-clypeal suture. Fronto-clypeal suture arched, its middle part situated near the eyes and deeply incised. Clypeus only slightly stretched forwards, covered with minute, not very closely set punctures. Mentum reversely trapezoidal, with flat, lustrous lateral margins; space in between opaque, convex transversely. Underside of neck with large punctures which nearly touch each other. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Short. Markedly convex transversely, slightly less convex longitudinally. Widest at base. Sides somewhat narrowing anteriorly and bent. Hind corners angular, obtuse. Front corners widely rounded. Anterior margin straight. Lateral and anterior margins bordered. Lateral borders narrowly visible in dorsal view. Front and hind corners rounded and obtuse in lateral view. Surface with small, distinct, irregularly set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Elongate oval. Clearly convex transversely but convexity tapering posteriorly; moderately convex longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders slightly prominent. Apices mutually rounded. Lateral edges narrowly visible except shoulders in dorsal view. Elytra with rows of small, distinct, not very closely set punctures; distance between punctures on row 4 approximately 1–2 times diameter of a puncture; about 34 punctures in row 4. Intervals on disc flat, posterolaterally slightly convex, with tiny, distinct, relatively closely set punctures.

Prosternum: Anterior margin narrowly bent upwards, with a short process towards apophysis in the middle; a blunt median keel originating from it, extending across nearly the whole apophysis and terminating somewhat anterior to apex. Apophysis opaque, oval, lateral margins barely raised along procoxae, space in between without a median groove, but with the mentioned blunt median keel.

Mesosternum: Short. Anterior margin of hind part with a deep excavation in the middle nearly touching the posterior margin; lateral parts on each side with an indistinct longitudinal sulcus.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of metasternum with large punctures, hind part with small, posteriorly evanescent punctures. Median line slightly incised in the anterior part of metasternum.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, barely bordered. Sternites 1–3 with small, relatively closely set punctures, sternite 4 impunctate, sternite 5 with minute, widely separated punctures.

Antennae: Short, reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 in female equals to 17:7 / 8:5½ / 12:6 / 7:6 / 8:6½ / 12:7½ / 12:9 / 13:9½ / 12:10 / 12:10 / 17:10, in male to 18:7½ / 8:6 / 13:5½ / 9:6 / 9:6½ / 12:8 / 13:9 / 14:9 / 14:9½ / 13:9½ / 17:10.

Legs: Short. Femora markedly thickened like a club towards the second third. Protibiae slightly bent; meso- and metatibiae clearly bent. Lengths of protarsomeres 1–5 as 5:5:5:5:22; lengths of mesotarsomeres 1–5 as 12:8:6:6:23; lengths of metatarsomeres 1–4 as 40:13:8:22.

Aedeagus: See Fig. 19F–H.

Amarygmus variegatus n. sp.

(Fig. 20A–H)

Holotype (♀): Mesilau [Mt. Kinabalu NP, Sabah, ca. 2000 m], My, 6° 2' N 116° 35' E, *Syzygium chlorantha* 134, 27.IX.2006, A. FLOREN (1 CFI).

Paratypes: Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *Dacrydium pectinatum* 51, 28.IX.2006, A. FLOREN (1 ♀ + 2 specimens, sex not determined ZSMB; 1 ♂ + 1 specimen, sex not determined CFI). – Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *Dacrydium pectinatum* 51, 28.IX.2006, A. FLOREN (5 CFI). –

Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *Dacrydium pectinatum* 44, 27.IX.2009, A. FLOREN (1 CFI). – Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *Lysia* 43 spec 1, 27.IX.2006, A. FLOREN (1 ZSM). – Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *Syzygium* spec. 46, 27.IX.2006, A. FLOREN (1 SMNS). – Mesilau [Mt. Kinabalu NP, Sabah, ca. 2000 m], My, 6° 2' N 116° 35' E, *Phyllocladus hypophyllus* 141, 28.IX.2006, A. FLOREN (1 CFI). – Mesilau, My, 6° 2' N 116° 35' E, *Phyllocladus hypophyllus* 131, 27.IX.2006, A. FLOREN (1 CFI). – Mesilau, My, 6° 2' N 116° 35' E, *Syzygium* spec. 136, 28.IX.2006, A. FLOREN (1 CFI).

Etymology

Variegatus (Lat.) = multifarious.

Diagnosis

Tiny, oval, markedly convex transversely and longitudinally. Elytra short, with rows of medium-sized, somewhat widely separated punctures and with flat intervals. Pronotum with a few small, inconspicuous punctures. Frons very wide. Antennae of medium length. Metatibiae only slightly bent. Protarsomeres 1–3 slightly widened in males. Elytra usually with a long black macula on yellow ground (Fig. 20A, B), but this macula can also be absent (Fig. 20C).

A. variegatus n. sp. is one of the smallest *Amarygmus* species currently known. It is very similar to *A. circaeus* n. sp. which is even smaller. However, the macula patterns of both species are distinctly different.

Description

Measurements: Body length: 2.07–2.37 mm. Body width: 1.46–1.58 mm. – **Ratios**: Pronotum: width/length 1.96–2.09; width hind corners/width front corners 1.66–1.73. Elytra: length/width 1.12–1.24; length elytra/length pronotum 3.00–3.32; maximum width elytra/maximum width pronotum 1.34–1.36.

Colouration: Ground colour yellow, lustrous; clypeus dark brown. Each elytron with a longitudinal black macula in the middle. Legs yellow, antennomeres 1–6 yellow, 7–11 black. One paratype without black maculae on the elytra. Another specimen which probably belongs to this species with a dark brown upperside of head, a dark brown area around elytral base and interval 1 and a small dark macula at the lateral part of each elytron at midlength; underside brown, lustrous; legs brown. Antennomeres 1–6 light brown, 7–11 black.

