

Revision of the genus *Amarygmus* Dalman and related genera. LVIII. The Amarygmini of Borneo (Coleoptera: Tenebrionidae), part II

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Abstract

This is the second part of the revision of Amarygmini of Borneo. It contains descriptions and illustrations of 32 newly described species and subspecies of *Amarygmus* Dalman, 1823: *A. acerbus* **n. sp.** (Kalimantan), *A. adelphus* **n. sp.** (Kalimantan), *A. venustus admixtus* **n. ssp.** (Sabah), *A. agnatus* **n. sp.** (Sabah), *A. amoenus* **n. sp.** (Sabah), *A. astutus* **n. sp.** (Sarawak), *A. botryitidis* **n. sp.** (Sabah), *A. coruscus* **n. sp.** (Sabah), *A. danumensis* **n. sp.** (Sabah, Sarawak), *A. dispensatus* **n. sp.** (Sabah), *A. distinguens* **n. sp.** (Sarawak), *A. filiastra* **n. sp.** (Sarawak), *A. floreni* **n. sp.** (Sabah), *A. gilvicornis* **n. sp.** (Sabah), *A. gnomus* **n. sp.** (Sabah), *A. hongii* **n. sp.** (Sabah), *A. inermis* **n. sp.** (Sabah), *A. infans* **n. sp.** (Sabah), *A. intermedius* **n. sp.** (Sarawak, Peninsular Malaysia), *A. invenustus* **n. sp.** (Sabah), *A. lautus* **n. sp.** (Sarawak, Sumatra), *A. makiharai* **n. sp.** (Kalimantan), *A. miser* **n. sp.** (Sarawak, Peninsular Malaysia), *A. morpheus* **n. sp.** (Sabah), *A. neglectus* **n. sp.** (Sabah), *A. nepenthes* **n. sp.** (Sabah), *A. pallidior* **n. sp.** (Sabah), *A. pullus* **n. sp.** (Sabah), *A. seductus* **n. sp.** (Sarawak), *A. semotus* **n. sp.** (Sabah), *A. seponens* **n. sp.** (Kalimantan), *A. zynthiae* **n. sp.** (Sabah). The aedeagus of *A. verecundus* Bremer, 2010 is figured.

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

Zusammenfassung

Dies ist der zweite Teil einer Revision der Amarygmini von Borneo. Es werden die folgenden 32 neuen Arten und Unterarten der Gattung *Amarygmus* Dalman, 1823 beschrieben: *A. acerbus* **n. sp.** (Kalimantan), *A. adelphus* **n. sp.** (Kalimantan), *A. venustus admixtus* **n. ssp.** (Sabah), *A. agnatus* **n. sp.** (Sabah), *A. amoenus* **n. sp.** (Sabah), *A. astutus* **n. sp.** (Sarawak), *A. botryitidis* **n. sp.** (Sabah), *A. coruscus* **n. sp.** (Sabah), *A. danumensis* **n. sp.** (Sabah, Sarawak), *A. dispensatus* **n. sp.** (Sabah), *A. distinguens* **n. sp.** (Sarawak), *A. filiastra* **n. sp.** (Sarawak), *A. floreni* **n. sp.** (Sabah), *A. gilvicornis* **n. sp.** (Sabah), *A. gnomus* **n. sp.** (Sabah), *A. hongii* **n. sp.** (Sabah), *A. inermis* **n. sp.** (Sabah), *A. infans* **n. sp.** (Sabah), *A. intermedius* **n. sp.** (Sarawak, Malaysische Halbinsel), *A. invenustus* **n. sp.** (Sabah), *A. lautus* **n. sp.** (Sarawak, Sumatra), *A. makiharai* **n. sp.** (Kalimantan), *A. miser* **n. sp.** (Sarawak, Malaysische Halbinsel), *A. morpheus* **n. sp.** (Sabah), *A. neglectus* **n. sp.** (Sabah), *A. nepenthes* **n. sp.** (Sabah), *A. pallidior* **n. sp.** (Sabah), *A. pullus* **n. sp.** (Sabah), *A. seductus* **n. sp.** (Sarawak), *A. semotus* **n. sp.** (Sabah), *A. seponens* **n. sp.** (Kalimantan), *A. zynthiae* **n. sp.** (Sabah). Der Aedoeagus von *A. verecundus* Bremer, 2010 wird abgebildet.

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1 Introduction

In the first part of the revision of Amarygmini of Borneo (BREMER 2010a) a key to the genera was published, and two new genera of Amarygmini (each with one new species) and 47 new species of *Amarygmus* Dalman, 1823 had been described. In this second part of the revision 32 new species of *Amarygmus* are specified, thus the current total number of valid species of *Amarygmus* on Borneo is 179. There are some more species which must still be described. An identification key to all *Amarygmus* species known from Borneo will be provided in one of the next

parts of this series. Another part will deal with species of other genera of Bornean Amarygmini.

Abbreviations of depositories

BMNH	Natural History Museum, London, U. K.
CA	Collection of Dr. KIYOSHI ANDO, Osaka, Japan
CFL	Collection of Dr. ANDREAS FLOREN, University of Würzburg, Germany (later to be deposited in ZSM)
CG	Collection of Dr. ROLAND GRIMM, Tübingen, Germany
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany
SSB	Collection of STANISLAV BEČVÁŘ, České Budějovice, Czech Republic

ZSM Zoologische Staatssammlung, Munich, Germany
 ZSMB Collection of the author, now property of ZSM

Acknowledgements

For loan or gift of material I thank the following colleagues: Dr. K. ANDO (Osaka), M. V. L. BARCLAY (London), S. BEČVÁŘ (České Budějovice), Dr. A. FLOREN (Würzburg), Dr. R. GRIMM (Tübingen), Prof. Dr. K. MASUMOTO (Tokyo), Dr. W. SCHAWALLER (Stuttgart).

Many thanks also to my son, ULF BREMER (Taipei), whom I owe many amarygmene specimens from Sabah, and to GEORGE KOK KHIONG HONG (Kota Kinabalu) for his logistic support during collection activities. I am also indebted to Dr. A. FLOREN (University of Würzburg), who contributed many specimens which he collected by fogging trees in Sabah, and to F. FORMAN (Ostercappeln) who prepared the figures of the newly described species.

Thanks are extended to Dr. R. GRIMM and Dr. W. SCHAWALLER for the review of the manuscript.

2 Materials and Methods

Materials

The material studied in this paper is from the same sources as cited in part I of this series (BREMER 2010a: 141). Additional material was contributed by Dr. A. FLOREN (Würzburg).

Morphometry

“Body length” represents the distance between the middle of anterior edge of the pronotum and the apices of the 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 species

Amarygmus acerbus n. sp.

(Fig. 1A–H)

Holotype (♂): Indonesia, Kalimantan, Bukit Bangkirai near Balikpapan, 24.V.1999, H. MAKIHARA leg. (CA).

Etymology

Acerbus (Lat.) = gloomy.

Diagnosis

Of medium size, elongate, narrow, slightly oval. Elytra dark, nearly black, opaque, very long and markedly convex transversely; with rows of medium-sized, somewhat elongate punctures and flat intervals. Base of pronotum nearly as wide as base of elytra. Frons not very wide. Antennae short. Legs short; male protarsomeres 1–3 moderately

enlarged; inner apical fifth of pro- and mesotibiae with closely set, distant yellow hairs; metatarsomere 1 very long.

Amarygmus acerbus n. sp. belongs to a group of species with long, narrow elytra. But all species of this group on Borneo, except *A. mitschkei* (Pic, 1938) (re-described and illustrated by BREMER 2003a: 67–69), *A. selatanus* (Masumoto et Makihara, 1997) (see MASUMOTO & MAKIHARA 1997: 139–140, fig. 127; also described and illustrated as *A. bellulus* by BREMER 2003a: 86–89), and *A. makiharai* n. sp., have lustrous elytra and not opaque ones as *A. acerbus*. In contrast to *A. acerbus*, the species *A. mitschkei*, *A. selatanus*, and *A. makiharai* have a violet bottom of the punctures of the elytral rows and a more or less large violet halo around these punctures.

Description

Measurements: Body length 8.52 mm; body width 4.06 mm. – Ratios: Pronotum: width/length 1.92; width hind corners/width front corners 1.77. Elytra: length/width 1.73; length elytra/length pronotum 3.67; maximum width elytra/maximum width pronotum 1.10.

Colouration: Elytra dark green, nearly black, opaque. Pronotum green, with purple iridescence. Frons green, genae and clypeus black. Legs and antennae black. Underside dark brown.

Head: Frons relatively narrow, as wide as length of antennomere 4, with minute, closely set punctures posteriorly and less closely set punctures anteriorly. Genae slightly raised, anteriorly terminating well anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture markedly incised in its middle part, scarcely incised laterally. Clypeus moderately stretched forwards, slightly convex longitudinally, with punctures somewhat larger than those on frons, not very closely set. Mentum reversely trapezoidal; with somewhat bent, flat, lustrous margins, space in between opaque, convex transversely. Underside of neck with medium-sized, closely set punctures. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Narrow, markedly convex transversely, moderately convex longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners angular, in dorsal view with an angle of about 100°; front corners rounded. Anterior margin slightly excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view very narrowly visible in the posterior three-fourths. Front and hind corners in lateral view rounded, moderately obtuse. Surface with small, distinct, relatively closely set punctures.

Scutellum: Triangular, with a few tiny punctures, sides slightly rounded.

Elytra: Elongate, narrow, slightly oval, markedly convex transversely, moderately convex longitudinally. Maximum height near the middle. Shoulders somewhat prominent. Apices of elytra mutually rounded. Lateral

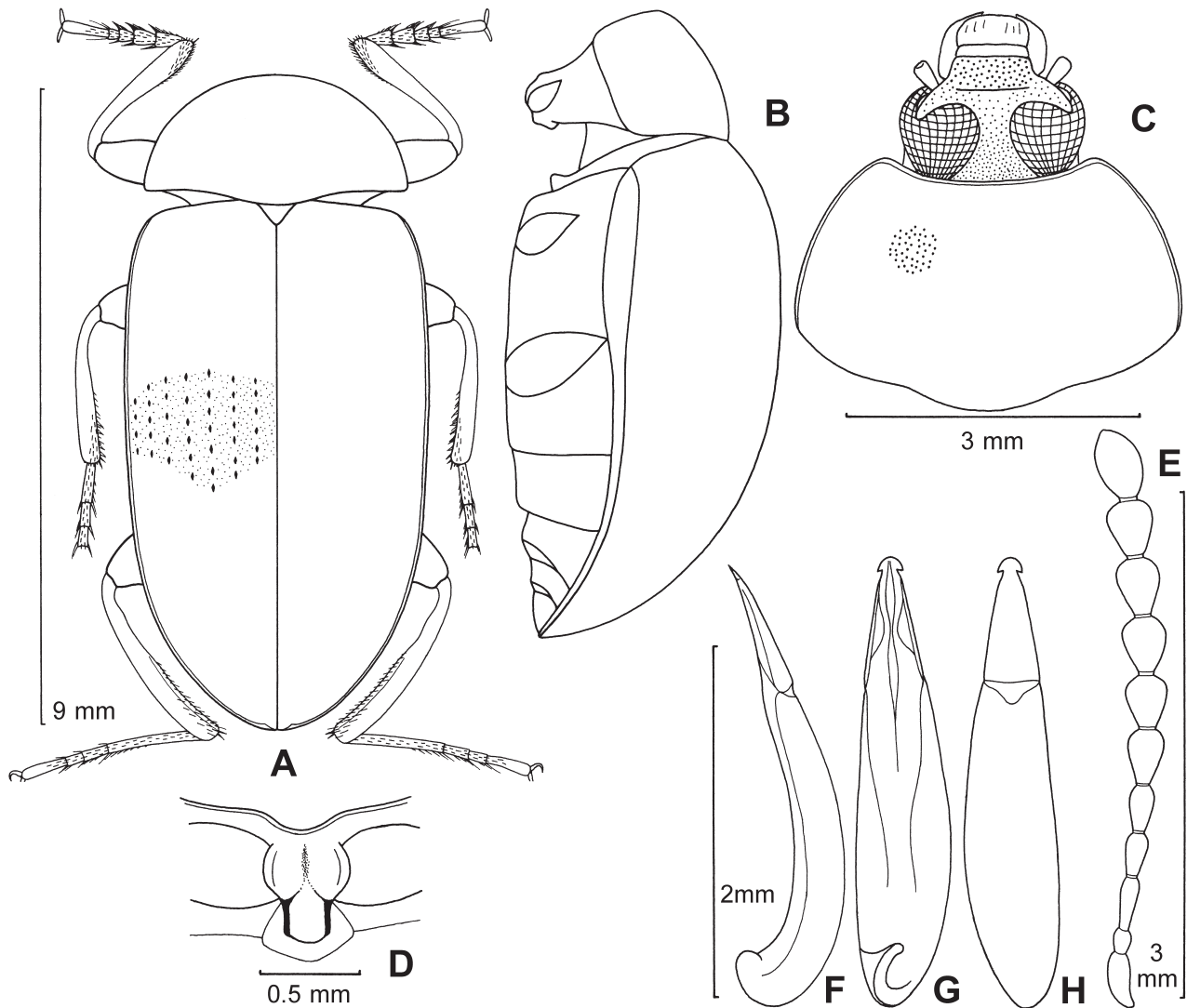


Fig. 1. *Amarygmus acerbus* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

edges very narrowly visible on the whole length in dorsal view. With rows of small, elongate punctures; distance between punctures on disc in row 4 approximately 2 times diameter of a puncture; about 29 punctures in row 4. Intervals flat, covered with minute, distinct, relatively closely set punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards. Apophysis relatively narrow, moderately ascending between anterior margin and the level of procoxae, descending between procoxae and apex; along procoxae somewhat widened and lateral margins widened and raised, space in between with a median groove; sides behind procoxae subparallel and lateral margins somewhat lifted upwards; apically narrowly rounded and with a median keel.

Mesosternum: Posterior part long, with a deep, longitudinal sulcus on each side; anterior margin markedly widened near the median excavation.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with two transverse rows of medium-sized punctures, posterior part with widely separated, tiny punctures. Median line slightly incised in its posterior half.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites 1+2 with small, shallow, closely set punctures. Punctures on sternites 3–5 smaller. Sternite 5 posteromedially depressed and slightly excavated.

Antennae: Short, reaching to anterior fifth of elytra. Length/width ratio of antennomeres 1–11 equals to

15:8 / 7:7 / 14:7 / 12:7 / 13:7 / 15:11 / 16:13 / 18:13 / 17:12 / 15:13 / 20:13.

Legs: Short. Femora thickened towards the second third. Protibiae slightly concave on outer side, slightly widened on inner apical side, inner apical third with short, closely set hairs. Mesotibiae moderately bent in basal half, nearly straight in apical half, inner apical half with short to medium, relatively closely set hairs. Metatibiae moderately bent, inner apical half with semi-erect hairs of medium length. Protarsomeres 1–3 moderately enlarged. Lengths of protarsomeres 1–5 as 7:7:5:5:14, lengths of mesotarsomeres 1–3 [4 and 5 missing] 13:8:5, lengths of metatarsomeres 1–4 as 31:10:6:14.

Aedeagus: See Fig. 1F–H.

Amarygmus adelphus n. sp.
(Fig. 2A–H)

Holotype (♂): Indonesia, Kalimantan, Bukit Bangkirai near Balikpapan, 8.VI.1999, H. MAKIHARA leg. (CA).

Paratypes: Same data as holotype, but 17.I.2000 (1 ♀ CA, 1 ♀ ZSMB). – Indonesia, Kalimantan, Papagaran, 25.–30.X.2000, Y. YOKOI leg. (1 ♀ CA).

Etymology

Ἀδελφός (Greek) = brotherly.

Diagnosis

Small, oval, convex transversely and longitudinally. Elytra with rows of medium-sized punctures and flat, scarcely punctured intervals. Pronotum short, wide. Frons relatively narrow. Fronto-clypeal suture deeply incised across the whole width of the head. Antennae of medium length and nearly of the same length in both sexes. Elytra greenish blue, pronotum sea-blue, legs dark.

With respect to size, shape, width of frons and length of antennae, *Amarygmus adelphus* n. sp. is especially close to *A. delicatulus* Bremer, 2010 (BREMER 2010a: 182–184) from Sabah. *A. delicatulus*, however, has wider distances between the punctures of the elytral rows, its fronto-clypeal suture is only incised in the middle and does

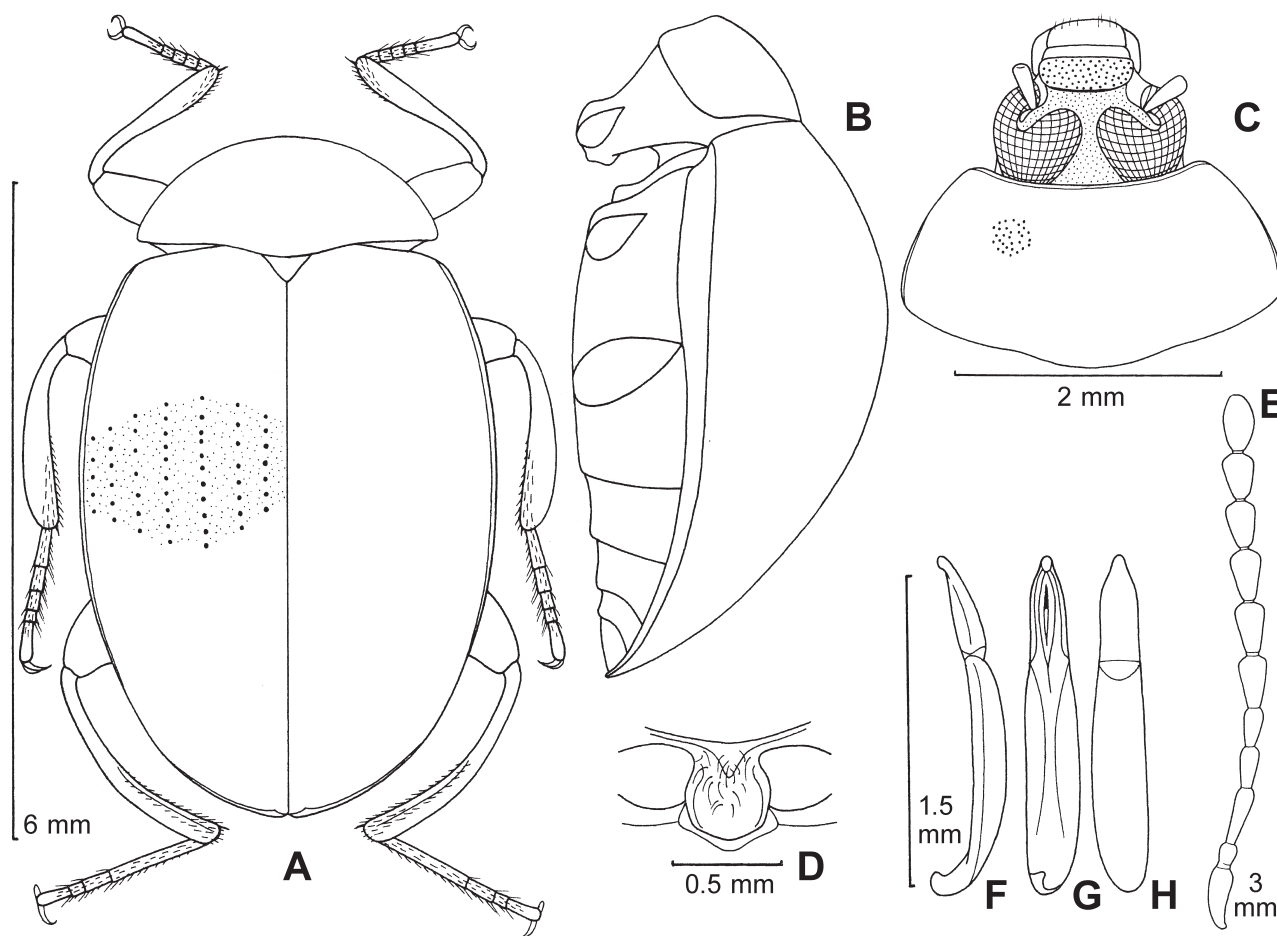


Fig. 2. *Amarygmus adelphus* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

not have a deep incision across the head, and the elytra are reflecting in different bright colours while the elytral colour of *A. adelphus* is only greenish blue.

The new species is also similar to *A. splendidulus* (Fabricius, 1801) (redescribed and illustrated by BREMER 2005a: 52–54). *A. splendidulus* has the same size and shape, a similarly incised fronto-clypeal suture, same width of frons, same length of antennae, a similar punctation and the absence of essential sexual characters. However, the elytra are much more colourful in *A. splendidulus*, the mesotibiae are straight, and the metatibiae are straight in the basal half and markedly incurved in the apical half while those of *A. adelphus* are uniformly bent.

For differences to *A. botryitidis* n. sp. see under diagnosis of this species.

Description

Measurements: Body length 5.65–5.97 mm; body width 3.66–3.70 mm. – **Ratios:** Pronotum: width/length 2.09–2.23; width hind corners/width front corners 1.69–1.86. Elytra: length/width 1.33–1.36; length elytra/length pronotum 3.88–4.13; maximum width elytra/maximum width pronotum 1.37–1.39.

Colouration: Ground colour of elytra greenish blue and, when the light hits the surface in direction from the front, slightly purple; lustrous. Pronotum sea-blue, lustrous. Head black. Antennomeres 1–4 dark brown, 5–11 black. Legs dark brown. Underside brown, lustrous.

Head: Upperside moderately microreticulated. Frons narrow, as wide as length of antennomere 2, with indistinct, small punctures. Genae narrow, only slightly raised and scarcely covering the base of antennomere 1, anteriorly terminating shortly posterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture distinctly incised across the whole width of the head, somewhat depressed. Clypeus moderately stretched forwards, slightly convex transversely and longitudinally, with small, not very closely set punctures. Mentum widening anteriorly, with somewhat bent sides; lateral margins flat, lustrous, space in between more dull, slightly convex transversely. Underside of neck with large, very closely set punctures. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Wide, short, moderately convex transversely, slightly convex longitudinally. Widest at base, anteriorly narrowing and bent. Hind and front corners in dorsal view narrowly rounded. Anterior margin very slightly excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view narrowly visible in the basal three-fifths. Frons and hind corners in lateral view with a slightly obtuse angle. Surface with minute, not very closely set punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, convex transversely and longitudinally. Maximum width and height somewhat anterior to

the middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges very narrowly visible on the whole length in dorsal view. With rows of medium-sized punctures; distance between punctures on disc in row 4 about 1–2 times diameter of a puncture; about 30 punctures in row 4. Intervals flat, with very tiny, widely separated punctures.

Prosternum: Anterior margin narrowly bent upwards, except in the middle where a small process is directed towards apophysis. Apophysis oval, widest just posterior to procoxae, lateral margins narrowly bordered, space in between with a median groove; surface with irregularly set hairs of medium length.

Mesosternum: Posterior part short, its anterior margin widely excavated in the middle. With a few short, semi-erect hairs.

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

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternite 1 with a few minute punctures, sternites 2–5 with a few tiny punctures.

Antennae: Of medium length, reaching to anterior two-fifths of elytra. Length/width ratio of antennomeres 1–11 equals to 17:6 / 8:5 / 17:5 / 12:5 / 12:6 / 16:8½ / 17:9 / 18:9 / 18:9 / 18:9 / 19:9.

Legs: Short. Femora distinctly thickened and compressed towards the second third. Protibiae straight and somewhat thickened apically. Mesotibiae moderately bent, thickened apically. Metatibiae strongly bent. Male protarsomeres 1–3 not widened. Lengths of protarsomeres 1–5 as 3:3:3:3:10, lengths of mesotarsomeres 1–5 as 9:6:5:4:10, lengths of metatarsomeres 1–4 as 15:6:4:9.

Aedeagus: See Fig. 2F–H.

Amarygmus venustus admixtus n. ssp. (Figs. 3A–H, 4B)

Holotype (♂): Borneo, Sabah W., Crocker Range, W. of Apin Apin, V.1999; Z. SMIRŽ (ZSMB).

Paratypes: Same data as holotype (1 ♂ ZSMB). – Sabah, Crocker Mts., Gunung Emas [primary mountainous forest], nachts, auf der Rinde von Bäumen [= at night, on bark of trees], 4.II.2006, H. J. BREMER leg. (1 ♀ ZSMB). – Sabah, Crocker Mts., 500–1900 m, Gunung Emas, 6.–21.V.1995, IVO JENIŠ leg. (10 ZSMB). – Crocker Mts., Gunung Emas, 1600 m, 15.V.2005, R. GRIMM (1 CG). – Same data as before, but 4.II.2006 (2 CG, 1 ZSMB). – Same data as before, but 16.–21.III.2007 (1 CG). – Same data as before, but 1.IV.2007 (4 CG). – Sabah, Kinabalu NP, HQ vic., 22.–25.V.2005, R. GRIMM (2 CG). – Same data as before, but 11.–13.II.2006 (1 CG). – Same data as before, but 28.XI.2006 (1 CG). – Sabah, Crocker Mts., Gunung Alab, 1650 m, 20.XI.2006, R. GRIMM (1 CG). – Sabah W, Crocker Mts. W, route Keningau–Papar, V.1999, Z. SMIRŽ leg. (1 ZSMB). –

Malaysia, Sabah prov., Banjaran Crocker Mts., 10 km SW Gunung Alab, 790–850 m, 4.–9.V.1996, M. ŠTRBA & R. HERGOVITS leg. (1 ♂, 1 ♀ SSB). – Sabah, Kinabalu NP, Poring vic., 380 m, 9.–11.III.2007, R. GRIMM (2 ♀♀ CG).

Etymology

Admixtus (Lat.) admisceo, admiscui, admixtum = admixed.

Diagnosis

Elongate oval. Pronotum and elytra forming common outlines of longitudinal vault and lateral margins. Elytra markedly convex transversely and longitudinally. Upper-side colourful, iridescent. Elytra with rows of small punctures and flat intervals. Frons relatively narrow. Antennae long. Protarsomeres 1–3 not enlarged in males. Antennae in both sexes approximately of the same length.

The new subspecies is nearly identical with *A. venustus venustus* Bremer, 2002 from Peninsular Malaysia (BREMER

2002a: 49–51), but the punctures of the elytral rows of *A. venustus admixtus* n. ssp. from higher altitudes of the Crocker Mountains of Sabah are definitely smaller than those of *A. venustus venustus*, compare Fig. 4A–B. A specimen from Sarawak is somewhat intermediate between both taxa.

A. venustus admixtus has a shape nearly identical to *A. assignatus* Bremer, 2010 (BREMER 2010a: 168–170) from the same area. *A. assignatus*, however, is less colourful, its frons is slightly wider, and the elytral rows have slightly larger punctures.

With respect to size, shape and colouration, the new subspecies is also close to *A. praestans* Bremer, 2002 (BREMER 2002a: 32–33) from the same localities, but *A. praestans* has a uniformly yellow or brown antennomere 11, the elytra are slightly shorter and more convex longitudinally, and the punctures of the elytral intervals are more distinct.

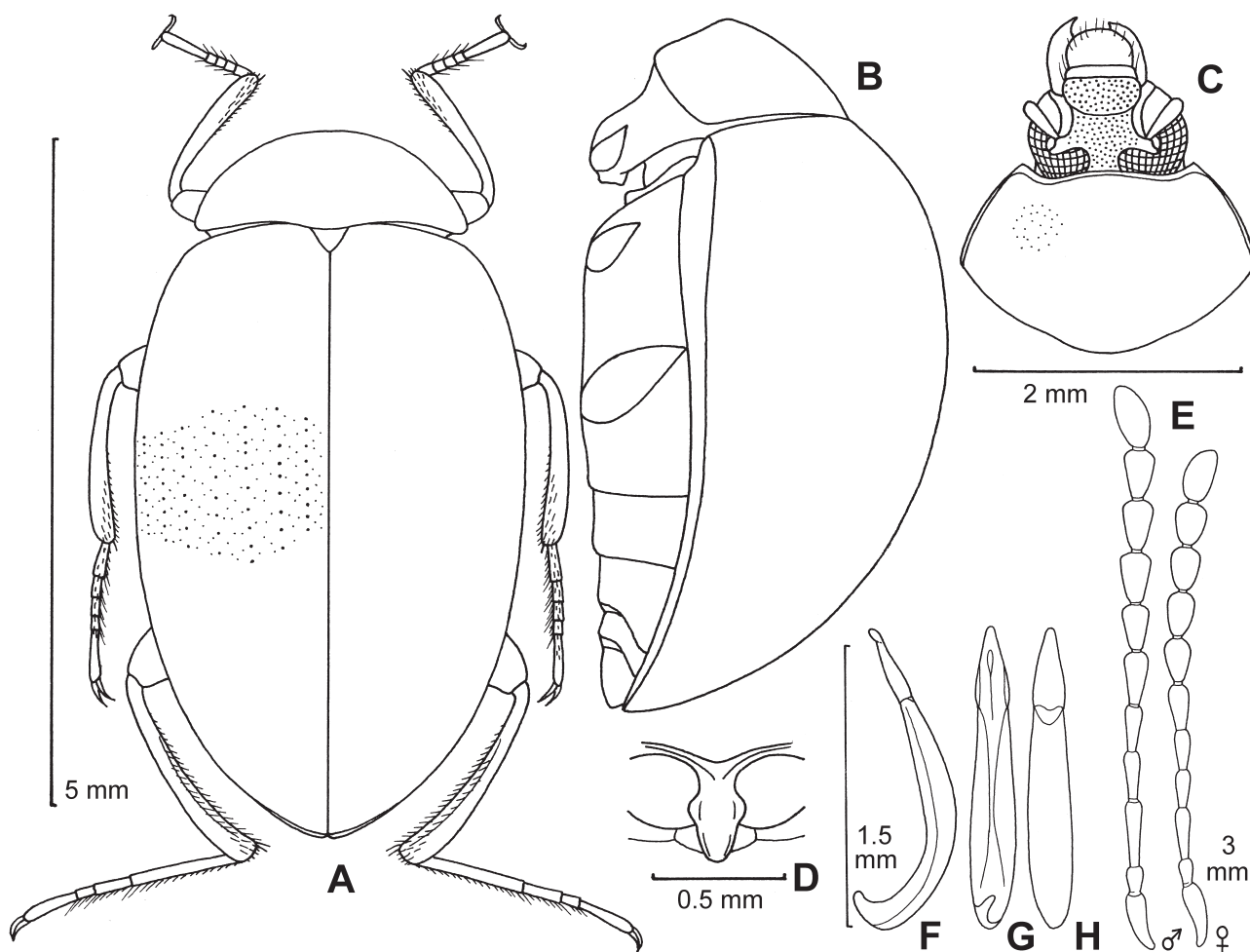


Fig. 3. *Amarygmus venustus admixtus* n. ssp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Description

Measurements: Body length 4.58–6.10 mm; body width 2.68–2.90 mm. – **Ratios:** Pronotum: width/length 1.76–1.83; width hind corners/width front corners 1.60–1.73. Elytra: length/width 1.44–1.54; length elytra/length pronotum 3.59–3.86; maximum width elytra/maximum width pronotum 1.40–1.44.

Colouration: Upperside very lustrous and with iridescence; ground colour blue or green, with marked reflections in orange, blue, and green. Frons green or blue, clypeus black. Underside and basal three-fourths of femora brown, apical fourth of femora and tibiae black in mature specimens. Tarsi brown. Antennomeres 1–5 brown, 6–11 black (apical half of antennomere 11 brightened).

Head: Eyes very large. Frons relatively narrow, about as wide as length of antennomere 4. Genae very short, slightly raised, anteriorly terminating behind the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture arched, incised across the whole width of the head. Clypeus moderately stretched forwards, somewhat convex transversely. Clypeus and frons with small, not very closely set punctures. Mandibles with a sulcus on outer surface, apically bifid.

Pronotum: Not very wide, markedly convex transversely (due to the strong convexity front corners not visible in dorsal view), moderately convex longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners rounded, obtuse; front corners about rectangular. Anterior margin straight. Lateral and anterior margins bordered. Lateral borders in dorsal view only very narrowly visible in the posterior fourth. Front corners in lateral view somewhat rounded-obtuse; hind corners angular and more obtuse than front corners. Surface with minute, widely separated, indistinct punctures.

Scutellum: Triangular, impunctate.

Elytra: Elongate oval, markedly convex transversely, convex longitudinally. Maximum width and height slightly anterior to the middle. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With rows of very small, widely separated punctures which become evanescent towards apex; distance between punctures on disc in row 4 about 4–5 times diameter of a puncture; about 24 punctures in row 4. Intervals everywhere flat, with widely separated small punctures which are only slightly smaller than punctures of the rows; tiny hairs visible (at 100-fold magnification) at apex.

Prosternum: Anterior margin, except in the middle, narrowly bent upwards. Apophysis narrow, between anterior margin and procoxae somewhat ascending ventrad, posterior to procoxae somewhat descending; along procoxae lateral margins raised and thickened; space in between with a deep, median groove; apically rounded.

Mesosternum: Posterior part narrowing posteriorly, its anterior margin excavated in the middle.

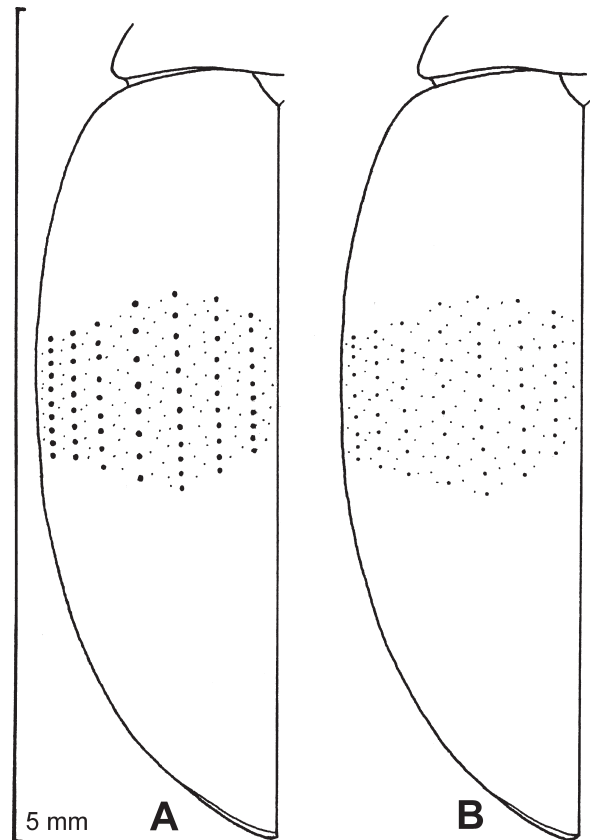


Fig. 4. *Amarygmus venustus*, left elytron. – **A** *A. venustus venustus* Bremer, 2002. **B** *A. venustus admixtus* n. ssp.

Metasternum: Anterior margin between mesocoxae narrowly rounded, bordered. Disc convex transversely, with tiny, sparse punctures and small, recumbent hairs in both sexes. Median line incised in the posterior half.

Sternites: Anterior margin of sternite 1 between metacoxae narrowly ogival, bordered. Discs of sternites nearly impunctate (at 50-fold magnification), and with a few tiny, recumbent hairs in both sexes. Sternite 5 posteromedially not depressed in males.

Antennae: Long, reaching to anterior three-fifths of elytra. Length/width ratio of antennomeres 1–11 in male equals to 15:6 / 8:5 / 17:5 / 12:5 / 13:5 / 15:6½ / 13:7 / 14:7 / 13:7 / 12½:7 / 17:7.

Legs: Short. Femora compressed, thickened towards the second third. Protibiae nearly straight; meso- and metatibiae moderately bent. Lengths of protarsomeres 1–5 as 5:4½:4:4:19, lengths of mesotarsomeres 1–5 as 13:7:6:5:20, lengths of metatarsomeres 1–4 as 37:14:8:20.

Aedeagus: See Fig. 3F–H.

Amarygmus agnatus n. sp.

