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

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Abstract

The present paper is the first part of a revision of all genera and species of Amarygmini of Borneo. General remarks on Amarygmini and in particular on the genus *Amarygmus* are given. A key to the genera of Amarygmini of Borneo is provided.

Newly described genera, species and subspecies: *Seorsoplonyx antennatus* **n. gen.**, **n. sp.** (Sabah, Kalimantan), *Sylvanoplonyx femoralis* **n. gen.**, **n. sp.** (Sabah), *Amarygmus abortivus* **n. sp.** (Sabah), *A. adornatus* **n. sp.** (Sabah), *A. aeris* **n. sp.** (Sabah), *A. affectus* **n. sp.** (Sarawak), *A. assessorius* **n. sp.** (Sabah), *A. assignatus* **n. sp.** (Sabah), *A. catenatus* **n. sp.** (Sabah), *A. cephalotes* **n. sp.** (Sabah, Kalimantan, South Thailand), *A. coccinelloides* **n. sp.** (Sabah), *A. cyamias* **n. sp.** (Sabah), *A. cyaneicollis* **n. sp.** (Sabah), *A. cyclaeus* **n. sp.** (Sabah, Sarawak), *A. delicatulus* **n. sp.** (Sabah), *A. disgregatus* **n. sp.** (Sabah, Sarawak), *A. emasensis* **n. sp.** (Sabah), *A. erilis* **n. sp.** (Kalimantan), *A. eureos* **n. sp.** (Sabah), *A. expeditus* **n. sp.** (Sabah, Sarawak), *A. gnitus* **n. sp.** (Sabah), *A. inconditus* **n. sp.** (Sarawak, Sabah), *A. iunctus* **n. sp.** (Sarawak, Sabah), *A. (Pyanirygmus) magnus* **n. sp.** (Sabah), *A. medius* **n. sp.** (Sabah, Sarawak, Kalimantan), *A. muluensis* **n. sp.** (Sarawak), *A. murutensis* **n. sp.** (Sabah), *A. neso* **n. sp.** (Sarawak), *A. nitens glabratus* **n. ssp.** (Sarawak), *A. novior* **n. sp.** (Sabah), *A. nuntius* **n. sp.** (Sarawak, Singapore), *A. nyctelius* **n. sp.** (Sabah), *A. platypodes* **n. sp.** (Sabah), *A. poringensis* **n. sp.** (Sabah), *A. praecellens* **n. sp.** (Sarawak), *A. proteus* **n. sp.** (Sarawak, Singapore), *A. pygmaeus* **n. sp.** (Sabah), *A. rolandi* **n. sp.** (Sabah), *A. sarawakensis* **n. sp.** (Sarawak, Malayan Peninsula), *A. singulus* **n. sp.** (Sabah), *A. tantillus* **n. sp.** (Sabah), *A. urbanus* **n. sp.** (Sabah, Sarawak), *A. verecundus* **n. sp.** (Sabah), *A. vespertinus* **n. sp.** (Sabah), *A. viduatus* **n. sp.** (Sarawak), *A. vilis* **n. sp.** (Sabah), *A. viridis* **n. sp.** (Sabah), *A. votivus* **n. sp.** (Sabah).

K e y w o r d s : Coleoptera, Borneo, Tenebrionidae, Amarygmini, *Amarygmus*, *Seorsoplonyx*, *Sylvanoplonyx*, revision, new genera, new species.

Zusammenfassung

Diese Arbeit ist der erste Teil einer Revision aller Gattungen und Arten der Amarygmini von Borneo. Es werden allgemeine Angaben zu den Amarygmini und vor allem der Gattung *Amarygmus* gemacht. Eine Bestimmungstabelle der Gattungen der Amarygmini von Borneo ist angefügt.

Neu beschriebene Gattungen, Arten und Unterarten: *Seorsoplonyx antennatus* **n. gen.**, **n. sp.** (Sabah, Kalimantan), *Sylvanoplonyx femoralis* **n. gen.**, **n. sp.** (Sabah), *Amarygmus abortivus* **n. sp.** (Sabah), *A. adornatus* **n. sp.** (Sabah), *A. aeris* **n. sp.** (Sabah), *A. affectus* **n. sp.** (Sarawak), *A. assessorius* **n. sp.** (Sabah), *A. assignatus* **n. sp.** (Sabah), *A. catenatus* **n. sp.** (Sabah), *A. cephalotes* **n. sp.** (Sabah, Kalimantan, südliches Thailand), *A. coccinelloides* **n. sp.** (Sabah), *A. cyamias* **n. sp.** (Sabah), *A. cyaneicollis* **n. sp.** (Sabah), *A. cyclaeus* **n. sp.** (Sabah, Sarawak), *A. delicatulus* **n. sp.** (Sabah), *A. disgregatus* **n. sp.** (Sabah, Sarawak), *A. emasensis* **n. sp.** (Sabah), *A. erilis* **n. sp.** (Kalimantan), *A. eureos* **n. sp.** (Sabah), *A. expeditus* **n. sp.** (Sabah, Sarawak), *A. gnitus* **n. sp.** (Sabah), *A. inconditus* **n. sp.** (Sarawak, Sabah), *A. iunctus* **n. sp.** (Sarawak, Sabah), *A. (Pyanirygmus) magnus* **n. sp.** (Sabah), *A. medius* **n. sp.** (Sabah, Sarawak, Kalimantan), *A. muluensis* **n. sp.** (Sarawak), *A. murutensis* **n. sp.** (Sabah), *A. neso* **n. sp.** (Sarawak), *A. nitens glabratus* **n. ssp.** (Sarawak), *A. novior* **n. sp.** (Sabah), *A. nuntius* **n. sp.** (Sarawak, Singapur), *A. nyctelius* **n. sp.** (Sabah), *A. platypodes* **n. sp.** (Sabah), *A. poringensis* **n. sp.** (Sabah), *A. praecellens* **n. sp.** (Sarawak), *A. proteus* **n. sp.** (Sarawak, Singapore), *A. pygmaeus* **n. sp.** (Sabah), *A. rolandi* **n. sp.** (Sabah), *A. sarawakensis* **n. sp.** (Sarawak, Malaysische Halbinsel), *A. singulus* **n. sp.** (Sabah), *A. tantillus* **n. sp.** (Sabah), *A. urbanus* **n. sp.** (Sabah, Sarawak), *A. verecundus* **n. sp.** (Sabah), *A. vespertinus* **n. sp.** (Sabah), *A. viduatus* **n. sp.** (Sarawak), *A. vilis* **n. sp.** (Sabah), *A. viridis* **n. sp.** (Sabah), *A. votivus* **n. sp.** (Sabah).

Contents

1 Introduction

Borneo, Sumatra, Java (and adjacent islands), together with the countries of the Malayan Peninsula (Malaysia, Sinpapore, southern Thailand), form a faunistic area in which numerous genera of Amarygmini occur: *Amarygmus* Dalman, 1823, *Azarelius* Fairmaire, 1892, *Cephalamarygmus* Bremer, 2001, *Cerysia* Bremer, 2001, *Eumolpocyriogeton* Pic, 1922, *Euspinamarygmus* Masumoto, 1989, *Macrosynopticus* Pic, 1922, *Gonocnemis* Thomson, 1858, *Javamarygmus* Pic, 1928, *Paragonocnemis* Kraatz, 1899, *Plesiophthalmus* Motschulsky, 1857, and *Pontianacus* Fairmaire, 1898.

Newly described species unconsidered, I currently know from Borneo 94 species of *Amarygmus*, one species of *Azarelius*, one species of *Cephalamarygmus*, two species of *Cerysia*, two species of *Eumolpocyriogeton*, one species of *Euspinamarygmus*, four species of *Gonocnemis*, one species of *Javamarygmus*, one species of *Macrosynopticus*, two species of *Paragonocnemis*, 12 species of *Plesiophthalmus*, and one species of *Pontianacus*.

An additional genus, *Barlacus* Fairmaire, 1900, could possibly belong to Amarygmini (with *B. costulatus* Fairmaire, 1900 known from Borneo). Gebien (1943) assigned this genus to Rhysopaussini. All genera of Rhysopaussini which were already studied (Ardoin 1962–1969, Bremer 1991) belong to Amarygmini, but the systematic position of *Barlacus* has not been classified yet.

The aim of the present paper and the following planned ones is a critical evaluation of all genera and species of the Amarygmini of Borneo, including descriptions of new taxa and determination keys to genera and species. The combined contributions are intended to be a monograph. This first part contains general remarks on Amarygmini and the genus *Amarygmus*, a determination key to the genera of Amarygmini from Borneo, the descriptions of two new genera and species, and descriptions of 46 new species of *Amarygmus*. I have currently more than 20 undescribed *Amarygmus* at hand from Borneo, thus another paper with descriptions of new species will follow soon.

There was no revision of Amarygmini of Borneo except several papers of Masumoto (1988a–1991b, 1999, 2001) on genera near *Plesiophthalmus*. Many species of *Amarygmus* from Borneo (and from other Greater Sunda Islands and Malayan Peninsula) have already been described, usually as isolated descriptions. A great number of them has been published without mentioning the essential characters, without a comparison with related species, and without detailed illustrations. During the last years I evaluated the types of nearly all species of this region and provided redescriptions and illustrations of inadequately described species (Bremer 2001b, d; 2002a–c; 2003a, b; 2004a, d, e; 2005a–e; 2006a, b, d; 2007a; 2009). Thus, a comprehensive treatment of the Amarygmini of Borneo is now possible and also necessary because of the large number of already described and still undescribed species.

Numerous species from Borneo also occur on the Malayan Peninsula and on other Greater Sunda Islands, most probably caused by land bridges between these areas which were existing until the last glacial period. The separate treatment of the species of Borneo, excluding species known from the Malayan Peninsula and other Greater Sunda Islands, is due to practical reasons. The treatment of all Amarygmini of the whole faunistic area would greatly extend the size of any publication. Additionally, the species of Sumatra and of the Malayan Peninsula are not as well investigated as those of Borneo. The *Amarygmus* and *Cephalamarygmus* species of Java have been listed recently (Bremer 2007b). Subsequent work of the Amarygmini of the Malayan Peninsula and Sumatra can benefit from the diagnoses included in this and the following papers.

While many species of Borneo also occur on other Greater Sunda Islands and on the Malayan Peninsula, there are only a few species which are also present on Sulawesi. This was demonstrated by Bremer (2004b, c) for *Cerysia celebensis* (Blair, 1929), *Amarygmus metallicus* (Perty, 1831), *Amarygmus micans* (Fabricius, 1794), *Amarygmus cuprarius cuprarius* (Weber, 1801), and *Amarygmus nigrofasciatus* Pic, 1915.

It is also striking that several taxa of northern Thailand, northern Laos, and northern Vietnam have very similar and probably nearly related forms on Borneo, e. g. *Amarygmus cupreofossus* Fairmaire, 1888 and *A. ertli* Bremer, 2005, *A. cyanescens* Pic, 1926 and *A. borneensis* (Gebien, 1920), and *A. decorosus* Bremer, 2003 and *A. iunctus* n. sp. (species of Thailand, Laos and Vietnam mentioned first).

Abbreviations of depositories

BMNH	Natural History Museum, London, U. K.
CA	Collection of Dr. Kiyoshi Ando, Osaka, Japan
CG	Collection of Dr. Roland Grimm, Tübingen, Germany
CKB	Collection of Karol Bohrn, Bratislava, Slovakia
CM	Collection of Prof. Dr. Kimio Masumoto, Tokyo, Japan
HNHM	Hungarian Natural History Museum, Budapest, Hungary
MHNG	Muséum d'Histoire Naturelle, Genève, Switzerland
MNHN	Muséum National d'Histoire Naturelle, Paris, France
NSMT	National Science Museum (Natural History), Tokyo, Japan
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany
SSB	Collection of Stanislav Bečvář, České Budějovice, Czech Republic
ZMHB	Museum für Naturkunde, Berlin, Germany
ZSMB	Collection of the author, now property of the Zoologische Staatssammlung, Munich, Germany

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Most of the drawings of this paper have been prepared by F. FORMAN (Stemwede), Germany; the habitus of *Pontianacus rubricrus* Fairmaire was drawn by J. PÁL (Budapest). The figures were scanned by J. REIBNITZ (Stuttgart).

2 Materials and Methods

Materials

For the present study I received extensive material from Dr. R. GRIMM (Tübingen), collected by him in Sabah and Sarawak during the last years. A large number of specimens have also been provided by Dr. W. SCHAWALLER (Stuttgart), by my son ULF BREMER (formerly Kota Kinabalu), and by the collecting activities of several other colleagues. I received the latter material mainly via Dr. K. ANDO (Osaka), M. V. L. BARCLAY (London), Prof. Dr. K. MASUMOTO (Tokyo), and S. BEČVÁŘ (České Budějovice). Additionally I used many specimens from my former collection (now property of the Zoologische Staatssammlung, Munich).

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; "length of pronotum" the distance between the middle of their anterior and posterior edges.

Data on the labels

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

3 General remarks on Amarygmini and *Amarygmus*

Habitat

Knowledge on pre-imaginal stages and habitat use of Amarygmini of the Oriental faunal area is rudimentary. No larvae of species from Borneo have ever been described, and no larval development was ever observed. However, from the circumstances of collection of the adults (see the material parts of the described species below) it appears likely that wooden or fungous material may serve as a suitable substrate for the development of the larvae. After what is known, probably all species are nocturnal.

How to collect Amarygmini

The majority of species can be found at night on the bark of living and dead trees or on dead wood, especially when covered or mixed with fungi or lichen. The beetles are collected on avenue trees or in parks and gardens of urban areas, but also in primary and secondary forests, especially at their edges. They are rarely found under tree bark, in or near boreholes of insects on trees, or in moss or decayed wooden material from which they may be sieved.

Only a few genera or species groups have been recorded as attracted by light, e. g. various *Amarygmus*, above all the oblong *Amarygmus* species which formerly had been assigned to *Elixota* Pascoe, 1866 (e. g. *Amarygmus blanchardi* Bremer, 2001), or species of the genera *Gonocnemis*, *Paragonocnemis*, and *Plesiophthalmus*. However, the attractiveness of light cannot be simply generalized. Among African *Gonocnemis*, e. g., which are better known than the Oriental members of this genus, there are species which are frequently seen at light whereas others are nearly not attracted. The African *Gonocnemis* are associated with termites during their metamorphosis (GIRARD & LAMOTTE 1990, BREMER 1995); this may also be true for Oriental *Gonocnemis*, but comparable observations are lacking. *Cerysia laevicornis* (Blair, 1929) was found together with weaver ants (*Oecophila smaragdina* Fabricius, 1775) on trees at night (observation of Dr. R. GRIMM).

Collection of *Amarygmus* is most effective on trees or other wooden material at night using a torch. However, most species of *Amarygmus* have swollen femora like Alticinae, and like these chrysomelids they usually jump off when disturbed, e. g. when they are hit by the ray of white light of a torch. Usually they remain in their place when the torch emits a certain degree of blue light. The use of a large collection bag is helpful if the beetles jump away.

Determination of Amarygmini

For the identification of Amarygmini the following characters must be examined: Shape, size, density and size of punctures, width of frons (in several species the frons of females is wider than the frons of males), depth of incision of the fronto-clypeal suture, length and shape of antennae (in many species males possess longer antennae than females), shape of legs (including the sexual characters in males), shape of prosternal apophysis, density of punctation of metasternum (in some species closer in males than in females), hairs on legs and underside (in males mostly longer and denser than in females), and also the shape of aedeagus.

Prior to determination a careful cleaning of the insects is frequently necessary. Legs and antennae should be mounted in spread position to allow an easy inspection of their length and shape.

Systematic position and characters of Amarygmini

The definition of the tribe Amarygmini and the delimitation of the genera within this tribe is mainly based on works of LACORDAIRE and ARDOIN. LACORDAIRE (1859: 467–471) separated two groups, Amarygmides and Megacanthides, from the rest of the Tenebrionidae. GISTEL (1856) classified them as Amarygmidae, GEBIEN (1943, 1944) as Amarygmini.

ARDOIN, in his outstanding monography on African Amarygmini (ARDOIN 1962–1969), separated the tribe Amarygmini into the subtribes Amarygmina and Megacanthina which correspond to LACORDAIRE's Amarygmides and Megacanthides. According to ARDOIN the Amarygmina have a wide margin on the anterior border of the pronotum (only visible if the head is removed from the pronotum); in Megacanthina this margin is not developed. All genera found on Borneo belong to Amarygmina.

According to LACORDAIRE (1859) and ARDOIN (1962), the tribe Amarygmini is defined by the combination of the following characters: presence of an unhidden membrane between front margin of clypeus and labrum; base of the aedeagus asymmetric, more or less acutely drawn-out, directed towards the right and fused with the parameres; dorsal side of the aedeagus directed towards the dorsum of the body. A similar asymmetric aedeagal base is also found in Alphitobiini, but this tribe has a hidden membrane between clypeus and labrum.

Remarks on the female genitalia of Amarygmini have been published by ARDOIN (1962: 959), a good illustration of the internal female genitalia of a *Chalcopteroides* species is given by WATT (1989: 120). The shape of defensive glands of Amarygmini is illustrated by TSCHINKEL & DOYEN (1980: fig. 11).

Definitions of the genera of Amarygmini

The generic delimitation of Oriental Amarygmini is unsatisfactory and a matter of ongoing debate. While ARDOIN (1962–1969) presented a more or less convincing concept for Afrotropical genera, a similar work for the Oriental and Papuan-Australian genera is still wanting. Many genera of the Oriental region have been described without a sound differential diagnosis.

Because of the vast number of species, many different morphological adaptations, and widespread sexual dimorphism, it is difficult to find stable characters for a separation of genera. Apart from a few genera which include only one or a few species, there are two extraordinarily species-rich genera, *Amarygmus* and *Plesiophthalmus* which comprise very heterogenous species. One is frequently inclined to separate these genera into smaller entities, but transitional forms make the decision very difficult.

Some genera occurring in Borneo have a wide distributional range and have consequently developed many adapted forms, e. g. the genera *Gonocnemis* and *Paragonocnemis* occurring in the Ethiopian and in the Oriental region, and the genus *Amarygmus* showing a distribution from the eastern coast of Africa up to Hawai'i, with two centres of development, the Greater Sunda Islands and New Guinea, each with an estimated 300 or more species.

Difficulties also exist for assigning species to the genera *Spinamarygmus* Pic, 1915, *Eumolpocyriogeton*, and *Euspinamarygmus*, because these taxa are based on male sexual characters or on the body shape (e. g. "more or less globose"). In my opinion, these genera should either be integrated into an extended genus *Plesiophthalmus* or convincing new characters and definitions must be found for a sound separation. However, my currently restricted knowledge does not allow a decision on this matter. Thus, for practical reasons, the three genera are kept valid for the present paper. Future investigations, based on phylogeny, will hopefully make progress on this question.

Definition of the genus *Amarygmus*

A final genus diagnosis of the genus *Amarygmus* by phylogenetic arguments is still lacking. For example, it is impossible to delimitate several species of *Amarygmus* from those of *Pyanirygmus* Pic, 1915, and of *Pyanirygmus* from those of *Plesiophthalmus* (e. g. most species which could be grouped within *Pyanirygmus* are regarded as *Plesiophthalmus* by YAMAZAKI 1968, MASUMOTO 1990d, MASUMOTO 2001, MASUMOTO et al. 2008). Thus, I give below my opinion on the characters which are necessary to include a species in the genus *Amarygmus*.

Amarygmus Dalman, 1823 is the oldest genus of the Amarygmini. DALMAN (1823) included four species in this genus. These species now belong to two different tribes, one species to *Tetraphyllus* Laporte et Brullé, 1831 [Cnodalonini] (see ANDO 2003), one species to *Chalcopteroides* Strand, 1935, and two species to *Amarygmus* [Amarygmini] (see GEBIEN 1906 and BREMER 2003a). GEBIEN (1920: 410), by subsequent designation, chose *Chrysomela micans* Fabricius, 1794 as type species of this genus. Separation of genera from *Amarygmus* should be based on the characters of this type species.

Sexual dimorphism often occurs and must be considered for taxonomic discussions. Therefore, I had to synonymize the genera *Platolenes* Gebien, 1913 (widening of male protarsomeres 1–3), *Podamarygmus* Carter, 1928 (prolongation of male forelegs), and *Hyperamarygmus* Kaszab, 1964 (widening of male antennomeres 3–5). Another reason for synonymizing these "genera" was the observation that many transitional forms exist between different species with respect to widening of male protarsomeres 1–3 and prolongation of male forelegs. However, I must admit that I used some of these former genera as subgenera with a redefinition (BREMER 2005d), e. g. a subgenus *Podamarygmus* Carter.

The following features or combination of features are considered to be diagnostic for *Amarygmus* (see also key to the genera, chapter 4):

- Apices of the mandibles bifid and not truncate ("truncate" in the sense used here means a straight, single-pointed or rounded apex). Outer surface of mandibles with a longitudinal sulcus which is directed towards the notch of the apex. – On the African continent, e. g., there are many species which, according to the body shape and other characters, belong to *Amarygmus*, but they display rounded apices of their mandibles and not bifid ones. In Australia and New Guinea there are species of *Amarygmus* with a straight or single-pointed apex and species with bifid mandibles. – Probably all genera of Amarygmini from Borneo (including *Amarygmus* and *Azarelius*) have bifid mandibles.
- Lack of a spine, tooth or sharp step anteriorly on the profemora. This character is found in *Amarygmus* and a few similar genera (*Macrosynopticus*, *Javamarygmus*, *Cerysia*, and *Cephalamarygmus*). The femora are usually more or less enlarged in the middle or at the apical third.
- Pronotum without symmetrically grouped humps on pronotum.
- Lack of long, erect hairs on pronotum and elytra (long erect hairs are present in species of the genus *Bunamarygmus* Masumoto, 1988 from Java and Thailand). – Very short recumbent hairs on pronotum and elytra occur in some species of *Amarygmus* (e. g. *A. bryanti* Bremer, 2002, *A. crassicornis* Gebien, 1920). Tiny hairs are visible (at 100-fold magnification) in most *Amarygmus* on the posterior part of the elytra. However, in *Amarygmus* hairs are usually found on clypeus, on legs, on antennomeres and, frequently, as a sexual character of the males on the underside of the body.
- Lack of spots of short hairs on pronotum, elytra and legs (present in *Javamarygmus*).
- Lack of a groove between fronto-clypeal suture and the inner rim of eyes. (Such a deep groove, separating frons from genae, is present in *Cephalamarygmus*).
- Antennomeres 6–10 distinctly separated from each other by a narrow base (filiform and without a narrower base in *Cerysia*).
- Antennomere 11 of usual length, aedeagus not distinctly widened basally, and without hairs dorsally and ventrally on apical part of aedeagus. (*Seorsoplonyx* n. gen. has antennomere 11 very long, the aedeagus wide basally, and tiny hairs dorsally and ventrally on the apical part).

The following characters are not diagnostic for the genus *Amarygmus*:

- Presence or absence of wings: According to my present knowledge all species of *Amarygmus* of Borneo (and of the other Greater Sunda Islands and the Malayan Peninsula) are winged. In neighbouring faunal areas, e. g. Sulawesi and the Philippines, also wingless species occur. There are even species in which winged and wingless specimens occur, e. g. *Amarygmus metallicus* (Perty, 1831) which is always winged on Borneo, but the specimens from Sulawesi and the Moluccas can be winged or wingless.
- Swelling or widening of the femora: In most species of *Amarygmus* the femora are enlarged in the middle or at two-thirds of their length, but the degree of widening differs from species to species.
- Size of the body: The body length differs significantly between species of *Amarygmus* (2–23 mm in species from Borneo).
- Shape of the body: The body shape of species assigned to *Amarygmus* may be very different. It may be globose, short or elongate oval, or oblong with parallel sides of elytra. The apices of the elytra may be mutually rounded or each elytron is individually rounded and slightly retracted towards the suture, e. g. in the frequently occurring *A. metallicus* (Perty, 1831). The front corners of the pronotum may be acutely projecting or rounded (the hind corners are never projecting backwards in genera from the Oriental region).
- Shape of the legs: Legs and metatarsomere 1 vary in length, the tibiae are bent or straight. – In ARDOIN's (1965) determination key to the genera of Amarygmini the ratio length metatarsomere 1 to length metatarsomeres 2–4 is used for separating *Amarygmus* and the African genus *Paramarygmus* Quedenfeldt, 1885, but it is, indeed, not a useful character because *Amarygmus* shows any intermediate form between a very short metatarsomere 1 and a very long metatarsomere 1.
- Denting or caving in of antennomeres: There are several species in which one or several antennomeres are more or less caved in. In species from Borneo it is mainly antennomere 11. This denting is only visible if the side of denting is exposed. Usually it concerns small species, e. g. *Amarygmus nicholasi* Bremer, 2004 from Borneo. I assume that these species are mainly termitophilous or myrmecophilous and that at the base of these depressions there are glands which excrete substances. In other areas there are species in which several antennomeres have such indentings (e. g. *Amarygmus bacchusi* Bremer, 2001 from New Guinea).

Subgenera of *Amarygmus* in Borneo

With respect to species from Borneo, I currently recognize – besides *Amarygmus* s. str. – only the following two subgenera:

Pyanirygmus Pic, 1915: Pic described this taxon as genus for a very large species, *Pyanirygmus corinthius* Pic, 1915, with long subparallel sides of the elytra and a (in relation to the elytra) narrow pronotum. Many species of *Plesiophthalmus* show these characters as well. However, the profemora of *Pyanirygmus* have no spine or step-like interruption of the anterior outline. There are several Oriental species which belong to this subgenus. The main character of this subgenus is not constant because there are also species with a tendency to an oval shape. Most species of this subgenus are outstanding by its size (body length usually > 15 mm). A redescription and an illustration of *A. (Pyanirygmus) corinthius* Pic, 1915 and a compilation of the other species belonging to this subgenus has been published by Bremer (2005d). *A. (Pyanirygmus) corinthius* Pic, 1915 and other species of this subgenus occur on Borneo.

Podamarygmus Carter, 1928: Carter (1928) erected this genus for species affine *Amarygmus* which possess markedly prolonged male forelegs (type species: *Podamarygmus alternans* Carter, 1928 = *Amarygmus viridipes* Gebien, 1927). However, within the genus *Amarygmus* there are several species with prolonged forelegs which distinctly differ in other characters from *A. viridipes*. It is, e. g., not justified to place *A. viridipes* Gebien, 1927 (from Sumatra, the Malayan Peninsula, and Borneo), *A. tuberculiger* Fairmaire, 1849 (from Fiji), and *A. fasciatus* Gebien, 1913 (from Sumatra, the Malayan Peninsula, and Borneo) into a common genus or subgenus. Moreover, there are other species within the genus *Amarygmus* which show a slight or moderate prolongation of the male forelegs. Thus, this prolongation alone is probably a character of minor importance for separating genera. I have therefore reduced the genus *Podamarygmus* to subgeneric rank within *Amarygmus*, and provided a new definition of this subgenus (Bremer 2006c). The subgenus *Podamarygmus* is characterized by markedly prolonged male forelegs combined with a very wide, apically acute-angled prosternal apophysis (in both sexes); additionally, the species of this subgenus have widened and prolonged male protarsomeres 1–3 which carry long outwardly directed hairs originating from the soles of the tarsomeres, and the surfaces of elytra and prosternum have neither maculae nor are they granulate. *Podamarygmus* contains several small to medium-sized species with an oval body.

4 Key to the genera of the Amarygmini of Borneo

No satisfactory definition of some genera of Amarygmini occurring in Borneo exists, e. g. of *Plesiophthalmus*, *Eumolpocyriogeton*, *Euspinamarygmus*, and *Spinamarygmus*. According to the currently used definitions, for instance, *Plesiophthalmus keningauensis* Masumoto, 2001, could also be assigned to *Euspinamarygmus* because of the bent protibiae in both sexes, or *Eumolpocyriogeton sasajii* Masumoto, 1988 could be included in *Spinamarygmus* Pic because of the abruptly bent male protibiae. Thus, the following preliminary key to the Bornean genera of the Amarygmini is only suitable for material already known from Borneo, and improvements must be made when genera near to *Plesiophthalmus* have been revised.

1 Profemora without tooth, spine or sharp interruption of the outline, but there may be a bulge-like swelling (Figs. 4A, 13A–58A). **2**

– Profemora anteriorly with a tooth, spine or at least a distinct sharp interruption of the outline, usually situated between middle and apical third of the femora (Figs. 7A–12A), rarely just anterior to the apex (Fig. 6A); step-like interruption in *Pontianacus* only present in the females (Fig. 5C). **7**

2 Antennomere 11 very long (Fig. 1E). Aedeagus with hairs dorsally and ventrally (Fig. 1F–H). [Body length of the only known species 8.60–9.35 mm.] ..... ***Seorsoplonyx* n. gen.**

– Antennomere 11 of average length. Aedeagus without hairs dorsally and ventrally. **3**

3 Elytra, pronotum and parts of the legs with spots of dense, short hairs hiding the surface. – Elytra parallel-sided, with fovea-like punctures. [A single species, *J. kumei* Masumoto, 2000 on Borneo, with a body length of 10.2 mm.] .. .. ***Javamarygmus*** Pic

– Elytra, pronotum and legs without spots of hair. **4**

4 Pronotum anteriorly with two bumps separated in the middle by a deep groove, bumps tapering posteriorly. Elytral intervals 3, 5, and 7 with a sharp keel, the other intervals plain (Fig. 2). [*M. costatus* Pic, the only species of this genus, is known from Vietnam, Laos, Java, and Sabah; body length 8.4–10.0 mm.] ..... ***Macrosynopticus*** Pic

– Pronotum without bump-like elevations. Elytra without sharp keel-like elevations on intervals 3, 5, and 7. ..... **5**

5 Antennae filiform, antennomeres 6–11 not separated by a narrow base (Fig. 3E). – Tarsomeres short (Fig. 3A). [Two species known from Borneo] ..... ***Cerysia*** Bremer

– Antennae not filiform, at least antennomeres 6–11 distinctly separated by a narrow base (Figs. 4A–58A). **6**

6 Frons separated from genae by a narrow and deep groove which extends from the fronto-clypeal suture to the inner edge of eyes. Small, oval species. Elytra with convex intervals (Fig. 4C). [*C. preangerensis* (Pic, 1952) is the only described species, body length 4.30–5.24 mm – see Pic 1952; another as yet undescribed species occurs on Sumatra.] .... ***Cephalamarygmus*** Bremer

– Frons and genae not separated by a narrow and deep groove. Body length 2–23 mm. Shape of body and structure of elytra very variable (Figs. 14–58). – For additional characters see chapter 3. [About 150 described and as yet undescribed species on Borneo, but probably the real number is much greater.] ..... ***Amarygmus*** Dalman

7 Male profemora anteriorly with long and dense hairs but without tooth (Fig. 5A), female profemora without long and dense hairs but with a sharp step-like interruption in the apical third (Fig. 5C). – Additional characters: Protibiae of males with long hairs on inner side (Fig. 5B). Femora red except a black apical cap. Upperside opaque. Body elongate (length/width of elytra 1.65–1.76 : 1), elytra not much wider

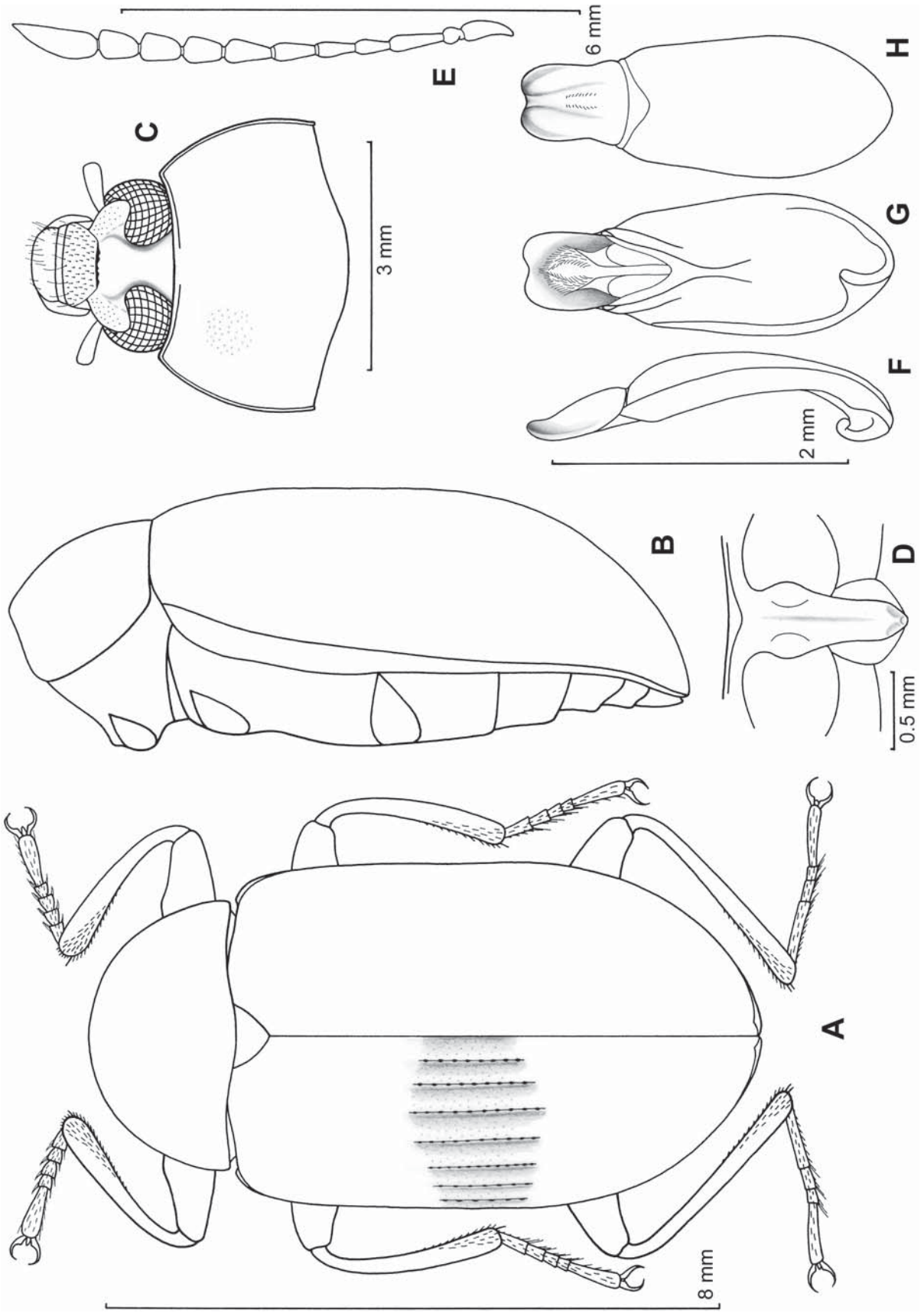


Fig. 1. *Seorsoplonyx antennatus* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

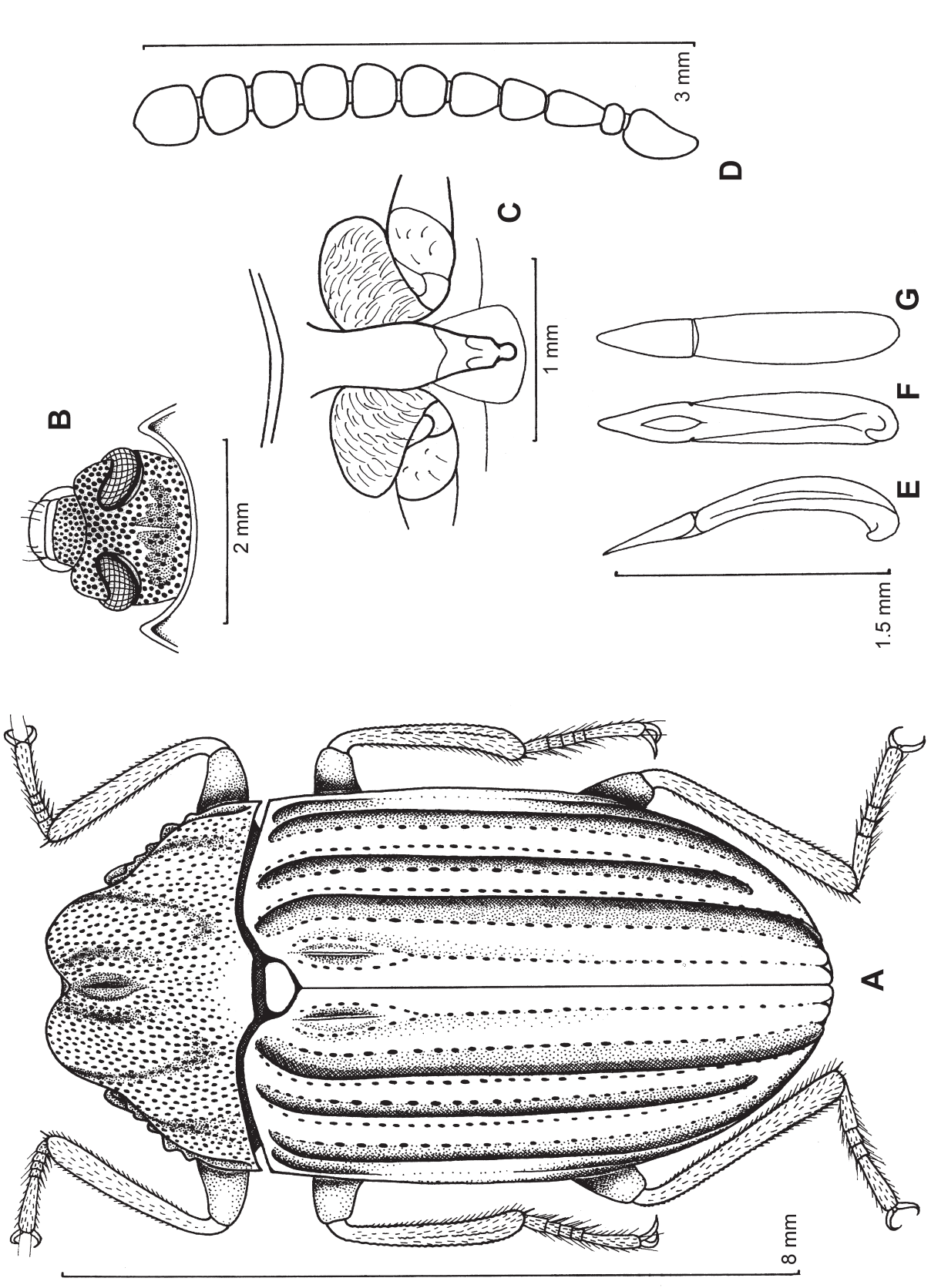


Fig. 2. *Macrosynopticus costatus* Pic, 1922. – **A** Habitus, ♂. **B** Head. **C** Prosternal apophysis. **D** Antenna. **E** Aedeagus, lateral view. **F** Aedeagus, ventral view. **G** Aedeagus, dorsal view.

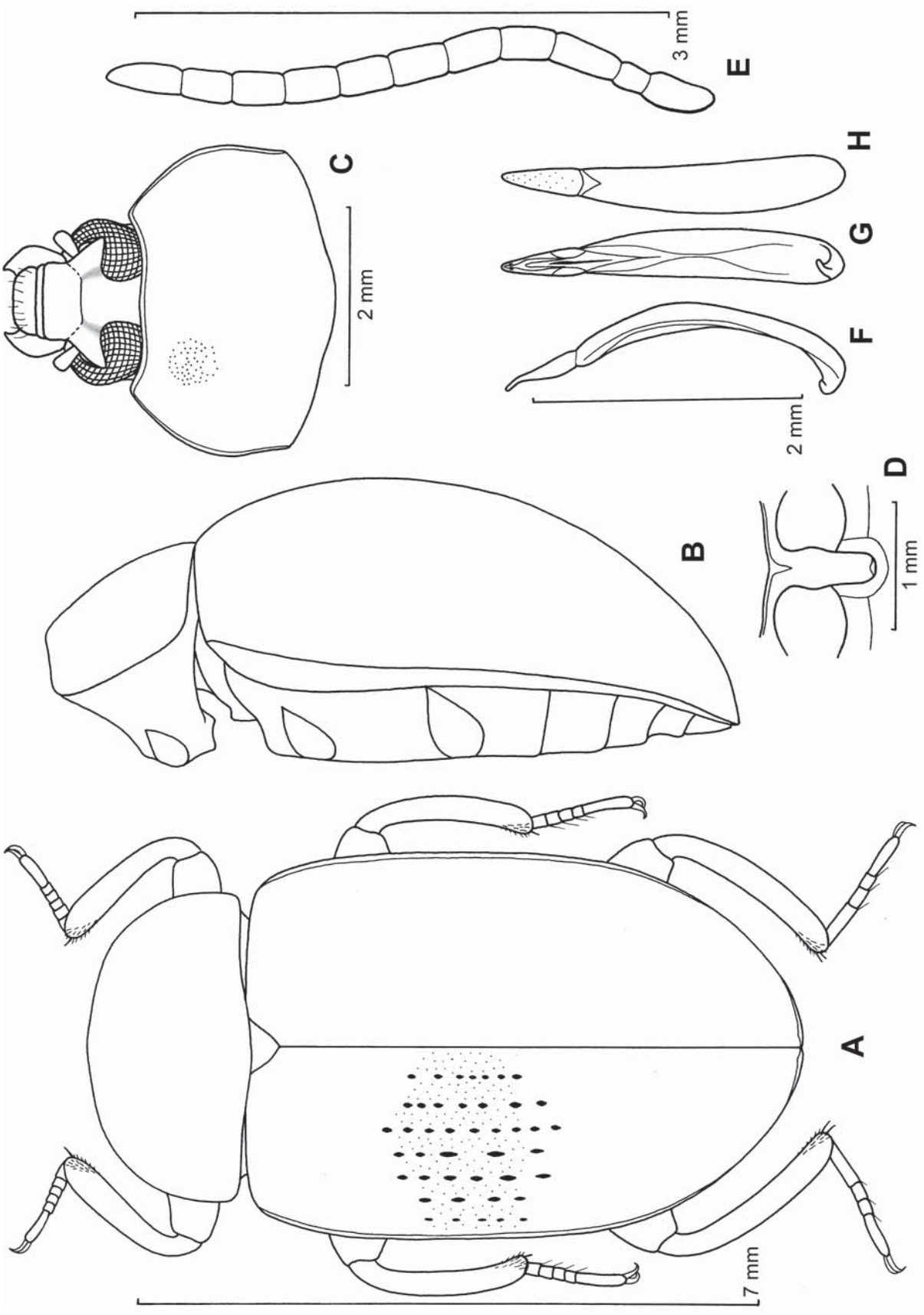


Fig. 3. *Cerysia laevicornis* (Blair, 1929). – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

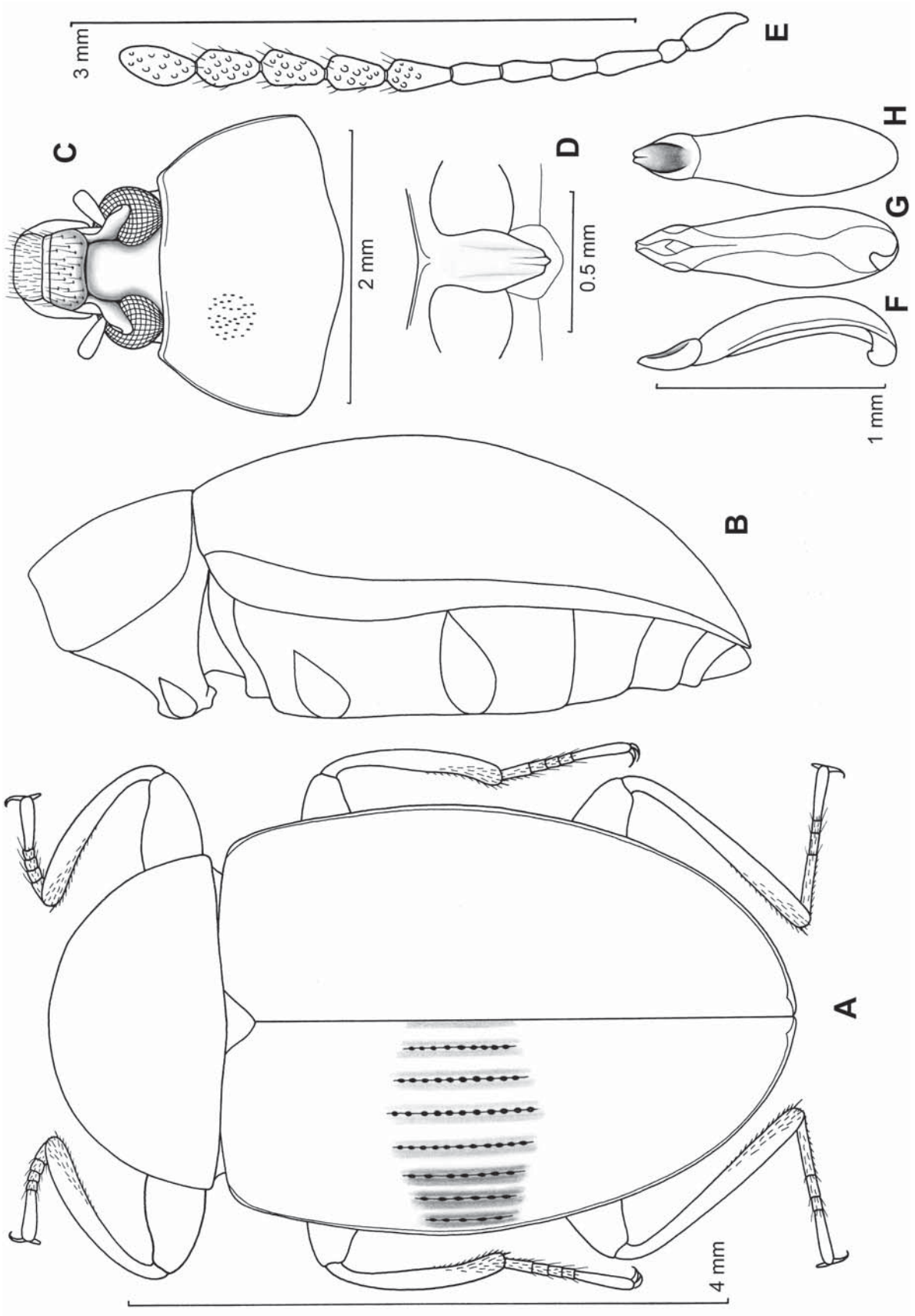


Fig. 4. *Cephalamarygmus preangerensis* (Pic, 1952). – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view (the shaded area shows the depression).

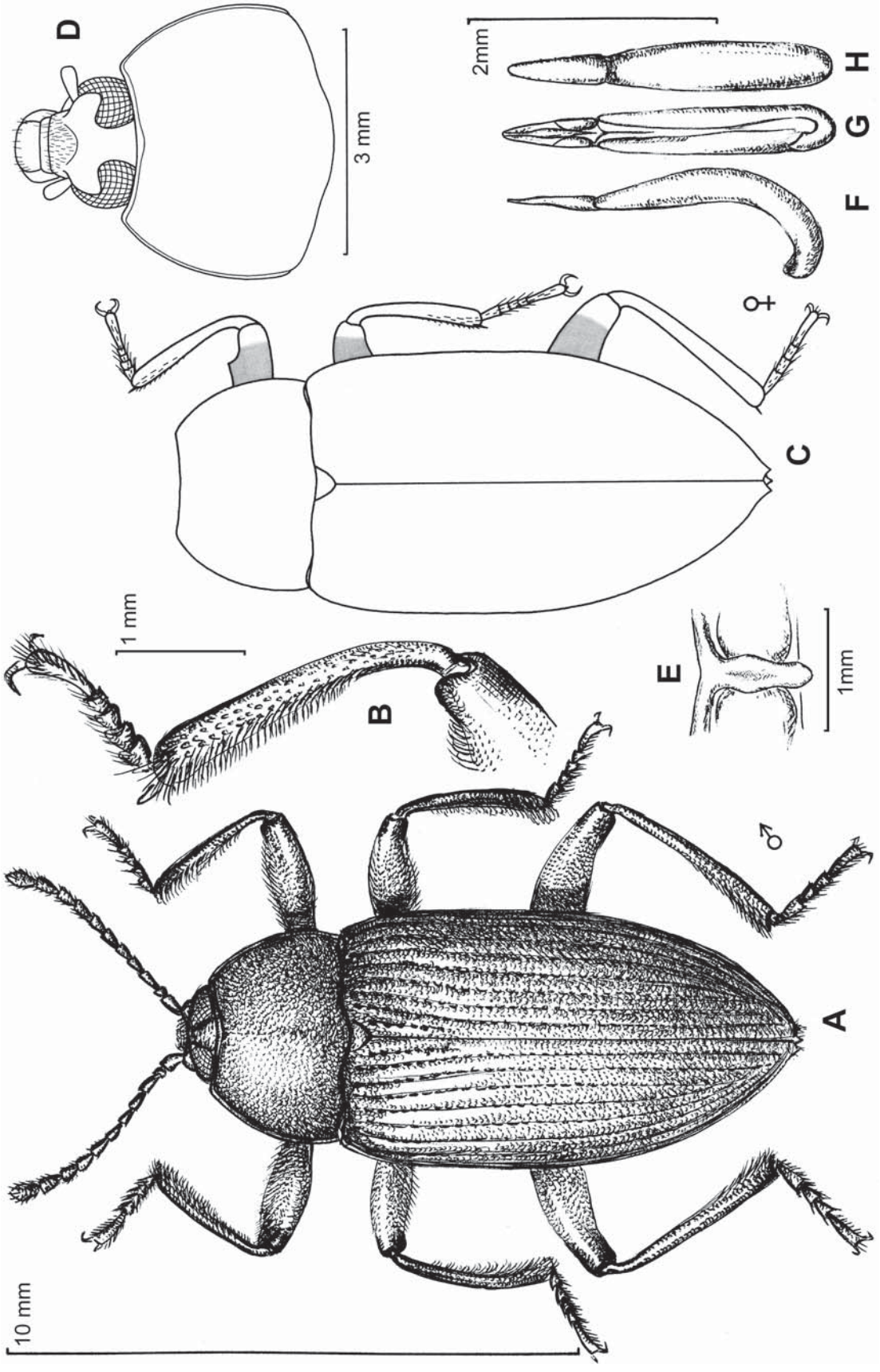


Fig. 5. *Pontianacus rubricrus* Fairmaire, 1898. – **A** Habitus, ♂. **B** Protibia and protarsomeres, ♂. **C** Habitus, ♀. **D** Head and pronotum. **E** Prosternal apophysis. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

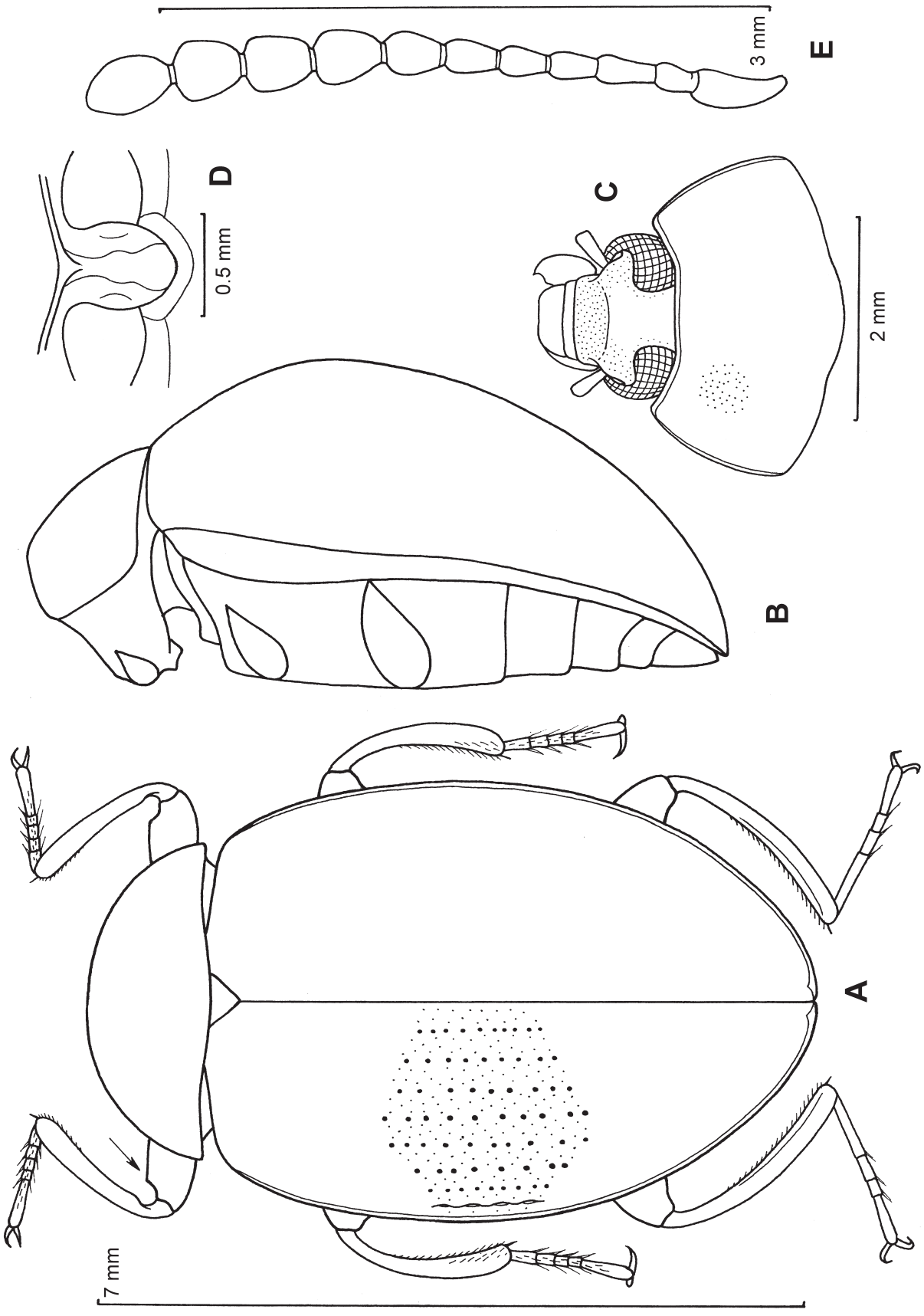
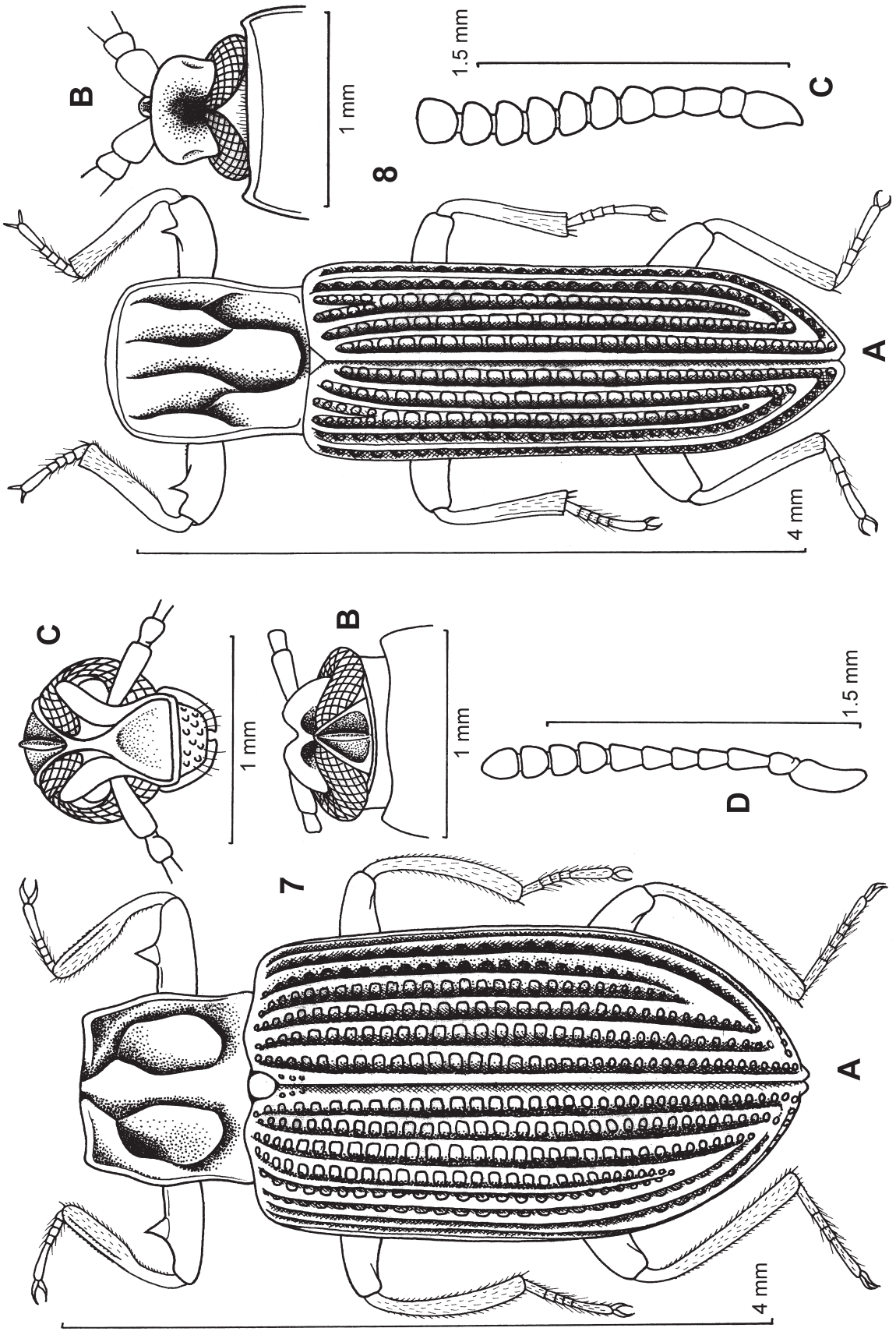


Fig. 6. *Sylvanoplonyx femoralis* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.