Head: Upperside very lustrous. Frons very wide, with a few small, irregularly set punctures. Eyes relatively small and laterally somewhat projecting beyond outline of genae. Genae short, narrow, somewhat raised, anteriorly terminating at the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture slightly incised. Clypeus short, with small punctures which are closer set than those of frons. Mentum reversely trapezoidal, with wide, lustrous lateral margins; space in between somewhat opaque, slightly con-

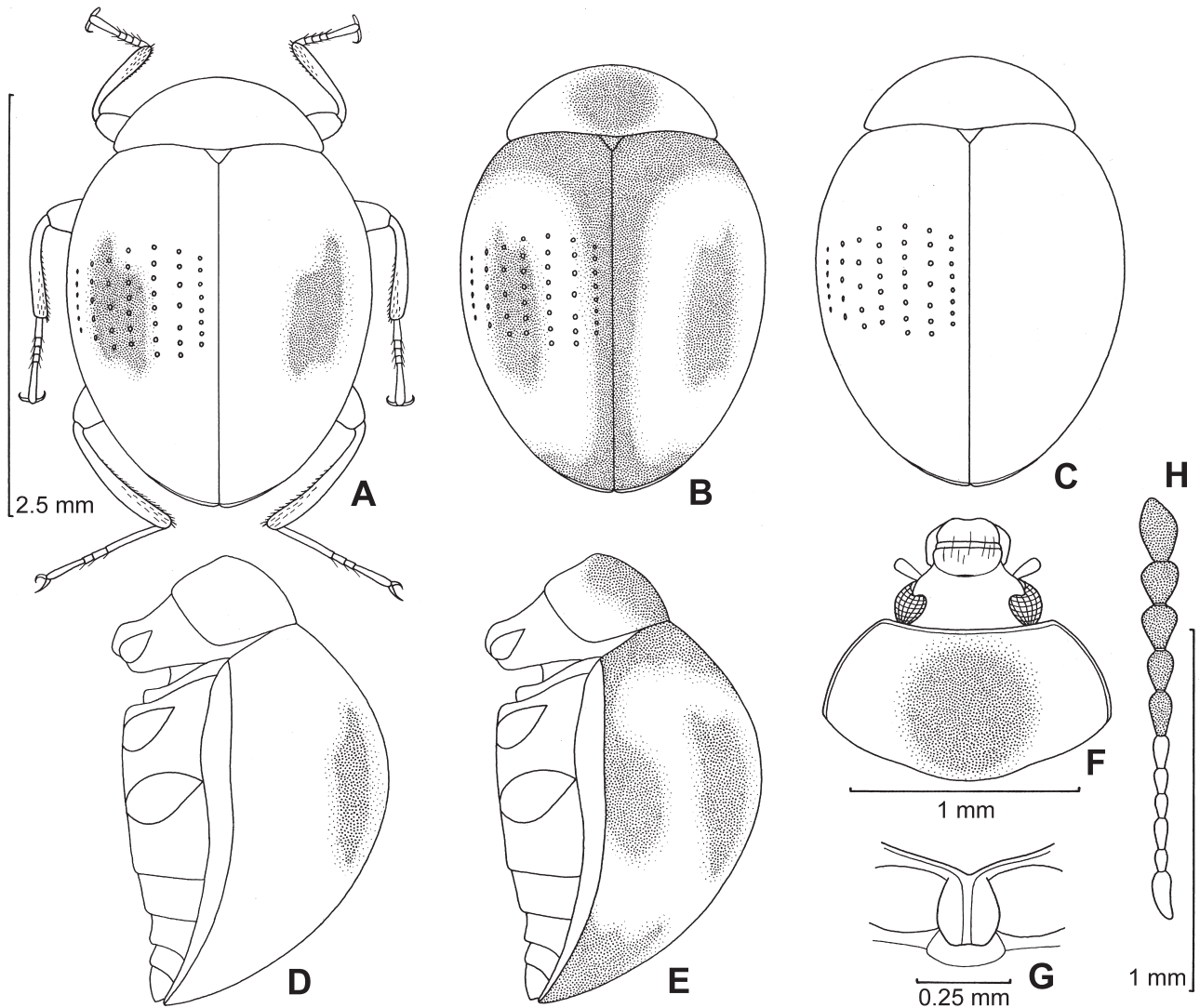


Fig. 20. *Amarygmus variegatus* n. sp. – **A** Habitus of holotype (var. 1). **B** Habitus (var. 2 with a different macula form). **C** Habitus (var. 3 without maculae). **D** Body, lateral view (var. 1). **E** Body, lateral view (var. 2). **F** Head and pronotum (var. 2). **G** Prosternal apophysis. **H** Antenna. – Black maculae on body and black coloured antennal segments shaded.

vex transversely. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Moderately convex transversely, slightly convex longitudinally. Widest at the very obtuse hind corners, anteriorly narrowing, bent in the posterior half, nearly straight in the anterior half. Front corners nearly rectangular. Anterior margin excavated. Lateral and anterior margins continuously bordered. Lateral borders visible in dorsal view. Front and hind corners angular and slightly obtuse in lateral view. Surface with a few indistinct punctures, nearly impunctate.

Scutellum: Triangular, impunctate.

Elytra: Oval, distinctly convex transversely, somewhat less convex longitudinally. Maximum width and height approximately in the middle. Shoulders rounded. Apices

mutually rounded. Lateral edges not visible. Surface with rows of medium-sized punctures; their distance on disc in row 4 about 2 times diameter of a puncture. Intervals everywhere flat, impunctate (at 50-fold magnification).

Prosternum: Anterior margin narrowly bent upwards, with a short keel towards apophysis at midlength. Apophysis somewhat ascending between anterior margin and level between procoxae; distinctly descending posterior to procoxae; widened along procoxae, lateral margin clearly raised ventrad; space in between with a distinct median groove; lateral margins behind procoxae subparallel; apex broadly rounded.

Mesosternum: Anterior margin of hind part barely excavated in the middle; lateral margins of hind part narrowly lifted towards central part.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Behind anterior margin with a transversal row of large punctures, otherwise metasternum smooth and lustrous, impunctate. Median line barely incised.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, faintly bordered. Behind anterior margin with a transversal row of medium-sized punctures; remaining parts of sternites impunctate.

Antennae: Of medium length, reaching to anterior third of elytra. Antennomeres 7–11 much wider than antennomeres 1–6. Relative lengths of antennomeres 1–11 as 4:2:4:3½:4:4:6:6:4½:5½:8.

Legs: Short. Femora thickened like a club towards the second third. Protibiae straight; mesotibiae nearly straight; metatibiae slightly bent. Lengths of metatarsomeres 1–4 as 14:6:4:11.