(Fig. 5A–E)

Holotype (♀): Sabah, 5 km NNE of Apin Apin [park-like area], 500 m, at night, on bark of a tree, 18.II.2006, H. J. BREMER leg. (ZSMB).

Etymology

Agnatus (Lat.) = to be born in addition

Diagnosis

Small, oval, inconspicuous. Upperside brown. Elytra with rows of small, not very widely separated punctures. Elytral intervals on disc flat, with tiny punctures. Frons of medium width. Antennae of medium width. Legs short, thin.

Amarygmus agnatus n. sp. somewhat resembles *A. as-signatus* Bremer, 2010 (BREMER 2010a: 168–170) by the form of the elytral puncture rows, but *A. agnatus* has pronotum and frons wider, elytra wider and shorter, and antennae shorter.

Description

Measurements: Body length 5.25 mm; body width 3.26 mm. – **Ratios:** Pronotum: width/length 1.81; width hind corners/width front corners 1.70. Elytra: length/width 1.37; length elytra/length pronotum 3.61; maximum width elytra/maximum width pronotum 1.46.

Colouration: Upperside brown, slightly lustrous and with a weak metallic shine. Legs light brown. Under-side as brown as femora, lighter brown than upperside, lustrous. Antennomeres 1–4 light brown, 5 brown, 6–11 dark brown.

Head: Frons of medium width. Genae short, anteriorly terminating clearly posterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture clearly incised across the whole width of the head. Clypeus moderately stretched forwards, convex transversely and longitudinally. Clypeus and frons with minute, shallow, relatively closely set punctures and tiny hairs which originate from these punctures. Mentum uniformly lustrous, widening anteriorly and with rounded hind corners; lateral

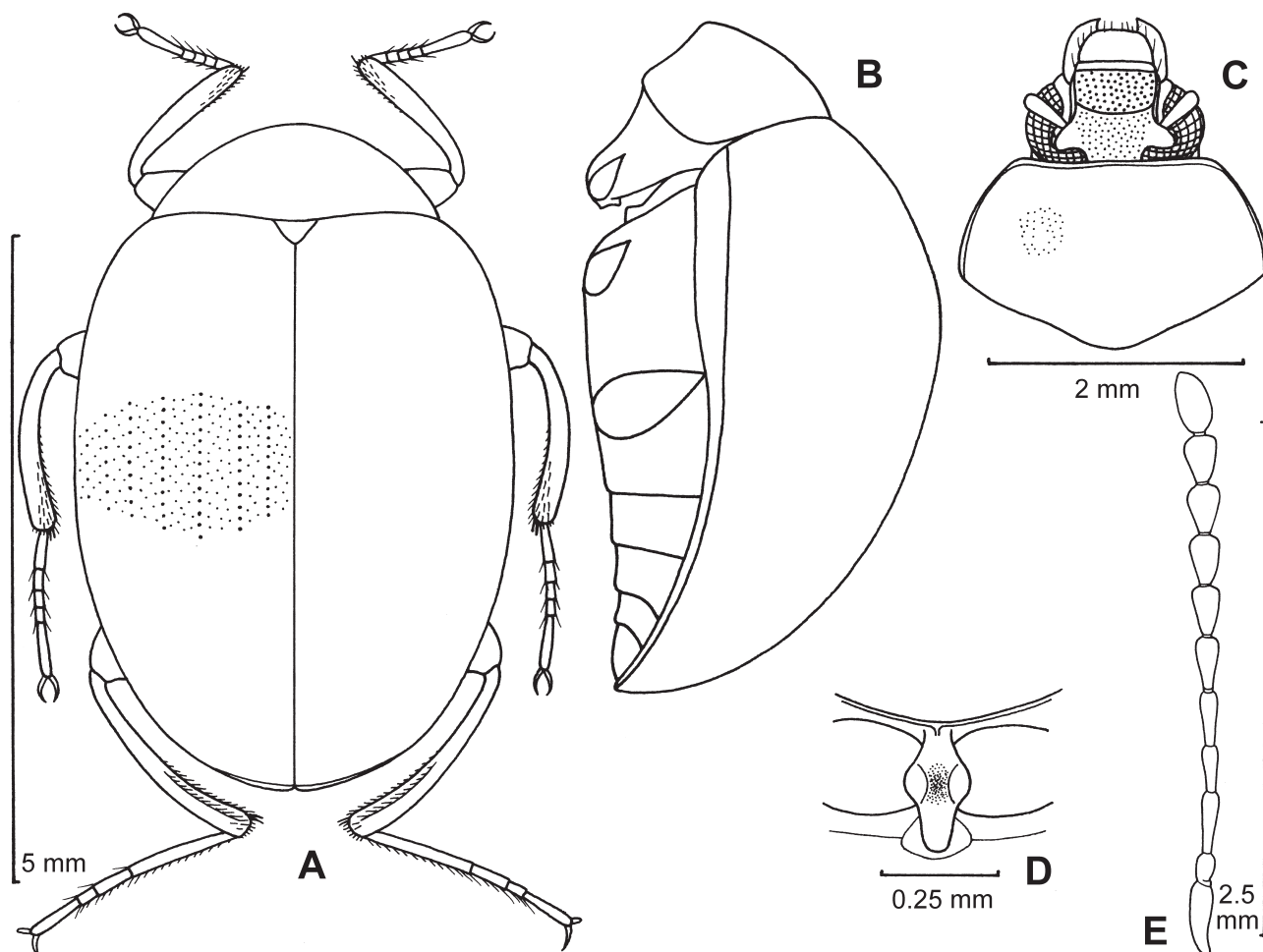


Fig. 5. *Amarygmus agnatus* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

margins flat, space in between slightly convex transversely. Underside of neck with a few small punctures and a few tiny, erect hairs. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide, short, moderately convex transversely and slightly convex longitudinally. Widest at base; sides bent, narrowing towards front corners. Hind corners nearly rounded and markedly obtuse; front corners in dorsal view barely rounded and very slightly protruded. Anterior margin slightly excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view very narrowly visible. Front and hind corners in lateral view markedly obtuse. Surface with minute, shallow, indistinct, irregularly set punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, markedly convex transversely and longitudinally. Maximum height and width slightly anterior to the middle. Shoulders somewhat prominent. Apices of elytra mutually rounded. Lateral edges very narrowly visible posterior to the middle in dorsal view. With inconspicuous rows of small punctures; distance between punctures on disc in row 4 about 2–3 times diameter of a puncture; about 34 punctures in row 4. Intervals on disc flat, barely convex laterally, with tiny, not very closely set punctures.

Prosternum: Anterior margin narrowly bent upwards. Apophysis narrow, ascending between anterior margin and procoxae, and somewhat descending posteriorly to apex; along procoxae markedly widened, margins widened and distinctly raised ventrad; space in between with a median groove; posterior to procoxae lateral margins straight and slightly narrowing; apically broadly rounded.

Mesosternum: Anterior margin of posterior part excavated in the middle, lateral margins somewhat narrowing posteriorly. Surface of posterior part smooth.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with a few small punctures, middle and posterior parts with tiny, widely separated punctures and recumbent hairs of medium length. Median line depressed on the whole length.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, with faint borders. Sternites impunctate, with tiny, widely separated, recumbent hairs.

Antennae: Short, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 14:7 / 7:5 / 16:5 / 10:5 / 11:5½ / 13:7 / 13:8 / 13:9 / 13:9 / 12½:9 / 16:9.

Legs: Short. Femora and tibiae slender. Femora somewhat thickened towards the second third. Protibiae slightly bent. Mesotibiae moderately bent, with semi-erect bristles on inner side. Metatibiae slightly bent in basal half, moderately bent in apical half. Lengths of protarsomeres 1–5 as 5:4:4:4:20, lengths of mesotarsomeres 1–5 as 12:8:7:5½:20, lengths of metatarsomeres 1–4 as 39:14:8:21.

Amarygmus amoenus n. sp.
(Fig. 6A–E)

Holotype (♂): Borneo, Sabah, Danum Valley [primary lowland rainforest], 4°58'N 117°48'E, M. D. F. ELLWOOD, *Parashorea tomentella*, *Asplenium nidus*, EastTrail 7, FogTray 5, 11.VII.1999, 444 [right metatibia and right tarsi deformed] (BMNH).

Paratype: Borneo, Sabah, Danum Valley, 4°58'N 117°48'E, M. D. F. ELLWOOD, *Parashorea tomentella*, *Asplenium nidus*, EastTrail 7, FogTray 4, 11.VII.1999, 444 (1 ♀ BMNH).

Note: No preparation of the genitalia was performed because of the rigidity of the holotype specimen.

Etymology

Amoenus (Lat.) = graceful.

Diagnosis

Of medium size, oval, very lustrous. Upperside blackish golden. Elytra with markedly incised striae and clearly convex, impunctate intervals. Frons wide, legs and antennae of medium length. Metatarsomere 1 long.

Amarygmus amoenus n. sp. is somewhat similar to *A. zynthiae* n. sp. from the same locality; see under diagnosis of this species.

Description

Measurements: Body length 5.41+5.49 mm; body width 3.19+3.22 mm. – Ratios: Pronotum: width/length 1.96+2.00; width hind corners/width front corners 1.76+1.78. Elytra: length/width 1.39+1.41; length elytra/length pronotum 4.00+4.07; maximum width elytra/maximum width pronotum 1.43+1.44.

Colouration: Upperside very lustrous, golden black. Underside brown, with reduced lustre. Femora and tibiae black, tarsi brown. Antennomeres 1–3 brown, 4–11 black (apical half of antennomere 11 brightened).

Head: Frons wide, as wide as combined length of antennomeres 3+4, with widely separated, minute punctures. Genae short, anteriorly terminating posterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture slightly incised. Clypeus moderately stretched forwards, slightly convex transversely, with punctures somewhat larger than those of frons; very short hairs originating from these punctures. Mentum narrow at base, sides somewhat bent, widening anteriorly; lateral margins flat and lustrous, space in between convex, microreticulated, and with a median ridge. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide, short, relatively flat; uniformly convex transversely, slightly convex longitudinally. Widest at base, roundedly narrowing in basal half, narrowing with straight margins in anterior half. Hind corners rounded, obtuse; front corners in dorsal view approximately rectangular. Anterior margin very slightly excavated. Lateral

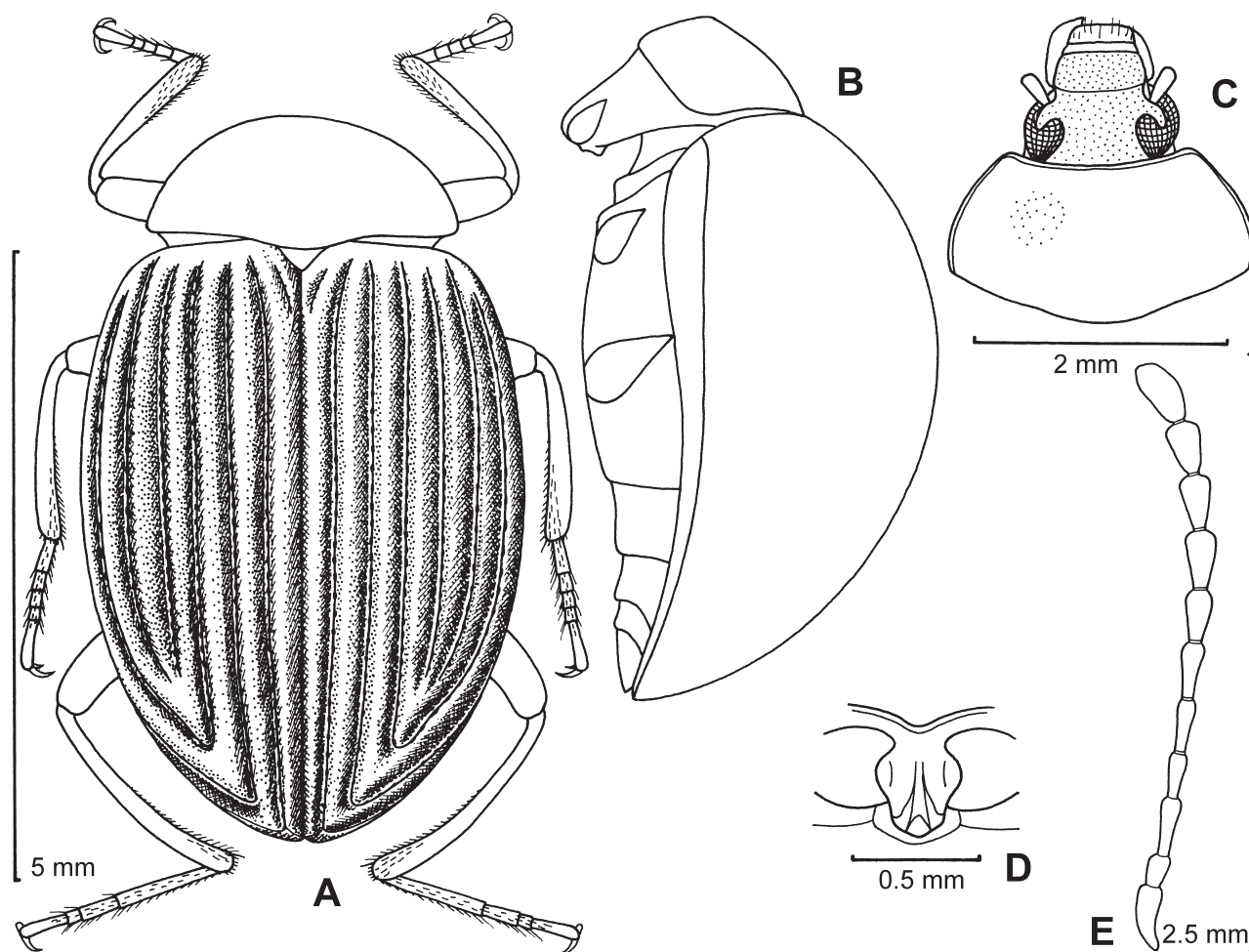


Fig. 6. *Amarygmus amoenus* n. sp. – A Habitus, ♀. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna.

and anterior margins bordered. Lateral margins in dorsal view very narrowly visible. Front corners in lateral view rectangular; hind corners angular, widely obtuse. Surface with tiny, very widely separated punctures.

Scutellum: Triangular, impunctate.

Elytra: Somewhat elongate oval, convex transversely and longitudinally. Maximum width and height slightly anterior to the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With distinctly incised striae with elongate, narrow, indistinct punctures. Intervals convex, impunctate.

Prosternum: Anterior margin continuously and narrowly bent upwards, slightly retracted towards apophysis at midlength. Apophysis not very wide, its lateral margins markedly raised, space in between with a deep median groove; apicomedia with a lifted nose.

Mesosternum: Relatively wide. Posterior part microreticulated, its anterior margin only slightly excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc with some shallow, indistinct, medium-sized punctures anteriorly, a few tiny punctures with tiny hairs posteriorly. Median line very slightly incised in its posterior half.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites with a few very tiny punctures.

Antennae: Of medium length, reaching to middle of elytra. Length/width ratio of antennomeres 1–11 equals to 12:5 / 8:5 / 13:4½ / 11½:5 / 12:5 / 15:6 / 15:7½ / 14:7½ / 14:8 / 13½:8 / 17:8.

Legs: Of medium length, relatively tender. Femora moderately widened towards the second third. Pro- and mesotibiae straight; metatibiae straight in the basal half, incurved in the apical half. Lengths of protarsomeres 1–5 as 7:7:6:4:16, lengths of mesotarsomeres 1–5 as 11:10:8:6:18, lengths of metatarsomeres 1–4 as 36:12:5:19.

Amarygmus astutus n. sp.
(Fig. 7A–E)

Holotype (sex not determined): Malaysia, Borneo, Sarawak, Santubong Peninsula, Permai Rainforest Resort [primary lowland rainforest], 10–200 m, at night, on bark of trees, 23.–27.III.2009, R. GRIMM (CG).

Paratypes: Same data as holotype (2 CG, 2 ZSMB).

Etymology

Astutus (Lat.) = insidious.

Diagnosis

Tiny, ovate. Elytra dark coppery, with slightly incised striae and small to medium-sized punctures; intervals nearly flat and with sparse, tiny punctures. Pronotum dark (nearly filthy) green, with distinct, not very closely set punctures. Frons relatively narrow. Antennae of medium length. Legs brown to dark brown. Metatarsomere 1 relatively long.

Amarygmus astutus n. sp. is one of the smallest species of the genus. The three similarly tiny species *A. fraterculus*

Bremer, 2002 (BREMER 2002a: 23) from Sabah, Sarawak, and Sumatra, *A. abditus* Bremer, 2007 (BREMER 2007: 3–6) from Sabah, and *A. miser* n. sp. differ as follows:

A. fraterculus has a bright brown elytral interval 1 (in contrast to the uniformly dark coloured elytra of *A. astutus* n. sp.), the punctures on elytra and pronotum are somewhat smaller, and the frons is somewhat narrower.

A. abditus has the elytra uniformly coloured as in *A. astutus*, but it is larger (body length 3.04–3.13 mm), the frons is somewhat wider (also in females), and the punctures of the elytral striae are definitely larger.

A. miser n. sp. is very similar to *A. astutus* concerning body shape, striae, stria punctures, and width of frons, but *A. miser* is somewhat larger, the antennae are somewhat longer, and the front corners of the pronotum are more angulate.

Description

Measurements: Body length 2.80–2.96 mm; body width 1.75–1.77 mm. – **Ratios**: Pronotum: width/length 1.94–2.06; width hind corners/width front corners

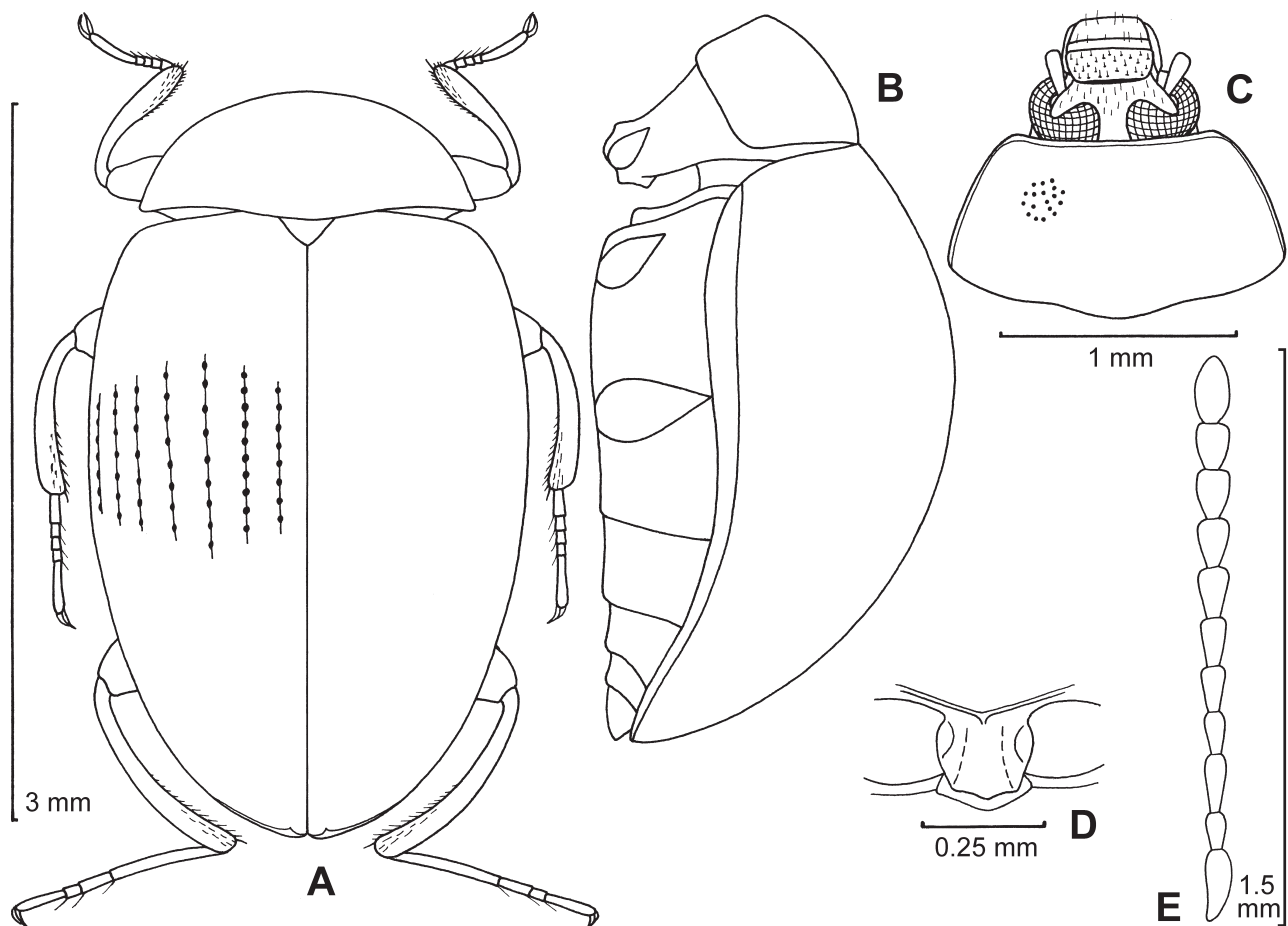


Fig. 7. *Amarygmus astutus* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

1.73–1.82. Elytra: length/width 1.37–1.42; length elytra/length pronotum 3.71–3.97; maximum width elytra/maximum width pronotum 1.29–1.31.

Colouration: Upperside lustrous. Pronotum dark, filthy green. Elytra uniformly dark copper coloured. Scutellum brown. Legs brown to dark brown. Antennomeres 1–5 brown, 6–11 black (antennomere 11 apically brightened). Underside brown, lustrous.

Head: Frons relatively narrow, approximately as wide as length of antennomere 4, situated on a higher level than clypeus; a sharp decline between frons and clypeus at the fronto-clypeal suture. Genae short, slightly raised, anteriorly terminating anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture formed by the slope between frons and clypeus. Clypeus shortly stretched forwards, convex transversely. Punctures on clypeus medium-sized and relatively closely set, punctures on frons sparser and smaller. Mentum reversely trapezoidal; with flat, lustrous lateral margins, space in between convex transversely. Underside of neck with a few small punctures and a few tiny hairs. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide, markedly convex transversely, moderately convex longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners in dorsal view angular, obtuse; front corners rounded. Anterior margin approximately straight. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible on the whole length. Front corners in lateral view rectangular; hind corners obtuse, angular. Surface with medium-sized, distinct, irregularly set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Ovate, not very wide, clearly convex transversely, less so longitudinally. Maximum width and height at the end of the first third. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges very narrowly visible in their middle part in dorsal view. With slightly incised and mainly superficial striae with small punctures; distance between punctures on disc in stria 4 about 3–4 times diameter of a puncture; about 18 punctures in stria 4. Intervals flat, slightly convex posterolaterally, with minute, not very closely set punctures.

Prosternum: Anterior margin narrowly bent upwards, with a small interruption in the middle. Apophysis nearly as wide as long, lateral margins rounded; lateral margins along procoxae slightly raised, space in between smooth and only with a slight median depression; apex very broadly pointed.

Mesosternum: Posterior part wide and short, on each side with a longitudinal sulcus which separates the lateral margins from the smooth middle; anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with a few

small punctures with short, tender, recumbent hairs. Median line slightly incised.

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

Antennae: Of medium length, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 9:4 / 5½ / 9:3 / 5:3 / 6:3½ / 6:4½ / 6:4½ / 8:5 / 8:5½ / 7:5½ / 11:5½.

Legs: Short. Femora enlarged towards the second third. Tibiae relatively thin. Pro- and mesotibiae slightly bent, metatibiae clearly bent. Lengths of protarsomeres 1–5 as 2:2:2:2:9, lengths of mesotarsomeres 1–5 as 6:4:2:2:9, lengths of metatarsomeres 1–4 as 21:7:3:8.

Amarygmus botryitidis n. sp.

(Fig. 8A–E)

Holotype (♀): Kinabalu Park, 6°5'N 116°33'E, Lowland mixed Dipterocarp Forest, *B. scortechinii*, 22.III.1998, A. FLOREN (CFL).

Paratype: Kinabalu Park PHS, *Aporosa lagenocarpa*, Lower Montane, Mixed dipterocarp, DOPAN, 26.II.1996, A. FLOREN (1 ♀ ZSMB).

Etymology

Botryitis (genitive botryitidis) = name of a precious stone in the “Naturalis historia” of PLINIUS senior. It is unknown which precious stone was meant.

Diagnosis

Small, oval, markedly convex. Elytra short, highly convex, with rows of medium-sized, widely separated punctures and flat intervals. Frons relatively narrow. Antennae of medium length. Upperside brilliant, pronotum either violet or blue, elytra greenish blue, legs brown.

With respect to body shape, form of legs, width of frons, and shape of antennae, *Amarygmus botryitidis* n. sp. belongs to the group affine *A. splendidulus* (Fabricius, 1794). Within this group *A. botryitidis* is particularly similar to *A. adelphus* n. sp., which, however, is somewhat larger (body length: 5.65–5.97 mm) and has somewhat longer elytra (length/width of elytra 1.33–1.36) and darker legs.

Another similar species is *A. delicatulus* Bremer, 2010 (BREMER 2010a: 182–184) from the same collection area. The punctures of the elytral rows of *A. delicatulus* are smaller and more widely separated than those of *A. botryitidis*, and pronotum and elytra of *A. delicatulus* are of the same colour (dark blue with colourful reflections).

Concerning body shape, punctuation of elytra, and colour of legs, *A. botryitidis* is also close to *A. cyaneicollis* Bremer, 2010 (BREMER 2010a: 178–180) from Sabah. *A. cyaneicollis*, however, has a markedly wider frons, the metatibiae are more bent, the antennae are shorter, the pronotum is sea-blue, and the elytra are dark coppery with

intense colour reflections (in *A. botryitidis* the colour of the pronotum is either violet or intensely blue, and that of the elytra bluish green).

There are two other species which have are similar shape as *A. botryitidis*: *A. votivus* Bremer 2010 (BREMER 2010a: 252–254) from Sabah, and *A. affectus* Bremer, 2010 (BREMER 2010a: 164–166) from Sarawak, but both species have a coppery or reddish brown elytral disc and the lateral parts of the elytra are blue. *A. affectus* is somewhat smaller than *A. botryitidis* (body length 3.97–4.47 mm), has lighter brown legs, and the punctures on the pronotum are larger. *A. votivus* is larger than *A. botryitidis* (body length 5.65–5.98 mm), the fronto-clypeal suture is more deeply incised, and the antennae are somewhat shorter.

Description

Measurements: Body length 4.98+5.10 mm; body width 3.39+3.50 mm. – **Ratios:** Pronotum: width/length 2.05+2.25; width hind corners/width front corners 1.66+1.80. Elytra: length/width 1.29+1.32; length elytra/length pronotum 3.83+3.83; maximum width elytra/maximum width pronotum 1.44+1.46.

Colouration: Elytra greenish blue, pronotum violet or sea blue, upperside markedly lustrous. Legs brown. Underside dark brown. Antennomeres 1–5 brown, 6–11 black.

Head: Frons relatively narrow, its width narrower than length of antennomere 4 (like $7\frac{1}{2}:9$); frons and clypeus situated on about the same level and not separated by a deeply incised or depressed fronto-clypeal suture. Genae narrow, short, moderately raised, anteriorly terminating well behind the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture slightly incised. Clypeus moderately stretched forwards, scarcely convex; clypeus and frons with tiny, not too closely set punctures. Mentum reversely trapezoidal; with flat, lustrous lateral margins, space in between convex transversely, slightly lustrous. Underside of neck with medium-sized, closely set punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide, uniformly convex transversely, less convex longitudinally. Widest at base, anteriorly narrowing; straight margins in the posterior half, bent in the anterior half. Hind corners angular, moderately obtuse; front corners rounded. Anterior margin slightly excavated.

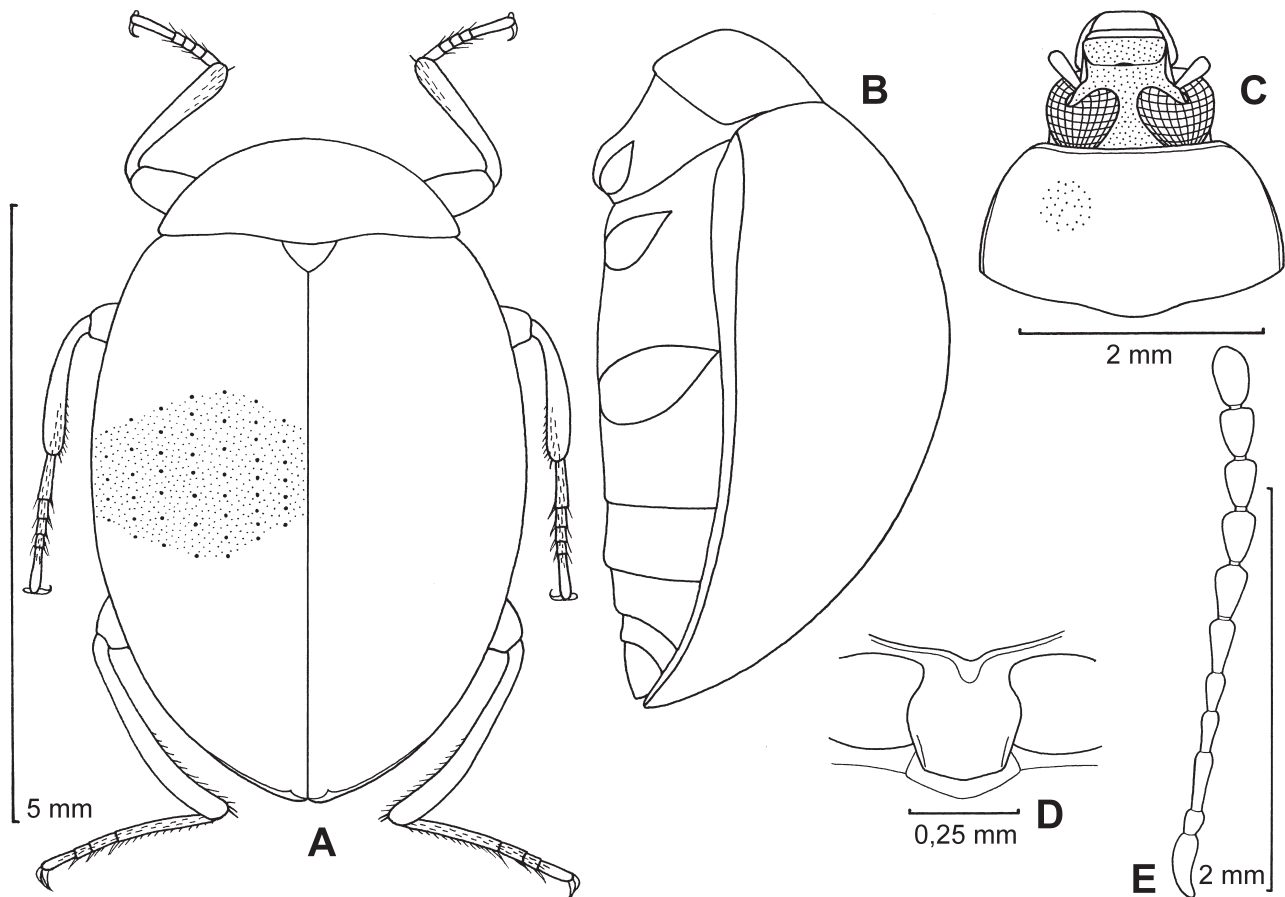


Fig. 8. *Amarygmus botryitidis* n. sp. – A Habitus, ♀. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna.

Lateral and anterior margins bordered. Lateral borders in dorsal view visible in the posterior two-fifths. Front and hind corners in lateral view angular and moderately obtuse. Surface with minute, distinct, not too closely set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Short, oval, markedly convex transversely and longitudinally. Maximum width and height slightly anterior to the middle. Shoulders barely prominent. Apices of elytra mutually rounded. Lateral edges very narrowly visible on the posterior three-fifths in dorsal view. With rows of medium-sized, widely separated punctures; distance between punctures on disc in row 4 approximately 3–4 times diameter of a puncture; about 22 punctures in row 4. Intervals everywhere flat, with tiny, widely separated punctures.

Prosternum: Anterior margin narrowly bent upwards laterally; in the middle with a relatively wide triangular process which is directed towards apophysis. Apophysis relatively wide, shallow, along procoxae somewhat widened but lateral margins only slightly lifted ventrad, space in between with a wide, shallow median groove; sides posterior to procoxae slightly converging with straight margins; apically broadly pointed.

Mesosternum: Posterior part short, its anterior margin excavated in the middle. Lateral margins with minute tubercles which border the smooth, somewhat depressed middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with small, not too closely set punctures, posterior part with minute, relatively closely set punctures. Median line neither depressed nor incised.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, with a wide border. Anterior part of sternite 1 covered with small, closely set punctures; posterior part of sternite 1 and subsequent sternites with widely separated, minute punctures.

Antennae: Of medium length, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 15:7 / 6:5 / 14:4 / 9:4 / 9:4 / 12:6½ / 13:7 / 13:8 / 13:8 / 13:8 / 15:8.

Legs: Short, tender. Femora somewhat thickened towards the second third. Protibiae straight, very slightly concave on outer side. Mesotibiae slightly bent. Metatibiae nearly straight in basal half, clearly bent apically. Lengths of protarsomeres 1–5 as 5:5:4:4:16, lengths of mesotarsomeres 1–5 as 18:8:6:4:17, lengths of metatarsomeres 1–4 as 33:12:6:17.

Amarygmus coruscus n. sp.
(Fig. 9A–E)

Holotype (♀): Kuching, I.11 [1911] (BMNH).

Paratype: Sarawak, Kapit dist., Rumah Ugap vill., Sut River, 3.–9.III.1994, J. HORÁK leg. [right antenna, right middle leg, left and right metatibiae and antennomeres missing] (1 ♀ ZSMB).

Etymology

Coruscus (Lat.) = glimmer.

Diagnosis

Of medium size, ovate, markedly convex, *Chrysomela*-like. Elytra with rows of large, rhombic punctures. Intervals flat. Upperside greenish blue, lustrous, legs and antennae dark brown to black.

Similar species with an ovate shape and elytral rows with rhombic punctures are *A. voluptabilis* Bremer, 2006 (BREMER 2006a: 30–33) from Sabah, *A. vanus* Bremer, 2010 (BREMER 2010b: 59–60) from Peninsular Malaysia and Sabah, and *A. rudis* Bremer, 2010 (BREMER 2010b: 54–55) from Peninsular Malaysia:

A. voluptabilis is smaller than *A. coruscus* (body length 5.57–5.81 mm), the punctures of the elytral rows are markedly smaller, the elytra are longer (length/width ratio 1.42–1.46), the metatibiae are more strongly bent, the frons is wider, and the fronto-clypeal suture is much more depressed and incised.

A. vanus is as large as *A. coruscus*, but *A. vanus* has a different colouration of the upperside (blue pronotum, blue lateral elytral intervals and pink elytral disc) and the punctures of the elytral intervals are larger.

A. rudis has a similar shape and width of frons and similar legs as *A. coruscus*, but is larger (body length 7.80 mm), the upperside is darker green coloured, and the elytra are somewhat longer (length/width ratio 1.50).

There is another species with similar size and rhombic punctures on Borneo, *A. muluensis* Bremer, 2010 (BREMER 2010a: 206–208). However, the elytral punctures of *A. muluensis* are situated in striae, and the elytra are definitely more elongate (length/width ratio 1.55).

Description

Measurements: Body length 6.77+7.00 mm; body width 4.21+4.38 mm. – Ratios: Pronotum: width/length 2.13+2.15; width hind corners/width front corners 1.84+1.95. Elytra: length/width 1.35+1.40; length elytra/length pronotum 3.89+4.02; maximum width elytra/maximum width pronotum 1.31+1.38.

Colouration: Elytra bluish green, with intense glimmer. Pronotum green, very lustrous. Frons green, clypeus and genae dark brown. Antennomeres 1–3 dark brown, 4–11 black. Legs black. Underside black, somewhat lustrous.