Figs. 7–8. Amarygmini. – 7. *Paragonocnemis (Borneogonocnemis) ruficolor* (Pic, 1936): **A** Habitus. **B** Head, dorsal view. **C** Head, frontal view. **D** Antenna. – **8.** *Azarelius sculpticollis* Fairmaire, 1892: **A** Habitus. **B** Head, dorsal view. **C** Antenna.

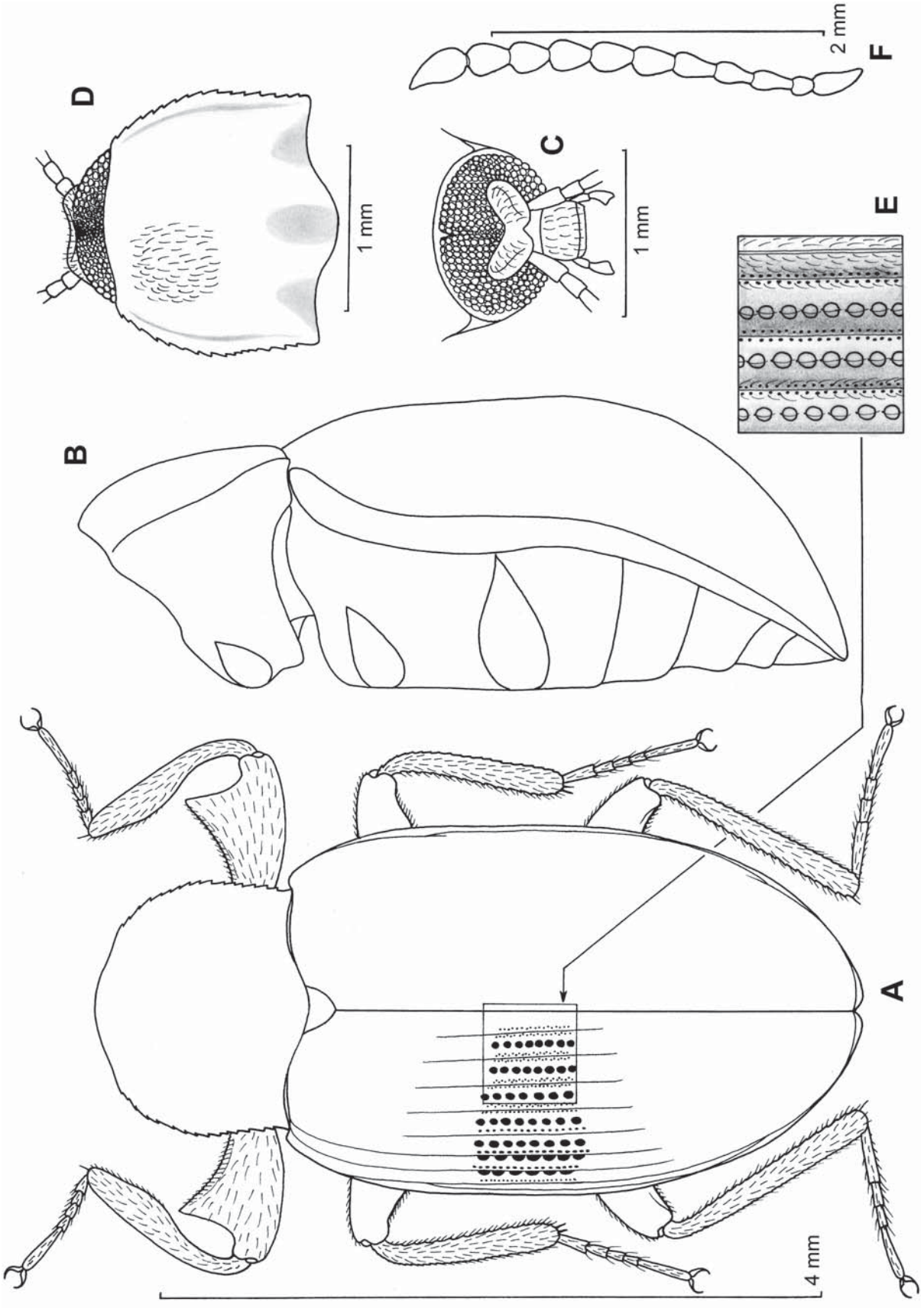


Fig. 9. *Gonocnemis sumatrensis* Pic, 1915. – **A** Habitus. **B** Body, lateral view. **C** Head, frontal view. **D** Pronotum. **E** Detail of elytra. **F** Antenna.

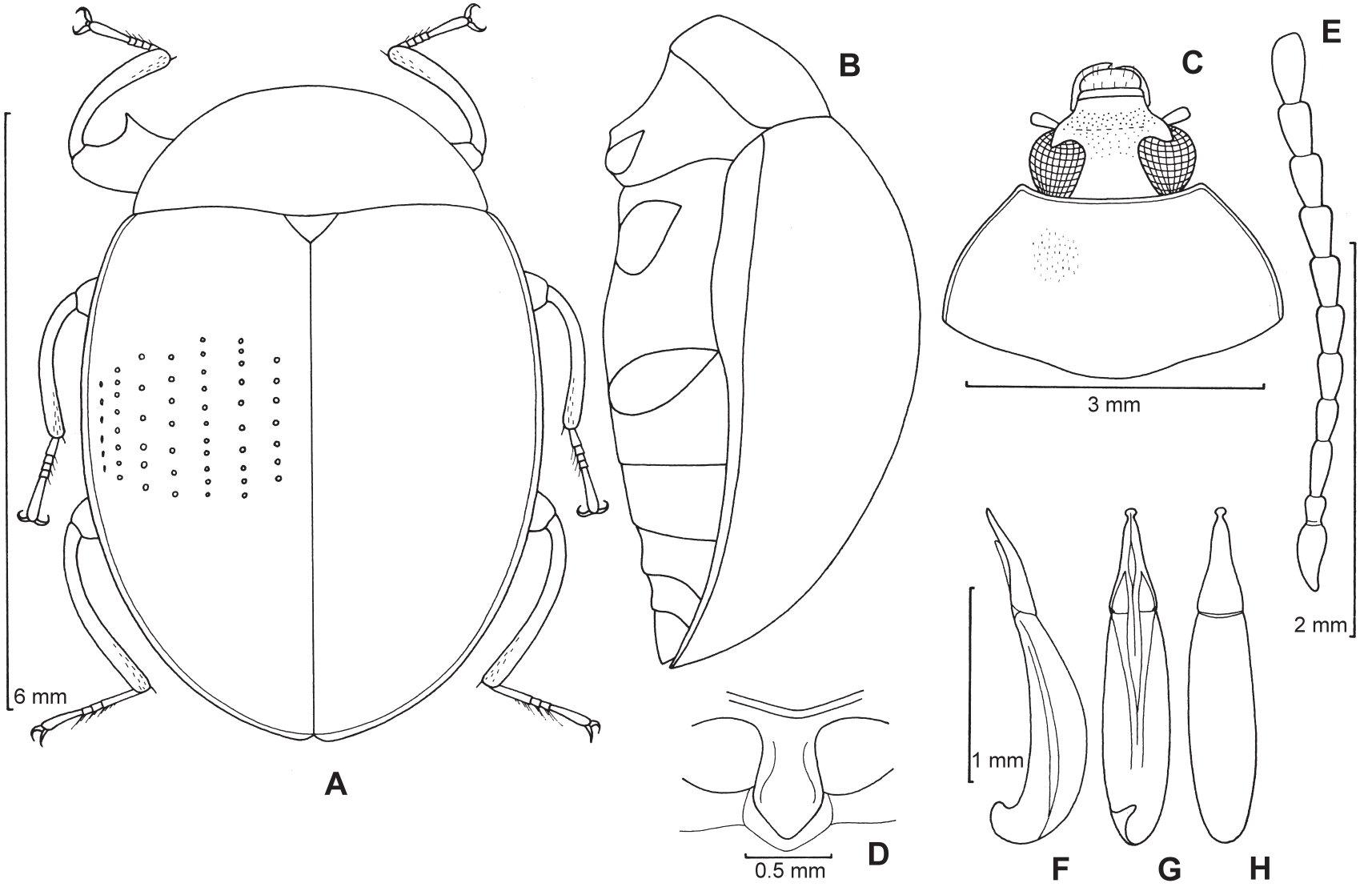


Fig. 10. *Euspinamarygmus kaszabi* Masumoto, 1989. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

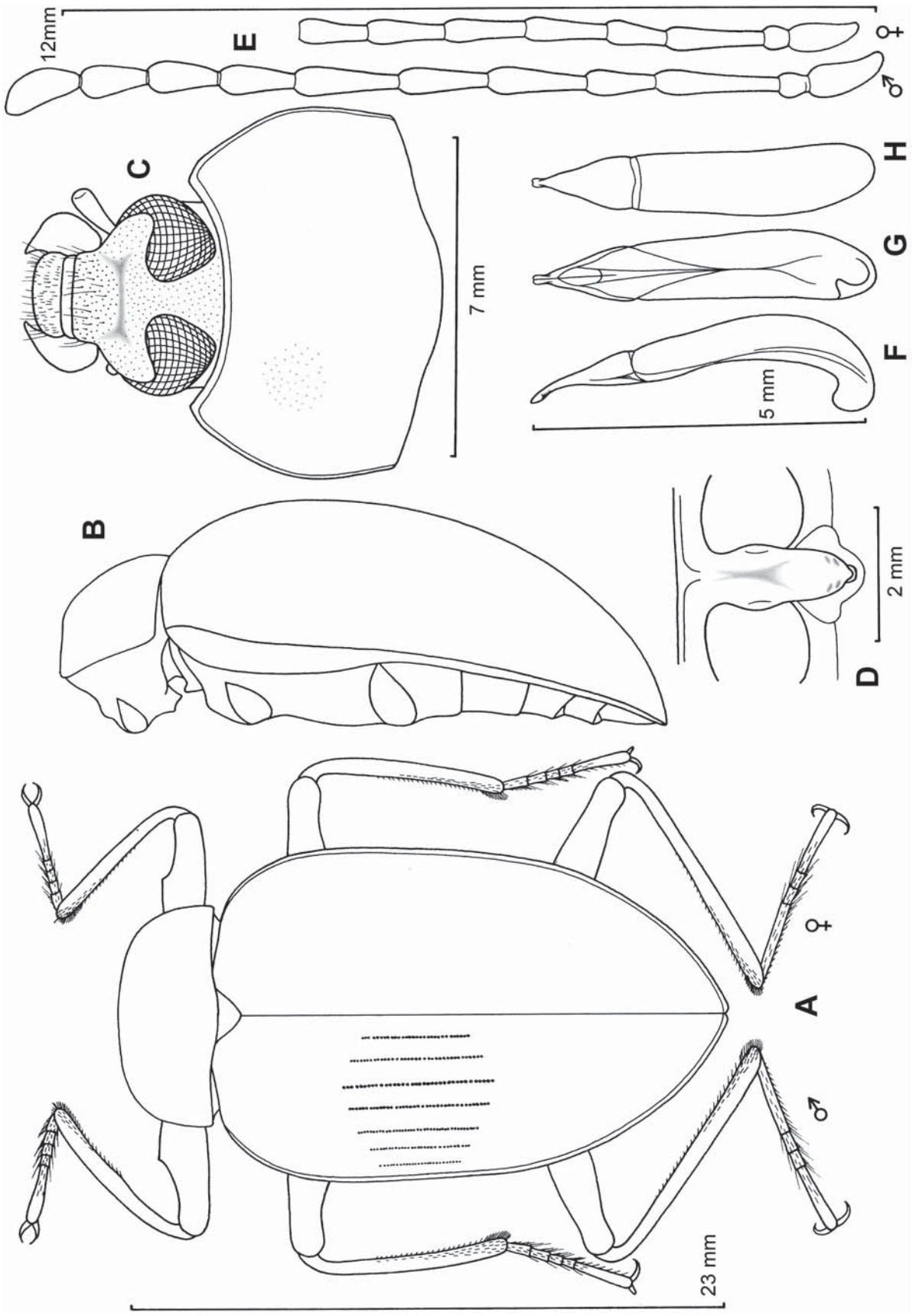


Fig. 11. *Plesiophthalmus andoi* Masumoto, 1989. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

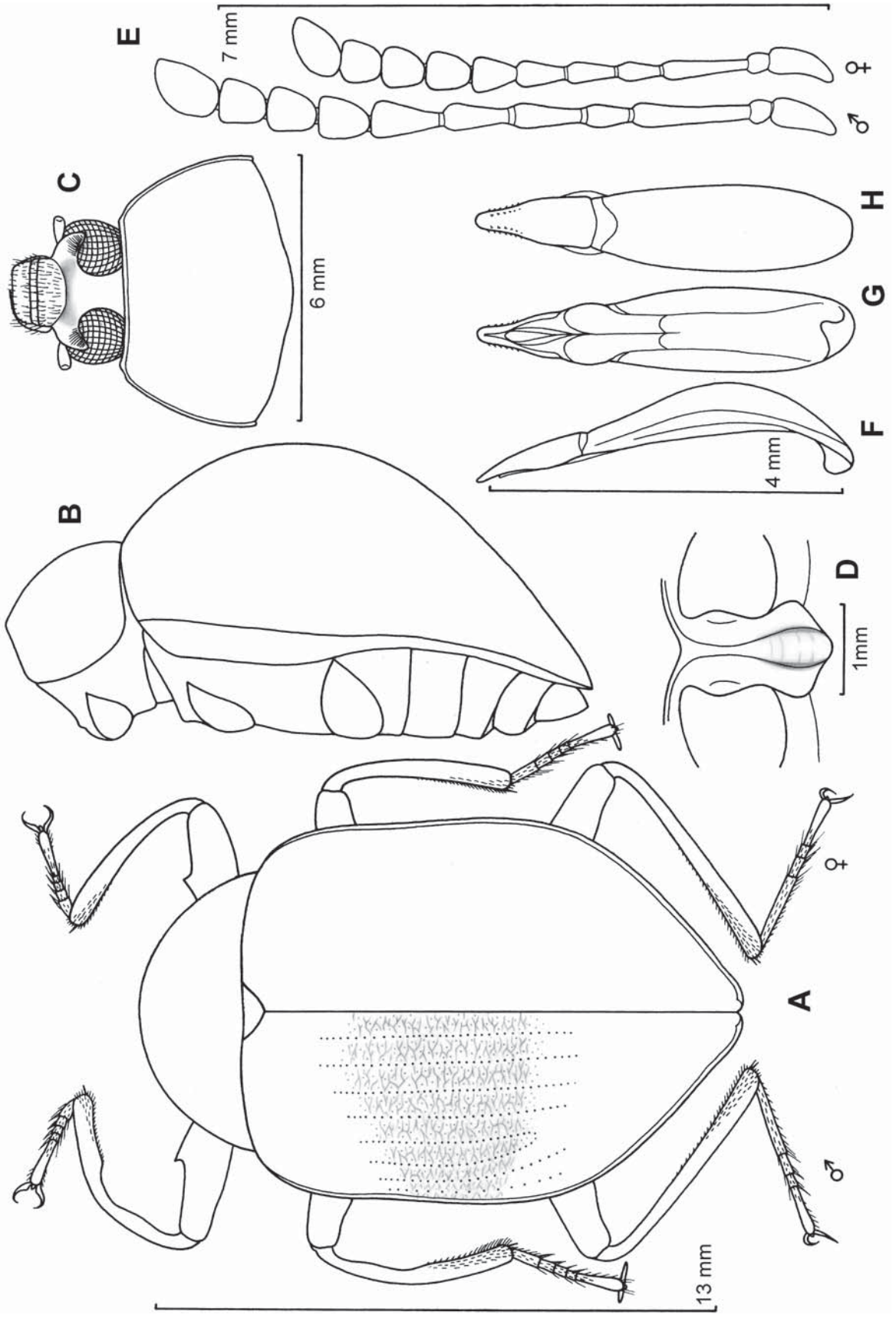


Fig. 12. *Eumolpocyriogeton sasajii* Masumoto, 1988. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

than pronotum. Body length 11.9–13.9 mm. (Females of this genus may easily be mistaken as species of *Plesiophthalmus*, but *Plesiophthalmus* from Borneo have no opaque upperside). [*P. rubricrus* Fairmaire, 1898 is the only species of this genus; another undescribed species occurs on New Guinea.] ..... ***Pontianacus*** Fairmaire

– Profemora anteriorly with a tooth or step-like decline in both sexes..... **8**

8 Profemora anteriorly with a sharp step-like decline just anterior to the apex (Fig. 6, arrow). – Body length 7 mm. [A single species known.] ..... ***Sylvanoplonyx* n. gen.**

– Profemora anteriorly with a tooth or step-like decline between middle and apical third..... **9**

9 Pronotum with sharp, more or less bent keels on the upperside (Figs. 7–8.). Body length < 4 mm. – Profemora with an acutely projecting tooth..... **10**

– Pronotum without sharp keels. Body length variable. **11**

10 The genae are situated somewhat in front of eyes but they are not forming a bump (Fig. 7B–C). Pronotum wider than long (Fig. 7A). Intervals 1–3 keeled reaching nearly to apex of elytra. Upperside of elytra opaque. [Two species known from Borneo.] .... ***Paragonocnemis*** subgen. ***Borneogonocnemis*** Pic

– The genae are well separated from eyes and frons, and they form a distinct bump (Fig. 8B). Pronotum longer than wide (Fig. 8A). Keel-like elytral intervals not reaching to apex. Elytra very long and narrow, upperside lustrous. [*A. bryanti* Blair, 1914 is the only species known from Borneo, but also *A. sculpticollis* Fairmaire, 1892 may occur.] .... ***Azarelius*** Fairmaire

11 Tibiae plain on outer side (Fig. 9A), bordered by an edge with tiny teeth like a saw-blade. Upperside of body with hairs (in one tiny species these hairs are very short and only visible at about 25-fold magnification). – Profemora with a large, acutely projecting tooth. [Five species known from Borneo.] ..... ***Gonocnemis*** Thomson

– Tibiae rounded in cross-section on outer side. Upperside of body without hairs in species from Borneo..... **12**

12 Profemora anteriorly with a distinct tooth. Protibiae regularly bent in both sexes. Without a rim between eyes and frons. – Base of pronotum as wide as base of elytra (Fig. 10). Body oval in species from Borneo. Body length 5.5–8.1 mm. [A single species, *E. kaszabi* Masumoto, 1989, known from Borneo (a second species will be described in a forthcoming paper).] ..... ***Euspinamarygmus*** Masumoto

– Profemora with a sharp, step-like interruption of the outline. Protibiae differently bent in males and females (in species from Borneo). Elytra usually longer than in the preceding genus, if not longer then a distinct rim between eyes and frons..... **13**

13 Elytra more or less oblong (Fig. 11A, B). Base of elytra markedly wider than base of pronotum. Body length 6.7–30 mm. – A rim around eyes is found in some small species. [12 species known from Borneo.] .... ***Plesiophthalmus*** Motschulsky

– Elytra longitudinally more convex and shorter than in the species of the preceding genus (Fig. 12A, B). No rim around the eyes. Body length 13–15 mm. [I doubt whether the two described Bornean species are correctly placed in this genus. They might better be assigned to *Spinamarygmus* or, even better, to *Plesiophthalmus* (after a more comprehensive definition of the specific characters). For a more detailed discussion of this matter see the forthcoming last part in this series on the Amarygmini of Borneo.]. .... ***Eumolpocyriogeton*** Pic

5 Descriptions of new genera and species of Amargmini

Seorsoplonyx antennatus **n. gen.**, **n. sp.**

Type species: *Seorsoplonyx antennatus* n. sp.

Etymology

Seorsus (Lat.) = secluded; plonyx = suffix of many genera of Amarygmini.

Diagnosis of the genus

Of medium size. Oblong, with long, subparallel elytra. Elytra scarcely convex longitudinally, with narrowly incised striae; intervals convex. Antennae long, with a very long and somewhat bent antennomere 11 as in the African genus *Praeugena* Laporte, 1840 (Praeugenini De Moore, 1970). Profemora in the anterior basal half with a sharp edge which terminates in a club-like bulge in the middle of the femora. Parameres of aedeagus with tiny hairs on their apical part ventrally and dorsally.

The new genus *Seorsoplonyx* is characterized by the peculiar shape of the antennae and the hairs on the aedeagus, a combination of characters which is otherwise unknown in Amarygmini.

Seorsoplonyx antennatus **n. sp.**
(Fig. 1A–H)

Holotype (♂): Keningau, Sabah, N Borneo, 30.V.1989, M. Itoh (NSMT).

Paratypes: Keningau, Sabah, N Borneo, 25.V.1989, M. Itoh (1 ♂ ZSMB). – Same data as before, but 11.VI.1989 (1 ♀ CA). – Kimanis Road nr. Keningau, Sabah, Borneo, 5.V.1994 (1 ♀ CM). – Mt. Trus Madi, 1300 m, Sabah, Borneo, 9.–10.IV.1994, N. Kanie leg. (1 ♂ CA). – Sujah near Sanggau Ledo, Kalimantan Barat, 26.–27.VII.1986, N. Nishikawa leg. (1 ♀ CM).

Etymology

Antennatus (Lat.) = adjective of antenna.

Diagnosis

See diagnosis of the genus.

Description

Measurements: Body length 8.60–9.36 mm; body width 4.50–4.78 mm. – Ratios: Pronotum: width/length 1.59–1.63; width hind corners/width front corners 1.59–1.68. Elytra: length/width 1.46–1.55; length elytra/length pronotum 3.00–3.20; maximum width elytra/maximum width pronotum 1.27–1.29.

Colouration: Upperside dark brown, pronotum and elytra with a faint sericeous shine. Underside blackish brown, slightly lustrous. Legs blackish brown. Antennomeres 1–6 brown, 7–11 black.

H e a d : Frons of medium width, slightly narrower than length of antennomere 3 (like 15 : 17); frons slightly convex transversely and longitudinally; with a clear and almost furrow-like depression between frons and genae. Genae markedly raised, anteriorly terminating clearly anterior to the middle part of the fronto-clypeal suture. Fronto-clypeal suture almost groove-like incised in its middle part. Clypeus slightly convex, with very small, closely set punctures. Punctures of frons sparser than those of clypeus. Mentum reversely trapezoidal, with wide, flat margins, space in between transversely convex. Outer surface of mandibles with a longitudinal sulcus, apically bifid.

P r o n o t u m : Markedly convex transversely and longitudinally. Lateral margins rounded with a tendency to be narrowed towards hind corners. Anterior margin slightly excavated. Lateral margins bordered, border of anterior margin weakened in its middle. Lateral borders in dorsal view visible over its whole length, but very narrow in the anterior half. Front corners in lateral view rounded, slightly obtuse; hind corners angular, similarly obtuse as front corners. Surface with tiny, sparse punctures.

S c u t e l l u m : Triangular, with rounded sides and few tiny punctures.

E l y t r a : Oblong, not very wide, markedly convex transversely, not convex longitudinally and descending only in the apical part. Lateral margins straight. Shoulders somewhat prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible, starting just behind shoulders and terminating at the level of the posterior third. With clearly incised striae, punctures within striae small; distance between punctures in stria 4 about 1–2 diameter of a puncture. Intervals convex, with tiny, widely separated punctures.

P r o s t e r n u m : Anterior margin continuously and narrowly bent upwards, not retracted towards apophysis in its middle. Apophysis narrow, oblong, stretched backwards behind coxae, but behind coxae situated slightly below the level of the more anterior parts; along coxae slightly widened and margins raised, space in between like a shallow trough; whole surface showing a rough structure.

M e s o s t e r n u m : With a shallow, longitudinal sulcus laterally; anterior margin deeply excavated in the middle.

M e t a s t e r n u m : Anterior margin between mesocoxae widely rounded, broadly bordered. Disc with microreticulation and some tiny hairs. Median line slightly incised, along this incision with some small, shallow punctures.

S t e r n i t e s : More strongly microreticulated than metasternum. Anterior margin of sternite 1 between metacoxae ogival, faintly bordered. Discs with sparse, tiny, dust-like hairs. Sternites with a slight depression on the discs in males.

A n t e n n a e : Of medium length, reaching slightly anterior to middle of elytra. Antennomere 11 very long, slightly sickle-shaped. Length/width ratio of antennomeres 1–11 equals to 14:6 / 5:5 / 17:5½ / 10:5½ / 13:5½ / 13:5½ / 15:8 / 13:8½ / 12:9 / 12:9 / 25:9.

L e g s : Of medium length. Profemora thickened towards the second third, anterior basal half with a sharp edge which terminates in the club-like bulge. Meso- and metafemora also with a club-like thickening, but without a sharp edge in their basal half. Pro- and mesotibiae somewhat widened anteriorly, slightly bent. Metatibiae almost straight; males with a very small area of dense recumbent hairs apically on inner side of pro- and mesotibiae. Protarsomeres 1–3 not widened in males. Lengths of protarsomeres 1–5 as 3:3:3:3:17, lengths of mesotarsomeres 1–5 as 7:5:4:4:18, lengths of metatarsomeres 1–4 as 15:7:5:17.

A e d e a g u s : See Fig. 1F–H.

Sylvanoplonyx femoralis **n. gen., n. sp.**

Type species: *Sylvanoplonyx femoralis* n. sp.

Etymology

Sylvanus, a god of forests; plonyx = frequently used suffix for naming genera of Amarygmini.

Diagnosis

A genus with the shape of *Amarygmus*, but profemora anteriorly with a sharp edge which declines like a step just anterior to the apex (Fig. 6A, arrow).

A similar steplike decline is known as character of *Plesiophthalmus*, but in this genus the decline is situated in the middle or at most at two-thirds of the profemora.

Sylvanoplonyx femoralis **n. sp.**
(Fig. 6A–E)

H o l o t y p e (♀): Keningau, Sabah, N Borneo, 11.VI.1989, M. Itoh (CA).

Etymology

Femoralis, adjective of femur.

Diagnosis

See diagnosis of the genus.

Description

M e a s u r e m e n t s : Body length 7.09 mm; body width 4.22 mm. – Ratios: Pronotum: width/length 2.05; width hind corners/width front corners 1.69. Elytra: length/width 1.28; length elytra/length pronotum 3.68; maximum width elytra/maximum width pronotum 1.39.

Colouration: Pronotum and frons dark green. Clypeus brown. Elytra bronze, somewhat lustrous, with faintly coloured, longitudinal stripes. Legs brownish black, tarsi brown. Antennomeres 1–5 brownish black, antennomeres 6–11 black. Underside black, lustrous.

Head: Upperside microreticulated. Frons of medium width, as wide as combined length of antennomeres 2+3. Genae raised, anteriorly terminating in front of the middle part of the fronto-clypeal suture. Fronto-clypeal suture negligibly incised in its middle part. Clypeus moderately stretched forwards, slightly convex longitudinally. Clypeus and frons with small punctures which are closer set on clypeus than on frons. Mentum relatively wide; lateral margins flat, widened anteriorly, somewhat bent, space in between transversely convex and lustrous. Underside of neck with small, closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Wide, uniformly convex transversely, less convex longitudinally. Widest at base, anteriorly narrowing and bent. Anterior margin moderately excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible. Front and hind corners in lateral view obtuse, front corners more rounded than hind corners. Surface with small, irregularly set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Oval, moderately convex transversely and longitudinally. Maximum height and width slightly anterior to the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible. With rows of medium-sized punctures which become indistinct near apex; distance between punctures on disc in row 4 about 2 times diameter of a puncture; about 25 punctures in row 4. Intervals flat, with tiny, widely separated punctures (visible at 50-fold magnification).

Prosternum: Anterior margin narrowly bent upwards, retracted towards apophysis in its middle. Apophysis oval; margins raised along procoxae, space in between with a wide sulcus which is widened posteriorly.

Mesosternum: Anterior margin excavated in its middle; lateral margins rounded, irregularly covered with coarse punctures; median part smooth.

Metasternum: Anterior margin between mesocoxae widely rounded, bordered. Apophysis behind anterior margin slightly raised. Anterior part of disc with large, irregularly set punctures, posterior part without punctures.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, very narrowly bordered. Sternites without punctures.

Antennae: Antennae reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 20:9 / 9:7½ / 14:7 / 11:7 / 12:8 / 13:9 / 14:11 / 18:14 / 18:15 / 17:15 / 22:15.

Legs: Short. For femora see diagnosis of the genus. Protibiae straight, meso- and metatibiae moderately convex. Lengths of protarsomeres 1–5 as 7:5:5:5:23, lengths of mesotarsomeres 1–5 as 10:8:7:7:24, lengths of metatarsomeres 1–4 as 26:11:9:25.

6 Descriptions of new species of *Amarygmus*

Amarygmus abortivus **n. sp.**
(Fig. 13A–H)

Holotype (♂): Borneo, Sabah, Danum Valley NP, 25.VI.2006, Ulf Bremer leg. (ZSMB).

Paratypes: Borneo, Sabah, Danum Valley, 4°58'N 117°48'E, M. D. F. Ellwood, *Parashorea tomentella*, *Asplenium nitidus*, East Trail 7, FogTray 5, 11.VII.1999, "399" (1 ♂ BMNH). Same data as before, but Tembaling 2, FogTray2. 19.X.1999 (1 ♀ BMNH)

Circumstances of collection (of the holotype): Edge of lowland primary forest, on the bark of a tree, at night.

Etymology

Abortivus (Lat.) = premature.

Diagnosis

Very small, oval, lustrous. Elytra with striae and nearly plain intervals on disc. Frons wide. Antennae of medium length, in males longer than in females. Protibiae in males widened in the apical two-thirds of inner side. Metatarsomere 1 nearly as long as combined length of metatarsomeres 2–4.

A. snizeki Bremer, 2002 (Bremer 2002a: 39), also from Sabah, has the same size (body length 3.35–3.81 mm), a wide frons, striae on the elytra and the same sexual characters of the male protibiae. However, metatarsomere 1 of *A. snizeki* is markedly shorter than in *A. abortivus*. Other similar species of this group, e. g. *A. crenis* Bremer, 2009 from the Malayan Peninsula (body length 3.27–3.42 mm), have a narrower frons.

Description

Measurements: Body length 3.22–3.42 mm; body width 1.87–2.02 mm. – Ratios: Pronotum: width/length 1.86–1.95; width hind corners/width front corners 1.67–1.78. Elytra: length/width 1.37–1.42; length elytra/length pronotum 3.30–3.38; maximum width elytra/maximum width pronotum 1.25–1.33.

Colouration: Head black, opaque. Pronotum copper-coloured, opaque. Elytra dark copper-coloured, lustrous, light brown along elytral suture. Underside brown, lustrous. Femora brown, tibiae darker brown than femora. Antennomeres 1–4 brown, 5 dark brown, 6–11 black (antennomere 11 apically brightened).

Head: Frons and clypeus flat. Frons wide, somewhat narrower than combined length of antennomeres 2+3,

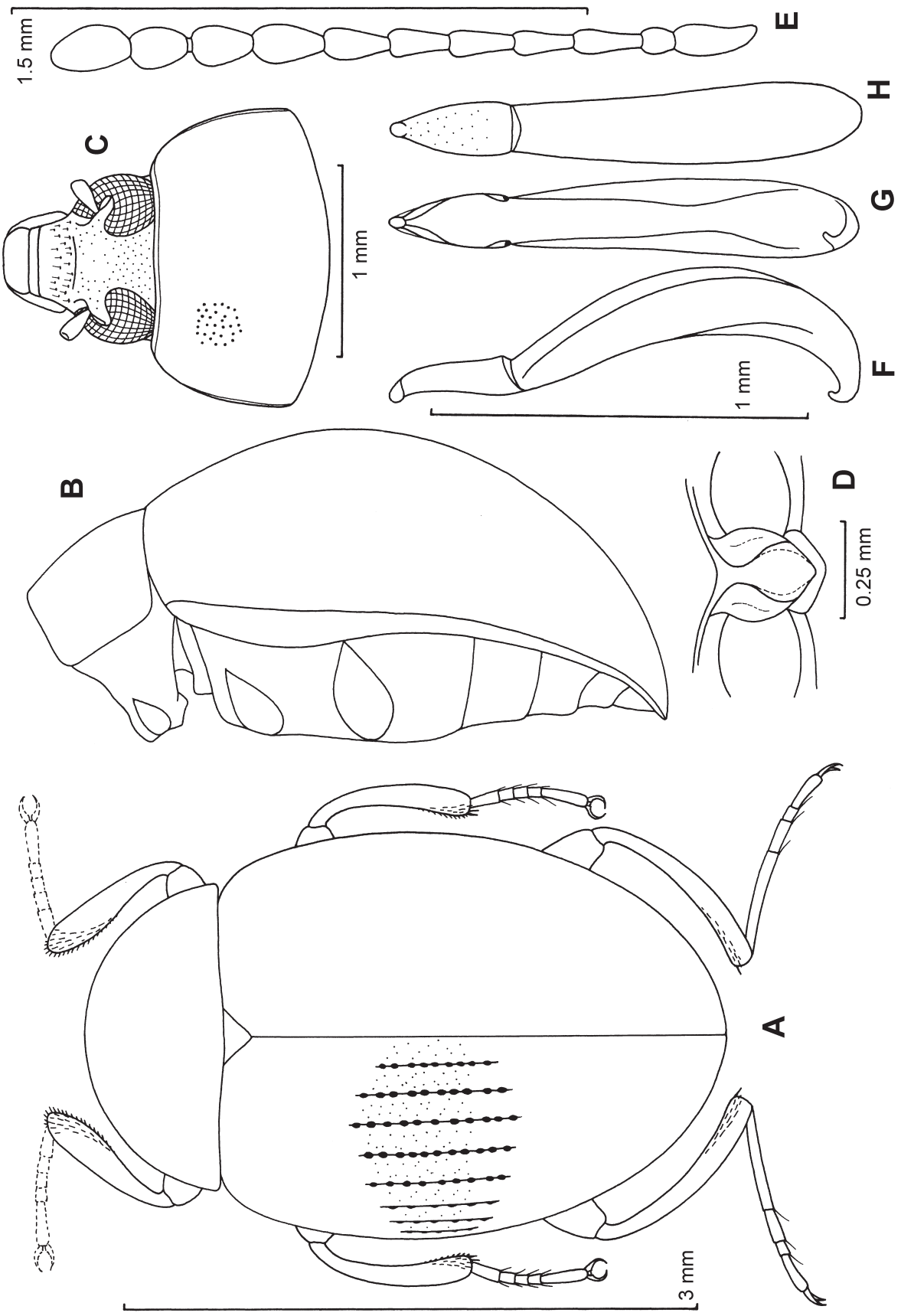


Fig. 13. *Amarygmus abortivus* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

with indistinct, small punctures in the posterior part of the frons, nearly impunctate in the anterior part. Genae scarcely raised, anteriorly terminating anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture weakly incised in its middle part. Clypeus stretched forwards, scarcely convex, with tiny, sparse punctures and very short hairs originating from these punctures. Mentum large, enlarged apically, with distinct flat margins laterally; median space in between more opaque and slightly convex, with a median, nitid clasp. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Relatively large, markedly convex transversely, weakly convex longitudinally. Sides subparallel in the posterior three-fifths, convergent and bent anteriorly. Front corners in dorsal view not visible. Anterior margin straight. Lateral and anterior margins bordered. Lateral borders in dorsal view visible only in the posterior two-thirds. Front corners in lateral view rounded; hind corners markedly obtuse, angular. Surface with small, irregularly set punctures.

S c u t e l l u m : Triangular, with a few tiny punctures.

E l y t r a : Oval, markedly convex transversely, less convex longitudinally. Maximum height and width slightly anterior to the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view visible only in and posterior to the middle. With slightly incised striae; in stria 4 with medium-sized, somewhat irregularly set punctures, about 35 punctures in stria 4. Intervals on disc very slightly convex, with tiny, widely separated punctures.

P r o s t e r n u m : Anterior margin narrowly bent upwards laterally, a narrow keel originating from the middle of the anterior margin, extending across the whole apophysis and widened apically. Apophysis rounded laterally along procoxae and raised ventrad, space in between with a marked groove, apically broadly pointed.

M e s o s t e r n u m : Anterior margin excavated in the middle; posterior part laterally with a slight longitudinal sulcus.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, broadly bordered. Disc behind anterior margin with some small punctures, otherwise impunctate. Median line narrowly incised.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites impunctate. Sternite 5 apicomedially not depressed in male.

A n t e n n a e : Of medium length, reaching to middle of elytra. Length/width ratio of antennomeres 1–11 in male equals to 8:4 / 6:3½ / 9:3½ / 6:4½ / 7:4½ / 7½:5 / 8:5½ / 8:5½ / 8:5½ / 8:5½ / 10:6.

L e g s : Short. Femora thickened towards the second third. Protibiae in male nearly straight on outer side, widened beyond basal fifth on inner side. Mesotibiae apically slightly widened, bent. Metatibiae apically slightly widened, slightly more bent than mesotibiae. Protarsomeres 1–3 not widened in male. Lengths of protarsomeres 1–5 as 3:3:3:3:11, lengths of mesotarsomeres 1–5 as 7:4:4:3½:11, lengths of metatarsomeres 1–4 as 23:8:4:11.

A e d e a g u s : See Fig. 13F–H.

Amarygmus adornatus **n. sp.**
(Fig. 14A–H)

H o l o t y p e (♂): Borneo, Malaysia, Sabah, Kinabalu NP, Poring vic., 380 m, 9.–11.III.2007, R. Grimm (CG).

P a r a t y p e s : Same data as holotype (2 ♂♂ CG, 1 ♂ ZSMB, 2 ♀♀ CG, 1 ♀ ZSMB). – Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 10–200 m, 4.–8.IV.2009, R. Grimm (1 ♀ CG). – Borneo, Malaysia, Sarawak, Gunung Gading NP, 100–300 m, 31.III.–4.IV.2009, R. Grimm (1 ♀ ZSMB). – Borneo, Malaysia, Sarawak, Kubah NP, HQ vic., 100–300 m, 27.–28.III.2009, R. Grimm (1 ♀ CG).

Circumstances of collection: Primary forest, on rotten wood decayed by fungi, at night.

Etymology

Adornatus (Lat.) = decorated.

Diagnosis

Large, oblong, oval. On each elytron with two large, reddish brown maculae; pronotum reddish brown in its anterior half, black in its posterior half; frons and clypeus black. Forelegs markedly longer in males than in females; male protarsomeres 1–3 widened and prolonged, protarsomeres 1–4 with erect hairs laterally; back of metafemora and inner side of metatibiae without long hairs in males.

Concerning body shape and form of maculae, *A. adornatus* resembles *A. binotatus* Pic, 1915 (redescription and illustration see Bremer 2005c: 10–12, fig. 15). However, the clypeus of *A. binotatus* is somewhat shorter than that of *A. adornatus*, the frons is slightly wider, frons and clypeus are yellowish brown or brown (black in *A. adornatus*), the males have long hairs on back of metafemora and inner side of metatibia (such hairs absent in *A. adornatus*), and the transverse, black band on the elytra extends anteriorly (not extending anteriorly in *A. adornatus*).

A. adornatus is, to some extent, also similar to *A. sanguinans* Fairmaire, 1893 (redescription and illustration see Bremer 2005c: 25–27, fig. 24) because both species have no hairs on back of metafemora and on inner side of metatibiae. However, *A. sanguinans* has the shaft of the femora red (uniformly black in *A. adornatus* and *A. binotatus*), and males of *A. sanguinans* are provided with long hairs apically on the inner side of the protibiae (missing in *A. adornatus* and *A. binotatus*).

Description

M e a s u r e m e n t s : Body length 7.32–8.44 mm; body width 4.14–4.46 mm. – Ratios: Pronotum: width/length 1.67–1.71; width hind corners/width front corners

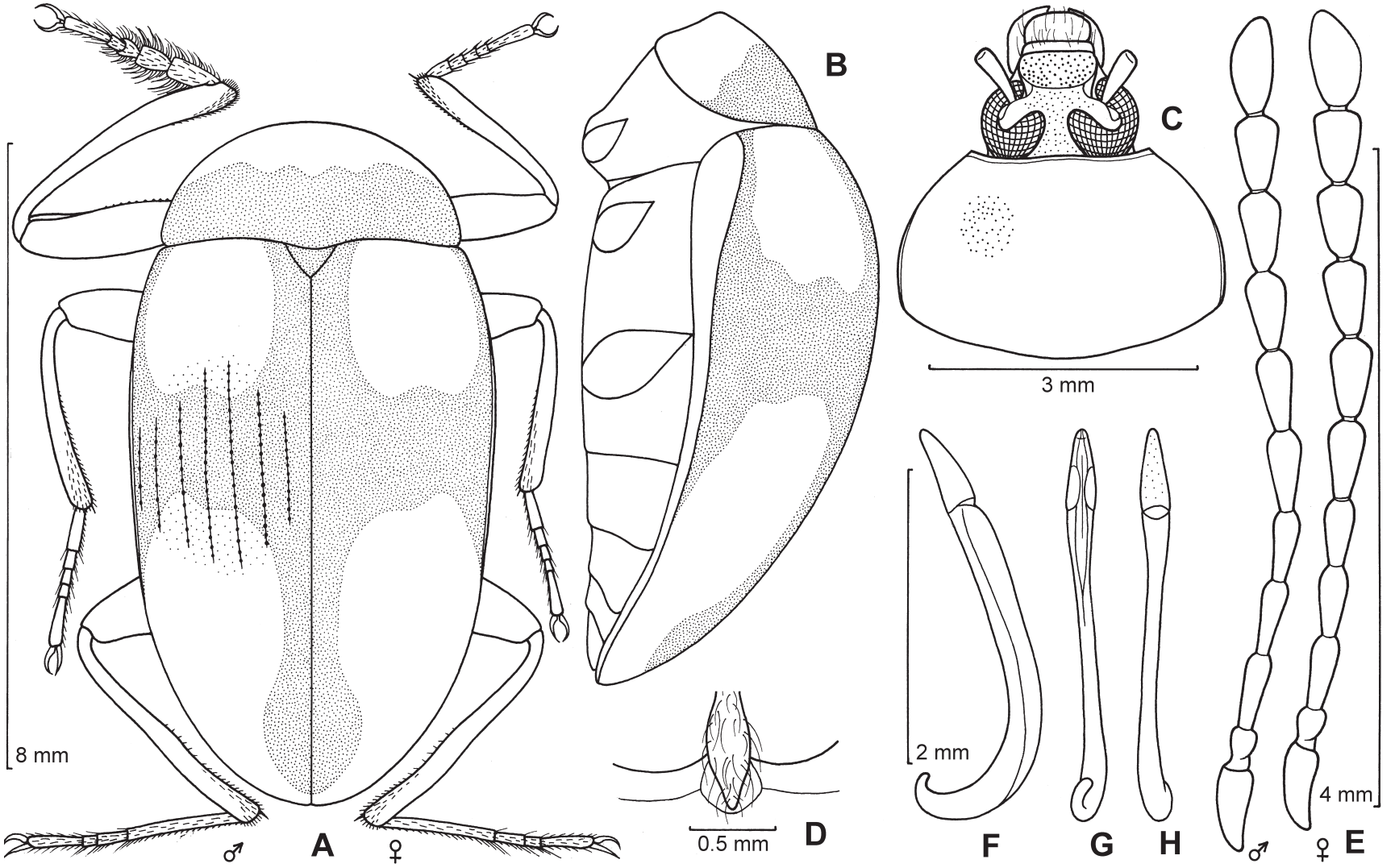


Fig. 14. *Amarygmus adornatus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

1.78–1.86. Elytra: length/width 1.44–1.54; length elytra/length pronotum 3.13–3.31; maximum width elytra/maximum width pronotum 1.23–1.29.

Colouration: Head black, lustrous (clypeus with a faint brown tinge). Pronotum greasily lustrous, front part reddish brown, hind part black (with an irregular border between both colours). Elytra with reddish brown maculae on a black ground as outlined in Fig. 14A. Femora and tibiae uniformly black, tarsomeres dark brown. Antennae black. Underside reddish brown (sternites 2+3 darker brown). Hairs yellow.

Head: Frons relatively narrow, of the same width in both sexes, as wide as length of antennomere 2 (like 7 : 6), with small, closely set punctures. Genae short, slightly raised. Fronto-clypeal suture moderately depressed and clypeus situated somewhat lower than frons. Clypeus somewhat stretched forwards, slightly convex longitudinally, with small, closely set punctures. Mentum scarcely convex transversely, its middle part more opaque than the lateral parts, basal and lateral margins bent upwards, sides not widened anteriorly. Underside of neck markedly microreticulated. Mandibles on their outer surface with a sulcus, apically bifid.

Pronotum: Slightly convex transversely and longitudinally. Lateral margins subparallel in their posterior half, slighty bent and convergent in their anterior half. Front corners scarcely protruded. Anterior margin slightly excavated. Lateral borders in dorsal view well visible on its whole length or its posterior two-thirds. Front corners in lateral view rectangular, hind corners obtuse. Surface with minute, closely set punctures.

Scutellum: Triangular, with slightly bent lateral margins, impunctate.

Elytra: Moderately convex transversely and longitudinally. Maximum height at the level of the anterior third. Shoulders not prominent. Lateral edges in dorsal view visible only in the middle part of the elytra. Apices of elytra mutually rounded. With some very short hairs (visible at 25-fold magnification) which are projecting on the apical part of the elytra. With striae with small punctures; distance between punctures less than the diameter of a puncture; striae extending towards apices. Intervals flat on disc, slightly convex laterally, with relatively small, closely set punctures.

Prosternum: Very short. Anterior margin narrowly bent upwards. Apophysis very narrow and spindle-shaped, lateral margins along procoxae slightly widened and very little raised; behind coxae somewhat descending; surface with long, erect hairs in males.

Mesosternum: Anterior margin narrowly and deeply excavated in the middle; lateral margins strongly raised; with long erect hairs in males.

Metasternum: Anterior part of disc with medium-sized, closely set punctures; punctures on posterior part smaller, but also closely set. Disc with long semi-erect hairs in males. Median line incised and depressed on its whole length.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Discs of sternites 1 and 2 with medium-sized punctures; sternites 3–5 with punctures which become smaller posteriorly. Discs of all sternites with long erect hairs in males. Sternite 5 apicomedially without depression in males.

Antennae: In males somewhat longer than in females. Length/width ratio of antennomeres 1–11 in male equals to 12:5½ / 6:4½ / 11:4½ / 11:4½ / 13:5½ / 12:5½ / 13:6 / 12:6½ / 12:7 / 12:7 / 15:7½, in female to 13:5½ / 5:4 / 9:4 / 10:4½ / 10:4½ / 11:5 / 11:6½ / 12:6½ / 12:7 / 11:7 / 14:7.

Legs: Profemora and protibiae markedly longer in males than in females. Pro- and mesofemora with a slender base and slightly club-like in their middle, metafemora markedly thickened in the middle. Protibiae in males widened apically, incurved in the apical half, with sharp edges on inner side; in females nearly straight and apically slightly widened. Mesotibiae straight in both sexes, apically with a slight widening. Metatibiae somewhat longer in males than in females and apically more widened and bent, in males in the basal half only with sparse and short hairs. Lengths of protarsomeres 1–5 in male as 17:10:9:7:31, lengths of mesotarsomeres 1–5 as 20:11:8:6:29, lengths of metatarsomeres 1–4 as 55:17:9:31; in female the corresponding lengths are 10:9:8:7:30, 28:9:8:5:30, and 55:17:9:30.

Aedeagus: See Fig. 14F–H.

Amarygmus aeris **n. sp.**
(Fig. 15A–H)

Holotype (♂): Borneo, Sabah, Crocker Range, Gunung Emas, 1500 m, 16.–21.III.2007, R. Grimm (CG).

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

Circumstances of collection: Mountainous primary forest, on the bark of a dead, mossy tree, at night.

Etymology

Aeris, genetive of aes (Lat.) = bronze, copper.

Diagnosis

Of medium size. Upperside ruby-coloured, lustrous. Elytra strongly convex longitudinally and transversely, with striae with closely set medium-sized punctures. Pronotum narrower than elytra, clearly descending in respect to elytra. Frons of medium width. Antennae of medium length. Protarsomeres 1–3 not widened in male. Male meso- and metatibiae indistinctly curved and widened on inner side, not widened in female.

The structure of the elytra differs somewhat between male holotype and female paratypes (see "Elytra"). This is regarded as infraspecific variability.

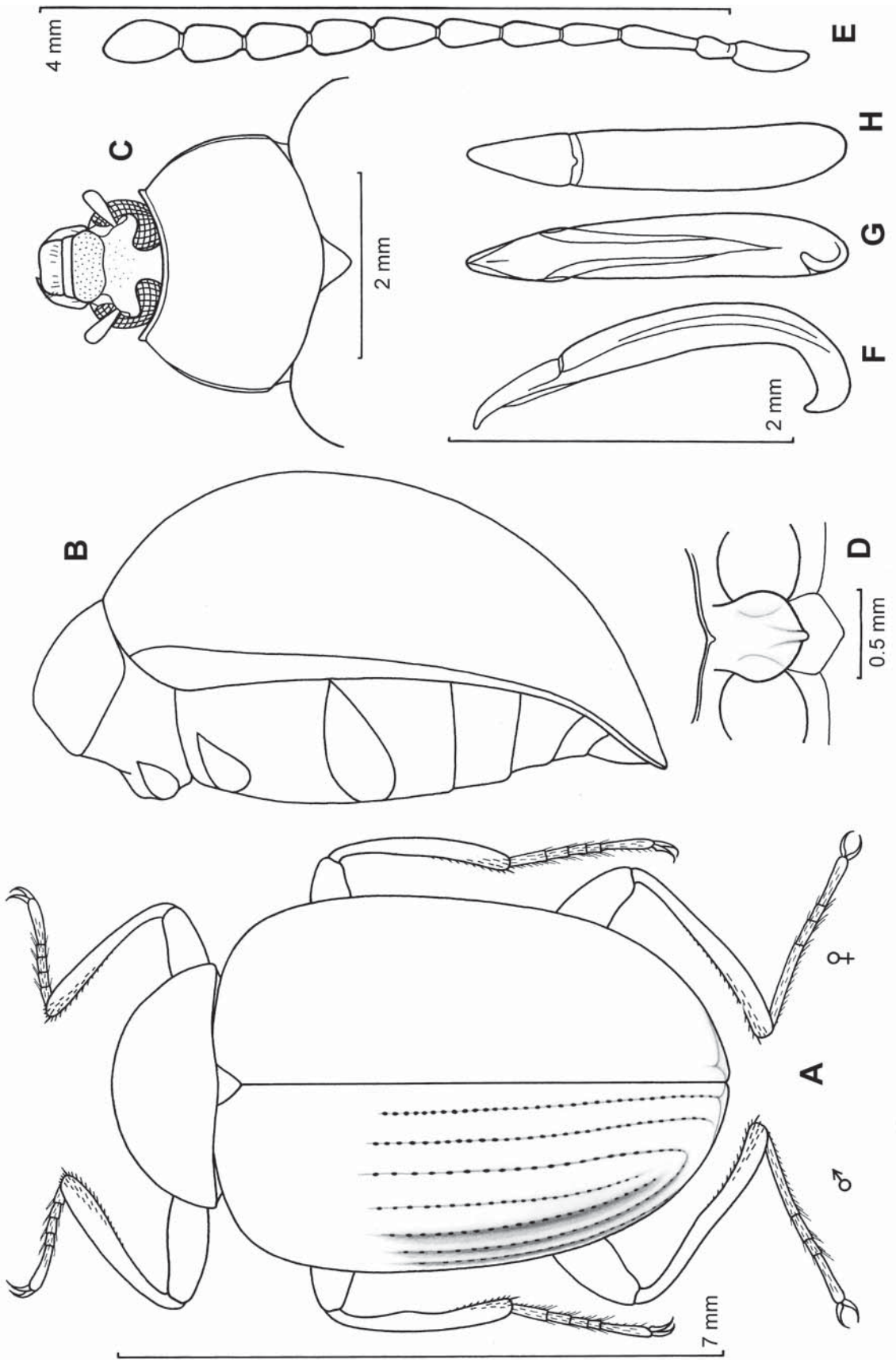


Fig. 15. *Amarygmus aeris* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

A. dignus Bremer, 2004 (Bremer 2004e: 113–116) frequently occurs in the same biotope. It is similar to *A. aeris*, but the upperside of *A. dignus* is greenish brown (ruby in *A. aeris*), and the males possess long hairs anteriorly on the profemora, on the back of the mesofemora, and on the prosternal apophysis (such hairs missing in *A. aeris*).