Amarygmus vestigator n. sp.

(Fig. 21A–E)

H o l o t y p e (♀): Borneo, Malaysia, Sabah, Crocker Range, Gunung Emas, 1500 m, 16.–21.III.2007, R. GRIMM [right foreleg and right antennomeres 5–11 missing] (CG).

Etymology

Vestigator (Lat.) = a person who is searching for clues.

Diagnosis

Of medium size, oval, markedly convex. Elytra with rows of medium-sized punctures. Frons relatively narrow. Fronto-clypeal suture distinctly incised across the head. Antennae of medium length, tender. Legs of medium length, tender; protibiae slightly bent; mesotibiae nearly straight; metatibiae straight in basal half, incurved in apical half. Upperside dark coppery, lustrous, pronotum with a violet tinge; legs black.

The following species of the Greater Sunda Islands and the Malayan Peninsula show a similar size, shape and elytral colouration, and have elytral rows of medium-sized punctures like *A. vestigator* n. sp.: *A. aeneolus* Fairmaire, 1893 (redescription see BREMER 2004b: 12–13, fig. 3), *A. medius* Bremer, 2010 (BREMER 2010a: 204–206), *A. dignus* Bremer, 2004 (BREMER 2004a: 113–116), *A. mesotibialis* Bremer, 2003 (BREMER 2003b: 64–65, fig. 12), *A. doridis* Bremer, 2009 (BREMER 2009: 14–15, fig. 3), and *A. aeris* Bremer, 2010 (BREMER 2010a: 162–164).

A. aeneolus (body length: 6.67–8.67 mm) has the punctures in the elytral rows somewhat more closely set than in *A. vestigator*, the frons is somewhat wider, and genae and frons show a peculiar shape with a common bulge towards the fronto-clypeal suture (visible in posterior view).

A. medius (body length 6.13–6.61 mm) has ovate elytra, a wider frons, and the mesotibiae somewhat bent.

A. mesotibialis (body length 7.50–8.07 mm) has stouter and shorter legs, abruptly bent male mesotibiae, a wider frons, and the upperside slightly more colourful.

A. doridis (body length 7.25–7.72 mm) shows dark blue colouration on the upperside, the punctures of the elytral rows are connected by faint lines which may easily be overlooked, the frons is somewhat wider, and the metatibiae are uniformly bent.

A. dignus (body length 7.49–7.96 mm) has the elytra longer, and more closely set punctures of the elytral rows (males of this species have long hairs anteriorly on the profemora, posteriorly on the mesofemora, and on the prosternal apophysis).

The upperside of *A. aeris* (body length 7.01–7.13 mm) is brightly copper coloured, the punctures of the elytral rows are more closely set, the pronotum is narrower, the hind pronotal corners are rounded, and the frons is wider.

Description

Measurements: Body length: 7.40 mm. Body width: 4.58 mm. – **Ratios:** Pronotum: width/length 2.00; width hind corners/width front corners 1.81. Elytra: length/width 1.37; length elytra/length pronotum 4.05; maximum width elytra/maximum width pronotum 1.47.

Colouration: See diagnosis above. Underside, legs and antennae black.

Head: Frons relatively small, slightly wider than length of antennomere 2 (like 8 : 7), with minute, indistinct punctures. Genae narrow, short, terminating behind the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture arched, deeply incised across the head. Clypeus moderately stretched forwards, convex transversely, covered with small, distinct punctures. Mentum widened anteriorly, with bent sides and rounded transition between sides and base; lateral margins flat, lustrous; space in between less lustrous, somewhat convex transversely. Underside of neck with large, transversely arranged, partially fused punctures. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Wide, moderately convex transversely, slightly convex longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners angular, obtuse. Front corners not visible in dorsal view. Anterior margin straight. Lateral and anterior margins bordered. Lateral borders very narrowly visible in the posterior three-fifths in dorsal view. Front and hind corners angular in lateral view. Front corners with an angle of about 105°; hind corners more obtuse. Surface with minute, not very closely set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Oval. Markedly convex transversely, moderately convex longitudinally. Maximum width and height approximately in the middle. Shoulders slightly prominent. Apices mutually rounded. Lateral edges very narrowly visible in the apical part in dorsal view. Surface with medium-