Head: Frons of medium width, as wide as length of antennomere 4, covered with minute punctures. Genae somewhat raised, anteriorly terminating anterior to the level of the middle part of the fronto-clypeal suture.

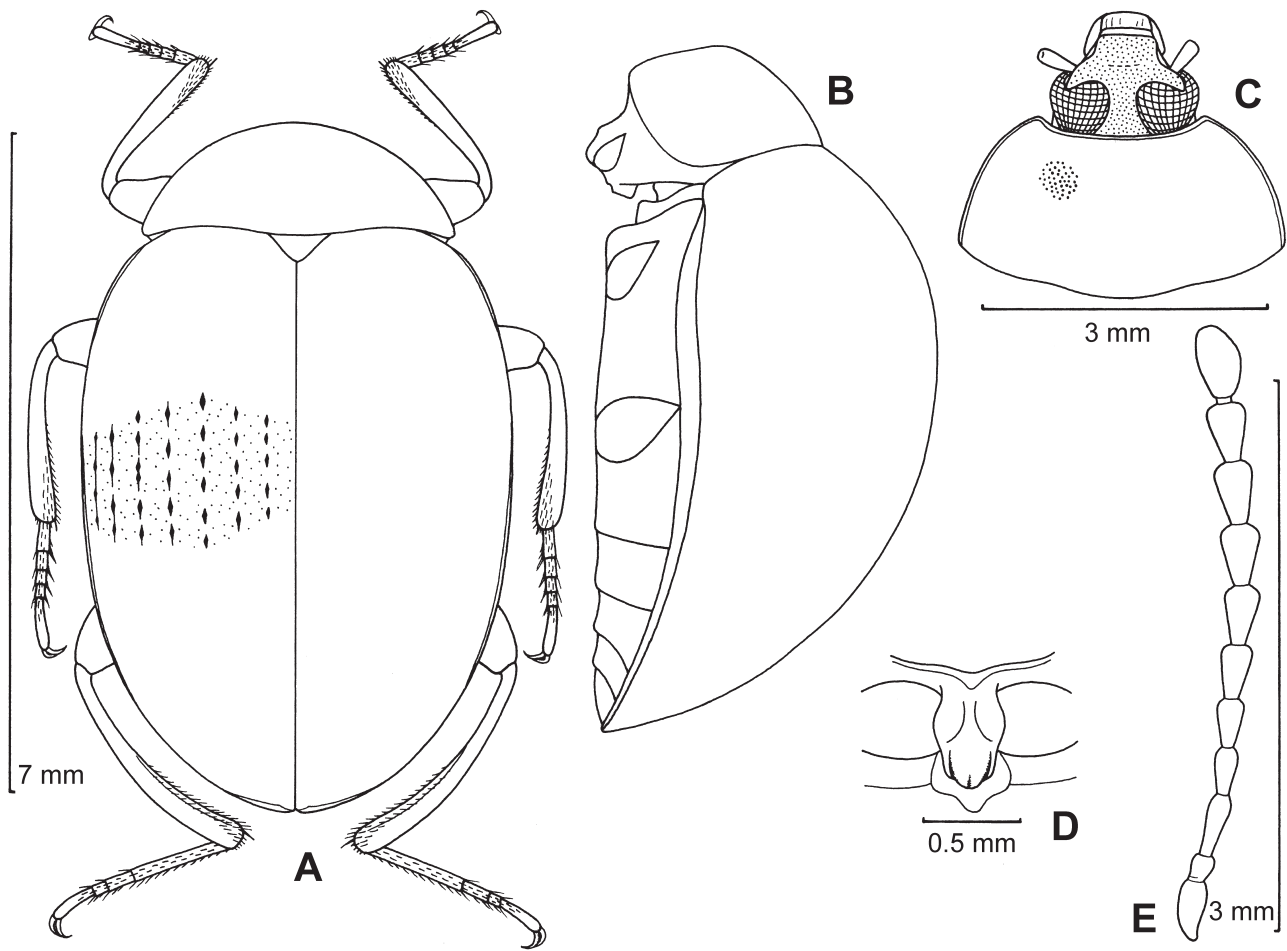


Fig. 9. *Amarygmus coruscus* n. sp. – A Habitus, ♀. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna.

Fronto-clypeal suture slightly incised in its middle part. Clypeus moderately stretched forwards, nearly flat, punctures as on frons. Mentum reversely trapezoidal; lateral margins flat, lustrous, space in between less lustrous and convex transversely. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Wide, moderately convex transversely, slightly less convex longitudinally. Widest at base, narrowing towards front corners and bent. Hind corners angular, obtuse; front corners somewhat protruded due to the excavated anterior margin, rounded. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible. Front and hind corners in lateral view angular, obtuse. Surface with small, distinct, relatively closely set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Oval, slightly elongate, markedly convex transversely, moderately convex longitudinally. Maximum height and width at about midlength. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral

edges narrowly visible on the whole length in dorsal view. With rows of large, rhombic punctures of variable size and distance; about 22 punctures in row 4. Intervals flat, with tiny, indistinct punctures situated in some distance to each other (as shown in Fig. 9A).

Prosternum: Anterior margin narrowly bent upwards, with a short, triangular process towards apophysis at midlength. Apophysis markedly widened along procoxae, lateral margins widened and lifted ventrad, space in between with a deep median groove; posterior to procoxae somewhat descending, with straight, uplifted margins, space in between excavated with uneven surface; apically rounded.

Mesosternum: Anterior margin of the posterior part excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc striolated on anterior fourth and with indistinct, small punctures, posterior part with minute, widely separated punctures. Median line somewhat incised.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites 1+2 striolated; all sternites with tiny punctures which are somewhat closer set on sternite 5.

Antennae: Of medium length, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 14:7½ / 8:6 / 16:6½ / 12:7 / 13:7 / 14:9 / 16:11 / 16:11½ / 16:11½ / 19:11½.

Legs: Short. Femora markedly thickened towards the second third. Protibiae straight, somewhat thickened apically. Mesotibiae slightly bent in the basal two-fifths, straight in the apical three-fifths. Metatibiae moderately bent. Lengths of protarsomeres 1–5 as 9:7:6:6:24, lengths of mesotarsomeres 1–5 as 14:10:7:5:25, lengths of metatarsomeres 1–4 as 22:7:5:12.

***Amarygmus danumensis* n. sp.**
(Fig. 10A–H)

Holotype (♂): Borneo, Sabah, Danum Valley [primary lowland rainforest], 4°58'N 117°48'E, M. D. F. ELLWOOD, *Parashorea tomentella*, *Asplenium nidus*, Tembaling 2, FogTray 2, 19.X.1999 (BMNH).

Paratypes: Same data as holotype (1 sex not determined BMNH). – Same data as holotype, but Tembaling 2, FogTray 26, 450 (1 ♀ ZSMB). – Same data as holotype, but Tembaling 1, FogTray 1, 14.X.1999 (1 ♀ BMNH). – Same data as holotype, but 4 Week Can. 1, 4 Fog., 11.IV.2000 (1 ♀ BMNH). – Mt. Trus Madi, 1300 m, Sabah, Borneo, 9.–10.IV.1994, N. KANIE leg. (1 ♂ CA). – Kinabalu NP, 6°02'90.2"N 116°41'95.3"E, Mv PW, *A. lag-neocarpa* 10 F1, 29.III.1997, A. FLOREN (1 ♀ CFL). – Near Keningau, N Borneo, 30.VI.1989 (1 ♂ ZSMB). – Keningau, Sabah, N Borneo, 31.V.1992, M. IRO leg. (1 ♀ CM). – Sarawak, Gunung Mulu Nat. Park, R. G. S. Expedition 1977–8, Site 2, January, Camp 4, Mulu 1790, 453463, lower montane (moss) forest, Acl-understorey, J. D. HOLLOWAY et al., B. M. 1978-206 (1 ♀ BMNH).

Notes: All specimens from Danum Valley are highly rigid. Except the holotype, all specimens from this locality had been damaged by the mounting process. Because of this rigidity a preparation of the aedeagus of the holotype was not performed; the assumption that this specimen is a male was inferred from the antennae, which are somewhat longer than in the females, and the slight posteromedial impression on sternite 5.

Etymology

Danumensis, derived from Danum, the name of the valley where several specimens of the new species had been collected.

Diagnosis

Of medium size, markedly oval, moderately convex transversely and longitudinally. Elytra with rows of medium-sized punctures which are partially connected by faint lines; elytral intervals on disc flat. Upperside greenish or dark purple (see also chapter colouration below). Pronotum with rounded front corners. Frons of medium width, of equal width in both sexes. Antennae of medium length,

in males longer than in females. Male protarsomeres 1–3 not widened.

Amarygmus danumensis n. sp. is very similar to *A. medius* Bremer, 2010 (BREMER 2010a: 204–206) from the same locality. *A. medius*, however, has a black to dark coppery upperside (not greenish or dark purple as in *A. danumensis*), the elytra more convex transversely, and pronotum and frons narrower.

Description

Measurements: Body length 5.37–5.97 mm; body width 3.44–3.70 mm. – Ratios: Pronotum: width/length 1.78–2.07; width hind corners/width front corners 1.73–1.80. Elytra: length/width 1.28–1.31; length elytra/length pronotum 3.39–3.67; maximum width elytra/maximum width pronotum 1.40–1.45.

Colouration: Pronotum filthy green or greenish golden. Elytra green or, in anterior view, dark purple, in most specimens colour of the pronotum encroaching onto elytral shoulders (visible in anterior view). Upperside slightly lustrous. Femora and tibiae black, tarsi brown. Antennomeres 1–4 dark brown, 5–11 black. Underside black.

Head: Frons and clypeus on the same level. Frons of medium width, in males narrower than length of antennomere 4 (as 8:12), with tiny, not very closely set punctures. Genae narrow, slightly raised, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture incised only in its middle part. Clypeus stretched forwards, sides somewhat rounded, with tiny punctures; short, tender, recumbent hairs originating from these punctures. Mentum reversely trapezoidal, with somewhat bent sides; lateral margins flat, lustrous, space in between slightly convex transversely, somewhat opaque. Underside of neck with small, closely set punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Moderately wide and convex transversely, slightly convex longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners angular, obtuse; front corners rounded and slightly stretched forwards. Anterior margin excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view visible on the whole length. Front and hind corners in lateral view obtuse, front corners rounded, hind corners angular. Surface with small, irregularly set punctures.

Scutellum: Triangular, impunctate, sides slightly bent.

Elytra: Ovate, slightly convex transversely and longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges narrowly visible on the whole length in dorsal view. With rows of distinct, medium-sized punctures which are partially linked by faint lines; distance between punctures on disc about equal to

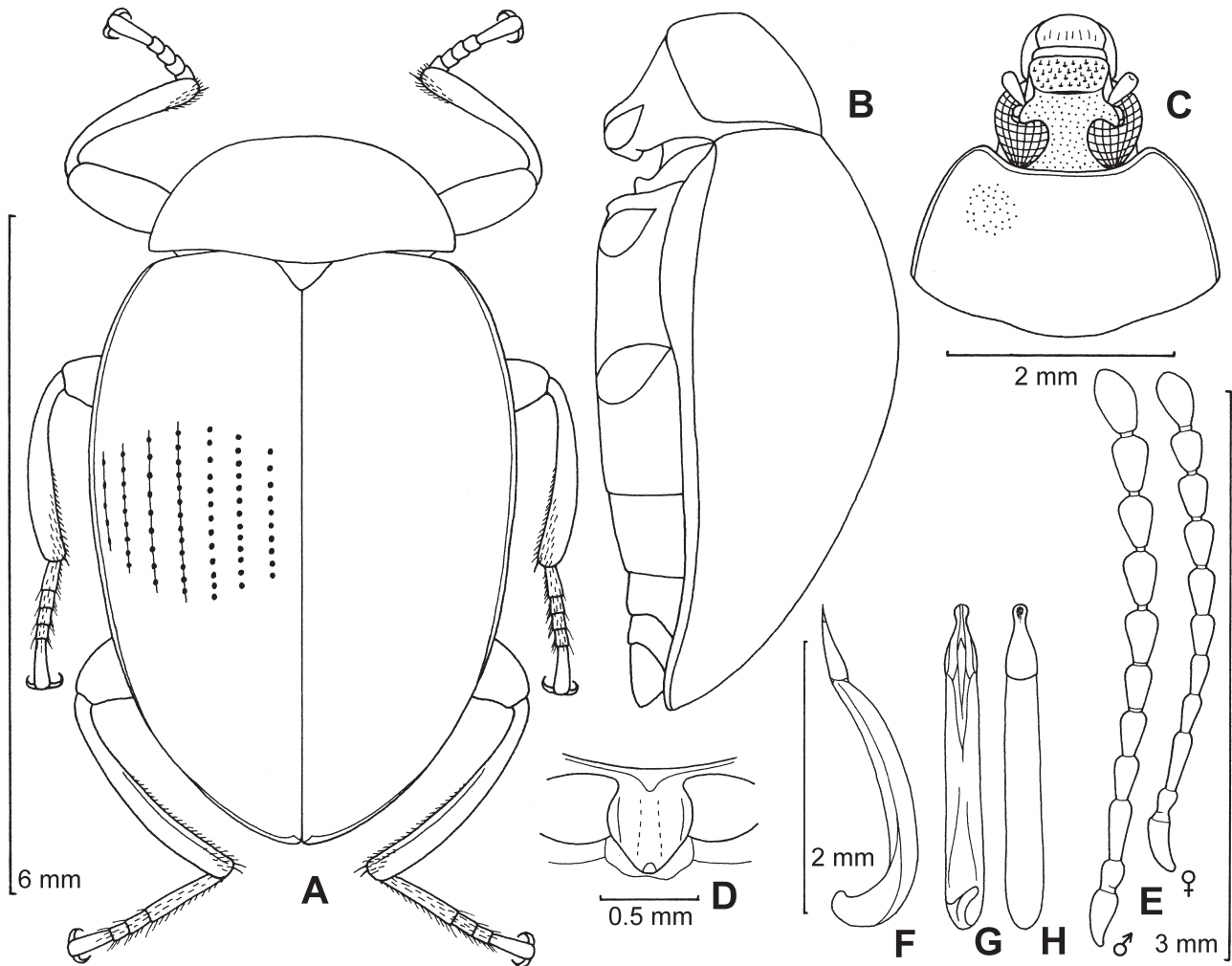


Fig. 10. *Amarygmus danumensis* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

diameter of a puncture; about 34 punctures in row 4. Intervals flat on disc, slightly convex laterally, with indistinct, tiny, sparse punctures.

Prosternum: Anterior margin narrowly bent upwards, in the middle interrupted by a short keel which is directed towards apophysis. Apophysis laterally rounded and lateral margins slightly raised, space in between like a shallow trough; apically broadly pointed.

Mesosternum: Posterior part wide, its anterior margin excavated in the middle. With a few short, recumbent hairs.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior apophysis slightly raised like a hump, its lateral parts with coarse punctures. Anterior part of disc with a few large punctures, posterior part with closely set, tiny punctures and with tiny, recumbent hairs. Median line neither incised nor depressed.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, narrowly bordered. Sternites with tiny, not very closely set punctures and tiny, recumbent hairs.

Antennae: Reaching to about anterior two-fifths of elytra in males, to about anterior third in females. Length/width ratio of antennomeres 1–11 in male equals to 14:8 / 7:6 / 15:6 / 12:6 / 13:6 / 12:7 / 14:8 / 15:9 / 15:9 / 14:9½ / 20:9½, in female to 15:7 / 7:5 / 15:5 / 9½:5 / 10½:5 / 10:6 / 12:7½ / 12:7½ / 12:8 / 12:8½ / 16:9.

Legs: Short. Femora markedly thickened towards the second third. Protibiae thickened apically and slightly bent; meso- and metatibiae thickened apically and bent. Lengths of protarsomeres 1–5 as 6:6:5:5:21, lengths of mesotarsomeres 1–5 as 12:8:8:6:21, lengths of metatarsomeres 1–4 as 24:9:8:21.

Aedeagus: See Fig. 10F–H.

Amarygmus dispensatus n. sp.
(Fig. 11A–F)

Holotype (sex not determined, probably ♂): N Borneo, Bettotan nr. Sandakan, 16.VIII.1927, Ex. F. M. S. Museum, B. M. 1955-354 (BMNH).

Note: No preparation of the genitalia was performed because of the rigidity of the specimen.

Etymology

Dispensatus (Lat.) = dispense.

Diagnosis

Small, ovate. Elytra strongly convex transversely, with rows of medium-sized, closely set, distinct punctures which are connected by very faint lines; intervals flat, with minute punctures. Pronotum relatively flat. Frons of medium width. Antennae of medium length. Elytra, pronotum and frons dark blue, contrasting with the reddish brown legs.

Concerning body shape and colour of upperside and legs, *Amarygmus dispensatus* n. sp. is very close to *A. michaeli* Bremer, 2004 (BREMER 2004b: 138–139) from

Sabah, but *A. michaeli* has a clearly wider frons and the colour of the upperside has a distinctly violet tinge.

Another similar species is *A. distinguens* n. sp. from Sarawak; see diagnosis under this species.

Description

Measurements: Body length 6.05 mm; body width 3.34 mm. – Ratios: Pronotum: width/length 1.91; width hind corners/width front corners 1.81. Elytra: length/width 1.45; length elytra/length pronotum 3.59; maximum width elytra/maximum width pronotum 1.29.

Colouration: Elytra dark blue, scarcely lustrous; pronotum dark blue with a slight violet tinge; frons blue; clypeus and genae black. Underside brown (darker brown than femora), lustrous. Legs light to reddish brown. Antennomeres 1–5 light brown, 6 dark brown, 7–11 black.

Head: Frons of medium width, somewhat narrower than length of antennomere 3 (like 13 : 15), with a few minute punctures. Genae anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture arched, distinctly incised

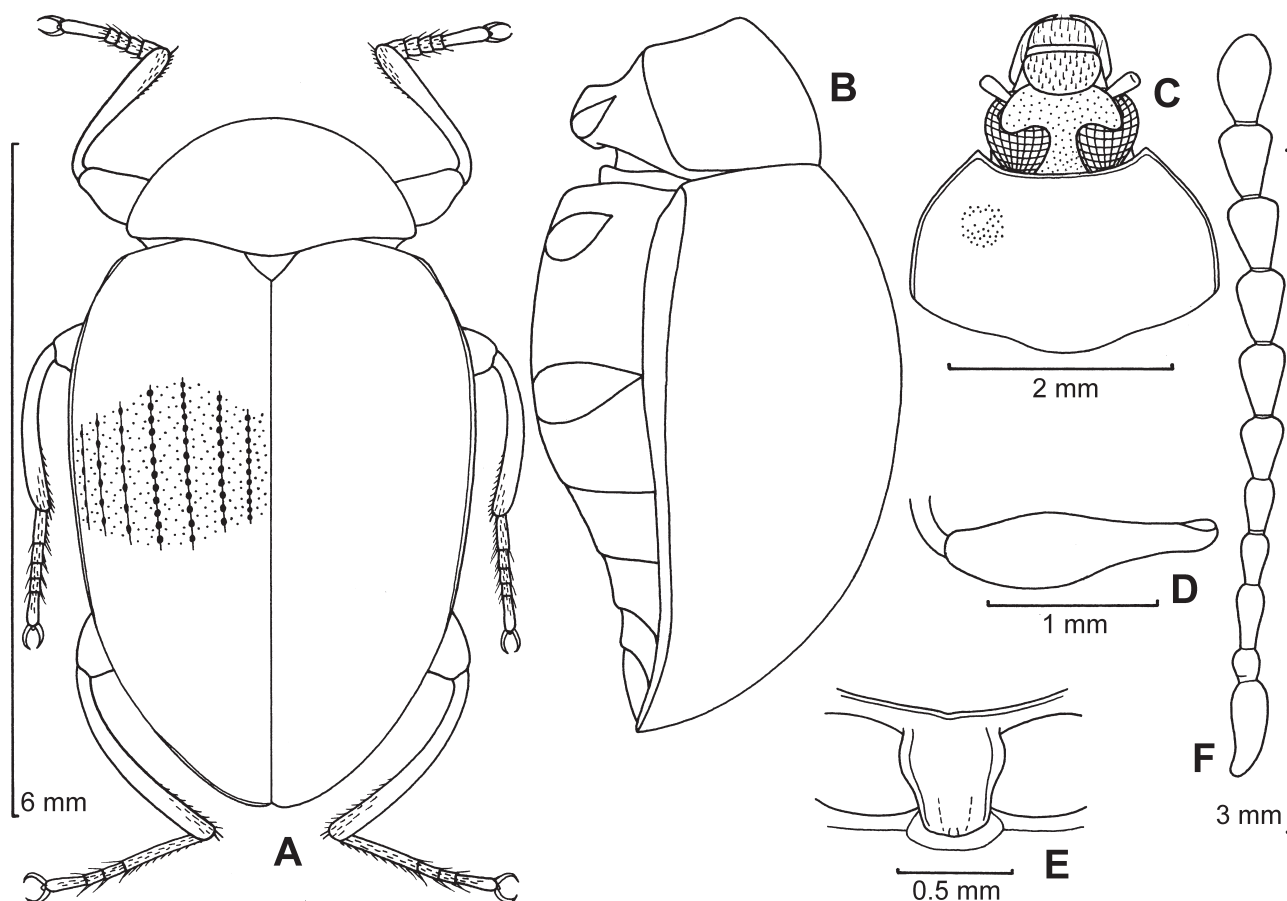


Fig. 11. *Amarygmus dispensatus* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Profemur. **E** Prosternal apophysis. **F** Antenna.

across the whole width of the head. Clypeus moderately stretched forwards, slightly convex transversely and longitudinally, with punctures somewhat larger and closer set than those on frons. Mentum widening anteriorly, with bent, flat margins and with a rounded transition between lateral and basal margins. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Moderately convex transversely, slightly convex longitudinally. Widest at base; sides subparallel in the posterior two-fifths, narrowing towards front angles with straight margins in the anterior two-fifths. Hind corners angular, very obtuse; front corners acute-angled. Anterior margin excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view narrowly visible. Front corners in lateral view rectangular; hind corners rounded and very obtuse. Surface with small, distinct, relatively closely and irregularly set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Ovate. Maximum width and height at the end of the first third. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges narrowly visible in dorsal view. With rows of medium-sized, distinct, partially polygon-shaped punctures which are connected by very faint lines; distance between punctures on disc in row 4 about equal to the diameter of a puncture; about 34 punctures in row 4. Intervals flat, with minute, distinct, not very closely set punctures.

Prosternum: Anterior margin continuously bent upwards, not retracted towards apophysis at midlength. Apophysis relatively large and flat, with a few short, partially semi-erect hairs originating from small punctures; lateral margins along procoxae moderately widened, scarcely raised; sides slightly narrowing posterior to procoxae; apically rounded, with two small tubercles in the middle.

Mesosternum: Posterior part with a shallow longitudinal sulcus on each side medial to lateral margins, anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior apophysis slightly raised like a bump. Disc with minute, distinct, relatively closely set punctures and short, recumbent hairs. Median line slightly incised in the posterior half.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, bordered. Discs of sternites with tiny, widely separated punctures and tiny hairs.

Antennae: Of medium length, reaching to anterior third of elytra. Antennomeres 6–11 densely pilose. Length/width ratio of antennomeres 1–11 equals to 15:8 / 7:6½ / 15:6½ / 10:6½ / 12:6½ / 16:8 / 15:8 / 17:8½ / 15:8½ / 14½:8½ / 20:8½.

Legs: Short. Femora with a very thin base, thickened like a club towards the second third. Pro- and mesotibial slightly bent, metatibiae moderately bent. Lengths of

protarsomeres 1–5 as 5:7:4:4:18, lengths of mesotarsomeres 1–5 as 12:7:5:5:20, lengths of metatarsomeres 1–4 as 30:9:7:20.

Amarygmus distinguens n. sp.
(Fig. 12A–E)

Holotype (♀): Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort [primary lowland rainforest], 10–200 m, at night, on bark of trees, 23.–27.III.2009, R. GRIMM (CG).

Paratypes: Malaysia, Borneo, Sarawak, NW Kuching, Matang [primary lowland rainforest], 19.III.2008, at night, on bark of trees, R. GRIMM (1 ♀ CG, 1 ♀ ZSMB).

Etymology

Distinguens (Lat.) from *distinguo*, *distinctum* = to separate.

Diagnosis

Small, ovate. Elytra with linear punctures which are connected by faint lines; intervals flat, with minute punctures. Frons of medium width. Antenna of medium length. Elytra greenish blue, lustrous, pronotum greenish golden, upperside with a slight iridescence. Femora and tibiae black.

A. distinguens n. sp. is similar to *A. dispensatus* n. sp. from Sabah. However, the upperside of *A. dispensatus* is dark blue, without any iridescence, and the legs are reddish brown (femora and tibiae of *A. distinguens* dark, nearly black), the front corners are sharply angular (rounded in *A. distinguens*), the fronto-clypeal suture is markedly incised and arched (scarcely incised and not arched in *A. distinguens*), and the antennae are stouter.

Another similar species is *A. michaeli* Bremer, 2004, see diagnosis under *A. dispensatus* n. sp.

Description

Measurements: Body length 5.33–5.81 mm; body width 3.34–3.58 mm. – Ratios: Pronotum: width/length 2.20–2.28; width hind corners/width front corners 1.77–1.88. Elytra: length/width 1.28–1.37; length elytra/length pronotum 3.86–4.11; maximum width elytra/maximum width pronotum 1.35–1.39.

Colouration: See diagnosis above. Underside black, lustrous.

Head: Upperside lustrous. Frons of medium width, wider than length of antennomere 3 (like 19:16), covered with minute, not too closely set punctures. Genae moderately raised, anteriorly terminating slightly anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture slightly incised and depressed. Clypeus moderately stretched forwards, moderately convex transversely, with punctures somewhat larger than those on frons and with tiny hairs. Mentum widening anteriorly;

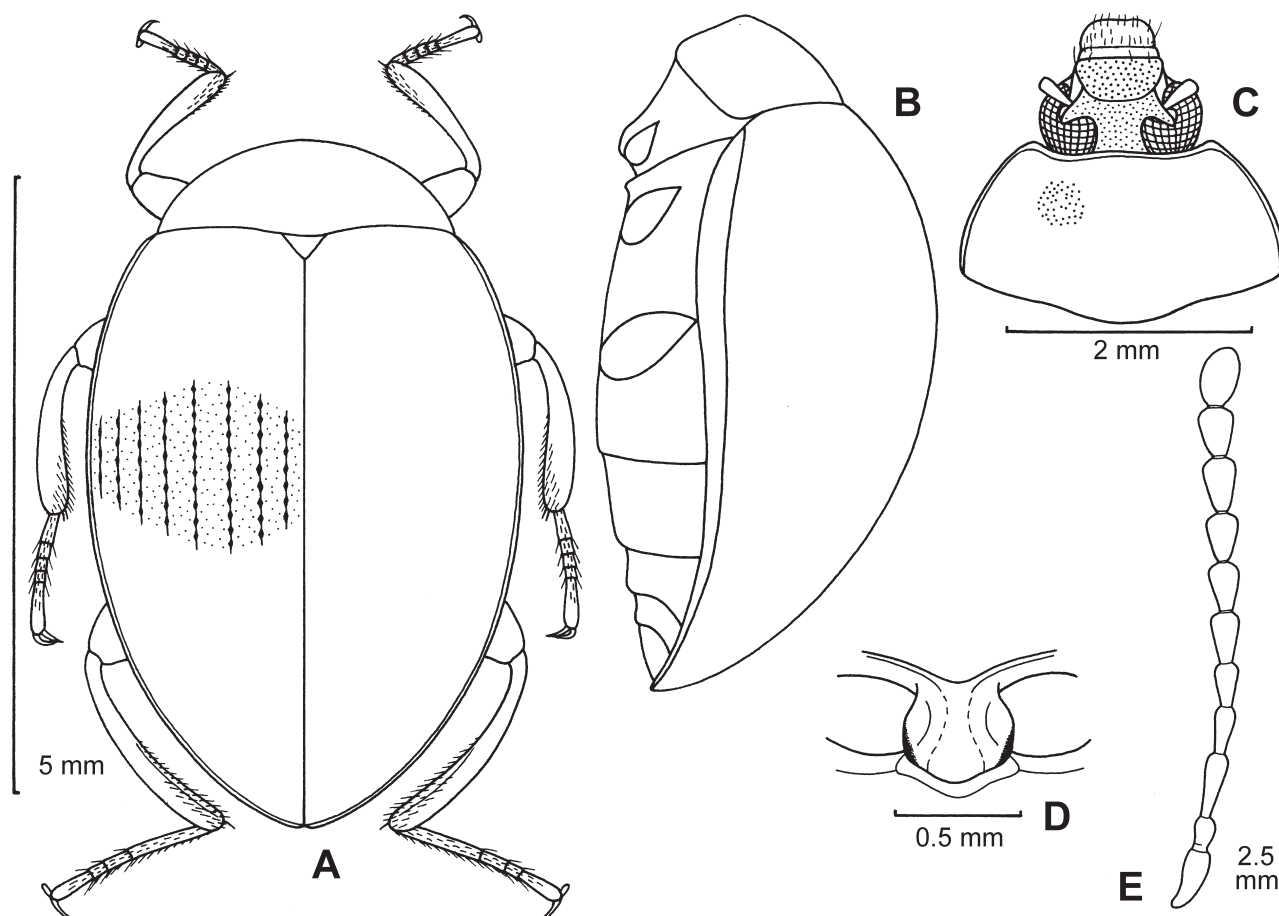


Fig. 12. *Amarygmus distinguens* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

with flat and bent lateral margins and a rounded transition between lateral margins and the basal one, space in between lustrous, convex transversely. Underside of neck with large, closely set punctures. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Convex transversely, moderately convex longitudinally. Widest at base, anteriorly narrowing and bent towards front corners. Front corners rounded in dorsal view; hind corners angular, obtuse. Anterior margin moderately excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view narrowly visible. Front and hind corners in lateral view obtuse, front corners rounded, hind corners angular. Surface with small, not very distinct, relatively closely set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Ovate, moderately convex transversely, somewhat less convex longitudinally. Maximum width and height at the beginning of the second third. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges, except along shoulders, narrowly visible in dorsal view. With faint striae which connect medium-sized, relatively closely set, mostly round punctures; dis-

tance between punctures on disc in stria 4 about $\frac{1}{2}$ –1 diameter of a puncture. Intervals flat, with tiny, distinct, not very closely set punctures.

Prosternum: Anterior margin narrowly bent upwards laterally, with a low process towards apophysis at midlength. Apophysis short, shallow, widest somewhat behind procoxae, lateral margins raised along procoxae, space in between with a wide, shallow groove; apex rounded.

Mesosternum: Posterior part wide, short, somewhat opaque, anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae broadly rounded and broadly bordered. Disc arched, anterior part with large, not too closely set punctures, posterior part with a few tiny punctures. Median line slightly incised in its posterior fourth.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, bordered. All sternites with tiny, widely separated punctures and tiny hairs.

Antennae: Reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 13:5 / 7:4½ / 16:4½ / 10:4½ / 11:5 / 11:6 / 13:7 / 13:8 / 14:8 / 13:8 / 16:9.

Legs: Short. Femora thickened towards the second third. Protibiae slightly bent. Mesotibiae moderately bent. Metatibiae somewhat more bent than mesotibiae. Lengths of protarsomeres 1–5 as 4:4:4:4:15, lengths of mesotarsomeres 1–5 as 10:6:5:4:17, lengths of metatarsomeres 1–4 as 23:11:6:18.

Amarygmus filiastra n. sp.
(Fig. 13A–E)

Holotype (♀): Borneo, Malaysia, Sarawak, Kubah NP, HQ vic. [edge of primary lowland rainforest], 100–300 m, at night, on bark of trees, 27.–28.III.2009, R. GRIMM (CG).

Etymology

Filiastra (Lat.) (noun) = stepdaughter.

Diagnosis

Small, narrowly elongate ovate. Elytra with somewhat incised, narrow striae with punctures barely wider than striae; elytral intervals on disc slightly convex, laterally

moderately convex, impunctate. Maximum width and height of elytra at the end of the anterior third. Pronotum narrow, markedly convex transversely. Frons of medium width. Antennae relatively short. Protibiae slightly bent; mesotibiae moderately bent; metatibiae straight in basal half, slightly incurved in apical half. Metatarsomere 1 long. Elytra copper coloured with a golden tinge, pronotum greenish blue, legs brown.

The new species *Amarygmus filiastra* belongs to a group of similarly small and elongate species: *A. nepos* Bremer, 2002 (from Malayan Peninsula, Sumatra, and Borneo, see BREMER 2002a: 28–30), *A. filiaster* Bremer, 2010 (from Peninsular Malaysia, see BREMER 2010b: 41–43), and *A. pullus* n. sp. (Sabah), described in this paper:

A. nepos has the elytra with rows of small punctures which are inconstantly connected by faint lines, and the pronotum with the same colouration as the elytra.

A. filiaster has elytral striae and also a uniformly coloured upperside; it differs from *A. filiastra* in the elytral striae with large punctures and the relatively coarse punctation on the elytral intervals.

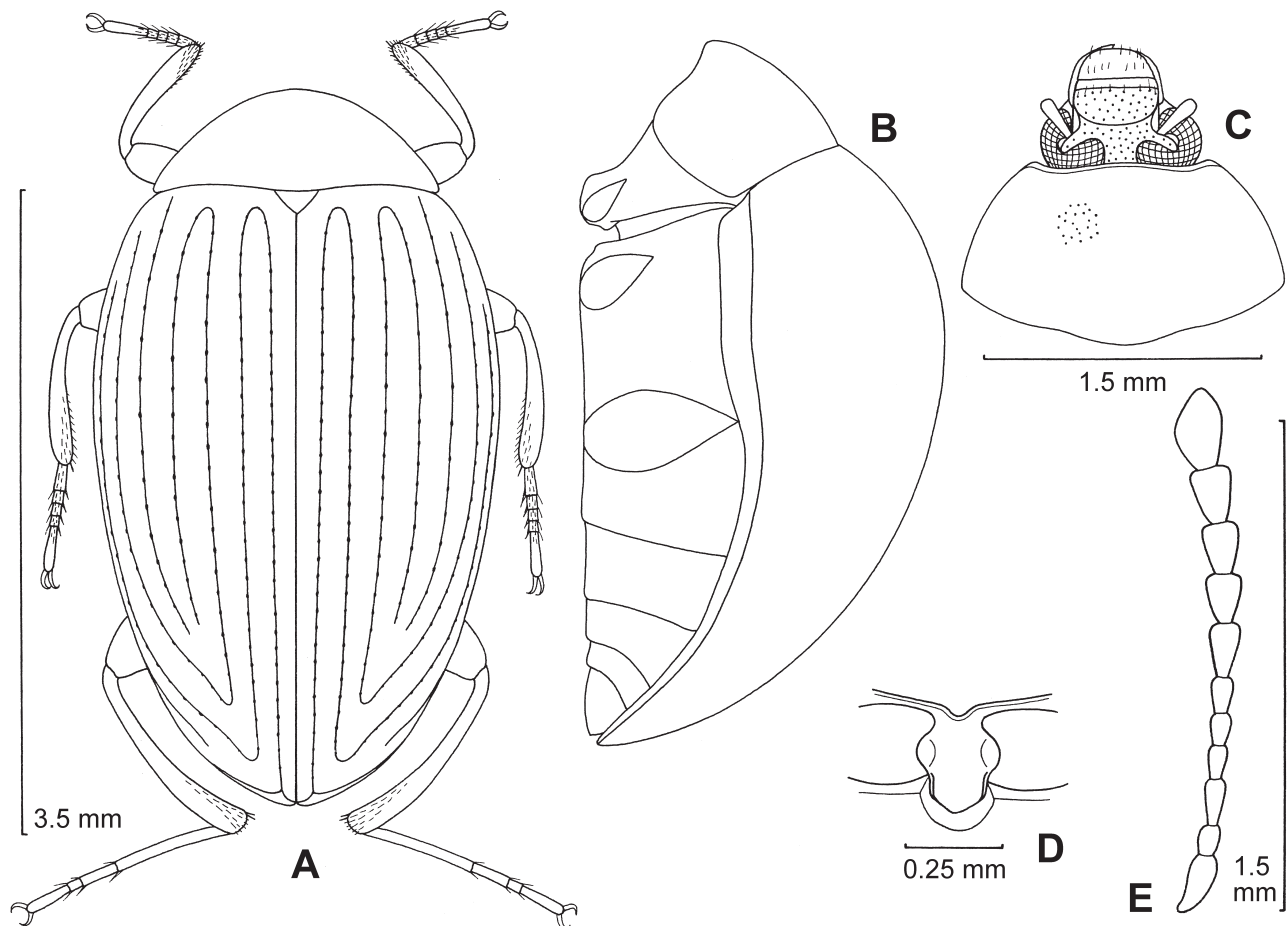


Fig. 13. *Amarygmus filiastra* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna, ♀.