Description

Measurements: Body length 7.01–7.13 mm; body width 4.30–4.62 mm. – Ratios: Pronotum: width/length 1.67–1.75; width hind corners/width front corners 1.79–1.92. Elytra: length/width 1.29–1.39; length elytra/length pronotum 3.43–3.75; maximum width elytra/maximum width pronotum 1.54–1.59.

Colouration: Upperside ruby-coloured, lustrous. Femora black, lustrous (except profemora which are dark green and microreticulated), tibiae black, lustrous, tarsi dark brown. Antennae black. Underside black.

Head: Upperside flat except the raised genae. Frons of medium width, as wide as length of antennomere 4. Genae short, anteriorly terminating just behind the middle part of the fronto-clypeal suture. Fronto-clypeal suture markedly incised in its middle part, faintly incised in its lateral parts. Clypeus stretched forwards, somewhat convex transversely and longitudinally. Clypeus and frons with small, rather widely separated punctures. Mentum reversely trapezoidal, margins between base and sides rounded; lateral margins wide, flat, lustrous, space in between transversely convex and microreticulated. Mandibles on their outer surface with a sulcus, apically bifid.

Pronotum: Narrow, markedly convex transversely, distinctly convex longitudinally. Widest at base, anteriorly narrowing and bent. Front corners slightly prominent anteriorly, lateral borders forming a part of the front corners; hind corners strongly obtuse, nearly rounded. Anterior margin markedly excavated. Lateral and anterior margins bordered; border of the anterior margin wider than those of the lateral borders; lateral borders in dorsal view visible only in the hind three-fourths. Front corners in lateral view rectangular, hind corners strongly obtuse. Surface with very tiny, sparse punctures.

Scutellum: Triangular, narrow, sides slightly bent, impunctate.

Elytra: Somewhat oblong, oval, with prominent shoulders, markedly convex transversely and longitudinally. Maximum height and width at the level of the anterior third. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With slightly incised striae with medium-sized, distinct, round, closely set punctures; approximately 34 punctures in row 4; in contrast to the male, not all punctures are linked by faint lines in the females. Intervals slightly convex in male, flat in female, with very tiny punctures.

Prosternum: Anterior margin narrowly bent upwards, very shortly retracted towards apophysis in the middle. Apophysis short, behind coxae descending and narrowing, only shortly protruded posteriorly; margins along procoxae shortly widened and raised, space in between without a marked groove; with a short, narrowly raised projection at the apex.

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

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with some small punctures, posterior part with sparse, tiny punctures. Median line slightly incised on its hind part.

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

Antennae: Of medium length, similar in both sexes, reaching nearly to middle of elytra. Length/width ratio of antennomeres 1–11 equals to 20:8 / 10:6½ / 19:6½ / 17:6½ / 17:7 / 18:7½ / 19:10 / 18:10 / 20:10 / 19:10 / 23:11.

Legs: Of medium length. Femora distinctly surpassing lateral margins of body, with slender base, thickened towards the second third. Protibiae straight; mesotibiae on outer side slightly bent, in male with a slight bulge at about basal two-fifths on inner side and a small area of short, dense hairs in the apical fifth; metatibiae on outer side straight in the basal half, slightly incurved in the apical half; in male on inner side with a slight bulge at midlength. Lengths of protarsomeres 1–5 as 8:8:7:7:30, lengths of mesotarsomeres 1–5 as 21:14:9:8:30, lengths of metatarsomeres 1–4 as 40:10:8:32.

Aedeagus: See Fig. 15F–H.

Amarygmus affectus **n. sp.**
(Fig. 16A–H)

Holotype (sex not determined): Malaysia, Borneo, Sarawak, NW Kuching, Matang Wildlife Centre, 50–100 m, 16.–17.III.2008, R. Grimm (CG).

Paratypes: Same data as holotype (2 sex not determined CG). – Borneo, Malaysia, Sarawak, Kubah NP nr. Matang Wildlife Centre, 19.–22.IX.2008, R. Grimm (2 CG, 1 ZSMB, sex not determined). – Borneo, Malaysia, Sarawak, Kubah NP, Matang Wildlife Centre vic., 50–100 m, 28.–31.III.2009, R. Grimm (1 sex not determined CG). – Borneo, Malaysia, Sarawak, Kubah NP nr. HQ, 100–300 m, 15.–18.IX.2008, R. Grimm (1 sex not determined CG). – Same data as before, but 27.–28.III.2009, R. Grimm (1 CG, 1 ZSMB, sex not determined). – Malaysia, Borneo, Sarawak, Kubah NP, 250 m, 6.–8.III.2008, R. Grimm (1 ♀ CG, 1 ♀ ZSMB). – Same data as before, but 18.–19.III.2008 (1 ♂ ZSMB; 1 CG, 1 ZSMB, sex not determined).

Circumstances of collection: Edge of primary forest, on rotten stumps covered with fungi, at night.

Etymology

Afficior, affectum (Lat.) = link up with.

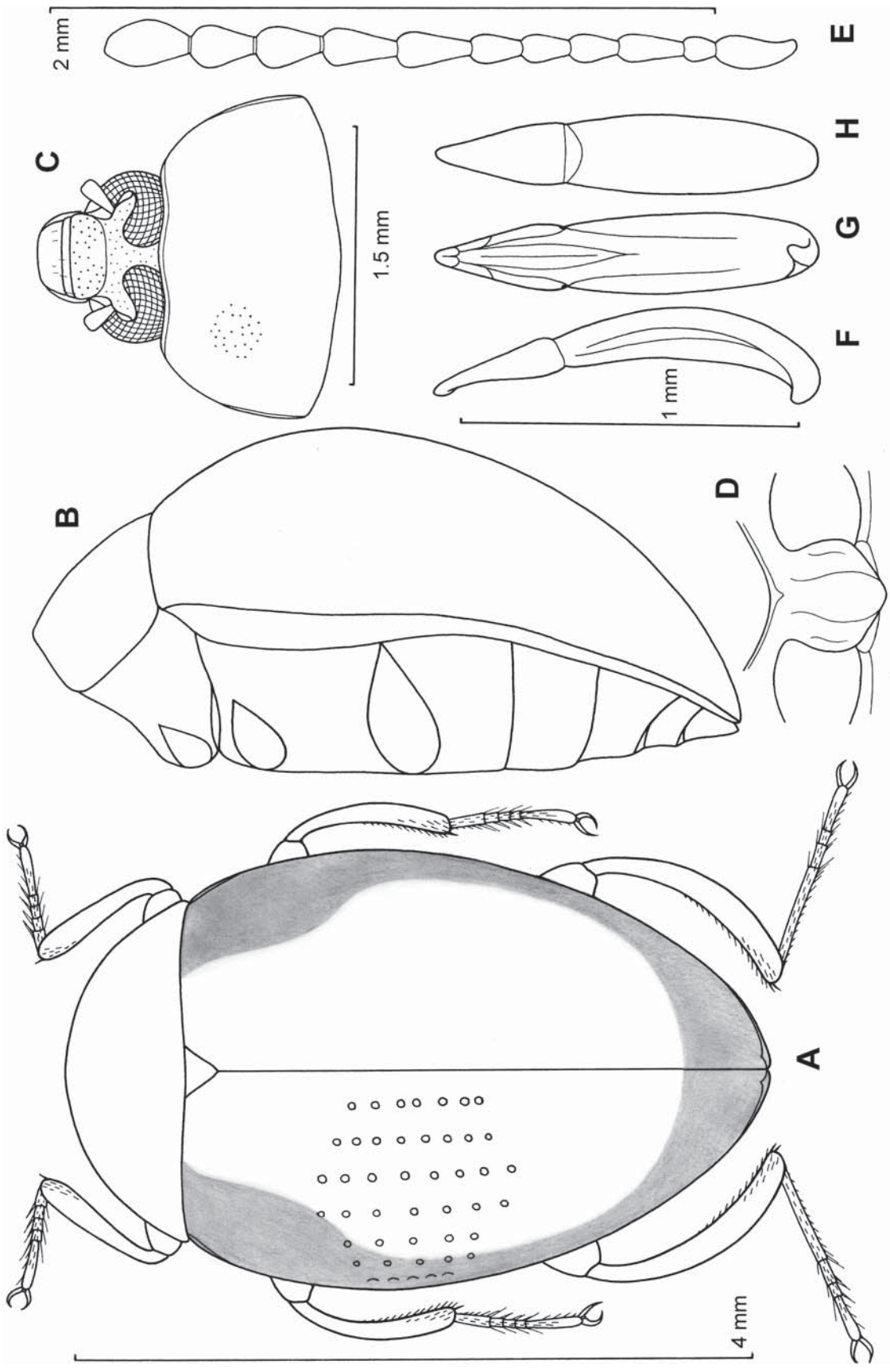


Fig. 16. *Amarygmus affectus* n. sp. – **A** Habitus, ♂ (shaded area of elytra blue); legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Diagnosis

Small, oval, strongly convex, lustrous; lateral parts of elytra blue, disc of elytra reddish brown; legs and antennae brown. Maximum width and height of elytra at the level of the anterior third; elytra with rows of widely separated punctures; intervals flat, nearly impunctate. Frons relatively narrow. Antennae of medium length. Male protarsomeres 1–3 not widened. Underside of body bare in male. Male sternite 5 neither depressed nor excavated apicomedially.

Concerning shape and lack of noticeable sexual dimorphisms *A. affectus* belongs to the species group affine *A. splendidulus* (Fabricius, 1794) (redescribed by BREMER 2005b: 52–54).

A. jenisi Bremer, 2004, known only from the Cameron Highlands of the Malayan Peninsula (see BREMER 2004a: 46, fig. 28), has a similar shape, the lateral parts of the elytra blue, and the legs yellowish brown or brown. Another species with a blue lateral colouration of the elytra is *A. cinaediae* Bremer, 2004, known from Sarawak and Sumatra (see BREMER 2004e: 107–109). The two species differ from *A. affectus* as follows: *A. jenisi* is larger (body length 4.49–4.98 mm), its frons is markedly wider, the antennae are shorter, and the punctures of the elytral rows are smaller. *A. cinaediae* is also larger (body length 5.33–5.73 mm), its frons is markedly wider, and it has slightly incised striae on the elytra.

Description

Measurements: Body length 3.97–4.47 mm; body width 2.53–2.88 mm. – Ratios: Pronotum: width/length 1.98–2.05; width hind corners/width front corners 1.84–1.85. Elytra: length/width 1.25–1.32; length elytra/length pronotum 3.36–3.56; maximum width elytra/maximum width pronotum 1.28–1.33.

Colouration: Upperside strongly lustrous. Head green. Pronotum greenish with a distinct, golden tinge, slightly iridescent. Elytra laterally blue, disc reddish brown (border between blue and brown parts indistinct). Legs light brown to brown. Antennomeres 1–7 brown, 8–11 increasingly black (antennomere 11 apically brightened). Underside brown, lustrous, femora lighter brown than underside.

Head: Frons rather small, as wide as length of antennomere 2, situated somewhat higher than eyes, descending towards the somewhat depressed fronto-clypeal suture. Genae narrow, somewhat raised, anteriorly terminating at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture distinctly depressed but scarcely incised. Clypeus stretched forwards, convex longitudinally, less convex transversely, with medium-sized, widely separated punctures; punctures of frons smaller. Mentum reversely trapezoidal, with a narrow base and slightly rounded basal corners; space between lateral margins convex transversely. Underside of neck with coarse, closely set punctures. Mandibles on their outer surface with a sulcus, apically bifid.

Pronotum: Wide, markedly convex transversely, less convex longitudinally. Widest at its base, anteriorly narrowing, bent. Anterior margin moderately excavated. Lateral and anterior margins continuously bordered, lateral borders in dorsal view visible only in the posterior three-fourths. Front corners in lateral view widely rounded, obtuse; hind corners less rounded, obtuse. Surface with very small, widely separated punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, strongly convex. Maximum width and height at the level of the anterior third. Shoulders indistinct. Apices of elytra mutually rounded. Lateral edges in dorsal view visible only on shoulders and apex. With rows of medium-sized, widely separated punctures; about 24 punctures in row 4. Intervals flat, with tiny punctures (visible at 50-fold magnification).

Prosternum: Anterior margin continuously and narrowly bent upwards, slightly retracted towards apophysis in its middle. Apophysis nearly as wide as long, rounded laterally, lateral margins raised; space between coxae with a wide groove with a longitudinal, low keel extending across the whole apophysis; apophysis broadly pointed on the apex.

Mesosternum: Hind part very wide, short; anterior margin slightly excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, broadly bordered. Disc slightly convex transversely and longitudinally. Anterior part of disc with coarse, widely separated punctures, posterior part with very tiny and sparse punctures. Median line neither depressed nor incised.

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

Antennae: Of medium length, reaching to anterior two-fifths of elytra, of the same length in both sexes. Length/width ratio of antennomeres 1–11 equals to 15:4 / 6:4 / 9:4 / 7:4 / 7:4 / 6½:4 / 10:6 / 11:6½ / 10:6½ / 9:6½ / 13:7.

Legs: Short. Femora markedly thickened towards the second third. Protibiae straight to slightly bent; meso- and metatibiae clearly bent. Protarsomeres 1–3 not widened in males. Lengths of protarsomeres 1–5 as 4:4:4:4:16, lengths of mesotarsomeres 1–5 as 7:5:4:4:17, lengths of metatarsomeres 1–4 as 31:11:6:16.

Aedeagus: See Fig. 16F–H.

Amarygmus assessorius **n. sp.**
(Fig. 17A–H)

Holotype (♂): Sabah, Borneo, vic. Ranau, ad lucem, 22.IV.2007, S. CHEW leg. (ZSMB).

Circumstances of collection: No information except at light, at night.

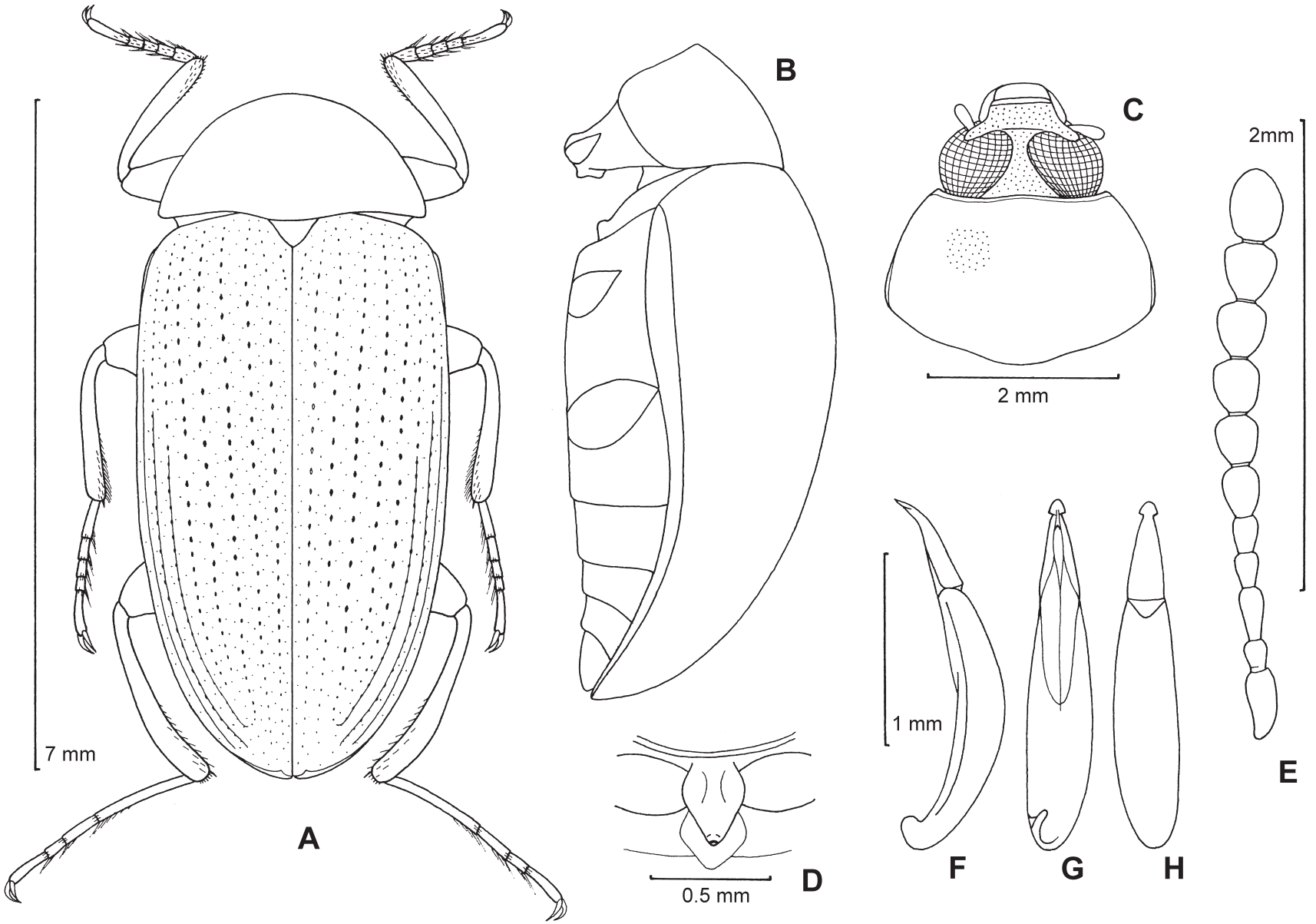


Fig. 17. *Amarygmus assessorius* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Etymology

Assessorius (Lat.) = adjective of assessor.

Diagnosis

Of medium size, elytra oblong and slightly oval, strongly convex transversely. Pronotum nearly as wide as elytra. With rows of medium-sized, indistinct punctures on elytra which are partially linked by faint lines. Frons rather narrow, antennae short. Protarsomeres 1–3 slightly widened in male.

Amarygmus assessorius n. sp. belongs to a group of species which formerly was assigned to *Elixota*, a genus which was synonymized with *Amarygmus* by BREMER (2001a) because of the many transitional forms towards *Amarygmus*. Within this group, *A. assessorius* can be compared with *A. hilaratus* Bremer, 2007 (BREMER 2007a: 5–17) and *A. viridicatus* Bremer, 2004 (BREMER 2004a: 51, fig. 32), both from Sabah. *A. hilaratus* is larger than *A. assessorius*, the frons is wider, the punctures of the elytral rows are very closely set, the males possess an area of short hairs anteriorly on the profemora, and the apex of the aedeagus is not so abruptly enlarged as in *A. assessorius*. *A. viridicatus* shows a similar shape, but this species has striae on the elytra while *A. assessorius* has rows of punctures.

Description

Measurements: Body length 6.85 mm; body width 3.14 mm. – Ratios: Pronotum: width/length 1.68; width hind corners/width front corners 1.55. Elytra: length/width 1.82; length elytra/length pronotum 3.60; maximum width elytra/maximum width pronotum 1.18.

Colouration: Upperside green, somewhat opaque because of microreticulation. Legs dark brown, tarsomeres brown. Antennomeres 1–3 dark brown, 4–11 black. Underside brown, metasternum slightly lustrous, sternites more opaque.

Head: Frons rather narrow, its width approximately corresponding to length of antennomere 4. Eyes very large, occupying most of the surface of the head. Genae narrow, slightly raised, anteriorly terminating anterior to the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture situated just in front of the eyes, in its middle part narrowly incised and depressed, not visible laterally. Clypeus slightly stretched forwards. Clypeus and frons with tiny, indistinct punctures. Mentum reversely trapezoidal, lateral margins flat, lustrous, space in between transversely convex. Underside of neck with coarse, closely set punctures. Mandibles on their outer surface with a sulcus, apically bifid.

Pronotum: Nearly as wide as elytra, markedly convex transversely, slightly convex longitudinally. Lateral margins narrowing anteriorly, bent. Front corners in dorsal view not visible. Anterior margin slightly excavated. Lateral margins and anterior margin continuously bordered. Lateral borders in dorsal view narrowly visible only in the posterior half. Front and hind corners in lateral view narrowly rounded, obtuse. Surface with minute, moderately closely set punctures.

Scutellum: Triangular, without punctures.

Elytra: Oblong, slightly oval, markedly convex transversely, less convex longitudinally. Maximum width just behind shoulders, maximum height slightly anterior to the middle. Shoulders prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view visible only at the shoulders. With rows of small, slightly elongate, not very distinct punctures which are not connected by lines on the disc; punctures of row 6 connected by faint lines, punctures of rows 7+8 situated in incised striae. Intervals 1–6 flat, 7–8 slightly convex, all intervals impunctate.

Prosternum: Apophysis very narrow; apically pointed and bent upwards, between coxae with a deep and narrow groove.

Mesosternum: Hind part with raised, granulated lateral margins; central part lower, smooth; anterior margin excavated in the middle.

Metasternum: Anterior part of disc with small punctures, posterior part nearly impunctate. Median line incised on the whole length.

Sternites: Sternites nearly impunctate. Sternite 5 apicomedially slightly depressed in male.

Antennae: Short, reaching to anterior fifth of elytra. Length/width ratio of antennomeres 1–11 equals to 11:6 / 7:5 / 11:5 / 8:5 / 8:5½ / 10½:7 / 10:10 / 12:10½ / 12:10½ / 12:11 / 16:11.

Legs: Short. Femora thickened towards the second third. Protibiae nearly straight, mesotibiae slightly bent, metatibiae markedly bent. Protarsomeres 1–3 slightly widened in male. Lengths of protarsomeres 1–5 as 12:9:7:6:24, lengths of mesotarsomeres 1–5 as 19:13:9:8:24, lengths of metatarsomeres 1–4 as 48:21:11:25.

Aedeagus: See Fig. 17F–H.

Amarygmus assignatus **n. sp.**
(Fig. 18A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Kinabalu NP, HQ vic., 1550 m, 11.–13.II.1006, R. GRIMM (CG).

Paratypes: Same data as holotype (1 ♂ ZSMB). – Borneo, Malaysia, Sabah, Gunung Emas, 1400 m, 4.II.2006, R. GRIMM (1 ♀ CG). – Keningau, Sabah, 10.V.1981, M. TAO leg. (1 ♀ CM).

Circumstances of collection: Edge of mountainous primary forest, at night (in Gunung Emas).

Etymology

Assignavi, assignatum (Lat.) = assign to.

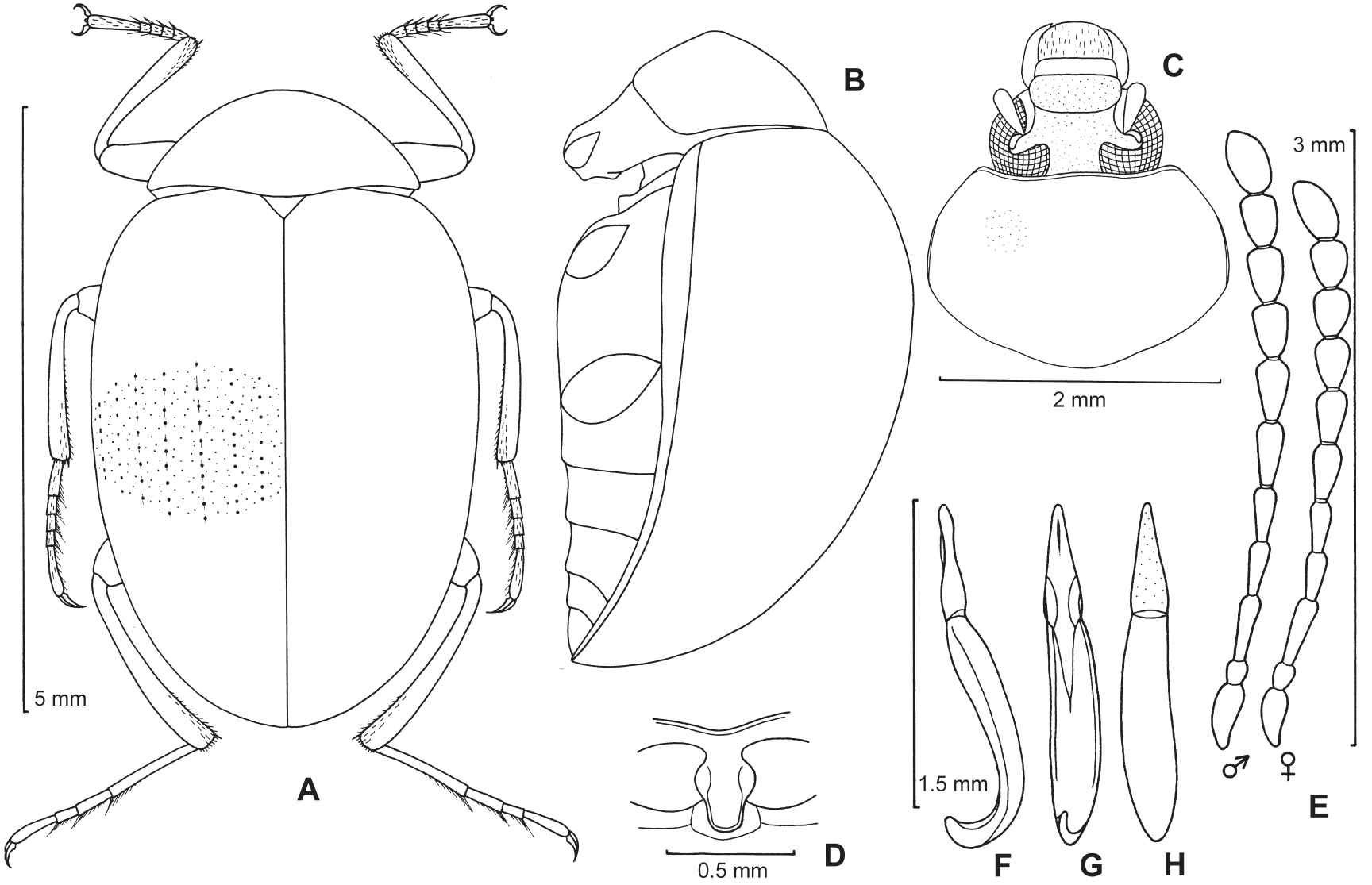


Fig. 18. *Amarygmus assignatus* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Diagnosis

Small, oval, slightly elongate, strongly convex transversely. Elytra with rows of small punctures. Metatibiae posteriorly with some short bristles in both sexes. Antennae rather long, in males somewhat longer than in females. Protarsomeres 1–3 not widened in males. Pronotum greenish blue, elytra bronze-coloured, legs light brown.

With respect to size and shape *A. assignatus* n. sp. shows a certain similarity to *A. venustus* Bremer, 2002 (Bremer 2002a: 49) from the Malayan Peninsula and to *A. bryanti* Bremer, 2002 (Bremer 2002a: 20) from Sarawak and the Malayan Peninsula. However, in *A. venustus* and *A. bryanti* the frons is narrower and the antennae are longer than in *A. assignatus*, the upperside is more colourful (*A. venustus* has a blue pronotum and dark green elytra with red and yellow reflections; *A. bryanti* has a greenish blue pronotum and the elytra with a slight sericeous shine and golden, bluish and red reflections), and the tibiae are dark brown to black (brown in *A. assignatus*). Additionally, *A. bryanti* has very short recumbent hairs on the pronotum (bare in *A. assignatus*).

For differential diagnosis, *A. praestans* Bremer, 2002 (Bremer 2002a: 32) from Sabah and Sarawak has to be considered, too. In *A. praestans* the width of the frons, the length of the antennae and the colour and shape of the legs are similar to *A. assignatus*, but *A. praestans* has a uniformly yellow antennomere 11, is somewhat smaller (body length 4.14–4.66 mm), and the elytra are more convex longitudinally.

Description

Measurements: Body length 5.02–5.41 mm; body width 2.88–3.23 mm. – Ratios: Pronotum: width/length 1.65–1.73; width hind corners/width front corners 1.64–1.72. Elytra: length/width 1.47–1.51; length elytra/length pronotum 3.39–3.70; maximum width elytra/maximum width pronotum 1.39–1.40.

Colouration: Head black. Pronotum bluish green, lustrous. Elytra bronze, lustrous. Legs light brown. Antennomeres 1–5 light brown, 6 darker brown, 7–11 black (antennomere 11 apically brightened). Underside brown, slightly lustrous.

Head: Frons of medium width, corresponding to length of antennomere 3. Genae slightly raised, very short, narrow, anteriorly terminating clearly behind the middle part of the fronto-clypeal suture. Fronto-clypeal suture arched, markedly but not deeply incised in its whole width. Clypeus stretched forwards, somewhat convex transversely. Clypeus and frons with sparse, small punctures. Mentum reversely trapezoidal, rather flat. Underside of neck strongly microreticulated, anteriorly with a few small punctures. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Narrow, the lateral outline following the outline of the elytra, strongly convex transversely, less but still markedly convex longitudinally. Lateral margins narrowing anteriorly, bent. Front corners depressed downwards, rounded. Anterior margin nearly straight. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view visible. Front corners in lateral view with an angle of approximately 100°, hind corners more obtuse. Surface with indistinct, small, sparse punctures.

Scutellum: Triangular, impunctate.

Elytra: Ovate, strongly convex transversely and longitudinally. Maximum height and width at the level of the anterior third. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With rows of indistinct, small punctures which are not very closely set; on disc some punctures are connected by very faint lines. Intervals flat, with sparse, tiny punctures.

Prosternum: Anterior margin narrowly bent upwards, scarcely retracted towards apophysis in the middle. Apophysis not very wide, margins along procoxae somewhat widened and raised like a knob, behind coxae somewhat descending and with subparallel margins, apex straight.

Mesosternum: Hind part narrow; anterior margin slightly excavated.

Metasternum: Anterior margin between mesocoxae narrowly rounded, bordered. Disc with very small sparse punctures which are the origin of short recumbent hairs. Median line slightly depressed.

Sternites: Impunctate (at 50-fold magnification), on discs with some tiny recumbent hairs.

Antennae: Antennae reaching middle part of elytra in males and anterior two-fifths in females. Length/width ratio of antennomeres 1–11 in male equals to 14:7 / 8:5½ / 18:5 / 11:5 / 12:5½ / 15:6½ / 13:7 / 13:7½ / 12:8 / 12:8 / 17:8½, in female to 13:6 / 8:5 / 18:5 / 11:5 / 12:5 / 12:6 / 12:6½ / 13:7 / 11½:7½ / 11½:8 / 16:8½.

Legs: Short, slender. Femora flattened, slightly thickened towards the second third. Protibiae straight. Mesotibiae somewhat bent in the basal half, straight in the apical half. Metatibiae in the apical half more bent than in the basal half. Lengths of protarsomeres 1–5 as 5:5:5:5:20, lengths of mesotarsomeres 1–5 as 11:9:8:6:20, lengths of metatarsomeres 1–4 as 38:16:10:20.

Aedeagus: See Fig. 18F–H.

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

Holotype (♂): Malaysia, Sabah, Crocker Range, Gunung Emas, 1350 m, 20.XI.2006, R. Grimm (CG).

Paratypes: Borneo, Malaysia, Sabah, Crocker Range, Gunung Emas, 1500 m, 1.IV.2007, R. Grimm (1 ♂ ZSMB). – Borneo, Malaysia, Sabah, Kinabalu NP, HQ vic., 1550 m, 11.–13.II.2006, R. Grimm (1 ♀ ZSMB).

Circumstances of collection: Edge of mountainous primary forest, at night.

Etymology

Catenatus (Lat.) = closely connected.

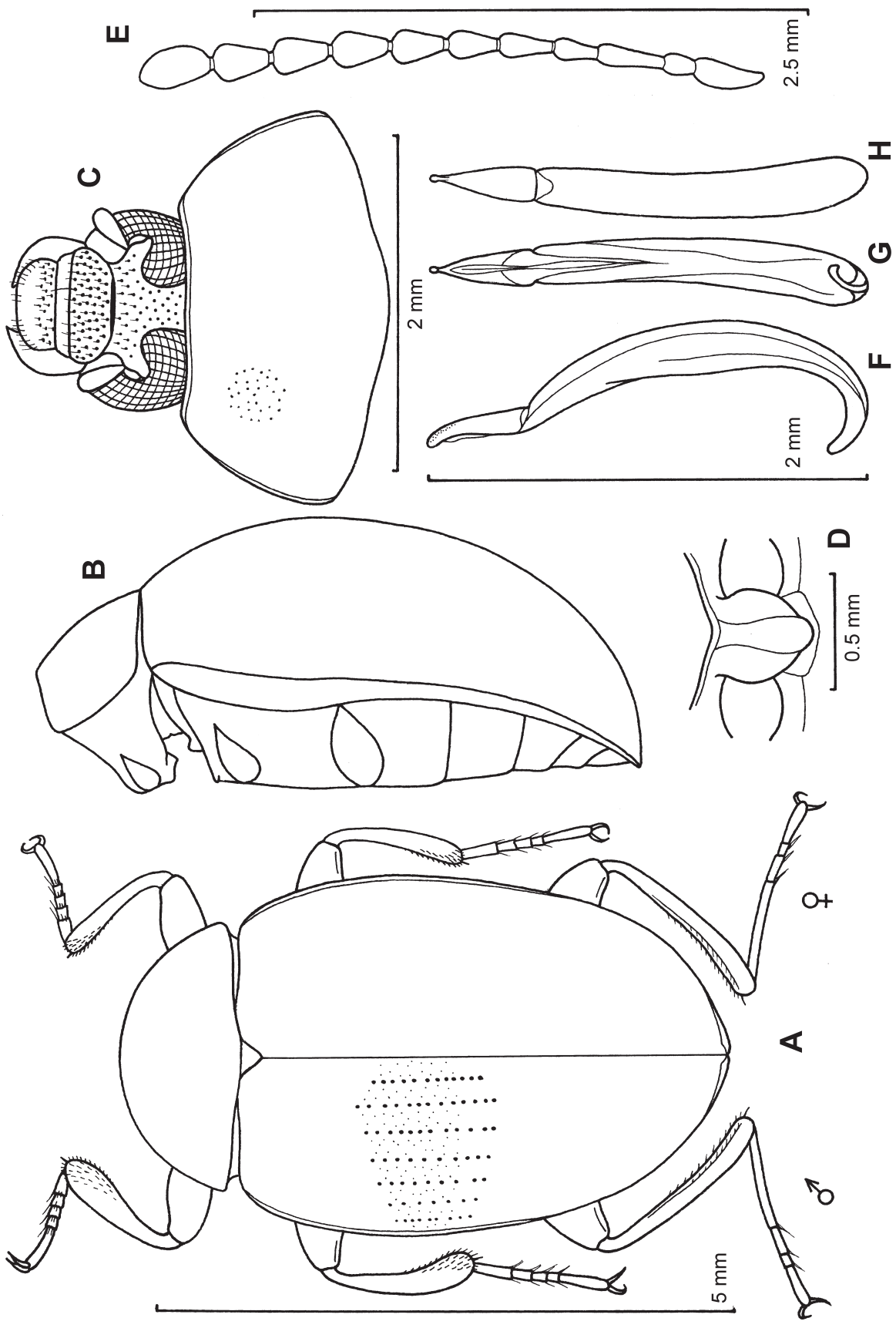


Fig. 19. *Amarygmus catenatus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Diagnosis

Small, lustrous. Body oval and somewhat elongate. Elytra with rows of small punctures. Frons of medium width. Antennae not very long. Male pro- and mesotibiae widened in apical half on inner side. Upperside coppery, femora and tibiae dark brown or black. Metatarsomere 1 relatively long.

Showing the same size and the same modification of the male legs, *A. catenatus* n. sp. is similar to *A. sodalis* Bremer, 2002 (Bremer 2002a: 42) from Sabah. However, *A. sodalis* has reddish brown femora and tibiae (black in *A. catenatus*), smaller punctures of the elytral rows, very tiny and widely separated punctures of the elytral intervals (in *A. catenatus* also tiny but the punctures more distinct and closer set), and the maximum width and height of the elytra in or slightly anterior to the middle (in *A. catenatus* at the level of the anterior third).

A certain similarity also exists between females of *A. catenatus* and *A. platypodes* n. sp. However, in *A. platypodes* the female protibiae are strictly straight and slightly widened on inner side (weakly bent in *A. catenatus*), the terminal antennomeres are shorter and the frons is wider. The male sexual characters of the protibiae are very different in both species (see Figs. 19A and 43A).

Description

Measurements: Body length 4.75–5.25 mm; body width 2.72–2.96 mm. – Ratios: Pronotum: width/length 1.90–2.07; width hind corners/width front corners 1.75–1.87. Elytra: length/width 1.38–1.50; length elytra/length pronotum 3.60–3.96; maximum width elytra/maximum width pronotum 1.28–1.35.

Colouration: Upperside lustrous. Head coppery. Pronotum dark coppery or blackish blue. Elytra coppery. Underside including underside of neck brown, lustrous. Basal half of femora brown, apical half darker brown to black, tibiae dark brown to black, tarsi brown.

Head: Frons of medium width, of the same width in both sexes, somewhat narrower than length of antennomere 3 (like 12 : 14). Genae somewhat raised, anteriorly terminating at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture arched, depressed and slightly incised. Clypeus markedly stretched forwards, somewhat convex transversely and longitudinally. Clypeus and frons with small, rather closely set punctures; short hairs originating from clypeal and genal punctures. Mentum lustrous, markedly widened anteriorly, lateral margins slightly bent and flat, space in between transversely convex. Underside of neck with coarse punctures which are aligned crossways. Mandibles on their outer surface with a sulcus, apically bifid.

Pronotum: Markedly convex transversely, less convex longitudinally. Lateral margins narrowing anteriorly, bent. Front corners narrowly rounded. Anterior margin slightly excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view very narrowly visible. Front corners in lateral view rounded, about rectangular; hind corners angular, obtuse. Surface with small, not very densely but irregularly set punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, somewhat elongate, markedly convex transversely, clearly convex longitudinally. Maximum height and width at the level of the anterior third. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible. With rows of small punctures which are partially linked by very faint lines; distance between punctures on disc in row 4 about 1–3 times diameter of a puncture; approximately 35 punctures in row 4. Intervals with tiny, distinct, not very closely set punctures.

Prosternum: Anterior margin narrowly bent upwards laterally, in the middle with an extension which continues into a low keel towards apophysis; this keel extends across the whole apophysis and is widend posteriorly. Apophysis along procoxae widened and lateral margins somewhat raised, space in between with a shallow groove; lateral margins behind coxae narrowing, roundedly extending into the apex which presents a slightly protruded tip in the middle.

Mesosternum: Anterior margin excavated; apart from that without structural peculiarities.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Apophysis anteriorly bordered by the anterior margin, somewhat raised like a hunch. Anterior part of disc with some medium-sized punctures, posterior part with some very small punctures. Median line slightly incised in the posterior half.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites impunctate. Sternite 5 apicomedially depressed in males.

Antennae: Relatively short, reaching to anterior fourth of elytra, of the same length in both sexes. Length/width ratio of antennomeres 1–11 equals to 11:5 / 7:4½ / 14:5 / 10:5 / 12:5 / 11:7½ / 12:8 / 12:8 / 12:8½ / 11:8½ / 16:8½.

Legs: Short. Femora thickened towards the second third. Protibiae on outer side somewhat bent, on inner side markedly widened in males, only very slightly widened in females; mesotibiae bent, in males with an area of closely set, semi-erect hairs apically on inner side; metatibiae straight in the basal half, slightly incurved in the apical half. Protarsomeres 1–3 not widened in males. Lengths of protarsomeres 1–5 as 8:5:5:4:18, lengths of mesotarsomeres 1–5 as 14:9:7:6:28, lengths of metatarsomeres 1–4 as 36:12:5:18.

Aedeagus: See Fig. 19F–H.

Amarygmus cephalotes **n. sp.**
(Fig. 20A–I)

Holotype (♂): Borneo, Malaysia, Sabah, Keningau, 300 m, 20.–22.III.2007, R. Grimm (CG).

Paratypes: Borneo, Sabah, S Keningau, 350 m, 20.–22.III.2007, leg. W. Schawaller (1 ♂ SMNS). – Malaysia, Borneo, Sarawak, NW Kuching, Matang, 17.III.2008, R. Grimm (1 ♂, 1 ♀ CG; 1 ♂ ZSMB). – Malaysia, Borneo, Sarawak, Kuching, Reservoir Park, 50 m, 4.–5.III.2008, R. Grimm (2 ♂♂ CG, 2 ♂♂ ZSMB, 1 ♀ CG). – Bornéo Occ., Menterado, J. B. Ledru 1897 (1 ♀ MNHN). – S Thailand, Betong, Gunung Cang Dun Vill., Yala Dist., 25.III.–22.IV.1992, J. Horák (1 ♂ ZSMB).

Circumstances of collection: On tree bark in parks (in Keningau and Kuching), at night.

Etymology

Cephalotes from Greek ἡ κεφαλ·ή = head.

Diagnosis

Small, oval. Characterized by a peculiar shape of the head (fronto-clypeal suture incised like a deep and wide groove, frons and genae forming a common arched border towards this groove). Elytra with rows of small punctures. Upperside dark coppery to black. Mesofemora with short bristles posteriorly, mesotibiae in males with widely separated long hairs on inner side.

A similar shape of head is known from *A. straumanni* Bremer, 2001 (Bremer 2001c: 4–5, fig. 1) from Singapore, Sarawak, and Sabah. *A. straumanni* is smaller than *A. cephalotes* (body length 2.84–3.74 mm), its elytra are narrower, the elytral colour is greenish golden, the legs are yellowish brown, the pronotum is more intensively blue, and the punctures of the elytral rows are markedly smaller.

Description

Measurements: Body length 4.09–4.36 mm; body width 2.49–2.72 mm. – Ratios: Pronotum: width/length 2.00–2.16; width hind corners/width front corners 1.69–1.81. Elytra: length/width 1.29–1.34; length elytra/length pronotum 3.50–3.72; maximum width elytra/maximum width pronotum 1.30–1.32.

Colouration: Upperside black to dark coppery, lustrous; pronotum may present a bluish tinge. Femora and tibiae dark brown to black; tarsi light brown. Antennae black. Underside dark brown, lustrous.

Head: Frons of medium width, somewhat narrower than length of antennomere 3 (like 12 : 14), with very small, irregularly set punctures. Genae not raised, forming together with the frons an arched limit towards the groove-like fronto-clypeal suture. Clypeus slightly stretched forwards, convex longitudinally, with very small and sparse punctures and with some very short hairs. Mentum reversely trapezoidal, with wide, flat lateral margins; space in between convex. Underside of neck with coarse punctures which are partially aligned crossways. Mandibles apically bifid.

Pronotum: Wide, uniformly convex transversely, slightly convex longitudinally. Lateral margins narrowing anteriorly, nearly straight. Anterior margin slightly excavated. Front corners not projecting. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view very narrowly visible. Front and hind corners in lateral view about rectangular. Surface with tiny, widely separated punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, markedly convex. Maximum height and width at the level of the anterior third. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With rows of medium-sized punctures; distance between punctures on disc in row 4 about 2–3 times diameter of a puncture; about 23 punctures in row 4; punctures in rows 1 and 2 closer set than in the subsequent rows. Intervals flat, impunctate.

Prosternum: Anterior margin narrowly bent upwards; retracted towards apophysis in its middle, forming a short keel. Apophysis narrow anteriorly, widened towards apex; sides at apex shortly retracted towards middle posteriorly, in its middle narrowly projecting, space between procoxae with a shallow groove.

Mesosternum: Anterior margin excavated in its middle; surface with some long hairs.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior half of disc with medium-sized punctures and (in males) long hairs which originate from these punctures, posterior half with very small, sparse punctures; disc somewhat convex, without a visible median line.

Sternites: Discs of sternites with small punctures and moderately long hairs. Sternite 5 apicomedially somewhat depressed in males, around this depression with recumbent, tender hairs of medium length.

Antennae: Of medium length, reaching to anterior third of elytra. Antennae of females somewhat shorter than those of males. Antennal segments 6–11 enlarged. Length/width ratio of antennomeres 1–11 in male equals to 11:4½ / 7:4 / 14:4 / 8:4 / 8:4½ / 10:6 / 10:7 / 11:7½ / 10½:7½ / 10:7½ / 14:8, in female to 10:4½ / 7:4 / 11:4 / 7½:4 / 7½:4½ / 8:5½ / 9:7 / 10:7 / 9:7 / 9:7 / 13:7½.

Legs: Short. Femora thickened towards the second third. For pilosity of mesofemora and mesotibiae see diagnosis. Protibiae very slightly bent, mesotibiae bent, metatibiae markedly bent. Protarsomeres 1–3 slightly widened in males. Lengths of protarsomeres 1–5 as 5:5:4:3:14, lengths of mesotarsomeres 1–5 as 10:6:5:4:16, lengths of metatarsomeres 1–4 as 23:9:4:14.

Aedeagus: See Fig. 20G–I.

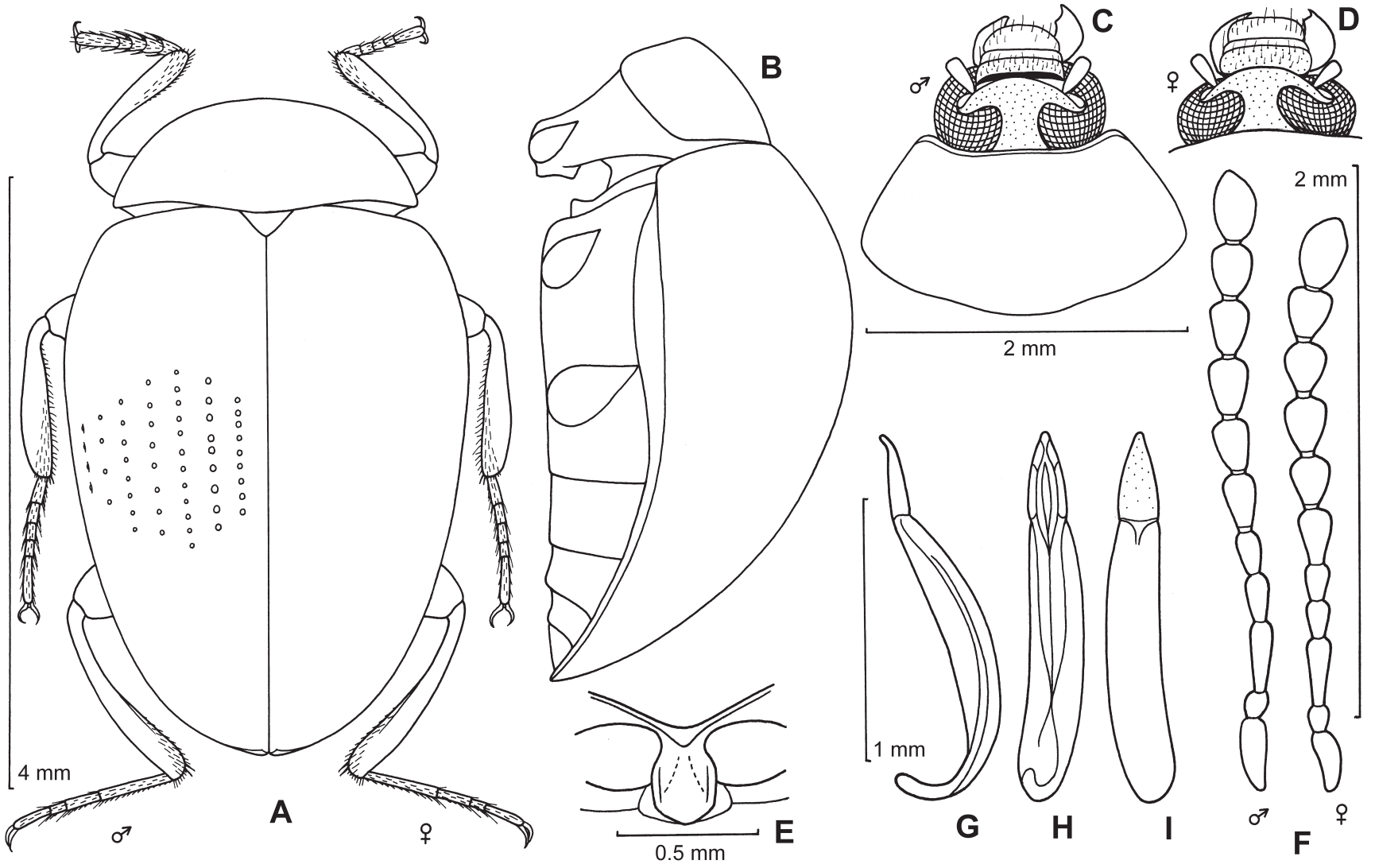


Fig. 20. *Amarygmus cephalotes* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum ♂. **D** Head ♀. **E** Prosternal apophysis. **F** Antennae ♂ and ♀. **G** Aedeagus, lateral view. **H** Aedeagus, ventral view. **I** Aedeagus, dorsal view.

Amarygmus coccinelloides **n. sp.**
(Fig. 21A–E)

Holotype (sex not determined): Borneo, Malaysia, Sabah, Crocker Range, Gunung Emas, 1500 m, 16.–17.III.2007, R. GRIMM (CG).

Paratypes: Borneo, Sabah, Crocker Mts., 500–1900 m, Gunung Emas, 6.–21.V.1995, IVO JENIŠ leg. (2 damaged, sex not determined ZSMB).

Circumstances of collection: Mountainous primary forest, on tree bark, at night.

Etymology

Coccinelloides, similar to small *Coccinella* species.

Diagnosis

Tiny, strongly convex transversely, oval. Elytra bright red, with a black macula on each elytron, giving this species the appearance of a small *Coccinella*. Frons wide, antennae of medium length. Elytra with rows of punctures.

The very characteristic elytral pattern, similar to Coccinellidae or Leiochrini (Tenebrionidae), makes this species unmistakable.

Description

Measurements: Body length 2.99–3.10 mm; body width 1.83–1.87 mm. – Ratios: Pronotum: width/length 1.78–2.02; width hind corners/width front corners 1.57–1.75. Elytra: length/width 1.38–1.40; length elytra/length pronotum 3.57–3.88; maximum width elytra/maximum width pronotum 1.35–1.42.

Colouration: Elytra bright red; on each elytron in its middle part a black, elongate macula. Pronotum black, lustrous, in the middle of the basal margin lightened. Clypeus and anterior part of frons brown, lustrous, posterior part of frons dark brown. Underside light brown, lustrous. Legs yellowish brown. Antennomeres 1–5 yellowish brown, 6 brown, 7–11 black.

Head: Frons wide, twice as wide as length of antennomere 3, with very sparse and small punctures. Genae short, slightly convex. Fronto-clypeal suture somewhat arched, incised. Clypeus moderately stretched forwards, slightly convex transversely and longitudinally; bright, short, slightly bent hairs originating from the small and sparse punctures. Mentum reversely trapezoidal, with slightly bent lateral margins. Mandibles on their outer surface with a sulcus, apically bifid.

Pronotum: Wide, uniformly convex transversely, less convex longitudinally. Widest at base, sides narrowing anteriorly, bent. Front corners not projecting forwards. Anterior margin straight. Lateral and anterior margins bordered. Lateral borders in dorsal view visible only in their hind half. Front and hind corners in lateral view slightly obtuse. Surface with small, sparse, indistinct punctures.

Scutellum: Triangular, impunctate.

Elytra: Of half-elliptic shape, strongly convex. Maximum height and width slightly behind level of the anterior third. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view visible in the posterior sixth. With rows of indistinct, medium-sized punctures; distance between punctures on disc in row 4 about 2 times diameter of a puncture; about 18 punctures in row 4. Intervals flat, impunctate.

Prosternum: Anterior margin narrowly bent upwards, markedly retracted towards apophysis in its middle. Apophysis wide, short; markedly widened along procoxae, space in between with a wide groove, the bottom of this groove in its middle interrupted by a low keel which extends across the whole apophysis; margins behind coxae narrowed; apex rounded, but with a short cone in its middle.

Mesosternum: Hind part wide, short; anterior margin shallowly excavated in the middle, with a longitudinal groove laterally.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Disc behind the anterior margin with some small punctures, otherwise impunctate. Median line incised.

Sternites: Impunctate, lustrous.

Antennae: Of medium length, reaching to anterior fourth of elytra. Antennal segments 6–11 markedly enlarged. Length/width ratio of antennomeres 1–11 equals to 8:4 / 5:3 / 8:2½ / 4½:2½ / 5½:3 / 6:4 / 6:4½ / 6½:4½ / 6:4½ / 6:4½ / 9:4½.

Legs: Short. Femora thickened towards the second third. Protibiae straight, thickened apically; meso- and metatibiae slightly bent. Lengths of protarsomeres 1–5 as 3:3:2½:2½:11, lengths of mesotarsomeres 1–5 as 7:4:3½:2:12, lengths of metatarsomeres 1–4 as 24:8:5:12.

Amarygmus cyamias **n. sp.**
(Fig. 22A–H)

Holotype (♂): Sabah, Keningau, 400 m, nachts, auf der Rinde von Bäumen, 17.II.2006, H. J. BREMER leg. (ZSMB).

Circumstances of collection: On the bark of a tree in a garden, at night.

Etymology

Cyamias, name of a precious stone in the "Naturalis historia" of PLINIUS senior. It is unknown which precious stone was meant.

Diagnosis

Small. Elytra short and markedly convex, lustrous; upperside colourful iridescent. Elytra with rows of small punctures. Frons wide, antennae short. Shape and colour resemble a small Chrysomelidae.