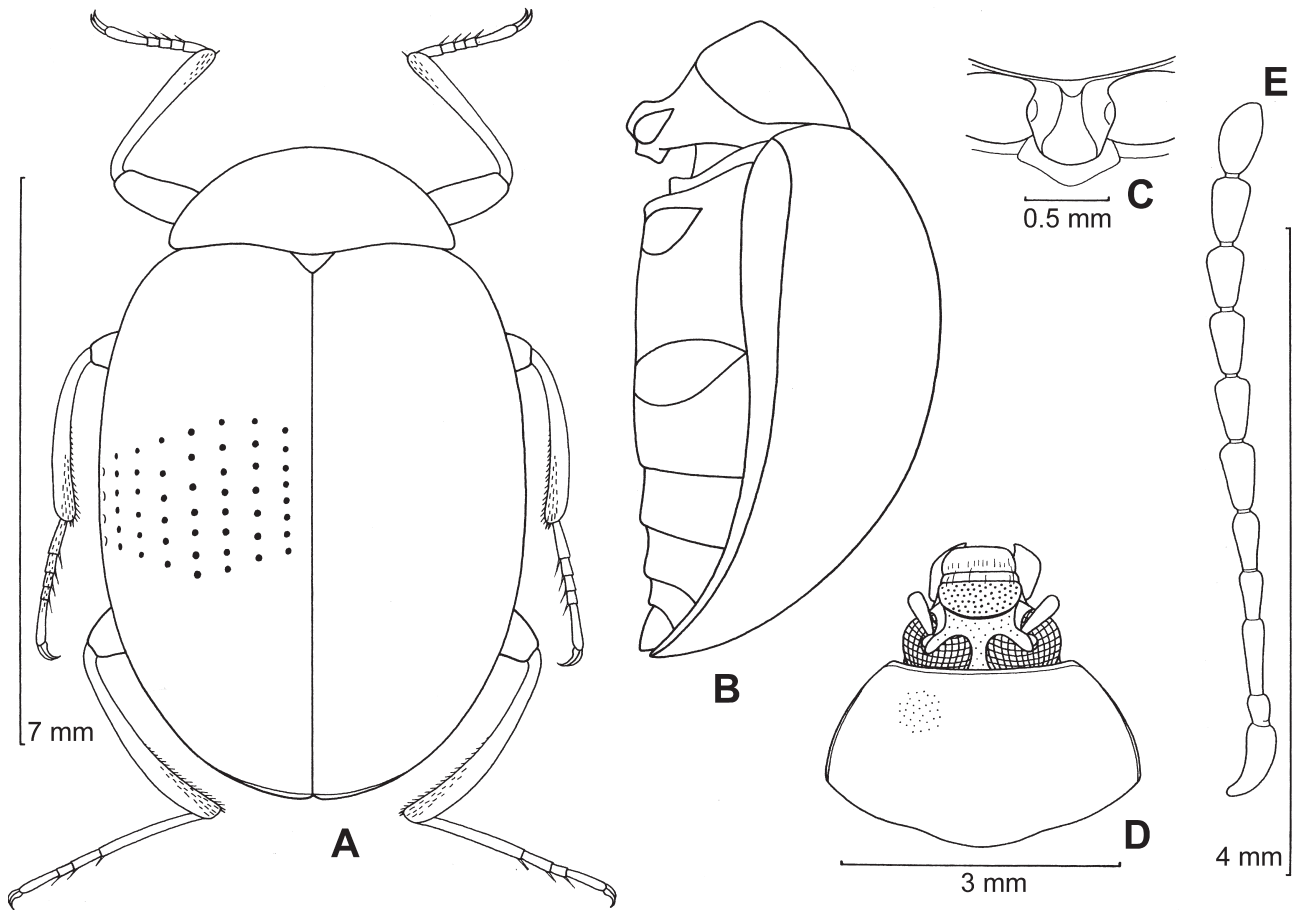


Fig. 21. *Amarygmus vestigator* n. sp. – A Habitus, ♀. B Body, lateral view. C Prosternal apophysis. D Head and pronotum. E Antenna.

sized, distinct punctures which are situated somewhat separated from each other, becoming evanescent near apex; their distance on disc in row 4 about 3–4 times diameter of a puncture; approximately 22 punctures in row 4. Intervals flat, with tiny, widely separated punctures.

Prosternum: Anterior margin narrowly bent upwards, widely interrupted in the middle where a low triangular process extends from the anterior margin towards apophysis. Apophysis oval, lateral margins slightly widened and raised along procoxae; space in between with a wide, shallow median groove; lateral margins posterior to procoxae somewhat narrowing and extending into the shallowly rounded apex.

Mesosternum: Hind part short, wide; its anterior margin shallowly excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior third with large, relatively closely set punctures, posterior two-thirds with minute, widely separated punctures; several punctures are the origin of tender, semi-erect hairs of medium length. Median line translucent.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites microreticulated, opaque, impunctate.

Antennae: Reaching to anterior two-fifths of elytra. Length/width ratio of antennomeres 1–11 equals to 19:7 / 7:5½ / 20:6 / 15:7 / 18:7½ / 22:10 / 19:10½ / 19:11 / 21:11 / 20:11 / 24:11½.

Legs: Of medium length. Femora thickened like a club towards the second third. Tibiae see diagnosis above. Lengths of protarsomeres 1–5 as 8:8:5:5:24; lengths of mesotarsomeres 1–5 as 22:9:8:7:27; lengths of metatarsomeres 1–4 as 51:17:8:26.

Amarygmus violacolor n. sp.
(Fig. 22A–E)

Holotype (♀): Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *A. subcaudata* 5, 13.IX.2006, A. FLOREN (CFI).

Etymology

Violacolor (Lat.), viola = violet; color = colour.