A. pullus has slightly incised, narrow elytral striae with barely visible stria punctures as in *A. filiastra*, but *A. pullus* can easily be distinguished from *A. filiastra* by the greyish brown pronotum, the dark green elytra and the markedly wider frons.

Description

Measurements: Body length 3.79 mm; body width 2.06 mm. – Ratios: Pronotum: width/length 2.00; width hind corners/width front corners 1.71. Elytra: length/width 1.56; length elytra/length pronotum 3.93; maximum width elytra/maximum width pronotum 1.26.

Colouration: Elytra uniformly copper coloured with a golden shine. Pronotum bluish green, lustrous. Frons blue, genae and clypeus black. Underside and legs brown.

Head: Frons of medium width, slightly wider than length of antennomere 3 (like 9 : 8), with minute, not very closely set punctures. Genae slightly raised, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture arched, distinctly incised. Clypeus moderately stretched forwards, somewhat convex transversely and longitudinally, with minute punctures and short hairs. Mentum reversely trapezoidal; with flat, lustrous lateral margins, space in between opaque and transversely convex. Underside of neck strongly microreticulated, with a few punctures of medium size. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Not very wide, markedly convex transversely, slightly convex longitudinally. Widest at base, anteriorly narrowing with approximately straight margins. Hind and front corners in dorsal view narrowly rounded. Anterior margin nearly straight. Lateral and anterior margins bordered. Lateral borders in dorsal view only visible in the posterior fourth. Front corners in lateral view broadly rounded, obtuse; hind corners narrowly rounded, obtuse. Surface with tiny, indistinct, widely separated punctures.

Scutellum: Triangular, impunctate.

Elytra: Elongate oval, very convex transversely, moderately convex longitudinally. Maximum width and height at the end of the first third. Shoulders rounded, obtuse. Apices of elytra mutually rounded. Lateral edges narrowly visible in the posterior fourth in dorsal view. With well incised striae with elongate punctures which are only noticeable as slight widenings. Intervals on disc very slightly convex, somewhat more convex laterally, punctures tiny (not visible at 50-fold magnification).

Prosternum: Anterior margin narrowly bent upwards, retracted towards apophysis at midlength. Apophysis relatively short, lateral margins along procoxae clearly widened and lifted ventrad like a tubercle, space in between consisting of a deep, wide, microreticulated median groove; descending between procoxae and apex; apically rounded.

Mesosternum: Posterior part short, wide, anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, broadly bordered. Anterior part of disc with a few medium-sized punctures, posterior part impunctate. Median line narrowly incised.

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

Antennae: Short, reaching to anterior fifth of elytra. Length/width ratio of antennomeres 1–11 equals to 11:3 / 6:2½ / 8:2½ / 6:2½ / 6:3 / 6:3 / 8:4½ / 7½:4½ / 7:5 / 7:5 / 11:6.

Legs: Short. Femora moderately thickened towards the second third. For tibiae see diagnosis above. Lengths of protarsomeres 1–5 as 3:2:2:2:12, lengths of mesotarsomeres 1–5 as 6:4½:3:3:12, lengths of metatarsomeres 1–4 as 29:9:4:12.

Amarygmus floreni n. sp.

(Fig. 14A–E)

Holotype (♂): Sabah, Poring Spring, *Aporusa* sp., Lower Mountain, > 650 m, mixt dipterocarp Fst., Fog.A51/F2, 1.III.1992, A. FLOREN (CFL).

Paratype: Same data as holotype, but Fog.52/F2, 2.II.1992 (1 ♀ ZSMB).

Note: No preparation of the genitalia was performed because of the high rigidity of the specimens.

Etymology

Dedicated to Priv. Doz. Dr. ANDREAS FLOREN (Würzburg), investigator of the canopy fauna of trees in temperate and tropical areas.

Diagnosis

Small, oval. Elytra with puncture rows, flat intervals and a large, reddish brown macula between base and middle of elytra. Pronotum relatively flat, with broadly rounded front corners. Frons wide. Antennae of medium length. Legs reddish brown. Protibiae thickened in the apical half only in the male.

With respect to shape, punctuation of elytra, width of frons, widening of male protibiae, and structure of antennae, *Amarygmus floreni* n. sp. is similar to *A. dryadiformis* Bremer, 2002 (BREMER 2002b: 12–13, fig. 6) from the Crocker Mountains. *A. dryadiformis* occurs at a higher altitude, is somewhat smaller (body length 2.97 mm), has two large maculae on each elytron, the widening of the middle part of the male protibiae is more pronounced, and the front corners of the pronotum are angular.

Description

Measurements: Body length 3.27+3.42 mm; body width 1.79+1.83 mm. – Ratios: Pronotum: width/length 2.10+2.21; width hind corners/width front corners

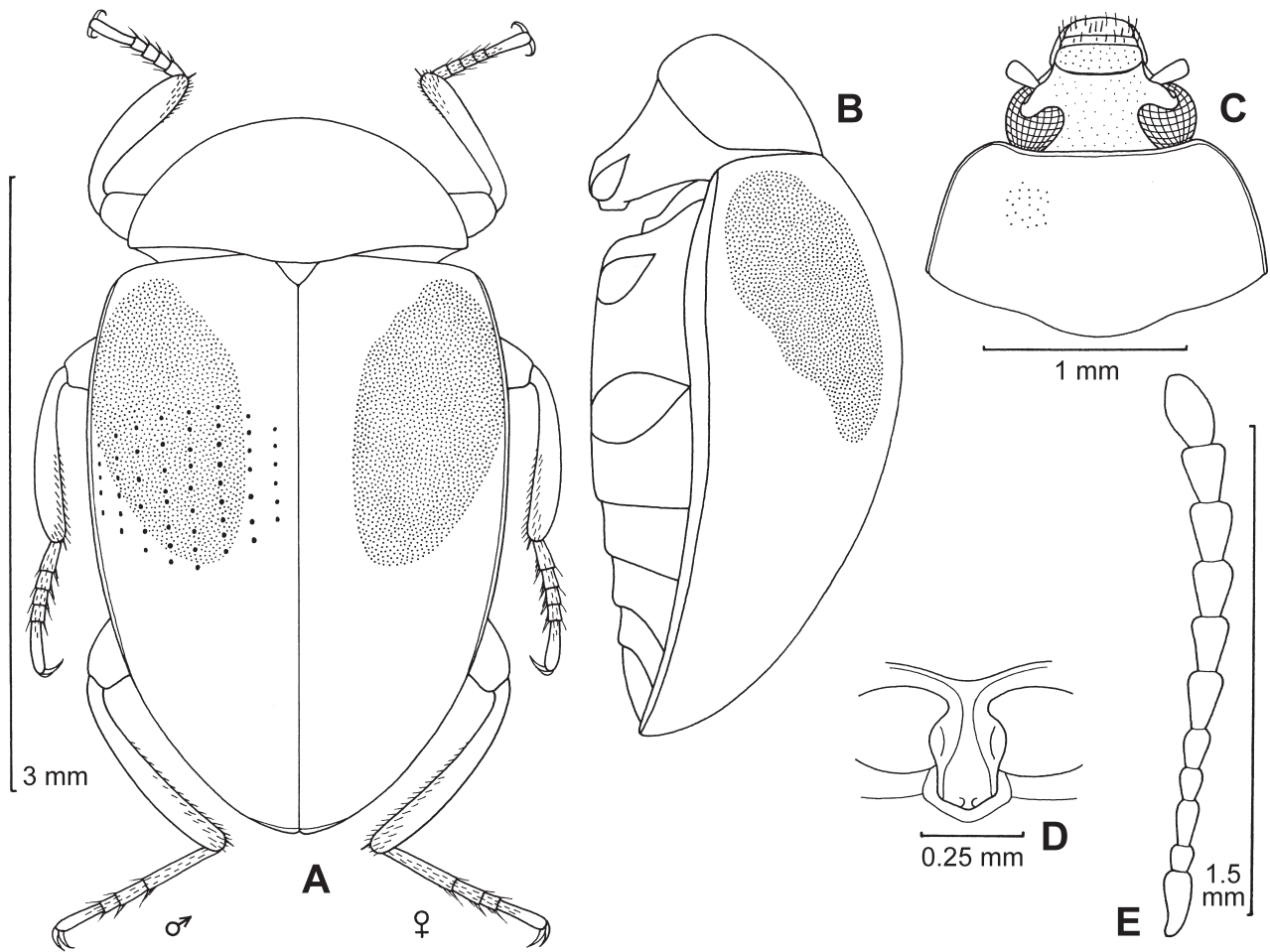


Fig. 14. *Amarygmus floreni* n. sp. – **A** Habitus; legs on left side ♂, right side ♀ (elytra black, densely punctured area reddish brown). **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

1.75+1.75. Elytra: length/width 1.44+1.46; length elytra/length pronotum 3.35+3.57; maximum width elytra/maximum width pronotum 1.10+1.12.

Colouration: Ground colour of elytra black, lustrous; elytral maculae reddish brown. Pronotum black, lustrous. Frons and clypeus black, lustrous; genae brown. Underside lustrous, metasternum brown, sternites dark brown, femora lighter brown than underside. Antennomeres 1–6 brown, 7–11 black (apical half of antennomere 11 brightened).

Head: Upperside flat. Frons wide, wider than combined length of antennomeres 3+4 (like $16\frac{1}{2}:13$), with very tiny punctures and widely separated hairs. Genae barely raised, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture arched, slightly incised. Clypeus slightly stretched forwards, punctured and pilose as on frons. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Short, convex transversely, less convex longitudinally. Widest at base, anteriorly narrowing, posterior three-fifths with straight margins. Front corners in dorsal view broadly rounded; hind corners sharply angular and slightly obtuse. Anterior margin nearly straight. Lateral and anterior margins bordered. Lateral borders in dorsal view narrowly visible. Front and hind corners in lateral view slightly obtuse, front corners narrowly rounded, hind corners sharply angular. Surface with indistinct, very tiny punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, moderately convex transversely and longitudinally. Maximum width and height at the end of the first third. With rows of small to medium-sized punctures; distances between punctures on disc in row 4 about 2–3 times diameter of a puncture; about 22 punctures in row 4. Intervals flat, impunctate.

Prosternum: Anterior margin narrowly bent upwards, slightly retracted towards apophysis in the middle.

Apophysis not very wide; along procoxae slightly widened and lateral margins raised ventrad, space in between with a median groove; posterior to procoxae lateral margins subparallel and narrowly lifted upwards; apically broadly pointed and with a median nose-like elevation.

Mesosternum: Anterior margin of the posterior part excavated in the middle, this excavation extending to the posterior margin. Lateral margins raised.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with small, not very closely set punctures, posterior part with minute punctures; punctures with short hairs. Median line neither depressed nor incised.

Sternites: Anterior margin of sternite 1 between metacoxae oval, narrowly bordered. Sternites with minute punctures and hairs.

Antennae: Of medium length, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to $8:4 / 4\frac{1}{2}:4 / 8:3\frac{1}{2} / 5:4 / 5:4 / 8:6 / 9:6 / 8\frac{1}{2}:6\frac{1}{2} / 8:7 / 8:7 / 13:7$.

Legs: Short. Profemora markedly thickened towards the second third. Protibiae bent, thickened in their apical half in the male, relatively wide also in the female, but not markedly thickened in the apical half; mesotibiae slightly bent, not thickened; metatibiae moderately bent. Male protarsomeres 1–3 slightly widened. Lengths of protarsomeres 1–5 as $3:3:3:2\frac{1}{2}:11$, lengths of mesotarsomeres 1–5 as $6:4:4:3\frac{1}{2}:11$, lengths of metatarsomeres 1–4 as $14:7:4:11$.

Amarygmus gilvicornis **n. sp.**
(Fig. 15A–E)

Holotype (♂): Sabah, Batu Punggul Resort [primary lowland rainforest], 24.VI.–I.VII.1996, leg. J. KODADA (SMNS).

Paratypes: Same data as holotype (1 ♂ ZSMB, 1 ♀ SMNS).

Etymology

Gilvus (Lat.) = yellow; cornis, from cornu (Lat.) horn (in insects also used for antennae).

Diagnosis

Small, slightly elongate, markedly convex. Upperside distinctly lustrous, golden brown with a clear reddish tinge. Antennae of medium length, with antennomere 11 uniformly yellow. Elytra with rows of widely separated, indistinct, small punctures. Antennae in males slightly longer than in females. Protarsomeres 1–3 not widened in males, but protarsomeres 1–4 with brush-like hairs on soles.

A similar species is *A. praestans* Bremer, 2002 (BREMER 2002a: 32–33) which also has a uniformly yellow antennomere 11. *A. praestans*, however, is larger (body length 4.14–4.69 mm), the elytra have a more bluish instead of a clear reddish tinge, the frons is somewhat wider and the pronotum somewhat narrower.

Description

Measurements: Body length 3.57–4.00 mm; body width 2.26–2.45 mm. – Ratios: Pronotum: width/length 1.83–1.88; width hind corners/width front corners 1.71–1.74. Elytra: length/width 1.35–1.44; length elytra/length pronotum 3.38–3.64; maximum width elytra/maximum width pronotum 1.34–1.38.

Colouration: Elytra golden brown with a clear reddish tinge, pronotum brown. Upperside uniformly lustrous. Underside brown, darker brown than femora. Legs yellowish brown. Antennomeres 1–5 yellowish brown, 6–10 black, 11 yellow.

Head: Frons of medium width, approximately as wide as length of antennomere 3, anteriorly forming a semi-circle like a boundary (but which does not slope into a deep fronto-clypeal sulcus as in *A. clypealis* Bremer, 2010). Genae very short, anteriorly terminating well behind the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture moderately incised over the whole width of the head. Clypeus moderately stretched forwards, slightly convex transversely and longitudinally. Clypeus and frons with small, shallow, not too closely set punctures. Mentum widening anteriorly, uniformly lustrous, sides bent, base narrow; lateral margins flat, space in between somewhat convex transversely. Underside of neck lustrous, with microreticulation, impunctate. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide, moderately convex transversely and longitudinally. Widest at base, anteriorly somewhat narrowing and bent. Hind corners angular, obtuse; front corners broadly rounded. Anterior margin nearly straight. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view very narrowly visible. Front corners in lateral view broadly rounded, obtuse; hind corners angular, obtuse. Surface with minute, indistinct, not very closely set punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, markedly convex transversely, somewhat less convex longitudinally. Maximum width and height slightly anterior to the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With rows of indistinct, small punctures; distance between punctures on disc 2–3 times diameter of a puncture. Intervals flat, with tiny, widely separated punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards; a short keel originating from the middle part extending towards apophysis. Apophysis narrow, margins along procoxae widened, lateral margins thickened and markedly raised (like a large tubercle), space in between with a deep, median groove; posterior to procoxae somewhat descending, sides subparallel and margins narrowly lifted; apically straight.

Mesosternum: Sides of posterior part narrowing towards base, anterior margin excavated in the middle.

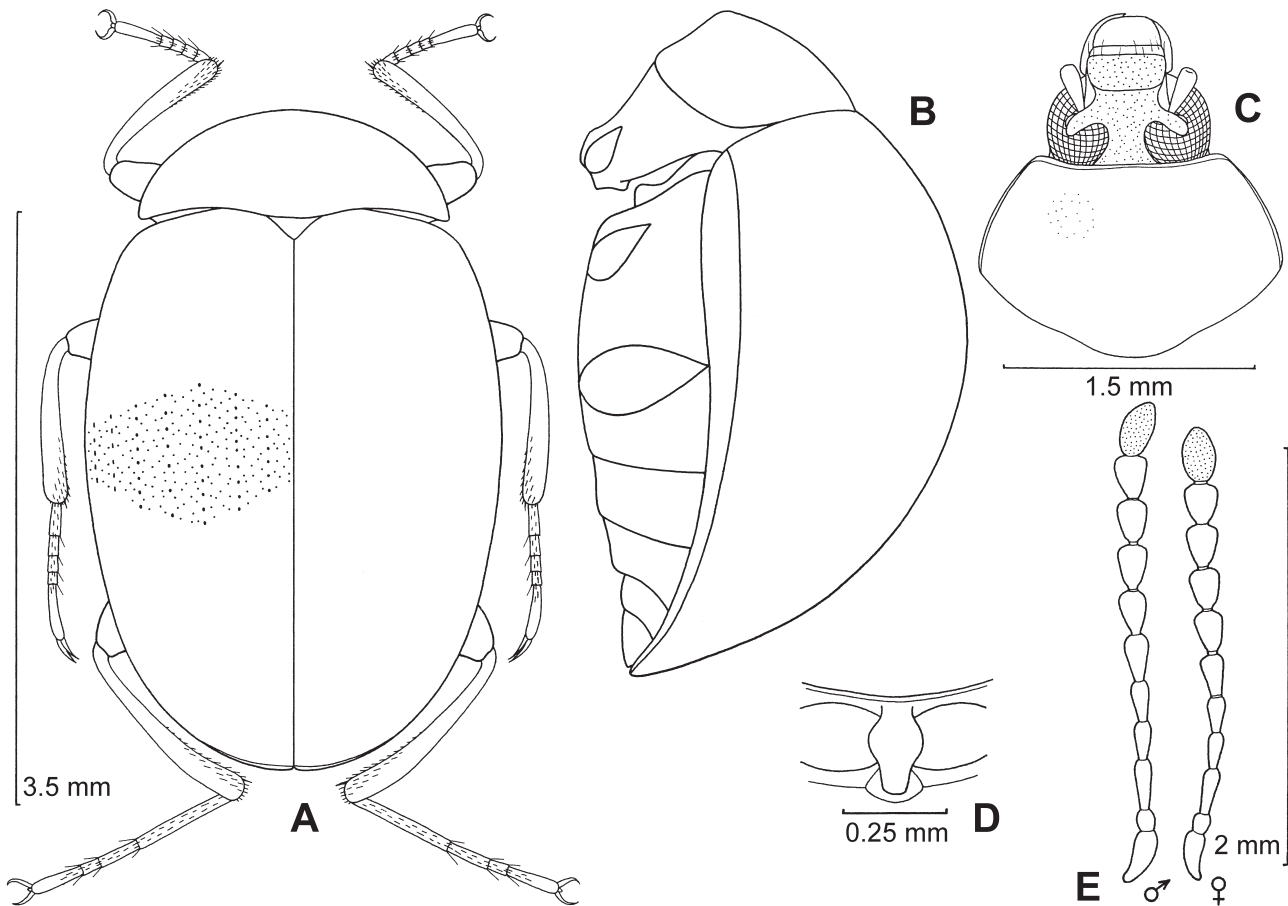


Fig. 15. *Amarygmus gilvicornis* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀ (punctured antennomere 11 yellow).

Metasternum: Anterior margin between mesocoxae rounded, bordered. Behind anterior margin there are a few small punctures. Disc with tiny, widely separated punctures with relatively long, recumbent hairs. Median line narrowly incised on the whole length.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Apophysis of sternite 1 with small, closely set punctures; remaining part of sternite 1 and sternites 2–5 with tiny, widely separated punctures and tiny, recumbent hairs. Sternite 5 neither excavated nor depressed near posteromedial margin in males.

Antennae: Of medium length, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 in male equals to 12:6 / 7:4½ / 12:4 / 7½:4 / 9:4 / 11:6 / 10:7 / 11:8 / 11:8 / 11:8 / 14:8, in female to 12:6 / 6:4½ / 11:4 / 6:4 / 7:4 / 10½:6 / 10:7 / 11:8 / 10:8 / 10:8 / 13:8.

Legs: Short. Femora distinctly thickened towards the second third. Pro- and mesotibiae slightly bent. Metatibiae straight in basal half, somewhat incurved in apical half. Lengths of protarsomeres 1–5 as 4:4:4:4:14, lengths

of mesotarsomeres 1–5 as 7:5:4:4:14, lengths of metatarsomeres 1–4 as 28:11:5:14.

Amarygmus gnomus n. sp.
(Fig. 16A–H)

Holotype (♂): Borneo, Sabah, Danum Valley [primary lowland rainforest], 4°58'N 117°48'E, M. D. F. ELLWOOD, *Parashorea tomentella*, *Asplenium nidus*, Tembaling 1, FogTray 24, 14.X.1999, 394 (BMNH).

Etymology

Gnomus (Lat.) = gnomish.

Diagnosis

Tiny, oval. Elytra with the maximum width at the end of the anterior third, with rows of relatively closely set punctures and flat intervals. Frons wide. Antennae short. Elytra copper coloured, head and pronotum verdigris coloured, legs dark brown. Male protarsomeres 1–3 not

widened, inner apical half of protibiae not widened, sternite 5 without posteromedial depression.

Amarygmus gnomus n. sp. is very similar in size and shape to *A. pygmaeus* Bremer, 2010 (BREMER 2010a: 229–231). However, *A. pygmaeus* has the elytra dark blue, head and pronotum black, legs light brown, and the elytral linear punctation connected by faint lines (not so in *A. gnomus*).

Description

Measurements: Body length 2.72 mm; body width 1.67 mm. – **Ratios:** Pronotum: width/length 1.83; width hind corners/width front corners 1.52. Elytra: length/width 1.28; length elytra/length pronotum 3.14; maximum width elytra/maximum width pronotum 1.34.

Colouration: Upperside slightly lustrous. Head and pronotum coppery green. Elytra copper coloured. Legs dark brown. Antennomeres 1–3 brown; 4–11 black. Underside brown. Metasternum lustrous. Sternites slightly opaque due to microreticulation.

Head: Frons very wide, as wide as combined length of antennomeres 3–7, flat transversely, slightly convex longitudinally. Eyes asymmetrically projecting laterally. Genae only partially covering the base of antennomere 1, anteriorly terminating clearly anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture distinctly depressed, incised in its middle part. Clypeus slightly stretched forwards, with small punctures which are not very closely set and with short hairs. Frons with small punctures without hairs. Mentum reversely trapezoidal; lateral margins flat, lustrous, space in between slightly opaque, convex transversely. Underside of neck with some large, shallow punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Not very wide, trapezoidal; uniformly convex transversely, slightly convex longitudinally. Hind corners angular, slightly obtuse; front corners rounded. Anterior margin clearly excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view well visible. Front corners in lateral view narrowly rounded,

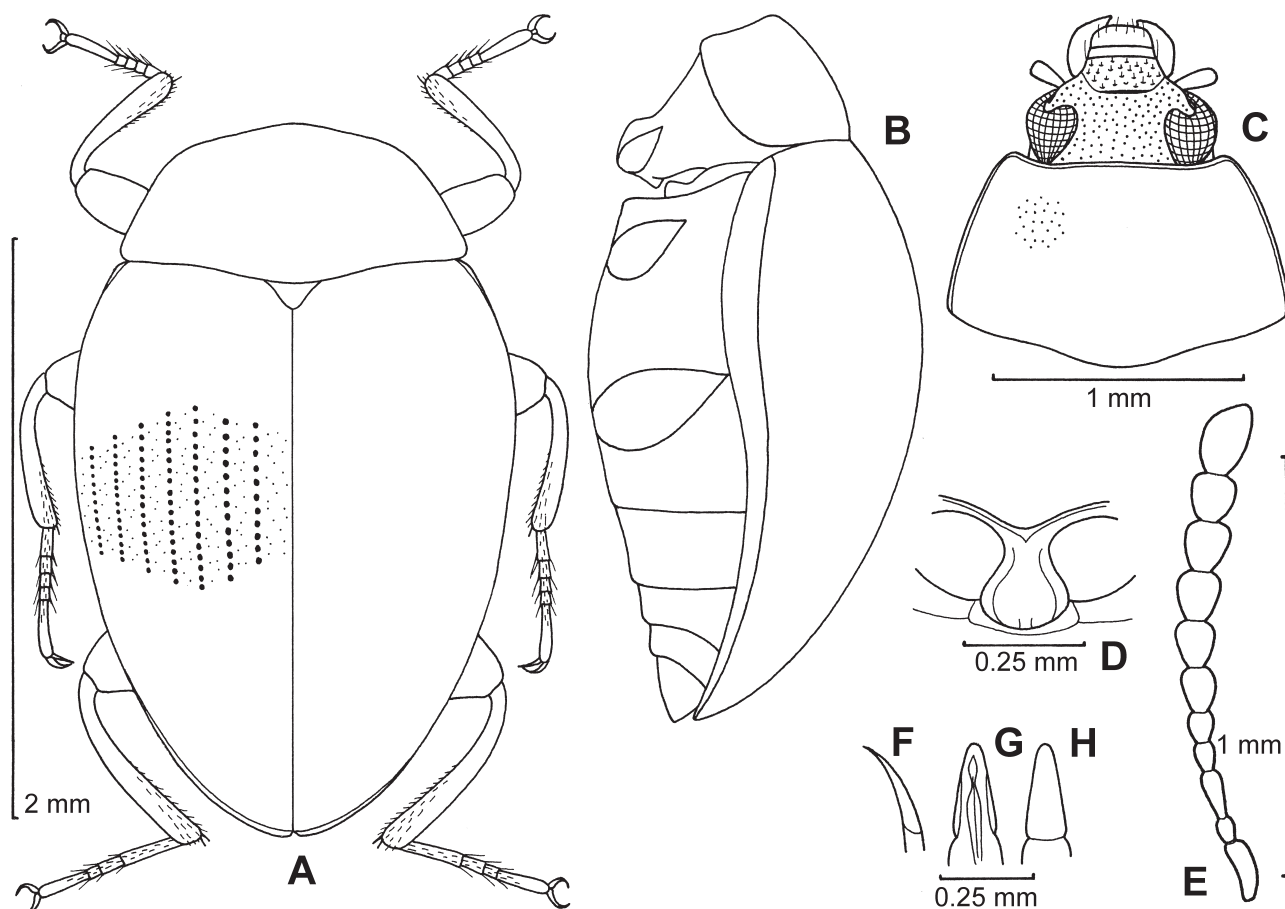


Fig. 16. *Amarygmus gnomus* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Apical piece of aedeagus, lateral view. **G** Apical piece of aedeagus, ventral view. **H** Apical piece of aedeagus, dorsal view.

rectangular, hind corners angular, slightly obtuse. Surface with small, not very closely set punctures; tiny hairs, originating from these punctures, visible at 100-fold magnification.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Somewhat elongate oval, markedly convex transversely (convexity strongest at the maximum height and width), clearly convex longitudinally. Maximum width and height at the end of the first third. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view visible at the shoulders and in the posterior half. With rows of small punctures which are closely set and not connected by lines; distance between punctures on disc in row 4 equal to the diameter of a puncture; about 40 punctures in row 4. Intervals flat, with a few tiny, but well recognizable punctures; tiny hairs (visible at 100-fold magnification) originating from these punctures.

Prosternum: Anterior margin narrowly bent upwards, in the middle with a short process directed towards apophysis. Apophysis oval, with the maximum width behind procoxae, in the middle of the apex with a slightly lifted keel.

Mesosternum: Posterior part wide and short, anterior margin excavated in the middle, surface posterior to the excavation flat, lustrous and with a few short hairs. Lateral margins rough due to a mixture of punctures and small tubercles.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc with very large punctures and short, inclined hairs on anterior half, very tiny, sparse punctures on posterior half. Median line neither depressed nor incised.

Sternites: Anterior margin of sternite 1 between metacoxae very broadly ogival, bordered. Sternites 1+2 with some medium-sized punctures, sternites 3+4 with smaller punctures, sternite 5 with small, relatively closely set punctures; very short, recumbent hairs originating from all these punctures.

Antennae: Very short, reaching over base of pronotum by only 2 antennomeres. Length/width ratio of antennomeres 1–11 equals to $7:3 / 3:2\frac{1}{2} / 4:3 / 3\frac{1}{2}:3 / 4:3 / 4\frac{1}{2}:3\frac{1}{2} / 5:4 / 5\frac{1}{2}:4 / 5\frac{1}{2}:4 / 5\frac{1}{2}:4 / 9:4\frac{1}{2}$.

Legs: Short. Femora enlarged towards the second third. Pro- and mesotibiae slightly bent; metatibiae clearly bent in basal half, nearly straight in apical half. Lengths of metatarsomeres 1–4 as $14:3\frac{1}{2}:3:11$.

Aedeagus: See Fig. 16F–H.

Amarygmus hongii **n. sp.**
(Fig. 17A–E)

Holotype (♀): Borneo, Sabah, Danum Valley, vic. Rainforest Lodge, 4°58'N 117°48'E, 19.–20.X.2009, U. & H. J. BREMER

leg.; primärer Tiefland-Regenwald [= primary lowland rainforest], nachts, auf der Rinde eines Baumes [= at night, on bark of a tree] (ZSMB).

Etymology

Dedicated to GEORGE KOK KHIONG HONG (Kota Kinabalu, Sabah), acknowledging his logistic support for the collection travels.

Diagnosis

A very characteristic species because of the pattern of maculae. Of medium size, oblong, elytra somewhat oval. Markedly convex transversely, convex longitudinally (maximum width of elytra slightly anterior to the middle). Underside convex transversely. On a yellowish red ground there are black maculae as shown in Fig. 17A. Antennomere 11 yellow, contrasting with the black antennomeres 6–10. Elytra with incised striae with small, elongate, indistinct punctures; elytral intervals convex, also on disc, with closely set, small punctures. Legs slender, relatively long. Antennae long, reaching slightly beyond middle of elytra. [Despite of the fact that males are unknown, male forelegs and antennae are probably longer than those of females.]

The macula pattern on pronotum and elytra of *A. hongii* is very similar to that of *A. elegans* Bremer, 2002 (Fig. 18A–H; BREMER 2002b: 13–14). Both species have a yellow antennomere 11, but the body of *A. hongii* is narrower, the elytral intervals are clearly convex (nearly flat on disc in *A. elegans*), and the maximum height and width of elytra is slightly anterior to the middle (at the end of the anterior third in *A. elegans*).

Description

Measurements: Body length 6.61 mm; body width 3.03 mm. – Ratios: Pronotum: width/length 1.43; width hind corners/width front corners 1.43. Elytra: length/width 1.71; length elytra/length pronotum 3.10; maximum width elytra/maximum width pronotum 1.27.

Colouration: Ground colour of pronotum and elytra yellowish red; basal half of pronotum on each side with a large black macula which is not touching the lateral margin. Elytra with five black maculae, one posterior to the scutellum, two transversely aligned ones at the anterior third, and two more rounded ones at the posterior third. Underside brown. Legs yellowish red. Antennomeres 1–5 light brown, 6–10 black, 11 uniformly yellow.

Head: Frons of medium width, about as wide as length of antennomere 4, with closely set, small punctures. Genae short, slightly raised, less closely punctured than on frons, anteriorly terminating posterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture translucent, slightly depressed. Clypeus relatively short, somewhat convex longitudinally, with closely set punctures which are somewhat larger than those of frons.

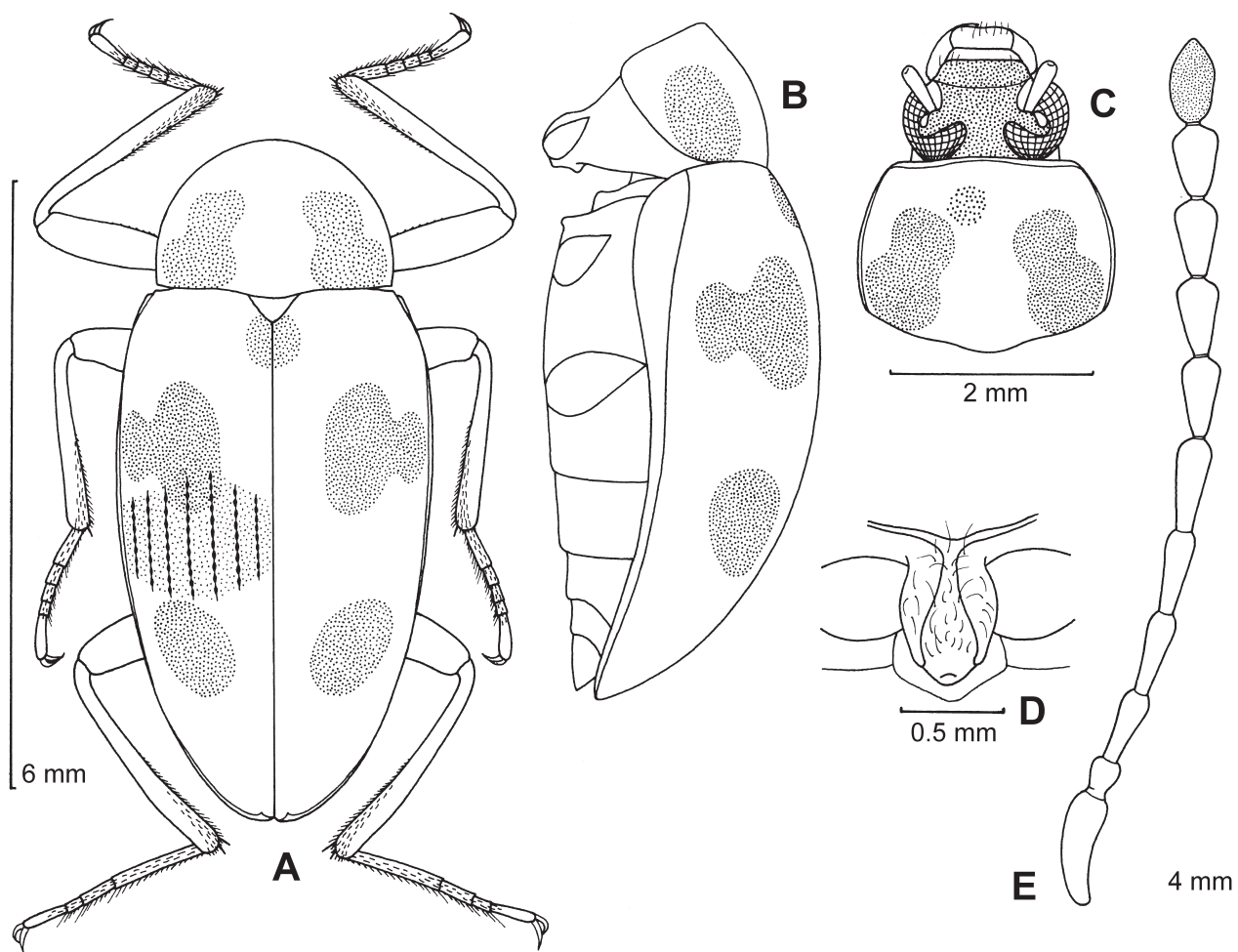


Fig. 17. *Amarygmus hongii* n. sp. – **A** Habitus, ♀ (body yellow, densely punctured areas black). **B** Body, lateral view. **C** Head and pronotum (pronotum yellow, densely punctured areas black). **D** Prosternal apophysis. **E** Antenna (punctured antennomere 11 yellow).

Mentum with bent sides, maximum width approximately in the middle; lateral margins flat, lustrous, space in between slightly convex transversely, somewhat less lustrous. Underside of neck impunctate, but with faint, transverse wrinkles. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Relatively narrow, convex transversely and longitudinally. Widest shortly posterior to the middle, sides bent. Hind corners rounded; front corners more angular, not protruding and not visible in dorsal view. Anterior margin straight. Lateral and anterior margins continuously and narrowly bordered. Lateral borders in dorsal view narrowly visible in the posterior three-fourths. Front corners in lateral view about rectangular; hind corners obtuse. Surface with small, closely set, indistinct punctures.