A. cyaneicollis n. sp. from Sabah has the same size, shape and width of frons as *A. cyamias* n. sp. (see below),

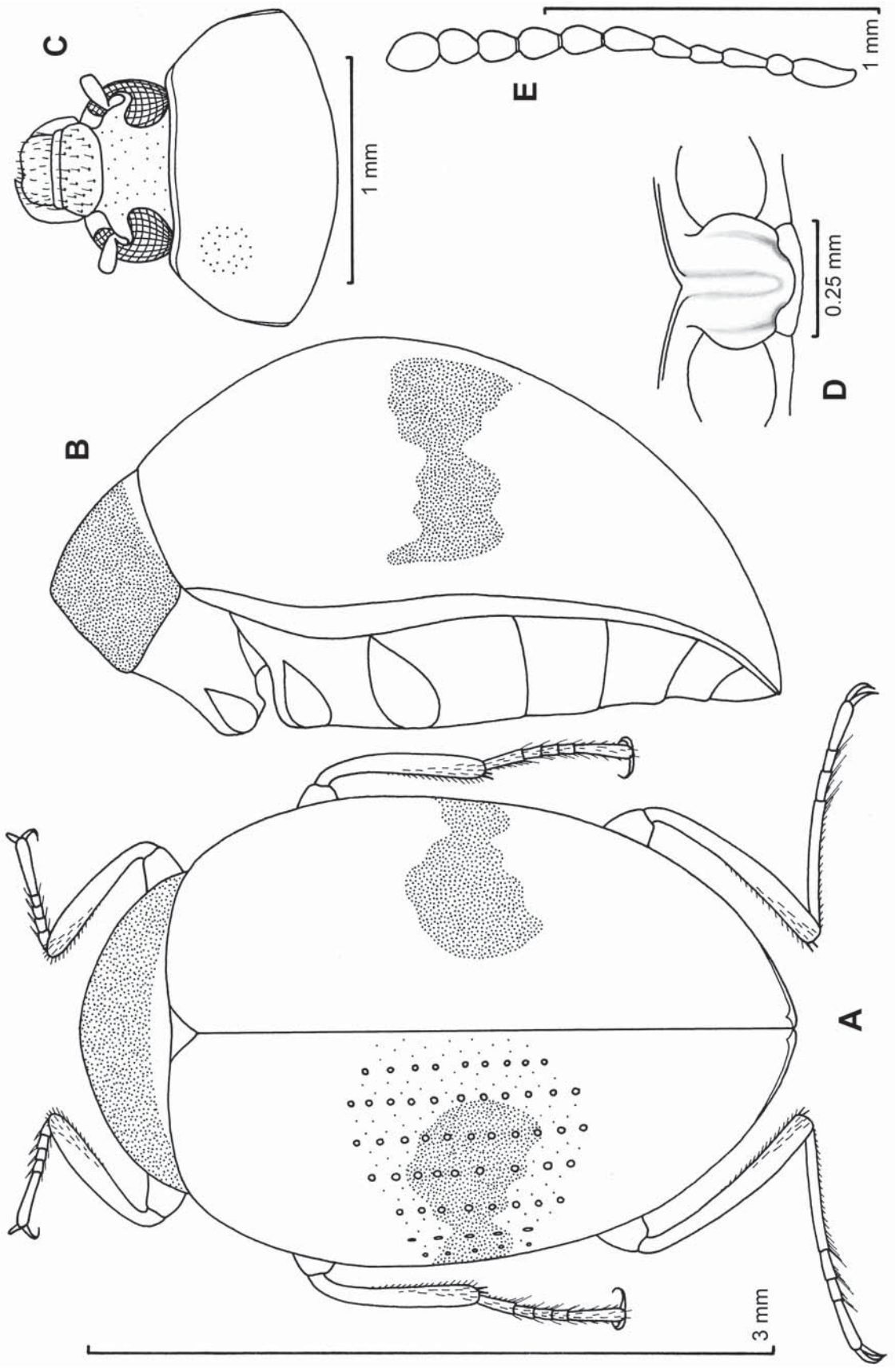


Fig. 21. *Amarygmus coccinelloides* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

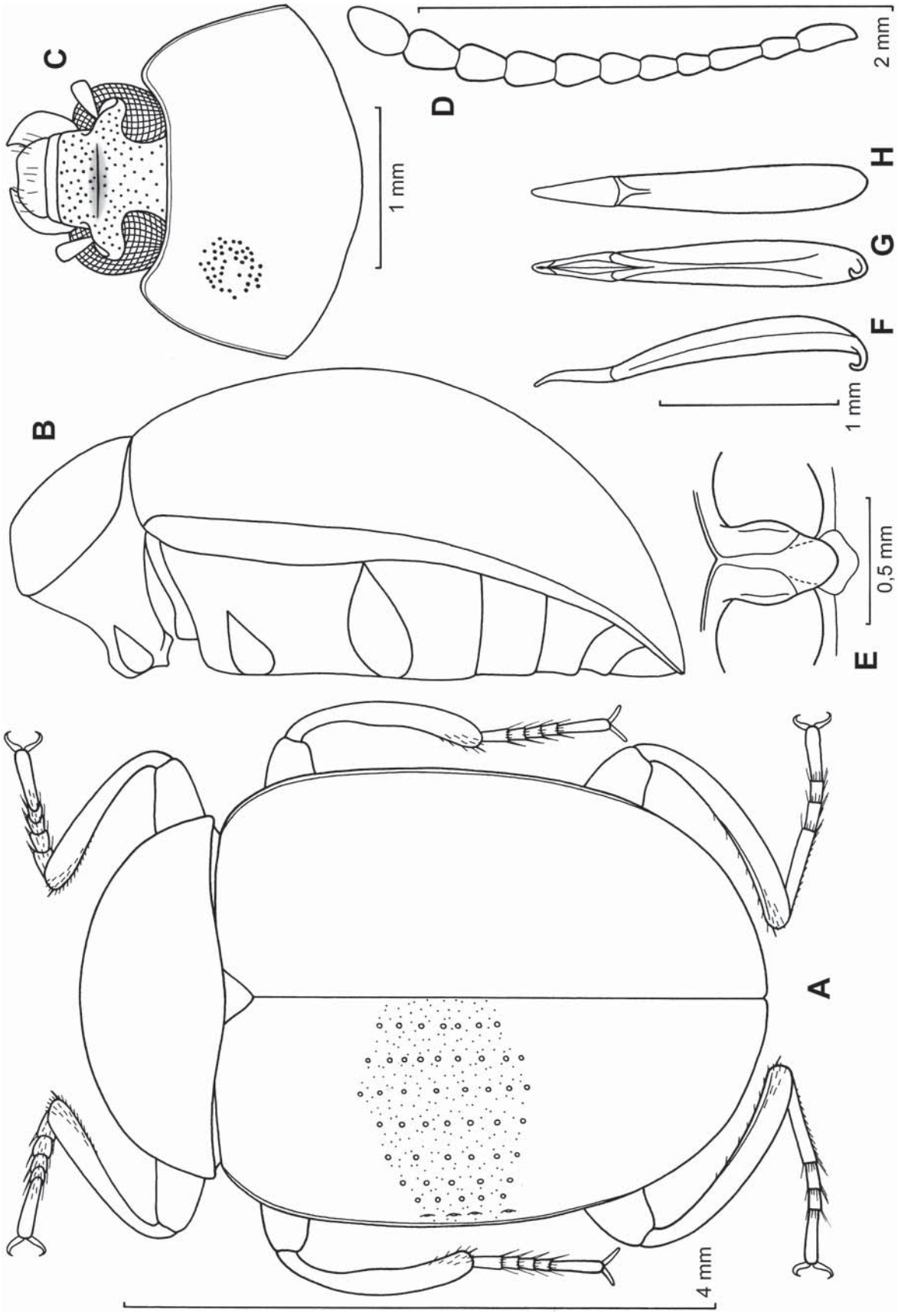


Fig. 22. *Amarygmus cyamias* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Antenna. **E** Prosternal apophysis. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

but *A. cyaneicollis* has a blue pronotum, is larger (body length 5.02–5.57 mm), and the punctures of the elytral intervals are less closely set.

Description

Measurements: Body length 4.36 mm; body width 2.80 mm. – Ratios: Pronotum: width/length 1.93; width hind corners/width front corners 1.70. Elytra: length/width 1.26; length elytra/length pronotum 3.14; maximum width elytra/maximum width pronotum 1.29.

Colouration: Upperside with strong lustre; ground colour green, but – according to the direction of light – reflecting violet, golden, or blue. Legs blackish brown. Antennae black. Underside dark brown to black, lustrous.

Head: Frons wide, twice as wide as length of antennomere 3, irregularly covered with small punctures. Genae slightly raised, anteriorly terminating in front of the middle part of the fronto-clypeal suture. Middle part of the fronto-clypeal suture straight, slightly incised. Clypeus stretched forwards, slightly convex transversely and longitudinally. Clypeus and frons with small punctures. Mentum reversely trapezoidal, with wide, flat lateral margins, space in between transversely convex, opaque. Underside of neck with closely set, medium-sized punctures. Mandibles on their outer surface with a sulcus, apically bifid.

Pronotum: Markedly convex transversely, slightly convex longitudinally. Lateral margins narrowing anteriorly, straight in the posterior three-fifths, bent in the anterior two-fifths. Anterior margin slightly excavated. Front corners rounded. Lateral margins continuously bordered, border of anterior margin weakened in its middle. Lateral borders in dorsal view narrowly visible. Front corners in lateral view rounded, slightly obtuse, hind corners angular, slightly obtuse. Surface with small, distinct and rather closely set punctures.

Scutellum: Triangular, with some minute punctures.

Elytra: Oval, markedly convex transversely and longitudinally. Maximum height and width in the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view only visible in the middle. With rows of small punctures; distance between punctures on disc in row 4 about 3–5 times diameter of a puncture; about 20 punctures in row 4. Intervals flat on the disc and laterally, with minute, widely separated punctures.

Prosternum: Anterior margin narrowly bent upwards, in its middle with a short keel. Apophysis half-elliptical, margins along procoxae only slightly widened, space in between with a deep groove.

Mesosternum: Hind part small, short; anterior margin deeply excavated.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Borders behind mesocoxae with coarse punctures. Disc with minute, sparse punctures. Median line neither incised nor depressed.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, distinctly bordered; inner part of this border with medium-sized longitudinal punctures; margins behind metacoxae with coarse punctures. Sternites with widely separated, minute punctures. Sternite 5 apicomedially slightly depressed in male.

Antennae: Short, reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 11:6 / 5½:5 / 12:4½ / 7:5 / 8:5½ / 8:6 / 8:7½ / 9:8 / 10:8½ / 9:8½ / 14:8½.

Legs: Short. Femora thickened towards the second third. Protibiae slightly bent. Mesotibiae very strongly bent. Metatibiae somewhat less bent than mesotibiae. Protarsomeres 1–3 not widened in male. Lengths of protarsomeres 1–5 as 5:5:5:5:19, lengths of mesotarsomeres 1–5 as 7:6:4:4:19, lengths of metatarsomeres 1–4 as 23:9:6:19.

Aedeagus: See Fig. 22F–H.

Amarygmus cyaneicollis **n. sp.**
(Fig. 23A–E)

Holotype (♂): Borneo, Sabah, Tawau Hills Park, Tawau river, 8.VI.1998, leg. Kodada & Čiampor (SMNS).

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

Etymology

Cyaneus (Lat.) = sea-blue; collis = elevation, in insects also pronotum.

Diagnosis

Small, oval, strongly convex. Elytra with rows of medium-sized, widely separated punctures; intervals of elytra flat, impunctate. Frons rather wide. Antennae of medium length, in males markedly longer than in females. Upperside lustrous, frons and pronotum sea-blue, elytra greenish blue. Underside bare in males.

A. cyaneicollis has a similarly wide frons as *A. cyamias* n. sp. On the differences between the two species see the diagnosis of *A. cyamias*.

Similar in size, shape and colour is also *A. splendidulus* (Fabricius, 1801) (redescribed and illustrated in Bremer 2005b: 52–54), but *A. splendidulus* has a markedly narrower frons than *A. cyaneicollis*, and the front corners of the pronotum are not pointed.

A. dryatidis Bremer, 2004 (Bremer 2004a: 44, fig. 27) from the Malayan Peninsula is also similar in length, shape and colour. However, the frons of *A. dryatidis* is narrower than in *A. cyaneicollis*, and the male metatibiae are abruptly bent in the middle.

Also *A. delicatulus* n. sp. from Sabah is similar in shape and size, but in this species the frons is markedly narrower than in *A. cyaneicollis*, the fronto-clypeal suture is deeper incised, and the elytra are more colourful.

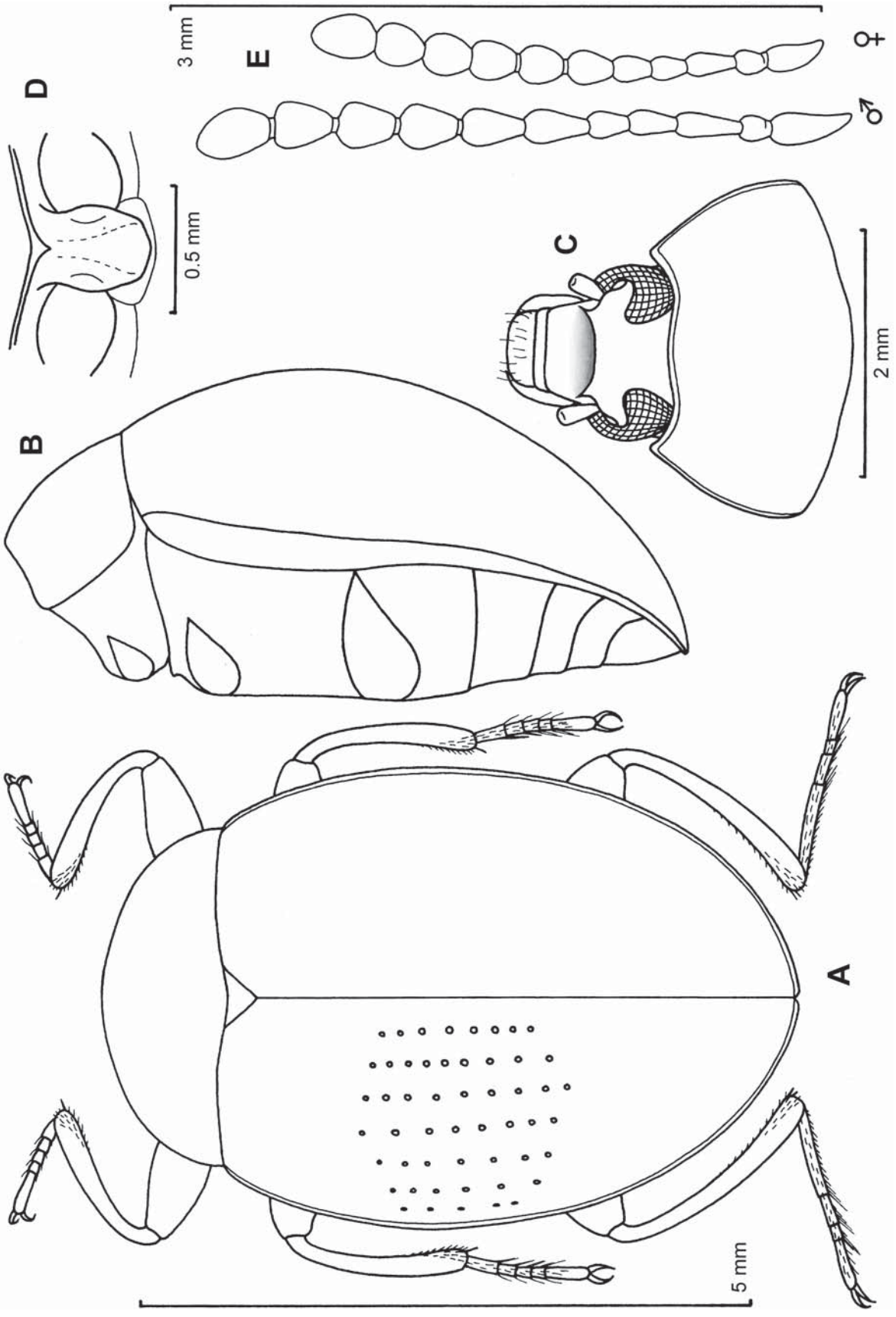


Fig. 23. *Amarygmus cyaneicollis* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀.

Description

M e a s u r e m e n t s : Body length 5.02–5.57 mm; body width 3.33–3.62 mm. – Ratios: Pronotum: width/length 1.94–2.05; width hind corners/width front corners 1.68–1.77. Elytra: length/width 1.20–1.25; length elytra/length pronotum 3.29–3.59; maximum width elytra/maximum width pronotum 1.37–1.44.

C o l o u r a t i o n : Upperside lustrous. Head and pronotum sea-blue. Elytra greenish blue to coppery. Underside brown. Femora light brown, tibiae and tarsi brown. Antennomeres 1–5 brown, 6–11 black (antennomere 11 apically brightened).

H e a d : Frons of medium width, as wide as combined length of antennomeres 3+4. Genae somewhat raised, anteriorly terminating at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture distinctly incised. Clypeus stretched forwards, slightly convex transversely and longitudinally. Clypeus and frons with widely separated, minute punctures; some clypeal punctures are origin of very short, tender hairs. Mentum reversely trapezoidal, sides slightly bent and with a rounded transition between sides and base; lustrous in its middle and somewhat convex transversely. Underside of neck with closely set, coarse punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Wide, short, markedly convex transversely, less convex longitudinally. Lateral margins narrowing anteriorly, bent in their hind part, more straight in their front part. Front corners pointed, acute-angled. 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 angular, front corners acute-angled, hind ones obtuse. Surface with very small, widely separated punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Oval, short, markedly convex. Maximum height and width somewhat anterior to the middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view very narrowly visible over their whole length. With rows of medium-sized punctures; distance between punctures on disc in row 4 about 3–4 times diameter of a puncture; about 19 punctures in row 4. Intervals flat, impunctate.

P r o s t e r n u m : Anterior margin narrowly bent upwards, retracted towards apophysis in the middle, forming an obtuse angle. Apophysis oblong, oval, margins raised along coxae, space in between with a wide, deep groove; apophysis rounded apically, with a truncately raised keel in the middle.

M e s o s t e r n u m : Hind part short, wide; anterior margin deeply excavated in its middle.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, bordered, behind this border with some medium-sized punctures. Disc somewhat convex, with a few very small punctures. Median line shallowly incised.

S t e r n i t e s : Opaque. Anterior margin of sternite 1 between metacoxae widely ogival. Sternites impunctate.

A n t e n n a e : Of medium length, reaching to anterior third of elytra in males, markedly shorter in females. Length/width ratio of antennomeres 1–11 in male equals to 13:8 / 8:6 / 16:6 / 10:6 / 11:7 / 14:9 / 14:9 / 14:10 / 15:10 / 14:10 / 18:10, in female to 10:6½ / 7:5 / 10½:5 / 7:5½ / 8:6 / 10:8 / 11:9 / 11:9 / 12:9 / 11:9 / 15:9.

L e g s : Short. Femora thickened towards the second third. Pro- and mesotibiae somewhat thickened anteriorly. Protibiae straight, meso- and metatibiae somewhat bent. Protarsomeres 1–3 not widened in males. Lengths of protarsomeres 1–5 as 4:4:4:4:20, lengths of mesotarsomeres 1–5 as 11:6:5:5:20, lengths of metatarsomeres 1–4 as 30:11:8:19.

Amarygmus cyclaeus **n. sp.**
(Fig. 24A–H)

H o l o t y p e (♀): Borneo, Sabah, S Keningau, 350 m, 20.–22.III.2007, leg. W. Schawaller (SMNS).

P a r a t y p e s : Borneo, Malaysia, Sabah, Keningau, 300 m, 20.–22.III.2007, R. Grimm (1 ♀ CG). – Borneo, Malaysia, Sabah, Keningau, 300 m, 6.–7.II.2006, R. Grimm (1 ♀ ZSMB). – Malaysia, Borneo, Sarawak, Kuching, Reservoir Park, 50 m, 4.–5.III.2008, R. Grimm (1 ♂ CG). – Same data as before, but 22.III.2008 (1 ♂ CG, 2 ♂♂ ZSMB). – Same data as before , but 21.–22.III.2009 (2 ♂♂ CG, 1 ♂ ZSMB). – Same data as before, but 8.IV.2009 (1 ♂ CG).

Circumstances of collection: On tree bark in parks, at night.

Etymology

Cyclaeus (Lat.) = bulgy.

Diagnosis

Small, with laterally clearly rounded elytra and a short, wide pronotum. Elytra with rows of small punctures, intervals flat and with minute punctures, upperside copper-coloured. Frons of medium width, eyes very large, fronto-clypeal suture situated just anterior to the eyes; antennae short, in males longer than in females. Pro- and mesotarsomeres 1–3 slightly widened in males, laterally with erect hairs.

The same size, the same colouration, and a similar structure of the elytra are present in *A. vilis* n. sp. from Sabah. However, *A. cyclaeus* has the elytra more convex laterally, the maximum width of the elytra anterior to the middle (at the anterior third in *A. vilis*), the frons somewhat wider, the fronto-clypeal suture situated just anterior to the eyes (in *A. vilis* in some distance to the eyes), and the metatibiae more strongly bent.

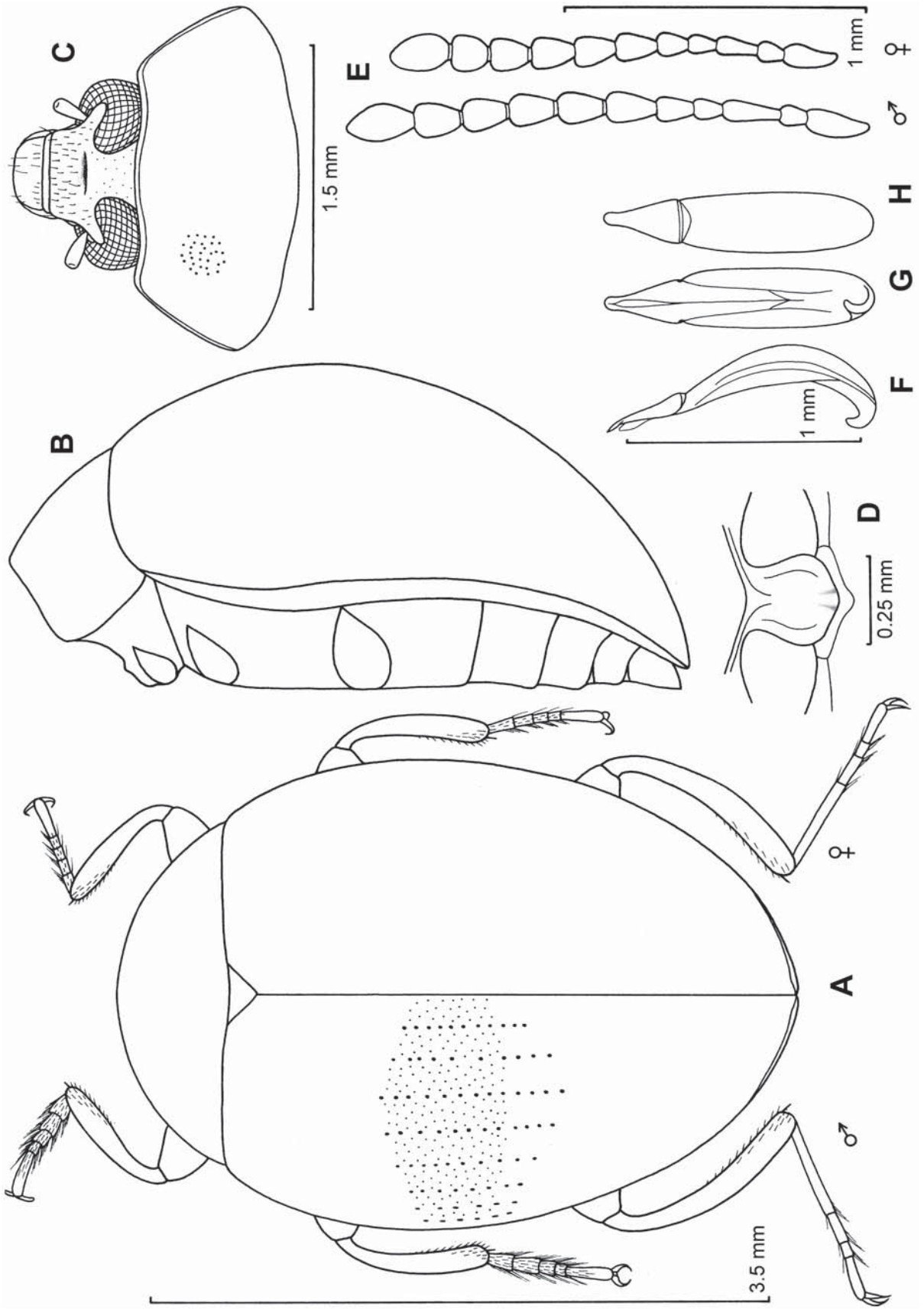


Fig. 24. *Amarygmus cyclaeus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Description

Measurements: Body length 3.66–4.05 mm; body width 2.33–2.61 mm. – Ratios: Pronotum: width/length 2.13–2.33; width hind corners/width front corners 1.67–1.72. Elytra: length/width 1.25–1.33; length elytra/length pronotum 3.48–3.69; maximum width elytra/maximum width pronotum 1.24–1.37.

Colouration: Upperside coppery, lustrous. Legs brown. Antennomeres 1–5 light brown, 6–11 black (antennomere 11 apically brightened). Underside brown, lustrous.

Head: Frons of medium width, approximately as wide as combined length of antennomeres 3+4, descending to fronto-clypeal suture. Genae narrow, slightly raised, anterolaterally enclosed by the large eyes, anteriorly terminating just in front of the middle part of the fronto-clypeal suture. Fronto-clypeal suture widely and markedly depressed, slightly incised in its middle part, scarcely incised in its lateral parts, the middle part situated just in front of the eyes. Clypeus stretched forwards, convex longitudinally, with small hairs. Clypeus and frons with small, not very closely set punctures. Mentum reversely trapezoidal, lateral margins wide, lustrous, flat, space in between transversely convex. Underside of neck with some small punctures. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Wide, short, markedly and uniformly convex transversely, only slightly convex longitudinally. Lateral margins narrowing anteriorly, bent. Front corners rounded; hind corners angular, obtuse. Anterior margin somewhat excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view visible over their whole length. Front and hind corners in lateral view obtuse. Surface with small, shallow, not very closely set punctures.

Scutellum: Triangular, with some minute punctures.

Elytra: Short, strongly convex longitudinally and transversely, lateral surface bulgy. Maximum width and height just anterior to the middle. Shoulders indistinct. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible only in the hind third. With rows of small punctures; distance between punctures on disc in row 4 about 2 times diameter of a puncture; about 30 punctures in row 4. Intervals flat, with minute, not very closely set punctures.

Prosternum: Anterior margin narrowly bent upwards, in its middle with a short triangular process towards apophysis. Apophysis wide, flat, drop-shaped, with the maximum width behind coxae.

Mesosternum: Hind part short, wide, slightly grooved laterally; anterior margin widely excavated in the middle.

Metasternum: Anterior margin between mesocoxae rounded, broadly bordered. Disc anteriorly with some shallow, small punctures, posteriorly impunctate. Median line neither depressed nor incised.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, faintly bordered. Sternites with a few very widely separated, minute punctures. Sternite 5 apicomedially strongly depressed in males.

Antennae: Short, reaching over base of elytra by about 1–2 antennomeres. Length/width ratio of antennomeres 1–11 in female equals to 10:4 / 5:3½ / 7:3 / 3½:3½ / 4½:4 / 5:5 / 6:5 / 6:5 / 6:5 / 6:5½ / 9:6, in male to 10:4 / 5:3½ / 9:3½ / 5:4 / 6:4½ / 7:5 / 8:5 / 8:5½ / 8:5½ / 8:5½ / 11:6.

Legs: Short. Femora thickened towards the second third. Protibiae slightly bent basally, straight anteriorly; meso- and metatibiae bent. Lengths of protarsomeres 1–5 in male as 4:3:3:3:12, lengths of mesotarsomeres 1–5 as 8:4:3:3:12, lengths of metatarsomeres 1–4 as 26:8:4:12.

Aedeagus: See Fig. 24F–H.

Amarygmus delicatulus **n. sp.**
(Fig. 25A–E)

Holotype (♀): Keningau, Sabah, N Borneo, 25.V.1989, M. Itoh (CA).

Paratype: Same data as holotype, but 27.V.1989 (1 sex not determined ZSMB).

Etymology

Delicatulus (Lat.), comparative of delicatus.

Diagnosis

Small, oval. Elytra markedly convex, with rows of very small, round, widely separated punctures. Fronto-clypeal suture very deeply incised, groove-like, frons rather narrow, antennae not very long. Metatarsomere 1 very long. Elytra very lustrous, iridescent colours blue, green, golden, and violet.

The common *A. splendidulus* (Fabricius, 1801) (redescribed in Bremer 2005b: 52–54) is very similar to *A. delicatulus* in shape, colouration, and width of frons, but the fronto-clypeal suture of *A. splendidulus* is less incised, and the punctures of the elytral rows are larger and closer set.

A. diversetinctus Pic, 1925 from Java (redescribed in Bremer 2004a: 22) is similar to *A. delicatulus* in shape, colouration, the groove-like fronto-clypeal suture, and the small punctures of the elytral rows. However, in *A. diversetinctus* the elytra and the distance between the punctures of the elytral rows are narrower, and the frons is wider.

A. voluptabilis Bremer, 2006 from Sabah (Bremer 2006a: 30–33) also resembles *A. delicatulus*. In *A. voluptabilis* the punctures of the elytral rows are oblong (round in *A. delicatulus*) and the frons is wider.

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

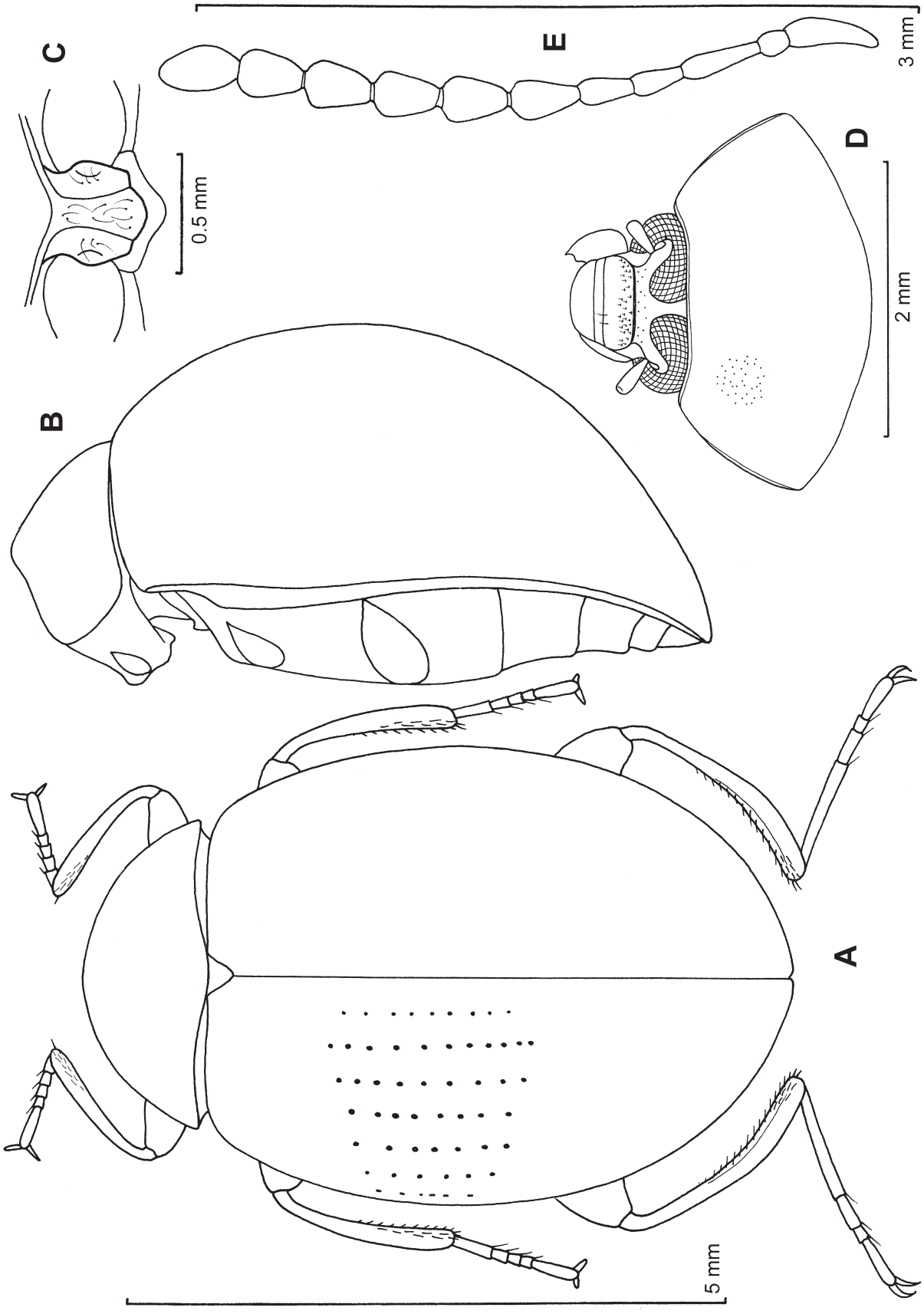


Fig. 25. *Amarygmus delicatulus* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Prosternal apophysis. **D** Head and pronotum. **E** Antenna.

Description

Measurements: Body length 5.49+5.65 mm; body width 3.60+3.80 mm. – Ratios: Pronotum: width/length 2.17+2.24; width hind corners/width front corners 1.78+1.83. Elytra: length/width 1.26+1.30; length elytra/length pronotum 4.06+4.07; maximum width elytra/maximum width pronotum 1.40+1.45.

Colouration: Upperside brilliant. Frons and pronotum blue. Clypeus brown. Elytra bluish green (in oblique view from the front the shoulders and partially the front part of the elytra reflect violet or golden). Legs and antennae brown. Underside brown.

Head: Frons narrow, its width equivalent to the length of antennomere 2. Genae narrow, slightly raised. Fronto-clypeal suture deeply incised in its whole width. Clypeus rather short, longitudinally clearly convex, transversely less convex, with small, not very closely set punctures; punctures on frons more widely separated and smaller than those on clypeus. Mentum reversely trapezoidal, lateral margins broad, flat, lustrous; space in between opaque, moderately convex transversely. Mandibles on their outer surface with a sulcus, apically bifid.

Pronotum: Wide, not very strongly convex transversely, slightly convex longitudinally. Lateral margins narrowing anteriorly, bent. Anterior margin slightly excavated. Lateral and anterior margins continuously bordered; front corners and borders behind the front corners not visible in dorsal view. Front corners in lateral view rounded, hind corners more angular and more obtuse-angled than front corners. Surface with tiny, widely separated punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, rather short, markedly convex transversely and longitudinally. Maximum height and width in the middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view visible only posteriorly. With rows of small, very widely separated punctures; distance between punctures on disc 3–4 times diameter of a puncture; about 18–20 punctures in row 4. Intervals flat, with tiny, widely separated punctures (visible at 50-fold magnification).

Prosternum: Anterior margin narrowly bent upwards laterally; a relatively wide, low keel emerging from the middle of the anterior margin, extending across the whole apophysis. Lateral margins of apophysis somewhat widened and raised along coxae, space in between like a wide, shallow trough; margins behind coxae narrowing. Apophysis widely rounded apically, with irregularly set, moderately long, erect, tender hairs.

Mesosternum: Hind part short, wide; anterior margin widely but not deeply excavated in the middle, posterior to this excavation with a slightly depressed, smooth area; with some moderately long hairs laterally.

Metasternum: Slightly opaque. Anterior margin between mesocoxae widely rounded, with a thick border. Anterior part of disc with indistinct, medium-sized, not very closely set punctures; posterior part with minute punctures and short, semi-erect hairs which originate from these punctures. Median line very slightly incised.

Sternites: Opaque, strongly microreticulated. Anterior margin of sternite 1 between metacoxae widely ogival, with a thick border. Sternites 1 and 2 with some faint wrinkles, sternites 3–5 with a few tiny punctures.

Antennae: Short, reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 16:6 / 6:5½ / 14:5 / 11:5 / 11:5½ / 13:8 / 14:8½ / 15:9 / 14:9 / 13:9 / 17:9.

Legs: Short. Femora thickened towards the second third. Protibiae straight; mesotibiae slightly bent; metatibiae distinctly bent. Lengths of protarsomeres 1–5 as 4:4:4:4:19, lengths of mesotarsomeres 1–5 as 14:8:5:4:19, lengths of metatarsomeres 1–4 as 39:15:5:18.

Amarygmus disgregatus **n. sp.**
(Fig. 26A–I)

Holotype (♂): Borneo, Sabah, Mt. Kinab[alu] NP, Por[ing], H. S. Area, Eastern Ridge Tr[ail], 790 m, 16.VIII. [19]88, A. Smetana (B116) (MHNG).

Paratypes: Borneo, Sarawak, Bako NP, 5.V.2000, M. Vyklický leg. (1 ♂ SSB, 1 ♀ ZSMB). – Malaysia, Borneo, Sarawak, Kubah NP, 250 m, 6.–8.III.2008, R. Grimm (1 ♂ CG, 1 ♂ ZSMB, 1 ♀ CG). – Borneo, Malaysia, Sarawak, Kubah NP nr. HQ, 100–300 m, 15.–18.IX.2008, R. Grimm (1 ♀ CG). – Borneo, Malaysia, Sarawak, Kubah NP, HQ vic., 100–300 m, 27.–28.III.2009, R. Grimm (1 ♂ ZSMB, 1 ♀ CG). – Malaysia, Borneo, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 20–150 m, 13.–15.III.2008, R. Grimm (1 ♂ CG). – Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 10–200 m, 11.–14.IX.2008, R. Grimm (1 ♀ CG). – Same data as before, but 4.–8.IV.2009 (1 ♀ CG). – Malaysia, Borneo, Sarawak, NW Kuching, Matang Wildlife Centre, 50–100 m, 16.–17.III.2008, R. Grimm (1 ♀ CG, 1 ♀ ZSMB). – Borneo, Malaysia, Sarawak, Gunung Gading NP, 100–300 m, 23.–29.IX.2008, R. Grimm (2 ♀♀ CG). – Same data as before, but 31.III.–4.IV.2009 (2 ♂♂, 2 ♀♀ CG; 1 ♀ ZSMB).

Circumstances of collection: On tree bark in lowland primary forest, at night.

Etymology

Disgregatus (Lat.) = separated.

Diagnosis

Small, oval. Males with long, closely set hairs on front of profemora, back of mesofemora, prosternal apophysis, and mesosternum. Hind corners of pronotum widely rounded. Elytra with incised striae with large punctures; intervals convex. Pronotum and lateral parts of elytra blue or violet, disc of elytra coppery, femora and tibiae black [a differently coloured variety (from Sarawak, Kubah NP, 6.–8.III.2008) has a dark violet pronotum, dark violet elytral sides, yellowish brown femora and black tibiae].

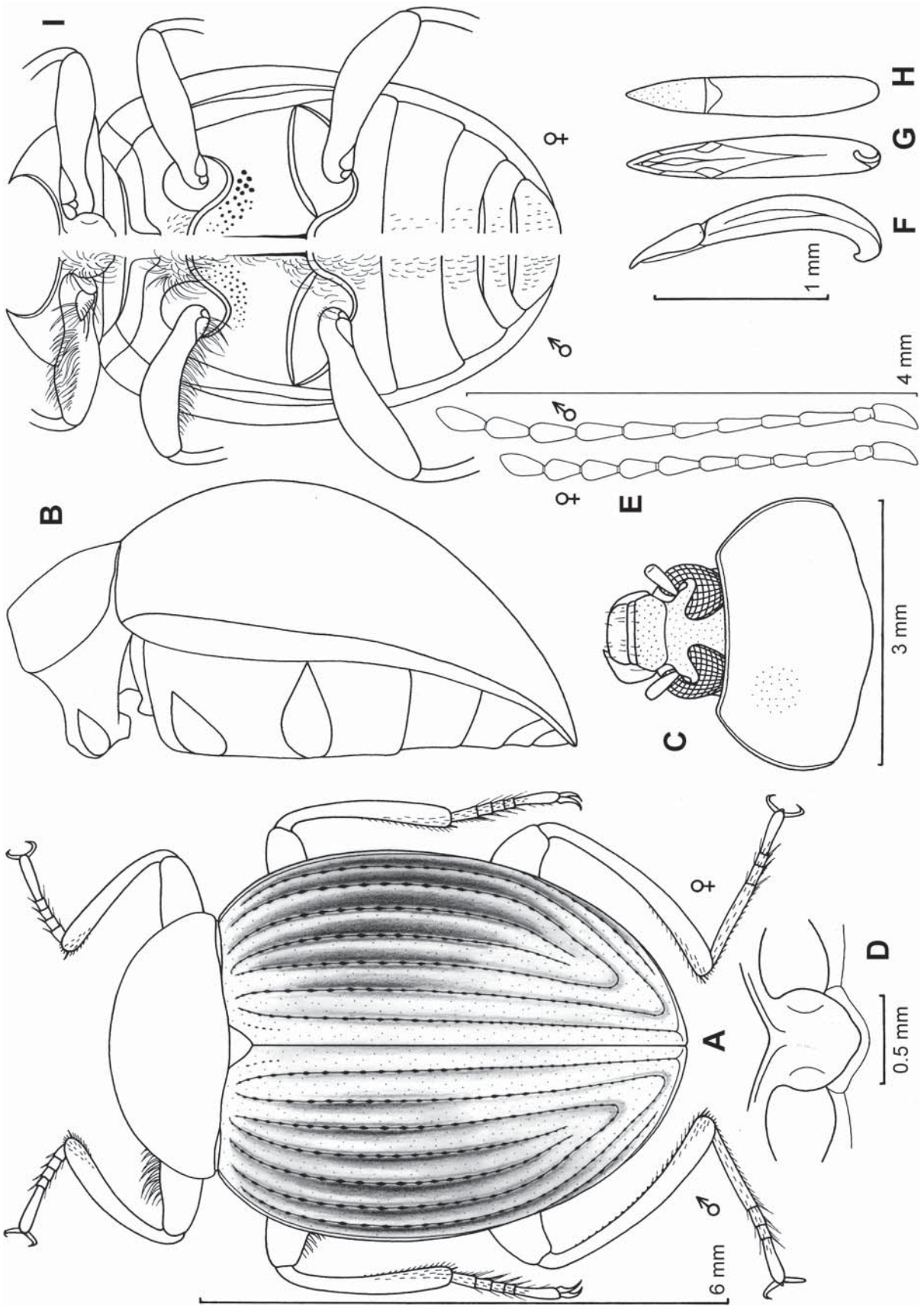


Fig. 26. *Amarygmus disgregatus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis, ♀. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view. **I** Body, ventral view; left side ♂, right side ♀.

Because of the male sexual characters and the shape of the body *A. disgregatus* belongs to a species group near *A. postdepressus* Pic, 1938 (redescribed in Bremer 2004a: 29–31, fig. 16). The widely rounded hind corners of the pronotum especially resemble *A. crockeri* Bremer, 2004 (Bremer 2004e: 111–113) and *A. novior* n. sp.

A. crockeri is larger than *A. disgregatus* (body length 7.01–7.64 mm), the upperside is uniformly copper-coloured, and the elytra are longer.

A. novior has about the same size and shape as *A. disgregatus*, but *A. novior* neither shows a blue or violet pronotum nor blue or violet shoulders of the elytra, and the frons is somewhat wider.

A. postdepressus is usually larger than *A. disgregatus*, but the colouration of the upperside is uniformly black or copper-coloured (and with a markedly stronger lustre than in *A. disgregatus*), and the hind corners of the pronotum of are either angled or only very weakly rounded.

Description

M e a s u r e m e n t s : Body length 6.05–7.01 mm; body width 3.38–4.50 mm. – Ratios: Pronotum: width/length 1.86–2.03; maximum width hind corners/width front corners 1.75–1.93. Elytra: length/width 1.22–1.29; length elytra/length pronotum 3.24–3.63; maximum width elytra/maximum width pronotum 1.41–1.51.

C o l o u r a t i o n : Pronotum and frons blue, violet or green, lustrous; clypeus black. Lateral parts of elytra including shoulders blue or violet, disc copper-coloured. Prosternum and mesosternum brown, metasternum and sternites black. Femora and tibiae black, tarsi brown. Antennomeres 1–6 brown, 7–11 black (antennomere 11 apically brightened). Hairs light. For colour variety see diagnosis.

H e a d : Upperside slightly opaque. Frons of medium width, markedly narrower than length of antennomere 4 (like 14 : 19). Genae short, anteriorly terminating behind the middle part of the fronto-clypeal suture. Fronto-clypeal suture straight, slightly incised in its middle part, not incised laterally. Clypeus stretched forwards, slightly convex longitudinally, lateral margins slightly bent; with very small, widely separated punctures and very short hairs originating from these punctures. Punctures of frons smaller and more widely separated than those of clypeus. Mentum reversely trapezoidal, with wide, flat, lustrous lateral margins, space in between transversely convex, less lustrous than lateral margins. Underside of neck with medium-sized, closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Wide, convex transversely, less convex longitudinally. Maximum width somewhat behind the middle. Margins narrowing and bent towards the widely rounded hind corners, less convergent towards the front corners. Anterior margin slightly excavated. Front corners in dorsal view rounded. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible over their whole length. Front corners in lateral view slightly angular, obtuse; hind corners widely rounded and more obtuse than front corners. Surface with very small, widely separated punctures.

S c u t e l l u m : Triangular, with a few tiny punctures.

E l y t r a : Widely oval, short, convex transversely and longitudinally. Maximum width and height anterior to the middle, posteriorly gently descending towards apex. Lateral margins convergent towards shoulders. Apices of elytra mutually rounded. Lateral edges in dorsal view visible over their whole length. With distinctly incised striae with large punctures which are slightly wider than a stria; distance between punctures on disc in row 4 equal to the diameter of a puncture; about 22 punctures in stria 4. Intervals convex on disc, with tiny, widely separated punctures.

P r o s t e r n u m : Anterior margin continuously and narrowly bent upwards, retracted towards apophysis and acute-angled in its middle. Apophysis wide, laterally rounded, margins along coxae somewhat bent upwards, space in between slightly depressed; in females apophysis with some hairs of medium length, in males with long, erect, very dense hairs which cover the entire apophysis.

M e s o s t e r n u m : Hind part very short, wide; anterior margin shallowly excavated in its middle; in females with some hairs of medium length, in males with long, dense erect hairs like on the prosternal apophysis.

M e t a s t e r n u m : Anterior half of disc with closely set punctures of medium size, posterior half with very small punctures; a few very short (females) or long (males) hairs are originating from these punctures. Median line slightly depressed in its posterior part.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae widely ogival, with a thick border. Sternites nearly impunctate, in females with tiny hairs, in males with some hairs of medium length. Sternite 5 apicomedially neither depressed nor excavated, with some nearly recumbent hairs of medium length.

A n t e n n a e : Rather long, reaching to about middle of elytra in males, somewhat shorter in females. Length/width ratio of antennomeres 1–11 in male equals to 21:9 / 9:7 / 24:6 / 19:6½ / 20:7 / 18:7 / 20:9½ / 21:9½ / 19:9½ / 17:9½ / 22:10, in female to 20:7½ / 9:6½ / 20:6 / 15:6 / 17:6 / 15:6 / 18:8½ / 17:9 / 16:9½ / 16:9½ / 21:10.

L e g s : Short. Femora thickened towards the second third; front of profemora and back of mesofemora in the basal two-thirds with very dense, long hairs in males; in females without hairs. Protibiae somewhat bent; mesotibiae less bent than protibiae; metatibiae rather long, markedly bent, in males on inner side with small tubercles in the basal half, somewhat widened in the apical half, females without these modifications. Protarsomeres 1–3

not widened in males. Lengths of protarsomeres 1–5 as 6:6:6:6:26, lengths of mesotarsomeres 1–5 as 13:9:7:6:26, lengths of metatarsomeres 1–4 as 36:12:8:26.

Aedeagus: See Fig. 26G–I.

Amarygmus emasensis **n. sp.**
(Fig. 27A–H)

Holotype (♂): Malaysia, Sabah, Gunung Emas, 15.–17.IV.1993, M. Štrba, J. Jeniš leg. (ZSMB).

Circumstances of collection: Mountainous primary forest (no further information).

Etymology

Emasensis, derived from the collection site of the holotype "Gunung Emas".

Diagnosis

Large, oblong, relatively narrow. Elytra long, lateral margins nearly straight from shoulders to posterior third, with superficial striae with slight rhombic widenings, intervals flat. Frons narrow; antennae short. Upperside brown, slightly lustrous.

Amarygmus emasensis n. sp. belongs to a group of species which formerly was assigned to the genus *Elixota*. Within this group, it shows some similarity to *A. blanchardi* Bremer, 2001, *A. muluensis* n. sp., and in particular to *A. macer* (Gebien, 1927) from Sabah. *A. macer*, which probably occurs at lower altitudes than *A. emasensis*, differs from *A. emasensis* in the wider frons, the rows of slightly elongate punctures on the elytra, and the shorter antenna.

Striae with rhombic widenings are also found in *A. hassalti* Fairmaire, 1882 from Borneo and in *A. muluensis* from Sarawak. *A. hassalti* has (although oblong) a more voluminous body than *A. emasensis*, its frons is slightly wider, the males have a swelling on the inner side of the mesotibiae, and the male mesotibiae are markedly bent on the outer side. The elytra of *A. muluensis* are shorter than in *A. emasensis* (elytral length/width 1.55 : 1), the punctures of the elytral striae are larger than the puncture equivalents of *A. emasensis*, the antennae are shorter, and the frons is wider.

Description

Measurements: Body length 10.11 mm; body width 4.22 mm. – Ratios: Pronotum: width/length 1.77; width hind corners/width front corners 1.74. Elytra: length/width 1.81; length elytra/length pronotum 3.69; maximum width elytra/maximum width pronotum 1.15.

Colouration: Upperside brown, slightly lustrous. Femora brown, tibiae dark brown, tarsi brown. Antennomeres 1–3 brown, 4–11 black (apical third of antennomere 11 yellowish brightened).

Head: Frons relatively narrow, nearly as wide as length of antennomere 2. Eyes very large. Genae slightly raised, anteriorly terminating in front of the middle part of the fronto-clypeal suture. Fronto-clypeal suture depressed, slightly incised, situated just in front of the eyes. Clypeus short. Clypeus and frons with minute, relatively closely set punctures. Mentum reversely trapezoidal, lateral margins wide, flat, lustrous, middle part in between opaque and convex transversely. Underside of neck with small, closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Narrow, markedly convex transversely, slightly convex longitudinally. Widest at base, narrowing towards front corners and bent. Front corners not projecting, hind corners angular and clearly obtuse. Anterior margin slightly excavated. Lateral and anterior margins continuously bordered, lateral borders narrowly visible in dorsal view. Front and hind corners in lateral view slightly obtuse and angular. Surface with minute, irregularly set punctures.

Scutellum: Triangular, impunctate.

Elytra: Oblong, strongly convex transversely, less convex longitudinally, nearly straight margins between shoulders and the posterior third. Maximum height approximately in the middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible in the anterior two-thirds. With faint, scarcely incised striae with small rhombic widenings similar to punctures; distance between widenings in stria 4 equal to the diameter of a widening. Intervals flat, with tiny, widely separated punctures.

Prosternum: Anterior margin continuously bent upwards, somewhat retracted towards apophysis in the middle. Apophysis narrow, rising ventrad between anterior margin and area along procoxae, margins widened and markedly raised along coxae, median space in between with a deep, narrow groove; apophysis descending posteriorly behind coxae, margins behind coxae straight and somewhat narrowing; apophysis broadly pointed apically.

Mesosternum: Hind part narrow; lateral margins somewhat raised; anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae narrowly rounded, broadly bordered. Metasternum anteriorly with 2–3 rows of medium-sized punctures, posteriorly with tiny, sparse punctures. Median line markedly depressed on its whole length and somewhat incised.

Sternites: Anterior margin of sternite 1 between metacoxae narrowly ogival, indistinctly bordered. Discs of sternites with tiny, widely separated punctures. Sternite 5 apicomedially markedly depressed.

Antennae: Short, reaching to anterior third of elytra. Antennomere 11 asymmetrically rounded apically. Length/width ratio of antennomeres 1–11 equals to 15:8½ / 10:8 / 16:7½ / 13:9 / 14:11½ / 15:13 / 15:13 / 17:13 / 16½:13 / 18:13 / 24:13.

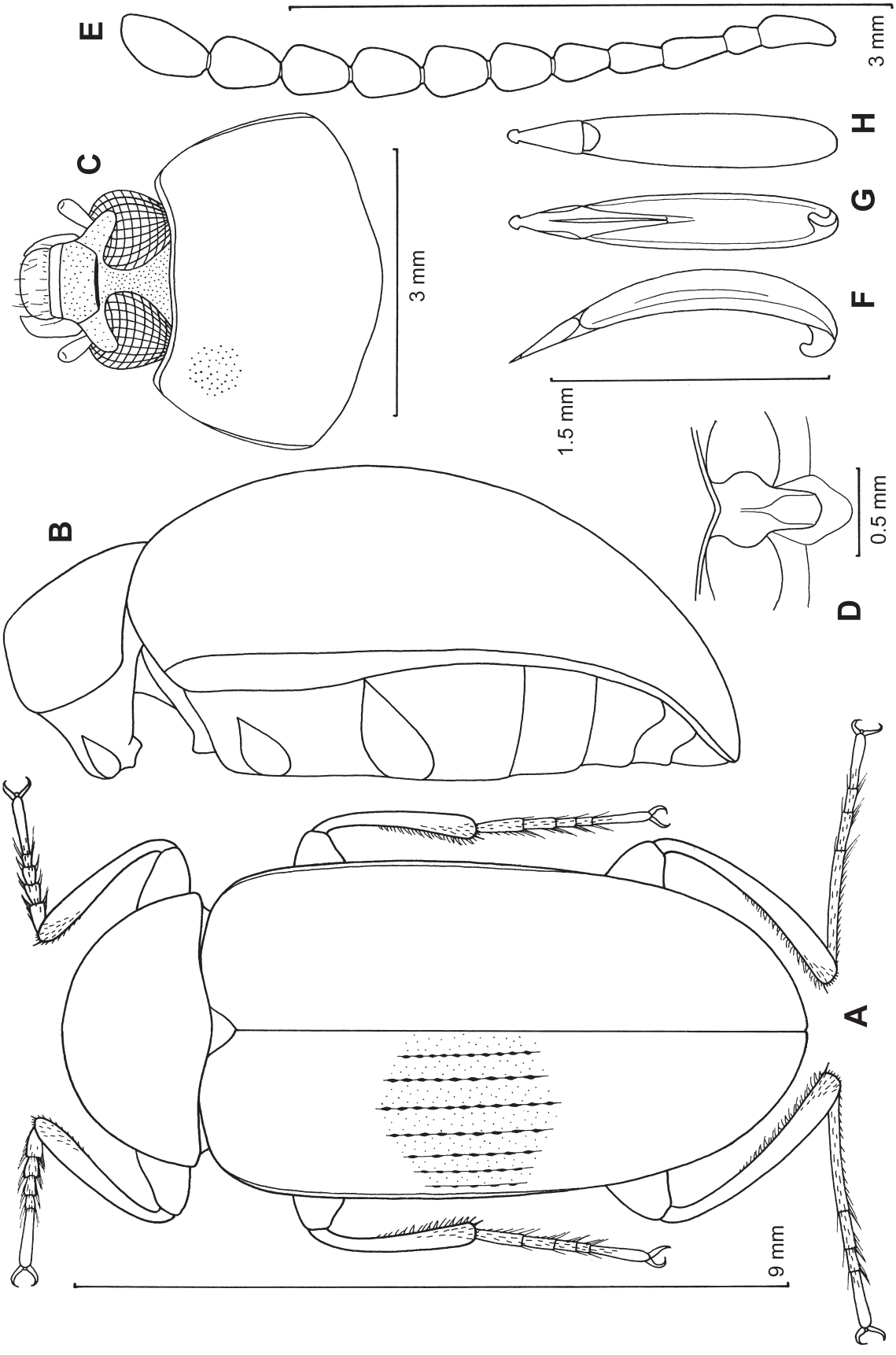


Fig. 27. *Amarygmus emasensis* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

L e g s : Short. Femora markedly thickened towards their second third. Pro- and mesotibiae slightly bent; protibiae on inner side in apical fifth with short semi-erect hairs, mesotibiae on inner side in apical half with semi-erect hairs of medium length. Metatibiae somewhat more bent than pro- and mesotibiae. Protarsomeres 1–3 slightly widened, with brush-like soles. Lengths of protarsomeres 1–5 as 12:11:12:9:36, lengths of mesotarsomeres 1–5 as 29:19:14:8:36, lengths of metatarsomeres 1–4 as 66:25:16:36.