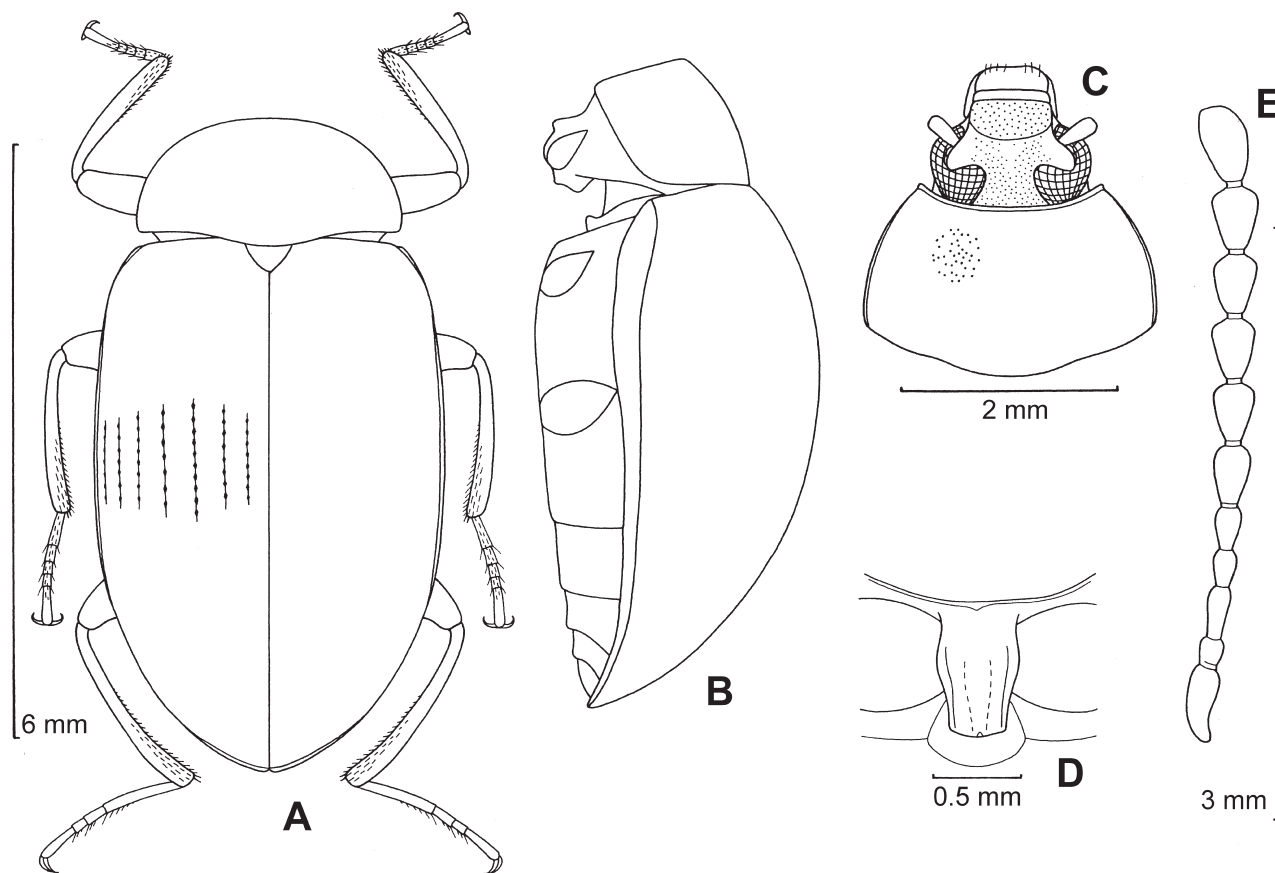


Fig. 22. *Amarygmus violacolor* n. sp. – A Habitus, ♀. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna.

Diagnosis

Of medium size, somewhat elongate oval, relatively slightly convex transversely and longitudinally. Elytra with faintly incised striae and with medium-sized, relatively closely set strial punctures; intervals flat on disc, barely punctured. Anterior corners of pronotum sharply rectangular. Frons of medium width. Antennae and legs of medium length. Elytra uniformly violet; pronotum blue; femora and tibiae black.

A. violacolor n. sp. is very close to *A. violaceus* Pic, 1915 from Sumatra and Java (Pic 1915: 240), however, *A. violaceus* (body length 7.39–7.60 mm) is somewhat larger than *A. violacolor*, pronotum and elytra are uniformly violet (except shoulders which are greenish blue), and the anterior lateral margins of the pronotum are straight.

Description

Measurements: Body length: 6.21 mm. Body width: 3.26 mm. – Ratios: Pronotum: width/length 1.88; width hind corners/width front corners 1.68. Elytra: length/width 1.54; length elytra/length pronotum 3.71; maximum width elytra/maximum width pronotum 1.28.

Colouration: See diagnosis above. Upperside moderately lustrous. Frons blue; genae and clypeus brown; underside and legs brown; antennomeres 1–5 brown, 6–11 dark brown, antennomere 11 brightened in its apical half.

Head: Frons of medium width, approximately as wide as combined length of antennomeres 2+3. Genae somewhat raised, anteriorly terminating in front of the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture slightly incised. Clypeus moderately stretched forwards, slightly convex longitudinally. Frons and clypeus with small, relatively closely set punctures. Mentum widened anteriorly, with somewhat bent sides; lateral margins flat, lustrous, space in between opaque, slightly convex transversely. Underside of neck with small, closely set punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Somewhat convex transversely, slightly convex longitudinally. Widest at base. Hind corners angular, obtuse; front corners rectangular. Anterior margin somewhat excavated. Lateral and anterior margins continuously bordered. Lateral borders visible in dorsal view. Front and hind corners angular in lateral view. Front corners with an

angle of 90°; hind corners obtuse. Surface with small, irregularly and not very closely set punctures.

Scutellum: Triangular, impunctate.

Elytra: Elongate oval; somewhat convex transversely and longitudinally. Maximum width and height anterior to the middle. Shoulders slightly prominent. Apices mutually rounded. Lateral edges narrowly visible in dorsal view, except areas along shoulders where they are not visible. Faintly incised striae with medium-sized, closely set punctures; distance between punctures on disc $\frac{1}{2}$ –1 times diameter of a puncture; about 44 punctures in row 4. Intervals flat; with tiny, indistinct punctures.

Prosternum: Anterior margin narrowly bent upwards, with a short keel towards apophysis in the middle. Apo-

physis of medium width, horizontally projecting posteriorly; somewhat widened along procoxae, lateral margins slightly lifted, space in between with a very shallow median groove; posterior to procoxae lateral margins straight and narrowing posteriorly; apex nearly rounded, with a very short median nose.

Mesosternum: Anterior margin of hind part excavated in the middle, surface of hind part smooth.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc with some tiny hairs, but barely visible punctures (at 50-fold magnification). Median line incised in the posterior half.

Sternites: Anterior margin of sternite 1 between meta-coxae oval, bordered. Sternites impunctate.