Scutellum: Triangular, impunctate, sides slightly rounded.

Elytra: Oblong, slightly oval, markedly convex transversely, convex longitudinally. Maximum width and

height slightly anterior to the middle. Shoulders angular, obtuse. Apices of elytra mutually rounded. Lateral edges narrowly visible in dorsal view. With distinctly incised striae with elongate, small punctures. Intervals (also on disc) convex, very closely covered with small punctures.

Prosternum: Very short. Anterior margin continuously and narrowly bent upwards, not retracted towards apophysis in the middle. Apophysis narrow, ascending longitudinally towards the level of the procoxae, just posterior to procoxae descending towards the pointed apex; sides along procoxae somewhat widened and raised, space in between with a moderately wide, median groove.

Mesosternum: Posterior part narrow, its anterior margin narrowly and deeply excavated. Sides somewhat narrowing posteriorly and raised like a sharp edge. With a few erect hairs of medium length.

Metasternum: Convex transversely. Anterior margin between mesocoxae narrowly rounded, bordered. Anterior part of disc with some indistinct, small punctures,

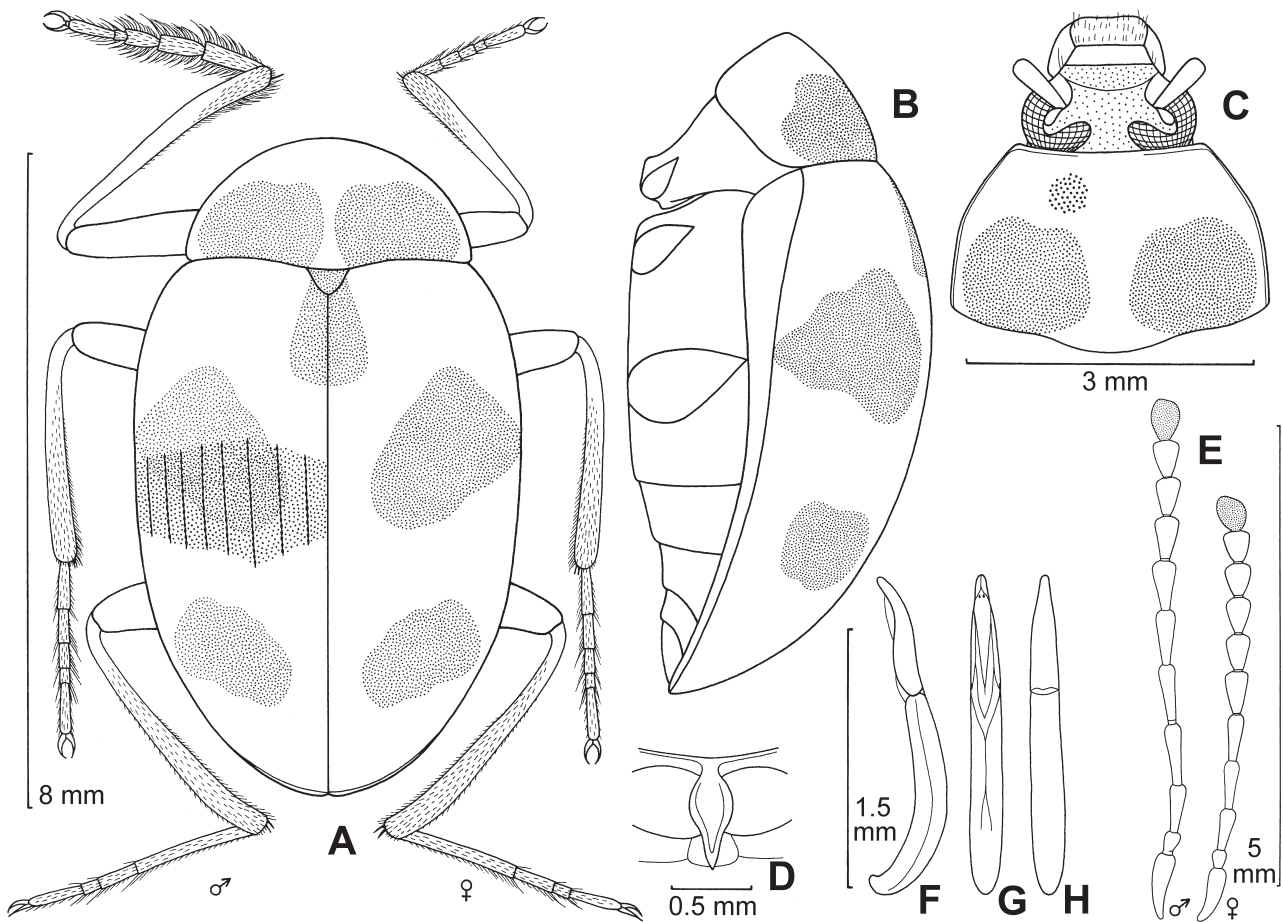


Fig. 18. *Amarygmus elegans* Bremer, 2002. – **A** Habitus; legs on left side ♂, right side ♀ (body yellow, densely punctured areas black). **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀ (punctured antennomere 11 yellow). **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

posterior part impunctate. Median line depressed in the posterior two-thirds, with not very closely set, partially erect or recumbent hairs of medium length.

Sternites: Anterior margin of sternite 1 between metacoxae narrowly ogival, bordered. Sternites 1+2 with small, indistinct, closely set punctures, sternites 3–5 with very tiny, sparse punctures. Discs of sternites 1+2 in the middle with long, semi-erect, closely set hairs; on sternites 3–5 the hairs are less closely set and shorter (in the female!).

Antennae: Long, reaching to middle of elytra. Length/width ratio of antennomeres 1–11 equals to 24:9 / 10:8 / 17:7 / 20:7½ / 20:7½ / 22:8 / 21:9½ / 20:9½ / 19:10 / 18:10 / 23:11.

Legs: Long, tender. Femora only slightly thickened towards the second third. Pro- and mesotibiae straight; metatibiae straight in the basal half, somewhat thickened and slightly incurved in the apical half and with semi-erect, medium-sized bristles on inner side. Lengths

of protarsomeres 1–5 as 13:9:7:6:22, lengths of mesotarsomeres 1–5 as 17:10:8:7:21, lengths of metatarsomeres 1–4 as 45:20:9:22.

Amarygmus inermis **n. sp.**
(Fig. 19A–H)

Holotype (♂): Borneo, Sabah, Tawau Hills Park [collected at night, on bark of a tree in primary lowland rainforest], 21.–22.X.2009, Ulf BREMER leg. (ZSMB).

Etymology

Inermis (Lat.) = unarmed.

Diagnosis

Large. Elytra elongate, markedly convex transversely, with subparallel sides, with rows of small, closely set punctures and flat intervals. Frons of medium width.

Antennae short. Male protarsomeres 1–3 moderately enlarged. Elytra green, without iridescence; pronotum green, with iridescence.

With respect to size, shape of legs and antennae, and colouration, *Amarygmus inermis* n. sp. resembles *A. baluensis* Pic, 1951 (redescribed and illustrated by BREMER 2004a: 14–15, fig. 4) from Sabah. However, *A. baluensis* has moderately bent sides of the elytra, the small punctures of the elytral rows are narrower and may fuse into striae (punctures always separated in *A. inermis*), and the frons is narrower.

The new species also resembles *A. hassalti* Fairmaire, 1882 (known from Sumatra, Malayan Peninsula and Borneo, redescribed and illustrated by BREMER 2003a: 58–61) in size, subparallel sides of elytra, unconnected punctures of elytral rows, width of frons, length of antenna, and shape of aedeagus. Males of *A. hassalti*, however, have a distinct widening on the inner basal half of the mesotibiae,

usually with obtuse corner (only a slightly noticeable widening present in *A. inermis*), and the punctures of the elytral rows are larger and more widely separated.

Description

Measurements: Body length 11.1 mm; body width 6.1 mm. – **Ratios:** Pronotum: width/length 1.80; width hind corners/width front corners 1.91. Elytra: length/width 1.53; length elytra/length pronotum 3.34; maximum width elytra/maximum width pronotum 1.21.

Colouration: Elytra green, without iridescence, lustrous. Ground colour of pronotum green, with a purple iridescence. Frons green, clypeus and genae brown. Underside and legs brown, metasternum lustrous, sternites opaque. Antennomeres 1–5 brown, 6–11 greyish black.

Head: Frons relatively narrow, about as wide as length of antennomere 3, covered with minute, closely set punctures, but leaving an impunctate area posterior

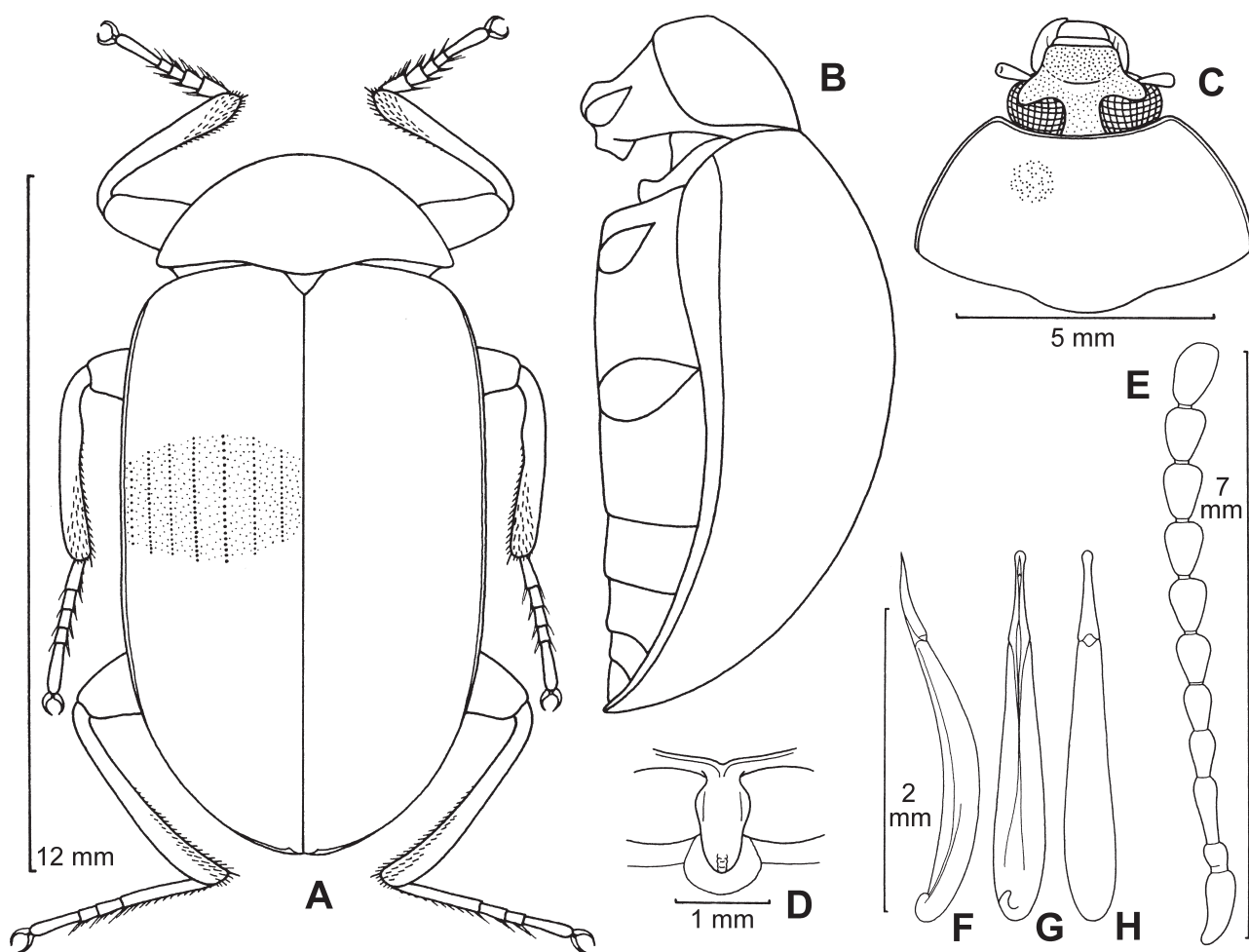


Fig. 19. *Amarygmus inermis* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

to fronto-clypeal suture. Genae slightly raised, anteriorly terminating clearly anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture slightly incised in its middle part. Clypeus moderately stretched forwards, slightly convex transversely and longitudinally, with minute, closely set punctures. Mentum reversely trapezoidal. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Scarcely wider than elytra, convex transversely and longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners angular, obtuse; front corners nearly rectangular. Anterior margin excavated. Lateral and anterior margins narrowly bordered. Lateral borders in dorsal view visible. Front and hind corners in lateral view angular and slightly obtuse. Surface with minute, relatively closely set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Long, markedly convex transversely, moderately convex longitudinally. Maximum height somewhat anterior to the middle. With straight sides and slightly prominent shoulders. Apices of elytra mutually rounded. Lateral edges, except at shoulders, narrowly visible on the whole length in dorsal view. With rows of small, round, closely set punctures; distance between punctures on disc in row 4 about the diameter of a puncture; approximately 52 punctures in row 4. Intervals flat, with tiny, very widely separated punctures.

Prosternum: Anterior margin narrowly bent upwards, at midlength with a narrow, short keel which is directed towards apophysis. Apophysis relatively narrow, along procoxae slightly widened and sides somewhat raised, space in between with a shallow median groove; posterior to procoxae stretched backwards, with slightly narrowing sides; apically rounded and with a median keel.

Mesosternum: Anterior margin of the posterior part excavated in the middle. Lateral margins slightly raised.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc with a few small, elongate punctures with tiny hairs anteriorly, a few tiny punctures posteriorly. Median line slightly incised on the whole length.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites 1+2 with small, closely set punctures. Punctures on the subsequent sternites more and more evanescent. Sternite 5 with a slight posteromedial depression.

Antennae: Short, reaching to anterior tenth of elytra. Length/width ratio of antennomeres 1–11 equals to $12:6\frac{1}{2} / 6:5\frac{1}{2} / 13:5\frac{1}{2} / 11:6 / 10:7 / 10:9 / 9:10 / 11:10 / 11:10 / 10:10 / 13:10$.

Legs: Short. Femora thickened towards the second third. Protibiae straight, thickened apically. Mesotibiae slightly bent, inner apical half with short, semi-erect hairs. Metatibiae straight in basal half, slightly incurved

in the apical half, inner apical half with short, semi-erect hairs. Protarsomeres 1–3 moderately enlarged in males. Lengths of protarsomeres 1–5 as 9:8:6:6:21, lengths of mesotarsomeres 1–5 as 12:9:8:7:21, lengths of metatarsomeres 1–4 as 31:12:10:21.

Aedeagus: See Fig. 19 F–H.

Amarygmus infans n. sp.

(Fig. 20A–E)

Holotype (♂): Sabah mer., Borneo, Banjaran Maitland, Batu Punggul [primary lowland rainforest], 25.–27.V.1995, Ivo JENIŠ leg. [both antennomeres 11 missing] (ZSMB).

Paratype: Same data as holotype [left antennomeres 7–11 and right antennomeres 3–11 missing] (1 ♂ ZSMB).

Etymology

Infans (Lat.) = a small child.

Diagnosis

Tiny, elongate oval. Elytra so densely and uniformly punctured that the primary rows of punctures are not easily recognizable. Frons of medium width. Antennae relatively long. Upperside bronze coloured, legs light brown. Male protarsomeres 1–3 not widened [holo- and paratype are males which can be inferred from the brush-like pilosity on the soles of protarsomeres 1–4].

Amarygmus infans n. sp. is similar to *A. dohertyi* (Pic, 1915) (redescribed and illustrated by BREMER 2002a: 3–5), but *A. dohertyi* is larger (body length 3.78–4.72 mm), and the punctures of the elytral intervals are similarly closely set but much smaller than those of the primary rows (thus the primary rows are easily recognizable).

Description

Measurements: Body length 3.04+3.22 mm; body width 1.75+2.02 mm. – **Ratios:** Pronotum: width/length 1.62+1.78; width hind corners/width front corners 1.67+1.70. Elytra: length/width 1.33–1.36; length elytra/length pronotum 3.00+3.45; maximum width elytra/maximum width pronotum 1.30+1.32.

Colouration: Elytra copper coloured with a slight reddish tinge and reduced lustre. Pronotum somewhat darker and without a reddish tinge. Underside brown, slightly lustrous. Femora lighter brown than underside. Legs light brown. Antennomeres 1–5 light brown, 6 darker brown, 7–10 black. Frons dark brown except the anterior part which is light brown; clypeus nearly yellow.

Head: Frons of medium width, as wide as length of antennomere 3, anterior part with small, not very closely set punctures, posterior part with closely set punctures. Genae short, barely raised, anteriorly terminating posterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture arched, moderately incised.

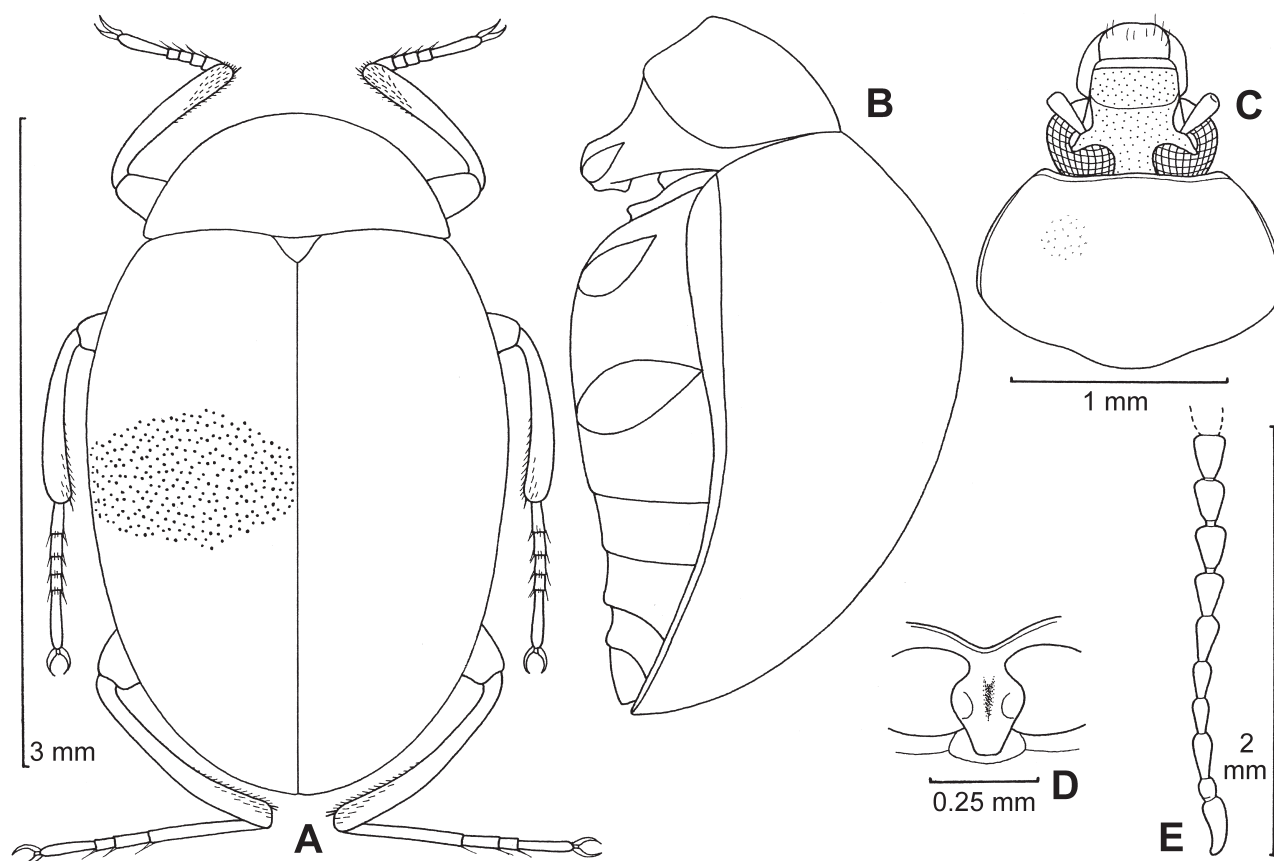


Fig. 20. *Amarygmus infans* n. sp. – A Habitus, ♂. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna.

Clypeus stretched forwards, slightly convex transversely, with small, irregularly set, widely separated punctures. Mentum widening anteriorly, sides somewhat bent and flat, space in between moderately convex transversely. Underside of neck impunctate. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Convex transversely, only slightly convex longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners in dorsal view angular, slightly obtuse; front corners rounded. Anterior margin nearly straight. Lateral and anterior margins bordered. Lateral borders in dorsal view very narrowly visible. Front and hind corners in lateral view rounded, obtuse. Surface with minute, indistinct, widely separated punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Ovate, markedly convex transversely, somewhat less convex longitudinally. Maximum width and height at the end of the first third. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges very narrowly visible in dorsal view. With small, rather closely set punctures; punctures of the rows nearly as large as the punctures of the intervals, thus it is not easy to recognize the punctures of the rows as such. Intervals flat.

Prosternum: Anterior margin narrowly bent upwards, slightly retracted towards apophysis in the middle. Apophysis not very wide, along procoxae somewhat widened and lateral margins raised like a small button; posterior to procoxae slightly descending with somewhat narrowing sides; apically straight.

Mesosternum: Posterior part narrowing towards base, anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Posterior to anterior margin there are a few shallow punctures of medium size. Remaining part of disc with widely separated, tiny punctures; short, recumbent hairs originating from these punctures (character of males only?). Median line incised in the posterior fourth.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, narrowly bordered. Discs of sternites with tiny, widely separated punctures and tiny, recumbent hairs. Sternite 5 posteromedially neither depressed nor excavated.

Antennae: Long, reaching to anterior three-fifths of elytra. Length/width ratio of antennomeres 1–10 equals to 13:5 / 6:4 / 10:3½ / 8:3½ / 8:4 / 10½:5 / 10:6 / 10½:6½ / 10:7 / 9:7.

Legs: Of medium length. Femora thickened towards the second third. Protibiae slightly bent. Mesotibiae somewhat more bent than protibiae. Metatibiae moderately bent. Soles of protarsomeres 1–4 pilose, brush-like. Lengths of protarsomeres 1–5 as $2\frac{1}{2}:2\frac{1}{2}:2:2:11$, lengths of mesotarsomeres 1–5 as $6:3\frac{1}{2}:3:2:12$, lengths of metatarsomeres 1–4 as $23:9:4:12$.

Amarygmus intermedius n. sp.
(Fig. 21A–H)

Holotype (♂): Borneo, Malaysia, Sarawak, Kubah NP, HQ vic. [edge of primary lowland rainforest], 100–300 m, at night, on bark of trees, 27.–28.III.2009, R. GRIMM (CG).

Paratypes: Same data as holotype (1 ♂ ZSMB). – Borneo, Malaysia, Sarawak, Gunung Gading NP, 100–300 m, 31.III.–4.IV.2009, R. GRIMM (1 ♀ CG). – W Malaysia, Pahang, Fraser's Hill, 110 km NW of Kuala Lumpur, 23.–24.VI.1995, leg. S. & E. BEČVÁŘ (1 ♂ SSB).

Etymology

Intermedius (Lat.) = intermediary.

Diagnosis

Of medium size. Elytra oval, markedly convex, with striae and medium-sized, rhombic punctures; intervals on disc flat, laterally convex. Frons extremely narrow. Elytra dark coppery, pronotum greenish blue, legs brown. Metatarsomere 1 very long.

Amarygmus intermedius n. sp. is very close to *A. powanpowanus* Masumoto et Makiara, 1997 (from Sarawak, Sumatra and the Malayan Peninsula, see MASUMOTO & MAKIHARA 1997: 135, fig. 113; also described and illustrated as *A. nemestrinus* by BREMER 2006b: 18–19, fig. 3) and *A. silvester* Bremer, 2004 (from Sabah, Sumatra, and the Malayan Peninsula, see BREMER 2004c: 122–123). *A. intermedius* shows somewhat intermediate characters between *A. powanpowanus* and *A. silvester*.

A. silvester has brown femora and tibiae like *A. intermedius*, but has somewhat less bent mesotibiae, smaller punctures in the elytral striae, and obtuse but angular pronotal front corners (widely rounded in *A. intermedius*).

A. powanpowanus has rows of small punctures on the elytra (striae with relatively large punctures in *A. interme-*

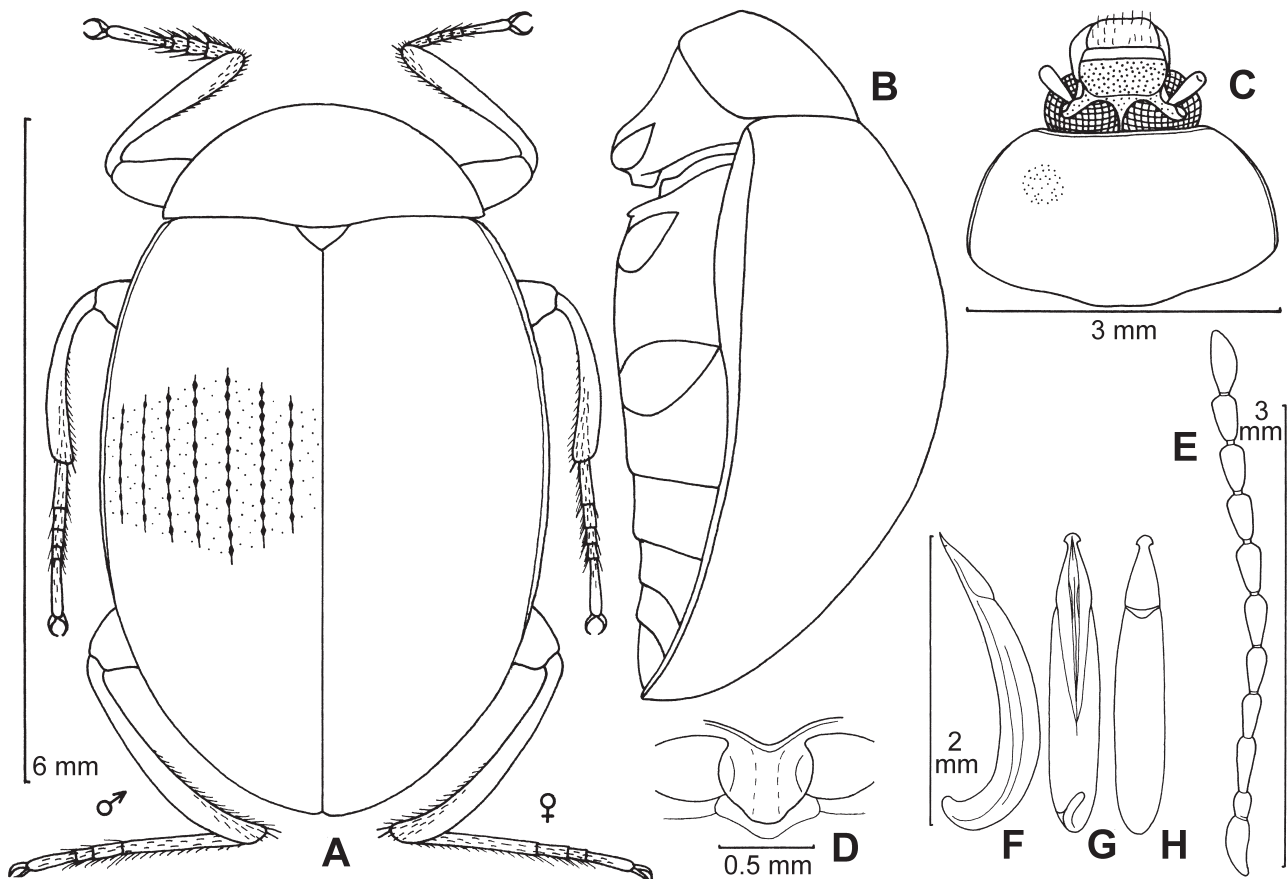


Fig. 21. *Amarygmus intermedius* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

dius), the lateral elytral intervals are flat (convex in *A. intermedius*), femora and tibiae are dark, nearly black (brown in *A. intermedius*), and the apical third of the metafemora is more bent.

Description

Measurements: Body length 5.65–6.05 mm; body width 3.62–3.90 mm. – Ratios: Pronotum: width/length 1.89–2.00; width hind corners/width front corners 1.85–1.95. Elytra: length/width 1.31–1.34; length elytra/length pronotum 3.41–3.56; maximum width elytra/maximum width pronotum 1.32–1.36.

Colouration: Elytra dark coppery, lustrous. Pronotum greenish blue, with reduced lustre. Scutellum brown. Legs brown. Antennomeres 1–5 brown, 6 intermediate in colour, 7–11 black. Underside dark brown (darker than femora), lustrous.

Head: Frons very narrow, as wide as one ocellus of eye. Genae narrow, somewhat raised, anteriorly terminating at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture slightly incised, situated just anterior to eyes. Clypeus stretched forwards, convex transversely and longitudinally, with small punctures; tiny hairs originating from these punctures. Mentum reversely trapezoidal; lateral margins wide, flat, space in between convex transversely. Underside of neck microreticulated, with small, closely set punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Wide, moderately convex transversely and longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners angular, obtuse. Front corners widely rounded. Anterior margin slightly excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view very narrowly visible. Front and hind corners in lateral view obtuse, front corners rounded, hind corners angular. Surface with tiny, irregularly set, moderately widely separated punctures.

Scutellum: Triangular, with a few tiny punctures, sides slightly rounded.

Elytra: Short, oval, markedly convex. Maximum height and width somewhat anterior to the middle. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges narrowly visible in dorsal view. With slightly incised striae with rhombic, medium-sized punctures (punctures of striae 1–3 smaller, those of striae 1–2 round); distance between punctures on disc in stria 4 equal to the diameter of a puncture; punctures becoming evanescent towards apex. Intervals on disc almost flat, laterally clearly convex, with tiny, widely separated punctures.

Prosternum: Anterior margin continuously bent upwards, retracted towards apophysis in the middle, forming an obtuse angle; a narrow keel originating from the middle part projecting into apophysis. Apophysis short, wide, lateral margins widened like a wing and somewhat

globosely raised, space in between like a wide groove; apex widely angular.

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

Metasternum: Anterior margin between mesocoxae rounded, broadly bordered. Anterior part of disc with coarse, relatively closely set punctures, posterior part with sparse, tiny punctures; short, recumbent hairs originating from these punctures in both sexes. Median line superficially incised in the posterior half.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites impunctate, except male sternite 5 which has small punctures and hairs of medium length around the slight posteromedial depression.

Antennae: In both sexes nearly of the same length, reaching to middle of elytra. Length/width ratio of antennomeres 1–11 equals to 16:7/9:6/17:5½/13:6/14:6/16:7/17:7/17:7/17:7/16:7/21:8.

Legs: Short. Femora widened towards the second third. Protibiae straight, in males slightly more thickened in their apical half than in females; meso- and metatibiae bent. Male protarsomeres 1–3 slightly widened. Lengths of protarsomeres 1–5 in male as 9:7:6:5:24, lengths of mesotarsomeres 1–5 as 17:10:9:8:14, lengths of metatarsomeres 1–4 as 47:14:8:23.

Aedeagus: See Fig. 21F–H.

Amarygmus invenustus n. sp. (Fig. 22A–H)

Holotype (♂): Borneo, Sabah, Danum Valley [primary lowland rainforest], 4°58'N 117°48'E, *Parashorea tomentella*, *Asplenium nidus*, Tembaling 2, FogTray 2, 19.X.1999, M. D. F. ELLWOOD, 401 (BMNH).

Etymology

Invenustus (Lat.) = inconspicuous.

Diagnosis

Small, oval, inconspicuous, slightly convex transversely and longitudinally. Elytra with somewhat incised, narrow striae in which small, narrow punctures only become visible at higher magnification. Frons relatively narrow. Antennae short with a relatively large, oval antennomere 11. Protarsomeres 1–3 very slightly enlarged in males. Uperside coppery with a slight metallic shine, legs and antennae brown.

A. omissus Bremer, 2002 (BREMER 2002a: 30–32) from Peninsular Malaysia has about the same size and shape of body and legs as *Amarygmus invenustus* n. sp., but the frons is wider, the punctures on the pronotum are larger, and the punctures of the elytral striae are well visible (those of *A. invenustus* barely visible).

Description

Measurements: Body length 3.70 mm; body width 2.26 mm. – **Ratios:** Pronotum: width/length 1.86; width hind corners/width front corners 1.78. Elytra: length/width 1.26; length elytra/length pronotum 3.32; maximum width elytra/maximum width pronotum 1.41.

Colouration: See diagnosis above. Underside brown, lustrous.

Head: Frons about as wide as half length of antennomere 3, with minute, widely separated punctures. Genae small and narrow, moderately raised, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture somewhat incised, depressed in the middle. Clypeus moderately stretched forwards, weakly convex transversely, its punctures larger than those on frons. Mentum reversely trapezoidal, with flat, lustrous lateral margins. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Moderately convex transversely, slightly convex longitudinally. Widest at base, anteriorly narrowing and bent. Anterior margin somewhat excavated. Front corners rectangular; hind corners angular and obtuse. Lateral and anterior margins bordered. Lateral borders in dorsal view narrowly visible. Front corners in lateral view angular with an angle of 100° ; hind corners angular, more obtuse. Surface with small, distinct, not too closely set punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, moderately convex transversely, slightly convex longitudinally. Maximum width and height at the end of the first third. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges narrowly visible in dorsal view. With incised striae with small and narrow punctures which are not easily visible. Intervals on disc very slightly convex, clearly convex laterally, with indistinct, tiny, widely separated punctures (visible at 50-fold magnification).

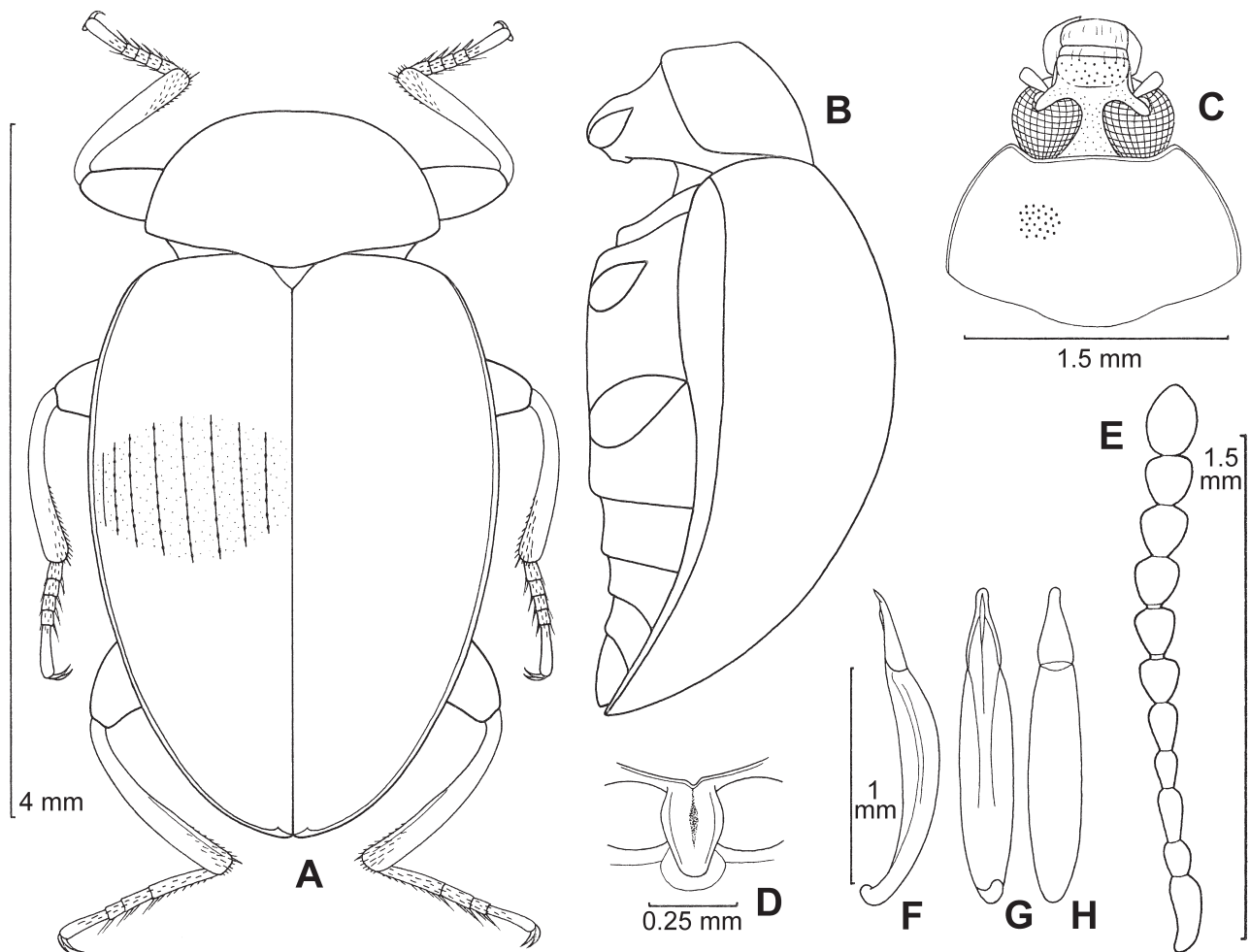


Fig. 22. *Amarygmus invenustus* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Prosternum: Very short. Anterior margin narrowly bent upwards, somewhat retracted towards apophysis at midlength. Apophysis oval, lateral margins along procoxae distinctly raised and widened, space in between with a deep median sulcus.