A e d e a g u s : See Fig. 27F–H.

Amarygmus erilis **n. sp.**
(Fig. 28A–E)

H o l o t y p e (♀): Indonesia, 7.–22.IX.1997, South Kalimantan, Loksado, 1000 m, S. JÁKL leg. (SSB).

Etymology

Erilis (Lat.) = children of a household.

Diagnosis

Small, oblong, oval, strongly convex transversely and longitudinally, elytral iridescence with all colours of the spectrum. Elytra with slightly incised striae with relatively large, rhombic punctures; intervals flat on disc, slightly convex laterally, with very small, distinct punctures. Frons rather narrow, antennae long.

A similar species is *A. eureos* n. sp. (see below) from Borneo. *A. eureos* shows a nearly identical shape and a similar colouration, but has rows of large punctures instead of striae and the punctures separated by a wider distance. Also *A. inconditus* n. sp. shows some similarities (see diagnosis of this species).

Description

M e a s u r e m e n t s : Body length 5.47 mm; body width 3.27 mm. – Ratios: Pronotum: width/length 2.00; width hind corners/width front corners 1.74. Elytra: length/width 1.43; length elytra/length pronotum 3.65; maximum width elytra/maximum width pronotum 1.27.

C o l o u r a t i o n : Ground colour green, slightly lustrous. Upperside slightly microreticulated. Pronotum somewhat brighter than elytra; if light hits the pronotum in direction from the front there are no colourful reflections. Elytra – in contrast to the pronotum – with an intensive iridescence showing all colours of the spectrum. Tibiae black, tarsi dark brown. Antennomeres 1–7 brown, 8 dark brown, 9–11 black. Underside black.

H e a d : Frons very narrow, slightly convex longitudinally, approximately as wide as the diameter of antennomere 3. Genae very narrow, short, very slightly raised, anteriorly terminating behind the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture slightly incised in the middle, situated very near anterior to the edge of the eyes. Clypeus stretched forwards, slightly convex transversely, with small, rather closely set punctures; punctures of frons smaller and more widely separated. Mentum reversely trapezoidal. Underside of neck very narrowly grooved transversely, with large, superficial, not very closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Somewhat convex transversely and longitudinally. Lateral margins narrowing anteriorly, in the posterior half with straight margins, in the anterior part rounded. Anterior margin very slightly excavated. Lateral and anterior margins continuously and narrowly bordered. Lateral borders in dorsal view narrowly visible, except a small part behind front corners. Front and hind corners in lateral view rounded, slightly obtuse. Surface with small, irregularly and not very narrowly set punctures.

S c u t e l l u m : Triangular, sides slightly bent, with minute punctures.

E l y t r a : Elongate oval, markedly convex transversely, less convex longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders slightly rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view very narrowly visible posterior to the middle. With slightly incised striae with large, rhombic, widely separated punctures; distance between punctures on disc in stria 4 about 2–3 times diameter of a puncture; about 20 punctures in stria 4. Intervals flat on disc, moderately convex laterally, with minute, distinct punctures.

P r o s t e r n u m : Anterior margin narrowly bent upwards; retracted towards apophysis in its middle, forming an obtuse angle; a narrow keel originating from the middle of the anterior margin. Lateral margins along procoxae widened and raised, space in between forming a rather wide and deep groove. Apophysis behind coxae stretched posteriorly, with straight, subparallel sides, obtusely pointed apically.

M e s o s t e r n u m : Short. Anterior margin somewhat excavated in its middle; lateral margins with a rough surface, convergent posteriorly.

M e t a s t e r n u m : Lustrous. Anterior margin between mesocoxae rounded, bordered. Apophysis behind the anterior border raised like a hunch. Disc microreticulated, with tiny, widely separated punctures. Median line widely and deeply depressed on its whole length.

S t e r n i t e s : Opaque. Sternites 1 and 2 with widely separated punctures.

A n t e n n a e : Long, antennae reaching to about middle of elytra. Length/width ratio of antennomeres 1–11 equals to 17:6 / 8:5½ / 19:5 / 12:5 / 13:5½ / 13:6½ / 14:6½ / 14:7 / 14:7 / 14:7 / 17:7½.

L e g s : Short. Femora thickened towards the second third. Tibiae somewhat thickened apically; protibiae

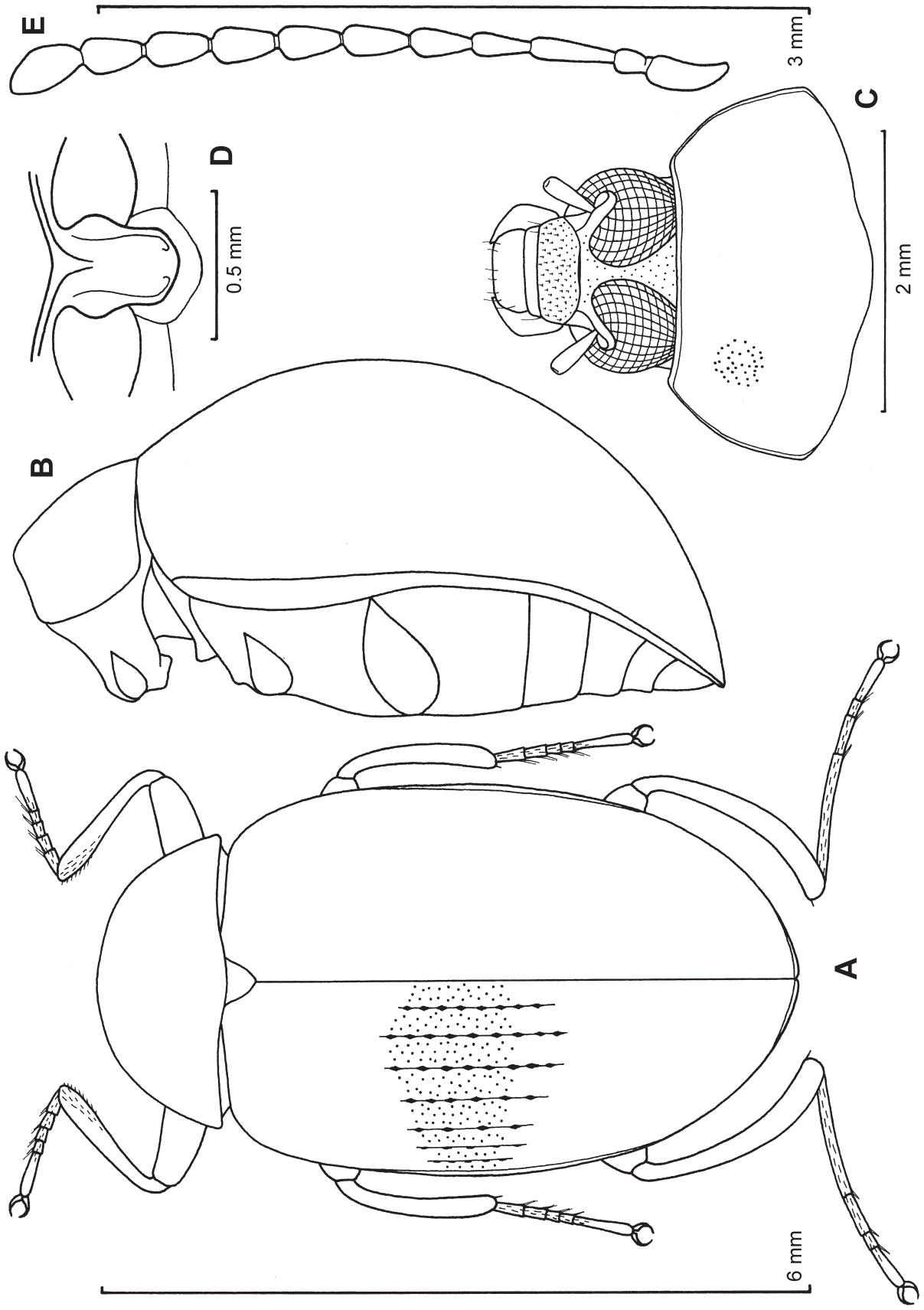


Fig. 28. *Amarygmus erilis* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

straight; mesotibiae moderately bent; metatibiae slightly bent in the basal half, more strongly bent in the apical half. Lengths of protarsomeres 1–5 as 8:6:6:5:20, lengths of mesotarsomeres 1–5 as 12:8:7:5:21, lengths of metatarsomeres 1–4 as 44:15:7:20.

Amarygmus eureos **n. sp.**
(Fig. 29A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Kinabalu NP, Poring vic., 380 m, 9.–11.III.2007, R. Grimm (CG).

Paratypes: Borneo, Sabah, Crocker Range W, Route Keningau–Papar, II.2000, M. Snižek leg. (1 ♀ ZSMB). – Keningau, Sabah, N Borneo, 25.V.1989, M. Itoh (1 ♀ CA).

Circumstances of collection: Lowland primary forest, on the bark of a tree, at night (holotype).

Etymology

Eureos, name of a precious stone (mentioned by Plinius senior in his "Naturalis historia"). It is unknown which precious stone was meant.

Diagnosis

Small, slightly oblong. Pronotum narrower than elytra, clearly descending in respect to elytra. Colouration variable. Elytra markedly convex transversely and longitudinally, with rows of closely set large punctures. Frons narrow. Male pro- and mesotarsomeres 1–3 widened. Aedeagus with a small barbed hook dorsally at the tip.

A. inconditus n. sp. has a similar size and shape as *A. eureos*, the frons is similarly narrow, and the males of both species possess widened pro- and mesotarsomeres and a barbed hook on the aedeagus. However, the punctures of the elytral rows of *A. inconditus* have a blue colour, and the punctures of the elytral intervals are large and closely set, causing an opaque surface.

A. erilis shows the same shape and size and similar colour and iridescence as *A. eureos*, but the punctures of the elytral rows of *A. erilis* are smaller, rhombic and linked by faint lines.

A. tenellus Bremer, 2003 (Bremer 2003b: 60–61) from Borneo and *A. fulgurans* Gebien, 1927 (redescribed in Bremer 2003b: 55–56) from Sumatra and Java, probably belong to the same group of species as *A. eureos*. *A. fulgurans* also has the small barbed hook at the top of the aedeagus (no males are known from *A. tenellus*).

Also *A. steatitis* Bremer, 2005 (Bremer 2005a: 20–21, only females known) from the Malayan Peninsula shows size, punctation and iridescence similar to *A. eureos*, but it has a wider frons.

Description

Measurements: Body length 5.49–5.85 mm; body width 3.30–3.42 mm. – Ratios: Pronotum: width/length 1.94–2.03; width hind corners/width front corners 1.63–1.73. Elytra: length/width 1.47–1.48; length elytra/length pronotum 3.71–3.97; maximum width elytra/maximum width pronotum 1.30–1.32.

Colouration: Ground colour in two specimens green, in one copper-coloured, somewhat lustrous. In two specimens the pronotum is intensively purple when the light hits the surface in direction from the front, in another specimen it is greenish blue. Elytra reflecting light in all colours of the spectrum in two specimens, in one it is only shining like non-oxidized copper. Tibiae black; tarsi brown. Antennae brown, only antennomeres 9–11 somewhat darker. Underside black.

Head: Frons narrow and slightly convex longitudinally, its width corresponding to the length of antennomere 2. Genae very narrow and very little raised, anteriorly terminating behind the middle part of the fronto-clypeal suture. Fronto-clypeal suture only slightly incised, situated just in front of the eyes. Clypeus stretched forwards, convex longitudinally, with small, not very closely set punctures; punctures of frons smaller and more widely separated. Mentum reversely trapezoidal. Underside of neck narrowly grooved transversely, covered with large, superficial, not very closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Moderately convex transversely and longitudinally. Lateral margins narrowing anteriorly, straight in the posterior half, bent in the anterior half. Front corners rounded. Anterior margin very slightly excavated. Lateral and anterior margins continuously and narrowly bordered. Lateral borders in dorsal view visible. Front and hind corners in lateral view rounded, slightly obtuse. Surface with small, irregularly set punctures.

Scutellum: Triangular, sides slightly bent.

Elytra: Slightly oblong, oval, strongly convex transversely, somewhat less convex longitudinally. Maximum height and width about in the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view very narrowly visible. With rows of medium-sized punctures; distance between punctures on disc in row 4 about 3–4 times diameter of a puncture; about 15 punctures in row 4; some punctures are connected by very faint lines. Intervals flat, with very small, distinct punctures; some punctures in the posterior part are origin of very tiny hairs (just visible at 50-fold magnification).

Prosternum: Anterior margin narrowly bent upwards, somewhat retracted towards apophysis in the middle, forming an obtuse angle. Lateral margins of apophysis along procoxae widened and raised, space in between with a shallow, wide groove. Apophysis behind procoxae stretched backwards, with subparallel sides, broadly pointed apically and somewhat raised in the middle; apophysis with tender hairs of medium length.

Mesosternum: Short, surface rough. Anterior margin somewhat excavated in the middle.

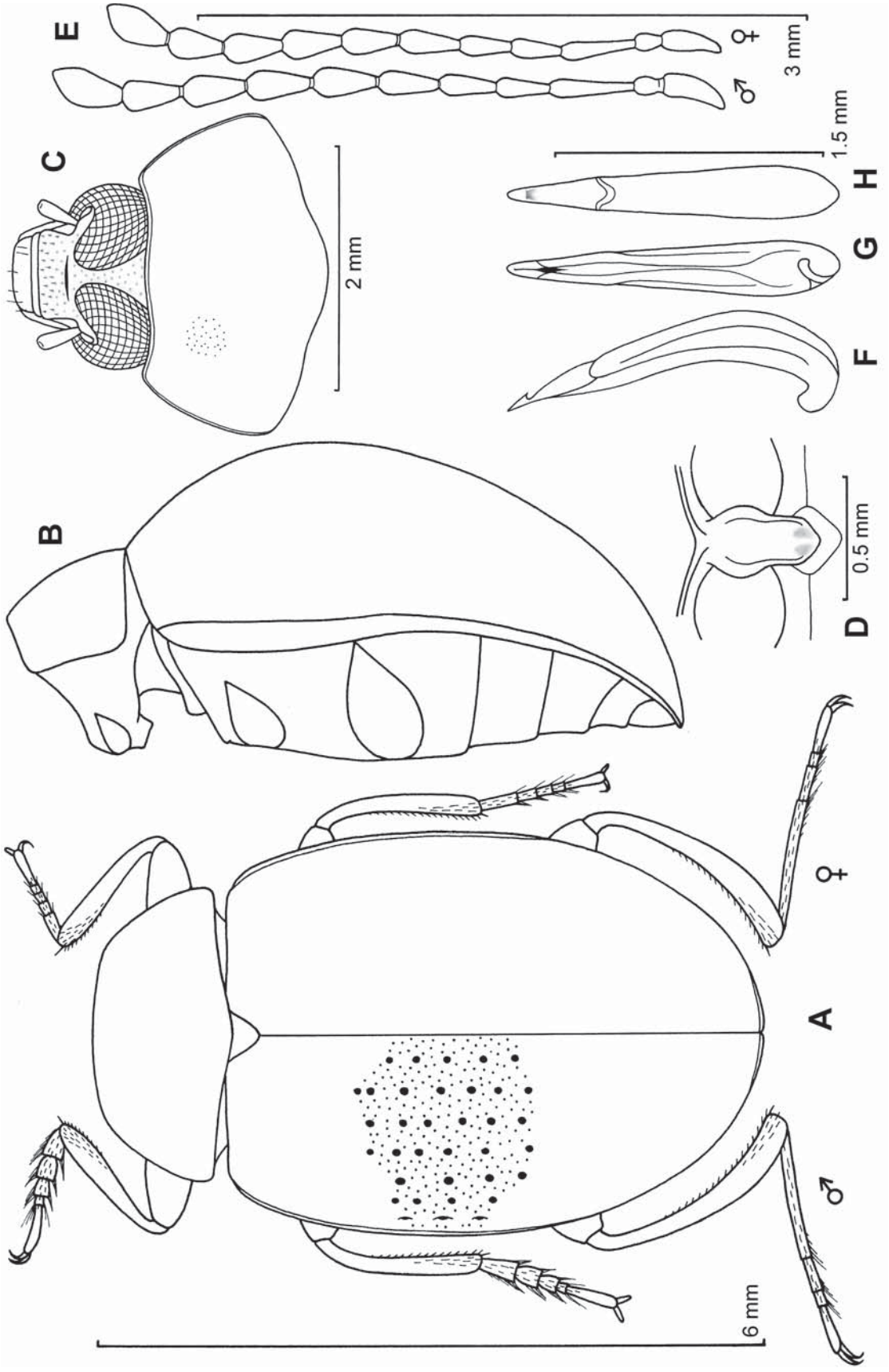


Fig. 29. *Amarygmus eureos* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

M e t a s t e r n u m : Lustrous. Anterior apophysis behind anterior margin slightly raised like a hump. Disc smooth, with tiny, widely separated punctures. Median line depressed on its whole length.

S t e r n i t e s : Opaque. Sternites 1 and 2 with sparse, tiny punctures. Sternite 5 apicomedially distinctly depressed in male.

A n t e n n a e : Long, reaching to about middle of elytra, slightly shorter in females than in the male (holotype damaged, with 10 antennomeres on the left side, 7 on the right side). Length/width ratio of antennomeres 1–10 in male equals to 16:6 / 8:5 / 21:5 / 12:5 / 13:5 / 14:6 / 16:7 / 14:7 / 16:7 / 15:7.

L e g s : Short. Femora thickened towards the second third. Tibiae slightly thickened apically; protibiae straight on outer side, widened in the apical half on inner side; mesotibiae slightly bent on outer side, straight in the apical two-thirds on inner side; metatibiae slightly bent in the basal half, increasingly incurved in the apical half. Protarsomeres 1–3 widened, somewhat prolonged in male. Lengths of protarsomeres 1–5 as 13:10:7:5:21, lengths of mesotarsomeres 1–5 as 16:10:7:6:22, lengths of metatarsomeres 1–4 as 49:14:9:22.

A e d e a g u s : See Fig. 29F–H.

Amarygmus expeditus **n. sp.**
(Fig. 30A–H)

H o l o t y p e (♂): Borneo, Malaysia, Sabah, Kota Kinabalu, Inanam, 22.II.2006, R. Grimm (CG).

P a r a t y p e s : Same data as holotype (13 CG, 3 ZSMB, 2 sex not determined BMNH). – Sabah, Malaysia, Kota Kinabalu, Bukit Padang, 2.XII.2006, R. Grimm (4 ♂♂, 3 ♀♀ CG; 1 ♀ ZSMB). – Sabah, Borneo, Kota Kinabalu, nachts, auf Baumrinde, Alleebäume, 11.VIII.2007, Ulf Bremer leg. (1 ♂, 1 ♀ ZSMB). – Borneo, Malaysia, Sabah, Kudat, Bak Bak, 14.–16.II.2006, R. Grimm (22 CG, 7 ZSMB, sex not determined). – Borneo, Malaysia, Sabah, 24 km NE Keningau (Apin Apin), 500 m, 18.II.2006, R. Grimm (1 ♂ CG). – Borneo, Malaysia, Sabah, Keningau, 300 m, 20.–22.III.2007, R. Grimm (1 ♂ CG). – Near Keningau, Borneo, 30.VI.1989 (1 ♂ CM). – Malaysia, Sabah, Sepilok, 29.–30.XI.2006, R. Grimm (2 ♂♂ CG). – Malaysia, Sabah, Sandakan, 30.XI.2006, R. Grimm (2 ♂♂ CG, 4 ♀♀ CG). – Malaysia, Borneo, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 20–150 m, 13.–15.III.2008, R. Grimm (6 ♂♂ CG, 1 ♂ ZSMB, 2 ♀♀ CG, 1 ♀ ZSMB). – Malaysia, Borneo, Sarawak, Kuching, Reservoir Park, 50 m, 4.–5.III.2008, R. Grimm (1 ♂ CG). – Malaysia, Borneo, Sarawak, NW Kuching, Matang, 19.III.2008, R. Grimm (1 ♀ CG).

Circumstances of collection: Mainly collected in parks or avenues, on tree bark at night.

Etymology

Expeditus (Lat.) = put in order.

Diagnosis

Small, oval, with wide frons and short clypeus. Elytra with rows of medium-sized punctures and flat intervals. Pronotum wide, with small, distinct punctures. Upperside mostly greenish (see colouration below), legs brown. Males with widened protibiae in apical two-thirds on inner side. Metatarsomere 1 relatively short.

Amarygmus expeditus n. sp. belongs to a group of small species with wide frons and puncture rows on the elytra. *A. expeditus* is especially similar to *A. murutensis* n. sp. which also has a relatively short metatarsomere 1. However, *A. murutensis* is on average smaller (body length 3.92–4.16 mm), the pronotum is narrower, the shoulders show a markedly greenish colour (not so or less expressed in *A. expeditus*), and the male protibiae have no apical widening on the inner side.

Description

M e a s u r e m e n t s : Body length 4.01–5.10 mm; body width 2.65–2.90 mm. – Ratios: Pronotum: width/length 1.94–2.04; width hind corners/width front corners 1.63–1.67. Elytra: length/width 1.30–1.37; length elytra/length pronotum 3.30–3.52; maximum width elytra/maximum width pronotum 1.25–1.31.

C o l o u r a t i o n : Frons and pronotum green, with a slight purple iridescence, in most specimens with a slight lustre, in some with a marked lustre. Elytra either weakly green or weakly purple, slightly lustrous, in some specimens with a bluish tinge. Green colouration of the margins of pronotum not encroaching onto shoulders of elytra (in *A. murutensis* n. sp. clearly encroaching onto shoulders of elytra). Prosternum brown, remaining parts of underside black. Femora dark brown, tibiae brown, tarsi somewhat lighter brown than tibiae. Antennomeres 1–5 brown, 6 dark brown, 7–11 black.

H e a d : Frons wide, somewhat wider than combined length of antennomeres 2–4 (like 26 : 22), with small punctures which are somewhat irregularly set. Genae only slightly raised, anteriorly terminating in front of the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture deeply incised and somewhat depressed in its middle part. Clypeus slightly stretched forwards, markedly convex longitudinally, slightly convex transversely; punctures as on frons except that there are short recumbent hairs on clypeus. Mentum widened anteriorly, with bent sides, transition between sides and base rounded; lateral margins flat, lustrous, space in between distinctly convex. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Wide, uniformly but not strongly convex transversely, slightly convex longitudinally. Borders of the lateral margins clearly separated from the convexity of the central part of the pronotum. Lateral margins narrowing anteriorly. Front corners widely rounded. Anterior margin somewhat excavated. Lateral and anterior margins continuously and distinctly bordered. Lateral borders in dorsal view widely exposed. Front corners in lateral view

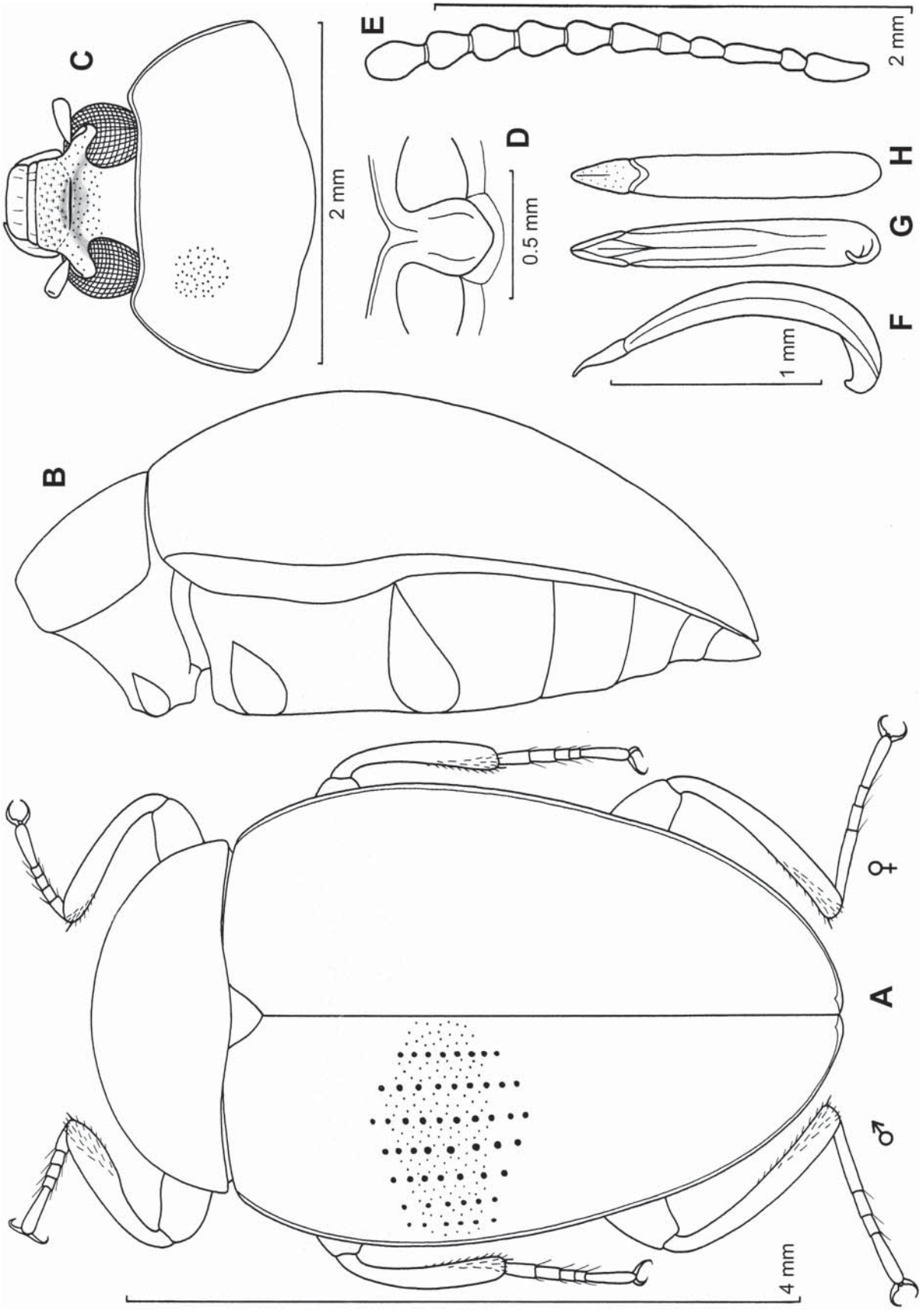


Fig. 30. *Amarygmus expeditus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

rounded, hind corners angular, obtuse. Surface with small, distinct, and rather closely set punctures.

Scutellum: Triangular, with some minute punctures.

Elytra: Oval, markedly convex transversely, slightly less convex longitudinally. Maximum width and height at the level of the anterior third. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view visible over their whole length. With rows of medium-sized, rather narrowly set punctures; distance between punctures on disc ½–1 times diameter of a puncture; about 30 punctures in row 4. Intervals not convex, with very small, distinct, not very closely set punctures.

Prosternum: Anterior margin continuously bent upwards, somewhat retracted towards apophysis in the middle. Apophysis oval, widest posterior to procoxae; lateral margins only slightly raised, thus space in between only with a shallow, wide groove.

Mesosternum: Hind part short, wide; anterior margin markedly excavated in the middle; lateral margins with an uneven surface, contrasting with the flat, lustrous centre.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with very large, closely set punctures, posterior part with very small, widely separated punctures. Median line indistinctly incised.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, weakly bordered; inner part of this border and inner part of the borders behind metacoxae with punctures. Anterior half of sternite 1 with small punctures, posterior half of this sternite and subsequent sternites with minute to tiny punctures which are the origin of very short recumbent hairs. Sternite 5 apicomedially depressed in males.

Antennae: Of medium length, reaching to anterior third of elytra, in females negligibly shorter than in males. Antennomere 11 rounded apically. Length/width ratio of antennomeres 1–11 in male equals to 11:7 / 6:4 / 10:4 / 6:4½ / 6:4½ / 10:6 / 9:6½ / 9½:7½ / 9½:7½ / 9:7½ / 13:8.

Legs: Short. Femora thickened towards the second third. Protibiae straight on outer side, in males in the apical two-thirds on inner side widened, flattened and impunctate. Meso- and metatibiae somewhat bent basally, straight apically. Protarsomeres 1–3 not widened in males. Lengths of protarsomeres 1–5 as 5:4:4:4:15, lengths of mesotarsomeres 1–5 as 9:5:4½:4:15, lengths of metatarsomeres 1–4 as 16:8:5:15.

Aedeagus: See Fig. 30F–H.

Amarygmus gnitus **n. sp.**
(Fig. 31A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Sepilok, 12.–13.III.2007, R. Grimm (CG).

Paratype: Same data as holotype (1 ♀ ZSMB).

Circumstances of collection: Edge of lowland primary forest, on tree bark, at night.

Etymology

Gnitus (ancient Lat.) from gnoscere, gnovi = mysterious, concealed.

Diagnosis

Small, oval, moderately convex, with a very narrow frons. Pronotum bluish green, elytra reddish brown, legs brown. Elytra with rows of rather large, widely separated punctures. Antennae of medium length. Protarsomeres 1–3 slightly widened in male. Aedeagus with a special shape (Fig. 31F–H).

The only known species with a very narrow frons and rows of punctures on elytra is *A. powanpowanus* Masumoto et Makihara, 1997 (described as *A. nemestrinus* in Bremer 2006b: 18–19, fig. 3) from Sumatra, the Malayan Peninsula and Sarawak. This species is very similar to *A. gnitus*. *A. powanpowanus* is somewhat longer and wider than *A. gnitus* (body length 5.37–5.65 mm), the elytra are more convex longitudinally, the lateral elytral intervals are flat (convex in *A. gnitus*), and the female antennae are somewhat longer (only females are known of *A. powanpowanus*).

A. praecellens n. sp. from Sarawak resembles *A. gnitus* in the narrow frons, the shape of the tibiae, and the greenish blue pronotum. However, *A. praecellens* has striae on elytra (puncture rows in *A. gnitus*) and is somewhat longer (body length 5.41–6.28 mm).

Description

Measurements: Body length 5.21+5.33 mm; body width 3.07+3.09 mm. – Ratios: Pronotum: width/length 2.02+2.05; width hind corners/width front corners 1.78+1.83. Elytra: length/width 1.36+1.39; length elytra/length pronotum 3.67+3.72; maximum width elytra/maximum width pronotum 1.31+1.34.

Colouration: Pronotum and head greenish blue, lustrous. Elytra reddish brown (slightly lustrous). Legs brown (basal half of tibiae somewhat darker than apical half). Antennomeres 1–5 brown, 6–11 black (antennomere 11 apically brightened). Underside brown, slightly lustrous.

Head: Frons very narrow, as wide as the diameter of one ocellus of the eye, with a few very small punctures. Genae narrow, raised, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture depressed and slightly incised in the middle. Clypeus stretched forwards, lustrous, moderately convex longitudinally and transversely, covered with small, rather closely set punctures. Mentum reversely trapezoidal, lateral margins wide, flat, lustrous, space in between microreticulated, convex. Underside of

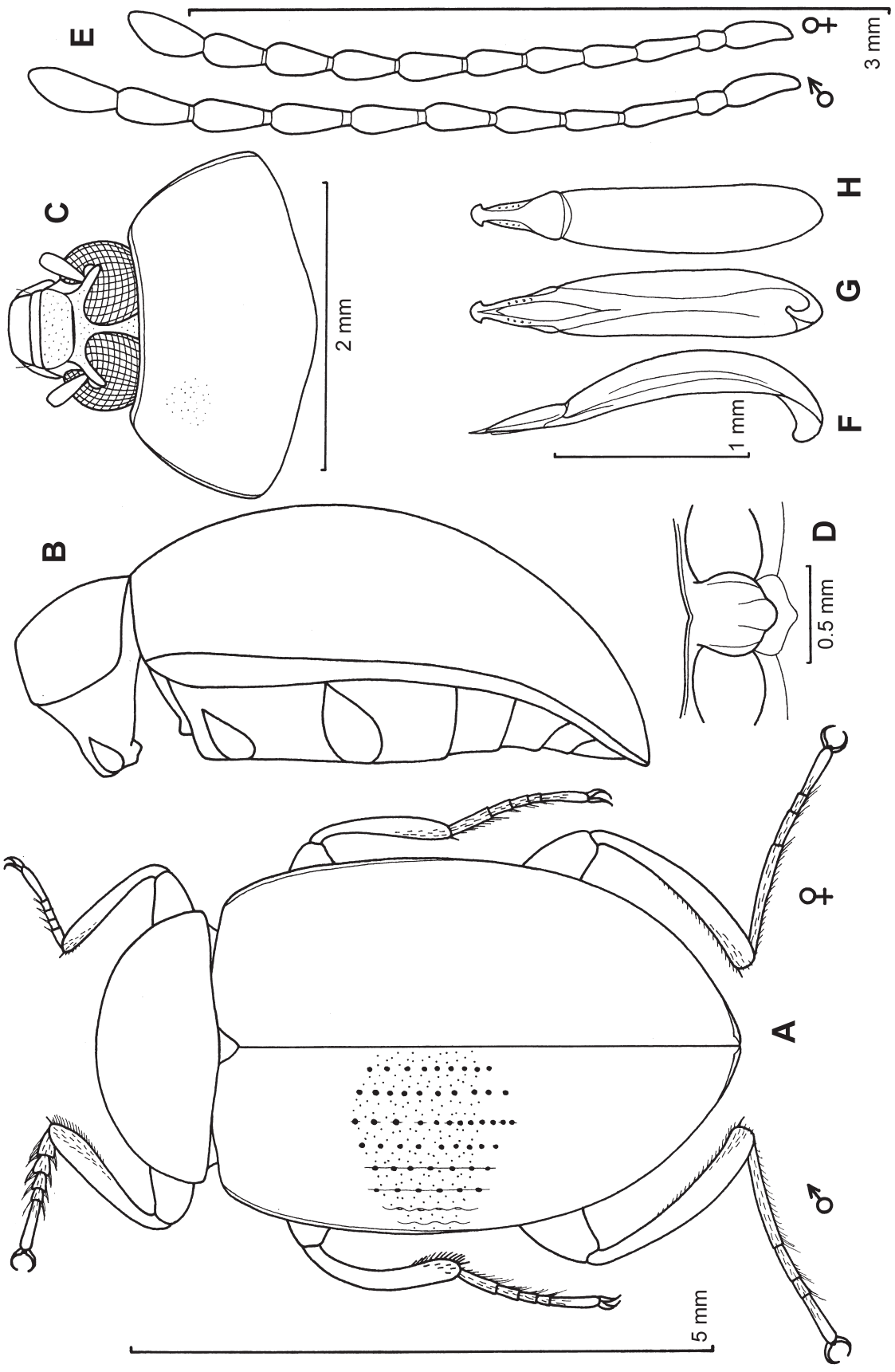


Fig. 31. *Amarygmus gnitus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

neck strongly microreticulated, with coarse, transversely aligned punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Wide. Lateral margins narrowing anteriorly, slightly bent. Hind corners in dorsal view angular, obtuse; front corners widely rounded, obtuse. 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. Surface with very small, widely separated punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Slightly elongate oval, moderately convex transversely and longitudinally. Maximum width and height shortly anterior to the middle. Shoulders moderately prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view very narrowly visible. With rows of large punctures, distance between punctures on disc 1–2 times diameter of a puncture; about 26 punctures in row 4. Intervals on disc flat, laterally and apically convex.

P r o s t e r n u m : Anterior margin continuously and narrowly bent upwards, somewhat retracted towards apophysis and obtuse-angled in its middle. Apophysis oval, margins along procoxae widened and distinctly raised, space in between with a wide, deep groove; posterior to coxae sides narrowing, apically narrowly rounded; surface of apophysis with some long erect hairs.

M e s o s t e r n u m : Wide, short. Anterior margin moderately excavated in the middle.

M e t a s t e r n u m : Anterior margin between mesocoxae widely rounded, coarsely bordered. Anterior part of disc with medium-sized punctures, posterior part with tiny, widely separated punctures; these punctures are origin of tender, mostly recumbent hairs of medium length. Median line slightly incised in the posterior part.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, very coarsely bordered. Sternites impunctate. Sternite 5 apicomedially scarcely depressed in male.

A n t e n n a e : Of medium length, reaching slightly anterior to middle of elytra. Length/width ratio of antennomeres 1–11 in male equals to 15:6 / 6:5 / 14:5 / 11:5 / 14:6 / 14:7 / 15:7 / 16:7 / 16:7 / 15:7 / 20:8, in female to 12:6 / 6:5 / 13:5 / 10:5 / 12:5½ / 12:6 / 13:7 / 13:7 / 12:7 / 12:7 / 17:7.

L e g s : Of medium length. Femora slightly surpassing the sides of the body, thickened towards their second third. Protibiae straight, in male apically on inner side slightly widened and in the apical third with short, closely set hairs; meso- and metatibiae bent, mesotibiae in male on inner side in the apical third with short, closely set hairs. Protarsomeres 1–3 slightly widened in male. Lengths of protarsomeres 1–5 in male as 7:5:5:4:23, lengths of mesotarsomeres 1–5 as 13:9:7:5:22, lengths of metatarsomeres 1–4 as 39:15:9:21.

A e d e a g u s : Top of parameres widened, on their anterior part with tiny tubercles and pores (visible at 100-fold magnification) (Fig. 31F–H).

Amarygmus inconditus **n. sp.**
(Fig. 32A–H)

H o l o t y p e (♂): Borneo, Malaysia, Sabah, E Apin Apin, 25 km E Keningau, 21.III.2007, R. Grimm (CG).

P a r a t y p e s : Borneo, Malaysia, Sabah, 24 km NE Keningau (Apin Apin), 500 m, 18.II.2006, R. Grimm (1 ♀ ZSMB). – Borneo, Malaysia, Sabah, Tenom, 300 m, 8.–9.II.2006, R. Grimm (1 ♀ CG). – Sarawak, Kapit. Dist., Sebong, Baleh riv., 9.–21.III.1994, J. Horák leg. (1 ♂ ZSMB; without antennae).

Circumstances of collection: On the bark of a tree in a garden (in Apin Apin), at night; on the bark of a tree at edge of primary forest (in Tenom), at night.

Etymology

Inconditus (Lat.) = disordered.

Diagnosis

Of medium size, elongate oval. Elytra with rows of large, variable, mostly elongate punctures which are violet, blue or purple; intervals plain on disc and very closely punctured, punctures medium-sized. Frons extremely narrow in both sexes. Pro- and mesotarsomeres 1–3 markedly widened in males. Antennae long and slender, in females about as long as in males. Metatarsomere 1 very long. Underside bare in males. Aedeagus with a barbed hook dorsally at the tip.

Amarygmus inconditus n. sp., *A. fulgurans* Gebien, 1927 (redescribed in Bremer 2003b: 55–56), *A. eureos* n. sp., and *A. erilis* n. sp. form a group of species with a similar body shape, narrow frons, long antennae, and similar aedeagus. *A. inconditus* differs from these species by the violet, blue or purple colouration of the punctures of the elytral rows and the very closely set punctures on the elytral intervals. Moreover, *A. fulgurans* and *A. erilis* have striae on the elytra (rows of large, variable punctures in *A. inconditus*). *A. eureos* has, like *A. inconditus*, rows of large punctures on the elytra, but these punctures have no violet or purple colouration, and the punctures on the elytral intervals are smaller.

A similar punctation and colouration of the punctures of the elytral rows is present in *A. mitschkei* (Pic, 1938) (redescribed in Bremer 2003a: 67–69) and *A. selatanus* (Masomoto et Makihara, 1997) (described as *A. bellulus* in Bremer 2003a: 86–93). Both species differ from *A. inconditus* by the oblong and narrow body shape, the aedeagus without a barbed hook, the nearly parallel elytra, the wider frons, and the much shorter antennae.

Description

M e a s u r e m e n t s : Body length 5.89–6.85 mm; body width 3.26–3.74 mm. – Ratios: Pronotum: width/length 2.00–2.15; width hind corners/width front corners 1.66–1.79. Elytra: length/width 1.45–1.57; length elytra/length pronotum 3.89–4.24; maximum width elytra/maximum width pronotum 1.26–1.34.

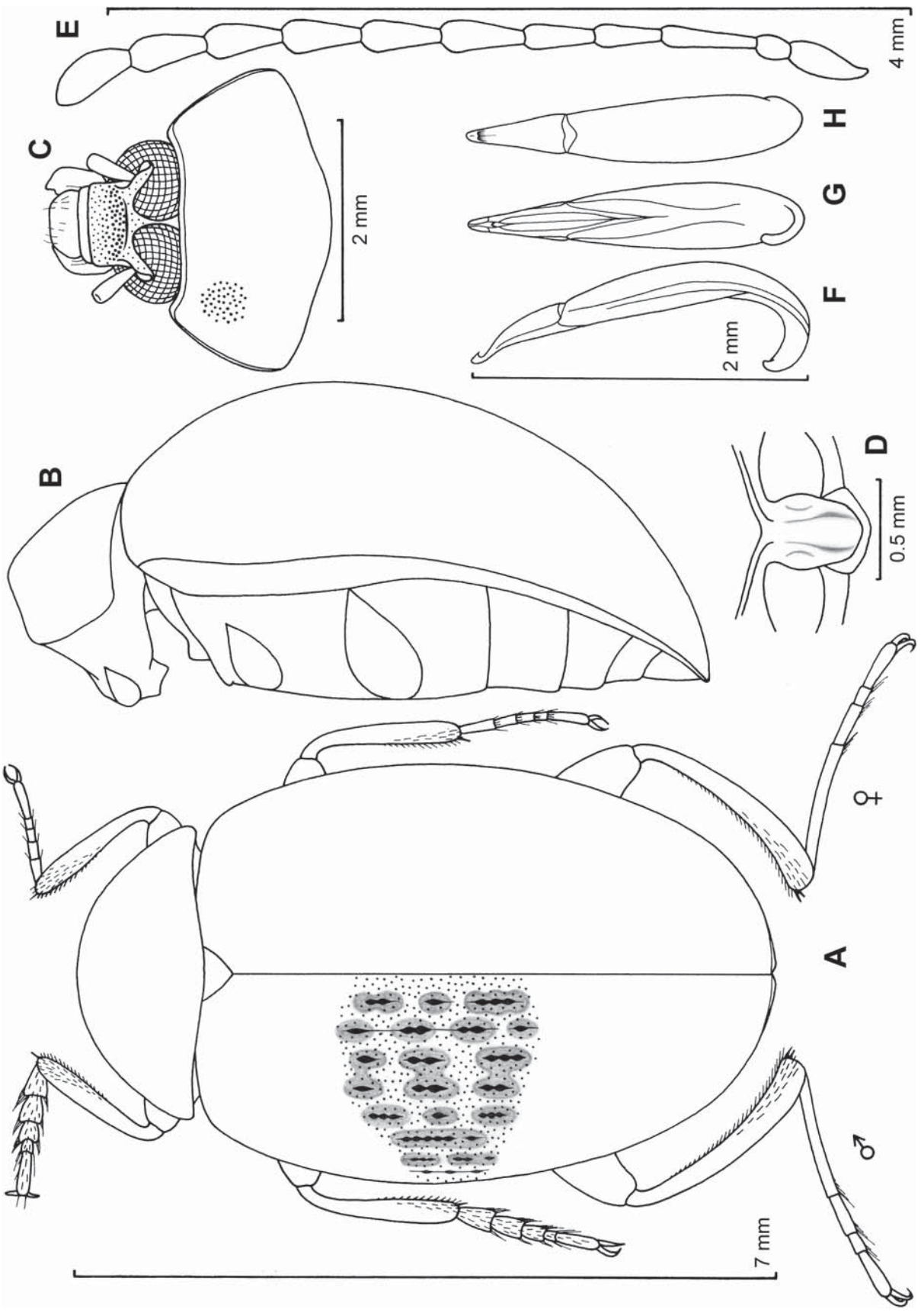


Fig. 32. *Amarygmus inconditus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Colouration: Upperside greenish golden, strongly microreticulated, with a markedly reduced lustre. Pronotum with a violet iridescence. Punctures of the elytral rows on a blue, violet or purple ground and with a narrow halo around it; the halos of approximate punctures may fuse and then circumvent two or more punctures. Underside black, somewhat lustrous. Femora and tibiae black, tarsi brown. Antennomeres 1–5 brown, 6–11 black.

Head: Frons as wide as 1–2 ocelli of the eye. Genae slightly raised, reduced to a narrow clasp which is situated anterolateral to the eyes. Fronto-clypeal suture slightly incised, situated just in front of the eyes. Clypeus stretched forwards, slightly convex transversely and longitudinally, with indistinct, small, rather closely set punctures and tiny hairs originating from them. Mentum reversely trapezoidal. Underside of neck with small, indistinct punctures. Outer surface of mandibles with a longitudinal sulcus, apically bifid.

Pronotum: Short, uniformly and markedly convex transversely, slightly convex longitudinally. Lateral margins narrowing anteriorly, bent. Anterior margin straight. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible. Front corners in lateral view rounded, obtuse; hind corners more angular and more obtuse-angled than front corners. Surface with small, rather closely set punctures.

Scutellum: Triangular, with somewhat bent sides and minute punctures.

Elytra: Elongate oval, strongly convex transversely, markedly convex longitudinally. Maximum height and width about in the middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view visible only in the middle part of the elytra. With rows of large, mostly elongate punctures which are variable in size and distance; punctures of the first two rows smaller and partly connected by lines, in the other rows punctures usually widely separated, some punctures, however, nearly touching each other (in the latter case with a coloured halo around them). Intervals flat on disc, slightly convex laterally, with small, distinct, very closely set punctures.

Prosternum: Anterior margin narrowly bent upwards, slightly retracted in the middle, forming an obtuse angle. Apophysis distinctly projecting backwards, widening along procoxae, behind coxae somewhat convergent, apically broadly pointed; space between coxae with a rather wide groove.

Mesosternum: Hind part short, obliquely descending to the lower anterior part, on each side with a longitudinal sulcus; anterior margin widely but not deeply excavated.

Metasternum: Anterior margin between mesocoxae narrowly rounded, bordered. Disc with minute, indistinct, widely separated punctures. Median line incised on its whole length.

Sternites: More opaque than metasternum. Anterior margin of sternite 1 between metacoxae acute-angled, with straight sides, indistinctly bordered. Sternites 1–3 with indistinct, tiny, widely separated punctures. Sternite 5 apicomedially markedly depressed in males, at the anterior edge of the depression with some long hairs.

Antennae: Long, tender, reaching to about middle of elytra. Length/width ratio of antennomeres 1–11 in male equals to 19:7 / 9:6 / 24:6 / 17:6 / 16:6 / 19:7 / 20:7 / 19:7½ / 18:7½ / 18:7½ / 21:7½.

Legs: Short. Femora thickened towards the second third; profemora with medium-sized, distinct, not very closely set punctures. Protibiae straight, very slightly concave on outer side. Mesotibiae straight, in male short erect hairs in the apical half on inner side. Metatibiae apically incurved. Pro- and mesotarsomeres 1–3 widened in male. Lengths of protarsomeres 1–5 in male as 12:11:8:6:26, lengths of mesotarsomeres 1–5 as 17:13:11:6:25, lengths of metatarsomeres 1–4 as 52:18:8:26.

Aedeagus: See Fig. 32F–H.

Amarygmus iunctus **n. sp.**
(Fig. 33A–H)

Holotype (♀): Malaysia, Sabah, Keningau, 24.–27.IX. 2006, R. Grimm (CG).

Paratypes: Borneo, Malaysia, Sabah, Tenom, 300 m, 18.III.2007, R. Grimm (1 ♂ CG). – Borneo, Malaysia, Sabah, Tambunan, 500 m, 4.II.2006, R. Grimm (1 ♂ damaged, ZSMB). – Malaysia, Borneo, Sarawak, Kuching, Reservoir Park, 50 m, 22.III.2008, R. Grimm (1 ♀ CG).

Circumstances of collection: On tree bark in parks, at night.

Etymology

Iunctus (Lat.) = joined (to *A. decorosus* Bremer, 2003).

Diagnosis

Very small, oblong, oval. Striae on elytra with small, elongate punctures, elytral intervals closely punctured. Eyes nearly touching each other on frons in both sexes. Elytra with a reddish brown macula as shown in Fig. 33A. Underside bare in males.

A. decorosus Bremer, 2003 (Bremer 2003b: 52–54) from northern Thailand has the same size and shape and a very similar elytral macula as *A. iunctus.* However, *A. decorosus* has no separate lateral reddish yellow macula, the shape of the main macula differs slightly, the frons is slightly wider, the clypeus is longer, the prosternal apophysis is somewhat lifted apicomedially (not so in *A. iunctus*), and the male antennomeres 3+4 are of same length and width (antennomere 3 very short and narrow, antennomere 4 very long and wide in *A. iunctus*).

The male antennomeres of *A. iunctus* are comparable to *A. alteritas* Bremer, 2004 from Sulawesi (Bremer 2004b: 30–33), but *A. alteritas* has no maculae on the

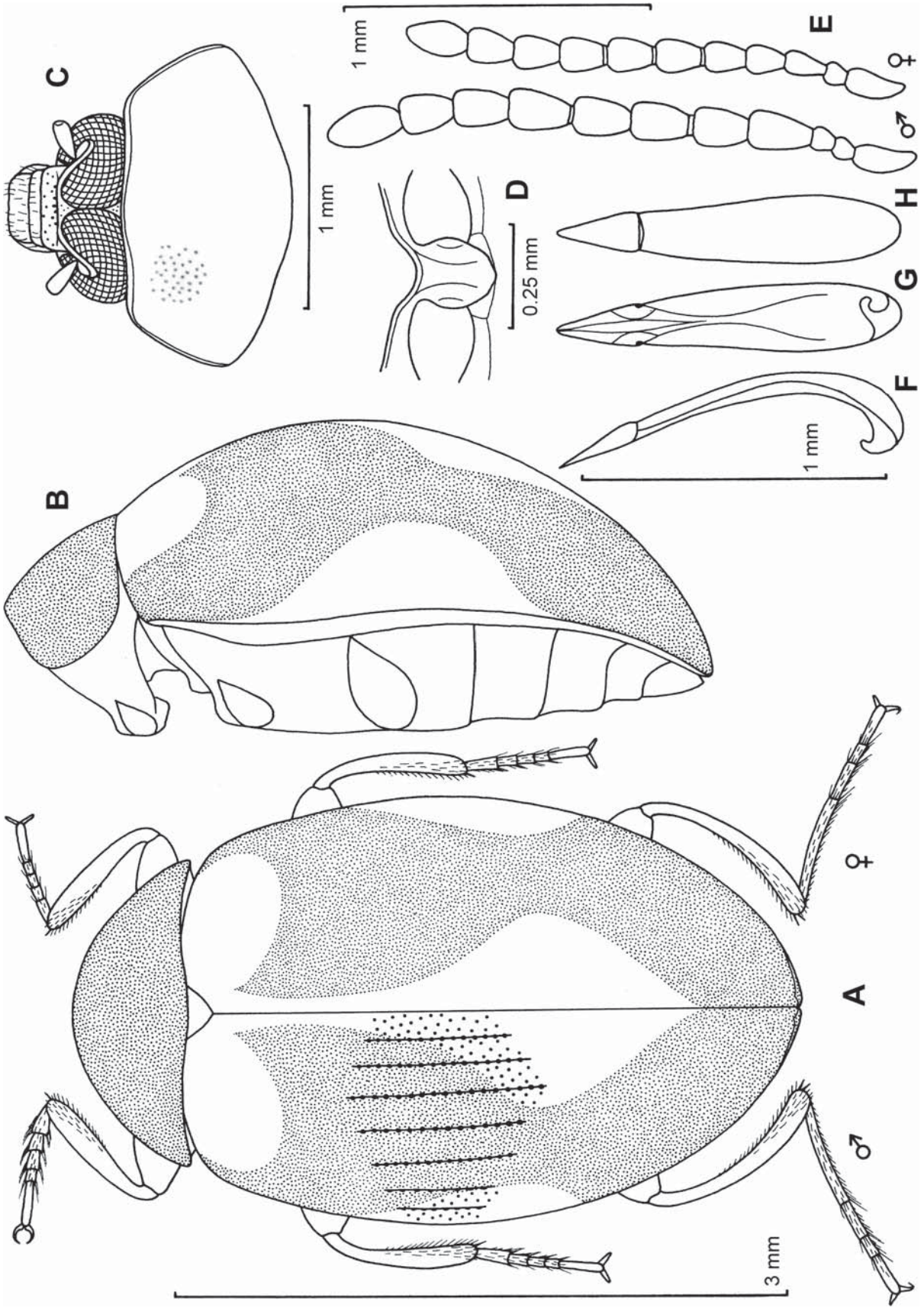


Fig. 33. *Amarygmus iunctus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

elytra and antennomeres 3+4 are short whereas antennomere 5 is very long and wide.

Also *A. tenuifrons* Bremer, 2006 from Sabah (Bremer 2006b: 19–21, fig. 4) with a similar body shape as *A. iunctus* has peculiar male antennomeres, but it is larger (body length 5.18 mm) and there are no maculae on the elytra.

Description

Measurements: Body length 3.42–3.50 mm; body width 1.91–1.98 mm. – Ratios: Pronotum: width/length 1.85–1.97; width hind corners/width front corners 1.45–1.63. Elytra: length/width 1.43–1.47; length elytra/length pronotum 3.55–3.85; maximum width elytra/maximum width pronotum 1.30–1.33.

Colouration: Frons and pronotum black, greasy shining. Elytra black like the pronotum but with the reddish brown maculae as shown in Fig. 33A. Underside brown, lustrous, except the black underside of neck and the black sternites 4 and 5. Legs light brown. Antennomeres 1–6 brown, 7–11 black (antennomere 11 apically brightened).