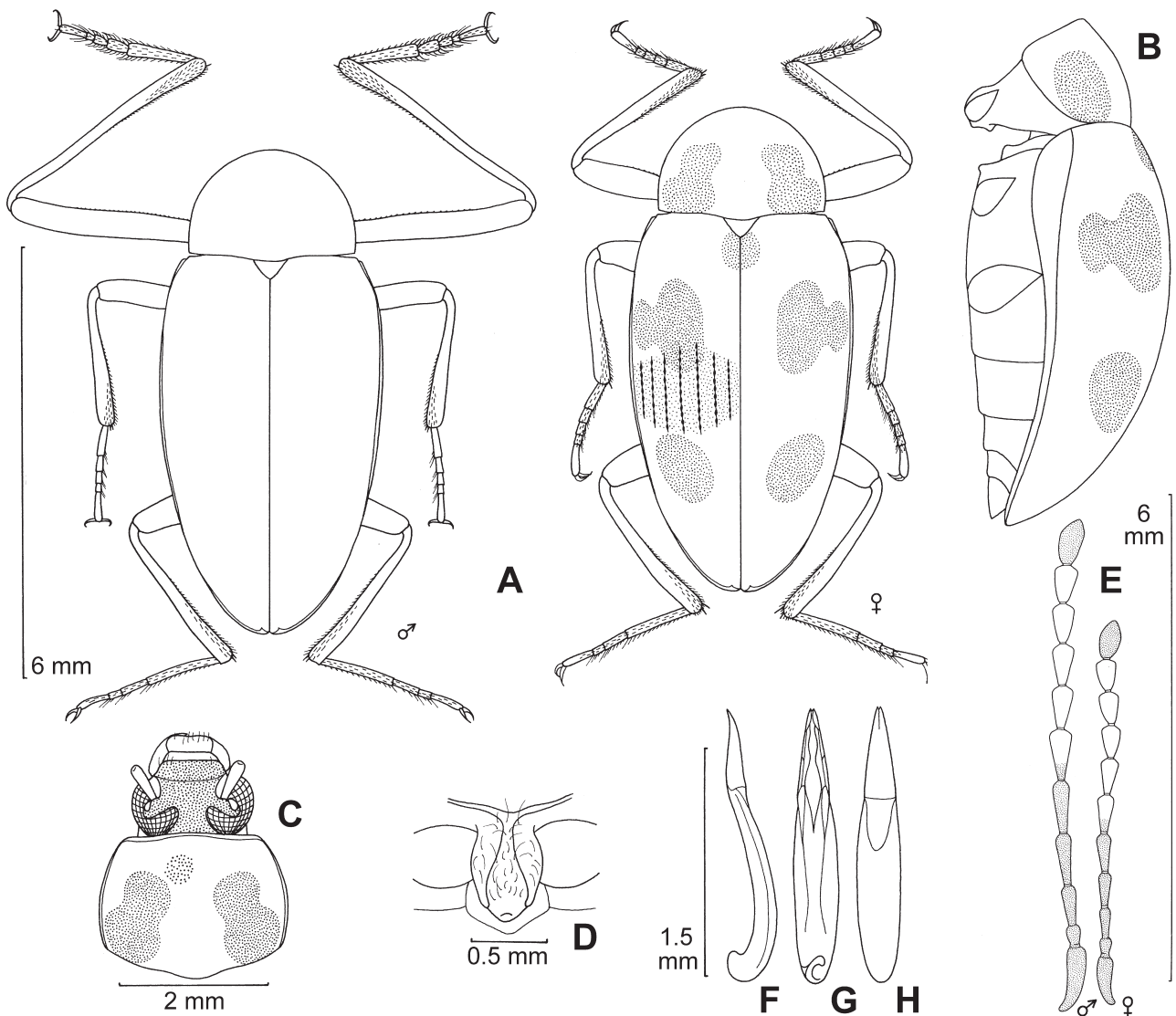


Fig. 23. *Amarygmus hongii* Bremer, 2011. – **A** Habitus; left ♂ (maculae and elytral striae omitted), right ♀ (maculae and elytral striae figured). **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀ (shaded antennomeres yellowish brown, blank antennomeres black). **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Antennae: Reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 15:6½ / 7:6 / 14:6 / 7½:6 / 8½:7 / 14:9 / 16:9 / 16:10 / 16:11 / 15:11 / 20:11.

Legs: Of medium length. Femora moderately thickened towards the second third. Protibiae straight; meso- and metatibiae slightly bent. Lengths of protarsomeres 1–5 as 6:6:5:5:18; lengths of mesotarsomeres 1–5 as 15:8:6:5:19; lengths of metatarsomeres 1–4 as 33:11:8:18.

Danum Valley of Sabah. In the meantime I received from R. GRIMM additional specimens from Sarawak. The male has markedly prolonged protibiae and a markedly prolonged protarsomere 1, moderately prolonged mesotibiae. The antennae of the male are longer than in the female. I therefore provide a new illustration of this species which also shows the characters of the male.

Body length: 5.49–7.98 mm. Body width: 2.95–3.74 mm. Length/width of elytra 1.57–1.70.

4 Annotations on three Bornean species of *Amarygmus*

Amarygmus hongii Bremer, 2011
(Fig.: 23A–H)

Amarygmus hongii BREMER, 2011: 217–219.

Additional material: Sarawak, Gunung Gading Nat. Park, 50–200 m, 8.–10.XII.2010, R. GRIMM (1 ♂ CG). – Sarawak, Kubah NP vic. HQ, 100–300 m, 15.–18.IX.2008, R. GRIMM (1 ♀ CG).

The description of *A. hongii* Bremer, 2011 is based on a single female specimen which has been collected in the

Amarygmus nepenthes Bremer, 2011
(Fig. 24A–H)

Amarygmus nepenthes BREMER, 2011: 235–236.

Additional material: Mesilau [Mt. Kinabalu NP, Sabah, ca. 2000 m], My, 6° 2' 57.4" N 116° 35' 53.9" E, *Schima brevifolia* 75, 19.XI.2009, A. FLOREN (1 ♀ ZSMB, 2 ♀♀ CFI). – Mesilau, My, 6° 2' 57.6" N 116° 35' 54.4" E, 19.IX.2009, A. FLOREN (1 ♀ ZSMB). – Kinabalu NP [Sabah], My, 6° 5' N 116° 33' E, *Dacrydium pectinatum* 51, 28.IX.2006, A. FLOREN (1 ♀ CG, 1 ♂ ZSMB).