Mesosternum: Posterior part with a longitudinal sulcus medial to the narrow lateral margins on each side; anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc with medium-sized punctures on anterior half, tiny punctures on posterior half; short, recumbent hairs originating from these punctures. Median line translucent, neither depressed nor incised.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Discs of sternites with tiny, widely separated punctures with short, recumbent hairs. Sternite 5 slightly depressed anterior to posteromedial margin.

Antennae: Short, reaching to anterior fifth of elytra. Length/width ratio of antennomeres 1–11 equals to $9:4\frac{1}{2} / 5:4 / 12:3\frac{1}{2} / 4\frac{1}{2}:3\frac{1}{2} / 6\frac{1}{2}:4 / 6\frac{1}{2}:5 / 6\frac{1}{2}:5\frac{1}{2} / 8:6 / 8:6\frac{1}{2} / 7\frac{1}{2}:6\frac{1}{2} / 11:7$.

Legs: Short. Femora thickened towards the second third. Pro- and mesotibiae moderately bent, inner apical half of protibiae slightly thickened, metatibiae bent. Lengths of protarsomeres 1–5 as $4:4:4:3:14$, lengths of mesotarsomeres 1–5 as $9:5:4:4:14$, lengths of metatarsomeres 1–4 as $16:8:5:14$.

Aedeagus: See Fig. 22F–H.

***Amarygmus lautus* n. sp.**
(Fig. 23A–H)

Holotype (♂): Malaysia, Borneo, Sarawak, Gunung Gading NP [primary lowland rainforest], 100–250 m, at night, on bark of trees, 9.–12.III.2008, R. GRIMM (CG).

Paratypes: Same data as holotype (1 ♀ CG, 1 ♀ ZSMB). – E Sumatra, Riau Prov., Bukit Tigapuluh Nat. Park, $0^{\circ}50'S$ $102^{\circ}26'E$, 18.–25.I.2000, D. HAUCK leg. [left antennomeres 6–11 and right antennomeres 5–11 missing] (1 ♂ ZSMB). – Same data as before [left antennomeres 9–11 and right antennomeres 8–11 missing] (1 ♂ ZSMB). – Same data as before [right antennomeres 9–11 missing] (1 ♂ ZSMB). – Same data as before [severely damaged] (1 ♂ SSB).

Etymology

Lautus (Lat.) = fine, elegant.

Diagnosis

Small, oval. Males with long, closely set hairs on front of profemora, back of mesofemora, prosternal apophysis, and mesosternum. Females without hairs on pro- and mesofemora; hairs on prosternal apophysis and mesosternum of medium length, distinctly shorter and less closely set than in males. Male protarsomeres 1–3 not widened. Hind corners

of pronotum slightly rounded. Elytra with striae with medium-sized punctures; intervals nearly flat, laterally slightly convex. Pronotum blue, elytra coppery with a slight reddish tinge, femora and tibiae black, hairs yellowish red.

Because of the male sexual characters and the shape of the body, *A. lautus* n. sp. belongs to the species group near *A. postdepressus* Pic, 1938 (redescribed and illustrated by BREMER 2004a: 29–31, fig. 16). Within this group it is especially close to *A. postdepressus*. The elytra of *A. postdepressus* are more elongate than those of *A. lautus*, the hind corners of the pronotum are more angular, the hairs of the soles of male protarsomeres 1–3 are more distant laterally, and the colour of the upperside is uniformly coppery (without a reddish tinge).

Description

Measurements: Body length 6.13–6.53 mm; body width 3.98–4.42 mm. – Ratios: Pronotum: width/length 1.89–2.00; width hind corners/width front corners 1.77–1.83. Elytra: length/width 1.23–1.28; length elytra/length pronotum 3.41–3.63; maximum width elytra/maximum width pronotum 1.41–1.46.

Colouration: Elytra with a coppery ground colour and a reddish tinge, slightly lustrous. Pronotum blue, lustrous and with a slightly sericeous shine. Upperside of head, femora and tibiae black; tarsi brown. Antennomeres 1–6 brown, 7–11 black. Underside dark brown to black.

Head: Frons relatively narrow, approximately as wide as length of antennomere 2, in females slightly wider than in males, with minute, not very closely set punctures. Genae short, slightly raised, anteriorly terminating posterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture incised. Clypeus relatively wide, moderately stretched forwards, slightly convex transversely, punctures slightly larger than those on frons and with tiny hairs. Mentum widening anteriorly, with bent sides; lateral margins flat, lustrous, space in between convex. Underside of neck with large, shallow, closely set, partially fused punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Moderately wide, moderately convex transversely and longitudinally. Sides bent and narrowing anteriorly. Hind corners slightly rounded; front corners in dorsal view narrowly rounded and slightly projecting. Anterior margin moderately excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view narrowly visible on the whole length. Front corners in lateral view rectangular; hind corners rounded and obtuse. Surface with minute, relatively widely separated punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Oval, convex transversely, slightly less convex longitudinally. Maximum height and width at the level of the anterior third. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges narrowly visible on the

whole length in dorsal view. With somewhat incised striae with medium-sized, round to slightly elongate punctures; distance between punctures on disc equal to the diameter of a puncture. Intervals on disc nearly flat, laterally slightly convex, with tiny, widely separated punctures.

Prosternum: Anterior margin narrowly and continuously bent upwards. Apophysis wide, relatively flat and short; along procoxae somewhat widened and lateral margins slightly raised, space in between with a wide, shallow groove; posterior to procoxae margins slightly narrowing; sides markedly converging apically, apex slightly protruding in the middle; females with hairs of medium length which do not entirely hide the surface of the apophysis, males with very closely set, long hairs which hide the surface.

Mesosternum: Anterior margin of the posterior part excavated in the middle. Lateral margins with a few tiny tubercles. Posterior part very wide, pilosity in males and females as on prosternal apophysis.

Metasternum: Anterior margin between mesocoxae nearly straight in the middle, broadly bordered. Disc with a few medium-sized punctures anteriorly, wide-

ly separated, tiny punctures posteriorly; with hairs of medium length which do not hide the surface. Median line somewhat depressed.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, broadly bordered. Sternites with tiny, widely separated punctures; small, recumbent hairs originating from these punctures.

Antennae: Relatively long, reaching to middle of elytra. Length/width ratio of antennomeres 1–11 in male equals to 21:8 / 9:7 / 24:7 / 19:7 / 20:7 / 19:7 / 21:8 / 19:9 / 20:9 / 18:9 / 24:10, in female to 20:8 / 8:6½ / 22:6 / 16:6 / 16:6 / 19:8 / 17:9 / 18:9 / 17:9 / 22:9.

Legs: Of medium length. Femora thickened towards the second third; for sexual dimorphism see diagnosis above. Protibiae moderately bent, thickened apically. Mesotibiae as protibiae, but not thickened apically. Metatibiae in males somewhat longer than in females, clearly bent and with small tubercles on inner side. Lengths of protarsomeres 1–5 as 6:6:6:6:27, lengths of mesotarsomeres 1–5 as 12:8:7:6:26, lengths of metatarsomeres 1–4 as 29:15:8:27.

Aedeagus: See Fig. 23F–H.

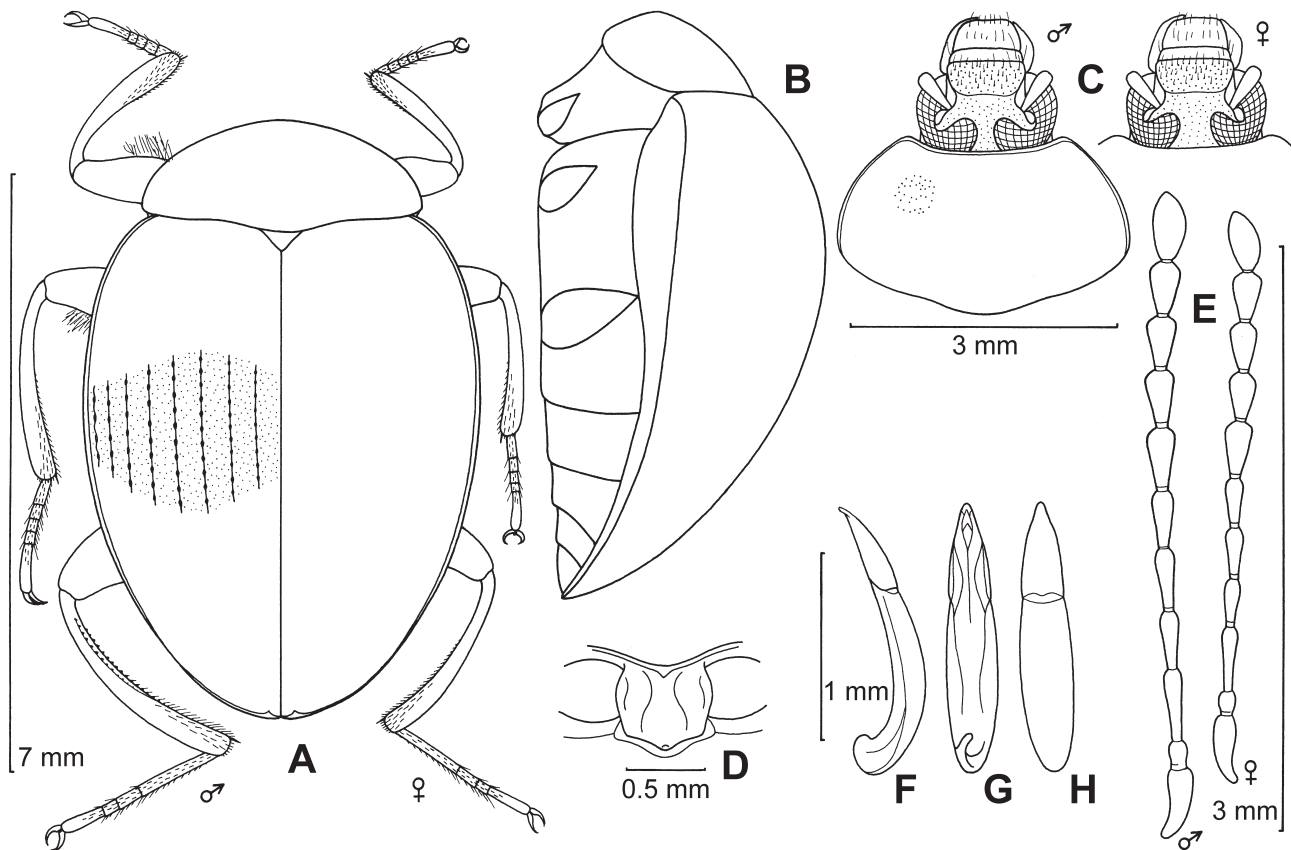


Fig. 23. *Amarygmus lautus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum ♂, head ♀. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Amarygmus makiharai n. sp.
(Fig. 24A–E)

Holotype (♀): Indonesia, Kalimantan, Bukit Bangkirai near Balikpapan, 25.I.2000, H. MAKIHARA leg. [right antennomeres 10–11, left antennomeres 8–11, right middle leg, right hind leg, and left metatarsomeres 3–4 missing] (CA).

Etymology

Dedicated to Mr. H. MAKIHARA (Tsukuba), who collected many species of Tenebrionidae on Sumatra and on Borneo.

Diagnosis

Of medium size, with very long, narrow, slightly oval, microreticulated elytra. Pronotum nearly as wide as elytra. Frons not very wide. Middle part of fronto-clypeal suture touching inner margins of eyes. Antennae very short. Legs short. Characterized by the microreticulated elytra and elytral rows with punctures with a violet bottom and a narrowly violet halo; these punctures tapering into striae posterolaterally.

A. acerbus n. sp. from Kalimantan is another species with markedly elongate elytra and a clearly microreticulated surface, but it is larger (body length 8.52 mm) and the punctures of the elytral rows do not have a violet bottom and halo.

Elongate elytra in combination with striolated elytral punctures, a violet bottom of these punctures and violet or red haloes are also present in the following species: *A. selatanus* (Masumoto et Makihara, 1997) (see MASUMOTO & MAKIHARA 1997: 139–140, fig. 127; also described and illustrated as *A. bellulus* by BREMER 2003a: 86–89), *A. mitschkei* (Pic, 1938) (redescribed and illustrated by BREMER 2003a: 67–69), and *A. haeuseri* Bremer, 2010 (BREMER 2010b: 32, 43–44).

A. selatanus from the Malayan Peninsula, Sumatra and Borneo has oblong elytra and about the same body length as *A. makiharai* (5.65–6.33 mm). It differs from *A. makiharai* in the maximum elytral width shortly behind the base, the straight, posteriorly narrowing elytral sides, shorter elytra (length/width ratio 1.72–1.79), and larger violet haloes around the punctures of the elytral rows.

A. mitschkei, also from the Malayan Peninsula, Sumatra and Borneo, is larger than *A. makiharai* (body length 8.07–8.33 mm), the elytra are shorter (length/width ratio 1.65–1.74) and subparallel, and the violet haloes around the punctures of the elytral rows are larger.

A. haeuseri from the Malayan Peninsula is also larger than *A. makiharai* (body length 8.17 mm), and its elytra are much shorter (length/width ratio 1.46).

Description

Measurements: Body length 5.97 mm; body width 2.62 mm. – **Ratios:** Pronotum: width/length 1.74;

width hind corners/width front corners 1.68. Elytra: length/width 1.88; length elytra/length pronotum 3.65; maximum width elytra/maximum width pronotum 1.12.

Colouration: Elytra dark green with a strong microreticulation; for punctures of elytral rows see diagnosis above. Pronotum with slight microreticulation and strong iridescence in all colours of the light spectrum. Legs black. Underside dark brown.

Head: Frons not very wide, but clearly wider than length of antennomere 3 (like 8 : 12), with tiny, widely separated punctures. Genae very narrow, somewhat raised, anteriorly terminating anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture incised in its middle part which is touching the anterior margin of the eyes laterally. Clypeus shortly stretched forwards, markedly convex longitudinally, punctures slightly larger than those of frons. Mentum reversely trapezoidal; with flat, lustrous lateral margins, space in between opaque, convex transversely. Underside of neck with small, closely set punctures. Mandibles sulcated on outer surface, apically bifid.

Pronotum: Markedly convex transversely, moderately convex longitudinally. Widest at base, about as wide as base of elytra; sides bent and narrowing towards front corners. Hind corners angular, obtuse; front corners rounded. Anterior margin nearly straight, its middle part slightly stretched forward towards head. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible in the posterior three-fifths. Front and hind corners in lateral view obtuse, front corners rounded, hind corners angular. Surface with minute, distinct, relatively closely set punctures.

Scutellum: Triangular, impunctate.

Elytra: Very long, narrow, slightly oval, very convex transversely. Maximum height near the middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges barely visible in dorsal view. With rows of medium-sized, mostly elongate punctures which are situated in some distance (Fig. 24A); some punctures are like short striae; about 16 punctures in row 4; most rows continue into narrowly incised striae posterolaterally and apically. Intervals flat, impunctate.

Prosternum: Anterior margin continuously and narrowly bent upwards. Apophysis narrow, margins along procoxae slightly widened but strongly raised, space in between with a narrow, deep, median groove; lateral margins posterior to procoxae slightly converging and narrowly lifted; apex pointed in the middle; posterior part with a clearly lifted median keel.

Mesosternum: Posterior part long, narrow, its anterior margin with a median excavation. Lateral margins granulated and lifted.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc behind anterior margin

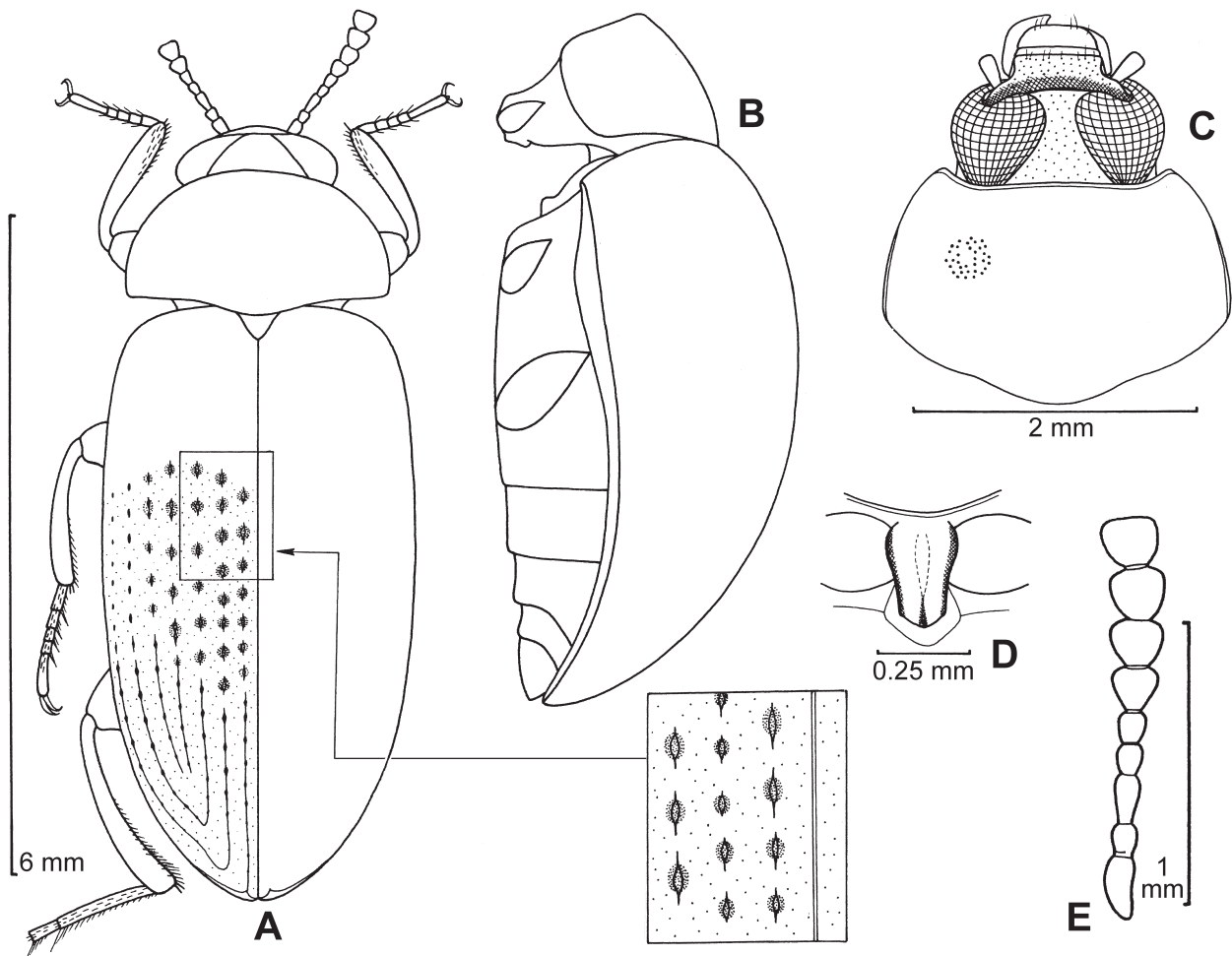


Fig. 24. *Amarygmus makiharai* n. sp. – A Habitus, ♀. B Body, lateral view. C Head and pronotum. D Prosternal apophysis. E Antenna.

laterally with approximately three rows of transversally arranged, medium-sized punctures, posterior part impunctate. Median line incised.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternite 1 with a few minute punctures, sternites 2–5 impunctate.

Antennae: Short, the available 9 antennomeres not reaching to base of pronotum. Length/width ratio of antennomeres 1–9 equals to 10:5 / 6:4 / 8:4 / 5½:4½ / 6:5 / 8:8 / 8:9 / 8:9½ / 9:9½.

Legs: Short. Tibiae thin. Femora thickened towards the second third. Protibiae straight, mesotibiae slightly bent, metatibiae nearly straight in the basal half, moderately bent in the apical half. Lengths of protarsomeres 1–5 as 2:2:2:2:11, lengths of mesotarsomeres 1–5 as 6:4:3:2:11, lengths of metatarsomeres 1–2 [3 and 4 missing] as 21:7.

Amarygmus miser n. sp.

(Fig. 25A–E)

Holotype (♀): Borneo, Malaysia, Sarawak, Kubah NP, nr. Matang Wildlife Centre [primary lowland rainforest], at night, on bark of trees, 19.–22.IX.2008, R. GRIMM (CA).

Paratype: W Malaysia, Perak, Banjaran Bintang, Bukit Berapit (Taiping), 10.–12.III.1997, IVO JENIŠ leg. (1 ♀ ZSMB).

Etymology

Miser (Lat.) = deplorable.

Diagnosis

Very small, slightly elongate, oval. Elytra with somewhat incised striae, stria punctures of medium size; intervals slightly convex, not very densely punctured. Frons relatively narrow. Antennae rather long. Fronto-clypeal suture markedly incised and depressed, forming a slope

between frons and clypeus; clypeus situated on a lower level than frons. Protibiae straight in the apical half; mesotibiae slightly bent; metatibiae bent. Metatarsomere 1 very long. Elytra uniformly dark coppery, lustrous; pronotum dark green, lustrous; legs brown.

Amarygmus miser n. sp. is very close to *A. fraterculus* Bremer, 2002 from Sumatra and Sabah (BREMER 2002a: 23–25); both species share the same body shape, a similarly narrow frons, antennae of similar length, and a similar colouration of upperside and legs. *A. fraterculus*, however, is slightly smaller, the fronto-clypeal suture is only slightly incised in the middle and without a slope between frons and clypeus, the pronotal punctures are coarser and closer set, the front corners are wider rounded, the punctures of the elytral intervals are somewhat larger, and elytral interval 1 is brownish.

A similar species with respect to body shape and colouration is also *A. abditus* Bremer, 2007 from Sabah (BREMER 2007: 3–6). *A. abditus* is approximately as large as *A. miser* (body length 3.04–3.13 mm), but the frons is wider, the antennae are shorter, and the punctures of the elytral rows are larger.

A similar body shape, incised striae on the elytra, long antennae and a relatively narrow frons is also present in *A. inditus* Bremer, 2010 (BREMER 2010b: 44–46) from Peninsular Malaysia. This species is larger than *A. miser* (body length 3.89–4.12 mm), the frons is somewhat wider, and the mesotibiae are clearly more bent.

Another close species is *A. astutus* n. sp.; see under diagnosis of this species.

Description

Measurements: Body length 3.00+3.26 mm; body width 1.79+1.90 mm. – **Ratios:** Pronotum: width/length 1.95+2.03; width hind corners/width front corners 1.75+1.76. Elytra: length/width 1.39+1.41; length elytra/length pronotum 3.46+3.63; maximum width elytra/maximum width pronotum 1.27+1.28.

Colouration: For upperside of body, head and legs see diagnosis above; tarsi brown. Underside brown. Antennomeres 1–4 light brown, 5 darker brown, 6–11 black (antennomere 11 apically brightened).

Head: Frons relatively narrow, about as wide as length of antennomere 4, with minute, distinct, not very

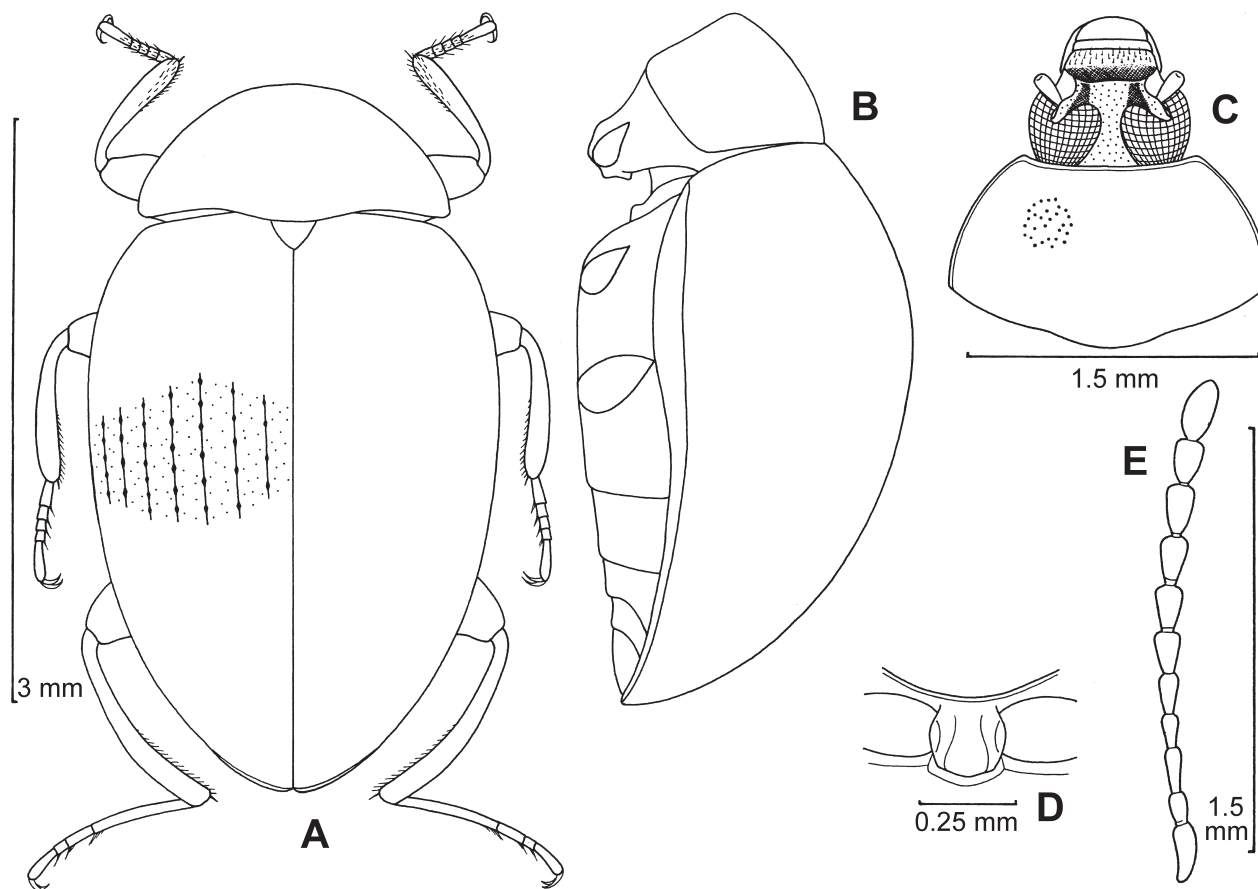


Fig. 25. *Amarygmus miser* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

closely set punctures. Genae narrow, anteriorly terminating at the level of the middle part of the fronto-clypeal suture. For fronto-clypeal suture see diagnosis above. Clypeus moderately stretched forwards, slightly convex transversely and longitudinally, its punctures larger than those on frons. Mentum widening anteriorly, with somewhat bent lateral margins; lateral margins flat, lustrous, space in between more opaque, convex transversely. Underside of neck with large, transversely aligned punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Relatively narrow, markedly convex transversely, slightly convex longitudinally. Widest at base, moderately narrowing and bent anteriorly. Hind corners angular, obtuse; front corners in dorsal view moderately rounded. Anterior margin straight. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible in the posterior three-fourths. Front corners in lateral view angular, with an angle of about 100°; hind corners angular, with an angle of about 110°. Surface with small, not very closely, but irregularly set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Somewhat elongate and oval, markedly convex transversely, somewhat less convex longitudinally. Maximum width and height at the beginning of the second third. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible in the middle and at the apex. With clearly incised striae with medium-sized, slightly elongate punctures which are somewhat larger and more distinct in the paratype; distance between punctures (of the holotype) in row 4 approximately 2 times diameter of a puncture; about 24 punctures in row 4. Intervals slightly convex, with minute, not closely set punctures.

Prosternum: Anterior margin narrowly and continuously bent upwards, with a small triangular process towards apophysis at midlength. Apophysis wide, posterior part like a semi-circle, with a wide, shallow, median groove.

Mesosternum: Posterior part wide, short, its anterior margin excavated in the middle. With a shallow sulcus laterally.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with medium-sized, not very closely set punctures, posterior part with tiny, widely separated punctures; a few semi-erect hairs of medium length originating from these punctures. Median line neither incised nor depressed.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. All sternites with tiny, widely separated punctures and tiny, recumbent hairs.

Antennae: Relatively long, reaching to middle of elytra. Length/width ratio of antennomeres 1–11 equals to 9:4 / 6:3 / 9:3 / 6:3 / 7:4 / 8:4 / 8½:4 / 8½:4 / 8:4 / 7:4 / 11:4.

Legs: Short. Femora distinctly thickened towards the second third. Protibiae slightly bent in basal half, straight in apical half. Mesotibiae slightly bent. Metatibiae bent. Lengths of protarsomeres 1–5 as 2½:2:2:2:9, lengths of mesotarsomeres 1–5 as 7:4:3:3:9, lengths of metatarsomeres 1–4 as 24:6:4:9.

Amarygmus morpheus n. sp.

(Fig. 26A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Gunung Alab [primary mountainous forest], 1500 m, on fungous trunk, 4.–5.I.2010, R. GRIMM (CG).

Etymology

Μορφεύς (Greek) = God of dreams.

Diagnosis

Large, elongate oval. Elytra with two reddish brown maculae on each elytron, circumvented by the black ground colour as shown in Fig. 26A. Posterior part of pronotum black, anterior part and upperside of head reddish brown. Antennomere 11 uniformly reddish brown, antennomeres 7–10 black. Femora uniformly yellowish brown. Elytra with striae; intervals on disc nearly flat. Frons relatively wide. Antennae long. Legs long, metatibiae straight. With characteristic male sexual characters: prolonged forelegs with the anterior part somewhat bent and thickened; protarsomeres 1–3 enlarged and protarsomeres 1–4 with laterally widely projecting hairs originating from the soles; back of meso- and metafemora with long erect hairs; metatibiae, and less so mesotibiae, with a tuft of long, recumbent hairs on inner basal fourth. Aedeagus very narrow.

With respect to size, body shape and form of maculae, *Amarygmus morpheus* n. sp. strongly resembles *A. sanguinans* Fairmaire, 1893 (redescribed and illustrated by BREMER 2005b: 25–27, fig. 15). *A. sanguinans*, however, has a uniformly black antennomere 11, somewhat shorter antennae, wave-like shaped metatibiae, and long hairs on back of meta- and mesofemora and a tuft of hairs on inner side of meta- and mesotibiae are absent.

Another species of similar size, shape, form of maculae, equally long antennae and long hairs on the back of male meso- and metatibiae is *A. binotatus* Pic, 1915 (redescribed and illustrated by BREMER 2005b: 10–12, fig. 15). Antennomere 11 of *A. binotatus* is yellowish brightened in its apical three-fourths (uniformly reddish brown in *A. morpheus*), the frons is slightly narrower, male metatibiae have long erect hairs on the inner apical three-fourths (absent in *A. morpheus*), and there is no tuft of hairs on inner side of male meso- and metatibiae.

A. adornatus Bremer, 2010 (BREMER 2010a: 160–162) is another similar species. It differs from *A. morpheus* in the smaller body length (7.32–8.44 mm), somewhat different

elytral maculae, the uniformly black antennomere 11, absence of hairs on back of male meso- and metafemora, and absence of a tuft of hairs on inner side of male metatibiae.

Description

Measurements: Body length 10.8 mm; body width 5.5 mm. – **Ratios:** Pronotum: width/length 1.49; width hind corners/width front corners 1.77. Elytra: length/width 1.59; length elytra/length pronotum 2.97; maximum width elytra/maximum width pronotum 1.25.

Colouration: Head brown, lustrous. Pronotum lustrous, front part reddish brown, hind part black (with an irregular border between both colours). Elytra with reddish brown maculae on a black ground (Fig. 26A). Femora brown; basal and apical parts of tibiae brown, middle parts black; tarsi brown. Antennomeres 1–6 brown, 7–10 black, 11 uniformly reddish brown. Underside brown.

Head: Frons relatively wide, as wide as length of antennomere 4, with a median, shallow depression and tiny punctures. Genae short, only in their posterior part some-

what developed and slightly raised, anteriorly terminating clearly posterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture translucent, scarcely incised or depressed. Clypeus stretched forwards, somewhat convex transversely, with punctures larger than those on frons. Mentum with rounded margins posteriorly, widening with straight margins anteriorly; lateral margins flat, lustrous, space in between slightly microreticulated and slightly convex transversely. Underside of neck with shallow, transversely aligned punctures. Mandibles sulcated on outer surface near apex, apically bifid.