Head: Frons very narrow in both sexes, the eyes either touching each other in the middle, or their distance narrower than the diameter of one ocellus of the eye. Genae very narrow, slightly raised. Fronto-clypeal suture scarcely incised, situated just in front of the eyes. Clypeus extremely short, covered with small, widely separated punctures. Mentum narrow, reversely trapezoidal, with wide, flat margins laterally; space in between transversely convex. Underside of neck impunctate. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Strongly convex transversely, less convex longitudinally. Lateral margins narrowing anteriorly, nearly straight. Front corners rounded. Anterior margin nearly straight, in its middle slightly protruding towards head. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible. Front and hind corners obtuse in lateral view, rounded. Surface markedly microreticulated, with small, irregularly set punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Oblong, oval, markedly convex longitudinally. Maximum width at the level of the anterior third, sides narrowing and rounded posteriorly. Shoulders not rounded. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With superficial striae with elongate, small, indistinct punctures. Intervals flat on disc, very slightly convex in the lateral posterior parts and near the apex; punctures on intervals very closely set, nearly as large as punctures of the striae.

Prosternum: Very short. Anterior margin continuously and narrowly bent upwards, markedly retracted towards apophysis in its middle. Apophysis along procoxae rounded and margins raised, space in between with a groove; margins posterior to coxae somewhat narrowing; apically rounded.

Mesosternum: Hind part very narrow, short; anterior margin somewhat excavated in the middle; lateral margins subparallel, somewhat raised.

Metasternum: Anterior margin between mesocoxae narrowly rounded, distinctly bordered. Disc slightly convex, with tiny, widely separated punctures. Median line shallowly incised up to the anterior apophysis.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, not bordered. Sternites with very small, widely separated punctures.

Antennae: Of medium length, reaching slightly anterior to middle of elytra. Antennomere 11 rounded apically. Antennomere 3 short and relatively narrow in males (not longer than antennomere 2), antennomere 4 long and wide. Antennomere 3 in female longer than in male, of equal length and shape as antennomere 4. Length/width ratio of antennomeres 1–11 in male equals to 10:4 / 3½:3 / 3:3 / 11:6 / 8:6 / 9:6 / 9:6 / 9½:6 / 9:6 / 8:6 / 13:5, in female to 9:4 / 4:3 / 7:3 / 8:4½ / 7½:5 / 8:5 / 8:5 / 8:5 / 8:5 / 7:5 / 13:5.

Legs: Short. Femora flattened, moderately thickened in the middle. Protibiae nearly straight, mesotibiae slightly bent, metatibiae strongly bent. Protarsomeres 1–3 somewhat enlarged in males. Lengths of protarsomeres 1–5 as 4:3:3:3:10, lengths of mesotarsomeres 1–5 as 9:5:4:4:9, lengths of metatarsomeres 1–4 as 23:10:5:10.

Aedeagus: See Fig. 33F–H.

Amarygmus (Pyanirygmus) magnus **n. sp.**
(Fig. 34A–H)

Holotype (♂): Sabah, Borneo, vic. Ranau, 22.IV.2007, S. Chew leg. (ZSMB).

Paratypes: Borneo, Malaysia, Sabah, Tambunan, 500 m, 28.–31.III.2007, Lux, R. Grimm (1 ♂ CG). – Borneo, Malaysia, Sabah, Crocker Range, Gunung Alab, V.2005, S. Chew leg. (1 ♀ CG).

Circumstances of collection: In Tambunan at the edge of secondary forest, at light.

Etymology

Magnus (Lat.) = large.

Diagnosis

Very large. Upperside dark brown, lustrous. Elytra very oblong and relatively wide, with subparallel sides, relatively slightly convex transversely. Elytra with rows of very small, closely set punctures; intervals flat, impunctate. Pronotum on disc relatively flat, anterior margin deeply excavated, with subparallel sides in the posterior half. Legs long and slender, male protibiae with a slight widening in the apical three-fifths on inner side. Metatarsomere 1 shorter than metatarsomere 4. Antennae not very long, slender, in males longer than in females. Parameres of the aedeagus narrowed in its middle part.

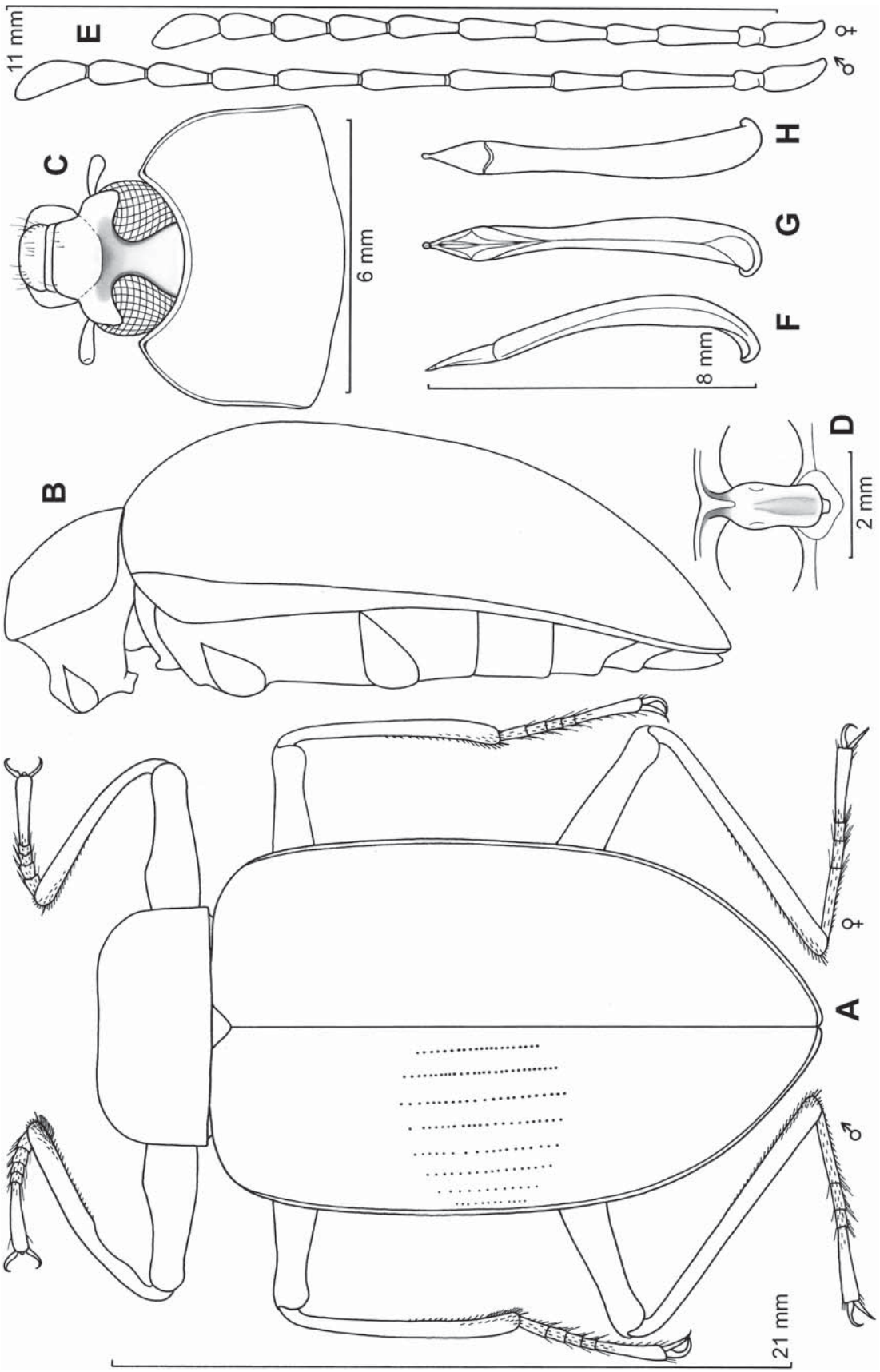


Fig. 34. *Amarygmus (Pyanirygmus) magnus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

A. magnus is similar to *A. (Pyanirygmus) maruyamai* (Masumoto, 1989) from Sabah (MASUMOTO 1989c: 561–562, figs. 11, 40–42), but *A. magnus* is larger (body length of *A. maruyamai* 17–20 mm), the pronotum is markedly wider and less convex, and the pronotal sides are subparallel in its posterior half (in *A. maruyama* maximum width at the pronotal base and sides narrowing and bent anteriorly).

Description

Measurements: Body length 21.3–23.1 mm; body width 10.8–11.5 mm. – Ratios: Pronotum: width/length 1.70–1.92; width hind corners/width front corners 1.67–1.73. Elytra: length/width 1.59–1.63; length elytra/length pronotum 4.15–4.46; maximum width elytra/maximum width pronotum 1.43–1.51.

Colouration: Upperside dark brown, lustrous. Legs and antennae blackish brown. Underside blackish brown to black, lustrous.

Head: Frons moderately wide, in both sexes of the same width; width in females corresponding to length of antennomere 4, in males distinctly narrower than length of antennomere 4 (like 19 : 25); frons descending longitudinally to the markedly depressed fronto-clypeal suture. Genae raised, anteriorly terminating in front of the level of the middle part of the fronto-clypeal suture. Middle part of the fronto-clypeal suture arched, markedly depressed but only slightly incised, lateral parts slightly incised. Clypeus moderately stretched forwards, convex longitudinally. Clypeus and frons with very faint and widely separated punctures. Mentum with subparallel sides in its anterior three-fourths, roundedly convergent in its basal fourth, base straight; lateral margins flat, space in between increasingly convex anteriorly. Underside of neck with small, shallow punctures. Outer surface of mandibles with a longitudinal sulcus, apically notched at the point where the exterior sulcus meets the apex.

Pronotum: Markedly wider than long; on disc moderately convex transversely. Lateral margins between the middle of the pronotum and the hind corners distinctly pressed downwards, subparallel at this part, bent and convergent anterior to the middle. Anterior margin strongly excavated. Front corners markedly projecting (but not pointed). Lateral and anterior margins continuously bordered, border of anterior margin wide. Lateral borders in dorsal view well visible. Front corners in lateral view rectangular, hind corners pointed, slightly obtuse. Surface covered with tiny punctures (visible at 50-fold magnification) and tiny hairs originating from these punctures (visible at 100-fold magnification).

Scutellum: Triangular, with bent sides, impunctate.

Elytra: Long and wide, slightly convex transversely and longitudinally, lateral margins straight in their middle. Maximum height somewhat anterior to the middle. Shoulders prominent. Apex of each elytron somewhat retracted towards suture. Lateral edges in dorsal view widely visible (except area along shoulders), especially widely visible at the apex. With rows of small, closely set punctures; distance between punctures equal to the diameter of a puncture; about 76 punctures in row 4. Intervals flat, impunctate on disc, with tiny punctures at the apex; tiny hairs originating from punctures near apex (visible at 100-fold magnification).

Prosternum: Anterior margin narrowly bent upwards, somewhat retracted towards apophysis in the middle, a narrow, long keel originating from the middle of the anterior margin, extending on the apophysis to the level of the procoxae. Apophysis long, narrow, protruding to the back, slightly widened along procoxae, space in between scarcely grooved, with a distinct median groove behind coxae; somewhat widened posterior to coxae; apex pointed and distinctly lifted, anterior to the lifted part with a transverse groove.

Mesosternum: Hind part long, narrow; anterior margin excavated in the middle; lateral margins convergent posteriorly, with a longitudinal depression.

Metasternum: Anterior margin between mesocoxae widely convex, bordered. Some small, indistinct punctures just behind anterior margin, tiny punctures and tiny hairs on disc. Median line widely and shallowly depressed in its posterior half.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, coarsely bordered. Sternites 1 and 2 with minute and closely set punctures on the discs, sternite 3 punctated only laterally, sternites 4 and 5 less punctated. Sternite 5 bordered apically, with some long, backwards directed hairs at this border.

Antennae: Tender, relatively short, in males longer than in females. Length/width ratio of antennomeres 1–11 in male equals to 23:11 / 10:9 / 45:10 / 25:10 / 36:10 / 36:11 / 36:11 / 29:11 / 28:11 / 28:11 / 35:12, in female to 23:11 / 9:9 / 31:9 / 19:9 / 28:9 / 26:10 / 29:11 / 25:11 / 23:11 / 20:11 / 29:12.

Legs: Long, tender. Femora distinctly surpassing lateral margins of body. Femora very thin at base, somewhat thickened towards second third, the following part narrowed but slightly thickened again near apex. Protibiae in males on outer side somewhat bent at their base, straight in the apical three-fifths, on inner side in the apical three-fifths slightly wider with medium-sized hairs, the hairs becoming denser and longer in the apical fourth of the widening; in females not widened on inner side and the apical hairs not denser and longer. Mesotibiae straight, on inner side with the same pilosity as on protibiae. Metatibiae straight. Protarsomeres 1–3 not widened in males. Lengths of protarsomeres 1–5 as 10:10:9:9:52, lengths of mesotarsomeres 1–5 as 23:12:11:9:52, lengths of metatarsomeres 1–4 as 48:21:13:59.

A e d e a g u s : Parameres in their middle part narrowed, apically pointed and with a knob-like top (Fig. 34F–H).

Amarygmus medius **n. sp.**
(Fig. 35A–H)

H o l o t y p e (♀): Sabah, Umg. Kudat, Bäume am Strand Bak Bak, nachts auf Baumrinde, 16.II.2006, Ulf Bremer leg. (ZSMB).

P a r a t y p e s : Same data as holotype (1 ♂, 1 ♀ ZSMB; 1 ♀ CM). – Sabah, Danum Valley, 4°58'N 117°48'E, M. D. F. Ellwood, *Parashorea tomentella*, *Asplenium nidus*, East Trail 7, FogTray 4, 11.VII.1999. "448" (1 ♂, 1 ♀ BMNH). – Malaysia, Sabah, Ranau, 28.XI.2006, R. Grimm (1 ♀ CG). – Malaysia, Sabah, Tambunan, 21.XI.2006, R. Grimm (4 ♀♀ CG). – Borneo, Malaysia, Sabah, Tambunan, 500 m, 28.–31.III.2007, R. Grimm (7 CG, 2 ZSMB, sex not determined). – Malaysia, Sabah, Sepilok, 29.–30.XI.2006, R. Grimm (3 ♂♂ CG, 1 ♂ ZSMB, 1 ♀ CM). – Same data as before, but 12.–13.III.2007 (1 ♀ CG). – Indonesia, 7.–21.IX.1997, South Kalimantan, Loksado vill. 17 km NE, 1000 m, S. Jákl leg. (1 ♀ SSB). – Malaysia, Borneo, Sarawak, Kubah NP, 250 m, 6.–8.III.2008, R. Grimm (2 sex not determined CG). – Borneo, Malaysia, Sarawak, Kubah NP, HQ vic., 100–300 m, 27.–28.III.2009, R. Grimm (1 ♀ CG). – Malaysia, Borneo, Sarawak, nr. Kubah NP, Matang Family Park, 200 m, 7.III.2008, R. Grimm (1 sex not determined CG). – Malaysia, Borneo, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 20–150 m, 21.III.2008, R. Grimm (2 sex not determined CG). – Same data as before, but 27.–28.IX.2008 (1 ♀ CG). – Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 10–200 m, 23.–27.III.2009, R. Grimm (1 ♂, 2 ♀♀ CG). – Same data as before, but 4.–8.IV.2009 (6 ♀♀ CG). – Malaysia, Borneo, Sarawak, Gunung Gading NP, 100–250 m, 9.–12.III.2008, R. Grimm (2 sex not determined CG). – Same data as before, but 20.III.2008 (2 sex not determined CG). – Borneo, Sarawak, Gn. Gading NP, 150–300 m, 9.–12.III.2008, leg. W. Schawaller (1 sex not determined SMNS). – Malaysia, Borneo, Sarawak, NW Kuching, Matang, 19.III.2008, R. Grimm (6 sex not determined CG). – Malaysia, Borneo, Sarawak, Kuching, Reservoir Park, 50 m, 4.–5.III.2008, R. Grimm (17 sex not determined CG). – Same data as before, but 22.III.2008 (13 CG, 15 ZSMB, sex not determined). – Same data as before, but 9.–10.IX.2008 (7 ♂♂ CG). – Borneo, Malaysia, Sarawak, Kuching, Reservoir Park, 21.–22.III.2009, R. Grimm (4 ♂♂, 5 ♀♀ CG). – Same data as before, but 8.IV.2009 (3 ♂♂, 3 ♀♀ CG). – Borneo, Malaysia, Sarawak, W Kuching, Matang, 19.IX.2008, R. Grimm (1 ♀ CG). – Borneo, Malaysia, Sarawak, Lundu, 23.–26.IX.2008, R. Grimm (1 ♀ ZSMB).

Circumstances of collection: At night on tree bark in a park near the beach (in Kudat); in parks and similar habitats (in Kuching); fogged from a tree in lowland primary forest (in Danum Valley).

Etymology

Medius (Lat.) = in the middle (of size of many species of *Amarygmus*).

Diagnosis

Of medium size, widely oval, rather flat, dark, lustrous. Elytra with rows of medium-sized, rather closely set punctures. Frons of medium width, of the same width in both sexes. Antennae in males somewhat longer than in females. Males with (not very distinct) sexual characters on sternite 5 and on meso- and metafemora.

A. sumatraselatanus Masumoto et Makihara, 1997 from Sumatra, Malayan Peninsula and Sarawak is very similar to *A. medius* n. sp. with respect to habitus and size, but can easily be distinguished from *A. medius* by its blue pronotum.

Description

M e a s u r e m e n t s : Body length 6.13–6.61 mm; body width 4.02–4.14 mm. – Ratios: Pronotum: width/length 2.00–2.06; width hind corners/width front corners 1.78–1.80. Elytra: length/width 1.28–1.35; length elytra/length pronotum 3.69–4.00; maximum width elytra/maximum width pronotum 1.42–1.44.

C o l o u r a t i o n : Upperside dark bronze, lustrous, with a very faint iridescence. Scutellum brown. Underside brown. Femora brown, tibiae dark brown, somewhat brightened anteriorly, tarsi brown. Antennae dark brown to black.

H e a d : Frons of medium width, somewhat narrower than length of antennomere 3 (like 19 : 21), with very small, indistinct punctures. Genae short, slightly raised, anteriorly terminating somewhat behind the middle part of the fronto-clypeal suture. Fronto-clypeal suture narrowly incised in its whole width, arched. Clypeus stretched forwards, moderately convex longitudinally and transversely, with very small punctures which are the origin of very short recumbent hairs. Mentum trapezoidal, with lustrous, flat, lateral margins, space in between opaque, convex transversely. Underside of neck with medium-sized, very closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Wide, short, not very strongly convex transversely and longitudinally. Sides anteriorly narrowed, bent. Anterior margin excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view continuously visible. Front corners in lateral view rounded, obtuse; hind corners angular, obtuse. Surface with very small, indistinct punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Widely oval, markedly convex transversely, less convex longitudinally. Maximum height and width somewhat anterior to the middle. Shoulders rounded. Apex of each elytron slightly retracted towards suture. Lateral edges in dorsal view visible in the anterior two-thirds and at the apex. With rows of medium-sized, closely set, deeply depressed punctures which become smaller posteriorly and disappear towards apex; distance between punctures on disc in row 4 slightly less than the diameter of a puncture; about 30 punctures in row 4. Intervals very slightly convex, impunctate.

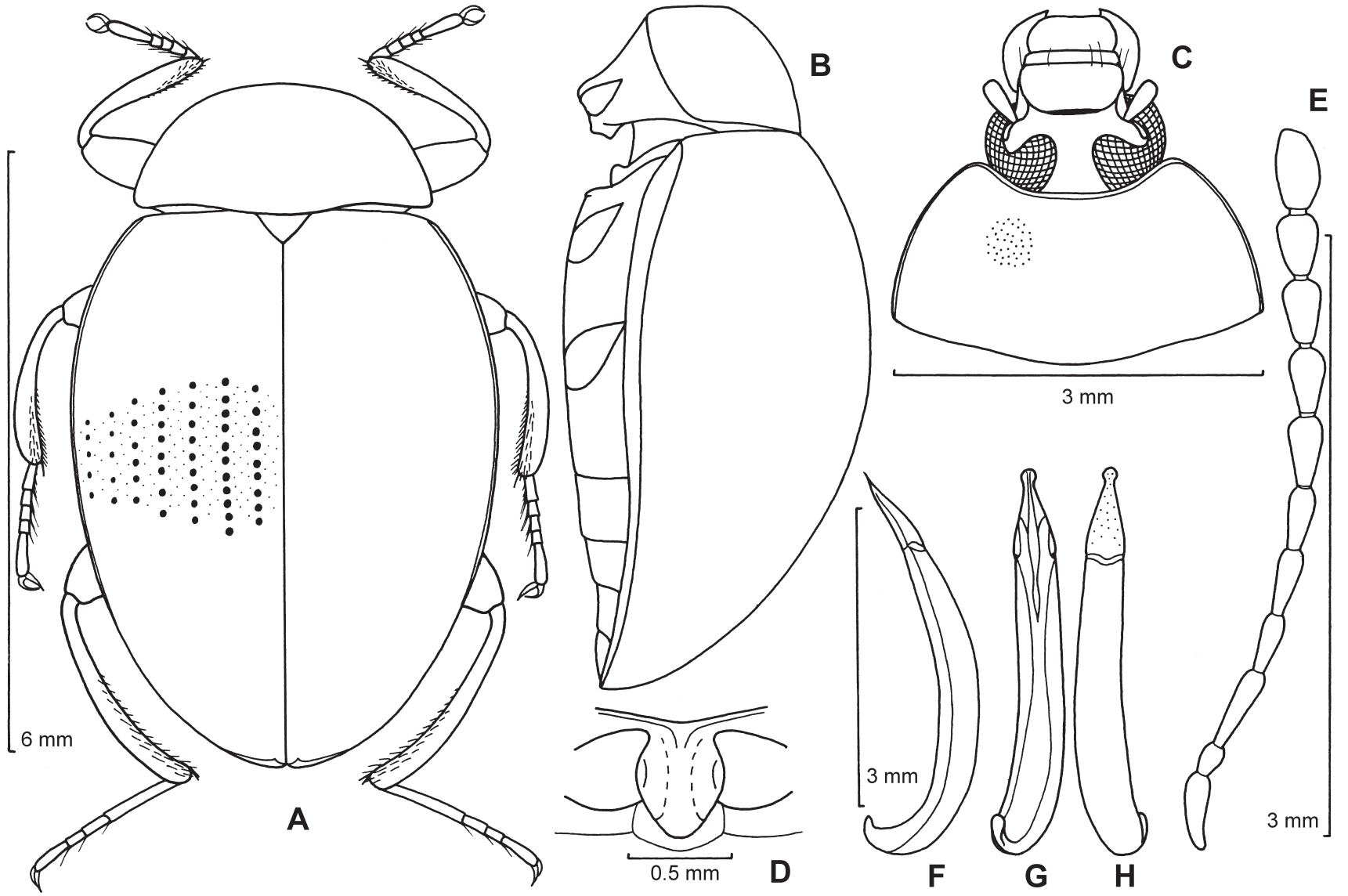


Fig. 35. *Amarygmus medius* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Prosternum: Anterior margin narrowly bent upwards, slightly retracted towards apophysis in its middle. Apophysis elongate oval, lateral margins along procoxae markedly raised, space in between with a deep groove, bottom of this groove opaque.

Mesosternum: Hind part short, wide; anterior margin slightly excavated in its middle, laterally with a bulge.

Metasternum: Anterior margin between mesocoxae rounded, bordered. The partly surrounded apophysis raised like a hump. Anterior part of disc with not very closely set large punctures, posterior part with tiny, widely separated punctures; the punctures are the origin of short, nearly recumbent hairs. Median line shallowly depressed up to the frontal hump.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, bordered. Sternites with tiny, widely separated punctures. Sternite 5 apicomedially with a marked depression in males.

Antennae: Antennae reaching to about middle of elytra, slightly shorter in female. Antennomere 11 rounded apically. Length/width ratio of antennomeres 1–11 in male equals to 17:9 / 9:7 / 21:7 / 16:7 / 18:7½ / 17:8 / 19:9 / 19:10 / 18:10 / 18:10 / 22:10.

Legs: Relatively short. Femora thickened towards the second third; back of meso- and metafemora in the basal three-fourths with very short erect hairs in males. Tibiae rather narrow basally, becoming thicker apically; pro- and mesotibiae moderately bent, in males on inner side with a small area of closely set hairs apically; metatibiae slightly bent in the basal two-fifths, strongly incurved apically. Protarsomeres not widened in males. Lengths of protarsomeres 1–5 as 5:6:5:5:22, lengths of mesotarsomeres 1–5 as 15:10:8:7:24, lengths of metatarsomeres 1–4 as 35:14:8:23.

Aedeagus: See Fig. 35F–H.

Amarygmus muluensis **n. sp.**
(Fig. 36A–E)

Holotype (♀): Sarawak, 4th Division, Gn. Mulu NP, P. M. Hammond & J. E. Marshall, V.–VIII.1978, B. M. 1978-49 (BMNH).

Etymology

Muluensis, derived from Mulu, the name of the National Park where this species has been collected.

Diagnosis

Of medium size, elongate oval, markedly convex transversely. Elytral striae with relatively large, rhombic punctures, elytral intervals flat. Frons of medium width, antennae short. Legs short. Upperside dark green, legs dark brown to black.

Amarygmus muluensis n. sp. belongs to a group of species which formerly was assigned to the genus *Elixota*. On Borneo it has to be distinguished from *A. emasensis* n. sp., *A. baluensis* Pic, 1951, and *A. hassalti* Fairmaire, 1882.

A. muluensis and *A. emasensis* have about the same size, but the elytra of *A. muluensis* are shorter (elytral length/width in *A. emasensis* 1.81 : 1), the punctures of the elytral striae larger, the antennae shorter, and the frons wider. The bodies of *A. hassalti* and *A. baluensis* are more voluminous than in *A. muluensis*, the punctures of the elytral striae are much smaller, and the frons is narrower. Males of *A. hassalti* have a swelling on inner side of mesotibiae (males of *A. muluensis* are unknown), and the female mesotibiae of *A. hassalti* are more bent on outer side than in *A. muluensis*.

Description

Measurements: Body length 8.52 mm; body width 4.78 mm. – Ratios: Pronotum: width/length 2.02; width hind corners/width front corners 1.82. Elytra: length/width 1.55; length elytra/length pronotum 3.96; maximum width elytra/maximum width pronotum 1.26.

Colouration: Frons, pronotum, and elytra dark green, slightly lustrous. Underside and legs (including tarsi) dark brown to black. Antennomeres 1–4 dark brown, 4–11 black.

Head: Frons of medium width, wider than length of antennomere 3 (like 24 : 18), densely covered with small punctures. Genae only slightly raised, anteriorly terminating in front of the middle part of the fronto-clypeal suture. Fronto-clypeal suture slightly incised in its middle, not depressed. Clypeus moderately stretched forwards, slightly convex longitudinally, punctures less dense than those of frons. Mentum reversely trapezoidal, lateral margins flat, lustrous, space in between opaque, convex transversely. Underside of neck with medium-sized, closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Relatively wide, moderately convex transversely, slightly convex longitudinally. Widest at base, narrowing towards front corners and bent. Front corners in dorsal view rounded, hind corners angular, obtuse. Anterior margin moderately excavated. Lateral and anterior margins continuously bordered, lateral borders visible in dorsal view. Front and hind corners in lateral view slightly obtuse. Surface with small, distinct, relatively dense punctures.

Scutellum: Triangular, with some tiny punctures.

Elytra: Elongate, slightly oval, convex transversely, less convex longitudinally. Maximum height and width slightly anterior to middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With slightly incised striae with rhombic, medium-sized punctures which become indistinct and small at the apex of the elytra; about 24 punctures in row 4. Intervals flat, with very tiny, sparse punctures.

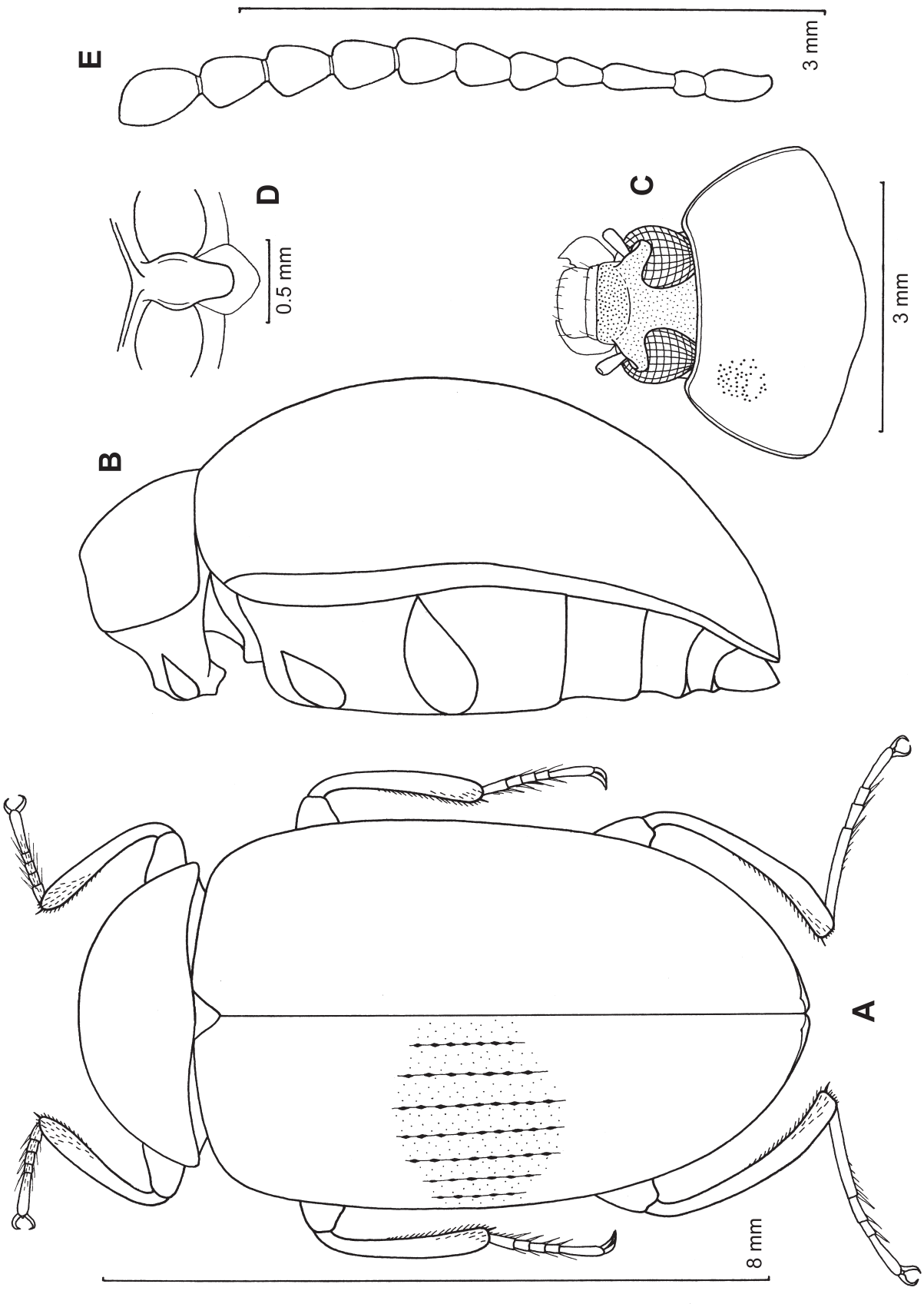


Fig. 36. *Amarygmus muluensis* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

P r o s t e r n u m : Anterior margin narrowly bent upwards laterally, in its middle somewhat broader and slightly retracted towards apophysis. Apophysis not very wide, between anterior margin and area between procoxae somewhat raised, behind coxae descending backwards, margins behind coxae slightly narrowing, margins along coxae widened but only slightly raised, median space in between with a shallow groove; apex rounded.

M e s o s t e r n u m : Hind part slightly raised; anterior margin deeply excavated in its middle; surface relatively smooth.

M e t a s t e r n u m : Anterior part of disc with some small punctures, posterior part nearly impunctate. Median line markedly depressed on its whole length.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites 1 and 2 with indistinct, small punctures and indistinct longitudinal wrinkles. Sternites 3–5 impunctate.

A n t e n n a e : Short, reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 equals to 14:8 / 8:7 / 18:7 / 12:8 / 15:11 / 15:13 / 16:14 / 17:14 / 17:14 / 17:14 / 25:14.

L e g s : Short. Femora thickened towards the second third. Tibiae thickened apically; protibiae slightly bent, mesotibiae slightly more bent than protibiae, metatibiae clearly bent. Lengths of protarsomeres 1–5 as 7:7:6:6:28, lengths of mesotarsomeres 1–5 as 15:10:8:8:30, lengths of metatarsomeres 1–4 as 48:16:10:28.

Amarygmus murutensis **n. sp.**
(Fig. 37A–H)

H o l o t y p e (♂): Borneo, Malaysia, Sabah, Keningau, 300 m, 6.–7.II.2006, R. Grimm (CG).

P a r a t y p e s : Same data as holotype (3 ♀♀ CG, 1 ♂ CG, 1 sex not determined CG, 1 ♀ ZSMB, 1 sex not determined ZSMB). – Same data as holotype, but 17.–19.II.2006 (4 sex not determined CG). – Same data as holotype, but 20.–22.III.2007 (2 CG, 1 ZSMB, sex not determined). – Borneo, Sabah W, W of Apin Apin, II.2000, M. Snižek leg. (1 ♀ ZSMB; without antennae).

Circumstances of collection: On tree bark in parks, at night.

Etymology

Murutensis, derived from Murut, the name of one of the main human tribes of Sabah.

Diagnosis

Small, nearly ovate, elytra markedly convex transversely, shoulders of elytra prominent, pronotum markedly less convex than elytra. Elytra with rows of medium-sized, rather closely set punctures. Pronotum greenish golden, elytra with a copper-coloured disc and green lateral parts, lustrous, colouration especially distinct on pronotum and shoulders of elytra. Frons relatively wide, fronto-clypeal suture deeply depressed, clypeus short. Antennae of medium length, nearly of the same length in both sexes. Upperside of body with very short hairs which become visible at 50–100-fold magnification. Metatarsomere 1 relatively short.

A. murutensis is very similar to *A. expeditus* n. sp., but *A. expeditus* is on average longer (body length 4.01–5.10 mm), the pronotum is markedly wider, the green colouration of the pronotal margins is not encroaching onto elytral shoulders, and the male protibiae have a widening in apical half on inner side.

A. sumatrensis Bremer, 2004 (Bremer 2004e: 123–125) has a similar shape and size, a wide frons and similar rows of elytral punctures as in *A. murutensis*, but *A. sumatrensis* has no greenish colouration on the pronotal and elytral sides, the pronotum is nearly impunctate, the femora and tibiae are reddish brown (blackish brown or black in *A. murutensis*), and the antennae are shorter.

A. snizeki Bremer, 2002 from Sabah (Bremer 2002a: 39) is similar, too. However, *A. murutensis* is somewhat larger (body length of *A. snizeki* 3.35–3.81 mm), the fronto-clypeal suture is depressed, the metatibiae are nearly straight in their basal two-thirds (markedly bent in *A. snizeki*), the antennae are longer, and the elytra are slightly narrower.

Description

M e a s u r e m e n t s : Body length 3.92–4.16 mm; body width 2.26–2.41 mm. – Ratios: Pronotum: width/length 1.76–1.90; width hind corners/width front corners 1.56–1.61. Elytra: length/width 1.35–1.39; length elytra/length pronotum 3.04–3.24; maximum width elytra/maximum width pronotum 1.25–1.32.

C o l o u r a t i o n : Disc of elytra copper-coloured, slightly lustrous; lateral parts of elytra distinctly greenish and more lustrous than disc. Pronotum and head greenish golden and with an iridescence in the colours of light spectrum. Femora blackish brown, tibiae black, tarsi brown. Antennae black. Underside blackish brown.

H e a d : Frons rather wide, as wide as combined length of antennomeres 3+4, arched towards the depressed fronto-clypeal suture, with small, closely set punctures and tiny hairs originating from most punctures (visible at 100-fold magnification). Genae somewhat raised, anteriorly terminating distinctly in front of the middle part of the fronto-clypeal suture. Clypeus stretched forwards, convex longitudinally, less convex transversely, with small, closely set punctures; the hairs originating from the punctures of the clypeus are somewhat longer than the hairs of the punctures of the frons (well visible at 50-fold magnification). Mentum entirely lustrous, reversely trapezoidal, lateral margins wide, flat, space in between convex. Underside of neck covered with medium-sized, closely set punctures on its anterior part. Outer surface of mandibles with a sulcus, apically bifid.

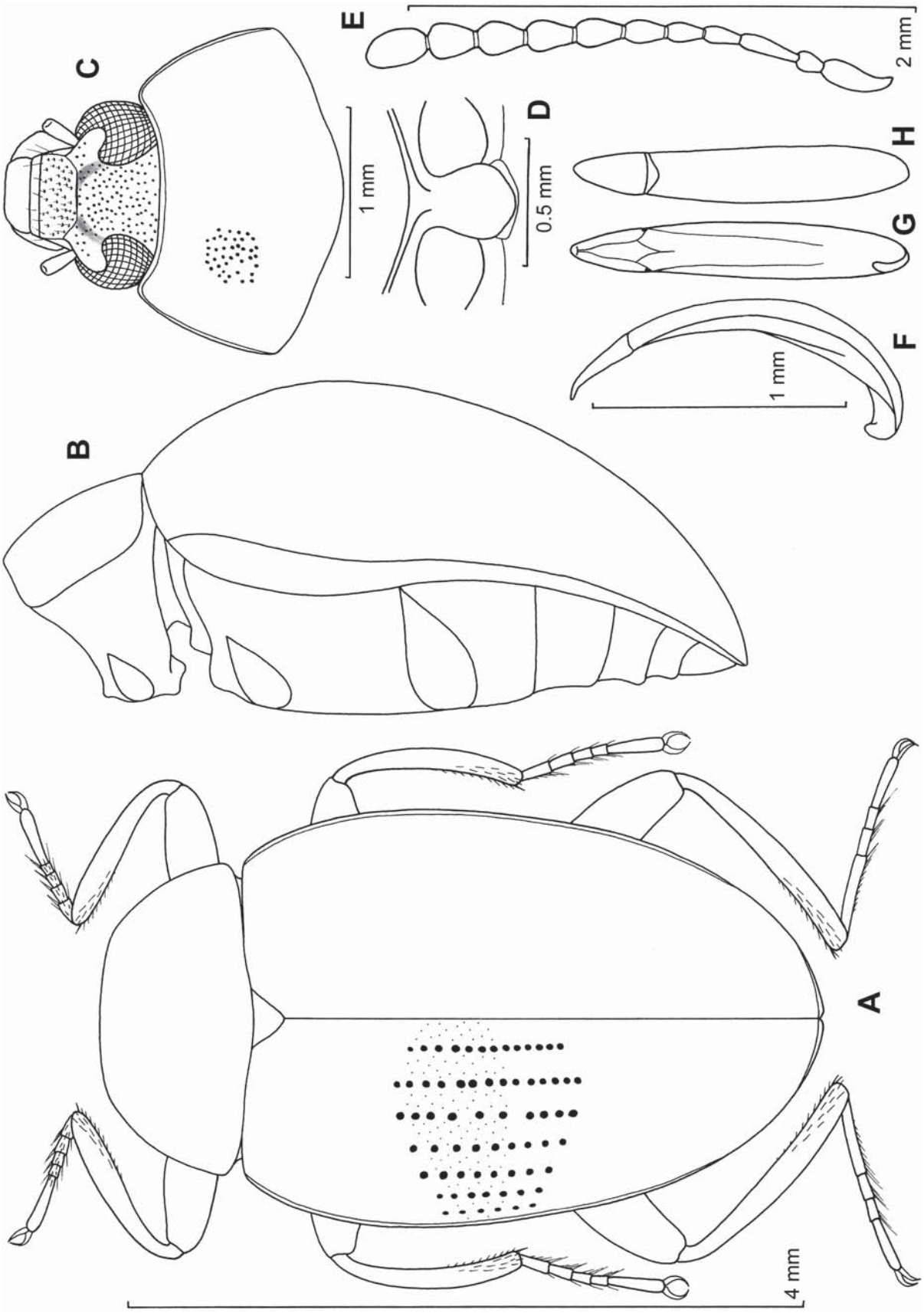


Fig. 37. *Amarygmus murutensis* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Pronotum: Relatively narrow, weakly convex transversely and longitudinally. Widest at base, slightly narrowed and bent anteriorly. Anterior margin excavated. Front corners somewhat pointed and narrowly rounded. Lateral and anterior margins continuously bordered, lateral borders widely visible in dorsal view. Front corners in lateral view angular (angle about 100°), hind corners more obtuse. Surface with small, distinct, irregularly and rather closely set punctures, and a tiny, dust-like pilosity (in old specimens often abraded).

Scutellum: Triangular, with minute punctures.

Elytra: Ovate, markedly convex longitudinally and transversely. Maximum height and width at the level of the anterior third. Shoulders prominent. Apex of each elytron very slightly retracted towards suture. Lateral edges in dorsal view narrowly visible in the anterior four-fifths. With rows of distinct, medium-sized punctures; distance between punctures on disc in row 4 about 1½–2 times diameter of a puncture; punctures becoming small and indistinct towards the apex; about 26 punctures in row 4. Intervals flat on disc, laterally slightly convex, with minute, widely separated punctures.

Prosternum: Anterior margin narrowly bent upwards, retracted towards apophysis in its middle. Apophysis oval, lateral margins only very slightly raised, thus space in between only shallowly depressed; some medium-sized, semi-erect hairs on apophysis.

Mesosternum: Hind part short; anterior margin widely, shallowly excavated in the middle; with some erect hairs.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with coarse, closely set punctures and short hairs which originate from these punctures (in both sexes); posterior part with a few tiny punctures. Median line not recognizable.

Sternites: Anterior margin of sternite 1 between metacoxae widely ogival, bordered. Sternite 1 and anterior half of sternite 2 with small, closely set punctures; posterior half of sternite 2 and sternites 3–5 with minute, widely separated punctures. Sternite 5 apicomedially very slightly depressed in males.

Antennae: Not very long, reaching to about anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 10:5 / 5:4 / 11:3½ / 7:4 / 6:4 / 7:5½ / 9:6 / 9:6½ / 9:6½ / 9:6½ / 13:7.

Legs: Of medium length, rather slender. Femora not markedly thickened. Protibiae nearly straight, mesotibiae slightly bent, metatibiae straight in the basal two-thirds, slightly incurved apically. Protarsomeres not widened in males. Lengths of protarsomeres 1–5 as 4:4:4:4:17, lengths of mesotarsomeres 1–5 as 6:6:5:4:18, lengths of metatarsomeres 1–4 as 19:9:6:17.

Aedeagus: See Fig. 37F–H.

Amarygmus neso **n. sp.**
(Fig. 38A–E)

Holotype (♀): Borneo, Malaysia, Sarawak, Gunung Gading NP, 100–300 m, 23.–29.IX.2008, R. Grimm (CG).

Circumstances of collection: Lowland primary forest, on the bark of a tree, at night.

Etymology

Neso, name of one of the Nereids (according to Hesiod).

Diagnosis

Small, somewhat elongate oval. Elytra with striae with medium-sized, elongate punctures; intervals slightly convex. Frons of medium width, fronto-clypeal suture strongly incised in its middle part, antennae long. Pronotum dark blue, elytra dark coppery, lustrous; legs brown.

Amarygmus neso n. sp. belongs to a group of similar species, but most of them are not known from Borneo. The most similar species on Borneo is *A. praecellens* n. sp. which has the same size and shape and the same colouration of pronotum and elytra as *A. neso*. However, in *A. praecellens* the frons is markedly narrower, the fronto-clypeal suture is scarcely incised (markedly incised in the middle in *A. neso*), and the terminal antennomeres are longer.

Description

Measurements: Body length 5.81 mm; body width 3.35 mm. – Ratios: Pronotum: width/length 1.94; width hind corners/width front corners 1.69. Elytra: length/width 1.35; length elytra/length pronotum 3.41; maximum width elytra/maximum width pronotum 1.30.

Colouration: Frons dark blue, genae brown, clypeus black, lustrous. Pronotum dark blue, lustre reduced. Elytra dark coppery, lustrous. Legs brown. Antennomeres 1–5 brown, 6 dark brown, 7–11 black. Underside brown, lustrous, femora somewhat lighter brown than underside.

Head: Frons of medium width, approximately as wide as length of antennomere 3. Genae raised, anteriorly terminating slightly in front of the middle part of the fronto-clypeal suture. Fronto-clypeal suture distinctly incised in its middle part. Clypeus moderately stretched forwards, somewhat convex transversely, with small punctures which are the origin of very short hairs. Punctures of frons similarly small, without hairs. Mentum widened anteriorly, bent laterally; lateral margins flat, lustrous, space in between somewhat microreticulated and slightly convex transversely. Underside of neck with large, closely set punctures. Outer surface of mandibles with a sulcus; apically bifid.

Pronotum: Wide, uniformly convex transversely, less convex longitudinally. Widest at base, constricted and bent towards front corners. Anterior margin somewhat

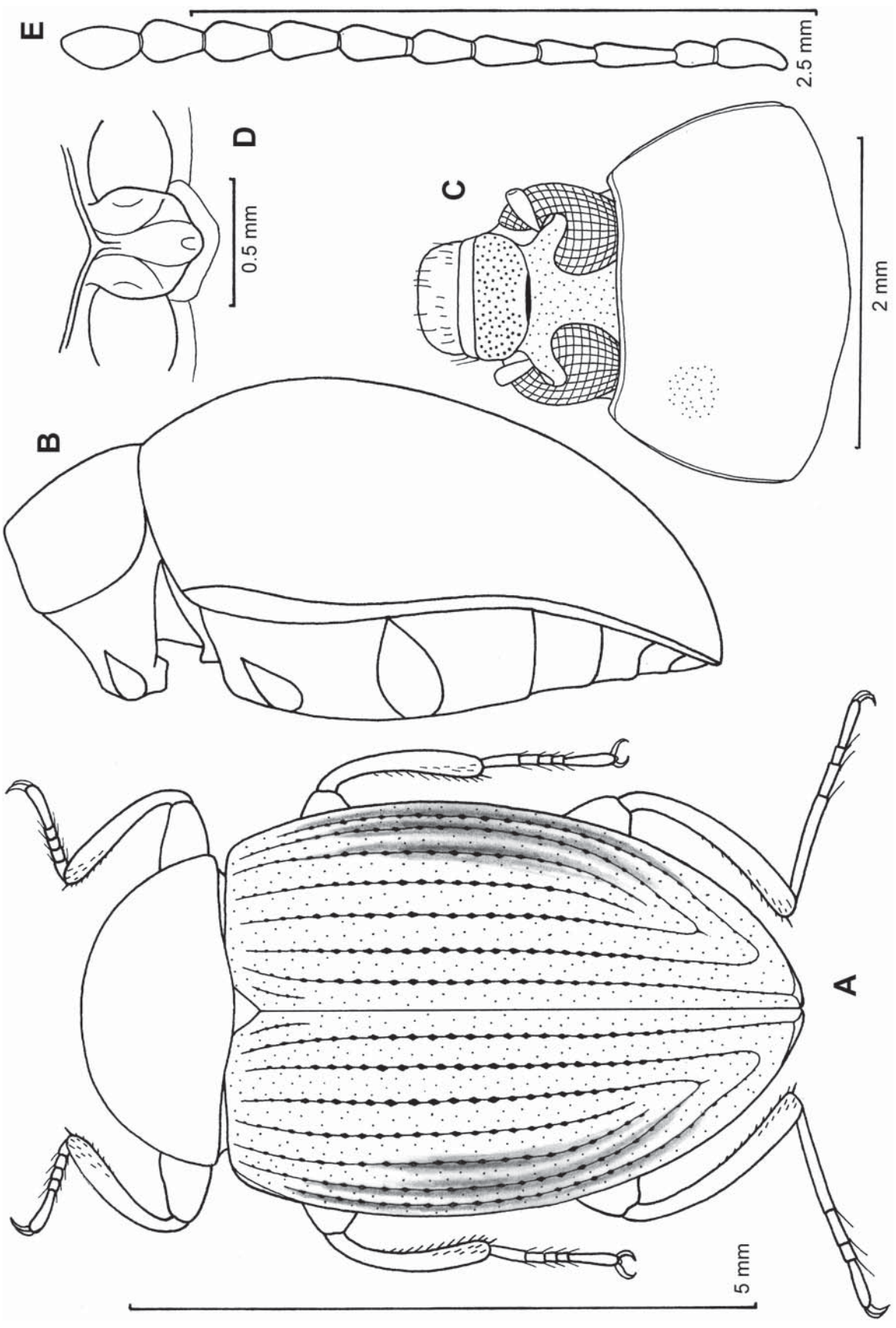


Fig. 38. *Amarygmus neso* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

excavated. Front corners in dorsal view nearly rectangular, hind corners obtuse. Lateral and anterior margins bordered. Borders of lateral margins narrowly visible in dorsal view. Front corners in lateral view with an angle of about 100°, hind corners more obtuse. Surface with small, indistinct punctures.

Scutellum: Triangular, impunctate.

Elytra: Oval, slightly elongate, moderately convex transversely, less convex longitudinally. Maximum width and height at the level of the anterior third. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges narrowly visible at the shoulders. With slightly incised and punctured striae; punctures on disc medium-sized and slightly rhombic, punctures becoming smaller posteriorly, changing into incised, nearly impunctated striae apically; about 24 punctures in row 4. Intervals on disc slightly convex, laterally and apically moderately convex, with sparse, tiny punctures.

Prosternum: Anterior margin continuously bent upwards, retracted towards apophysis in its middle, forming an obtuse angle. Apophysis short, wide, lateral margins along coxae widened and slightly raised; space in between with a wide groove; lateral margins posterior to coxae roundedly narrowed; apically slightly protruded in its middle.

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

Metasternum: Anterior part of disc with some large punctures, posterior part with minute punctures. Median line slightly incised.

Sternites: Discs of sternites with tiny, widely separated punctures and very short recumbent hairs.

Antennae: Long, reaching to middle of elytra. Length/width ratio of antennomeres 1–11 equals to 14:7 / 10:5 / 16:5 / 11:5 / 13:5 / 13:5½ / 13:6½ / 13½:7 / 12½:7 / 11:7 / 14:7½.

Legs: Short. Femora thickened towards the second third. Pro-, meso- and metatibiae moderately bent. Lengths of protarsomeres 1–5 as 4:4:4:3½:17, lengths of mesotarsomeres 1–5 as 15:7:6:6:19, lengths of metatarsomeres 1–4 as 36:14:9:19.

Amarygmus nitens glabratus **n. ssp.**
(Fig. 39A–H)

Holotype (♂): Malaysia, Borneo, Sarawak, nr. Kubah NP, Matang Family Park, 200 m, 7.III.2008, R. Grimm (CG).

Paratypes: Borneo, Malaysia, Sarawak, Gunung Gading NP, 100–300 m, 23.–29.IX.2008, R. Grimm (1 ♀ without antennae CG, 1 ♂ ZSMB). – Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 10–200 m, Lux, 11.–14.IX.2008, R. Grimm (1 ♀ CG). – Same data as before, but 27.–28.IX.2008 (1 ♀ ZSMB; without antennae). – Borneo, Sarawak, Kubah NP, 200–400 m, 6.–8.III.2008, leg. W. Schawaller (1 ♂ SMNS). – Borneo, Malaysia, Sarawak, Kubah NP, Matang Wildlife Centre vic., 50–100 m, 28.–31.III.2009, R. Grimm (2 ♂♂ CG, 1 ♀ ZSMB). – Borneo, Malaysia, Sarawak, Kuching NP, HQ vic., 100–300 m, 27.–28.III.2009, R. Grimm (1 ♀ CG, 1 sex not determined CG). – Borneo, Malaysia, Sarawak, Kuching, Reservoir Park, 8.IV.2009, R. Grimm (1 ♀ CG).

Circumstances of collection: On tree bark in parks and similar habitats, in part at edge of lowland primary forest, at night; 1 specimen at light.

Etymology

Glabratus (Lat.) = smooth, bald.

Diagnosis

Small, elongate oval. Upperside very brilliant, with strong iridescence on elytra. Elytra with slightly incised striae with medium-sized punctures, intervals slightly convex on disc. Frons of medium width. Antennae long, slightly longer in males than in females. Male protarsomeres 1–3 not widened.

Amarygmus nitens glabratus belongs to a group of species near *A. nitens* Bremer, 2003 s. str., *A. plagiatus* Bremer, 2003, and *A. becvarsenioris* Bremer, 2003 (all described and illustrated in Bremer 2003b). Concerning body shape, size, shape of legs and antennae, the new subspecies is very near to *A. nitens* s. str. from Sumatra, the Mentawei Islands, and the Malayan Peninsula. However, the present taxon from Sarawak shows a somewhat smaller frons and a more distinct elytral iridescence than the material from Sumatra and the Mentawei Islands. I treat the taxon from Sarawak as a subspecies of *A. nitens* because the differences to *A. nitens* s. str. are slight, and the characters of frontal width and iridescence of the specimens from the Malayan Peninsula are intermediate between both taxa.

With respect to colouration, elytral striae and intensity of iridescence *A. nitens glabratus* also resembles *A. plagiatus* from Sumatra, the Malayan Peninsula and Sarawak, but *A. nitens glabratus* is somewhat smaller and narrower, and the punctures of the elytral striae are smaller.

A. becvarsenioris, in contrast to *A. nitens glabratus*, has rows of punctures on the elytra, a wider frons, and is slightly longer; the elytral iridescence is of the same intensity in both taxa.

Description

Measurements: Body length 5.25–5.73 mm; body width 3.00–3.09 mm. – Ratios: Pronotum: width/length 1.93–2.03; width hind corners/width front corners 1.76–1.88. Elytra: length/width 1.49–1.58; length elytra/length pronotum 3.70–4.07; maximum width elytra/maximum width pronotum 1.30–1.33.

Colouration: Upperside brilliant; basic colour of pronotum and elytra dark green, with broad, iridescent ribbons of the spectral colours. Scutellum brown. Head nearly black. Underside brown, lustrous. Femora brown, tibiae dark brown, tarsi brown. Antennomeres 1–4 brown, 6 dark brown, 7–11 black.