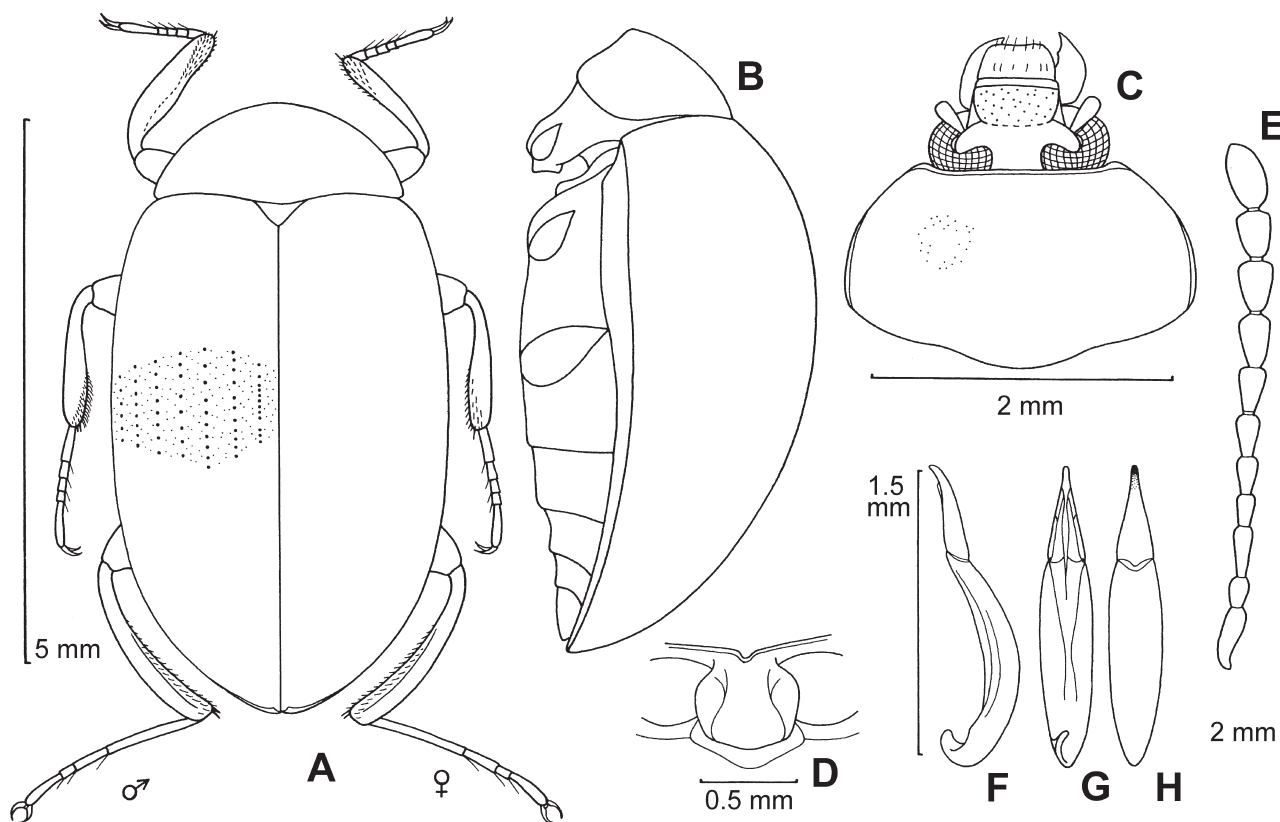


Fig. 24. *Amarygmus nepenthes* Bremer, 2011. – A Habitus; legs on left side ♂, right side ♀. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna. F Aedeagus, lateral view. G Aedeagus, ventral view. H Aedeagus, dorsal view.

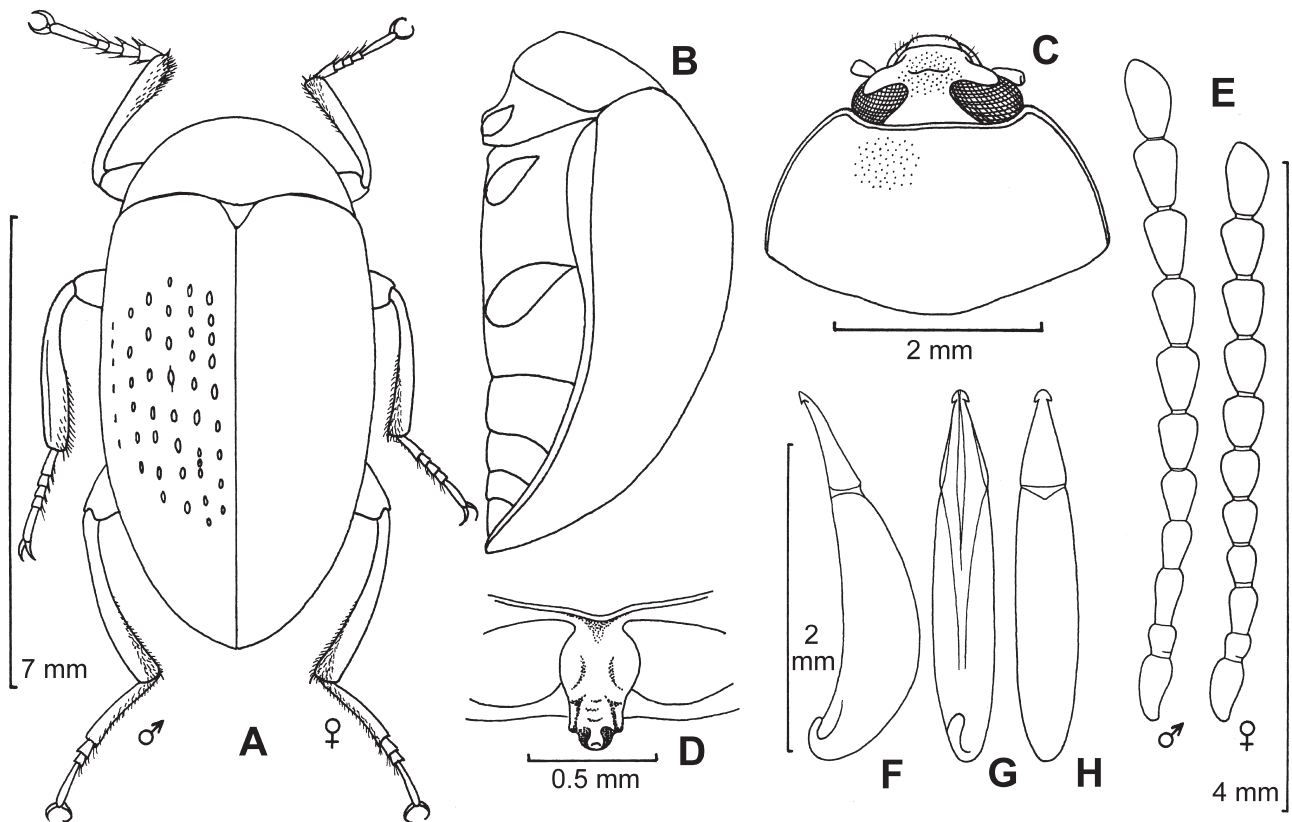


Fig. 25. *Amarygmus cincitopunctatus* Pic, 1938. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

The description of *A. nepenthes* Bremer, 2011 is based on a single female which was collected on higher altitudes of the Crocker Mountains of Sabah. In the meantime I received additional material, with a male among them. The male of *A. nepenthes* has markedly thickened protibiae. I therefore provide a new figure of this species.

Body length: 5.01–5.49 mm; body width: 2.65–2.95 mm. Length/width of elytra 1.53–1.59.