Pronotum: Markedly convex transversely, somewhat less so longitudinally. Widest slightly posterior to the middle; sides converging towards hind corners, somewhat more converging towards front corners. Hind corners angular, obtuse; front corners about rectangular, slightly prominent. Anterior margin moderately excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible, except a short part posterior to front corners. Front and hind corners in lateral

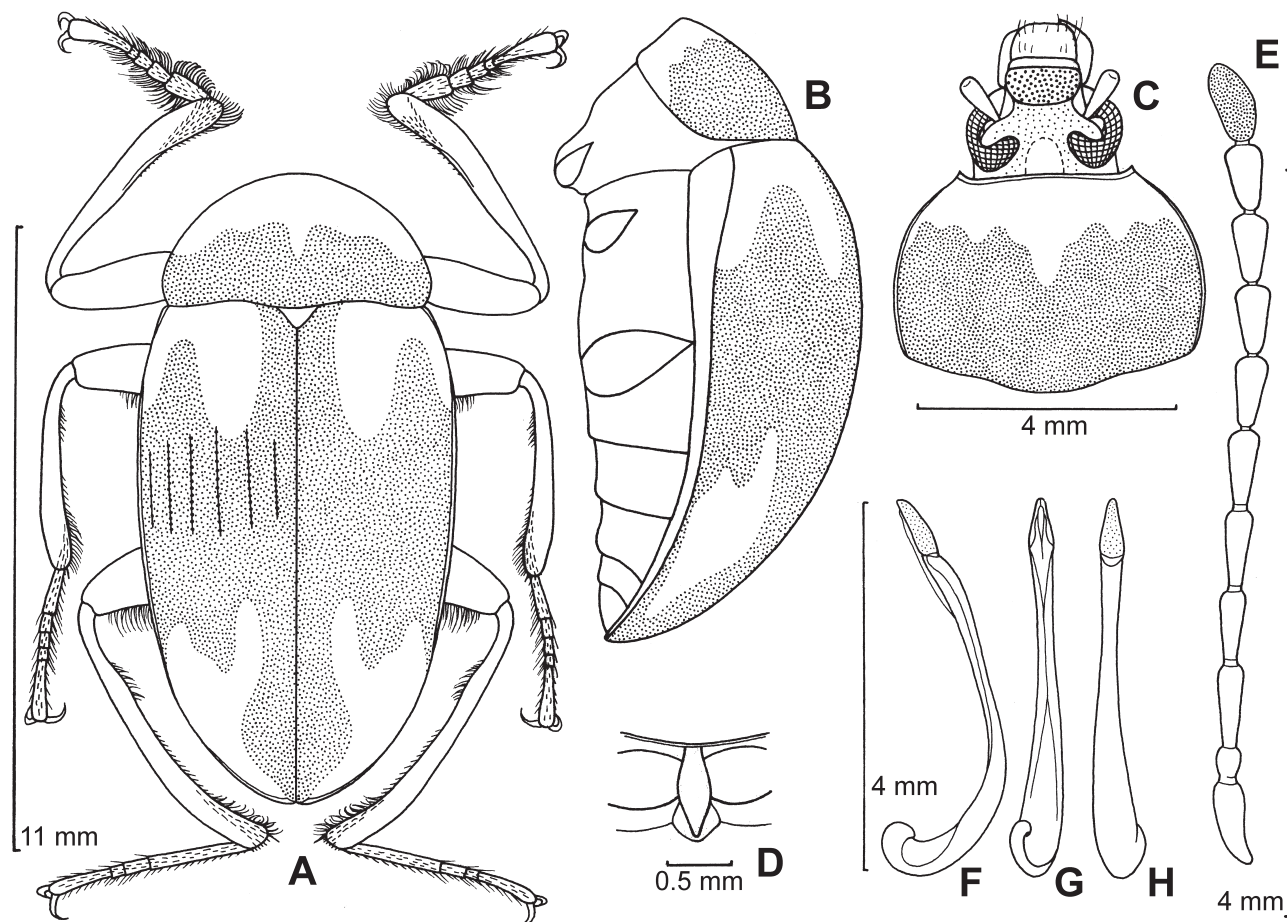


Fig. 26. *Amarygmus morpheus* n. sp. – **A** Habitus, ♂ (body reddish brown, punctured areas black). **B** Body, lateral view. **C** Head and pronotum (pronotum reddish brown, punctured area black). **D** Prosternal apophysis. **E** Antenna (punctured antennomere 11 reddish brown). **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

view angular, obtuse. Surface with indistinct, tiny, widely separated punctures.

Scutellum: Triangular, with a few tiny punctures, sides slightly bent.

Elytra: Moderately convex transversely and longitudinally. Maximum height at the level of the anterior third. Shoulders in dorsal view angular, obtuse. Apices of elytra mutually rounded. Lateral edges very narrowly visible in dorsal view. Apical part with a few very short erect hairs (visible at 25-fold magnification). With slightly incised striae with small punctures; distance between punctures less than diameter of a puncture; striae extending towards apex. Intervals on disc very slightly convex, clearly convex laterally, impunctate on disc, with some tiny, indistinct punctures near apex.

Prosternum: Anterior margin, except in the middle, narrowly bent upwards. Apophysis very narrow, between anterior margin and the level between procoxae markedly ascending, posterior to procoxae markedly descending; lifted like a narrow nose apically; space between procoxae without a median sulcus; surface with a few erect hairs of medium length.

Mesosternum: Posterior part very short and narrow, its anterior margin excavated in the middle, front corners of the excavation strongly raised like a big tubercle.

Metasternum: Anterior margin between mesocoxae rounded, faintly bordered. Anterior apophysis somewhat raised like a bump, on its surface longitudinally striolated. Disc relatively closely covered with small punctures which are partially transversely fused. Median line deeply incised up to the anterior apophysis.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Discs of sternites 1–4 covered with small, relatively closely set punctures with sparse, semi-erect hairs of medium length, disc of sternite 5 with dense, recumbent hairs of medium length.

Antennae: Long, reaching to posterior third of elytra. Shape of antennomere 11 bean-like. Length/width ratio of antennomeres 1–11 equals to $14:7\frac{1}{2} / 8:6 / 19:6\frac{1}{2} / 17:6\frac{1}{2} / 18:6\frac{1}{2} / 18:7 / 18:7\frac{1}{2} / 18:7\frac{1}{2} / 18:8 / 17:8 / 20:8$.

Legs: Femora thickened towards the second third, with two rows of small tubercles anteriorly; back of meso- and metafemora with two rows of long hairs. Protibiae long, with a narrow base, thickened and incurved in the apical half, on inner side with some small tubercles and tiny, semi-erect bristles. Mesotibiae bent basally, but main part straight, thickened apically, at the level of inner basal fourth with a tuft of thin, relatively short hairs (like those of metatibiae but not so pronounced). Metatibiae straight, on inner side with a tuft of erect hairs at the level of the basal fourth. Lengths of protarsomeres 1–5 as $19:11:6:4:25$, lengths of mesotarsomeres 1–5 as $16:9:6:5:27$, lengths of metatarsomeres 1–4 as $34:12:8:25$.

Aedeagus: See Fig. 26F–H.

Amarygmus neglectus n. sp.
(Fig. 27A–E)

Holotype (♀): Borneo, Sabah, route Keningau–Papar, II. 2000, M. SNIŽEK leg. (ZSMB).

Etymology

Neglego, neglectum (Lat.) = do not pay attention (I did not recognize this species as undescribed until recently).

Diagnosis

Of medium size, elongate oval. Elytra with rows of medium-sized, closely set punctures, flat intervals and distinct violet and green reflections which are usually aligned longitudinally. Pronotum with colourful reflections. Frons of medium width. Antennae long. Legs brown.

Amarygmus hilaratus Bremer, 2007 (BREMER 2007: 15–17) from Sabah resembles *A. neglectus* n. sp. in the oval shape and closely set punctures in the elytral rows, but is larger (body length 10.7 mm) and has short antennae. The males of *A. hilaratus* have an area of short, closely set hairs on the front side of the profemora, and the apical half of the metatibiae is widened (males of *A. neglectus* are unknown).

Description

Measurements: Body length 7.84 mm; body width 3.98 mm. – Ratios: Pronotum: width/length 1.78; width hind corners/width front corners 1.66. Elytra: length/width 1.65; length elytra/length pronotum 3.76; maximum width elytra/maximum width pronotum 1.28.

Colouration: Upperside coppery, somewhat lustrous, elytra with interrupted longitudinal reflections of violet and green. Pronotum with intensely violet iridescence near base and green iridescence in anterior half. Legs brown. Antennomeres 1–5 brown, 6–11 black. Underside dark brown, femora somewhat brighter brown.

Head: Frons flat, of medium width, approximately as wide as length of antennomere 4, covered with tiny, relatively closely set punctures. Genae only slightly raised, anteriorly terminating somewhat anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture negligibly incised in its middle part. Clypeus moderately stretched forwards, nearly flat, punctures as on frons. Mentum reversely trapezoidal; lateral margins flat, lustrous, space in between somewhat convex, less lustrous. Mandibles with a sulcus on outer surface, apically bifid.

Pronotum: Relatively narrow, markedly convex transversely, moderately convex longitudinally. Maximum width at base, moderately bent, narrowing towards front corners. Hind corners angular, slightly obtuse; front corners rounded, obtuse. Anterior margin straight. Lateral and anterior margins bordered. Lateral margins in dorsal

view narrowly visible in the posterior fourth. Front and hind corners in lateral view obtuse, front corners rounded, hind corners angular. Surface with minute, distinct, not very closely set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Elongate, slightly oval, markedly convex transversely, moderately convex longitudinally. Maximum height slightly anterior to the middle. Shoulders rounded, slightly prominent dorsad. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible posterior to shoulders. With rows of medium-sized, closely set punctures; distance between punctures on disc in row 4 about $\frac{1}{2}$ –1 times diameter of a puncture; about 40 punctures in row 4. Intervals flat, slightly convex posterolaterally, with tiny, widely separated punctures.

Prosternum: Anterior margin narrowly bent upwards, retracted towards apophysis, forming an obtuse angle at midlength. Apophysis slightly ascending towards level of procoxae, moderately descending towards apex;

along procoxae lateral margins thickened and widened, space in between with a median groove; sides posterior to procoxae somewhat narrowing; apically rounded; surface with a few short hairs.

Mesosternum: Anterior margin of the posterior part excavated at midlength. Lateral margins slightly higher than the smooth middle part.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc with widely separated, tiny punctures. Median line slightly incised on the whole length.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered; inner rim of the anterior border with closely set, large punctures. All sternites with tiny, widely separated punctures.

Antennae: Long, reaching to anterior three-fifths of elytra. Length/width ratio of antennomeres 1–11 equals to 18:9 / 9:7 / 19:7 / 16:7 / 17:7½ / 18:7½ / 19:8½ / 20:9 / 20:9 / 20:9 / 26:9.

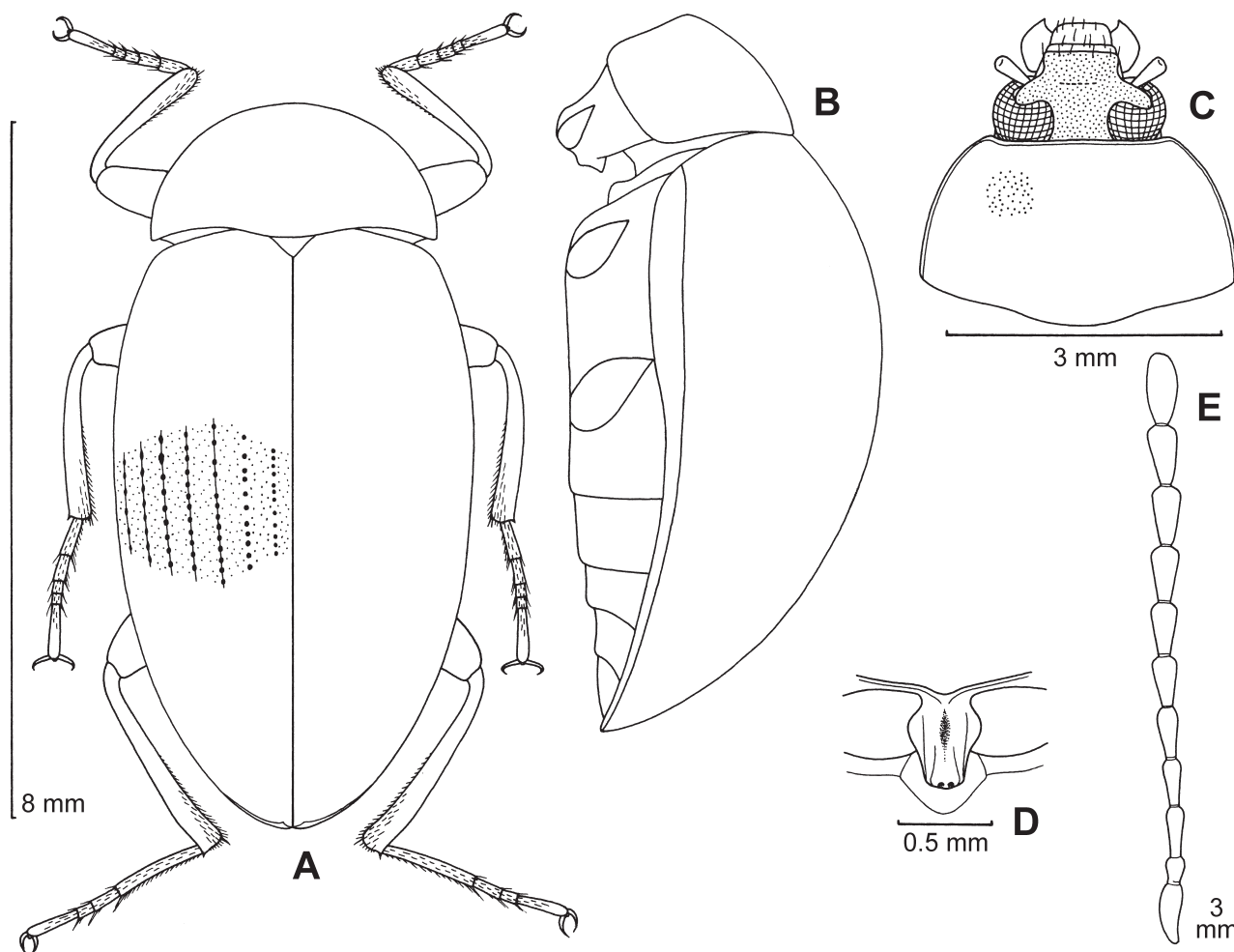


Fig. 27. *Amarygmus neglectus* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

Legs: Of medium length. Femora thickened towards the second third. Protibiae straight; mesotibiae very slightly bent, inner apical half with semi-erect hairs of medium length; metatibiae straight in basal half, somewhat incurved in apical half, inner apical half with semi-erect hairs of medium length. Lengths of protarsomeres 1–5 as 8:6:4:2½:15, lengths of mesotarsomeres 1–5 as 11:7:4½:3:15, lengths of metatarsomeres 1–4 as 25:8:4:14.

Amarygmus nepenthes n. sp.
(Fig. 28A–E)

Holotype (♀): Malaysia, Sabah Prov., Banjaran Crocker Mts., Gunung Alab Peak [primary mountainous forest], 1650–1800 m, 30.IV.–27.V.1996, M. ŠTRBA & R. HERGOVITS leg. (ZSMB).

Etymology

Nepenthes = name of a magical Egyptian herb, according to PLINIUS senior in “Naturalis historia”.

Diagnosis

Of medium length, elongate oval, lustrous. Upperside dark green, legs brown. Elytra with rows of round punctures of medium size and flat intervals. Frons of medium width. Antennae relatively short.

Amarygmus nepenthes n. sp. is of same size and has the same colouration as *A. viridicatus* Bremer, 2004 (BREMER 2004a: 51–52, fig. 32), a species which has been collected near the collection site of *A. nepenthes*. *A. viridicatus*, however, has markedly longer elytra (length/width ratio 1.83) with nearly straight sides, the slightly depressed elytral striae have elongate, poorly delimited punctures (punctures of *A. nepenthes* round, clearly delimited and usually not connected by lines), the penultimate antennomeres are shorter, and the pronotal sides are nearly straight (clearly bent in *A. nepenthes*).

The new species is also similar to *A. assignatus* Bremer, 2010 (BREMER 2010a: 168–170) from the same area. *A. assignatus* has a similar body shape and similar width of frons, but the punctures of the elytral rows are much smaller and the antennae are longer.

A. seductus n. sp. from Sarawak resembles *A. nepenthes* in the elytral puncture rows and length and shape of the antennae, but *A. seductus* is somewhat larger, the frons is slightly wider, and the upperside is brown with pink tinge (dark green in *A. nepenthes*).

A. tenellus Bremer, 2003 (BREMER 2003b: 60–61) from Sabah has a similar body shape and size as *A. nepenthes*, but the frons of *A. tenellus* is narrower, the elytra have striae with relatively large, rhombic punctures, and the antennae are longer.

Description

Measurements: Body length 5.49 mm; body width 2.95 mm. – Ratios: Pronotum: width/length 1.87; width hind corners/width front corners 1.76. Elytra: length/

width 1.57; length elytra/length pronotum 3.74; maximum width elytra/maximum width pronotum 1.31.

Colouration: Upperside except scutellum dark green, lustrous; scutellum brown. Frons dark green; clypeus and genae brown. Underside dark brown. Femora and tibiae dark brown, tarsi light brown. Antennomeres 1–5 light brown, 6–8 increasingly darker brown, 9–11 black (11 apically brightened).

Head: Frons of medium width, about as wide as length of antennomere 3. Genae narrow, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture slightly incised in its middle part. Clypeus moderately stretched forwards, moderately convex transversely, covered with small, not very closely set punctures. Mentum widening apically, with somewhat bent sides; lateral margins flat, lustrous, space in between slightly less lustrous and convex transversely. Underside of neck with irregularly set, medium-sized punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Convex transversely and longitudinally, slightly more depressed anterolaterally than posteriorly. Widest at base, anteriorly markedly bent and narrowing. Hind corners rounded; front corners angular and in dorsal view nearly rectangular. Anterior margin somewhat excavated laterally, its middle part slightly protruded towards head. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible. Front and hind corners in lateral view rounded and obtuse. Surface with tiny, widely separated punctures.

Scutellum: Triangular, impunctate.

Elytra: Elongate oval, clearly convex transversely, moderately convex longitudinally. Highest near the middle. Shoulders somewhat prominent. Apices of elytra mutually rounded. Lateral edges narrowly visible in the posterior third, not visible anteriorly. With rows of small punctures, some of them linked by faint lines; distance between punctures on disc in row 4 about 1–3 times diameter of a puncture; about 30 punctures in row 4. Intervals flat, with tiny, widely separated punctures which just become visible at 50-fold magnification.

Prosternum: Anterior margin narrowly bent upwards and somewhat retracted towards apophysis. Apophysis short, lateral margins roundedly widened along procoxae, raised and leaving a wide median groove between them; apex broadly pointed.

Mesosternum: Anterior margin of the posterior part excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with a few small punctures, posterior part impunctate. Median line depressed in the posterior fourth.

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

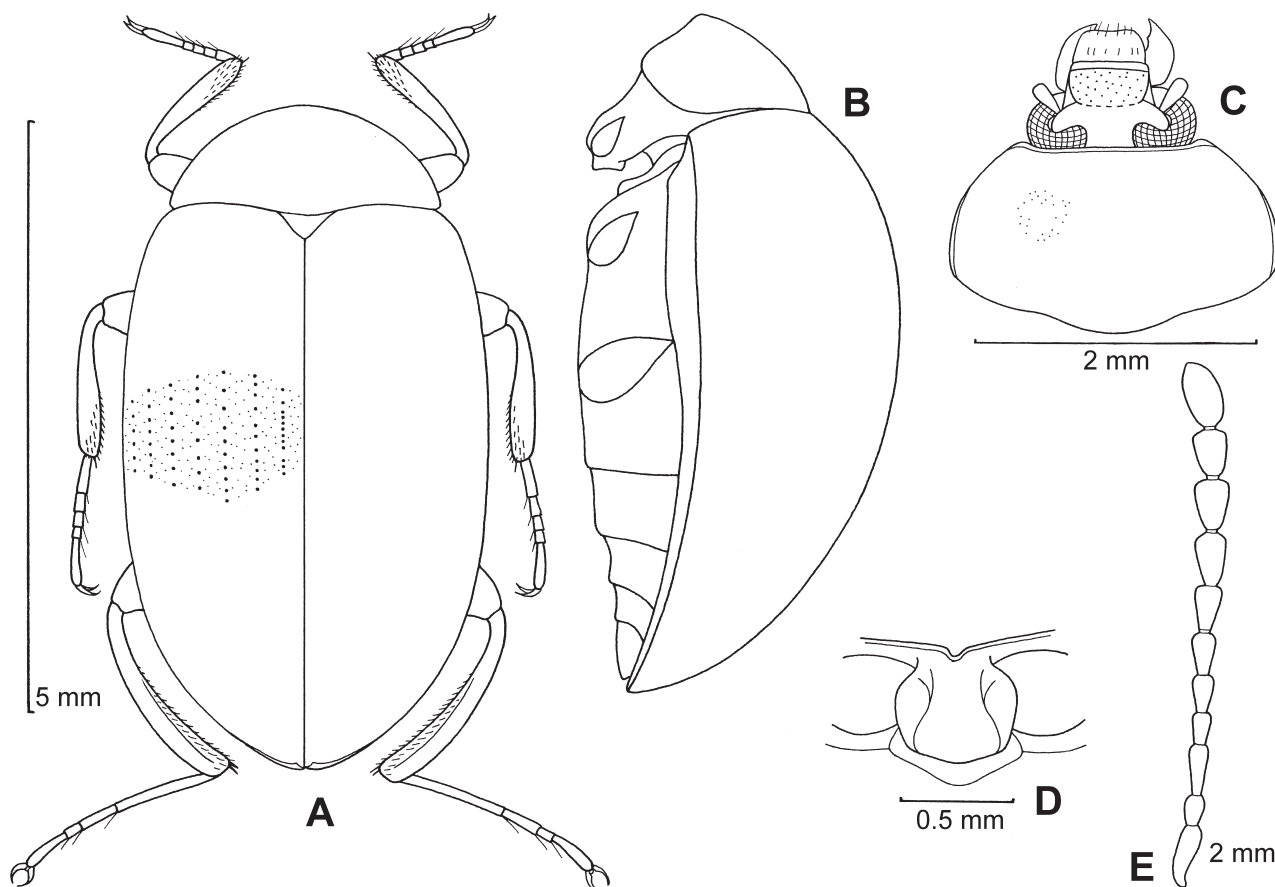


Fig. 28. *Amarygmus nepenthes* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

Antennae: Short, reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 12:5 / 8:4½ / 11:4 / 8:4 / 9:4½ / 10:5½ / 11:6½ / 11:6½ / 11:7 / 10:7 / 14:8.

Legs: Short. Femora thickened towards the second third. Protibiae straight; mesotibiae slightly bent; metatibiae straight in the basal two-fifths, moderately incurved in the apical three-fifths. Lengths of protarsomeres 1–5 as 5:5:5:5:19, lengths of mesotarsomeres 1–5 as 16:12:7:6:19, lengths of metatarsomeres 1–4 as 39:14:8:21.

Amarygmus pallidior n. sp.
(Fig. 29A–E)

Holotype (♀): Borneo, Malaysia, Sabah, 18 km NE Keningau, Crocker Range nr. Kimanis Road [fogged from a tree covered with moss], 1100 m, 28.I.2010, R. GRIMM (CG).

Etymology

Pallidior (Lat.), comparative of pallidus = pale.

Diagnosis

Very tiny, elongate ovate; markedly convex transversely, somewhat less so longitudinally. Elytra uniformly yellowish brown, with rows of small, widely separated punctures and flat, scarcely punctured intervals. Pronotum dark green, nearly black, impunctate. Frons of medium width. Antennae of medium length.

Amarygmus pallidior n. sp. belongs to the group of small species affine *A. niasensis* (Pic, 1915) (redescribed and illustrated by BREMER 2002a: 11–13) which has formerly been classified as *Pseudamarygmus* Pic, 1915. However, all species of this group are markedly larger than *A. pallidior*. *A. infans* n. sp. is about as long as *A. pallidior* (3.04–3.22 mm), but it has large elytral punctures.

Description

Measurements: Body length 2.53 mm; body width 1.56 mm. – **Ratios:** Pronotum: width/length 1.81; width hind corners/width front corners 1.71. Elytra: length/width 1.45; length elytra/length pronotum 3.63; maximum width elytra/maximum width pronotum 1.38.

Colouration: Upperside markedly lustrous. For colouration of elytra and pronotum see diagnosis above. Head dark brown, nearly black. Legs dark brown. Antennomeres 1–4 brown, 5–11 black (apical part of antennomere 11 yellowish brightened). Underside dark brown, lustrous.

Head: Frons microreticulated, of medium width, width approximately equal to length of antennomere 3. Genae short, anteriorly terminating posterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture deeply incised over the whole width of head. Clypeus wide, situated on a lower level than frons, moderately stretched forwards, with minute, widely separated punctures. Mentum reversely trapezoidal; with flat, lustrous, lateral margins, space in between also lustrous, convex transversely. Underside of neck microreticulated, lustrous, with a few medium-sized punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Markedly convex transversely, somewhat less so longitudinally. Widest at base, anteriorly narrowing and slightly bent. Hind corners in dorsal view angular, obtuse; front corners rounded. Anterior margin straight. Lateral and anterior margins bordered. Lateral borders in dorsal view not visible. Hind and front corners

in lateral view rounded, front corners more so than hind corners, both obtuse. Surface impunctate.

Scutellum: Triangular, impunctate.

Elytra: Ovate, markedly convex transversely and longitudinally. Maximum width and height slightly anterior to the middle. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With rows of small, indistinct, widely separated punctures; distances between punctures on disc in row 4 about 3–4 times diameter of a puncture; about 20 punctures in row 4. Intervals flat, with tiny, indistinct, widely separated punctures.

Prosternum: Anterior margin narrowly bent upwards, somewhat retracted towards apophysis at mid-length. Apophysis relatively short, lateral margins along procoxae clearly raised and widened, space in between with a deep median groove; posterior to procoxae with a rounded, scarcely descending apex.

Mesosternum: Anterior margin of the posterior part excavated, with an indistinct, longitudinal sulcus on both sides.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc with small, widely separated punctures and a few short, recumbent hairs. Median line neither depressed nor incised.

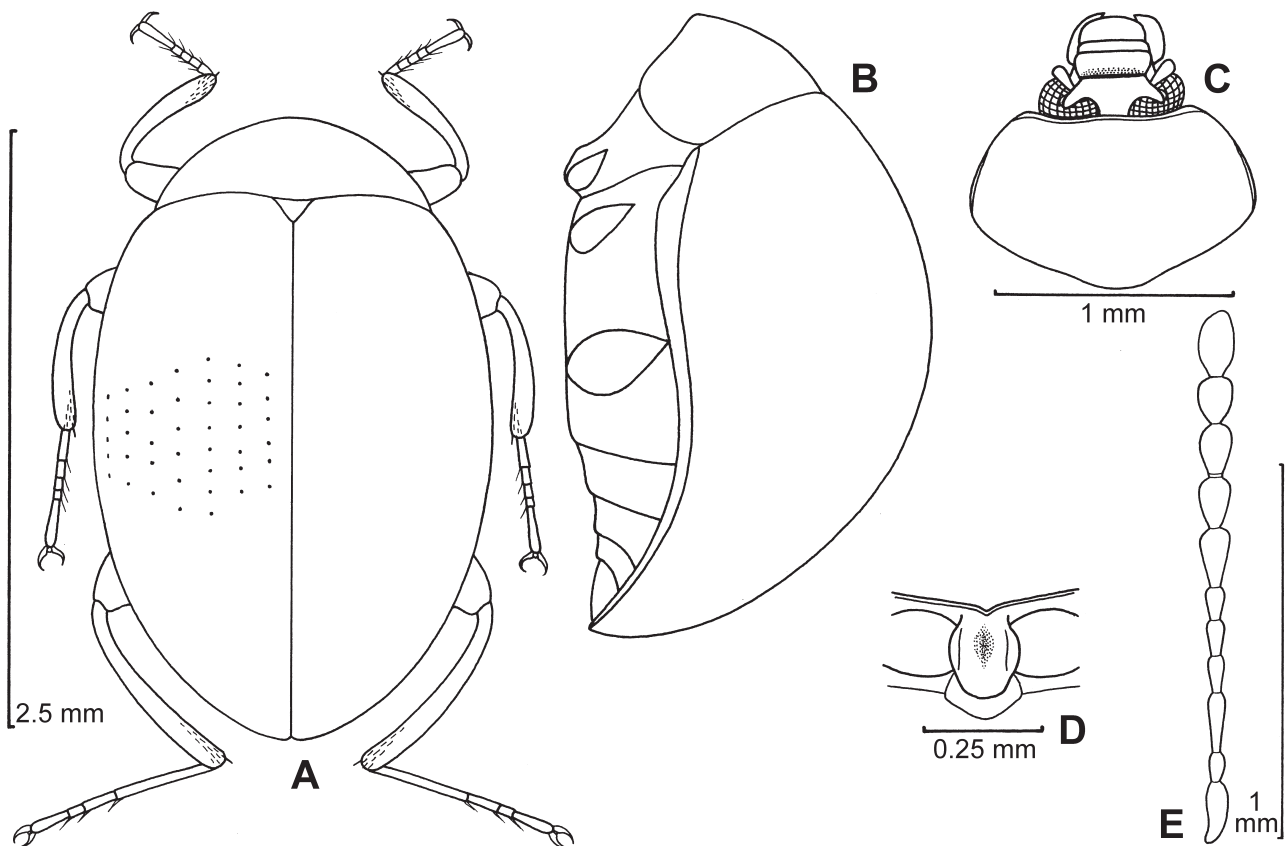


Fig. 29. *Amarygmus pallidior* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Discs of sternites with small, widely separated punctures.

Antennae: Of medium length, reaching to anterior two-fifths of elytra. Length/width ratio of antennomeres 1–11 equals to 5:3 / 4:2½ / 7½:2 / 4½:2 / 6:2 / 4½:2½ / 6:3 / 7½:4½ / 7:4½ / 6:4½ / 8:5.

Legs: Short. Femora moderately thickened towards the second third. Pro- and mesotibiae slightly bent; metatibiae straight in basal half, incurved apically. Lengths of protarsomeres 1–5 as 2:2:2:2:9, lengths of mesotarsomeres 1–5 as 6:4:2:2:9, lengths of metatarsomeres 1–4 as 19:6:3½:9.

Amarygmus pullus n. sp.
(Fig. 30A–H)

Holotype (♂): Borneo, Sabah, Danum Valley [primary lowland rainforest], 4°38'N 117°48'E, M. D. F. ELLWOOD,

Parashorea tomentella, *Asplenium nidus*, Number 10, FogTray 7, 12.VI.1999, 396 (BMNH).

Etymology

Pullus (Lat.) = young animal.

Diagnosis

Small, elongate oval. Elytra with incised striae and elongate, not well visible punctures; intervals slightly punctured, moderately convex laterally. Frons of medium width. Genae not raised. Antennae short.

Amarygmus nepos Bremer, 2002 (BREMER 2002a: 28–30) from Sumatra and Peninsular Malaysia is very similar to *A. pullus* n. sp. with respect to size, shape and colouration. *A. nepos*, however, has clearly visible elytral punctures which are mostly slightly elongate, arranged in rows and inconstantly connected by faint lines, the pronotum is wider and has larger punctures, and the frons is narrower.

Another very similar species is *A. filiastra* n. sp. It also presents incised elytral striae in which punctures are

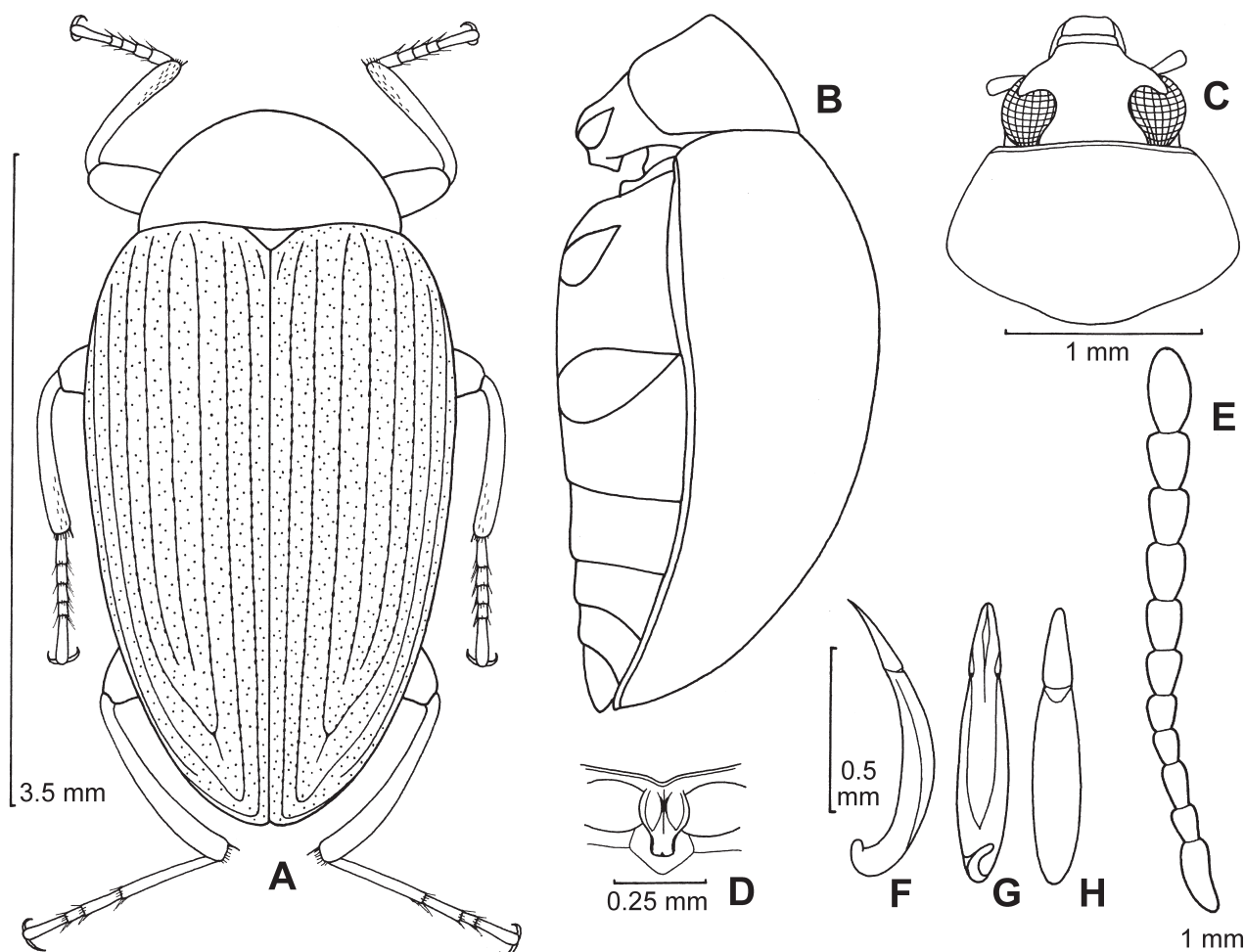


Fig. 30. *Amarygmus pullus* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

scarcely visible, but in contrast to *A. pullus* it has a distinctly narrower frons and a bluish green pronotum.

Description

Measurements: Body length 3.70 mm; body width 1.87 mm. – Ratios: Pronotum: width/length 1.70; width hind corners/width front corners 1.42. Elytra: length/width 1.63; length elytra/length pronotum 3.90; maximum width elytra/maximum width pronotum 1.41.

Colouration: Pronotum greyish brown, opaque. Elytra dark green with slight purple iridescence near suture. Legs dark brown. Antennomeres 1–4 brown, 5–11 black. Underside dark brown, with moderate microreticulation and somewhat reduced lustre.

Head: Frons of medium width, somewhat wider than length of antennomere 3 (like 8 : 6½), flat, with tiny, widely separated punctures (just visible at 50-fold magnification). Genae not separated from frons, lateral margins not raised. Fronto-clypeal suture scarcely visible. Clypeus only slightly stretched forwards, flat, with a few very tiny punctures. Mentum reversely trapezoidal, with flat lateral margins, space in between convex transversely. Underside of neck with a few small punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Narrow, markedly convex transversely, slightly convex longitudinally; posterior margin markedly projecting towards base of elytra, anterior margin straight. Widest at base, only slightly narrowing towards front corners. Front corners in dorsal view not visible, in lateral view rounded, obtuse; hind corners in dorsal view visible, obtuse, in lateral view more angular and widely obtuse. Lateral and anterior margins bordered. Lateral borders in dorsal view very narrowly visible in the posterior half. Surface with very tiny, widely separated punctures (visible at 50-fold magnification).

Scutellum: Triangular, impunctate.

Elytra: Elongate oval, narrow, markedly convex transversely, somewhat less convex longitudinally. Maximum width and height at the end of the first third. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges visible only at apex in dorsal view. With somewhat incised striae with barely visible punctures. Intervals on disc nearly flat, convex laterally, punctures very tiny (visible at 50-fold magnification) and widely separated.

Prosternum: Anterior margin continuously bent upwards. Apophysis narrow, lateral margins along procoxae somewhat widened and markedly raised, space in between with a narrow, deep, median groove; posterior to procoxae horizontally stretched backwards, lateral margins narrowly lifted ventrad, somewhat concave and trough-like in between.

Mesosternum: Anterior part at a lower level and with recumbent hairs of medium length. Posterior part small and narrow, its anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc smooth, without punctures. Median line neither depressed nor incised.

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

Antennae: Short, reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 6½:3½ / 5:3 / 6½:3 / 4½:3 / 5:3½ / 7:4½ / 7:4½ / 8:5 / 8:5 / 7½:5 / 11:6.