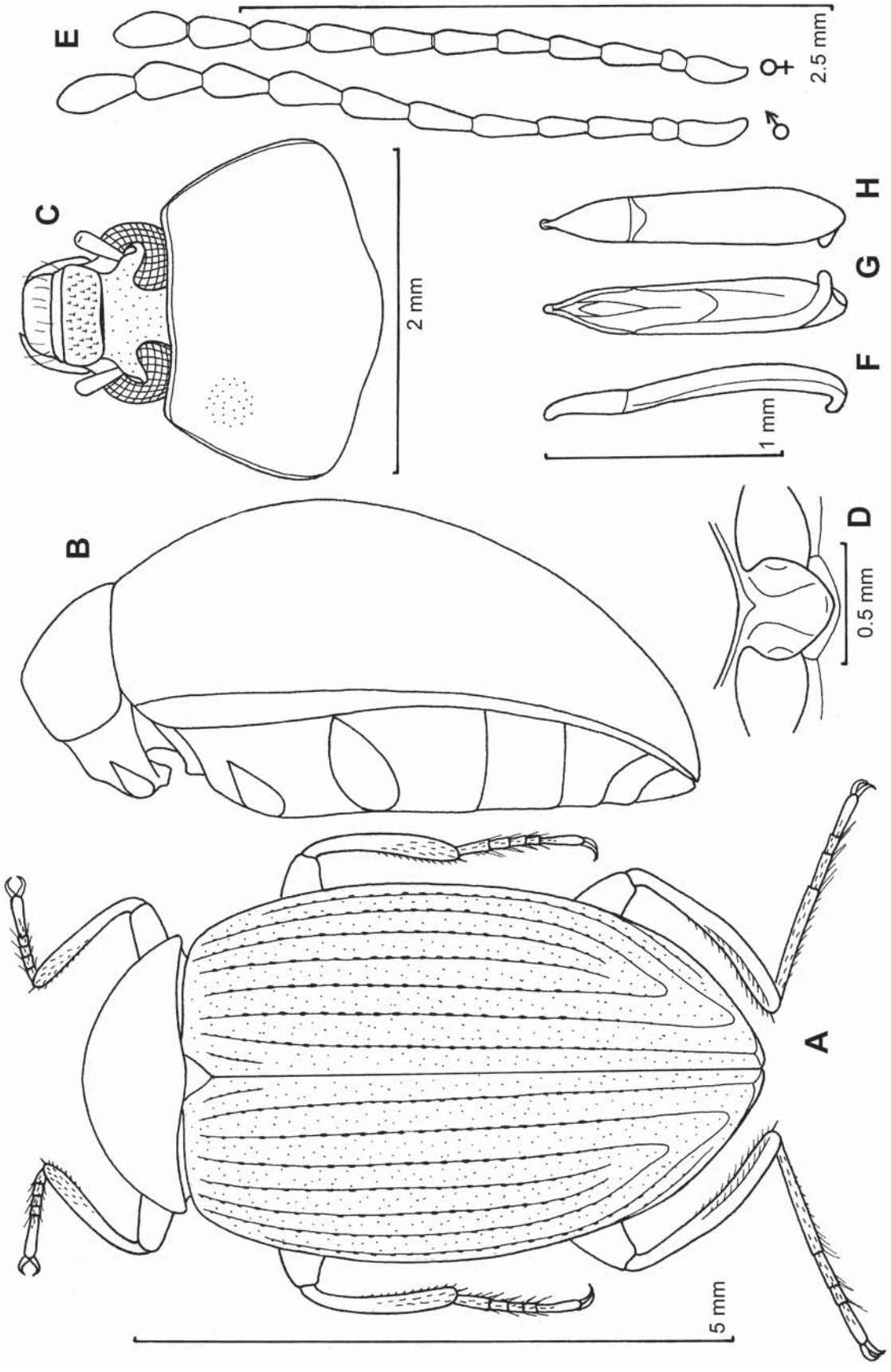


Fig. 39. *Amarygmus nitens glabratus* n. ssp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and Pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

H e a d : Frons of medium width, wider than length of antennomere 3 (like 17 : 15). Genae short, slightly raised, anteriorly terminating somewhat behind the middle part of the fronto-clypeal suture. Fronto-clypeal suture markedly depressed and clearly incised in its middle part. Clypeus moderately stretched forwards, longitudinally convex, with medium-sized, closely set punctures; punctures of frons much smaller and less dense than those of clypeus. Mentum reversely trapezoidal. Underside of neck with medium-sized, very closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Uniformly convex transversely, less convex longitudinally. Widest at base, narrowing anteriorly, bent. Anterior margin slightly excavated. Front corners not projecting forwards. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view very narrowly visible in their hind half. Front corners in lateral view obtusely angular, hind corners rounded, obtuse. Surface with minute, widely separated punctures.

S c u t e l l u m : Triangular, with some tiny punctures.

E l y t r a : Elongate oval, convex transversely, somewhat less convex longitudinally. Maximum width and height in the middle. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With striae with medium-sized, slightly elongate punctures; distance between punctures on disc in stria 4 about equal to the diameter of a puncture; about 32 punctures in stria 4; punctures smaller near apex; striae slightly incised on disc, somewhat more incised laterally and apically. Intervals slightly convex on disc, somewhat more convex laterally and posteriorly, with very tiny, widely separated punctures.

P r o s t e r n u m : Anterior margin narrowly bent upwards, a short, low keel directed towards apophysis in its median part. Apophysis short, as wide as long; margins raised along procoxae, median space in between with a wide, shallow groove; margins behind coxae roundedly narrowed, apex rounded.

M e s o s t e r n u m : Hind part short, wide; anterior margin slightly excavated in the middle.

M e t a s t e r n u m : Anterior part of disc with a few medium-sized punctures, posterior part impunctate but with some tiny recumbent hairs. Median line slightly incised.

S t e r n i t e s : Sternites 1–3 impunctate, sternites 4 and 5 with a few tiny punctures. Sternite 5 apicomedially without sexual characters in male.

A n t e n n a e : Long, reaching to about middle of elytra. Length/width ratio of antennomeres 1–11 in male equals to 15:5½ / 7:4 / 13:4½ / 10:4½ / 11:5 / 13:6 / 14:6½ / 15:6½ / 15:6½ / 14:6½ / 17:6½.

L e g s : Short. Femora thickened towards the second third. Protibiae nearly straight, mesotibiae somewhat bent, metatibiae more bent than mesotibiae. Mesotibiae on inner side with some semi-erect hairs in the apical half. Lengths of protarsomeres 1–5 as 5:5:5:4:17, lengths of mesotarsomeres 1–5 as 13:9:5:4:18, lengths of metatarsomeres 1–4 as 38:15:6:17.

A e d e a g u s : See Fig. 39F–H.

Amarygmus novior **n. sp.**
(Fig. 40A–I)

H o l o t y p e (♂): Borneo, Malaysia, Sabah, Kinabalu NP, Poring vic., 380 m, 9.–11.III.2007, R. Grimm (CG).

P a r a t y p e s : Same data as holotype (3 ♂♂ CG, 1 ♂ ZSMB, 1 ♀ CG, 2 ♀♀ ZSMB). – Borneo, Sabah, Crocker Range NP, NW Keningau, 900–1200 m, 16.–20.XI.1996, leg. W. Schawaller (1 ♂ SMNS).

Circumstances of collection: Edge of lowland primary forest, on tree bark, at night (in Kinabalu NP).

Etymology

Novior (Lat.), comparative of novus = new.

Diagnosis

Small to medium-sized, oval. Upperside green, legs brown. Elytra with striae with punctures and slightly convex intervals. Frons not very wide. Antennae of medium length. Males are characterized by long hairs on front of profemora, on back of mesofemora and on prosternal apophysis.

Because of the male sexual characters (long hairs on femora and prosternal apophysis) *A. novior* belongs to a species group near *A. postdepressus* Pic, 1938 (redescribed in Bremer 2004a: 29–31, fig. 16). On Borneo, this group includes also *A. dignus* Bremer, 2004, *A. crockeri* Bremer, 2004 (see Bremer 2004e: 111–116), and *A. disgregatus* n. sp.

A. postdepressus, *A. crockeri*, and *A. disgregatus* have striae on the elytra as in *A. novior* n. sp.; *A. dignus* has rows of punctures. *A. disgregatus* can be separated from *A. novior* by its colouration (blue or violet pronotum and blue or violet elytral shoulders) and the somewhat narrower frons.

In contrast to *A. novior* (and *A. disgregatus*), *A. postdepressus* and *A. crockeri* do not show light brown legs. Moreover, *A. crockeri* is larger than *A. novior* (body length of *A. crockeri* 7.01–7.64 mm, elytral length/width 1.34–1.42:1), the upperside is copper-coloured, femora and tibiae are blackish, and this species is probably restricted to high altitutes of the Crocker Mountains of Sabah.

A. postdepressus is similarly large as *A. novior* (body length of *A. postdepressus* 6.45–7.80 mm, elytral length/width 1.26–1.33 : 1), but differs in its colouration (lustrous, dark coppery upperside with distinct, colourful, transverse reflections on elytra, blackish brown tibiae which are somewhat brightened apically in some specimens) and in the markedly shorter antennae of the females.

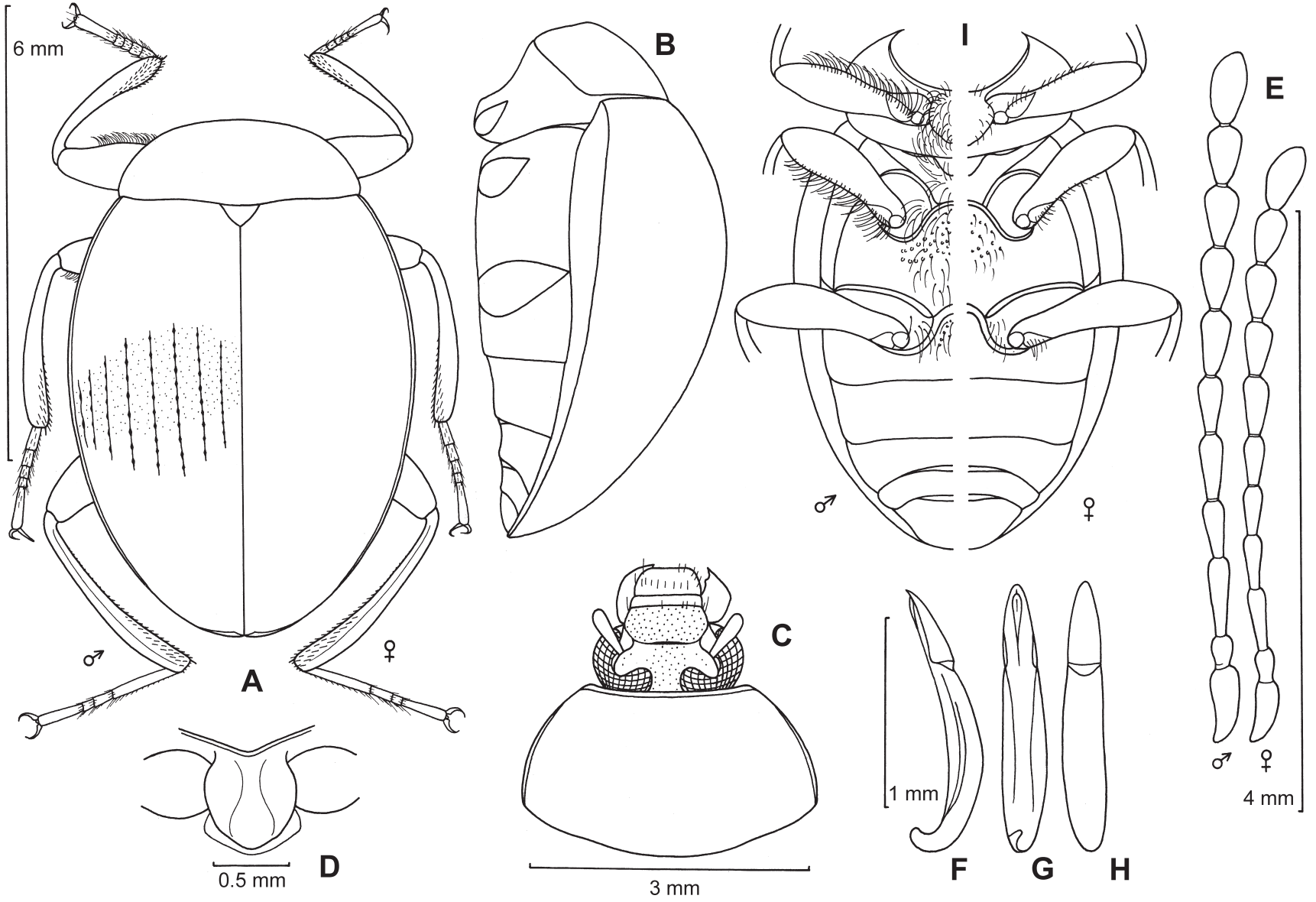


Fig. 40. *Amarygmus novior* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view. **I** Body, ventral view; left side ♂, right side ♀.

Description

M e a s u r e m e n t s : Body length 5.72–7.01 mm; body width 3.66–4.46 mm. – Ratios: Pronotum: width/length 1.94–2.00; width hind corners/width front corners 1.75–1.83. Elytra: length/width 1.27–1.35; length elytra/length pronotum 3.61–3.88; maximum width elytra/maximum width pronotum 1.42–1.46.

C o l o u r a t i o n : Upperside green, slightly lustrous (pronotum more intensively green than elytra). Frons green, clypeus black. Underside brown. Femora and tibiae somewhat lighter brown than underside. Antennomeres 1–7 brown, 8–11 black.

H e a d : Frons somewhat narrower than length of antennomere 4 (like 17 : 19). Genae somewhat raised, narrow, anteriorly terminating at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture markedly incised in the middle, less incised in its lateral parts. Clypeus stretched forwards, slightly convex longitudinally and transversely, with small, distinct punctures which are the origin of short, semi-erect hairs. Punctures of frons markedly smaller than those of clypeus. Mentum reversely trapezoidal, lateral margins wide, flat, lustrous, space in between opaque and somewhat convex transversely. Underside of neck strongly microreticulated, anteriorly with small, closely set, transversely mostly aligned punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Relatively short, convex transversely, slightly convex longitudinally. Lateral margins narrowing anteriorly, bent; maximum width usually at the hind corners, in some specimens just in front of them. Front corners in dorsal view narrowly rounded. Anterior margin slightly excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view visible. Front and hind corners in lateral view rounded, obtuse. Surface with minute, moderately densely and irregularly set punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Compact, oval, markedly convex transversely, somewhat less convex longitudinally. Maximum width and height shortly anterior to middle, narrowed towards shoulders. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible, except on shoulders and on apex. With somewhat incised striae with medium-sized, elongate punctures which become markedly smaller near apex of the elytra; distance between punctures on disc 1–2 times diameter of a puncture; about 25 punctures in stria 4. Intervals flat laterally and on disc, with very small, distinct, moderately closely set punctures.

P r o s t e r n u m : Anterior margin continuously and narrowly bent upwards, retracted towards apophysis in the middle, forming an obtuse angle. Apophysis rather wide; widened and raised along coxal margins, space in between with a wide groove; posterior to coxae somewhat projecting backwards with narrowing sides, apically broadly pointed; apophysis in females with a few irregularly set, erect, tender hairs, in males with very dense, very long hairs which hide the surface of the apophysis.

M e s o s t e r n u m : Wide, short. Pilosity like that of the prosternal apophysis in both sexes.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, coarsely bordered. Anterior apophysis behind anterior margin somewhat separated from disc. Apophysis and anterior part of disc with coarse, not very closely set punctures. Posterior part of disc with very small punctures. Very long and thick hairs hide the disc in males; in females these hairs are short, semi-erect and do not hide the metasternal surface. Median line scarcely incised.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, bordered. All sternites with scarcely visible punctures and very short recumbent hairs in both sexes. Sternite 5 apicomedially without depression in males.

A n t e n n a e : Antennae reaching to anterior third of elytra. Antennomere 11 spindle-shaped. Length/width ratio of antennomeres 1–11 in male equals to 26:9 / 9:7 / 26:8 / 19:8 / 21:8 / 19:8 / 22:10½ / 21:11 / 21:11 / 20:11 / 24:11.

L e g s : Of medium length. Femora thickened towards the second third; back of mesofemora in males somewhat excavated in the basal two-thirds. males with long hairs on protrochanters, anterior basal two-thirds of profemora, posterior basal four-fifths of mesofemora (in two rows of hairs), and on mesotrochanters. Metafemora bare in both sexes. Protibiae slightly bent, thickened apically; mesotibiae bent in males, nearly straight in females. Metatibiae slender, in males somewhat longer than in females; in males markedly bent and in the apical two-thirds on inner side with small tubercles which are the origin of short bristles; in females in the basal half approximately straight, in the apical half somewhat incurved, but without tubercles. Protarsomeres not widened in males. Lengths of protarsomeres 1–5 as 7:7:6:5:30, lengths of mesotarsomeres 1–5 as 14:9:7:6:29, lengths of metatarsomeres 1–4 as 39:14:8:30.

A e d e a g u s : See Fig. 40F–H.

Amarygmus nuntius **n. sp.**
(Fig. 41A–I)

H o l o t y p e (♂): Singapore, Dr. Will (ZMHB).

P a r a t y p e s : Same data as holotype (1 ♂ ZMHB). – Malaysia, Borneo, Sarawak, NW Kuching, Matang Wildlife Centre, 50–100 m, 16.–17.III.2008, R. Grimm (1 ♀ CG, 1 ♀ ZSMB). – Sarawak, Matang, leg. Xántus (1 ♂ HNHM).

Circumstances of collection: Lowland primary forest (at Matang Wildlife Centre), on tree bark, at night.

Etymology

Nuntius (Lat.) = messenger.

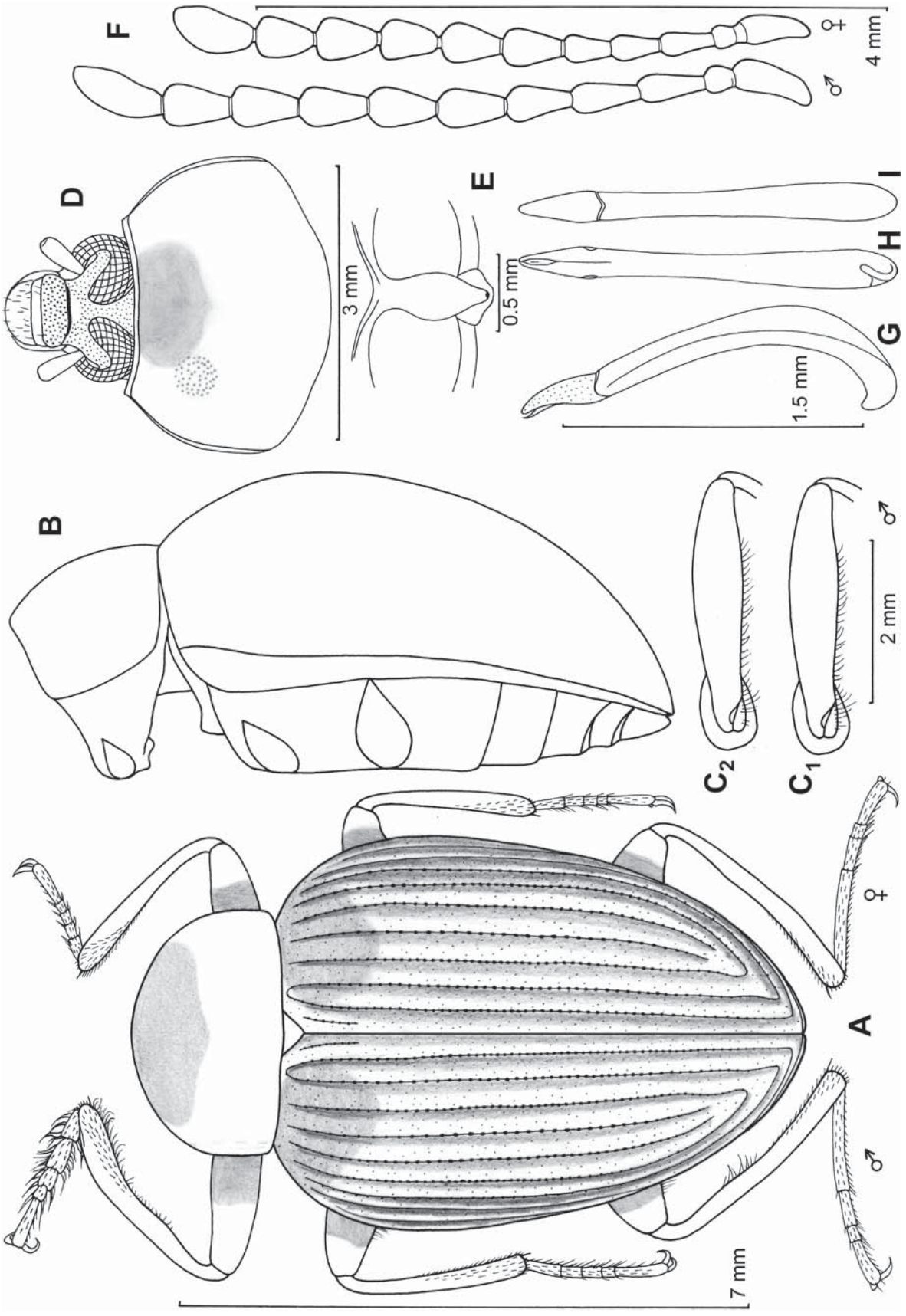


Fig. 41. *Amarygmus nuntius* n. sp. – **A** Habitus (shaded area of pronotum and darker shaded area anteriorly on elytra reddish brown); legs on left side ♂, right side ♀. **B** Body, lateral view. C_1 Metafemur ♂, C_2 Mesofemur ♂. **D** Head and pronotum. **E** Prosternal apophysis. **F** Antennae ♂ and ♀. **G** Aedeagus, lateral view. **H** Aedeagus, ventral view. **I** Aedeagus, dorsal view.

Diagnosis

Of medium size, oval, markedly convex. Pronotum and elytra with reddish brown maculae on black ground (Fig. 41A). Frons relatively narrow. Antennae of medium length, in males longer than in females, antennomeres 6–10 nearly triangular. Males with prolonged forelegs and widened protarsomeres 1–3.

A. proteus n. sp. from Sarawak and Singapore has about the same shape and nearly the same pattern of maculae on pronotum and elytra. *A. nuntius* differs from *A. proteus* in the more flattened and triangular antennomeres 6–10 (elongate and approximately cylindrical in *A. proteus*), the black antennomere 11 (reddish brown in *A. proteus*), and the shape of the aedeagus which is similar to *A. rufonotatus* Pic, 1915 (similar to *A. furvus* (Gebien, 1927) in *A. proteus*).

Description

Measurements: Body length 6.93–8.28 mm; body width 3.90–4.22 mm. – Ratios: Pronotum: width/length 1.55–1.67; width hind corners/width front corners 1.71–1.90. Elytra: length/width 1.45–1.56; length elytra/length pronotum 3.09–3.17; maximum width elytra/maximum width pronotum 1.29–1.30.

Colouration: Upperside mostly black, slightly lustrous; front part of pronotum reddish brown (extension of the reddish brown part varying individually, compare Fig. 41A, 41D), anterior part of elytra next to base similarly reddish brown (separated from each other by the black scutellum and the black interval 1). Underside black, lustrous. Femora reddish brown with a black cap apically, tibiae black, tarsomeres either black or brown.

Head: Frons relatively narrow, as wide as length of antennomere 2, situated somewhat higher than the adjacent eyes. Genae short, slightly convex, anteriorly terminating a little in front of the level of the fronto-clypeal suture. Eyes large, circumventing the genae and the root of the antennae. Fronto-clypeal suture markedly depressed and incised. Clypeus short, convex transversely, situated lower than the frons. Clypeus and frons with closely set punctures; punctures on clypeus larger than those on frons. Mentum with rounded sides, lateral margins flat, impunctate, brilliant, space in between densely punctated and with long, tender hairs. Underside of neck with small punctures. Outer surface of mandibles with a longitudinal sulcus, apically bifid.

Pronotum: Not very wide; markedly convex transversely, also convex longitudinally but less so than transversely. Lateral margins narrowing in the anterior half, subparallel in the posterior half. Front corners in dorsal view angular, obtuse. Anterior margin slightly excavated. Lateral margins and anterior margin continuously bordered. Lateral borders in dorsal view narrowly visible. Front corners in lateral view rounded, obtuse; hind corners angular, obtuse. Surface with small, indistinct punctures.

Scutellum: Triangular, sides slightly bent.

Elytra: Elongate oval, markedly convex transversely, somewhat less convex longitudinally. Maximum height and width at the level of the anterior third. Shoulders prominent. Apices of elytra mutually rounded. Lateral edges narrowly visible in the anterior two-thirds. With moderately incised striae with very small, elongate punctures. Intervals slightly convex on disc, markedly convex laterally, with indistinct, tiny punctures.

Prosternum: Anterior margin narrowly bent upwards, except in the middle. Apophysis narrow, spindle-like, on its anterior part rising towards coxae, behind coxae descending to an acutely pointed apex; median space between coxae not depressed; with some tender, irregularly placed hairs.

Mesosternum: Hind part somewhat higher ventrad than metasternum, with subparallel sides; anterior margin markedly excavated in the middle.

Metasternum: Disc in males with small, sparse punctures with long recumbent hairs, in females with smaller punctures with much shorter hairs. Median line incised.

Sternites: Discs of sternites with sparse, small punctures and medium-sized, semi-erect, tender hairs. Sternite 5 apicomedially not depressed.

Antennae: Of medium length, in males longer than in females (but incomplete in males). Length/width ratio of antennomeres 1–11 in female equals to 20:10 / 9:8 / 16:8½ / 17:8½ / 16:9 / 20:13 / 20:13 / 20:13 / 20:13½ / 19:13½ / 26:10.

Legs: Of medium length. Forelegs in males markedly prolonged, middle and hind legs slightly prolonged. Femora thickened towards the second third. Meso- and metafemora in males with long, tender hairs posteriorly. Protibiae in males in the basal half straight and gradually thickened, in the apical half incurved, markedly thickened, excavated and with erect hairs on inner side; protibiae in females nearly straight. Mesotibiae slightly bent in both sexes. Metatibiae nearly straight in the posterior half, incurved and thickened in the basal half; in males with long, erect, tender hairs in the middle on inner side. Protarsomeres 1–4 in males with long, laterally erect hairs, protarsomeres 1–3 prolonged and widened. Lengths of protarsomeres 1–5 in male as 17:14:8:6:35, lengths of mesotarsomeres 1–5 as 23:14:11:9:36, lengths of metatarsomeres 1–4 as 57:14:8:34; in female the corresponding lengths are 10:10:8:8:30, 18:12:9:7:31, and 50:16:9:31.

Aedeagus: See Fig. 41G–I.

Amarygmus nyctelius **n. sp.**
(Fig. 42A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Kinabalu NP, HQ vic., 1550 m, 11.–13.II.2006, R. Grimm (CG).

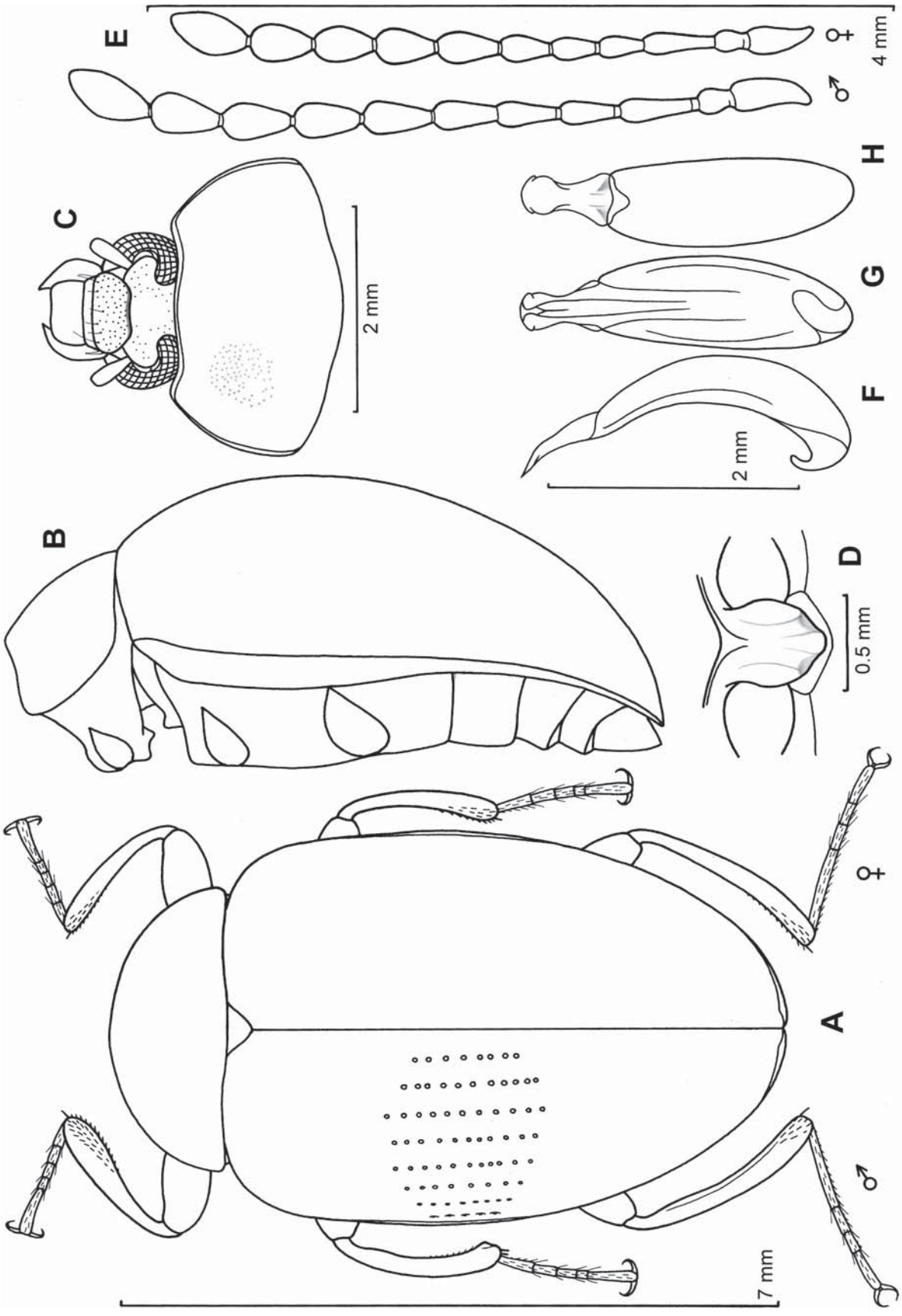


Fig. 42. *Amarygmus nyctelius* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

P a r a t y p e : Same data as holotype (1 ♀ ZSMB).

Circumstances of collection: Edge of mountainous primary forest, on the bark of a tree, at night.

Etymology

Nyctelius (Lat.), epithet = at night.

Diagnosis

Of medium size, elongate oval, not very strongly convex, with the maximum width at the anterior fourth of elytra, lustrous. Elytra with rows of medium-sized punctures which are separated by a narrow distance; intervals flat, with minute, indistinct punctures. Frons of medium width, fronto-clypeal suture strongly depressed and incised, antennae of medium length. Meso- and metatibiae markedly bent; male protibiae widened in apical half on inner side; male mesotibiae with a tubercle-like bulge anterior to apex on inner side; male protarsomeres 1–3 not widened.

A. nyctelius resembles *A. dignus* Bremer, 2004 (Bremer 2004e: 113–116) from Sabah. However, *A. dignus* is somewhat larger than *A. nyctelius*, the males have long hairs on pro- and mesofemora, no widening in the apical half on inner side of protibiae, and the aedeagi are different.

Description

M e a s u r e m e n t s : Body length 7.01+7.05 mm; body width 3.90+3.94 mm. – Ratios: Pronotum: width/length 1.89+1.92; width hind corners/width front corners 1.78+1.85. Elytra: length/width 1.49+1.51; length elytra/length pronotum 3.89+4.00; maximum width elytra/maximum width pronotum 1.38+1.39.

C o l o u r a t i o n : Upperside markedly lustrous, coppery. Frons somewhat microreticulated, therefore, less lustrous than pronotum. Clypeus black. Underside dark brown. Femora and tibiae black, tarsi brown. Antennomeres 1–3 dark brown, 4–11 black.

H e a d : Frons of medium width, as wide as combined length of antennomeres 2+3. Genae somewhat raised, anteriorly terminating slightly in front of the middle part of the fronto-clypeal suture. Fronto-clypeal suture widely depressed in its middle part and somewhat incised. Clypeus slightly stretched forwards, convex longitudinally, slightly convex transversely, with small, rather closely set punctures; frons with markedly smaller and sparser punctures than those on clypeus. Mentum lustrous, widened anteriorly, with rounded sides and flat lateral margins, space between lateral margins convex. Underside of neck with small, very closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Wide, convex transversely and longitudinally. Widest at base, anteriorly narrowing and bent. Hind corners in dorsal view angular, obtuse, front corners narrowly rounded. Anterior margin slightly excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view visible over their whole length. Front and hind corners in lateral view angular, obtuse. Surface with small, distinct, irregularly set punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Elongate oval, moderately convex. Maximum width and height approximately at the level of the anterior fourth. Shoulders prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view visible only near the shoulders. With rows of medium-sized, distinct punctures which become indistinct in the apical eighth of the elytra; distance between punctures on disc in row 4 about 1–2 times diameter of a puncture; about 35 punctures in row 4. Intervals flat, with tiny, sparse punctures which are visible at 25-fold magnification.

P r o s t e r n u m : Anterior margin narrowly bent upwards, interrupted in the middle, where a flat keel is originating, extending across the whole apophysis. Apophysis widened, lateral margins raised along procoxae, space in between with a wide, shallow groove; sides posterior to coxae roundedly narrowed, continuing into a rounded apex; the keel extending across the apophysis somewhat lifted apicomedially.

M e s o s t e r n u m : Short, wide. Anterior margin moderately excavated in the middle; hind part very shallowly sulcated laterally.

M e t a s t e r n u m : Anterior part of disc with coarse, closely set punctures, posterior part with sparse, tiny punctures. Median line slightly incised.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, narrowly bordered. Anterior part of sternite 1 with very small punctures, posterior part of sternite 1 and subsequent sternites impunctate. Sternite 5 apicomedially very deeply depressed in males.

A n t e n n a e : Of medium length (same length in both sexes), reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 21:7½ / 8:6½ / 20:7 / 15:7 / 15:7 / 15:7½ / 17:8 / 16:8 / 15:8 / 15:8 / 20:8.

L e g s : Short. Femora thickened towards the second third. Protibiae in males slightly bent on outer side, apical two-thirds strongly widened on inner side, with short, dense hairs on the widening; in females slightly but uniformly bent on outer side, only slightly widened on inner side. Mesotibiae markedly bent in both sexes, in males flattened on inner side on apical two-thirds, the flattened area terminating in a protruding tubercle near apex; in females neither flattened area nor tubercle. Metatibiae markedly bent in both sexes. Lengths of protarsomeres 1–5 as 9:8:7:6:26, lengths of mesotarsomeres 1–5 as 16:11:8:7:27, lengths of metatarsomeres 1–4 as 33:13:9:27.

A e d e a g u s : See Fig. 42F–H.

Amarygmus platypodes **n. sp.**
(Fig. 43A–I)

H o l o t y p e (♂): Borneo, Malaysia, Sabah, Crocker Range, Gunung Emas, 1500 m, 16.–21.III.2007, R. GRIMM (CG).

P a r a t y p e : Same data as holotype (1 ♀ ZSMB).

Circumstances of collection: Mountainous primary forest, on tree bark, at night.

Etymology

Platypodes, from Greek τό πλάτ·ός = width, and ό πούς = leg, foot.

Diagnosis

Small, slightly elongate oval. Elytra copper-coloured, lustrous, pronotum with a golden tinge. Elytra with rows of medium-sized, distinct punctures, and with flat, nearly impunctate intervals. Frons of medium width, antennae of medium length, in male somewhat longer than in female. Male protibiae strongly and increasingly widened from base to apex with nearly even margins; male mesotibiae distinctly widened and hollowed on underside; female protibiae less widened and mesotibiae not hollowed on underside. Male protarsomeres 1–3 not widened.

On the Greater Sunda Islands there are several species with a widening of male protibiae in the apical half on inner side. However, I only know *A. platypodes* which has a uniform widening from base to apex.

A. platypodes resembles in size and shape *A. catenatus* n. sp., thus female specimens of both species can only be identified by slight differences in the inner side of the protibiae.

Description

M e a s u r e m e n t s : Body length 5.42+5.49 mm; body width 3.18+3.21 mm. – Ratios: Pronotum: width/length 1.74+1.79; width hind corners/width front corners 1.82+1.82. Elytra: length/width 1.36+1.38; length elytra/length pronotum 3.33+3.35; maximum width elytra/maximum width pronotum 1.36+1.40.

C o l o u r a t i o n : Elytra copper-coloured, lustrous. Pronotum with a golden tinge. Head black, microreticulated, slightly lustrous. Scutellum brown. Femora and tibiae black, tarsi reddish brown. Antennomeres 1–5 dark brown, 6–11 black. Underside blackish brown (except metasternum which may be entirely or partially reddish brown).

H e a d : Frons of medium width, approximately as wide as length of antennomere 3. Genae slightly raised, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture depressed and incised in its middle part. Clypeus moderately stretched forwards, insignificantly convex longitudinally, nearly flat transversely, only the lateral margins bent downwards. Clypeus with small, rather closely set punctures, punctures on frons and genae more widely separated; very short hairs originating from the punctures of clypeus and genae. Mentum wide, reversely trapezoidal, with flat, wide sides, space in between slightly convex and with some small punctures. Underside of neck with coarse, rhombic, transversely aligned punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Of medium width, markedly and uniformly convex transversely, less convex longitudinally. Lateral margins anteriorly narrowing. Hind corners obtuse, front corners in dorsal view approximately rectangular. Anterior margin distinctly excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible in the posterior three-fourths. Front corners in lateral view rectangular, hind corners obtuse. Surface with small, irregularly set punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Very slightly elongate oval, strongly convex transversely, somewhat less convex longitudinally. Maximum width and height slightly behind level of the anterior third. Shoulders prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible in and behind the middle. With rows of medium-sized punctures which become increasingly smaller posteriorly and disappear near apex; distance between punctures on disc in row 4 about 1½–2 times diameter of a puncture; about 38 punctures in row 4. Intervals flat, with tiny, widely separated punctures.

P r o s t e r n u m : Anterior margin narrowly bent upwards, retracted towards apophysis in the middle and forming a low keel which extends across the whole apophysis and becomes wider posteriorly. Lateral margins somewhat widened and raised along procoxae, space in between with a shallow groove. Apophysis posterior to the coxae shortly projecting to the back with subparallel sides, apically broadly pointed.

M e s o s t e r n u m : Anterior margin excavated in the middle, posterior to excavation somewhat depressed and surface smooth; lateral margins wrinkly.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, broadly bordered. Anterior apophysis raised like a swelling, reddish brown, with smooth surface. Disc with 2–3 transverse rows of medium-sized punctures posterior to the lateral part of the anterior margin and posterior to the apophysis, the remaining part of the disc with a few tiny punctures. Median line incised from the back up to the apophysis.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, coarsely bordered. Sternites with a few tiny, indistinct punctures. Sternite 5 apicomedially slightly depressed in male.

A n t e n n a e : Antennae reaching to anterior fourth of elytra. Length/width ratio of antennomeres 1–11 in male equals to 13:6 / 8:5½ / 16:5½ / 12:5½ / 12:6 / 11:6½ / 12:7 / 14:7½ / 14:7½ / 14:7½ / 16:8, in female to 11:7 / 7:5½ / 16:5 / 10:5 / 11:5½ / 11:6½ / 11:8 / 12:8½ / 12:8½ / 11½:9 / 15:9.

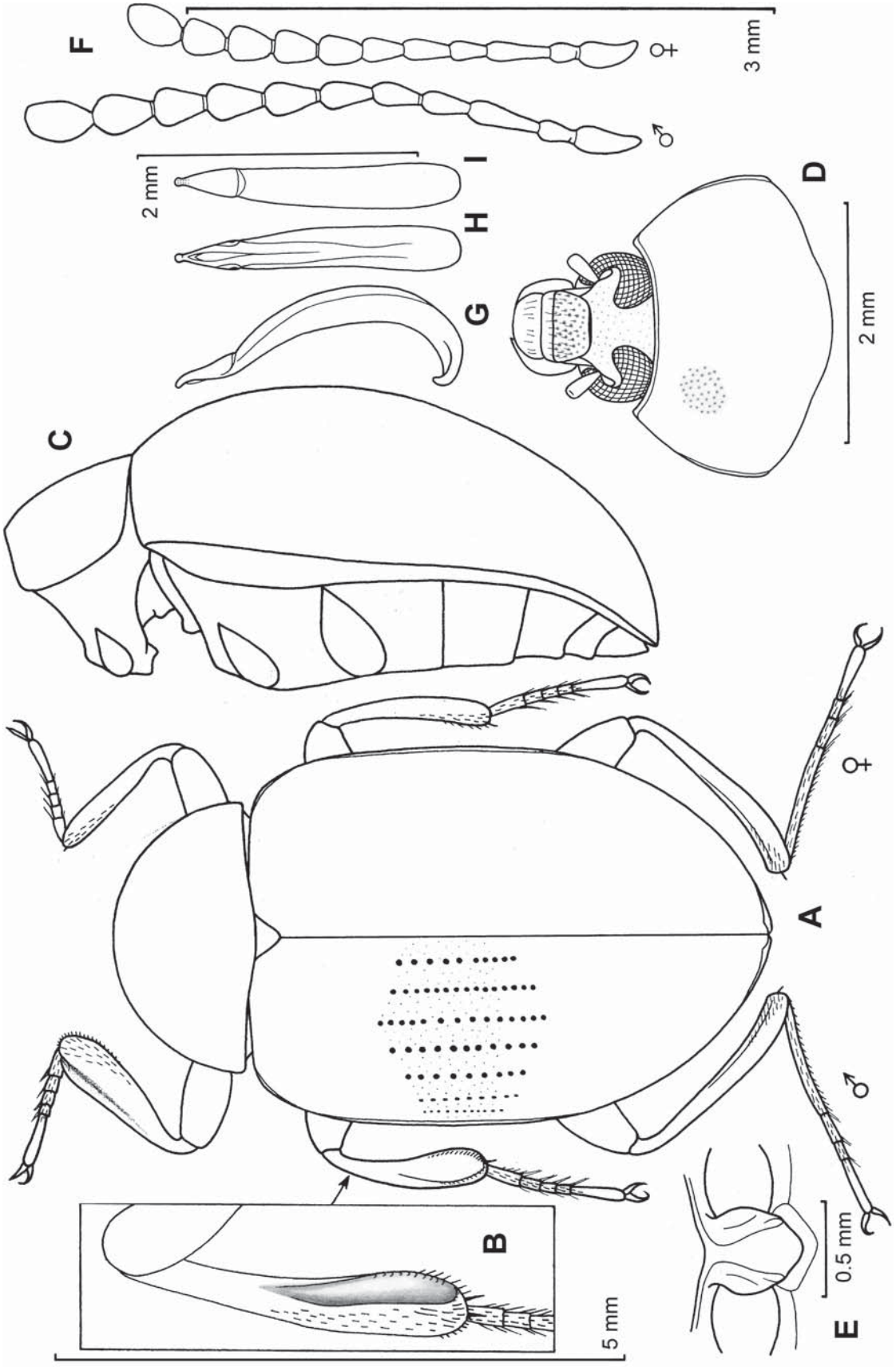


Fig. 43. *Amarygmus platypodes* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Underside of mesotibiae, depressed area. **C** Body, lateral view. **D** Head and pronotum. **E** Prosternal apophysis. **F** Antennae ♂ and ♀. **G** Aedeagus, lateral view. **H** Aedeagus, ventral view. **I** Aedeagus, dorsal view.

L e g s : Short. Femora thickened towards the second third. For variability of pro- and mesotibiae in the male see diagnosis. Metatibiae slender in both sexes, in the basal half straight, in the apical half somewhat incurved. Lengths of protarsomeres 1–5 as 8:7:6:5:25, lengths of mesotarsomeres 1–5 as 14:9:7:6:24, lengths of metatarsomeres 1–4 as 40:12:8:25.

A e d e a g u s : See Fig. 43G–I.

Amarygmus poringensis **n. sp.**
(Fig. 44A–H)

H o l o t y p e (♂): Borneo, Malaysia, Sabah, Kinabalu NP, Poring vic., 380 m, 9.–11.III.2007, R. GRIMM (CG).

P a r a t y p e s : Same data as holotype (2♂♂ CG, 2♂♂ ZSMB).

Circumstances of collection: Edge of lowland primary forest, on rotten wood mixed with fungi, at night.

Etymology

Poringensis, derived from Poring, the collection site of the type specimens.

Diagnosis

Small, oval, dark bronze coloured, sometimes nearly black. Elytra with rows of medium-sized punctures. Genae scarcely developed, thus, the socket joint of antennomere 1 nearly entirely visible. Frons not very wide. Antennae of medium length. Male protibiae and protarsomeres 1–3 not widened, soles of protarsomeres 1–4 closely pilose.

A. genalis Bremer, 2009 (BREMER 2009: 15–16, fig. 36) is similar to *A. poringensis* n. sp. because the genae are also entirely lacking on the upperside of the head. However, this species from the Malayan Peninsula and Sabah is larger than *A. poringensis* (body length about 5.5 mm), the elytral rows consist of less punctures, the elytra are moderately longer (length/width ratio in *A. genalis* 1.34 : 1), and the upperside is dark green.

The following small species with rows of punctures on the elytra (but with developed genae) must be distinguished from *A. poringensis*:

A. expeditus n. sp.: Of similar size as *A. poringensis*, but punctures of the elytral rows somewhat smaller, elytral intervals more closely punctated, frons markedly wider, pronotal front corners more distinct.

A. jenisi Bremer, 2004 (BREMER 2004a: 46, fig. 28): With blue-coloured sides of the elytra, punctures of the elytral rows markedly smaller and partially linked by lines, legs light brown (dark brown to black in *A. poringensis*), punctures of the pronotum distinctly smaller.

A. sodalis Bremer, 2002 (BREMER 2002a: 42): Punctures of the elytral rows markedly smaller and partially linked by lines, legs light brown, male protibiae widened in apical half on inner side.

A. rolandi n. sp.: Punctures of the elytral rows smaller and partially linked by faint lines, front corners of pronotum more distinct.

A. vespertinus n. sp.: Punctures of the elytral rows markedly smaller, body somewhat narrower.

Description

M e a s u r e m e n t s : Body length 4.51–4.86 mm; body width 2.88–3.04 mm. – Ratios: Pronotum: width/length 2.02–2.15; width hind corners/width front corners 1.72–1.82. Elytra: length/width 1.25–1.32; length elytra/length pronotum 3.48–3.61; maximum width elytra/maximum width pronotum 1.30–1.33.

C o l o u r a t i o n : Elytra dark bronze in most specimens (in one specimen black), pronotum blackish; lustrous. Underside black. Legs blackish brown, tarsi somewhat lighter brown. Antennomeres 1–3 dark brown, 4–11 black. Mentum and palpi light brown.

H e a d : Frons a little wider than length of antennomere 4 (like 12 : 11), situated higher than eyes. Genae rudimentary, only in their hind parts narrowly developed, socket joint of antennomere 1 not covered by the genae as it is normally the case in Amarygmini. Fronto-clypeal suture arched and incised on the whole width of the head. Clypeus stretched forwards, slightly convex transversely and longitudinally; clypeus and frons with minute, widely separated punctures; nearly recumbent short hairs originating from clypeal punctures. Mentum widened anteriorly, with rounded sides and a rounded transition between base and sides; lateral and basal margins flat, lustrous, space in between lateral margins opaque, slightly convex transversely. Underside of neck black, microreticulated, on its anterior part with medium-sized punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Wide, distinctly convex transversely, slightly convex longitudinally. Lateral margins narrowing and bent anteriorly, straight in the posterior two-thirds. Front corners widely rounded. Anterior margin very slightly excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view well visible. Front corners in lateral view widely rounded, obtuse; hind corners more angular, obtuse. Surface with small, distinct, rather closely set punctures, in the middle a narrow, longitudinal area with less punctures.

S c u t e l l u m : Triangular, with a few tiny punctures.

E l y t r a : Oval, convex transversely and longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible over their whole length. With rows of medium-sized punctures; distance between punctures on disc in row 4 about 1–2 times diameter of a puncture; about 32 punctures in row 4. Intervals flat, with very small, widely separated punctures.

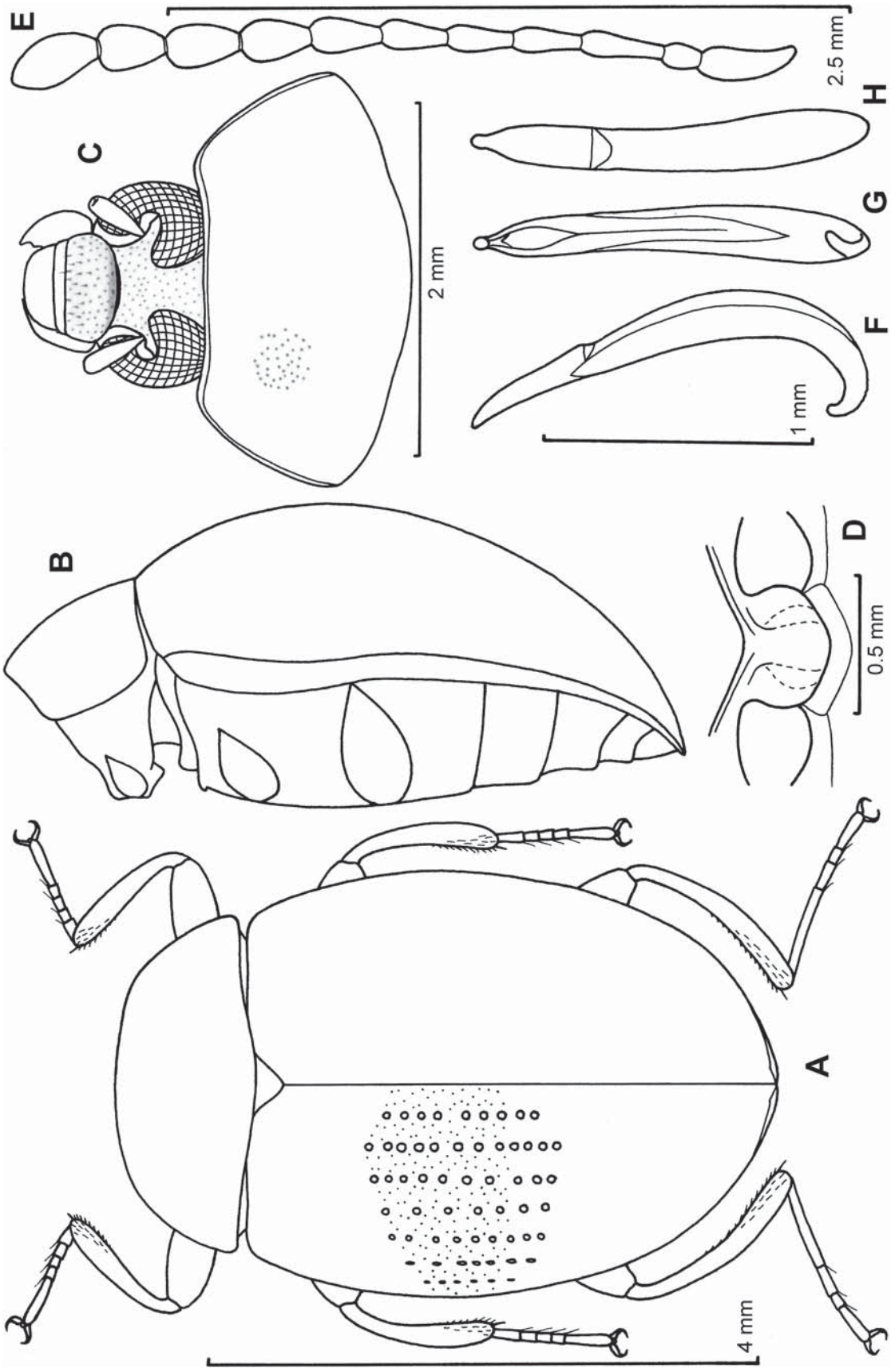


Fig. 44. *Amarygmus poringensis* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

P r o s t e r n u m : Anterior margin narrowly bent upwards, slightly retracted in its middle, forming an obtuse angle. Apophysis very wide, short, along coxae with remarkably broad, slightly raised margins, space in between with a wide, shallow groove; the widely rounded apex positioned just behind coxae.

M e s o s t e r n u m : Hind part wide, very short; anterior margin slightly excavated in the middle.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, coarsely bordered. Anterior part of disc with some very large punctures, posterior part with a few tiny punctures. Median line neither depressed nor incised.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae widely ogival, indistinctly bordered. Sternites with very small to tiny, widely separated punctures. Sternite 5 apicomedially not depressed in males.

A n t e n n a e : Of medium length, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 15:6 / 7:5 / 14:5 / 11:5 / 12:5 / 11:6 / 13:8 / 13:8 / 12:8 / 12:8 / 15:8.

L e g s : Short. Femora thickened towards the second third. Protibiae somewhat thickened anteriorly, slightly bent; meso- and metatibiae bent. Lengths of protarsomeres 1–5 as 4:4:4:4:18, lengths of mesotarsomeres 1–5 as 8:7:5:4:17, lengths of metatarsomeres 1–4 as 29:11:5:17.

A e d e a g u s : See Fig. 44F–H.

Amarygmus praecellens **n. sp.**
(Fig. 45A–H)

H o l o t y p e (♂): Malaysia, Borneo, Sarawak, Kubah NP, 250 m, 6.–8.III.2008, R. GRIMM (CG).

P a r a t y p e s : Same data as holotype (1 ♀ CG, 1 ♀ ZSMB). – Borneo, Malaysia, Sarawak, Kubah NP nr. Matang Wildlife Centre, 19.–22.IX.2008, R. GRIMM (1 sex not determined CG).

Circumstances of collection: Edge of lowland primary forest, on tree bark, at night.

Etymology

Praecellens (Lat.) = superb.

Diagnosis

Small, oval, markedly convex transversely, with a blue or green pronotum and copper-coloured elytra, lustrous; legs brown. Elytra with slightly incised striae with medium-sized punctures. Frons very narrow, antennae very long,

A. silvester Bremer, 2004 (BREMER 2004e: 122–123) from the Malayan Peninsula and Sumatra is similar because it has nearly the same size, a similar colouration of the pronotum, a very narrow frons, and slightly incised striae on the elytra, but it differs in the shorter antennae.

For differences to *A. gnitus* n. sp. see discussion under this species.

With respect to size, shape, width of the frons, and colouration there is also a similarity to *A. splendidulus* (Fabricius, 1801) (redescribed in BREMER 2005b: 52–54), but *A. splendidulus* has shorter antennae and rows of punctures on the elytra (striae in *A. praecellens*).

Description

M e a s u r e m e n t s : Body length 5.25–6.28 mm; body width 3.11–3.78 mm. – Ratios: Pronotum: width/length 1.89–2.03; width hind corners/width front corners 1.67–1.75. Elytra: length/width 1.33–1.39; length elytra/length pronotum 3.25–3.58; maximum width elytra/maximum width pronotum 1.28–1.35.