Amarygmus cincitopunctatus Pic, 1938
(Fig. 25A–H)

Amarygmus cincitopunctatus Pic, 1938: 12.

Platolenes kinabaluensis Kulzer, 1951: 556 [syn.]: BREMER 2003a: 51.

Elixota benakatensis Masumoto et Makihara, 1997: 131 [syn.]: BREMER 2009: 30.

Additional material: Sabah, Tambunan, Lux, 18.–19.I.2010, R. GRIMM (1 ♂ CG).

Until recently I only knew females of this species. A newly collected male specimen from Sabah gives the opportunity to provide data on the sexual characters of the males.

The males differ from females in the thickened inner side of pro- and mesotibiae in the apical half, somewhat longer antennae and widened protarsomeres 1 + 2.

I provide a new figure of this species, showing also the shape of the male forelegs and the aedeagus.

5 References

- BREMER, H. J. (2001): Revision der Gattung *Amarygmus* Dalman, 1823 und verwandter Gattungen. II. Neue Gattungen affine *Amarygmus* mit neuen Arten, sowie neue Arten und Synonyme. – *Coleoptera* **5**: 81–106.
- BREMER, H. J. (2002): Revision der Gattung *Amarygmus* Dalman, 1823 sowie verwandter Gattungen. VII. Kleine *Amarygmus*-Arten aus der orientalischen Region ohne Makeln auf den Flügeldecken (Insecta, Coleoptera, Tenebrionidae, Amarygmmini). – *Spixiana* **25**: 1–58.
- BREMER, H. J. (2003a): Revision der Gattung *Amarygmus* Dalman, 1823 sowie verwandter Gattungen. XVI. Erste Mitteilung über lang gestreckte Arten aus der orientalischen Region: Nachbeschreibungen und Abbildungen beschriebener Arten sowie Neubeschreibungen (Coleoptera: Tenebrionidae, Amarygmmini). – *Annales historico-naturales Musei nationalis hungarici* **95**: 37–105.

- BREMER, H. J. (2003b): Revision der Gattung *Amarygmus* Dalman, 1823 sowie verwandter Gattungen. XIX. Anmerkungen, Nachbeschreibungen, Neubeschreibungen und Illustrationen von *Amarygmus*-Arten der orientalischen Region (Coleoptera; Tenebrionidae; Amarygmini). – *Acta Coleopterologica* **19** (2): 45–79.
- BREMER, H. J. (2004a): Revision der Gattung *Amarygmus* Dalman, 1823 und verwandter Gattungen. XXV. Neue *Amarygmus*-Arten aus der orientalischen Region und ein neuer Status eines von PIC beschriebenen Taxon (Coleoptera: Tenebrionidae, Amarygmini). – *Mitteilungen der Münchner entomologischen Gesellschaft* **94**: 103–130.
- BREMER, H. J. (2004b): Revision der Gattung *Amarygmus* Dalman, 1823 sowie verwandter Gattungen. XXI. Nachbeschreibungen, Neubeschreibungen und Illustrationen von *Amarygmus*-Arten der orientalischen Region (Coleoptera; Tenebrionidae; Amarygmini). – *Acta Coleopterologica* **20** (1): 7–86.
- BREMER, H. J. (2006): Revision der Gattung *Amarygmus* Dalman, 1823 sowie verwandter Gattungen. XL Über kleine *Amarygmus*-Arten mit extrem schmaler Stirn und über einige *Amarygmus*-Arten aus der papuanischen Region (Coleoptera; Tenebrionidae; Amarygmini). – *Acta Coleopterologica* **22** (1): 14–34.
- BREMER, H. J. (2007): Revision der Gattung *Amarygmus* Dalman, 1823 sowie verwandter Gattungen (Coleoptera: Tenebrionidae: Amarygmini). XLV. Neu- und Nachbeschreibungen von *Amarygmus*-Arten der orientalischen Region. – *Stuttgarter Beiträge zur Naturkunde, Serie A (Biologie)* **707**: 48 pp.
- BREMER, H. J. (2009): Revision der Gattung *Amarygmus* Dalman, 1823 sowie verwandter Gattungen. LIII. Neue *Amarygmus*-Arten, Synonymien und Anmerkungen zu *Amarygmus*-Arten der orientalischen Region und der Ostpalaearktis; Angaben zu *Amarygmus*-Arten der Mentawai-Inseln (Col.; Tenebrionidae; Amarygmini). – *Acta Coleopterologica* **25** (2): 9–42.
- BREMER, H. J. (2010a): Revision of the genus *Amarygmus* Dalman, 1823 and related genera. LVI. The Amarygmini of Borneo (Coleoptera: Tenebrionidae), part I. – *Stuttgarter Beiträge zur Naturkunde A, Neue Serie* **3**: 139–256.
- BREMER, H. J. (2010b): Revision of the genus *Amarygmus* Dalman, 1823 and related genera. LVII. New species of *Amarygmus*, *Cephalamarygmus* and *Sylvanoplonyx* from the Malayan Peninsula and Sumatra with checklist of the species of the genera *Amarygmus*, *Cephalamarygmus*, *Cerysia*, *Sylvanoplonyx* and *Plesiophthalmus* of the Malayan Peninsula and of Sumatra (Coleoptera: Tenebrionidae: Tenebrioninae: Amarygmini). – *Mitteilungen der Münchner entomologischen Gesellschaft* **100**: 31–96.
- BREMER, H. J. (2011): Revision of the genus *Amarygmus* Dalman and related genera. LVIII. The Amarygmini of Borneo (Coleoptera: Tenebrionidae), part II. – *Stuttgarter Beiträge zur Naturkunde A, Neue Serie* **4**: 191–247.
- MASUMOTO, K. & MAKIHARA, H. (1997): Study on the tenebrionid beetles in South Sumatra. – *Bulletin of the Forestry and Forest Products Research Institute (Ibaraki)* **374**: 115–153.
- PIC, M. (1915): Trois nouveaux *Amarygmus* Dalm. [Col. Heterom.]. – *Bulletin de la Société entomologique de France* **1915**: 239–241.
- PIC, M. (1938): Nouveautés diverses, mutations. – *Mélanges exotico-entomologiques* **70**: 1–36.

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