Legs: Short. Femora moderately thickened towards the second third. Pro- and mesotibiae slightly bent, metatibiae somewhat more bent. Lengths of protarsomeres 1–5 as 5:4:4:3:12, lengths of mesotarsomeres 1–5 as 7:5:4½:4:12, lengths of metatarsomeres 1–4 as 25:11:6:12.

Aedeagus: See Fig. 30F–H.

Amarygmus seductus n. sp. (Fig. 31A–E)

Holotype (♀): Sarawak, Gunung Mulu Nat. Park, Site Camp 2.5, Mulu, 1000 m, 413481, Lower I., montane f., MV-understorey, R. G. S. Exped. 1977–8, 15 February, J. D. HOLLOWAY et al., B. M. 1978–206 (BMNH).

Etymology

Seductus (Lat.) = remote.

Diagnosis

Of medium size, somewhat elongate oval. Elytra with rows of medium-sized, mostly rhombic punctures which are situated in some distance on disc; intervals flat, with tiny, distinct punctures. Frons of medium width. Antennae of medium length. Legs short, tibiae thin. Upperside brown with a distinct pink tinge.

Amarygmus seductus n. sp. has some similarity to *A. nepenthes* n. sp. and *A. botryitidis* n. sp.; see under diagnoses of these species.

Description

Measurements: Body length 6.29 mm; body width 3.74 mm. – Ratios: Pronotum: width/length 1.80; width hind corners/width front corners 1.85. Elytra: length/width 1.43; length elytra/length pronotum 3.35; maximum width elytra/maximum width pronotum 1.31.

Colouration: Elytra and pronotum brown with a strong pink tinge, pronotum additionally with a weak iridescence. Legs dark brown. Antennomeres 1–5 brown, 6–11 black. Underside brown, lustrous (holotype immature).

Head: Frons of medium width, as wide as combined length of antennomeres 3+4. Genae negligibly raised, anteriorly terminating anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture translucent, neither depressed nor incised. Clypeus moderately

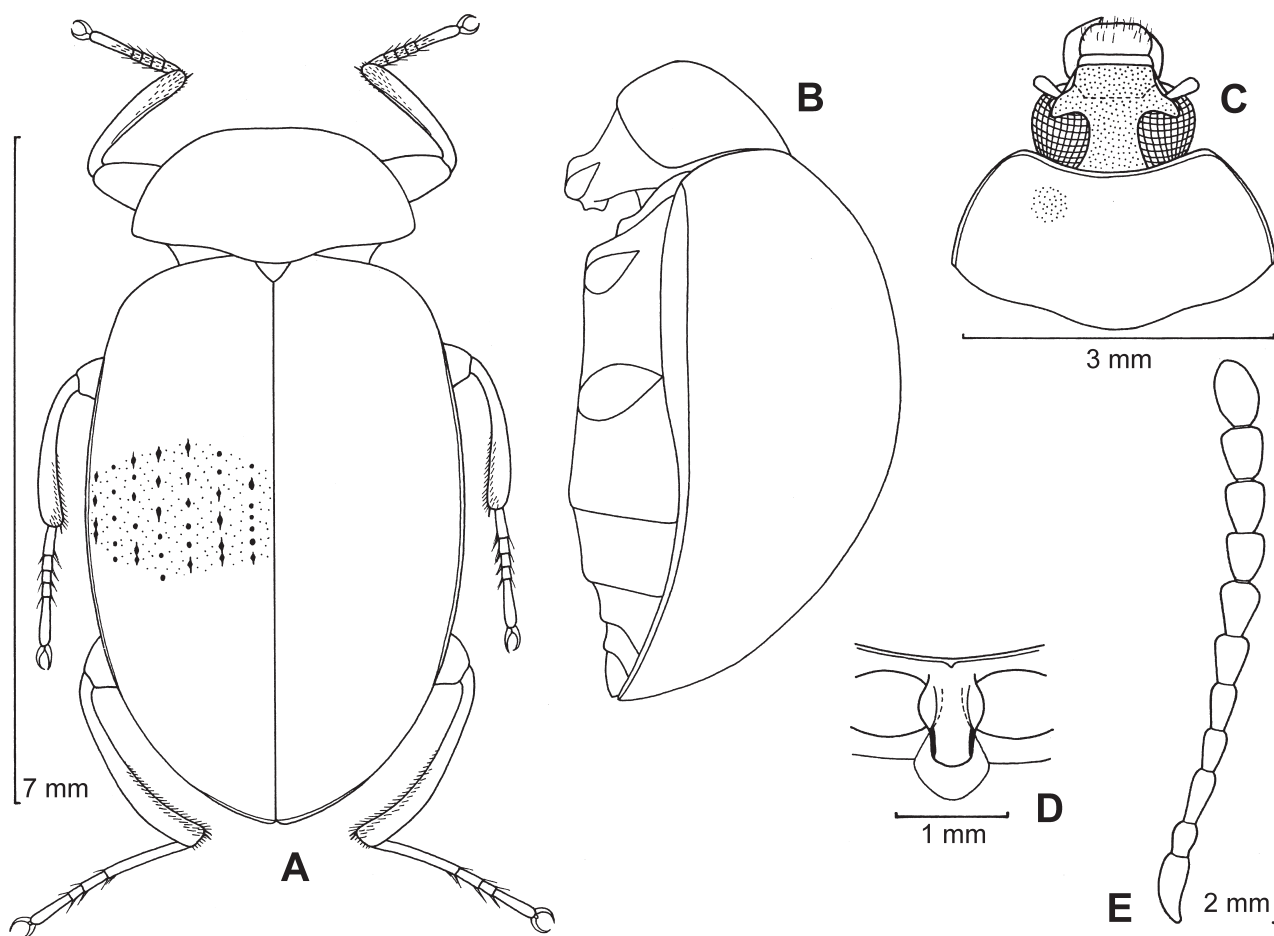


Fig. 31. *Amarygmus seductus* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

stretched forwards, scarcely convex. Frons and clypeus closely covered with tiny punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Relatively short, moderately convex transversely, slightly convex longitudinally. Widest at base, sides bent and converging towards front corners. Hind corners angular, obtuse; front corners rounded. Anterior margin moderately excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view narrowly visible. Front and hind corners in lateral view obtuse, front corners rounded, hind corners angular. Surface with small, irregularly but mostly closely set punctures.

Scutellum: Triangular, impunctate.

Elytra: Somewhat elongate oval, markedly convex transversely, moderately convex longitudinally. Maximum width and height approximately in the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible posterior to shoulders. With rows of relatively large, somewhat irregularly set, mostly rhombic punctures; distance between

punctures on disc in row 4 about 1–3 times diameter of a puncture, punctures in rows 2 and 3 are more widely separated; about 19 punctures in row 4. Intervals flat, with minute, distinct, not very closely set punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards. Apophysis not very wide; along procoxae lateral margins somewhat widened, with a median groove in between; posterior to procoxae sides subparallel and lateral margins somewhat lifted upwards; apically broadly rounded.

Mesosternum: Anterior margin of the posterior part deeply excavated in the middle. Lateral margins subparallel, slightly lifted.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc with a few medium-sized punctures anteriorly, widely separated minute punctures posteriorly. Median line translucent, neither incised nor depressed.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Discs of sternites with minute, widely separated punctures.

Antennae: Relatively short, reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 7:3 / 3:2½ / 7:2½ / 4½:2½ / 5:3 / 5:4 / 6:4½ / 6:4½ / 5½:4½ / 5:4½ / 7:5.

Legs: Short. Femora thickened towards the second third. Protibiae very slightly bent, mesotibiae slightly bent, metatibiae clearly bent. Lengths of protarsomeres 1–5 as 7:6:6:5:22, lengths of mesotarsomeres 1–5 as 13:6:5:5:24, lengths of metatarsomeres 1–4 as 39:12:8:22.

Amarygmus semotus n. sp.
(Fig. 32A–E)

Holotype (♀): Borneo, Sabah, Danum Valley [primary lowland rainforest], 4°38'N 117°48'E, M. D. F. ELLWOOD, *Parashorea tomentella*, *Asplenium nidus*, Tembaling 2, FogTray 4, 19.X.1999, 446 (BMNH).

Etymology

Semotus (Lat.) = segregated from.

Diagnosis

Of medium size, oval, very convex transversely. Elytra with rows of very closely set punctures and flat intervals. Frons of medium width. Antennae short. Elytra dark coppery with narrow brighter stripes along the puncture rows. Metatarsomere 4 as long as metatarsomere 1.

Amarygmus semotus n. sp. is very similar in shape to *A. katoi* Masumoto, 1985 (see MASUMOTO 1985: 11–12, figs. 23–25; also described and illustrated as *A. maiusculus* by BREMER 2004a: 47–48, fig. 29). *A. katoi* is somewhat larger (8.92–9.47 mm) and may also have narrow stripes on the elytra, but in this case the striae are brighter (not the puncture rows as in *A. semotus*).

Description

Measurements: Body length 7.56 mm; body width 4.78 mm. – Ratios: Pronotum: width/length 2.22; width hind corners/width front corners 1.79. Elytra: length/width 1.32; length elytra/length pronotum 3.59; maximum width elytra/maximum width pronotum 1.40.

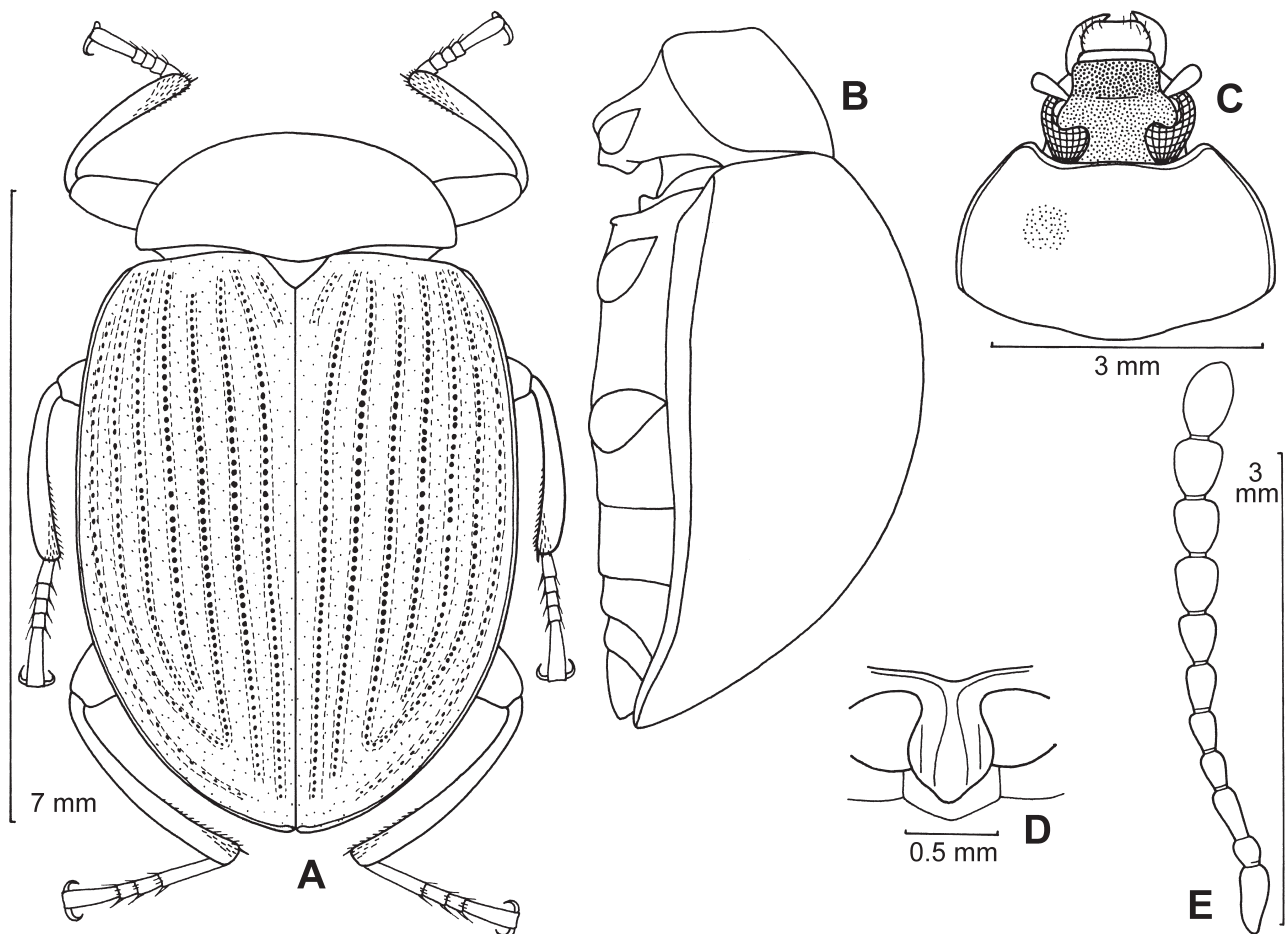


Fig. 32. *Amarygmus semotus* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

Colouration: Frons and pronotum dark green, lustrous. Elytra dark coppery, somewhat less lustrous than pronotum, with narrow brighter stripes along rows of punctures. Legs including tarsi black. Antennomeres 1+2 brown, 3–11 black. Underside black, with reduced lustre.

Head: Frons of medium width, wider than combined length of antennomeres 3+4 (like 16:14½), slightly convex longitudinally. Genae distinctly raised, anteriorly terminating somewhat anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture markedly depressed, slightly incised in its middle part. Clypeus stretched forwards, slightly convex longitudinally. Clypeus and frons with small, indistinct, closely set punctures. Mentum reversely trapezoidal; lateral margins lustrous, flat, space in between convex transversely, opaque. Underside of neck with small, closely set punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Convex transversely, somewhat less convex longitudinally. Widest at base; sides bent, narrowing towards front corners. Hind corners in dorsal view angular but very obtuse; front corners narrowly rounded and approximately rectangular. Anterior margin excavated. Lateral and anterior margins bordered. Lateral borders in dorsal view visible in the posterior four-fifths, barely visible anteriorly. Front corners in lateral view narrowly rounded, with an angle of about 100°; hind corners angular, markedly obtuse. Surface with small, distinct, irregularly set punctures.

Scutellum: Triangular, with some tiny punctures.

Elytra: Oval, markedly convex transversely and longitudinally. Widest and highest approximately in the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges narrowly visible on the whole length in dorsal view. With rows of medium-sized, closely set punctures; distance between punctures equal to the diameter of a puncture; about 38 punctures in row 4. Intervals flat, posterolaterally slightly convex, with indistinct, tiny punctures (just visible at 50-fold magnification).

Prosternum: Anterior margin narrowly bent upwards, in the middle with a small keel pointing to apophysis. Apophysis oval, maximum width slightly behind procoxae, with a shallow, median keel posterior to procoxae.

Mesosternum: Anterior margin of the posterior part with a narrow excavation in the middle, front corners of this excavation with a large tubercle.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with large, closely set punctures, posterior part with a few tiny punctures. Median line somewhat depressed and incised.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, bordered. Sternites with minute, widely separated punctures.

Antennae: Short, reaching to anterior fifth of elytra. Length/width ratio of antennomeres 1–11 equals to 9:5 / 5:4 / 8½:4 / 6:4 / 7:4½ / 6½:5 / 8:7 / 8:7½ / 9:8 / 9:8 / 12:8.

Legs: Femora widened towards the second third, narrowing apically. All tibiae somewhat thickened and bent anteriorly. Lengths of protarsomeres 1–5 as 5:4½:3:3:14, lengths of mesotarsomeres 1–5 as 6:4:4:4:14, lengths of metatarsomeres 1–4 as 14:7:4:14.

Amarygmus seponens n. sp.

(Fig. 33A–H)

Holotype (♂): Indonesia, Kalimantan, Bukit Bangkirai near Balikpapan, Light Trap, 4.I.2000, H. MAKIHARA leg. [left protarsomeres 4–5, right protarsomeres, right mesotarsomeres, and both metatarsomeres missing] (CA).

Etymology

Seponens (Lat.) from seponere = to put aside.

Diagnosis

Of medium size, ovate. Elytra closely punctured, with rows of large, irregularly formed punctures (elongate, striolate or round) with a violet bottom and a small violet halo. Mesotibiae on inner side with a sharp edge which terminates in a sharp tooth-like corner at about basal three-fifths.

Amarygmus seponens n. sp. resembles *A. sundaensis* Bremer, 2001 (redescribed and illustrated by BREMER 2004a: 38–39, fig. 22) which also has specially formed male mesotibiae, but *A. sundaensis* has a widening in the middle of the mesotibiae (not a sharp edge which terminates in a sharp corner as in *A. seponens*).

A similar excavation with a sharp corner on inner side of mesotibiae and a similar size, shape and widening of protarsomeres 1–3 is also present in males of *A. oeneus* Bremer, 2009 (from Luzon/Philippines, see BREMER 2009: 282–283). However, *A. oeneus* has only striae on the elytra, it has no close punctation on the elytral intervals and no violet bottom or haloes around the elytral punctures.

Description

Measurements: Body length 5.97 mm; body width 3.74 mm. – Ratios: Pronotum: width/length 1.92; width hind corners/width front corners 1.92. Elytra: length/width 1.35; length elytra/length pronotum 3.53; maximum width elytra/maximum width pronotum 1.36.

Colouration: Upperside somewhat opaque, coppery. Pronotum with weak violet and green reflections. Elytra with faint violet, yellow and green reflections, punctures of rows with a violet bottom and a narrow violet halo. Frons faintly violet, clypeus weakly green. Antennae dark brown to black. Femora dark brown. Underside black, metasternum lustrous, sternites microreticulated, somewhat opaque.

Head: Frons narrow, approximately as wide as length of antennomere 2, with small, distinct, not very closely set punctures. Genae slightly raised, anteriorly terminating

anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture somewhat depressed and incised in the middle, very weakly incised laterally. Clypeus moderately stretched forwards, somewhat convex transversely and longitudinally, its punctures larger and closer set than those of frons. Mentum reversely trapezoidal; lateral margins flat, lustrous, space in between slightly opaque, moderately convex transversely. Mandibles sulcated on outer surface; apically bifid.

Pronotum: Moderately convex transversely and longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners angular, slightly obtuse; front corners rounded. Anterior margin moderately excavated. Lateral and anterior margins continuously bordered. Lateral margins in dorsal view narrowly visible. Front and hind corners in lateral view slightly obtuse, front corners rounded, hind corners angular. Surface with small, distinct, closely set punctures; a narrow median area nearly impunctate.

Scutellum: Triangular, with a few small, distinct punctures.

Elytra: Oval, markedly convex transversely, somewhat less so longitudinally. Maximum height near the middle. Shoulders rounded, slightly prominent dorsad. Apices of elytra mutually rounded. Lateral edges narrowly visible on the whole length in dorsal view. With rows of large punctures of very different shape, some are round and well separated, some are elongate and fused to a depressed stria; all punctures with a violet bottom, if several punctures are fused to a stria the whole stria is circumvented by a violet halo. Intervals with a slight tendency to convexity (because of the somewhat depressed striae), with small, distinct, relatively closely set punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards. Apophysis slightly ascending between anterior margin and level between procoxae, slightly descending between procoxae and apex; along procoxae lateral margins somewhat widened and raised, space in between with a median groove; posterior to procoxae lateral margins slightly narrowing and narrowly raised; apex rounded; surface opaque.

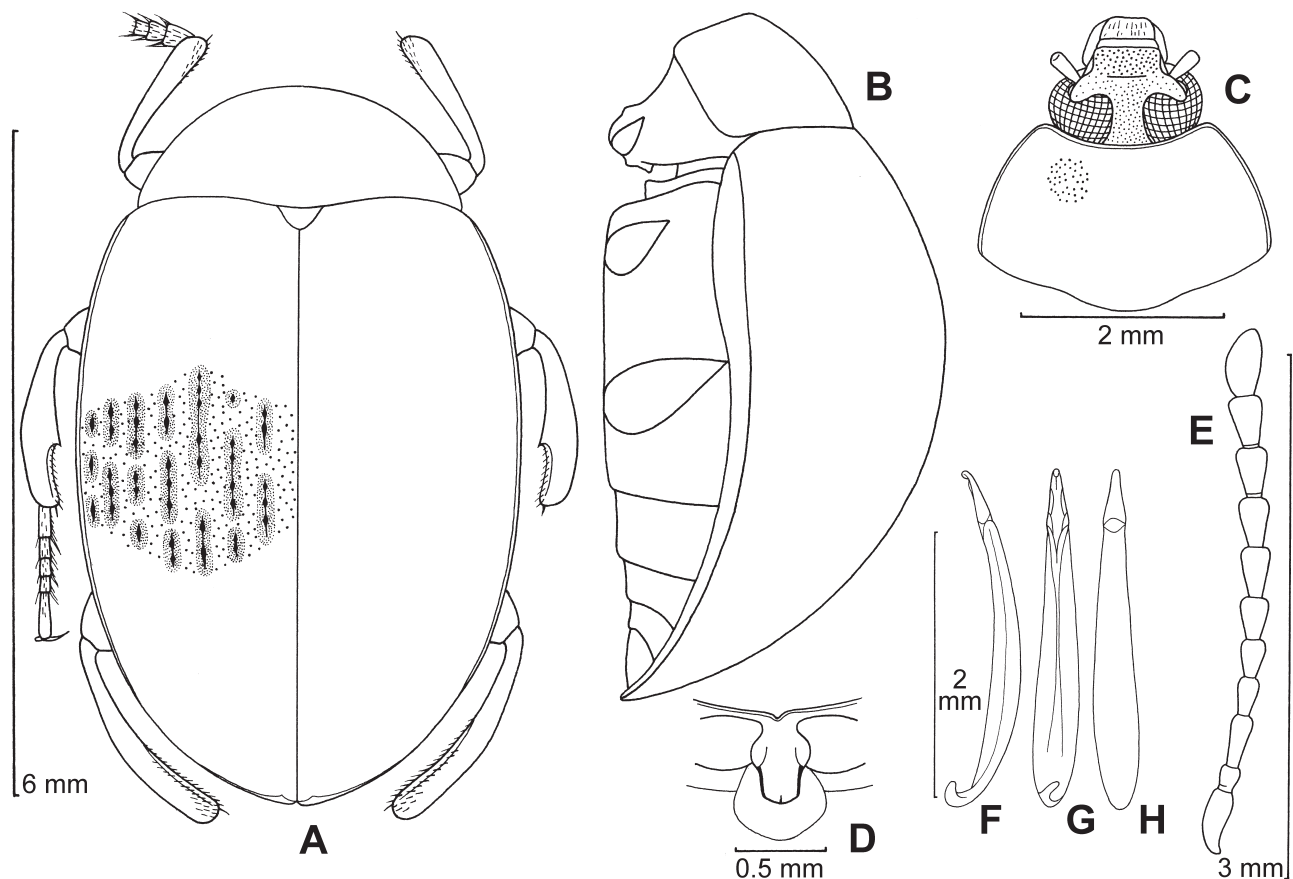


Fig. 33. *Amarygmus seponens* n. sp. — **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Mesosternum: Posterior part relatively narrow, with subparallel and slightly raised lateral margins; anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, faintly bordered. Anterior apophysis somewhat lifted like a bump (only in males?). Anterior part of disc with not very closely set, medium-sized punctures, small punctures along the distinctly depressed median line, and tiny punctures laterally.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites with minute, not very closely set punctures. Disc of sternite 5 flattened.

Antennae: Of medium length, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 12:7 / 8:7 / 15:6 / 10:6 / 12:7 / 12:7 / 14:9 / 15:9 / 15:9½ / 14:10 / 19:10.

Legs: Short. Femora distinctly thickened towards the second third. Protibiae slightly bent. Mesotibiae clearly bent on outer side, nearly straight on inner basal three-fifths, terminating in a small, sharp tooth, distal to this tooth somewhat excavated on inner side. Metatibiae markedly bent. Protarsomeres 1–3 moderately widened and with a brush-like pilosity on soles. Lengths of protarsomeres 1–3 as 8:6:4, lengths of mesotarsomeres 1–5 as 12:10:6:4:21.

Abdomen: See Fig. 33F–H.

Amarygmus zynthiae n. sp.
(Fig. 34A–E)

Holotype (♀): Borneo, Sabah, vic. Danum Valley Rainforest Lodge, 4°58'N 117°48'E, primärer Tiefland-Regenwald [= primary lowland rainforest], nachts, auf Baumrinde [= at night, on bark of a tree], 19.–20.X.2009, leg. U. & H. J. BREMER (ZSMB).

Etymology

Zynthia (also *Cynthia*) = female first name and also name of a severe storm which crossed Germany when I was describing this species.

Diagnosis

Of medium size, oval. Elytra with distinctly incised striae and rhombic stria punctures; intervals markedly convex. Pronotum with bent sides and maximum width somewhat posterior to the middle, hind corners rounded. Frons relatively narrow. Antennae of medium length. Prosternal apophysis and mesosternum with medium-sized, non-directional hairs. Upperside uniformly copper coloured and lustrous, femora and tibiae dark brown.

The body shape of *Amarygmus zynthiae* n. sp., the shape of the prosternal apophysis and the relatively long hairs on prosternal apophysis and mesosternum are characters of the species group near *A. postdepressus* Pic,

1937 (redescribed and illustrated by BREMER 2004a: 29–31, fig. 16). Males of *A. postdepressus* have long hairs on front of profemora and back of mesofemora, and long, very closely set hairs on prosternal apophysis and hind part of mesosternum. Females of this species group have no long hairs on the femora, but medium-sized hairs on prosternal apophysis and mesosternum (less closely set than in males). Only the female holotype is known of *A. zynthiae*, but I strongly suppose that the male will have similar hairs on femora, prosternal apophysis and mesosternum as in *A. postdepressus*.

In size, shape and the widely rounded hind corners of the pronotum *A. zynthiae* also resembles *A. disgregatus* Bremer, 2010 (BREMER 2010a: 184–187). However, *A. disgregatus* has a dark violet colour on the lateral parts of the elytra, and the pronotal sides are less retracted towards the hind corners.

A. zynthiae n. sp. is also similar to *A. amoenus* n. sp. from the same locality; both species have a lustrous upper-side with markedly convex elytral intervals. *A. amoenus*, however, has a narrower body, the maximum elytral width and height is near the middle, the punctures of the elytral rows are small and scarcely visible (much larger in *A. zynthiae*), the maximum pronotal width is near the base (just behind the middle in *A. zynthiae*), and the frons is distinctly wider. Males of *A. amoenus* do not have long hairs on pro- and mesofemora and prosternal apophysis and mesosternum, thus this species does not belong to the species group of *A. postdepressus* Pic.

Description

Measurements: Body length 5.17 mm; body width 3.74 mm. – Ratios: Pronotum: width/length 1.97; width hind corners/width front corners 1.76. Elytra: length/width 1.22; length elytra/length pronotum 3.44; maximum width elytra/maximum width pronotum 1.43.

Colouration: Upperside except scutellum coppery, lustrous; scutellum brown. Underside brown. Legs dark brown. Antennomeres 1–4 dark brown, 5–11 black.

Head: Frons relatively narrow, somewhat narrower than length of antennomere 4 (like 11 : 15), with minute, not very closely set punctures. Genae raised, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture clearly incised in its middle part and somewhat depressed, slightly incised laterally. Clypeus stretched forwards, slightly convex transversely and longitudinally, with minute, not very closely set punctures; tiny hairs originating from these punctures. Mentum reversely trapezoidal, with somewhat bent sides; lateral margins flat, lustrous, space in between opaque, slightly convex transversely, with a few medium-sized hairs. Underside of neck with large, shallow, partially fused punctures. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

Pronotum: Slightly convex transversely and longitudinally. Maximum width somewhat posterior to the middle, anteriorly narrowing with straight margins, posteriorly narrowing with rounded margins. Hind corners rounded; front corners rectangular and somewhat prominent. Anterior margin distinctly excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible. Front corners in lateral view rectangular; hind corners angular and obtuse. Surface with tiny, not very closely set punctures.

Scutellum: Triangular, impunctate.

Elytra: Ovate, relatively wide, convex transversely and longitudinally. Maximum width and height at the end of the first third. Shoulders obtuse. Apices of elytra mutually rounded. Lateral edges, except at shoulders, narrowly visible in dorsal view. With incised striae with medium-sized, elongate punctures; distance between punctures on disc in stria 4 approximately $\frac{1}{2}$ –1 times diameter of a puncture. Intervals convex, with tiny, distinct, widely separated punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards. Apophysis nearly pentagonal, along procoxae with moderately widened and uplifted lateral margins, space in between with a wide, shallow median groove; covered with non-directional hairs of medium length.

Mesosternum: Posterior part wide and short, its anterior margin excavated in the middle. Surface covered with medium-sized, non-directional hairs.

Metasternum: Anterior margin between mesocoxae convex, bordered. Anterior part of disc with large, closely set punctures which are the origin of short, nearly recumbent hairs; posterior part nearly impunctate. Median line moderately incised in the posterior two-thirds.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites impunctate (at 50-fold magnification), with a few short, recumbent hairs.

Antennae: Reaching to middle of elytra. Length/width ratio of antennomeres 1–11 equals to 17:7 / 7:6 / 19:5½ / 15:5½ / 16:5½ / 15:6 / 17:9 / 16:9 / 16:9½ / 16:9½ / 21:9½.

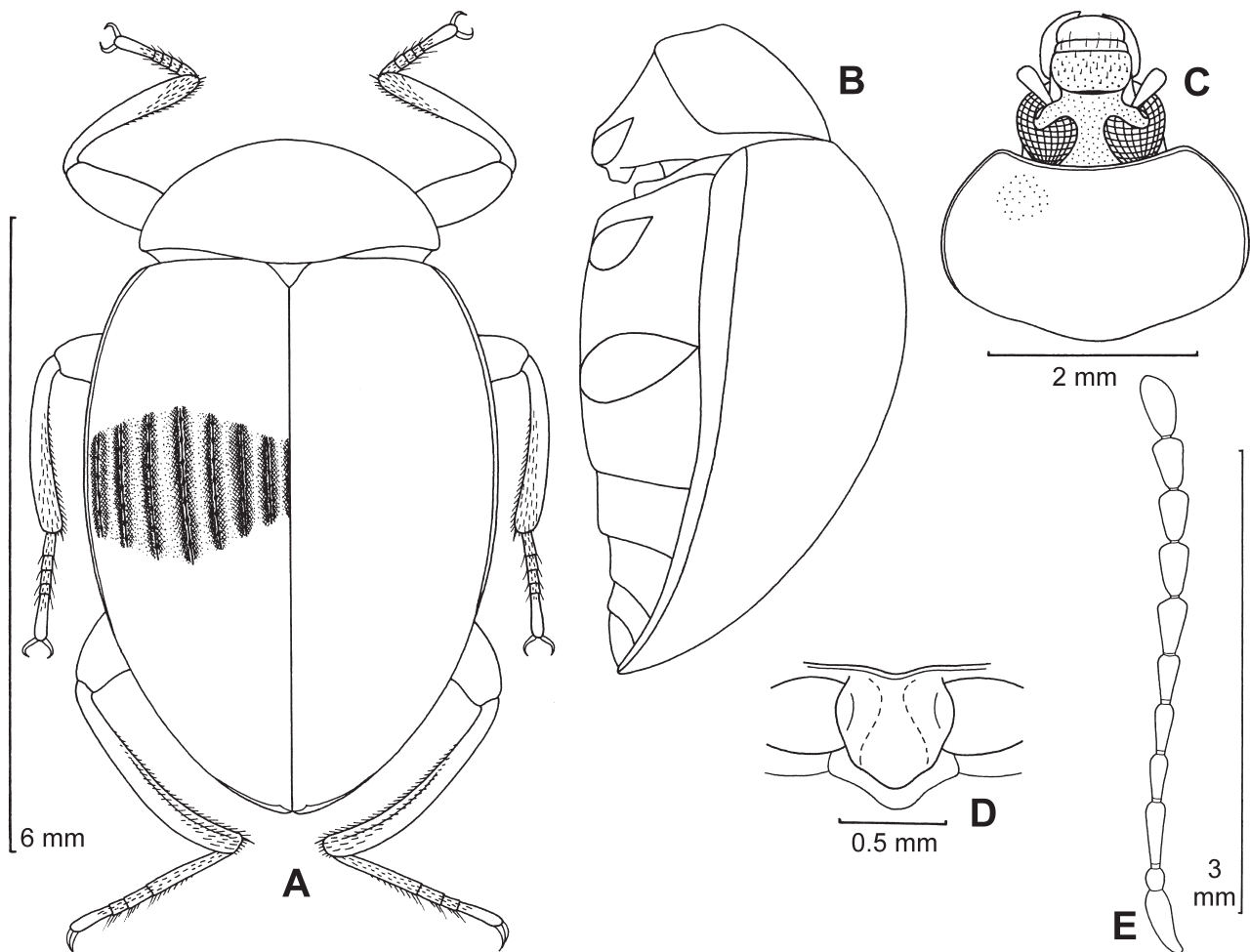


Fig. 34. *Amarygmus zynthiae* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

Legs: Of medium length. Femora thickened towards the second third, narrowing towards apex. Pro- and mesotibiae slightly bent; metatibiae slightly bent in the basal three-fifths, somewhat more incurved in the apical two-fifths. Lengths of protarsomeres 1–5 as 4:4:4:4:22, lengths of mesotarsomeres 1–5 as 10:8:8:6:22, lengths of metatarsomeres 1–4 as 36:10:6:22.

4 Notes on *Amarygmus verecundus* Bremer, 2010

Amarygmus verecundus was described by BREMER (2010a: 242–243), based on three female specimens. In the meantime I could study a male specimen. It has slightly widened protarsomeres 1–3 and the aedeagus with a barbed hook on the top dorsally (Fig. 35A–C). This species therefore belongs to the species group of *A. fulgurans* Gebien, 1927, which includes *A. eureos* Bremer, 2010, *A. erilis* Bremer, 2010, *A. inconditus* Bremer, 2010, and probably also *A. tenellus* Bremer, 2003 as additional members. All these species have a similar shape of the aedeagus. Only females are known of *A. tenellus*, but because this species has a very similar shape as *A. fulgurans*, I guess that also males of *A. tenellus* might have an aedeagus with barbed hook.

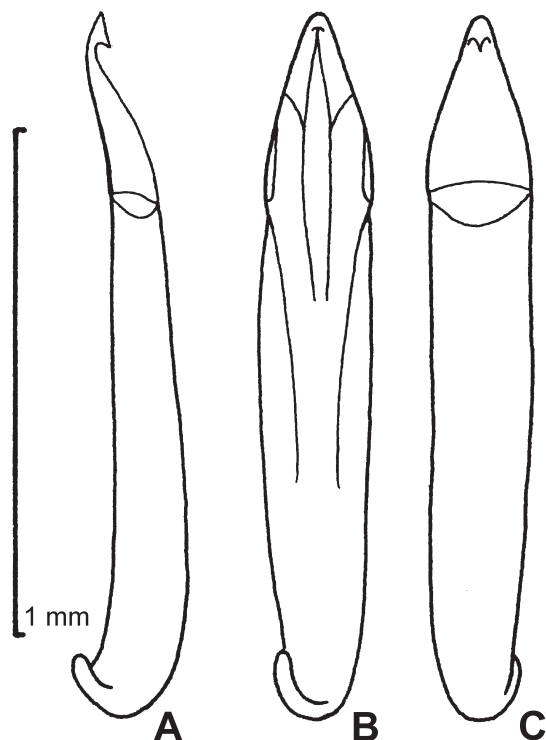


Fig. 35. *Amarygmus verecundus* Bremer, 2010. – **A** Aedeagus, lateral view. **B** Aedeagus, ventral view. **C** Aedeagus, dorsal view.

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Manuscript received: 15.VII.2010, accepted: 3.IX.2010.

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Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Stuttgarter Beiträge Naturkunde Serie A \[Biologie\]](#)

Jahr/Year: 2011

Band/Volume: [NS_4_A](#)

Autor(en)/Author(s): Bremer Hans-Joachim

Artikel/Article: [Revision of the genus Amarygmus Dalman and related genera. LVIII. The Amarygmini of Borneo \(Coleoptera: Tenebrionidae\), part II 191-247](#)