C o l o u r a t i o n : Head black. Pronotum blue or green, lustrous. Elytra lustrous, dark green to copper-coloured with a violet tinge, and with a distinct, transverse iridescence. Scutellum brown. Legs brown. Antennomeres 1–6 brown, 7–11 black. Underside black, its colouration contrasting with the brown to reddish brown femora.

H e a d : Eyes very large. Frons very narrow, in male narrower than the diameter of the base of antennomere 3 (like 3 : 4), in female only slightly wider. Genae slightly raised, very narrow, situated anterolateral to the eyes, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture straight, slightly incised, situated just in front of the eyes. Clypeus stretched forwards, somewhat convex transversely and longitudinally, with small punctures. Mentum enlarged anteriorly, front corners rounded, lateral margins wide, flat, lustrous; space in between transversely convex, opaque. Mandibles sulcated on outer surface, apically bifid.

P r o n o t u m : Convex transversely and longitudinally. Sides anteriorly narrowed, bent. Front corners rounded. Anterior margin slightly excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible. Front and hind corners in lateral view narrowly rounded, obtuse. Surface with very small, widely separated punctures.

S c u t e l l u m : Triangular, with a few tiny punctures.

E l y t r a : Slightly elongate and oval, strongly convex transversely, somewhat less convex longitudinally. Maximum width and height just anterior to the middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view very narrowly visible in their whole length. With striae with medium-sized, somewhat elongate punctures; distance between punctures on disc in stria 4 about 1–1½ times diameter of a puncture; about 32 punctures in stria 4; striae scarcely incised on disc, distinctly incised laterally. Intervals very slightly convex on disc, somewhat more convex laterally and near the apex, with very small and widely separated punctures.

P r o s t e r n u m : Anterior margin narrowly bent upwards laterally, interrupted in the middle. Apophysis

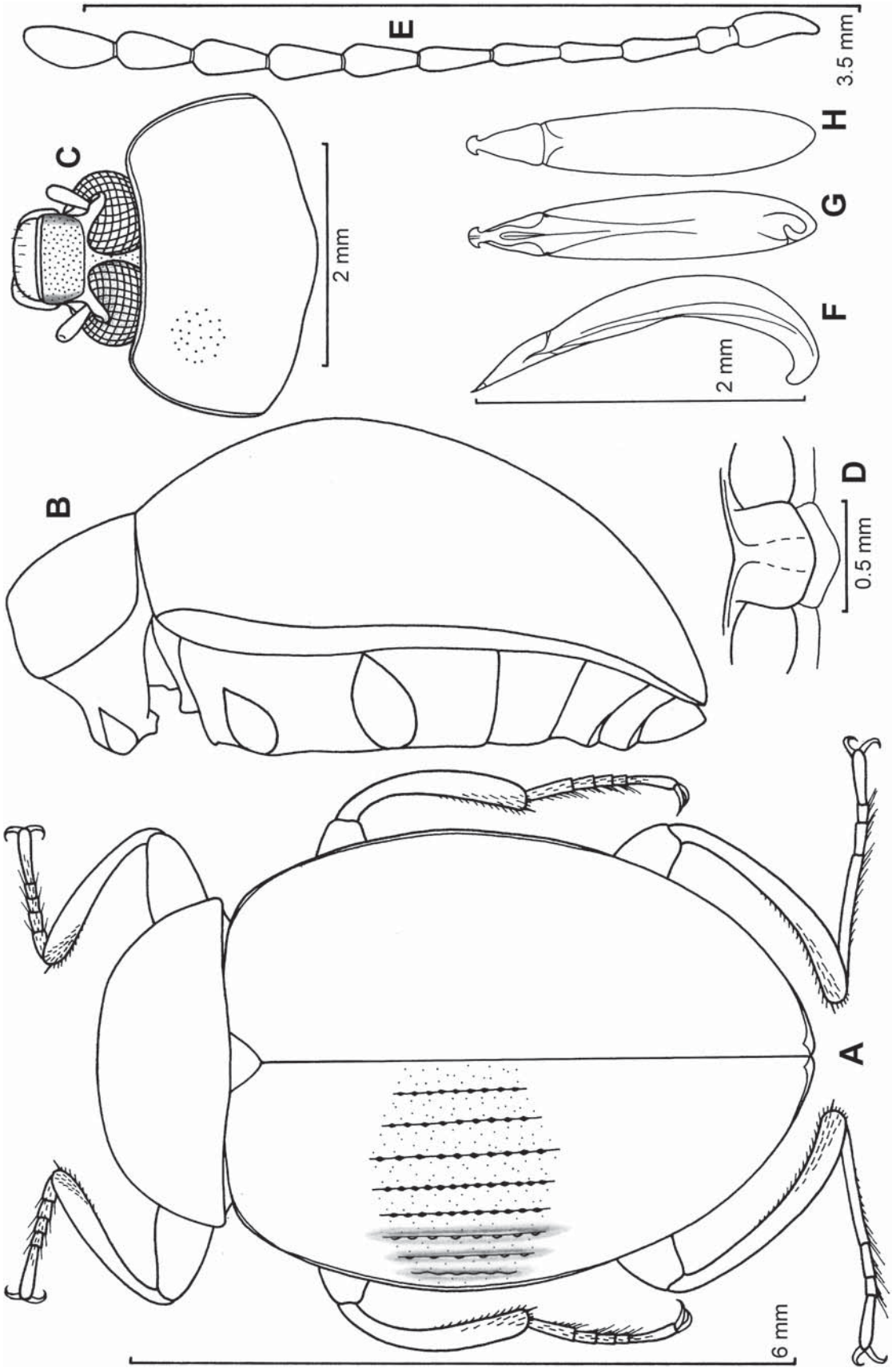


Fig. 45. *Amarygmus praecellens* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

short, about as wide as long; in its middle with a wide, low, longitudinal keel which extends across the whole apophysis; margins along coxae slightly raised; apophysis broadly pointed apically.

M e s o s t e r n u m : Hind part wide, short; on both sides with a slightly incised sulcus; anterior margin excavated in the middle.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with coarse, not very closely set punctures, posterior part with sparse and very small punctures. Median line incised on the whole length.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, coarsely bordered. Discs of sternites with sparse, tiny punctures which are the origin of recumbent short hairs.

A n t e n n a e : Rather long, reaching to middle of elytra, of same length in both sexes. Length/width ratio of antennomeres 1–11 equals to 16:8 / 9:6 / 17:5½ / 12:6 / 15:6 / 16:6½ / 16:7½ / 19:7½ / 18:7½ / 16:8 / 22:8½.

L e g s : Short. Femora somewhat flattened, thickened towards the second third. Protibiae slightly bent, in male slightly widened on inner side; meso- and metatibiae distinctly bent. Protarsomeres 1–3 not widened in male. Lengths of protarsomeres 1–5 as 7:7:6:6:23, lengths of mesotarsomeres 1–5 as 17:9:9:6:23, lengths of metatarsomeres 1–4 as 45:16:10:24.

A e d e a g u s : See Fig. 45F–H.

Amarygmus proteus **n. sp.**
(Fig. 46A–H)

H o l o t y p e (♂): Malaysia, Borneo, Sarawak, Gunung Gading NP, 100–250 m, 9.–12.III.2008, R. GRIMM (CG).

P a r a t y p e s : Same data as holotype (1 ♂ CG). – Borneo, Malaysia, Sarawak, Gunung Gading NP, 100–300 m, 23.–29.IX.2008, R. GRIMM (6 ♂♂, 4 ♀♀ CG, 1 ♂ ZSMB). – Malaysia, Borneo, Sarawak, Kubah NP, 250 m, 18.–19.III.2008, R. GRIMM (1 ♂, 2 ♀♀ CG; 1 ♂ ZSMB). – Malaysia, Borneo, Sarawak, Kubah NP, Matang Family Park, 200 m, 7.III.2008, R. GRIMM (1 ♂ CG). – Malaysia, Borneo, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 20–150 m, 21.III.2008, R. GRIMM (1 ♂ CG). – Same data as before, but 13.–15.III.2008 (2 ♀♀ CG, 1 ♀ ZSMB). – Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 10–200 m, 11.–14.IX.2008 (3 ♂♂, 2 ♀♀ CG; 1 ♀ ZSMB). – Same data as before, but 27.–28.IX.2008 (2 ♂♂, 5 ♀♀ CG; 1 ♂, 1 ♀ ZSMB). – Same data as before, but 4.–8.IV.2009 (7 ♂♂ CG, 1 ♂ ZSMB, 1 ♀ CG). – Malaysia, Borneo, Sarawak, NW Kuching, Matang Wildlife Centre, 50–100 m, 16.–17.III.2008, R. GRIMM (10 ♂♂ CG, 2 ♂♂ ZSMB, 2 ♀♀ CG). – Borneo, Malaysia, Sarawak, Kubah NP, Matang Wildlife Centre, 19.–22.IX.2008, R. GRIMM (4 ♂♂, 4 ♀♀ CG; 1 ♂, 1 ♀ ZSMB). – Borneo, Malaysia, Sarawak, Kubah NP, Matang Wildlife Centre vic., 50–100 m, 28.–31.III.2009, R. GRIMM (1 ♂, 3 ♀♀ CG; 1 ♀ ZSMB). – Singapore, Dr. WILL (3 ♂♂ ZMHB, 1 ♂ ZSMB, 1 ♀ ZMHB).

Circumstances of collection: In Sarawak in lowland primary forest, on rotten trunks covered with fungus (at night), or fogged in the same habitat.

Etymology

Proteus, fabulous oceanic god; as an epithet it also means variable, tricky.

Diagnosis

Of medium size, elongate oval, body markedly convex transversely. Colouration black, with reddish brown maculae as shown in Fig. 46A, antennomere 11 completely yellow or yellowish brown. Elytra with distinctly incised striae with very small punctures, intervals slightly to moderately convex. Frons relatively narrow, antennae long, slight difference in length of male and female antennae. Male protarsomeres 1–3 elongated with long erect hairs laterally (Fig. 46A); male metasternum and back of meso- and metafemora covered with long hairs. Notable difference of size between specimens.

With respect to size, shape, form of maculae and also distribution (Sarawak and Singapore) *A. nuntius* n. sp. is very similar to *A. proteus*. However, *A. nuntius* has black tarsi, a uniformly black antennomere 11, a more triangular shape of antennomeres 6–10, and a different shape of the aedeagus.

A. rufonotatus Pic, 1915 (redescribed and illustrated in BREMER 2005c: 24–25, fig. 23) has a similar shape of body, antennae and male forelegs, and a uniformly yellow antennomere 11. However, *A. rufonotatus* has three reddish brown maculae on each elytron, more closely set punctures on pronotum, no hairs on male metasternum or meso- and metafemora, and a different shape of the aedeagus.

Description

M e a s u r e m e n t s : Body length 5.41–6.93 mm; body width 3.11–3.98 mm. – Ratios: Pronotum: width/length 1.49–1.63; width hind corners/width front corners 1.81–1.97. Elytra: length/width 1.43–1.47; length elytra/length pronotum 2.95–3.20; maximum width elytra/maximum width pronotum 1.33–1.38.

C o l o u r a t i o n : Anterior part of pronotum reddish brown, posterior part black (dividing line between both areas poorly defined). Elytra outside the reddish brown maculae black, with metallic glimmer, just behind base with a continuously transverse macula (in some specimens), in other specimens this macula is divided into two maculae by a black band at the suture. Head brown, lustrous. Femora (except the occasionally black apical apex) and tarsi reddish brown, tibiae black. Underside brown, lustrous, femora lighter brown than underside. Antennomeres 1–4 brown, 5+6 dark brown, 7–10 black, 11 reddish brown or yellow.

H e a d : Frons relatively narrow, of the same width in both sexes, slightly wider than length of antennomere 2. Genae narrow, short, slightly raised, anteriorly terminating behind the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture arched and incised in its

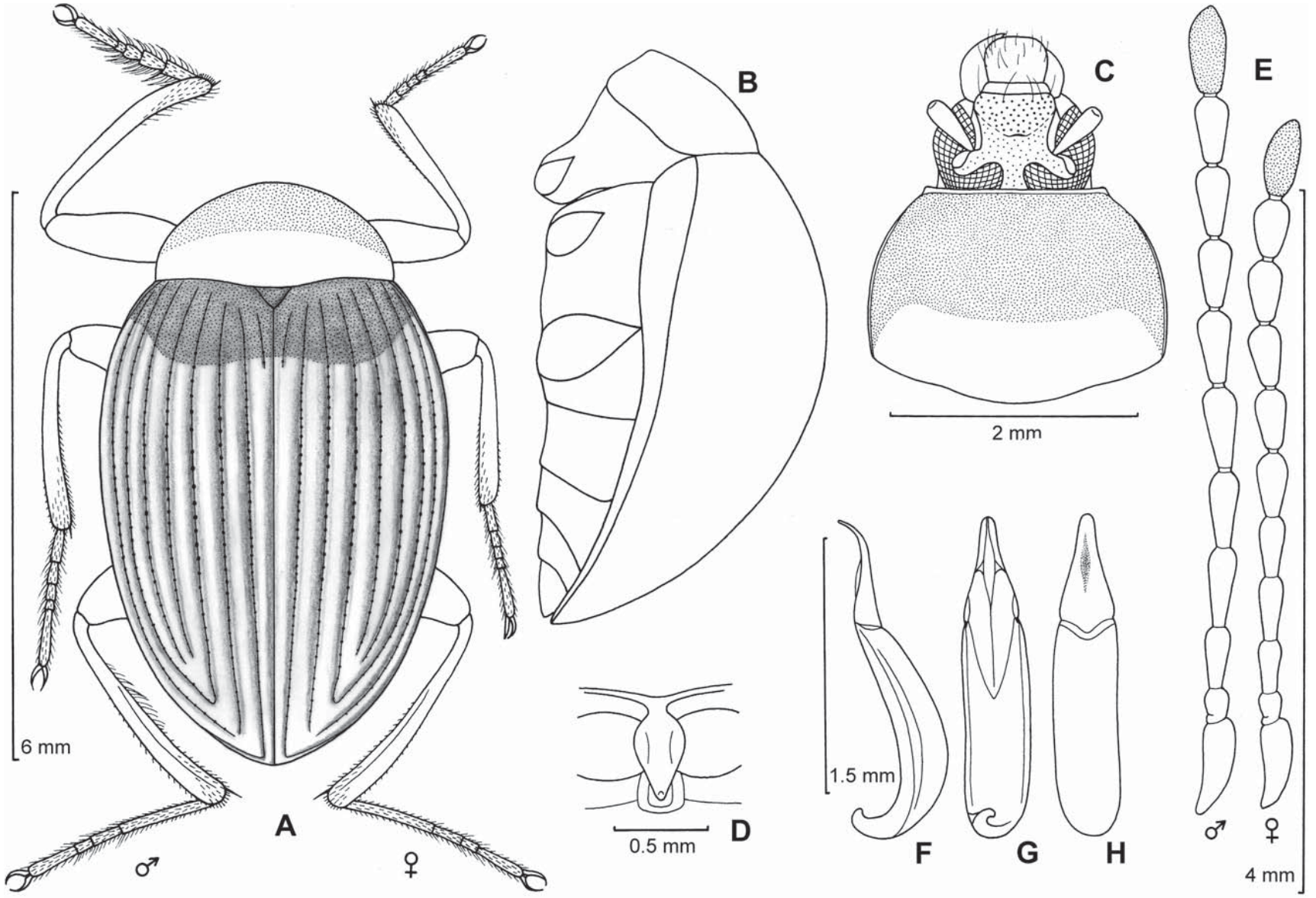


Fig. 46. *Amarygmus proteus* n. sp. – **A** Habitus (pronotum and elytra black; darker shaded area of elytra and shaded area of pronotum reddish brown); legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum (pronotum black; shaded area reddish brown). **D** Prosternal apophysis. **E** Antennae ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

middle part. Clypeus rather short; convex longitudinally, with small, distinct punctures; punctures on frons smaller and more spacious. Mentum heart-shaped, laterally with rounded, flat, lustrous margins; space in between also flat. Underside of neck with a few shallow punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Not very wide, markedly convex transversely, less convex longitudinally. Sides subparallel in their posterior half, narrowing and bent anteriorly. Front corners not projecting. Anterior margin straight. Front and hind corners obtuse in dorsal view. Lateral and anterior margins continuously bordered, lateral borders and front corners visible in dorsal view. Front and hind corners in lateral view angular and obtuse. Surface with small, indistinct and irregularly set punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Elongate oval. Markedly convex transversely. Maximum height and width shortly anterior to middle. Shoulders not explicitly noticeable. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With incised striae with very small, elongate, closely set punctures; striae 1–4 not reaching the elytral base (in contrast to striae 5–7). Intervals slightly convex on disc (also near base), more convex laterally, nearly impunctate.

P r o s t e r n u m : Apophysis rather narrow, spindle-like, scarcely grooved in the middle; posterior to procoxae descending and terminating in a sharp tip, this tip very slightly lifted in lateral view; with a few short hairs.

M e s o s t e r n u m : Narrow. Anterior margin very narrowly excavated in its middle, markedly raised along the excavation. Surface moderately pilose.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, bordered. Disc with small, closely set punctures with long erect hairs (males) or only a few short hairs (females). Median line clearly incised and depressed.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, bordered. Discs of sternites with tiny, widely separated punctures; short recumbent hairs originating from these punctures in both sexes. Sternite 5 apicomedially without depression.

A n t e n n a e : Long, reaching to posterior third of elytra in males, somewhat shorter in females. Antennomeres 6–10 round in cross-sectional view. Length/width ratio of antennomeres 1–11 in male equals to 22:9 / 9:7 / 20:8 / 22:8 / 21:8 / 20:9 / 19:9 / 19:10 / 19:10 / 18:10 / 23:10, in female to 22:8 / 8:6½ / 13½:6½ / 16:7 / 16:7 / 19:9 / 17:9 / 17:9 / 17:9 / 17:9½ / 22:10.

L e g s : Long, tender. Femora thickened towards the second third; back of meso- and metafemora in males with long erect hairs which may be partially abraded. Profemora and protibiae in males markedly prolonged (in contrast to females); protibiae in their apical half markedly (in "stout" males) or slightly (in "weak" males) incurved, somewhat thickened and with erect hairs of medium length on inner side. Pro- and mesotibiae in females straight, somewhat thickened apically, with semi-erect bristles on inner side near apex. Mesotibiae straight in males; pilosity on inner side the same in both sexes. Metatibiae straight, tender in the basal half in both sexes, apically increasingly thickened and somewhat incurved. Protarsomeres 1–3 somewhat prolonged in males and, in contrast to females, with erect hairs laterally. Lengths of protarsomeres 1–5 in male as 13:11:8:5:27, lengths of mesotarsomeres 1–5 as 15:11:6:6:27, lengths of metatarsomeres 1–4 as 41:16:10:27.

A e d e a g u s : Shape of aedeagus (Fig. 46F–H) nearly identical with that of *A. furvus* (Gebien, 1927).

Amarygmus pygmaeus **n. sp.**
(Fig. 47A–H)

H o l o t y p e (sex not determined): Borneo, Malaysia, Sabah, Tambunan, 600 m, 9.V.2005, R. Grimm (CG).

P a r a t y p e s : Same data as holotype (4 sex not determined CG; 2 ♂♂ ZSMB). – Same data as holotype, but 5.II.2006 (2 sex not determined CG). – Same data as holotype, but 20.II.2006 (2 CG, 1 ZSMB, sex not determined). – Malaysia, Sabah, Tambunan, 21.XI.2006, R. Grimm (5 CG, 2 ZSMB, sex not determined). – Malaysia, Sabah, Keningau, 24.–27.XI.2006, R. Grimm (1 sex not determined CG). – Borneo, Malaysia, Sabah, E. Keningau, Bingkor, 20.–22.III.2007, R. Grimm (5 CG, 2 ZSMB, sex not determined).

Circumstances of collection: On tree bark in urban area, at night.

Etymology

Pygmaeus, from Greek πνγμή = pygmy.

Diagnosis

One of the smallest species of the genus *Amarygmus*, of oval shape. Elytra bluish black. Head with a very wide frons and a short clypeus. Elytra with rows of small punctures which are mostly linked by very faint lines; intervals with dense punctures. Pronotum and antennae short.

A. tantillus n. sp. has the same size and a very similar body shape. For the differences to *A. pygmaeus* see diagnosis under *A. tantillus*.

A. snizeki Bremer, 2002 (Bremer 2002a: 39) resembles *A. pygmaeus* because it has a wide frons, a short clypeus, short antennae, a similar shape of the pronotum, and rows of punctures on the elytra. However, *A. pygmaeus* is smaller (body length of *A. snizeki* 3.35–3.81 mm), the pronotal punctures are markedly smaller and more widely separated, and the punctures of the elytral rows are smaller and more frequently linked by faint lines.

Because of the small body length, the wide frons, and similar punctures on the elytra, there is also some similarity to *A. minutissimus* Pic, 1938 from Vietnam (redescribed in Bremer 2002a: 11); this species is only negligibly longer

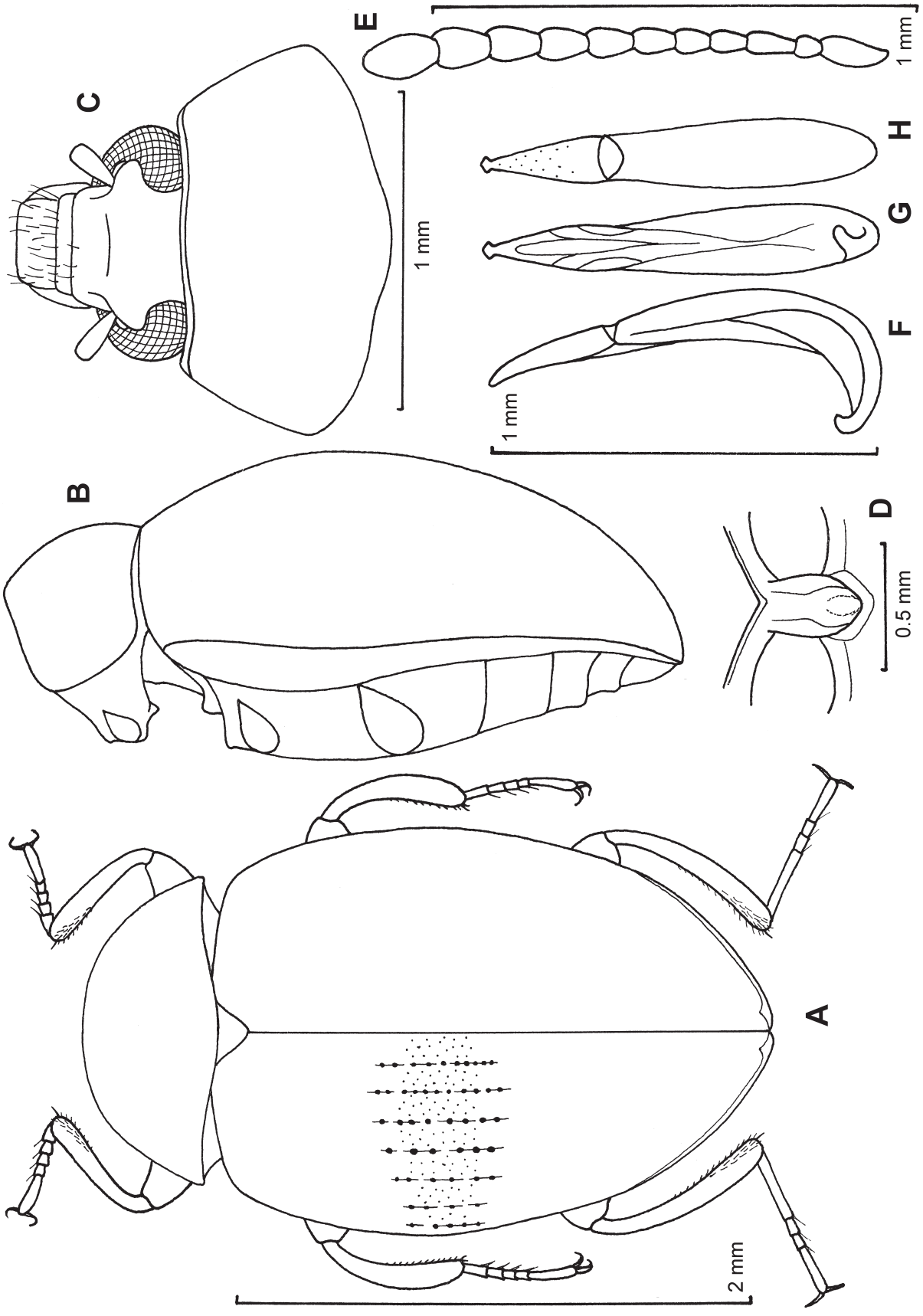


Fig. 47. *Amarygmus pygmaeus* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

(body length 2.75–2.88 mm). However, *A. minutissimus* has the clypeus normally stretched forwards, and the pronotal punctures and the punctures of the elytral rows are larger.

Description

Measurements: Body length 2.49–2.68 mm; body width 1.44–1.67 mm. – Ratios: Pronotum: width/length 2.00–2.11; width hind corners/width front corners 1.48–1.61. Elytra: length/width 1.24–1.36; length elytra/length pronotum 3.25–3.53; maximum width elytra/maximum width pronotum 1.30–1.32.

Colouration: Head and pronotum black, elytra bluish black, lustrous. Legs and antennae light brown. Underside brown, lustrous.

Head: Frons very wide, as wide as combined length of antennomeres 3–7. Genae very little raised. Fronto-clypeal suture distinctly incised in its middle part. Clypeus short, slightly convex. Punctures on clypeus and frons tiny, very short hairs originating from them (visible at 50-fold magnification). Mentum reversely trapezoidal, lustrous, with wide, flat margins. Underside of neck markedly microreticulated, on its anterior part with some large punctures. Mandibles apically bifid.

Pronotum: Very short, wide, trapezoidal, uniformly convex transversely, less convex longitudinally. Lateral margins anteriorly narrowing, nearly straight. Front corners rounded. Anterior margin slightly excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible. Front corners in lateral view rounded, rectangular; hind corners angular, obtuse. Surface with tiny, widely separated punctures.

Scutellum: Triangular, with minute punctures.

Elytra: Elongate oval, markedly convex transversely, less so but still markedly convex longitudinally. Maximum width and height at the level of the anterior third. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view very narrowly visible, except at shoulders. With rows of small punctures which are mostly connected by faint lines (best visible in lateral view); distance between punctures on disc in row 4 about 1–1½ times diameter of a puncture; about 22 punctures in row 4. Intervals flat, covered with minute, not very closely set punctures. Tiny hairs visible on apical part of elytra at 100-fold magnification.

Prosternum: Anterior margin narrowly bent upwards, retracted towards apophysis in its middle. Apophysis oval, maximum width somewhat posterior to procoxae; apically rounded, apicomedially with an indistinct keel.

Mesosternum: Anterior margin excavated in its middle; angles of the excavation slightly lifted.

Metasternum: Anterior margin between mesocoxae narrowly rounded, bordered. Disc with tiny, widely separated punctures. Median line narrowly incised in its posterior four-fifths.

Sternites: Anterior margin of sternite 1 between metacoxae acute-angled, with straight sides. Sternites with tiny, widely separated punctures. Sternite 5 apicomedially without depression.

Antennae: Short, reaching over base of elytra by about two antennomeres. Antennomere 11 asymmetrically rounded apically. Length/width ratio of antennomeres 1–11 equals to 7:3 / 3½:2½ / 6:2½ / 3½:2½ / 3½:3 / 4:3¾ / 4:4 / 5:4½ / 5:4½ / 5:4½ / 7:4½.

Legs: Short. Femora thickened towards the second half. Protibiae nearly straight, meso- and metatibiae bent. Protarsomeres 1–3 not widened in male, with brush-like soles. Lengths of protarsomeres 1–5 as 2:2:2:2:8, lengths of mesotarsomeres 1–5 as 5:3:3:2½:9, lengths of metatarsomeres 1–4 as 12:4:2½:9.

Aedeagus: See Fig. 47F–H.

Amarygmus rolandi **n. sp.**
(Fig. 48A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Kundasang [Crocker Mts.], 1450 m, 19.V.2005, R. Grimm (CG).

Paratypes: Borneo, Sabah, Crocker Mts., 500–1900 m, Gunung Emas, 6.–21.V.1995, Ivo Jeniš leg. (1 ♂ ZSMB). – Borneo, Malaysia, Sabah, Crocker Range, Gunung Emas, 1500 m, 1.IV.2007, R. Grimm (1 ♀ CG). – Malaysia, Sabah Prov., Banjaran Crocker Mts., Gunung Alab peak, 1650–1800 m, 30.IV.–27.V.1996, M. Štrba & R. Hergovits leg. (1 ♀ CKB).

Circumstances of collection: On edge of mountainous primary and secondary forest; holotype on dead wood covered with fungus, at night.

Etymology

Kindly dedicated to Dr. Roland Grimm (Tübingen).

Diagnosis

Small, elongate oval, inconspicuous. Elytra with rows of small punctures which are linked by not incised faint lines. Frons of medium width. Antennae relatively short. Male protarsomeres 1–3 not widened, but protibiae widened in apical half on inner side. Upperside coppery with a greenish or reddish tinge, femora and tibiae black.

Amarygmus rolandi n. sp. resembles *A. nicholasi* Bremer, 2004 (Bremer 2004e: 120–121) from the Crocker Mountains. *A. nicholasi* is somewhat smaller than *A. rolandi* (body length 4.4–4.9 mm), the upperside is nearly black, the punctures of the elytral rows are smaller, the male protibiae have no apical widening, and the male protarsomeres 1–3 are widened.

A. sodalis Bremer, 2002 (Bremer 2002a: 42) shows the same shape of the male protibiae as in *A. rolandi*, but it is somewhat smaller than *A. rolandi* (body length 4.53–5.10 mm), and the femora and tibiae are light brown.

A. expeditus n. sp. also resembles *A. rolandi*, but *A. expeditus* is smaller (body length 4.01–5.10 mm), the male protibiae have no apical widening, and the frons is wider.

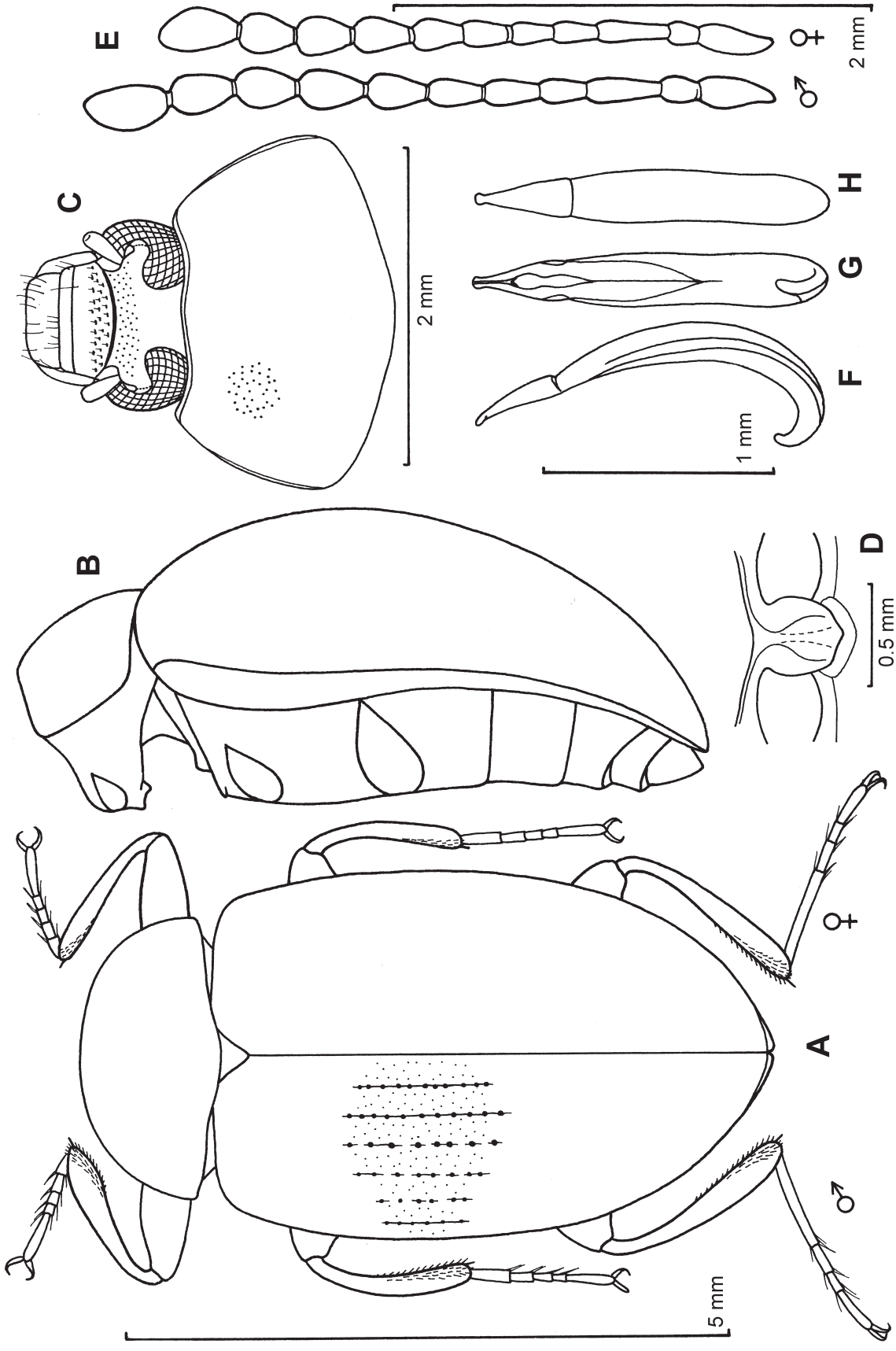


Fig. 48. *Amarygmus rolandi* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna ♂ and ♀. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Description

M e a s u r e m e n t s : Body length 5.41–5.65 mm; body width 3.07–3.34 mm. – Ratios: Pronotum: width/length 1.94–2.00; width hind corners/width front corners 1.72–1.89. Elytra: length/width 1.40–1.50; length elytra/length pronotum 3.60–3.90; maximum width elytra/maximum width pronotum 1.35–1.39.

C o l o u r a t i o n : Upperside greenish to reddish coppery, lustrous. Head black, lustrous. Femora and tibiae black, tarsi brown. Antennae black.

H e a d : Frons of medium width, slightly wider than length of antennomere 3 (like 18 : 15). Genae short, somewhat raised. Fronto-clypeal suture narrowly and distinctly incised. Clypeus relatively short; transversely convex. Clypeus and frons covered with small, not very closely set punctures. Mentum reversely trapezoidal, lateral margins wide, flat, lustrous, space in between opaque, with a few hairs. Underside of neck with medium-sized, closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Uniformly and distinctly convex transversely, slightly convex longitudinally. Lateral margins narrowing anteriorly. Anterior margin somewhat excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view narrowly visible in the hind half. Front corners narrowly rounded and with an angle of about 100°, hind corners somewhat more obtuse. Surface with very small, not very closely set punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Somewhat elongate oval, markedly convex transversely and longitudinally. Maximum width and height slightly behind level of the anterior third. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view shortly visible only at shoulders. With rows of small punctures which are connected by faint lines; distance between punctures on disc in row 4 about 2–3 times diameter of a puncture; about 28 punctures in row 4. Intervals flat, with tiny, widely separated punctures.

P r o s t e r n u m : Anterior margin narrowly bent upwards, widely interrupted in its middle; a blunt, wide keel is originating from the middle part, extending across the whole apophysis and weakened apically. Apophysis short, oval, margins along procoxae distinctly raised, space in between with a wide groove (including the shallow keel); posterior to coxae margins roundedly narrowed towards the slightly projecting median apex; apophysis with some short erect hairs.

M e s o s t e r n u m : Hind part short; anterior margin widely excavated in its middle.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, broadly bordered. Anterior part of disc with large, widely separated punctures, hind part with tiny, sparse punctures. Median line weakly incised.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, faintly bordered. All sternites with widely separated, tiny punctures. Sternite 5 apicomedially strongly depressed in males.

A n t e n n a e : Antennae reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 12:6½ / 7:5 / 15:5 / 10:5 / 10:5½ / 10:6 / 12:7 / 14:8 / 12:8 / 12:8 / 17:9.

L e g s : Of medium length. Femora thickened towards the second third. Protibiae in males straight on outer side, clearly widened in the apical half on inner side; in females nearly straight, not widened on inner side. Mesotibiae slightly bent in both sexes. Metatibiae on outer side slightly bent in both sexes, on inner side in the apical three-fifths slightly widened and with rather short erect, tender hairs. Lengths of protarsomeres 1–5 as 7:6:6:5:21, lengths of mesotarsomeres 1–5 as 16:9:7:6:22, lengths of metatarsomeres 1–4 as 37:13:5½:20.

A e d e a g u s : See Fig. 48F–H.

Amarygmus sarawakensis **n. sp.**
(Fig. 49A–H)

H o l o t y p e (♂): Malaysia, Borneo, Sarawak, Kubah NP, 250 m, 6.–8.III.2008, R. Grimm (CG).

P a r a t y p e s : Malaysia, Pahang, Tioman Islands, Kampong Tekek–Kampong Juara, 2°48'N 104°11'E, 205 m, 7.–23.II.2000, M. Štrba leg. (1 ♂ ZSMB). – W Malaysia, N of Kuala Lumpur, Templer Park, 10.–11.II.1998, S. Bečvář leg. (1 ♀ SSB).

Circumstances of collection (of holotype): Edge of primary forest, on the bark of a tree; collected at night.

Etymology

Sarawakensis, derived from Sarawak.

Diagnosis

Small, nearly ovate. Frons extremely narrow. Elytra with slightly incised striae with medium-sized punctures. Intervals slightly convex on disc, with minute, widely separated punctures. Upperside dark copper-coloured with a greenish tinge on pronotum, legs light brown. Antennae of medium length, in both sexes of the same length.

Amarygmus sarawakensis n. sp. is remarkably similar to *A. subtilis* Bremer, 2001 (Bremer 2001b: 99) from Sumatra. However, males of *A. subtilis* have a distance between the eyes of 1½ diameter of an ocellus (somewhat wider in females) (eyes touching each other in *A. sarawakensis*), and the top of the aedeagus is relatively long, straight in lateral view and right-angled and enlarged in dorsal view (shorter, inflected in lateral view and subparallel in dorsal view in *A. sarawakensis*).

Other species of *Amarygmus* with a very narrow frons are markedly larger than *A. sarawakensis*.

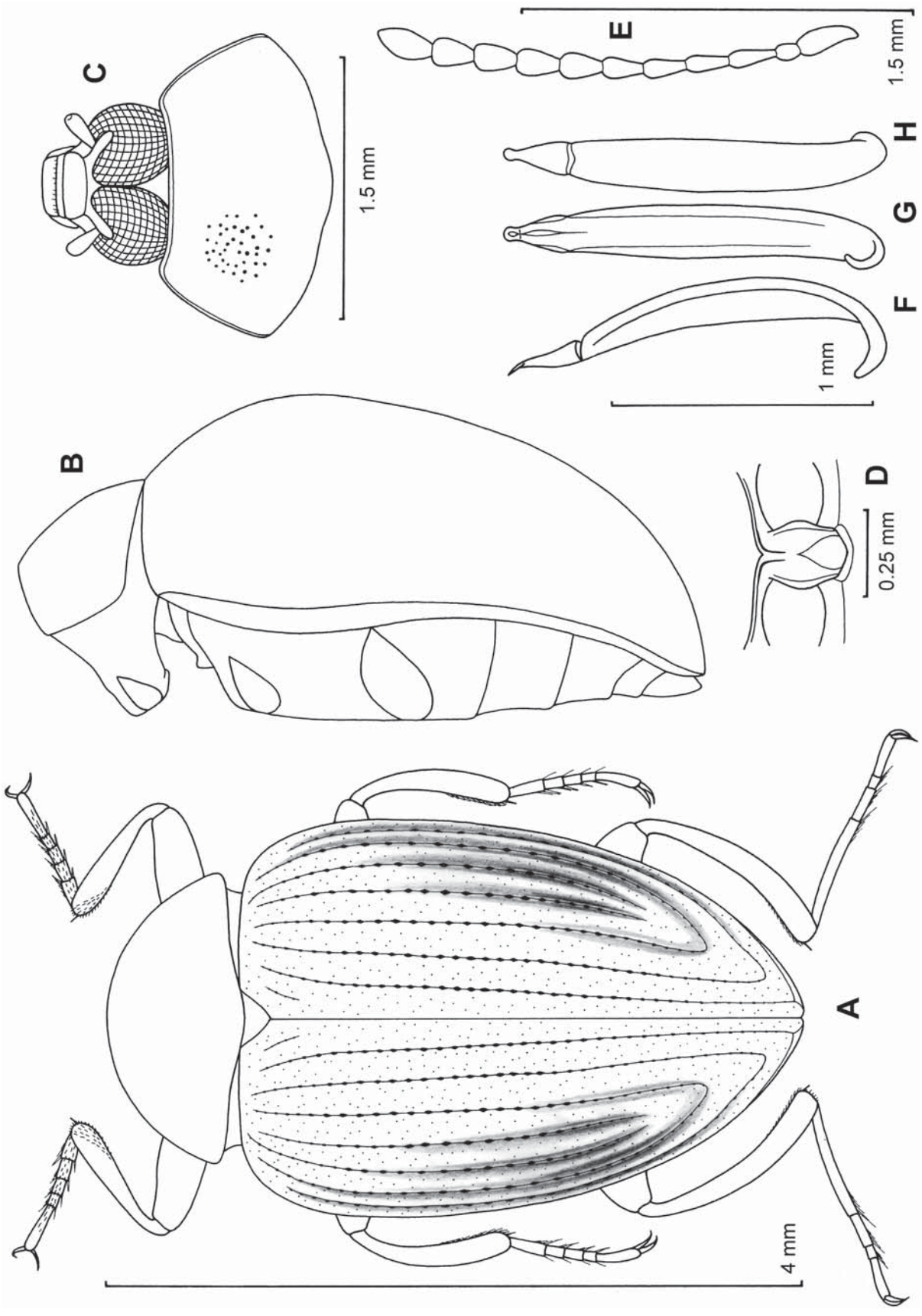


Fig. 49. *Amarygmus sarawakensis* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

Description

M e a s u r e m e n t s : Body length 3.22–3.70 mm; body width 1.87–2.18 mm. – Ratios: Pronotum: width/length 1.87–1.95; width hind corners/width front corners 1.67–1.83. Elytra: length/width 1.36–1.42; length elytra/length pronotum 3.20–3.38; maximum width elytra/maximum width pronotum 1.25–1.33.

C o l o u r a t i o n : Upperside lustrous. Elytra dark coppery. Pronotum dark green. Scutellum and area around it brownish brightened. Underside brown. Metasternum and sternites slightly lustrous. Femora light brown (lighter brown than underside), tibiae and tarsi light brown. Antennomeres 1–4 light brown, 5 darker brown, 6–11 black.

H e a d : Eyes very large, touching each other on the frons. Genae narrow, short, slightly raised. Fronto-clypeal suture visible only in the middle as a very faint sulcus. Clypeus moderately stretched forwards, with minute, sparse punctures. Mentum reversely trapezoidal, lateral margins wide, lustrous, space in between slightly convex transversely. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Lateral outline following the outline of the elytra, markedly convex transversely, slightly convex longitudinally. Lateral margins narrowing anteriorly, bent. Front corners rather depressed, rounded. Anterior margin not excavated. Lateral and anterior margins continuously bordered. Lateral borders narrowly visible, except borders near front corners. Front and hind corners in lateral view slightly obtuse, front corners rounded, hind corners angular. Surface with medium-sized, coarse, mostly spaciously and irregularly set punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Ovate, markedly convex transversely, evenly but less markedly convex longitudinally. Maximum width at the level of the anterior third, margins moderately bent and narrowed posteriorly, maximum height somewhat posterior to maximum width. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With moderately incised striae with medium-sized, irregularly set punctures; distance between punctures on disc in stria 4 about 2 times diameter of a puncture; about 30 punctures in stria 4. Intervals very slightly convex on disc, distinctly convex laterally, with sparse, tiny punctures.

P r o s t e r n u m : Anterior margin narrowly bent upwards, widely interrupted in the middle, where a triangular keel is directed towards apophysis. Apophysis of medium width, margins somewhat widened along coxae, raised, space in between with a deep groove; margins posterior to coxae somewhat convergent; apex broadly pointed; with a few erect hairs of medium length on apophysis.

M e s o s t e r n u m : Anterior margin excavated in its middle; lateral margins moderately raised; with a few tender hairs of medium length.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, coarsely bordered. Anterior part of disc with a few small punctures with tender hairs of medium length; these hairs are partially erect, partially recumbent. Median line shallowly depressed.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, rather broadly bordered. Sternites impunctate. Sternite 5 apicomedially slightly depressed in male.

A n t e n n a e : Of medium length, reaching to anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 12:4 / 5:3 / 9:3 / 6½:3 / 8:4 / 7:4½ / 8½:5 / 8½:5 / 8:5 / 8:5 / 11:5.

L e g s : Short. Femora thickened towards the second third. Protibiae straight on outer side, somewhat widened on inner side in the apical half; meso– and metatibiae thickened apically, bent. Pro– and mesotibiae on inner side in the apical half with an area of closely set, semi-erect hairs of medium length. Protarsomeres 1–3 slightly widened in male. Lengths of protarsomeres 1–5 as 6:5:4:3:13, lengths of mesotarsomeres 1–5 as 10:5½:5:4:14, lengths of metatarsomeres 1–4 as 30:12:4:13.

A e d e a g u s : See Fig. 49F–H.

Amarygmus singulus **n. sp.**
(Fig. 50A–H)

H o l o t y p e (♂): Sabah, Kota Kinabalu, nachts, an Allee-Bäumen, 22.II.2006, Ulf Bremer leg. (ZSMB).

Circumstances of collection: In urban area on the bark of an avenue tree, at night.

Etymology

Singulus (Lat.) = solo.

Diagnosis

Small, elongate oval, markedly convex. Elytra with somewhat incised striae. Frons of medium width. Upperside dark copper-coloured, lustrous. Protibiae in male somewhat widened and flattened in the apical half on inner side.

Amarygmus singulus n. sp. belongs to a group of small species which have a widening on the inner side of the male protibiae. They are mostly inconspicuous and difficult to define.

A. singulus n. sp. is especially similar to *A. secretus* Bremer, 2002 (Bremer 2002a: 35) from Sarawak and Sabah. Both species have a frons of similar width. *A. secretus* is narrower than *A. singulus*, the maximum elytral width is situated slightly anterior to the middle (at the anterior third in *A. singulus*), the clypeus is situated clearly below the level of the frons, and at the fronto-clypeal suture there is a slope between frons and clypeus (in *A. singulus* frons and clypeus on the same level and fronto-clypeal suture markedly incised in the middle), meso- and metatibiae narrower.

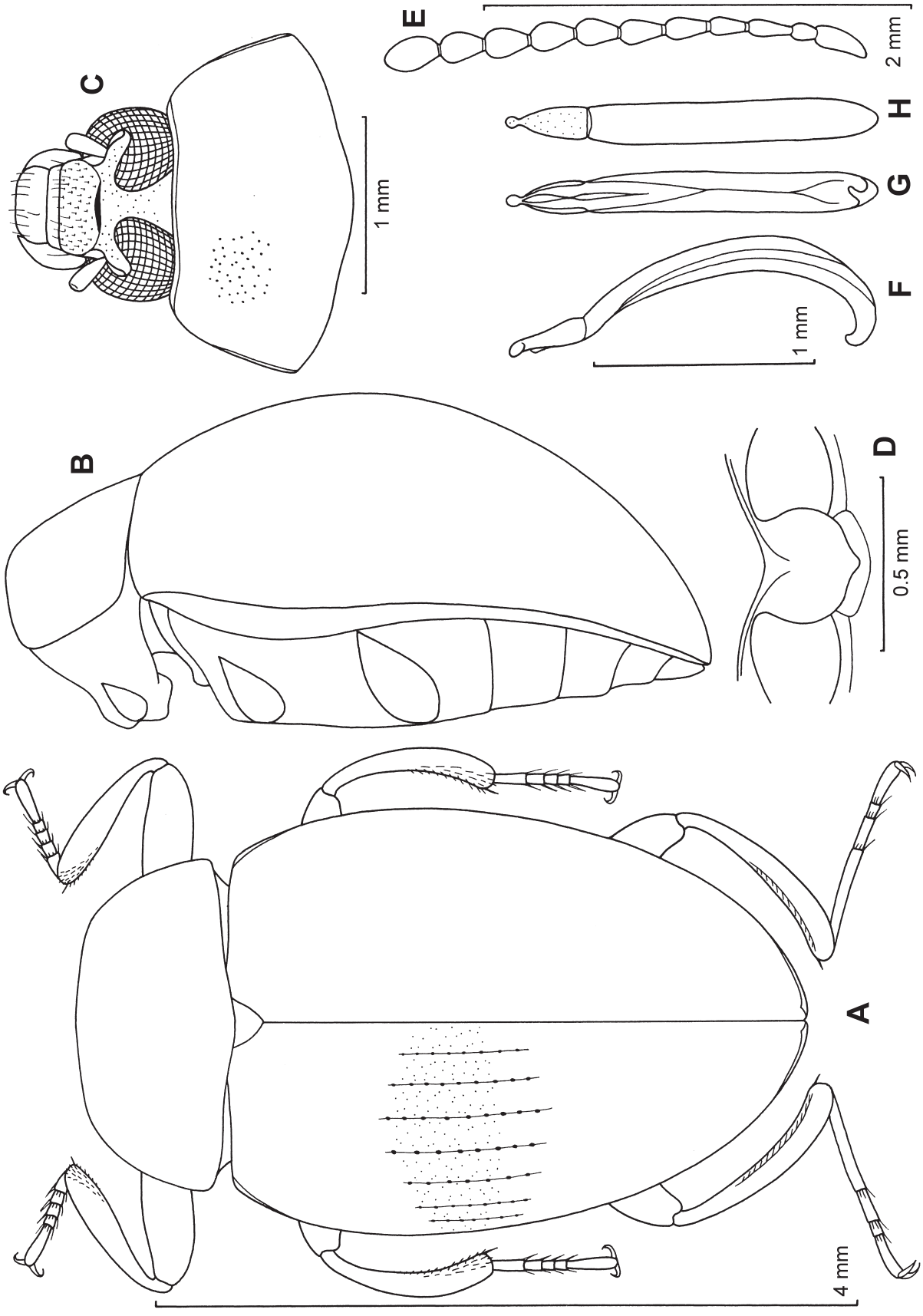


Fig. 50. *Amarygmus singulus* n. sp. – **A** Habitus, ♂. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

A. crenis Bremer, 2009 (Bremer 2009: 11–12, fig. 33) from the Malayan Peninsula also resembles *A. singulus*. *A. crenis* is somewhat smaller than *A. singulus* (body length 3.27–3.42 mm), the frons is wider, elytral interval 1 is brightened by reddish brown colour (dark as the other intervals in *A. singulus*), and the elytral intervals are more closely punctated.

Description

Measurements: Body length 3.93 mm; body width 2.33 mm. – Ratios: Pronotum: width/length 1.92; width hind corners/width front corners 1.67. Elytra: length/width 1.32; length elytra/length pronotum 3.29; maximum width elytra/maximum width pronotum 1.30.

Colouration: Upperside lustrous, dark coppercoloured. Femora and tibiae brown, tarsi light brown. Antennomeres 1–4 light brown, 5–11 increasingly darker up to black (antennomere 11 apically brightened). Underside auburn, lustrous (including sternites).

Head: Frons moderately wide, its width corresponding to the length of antennomere 4, with minute punctures which nearly disappear behind fronto-clypeal suture. Genae narrow, slightly raised. Fronto-clypeal suture rather widely and deeply incised. Clypeus moderately stretched forwards, covered with medium-sized punctures which are the origin of short, anteriorly directed hairs. Mentum reversely trapezoidal, lateral margins flat, lustrous, space in between less lustrous, somewhat convex transversely, with a longitudinal, lustrous clasp in its middle. Underside of neck with transversely aligned and joined punctures. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Wide, distinctly convex transversely, less convex longitudinally. Lateral margins narrowing anteriorly, bent. Front corners rounded. Anterior margin somewhat excavated. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view visible. Front and hind corners in lateral view similarly obtuse. Surface with small, distinct, irregularly set punctures.

Scutellum: Triangular, impunctate.

Elytra: Of half-elliptic shape, distinctly convex transversely and longitudinally. Maximum width at the level of the anterior third. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view visible only at the apex. With slightly incised striae with small to medium-sized, partially rhombic punctures; distance between punctures on disc in stria 4 about 2 times diameter of a puncture; about 24 punctures in stria 4. Intervals flat on disc, weakly convex laterally, with tiny, widely separated punctures.

Prosternum: Anterior margin narrowly bent upwards, interrupted near the middle; a blunt keel originating from the anterior margin, extending across the whole apophysis. Apophysis rounded, with a slightly pointed apex, lateral margins along procoxae not raised, thus the whole apophysis unusually flat; with some tender hairs.

Mesosternum: Anterior margin excavated in its middle; margins of the excavation slightly raised like a roll; with some short, tender hairs.

Metasternum: Anterior margin between mesocoxae rounded, coarsely bordered. Disc with some coarse punctures behind anterior margin, otherwise with tiny, very widely separated punctures with some short, tender hairs. Median line slightly incised in its posterior part.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, narrowly bordered. Sternites impunctate. Sternite 5 apicomedially very slightly depressed in male.

Antennae: Antennae reaching to about anterior third of elytra. Length/width ratio of antennomeres 1–11 equals to 10:5 / 6:4 / 11:4 / 8½:4½ / 8½:5½ / 9:6 / 9½:6½ / 9½:6½ / 9½:6½ / 9½:6½ / 13:7.

Legs: Short. Femora thickened towards the second third. Protibiae in male on outer side slightly bent, on inner side widened in its apical half, the widened part slightly depressed on its underside. Mesotibiae bent, distinctly compressed and widened apically. Metatibiae also compressed, widened and markedly bent. Protarsomeres 1–3 not widened in male. Lengths of protarsomeres 1–5 as 3:3:3:3:13, lengths of mesotarsomeres 1–5 as 10:5:4:4:14, lengths of metatarsomeres 1–4 as 26:10:4½:12.

Aedeagus: See Fig. 50F–H.

Amarygmus tantillus **n. sp.**

(Fig. 51A–H)

Holotype (♂): Borneo, Malaysia, Sabah, Keningau, 10.II.2006, R. Grimm (CG).

Paratypes: Same data as holotype (2 ♂♂ CG, 1 ♂ ZSMB, 3 ♀♀ CG, 1 ♀ ZSMB). – Same data as holotype, but 6.–7.II.2006 (11 ♂♂ CG, 5 ♂♂ ZSMB, 9 ♀♀ CG, 4 ♀♀ ZSMB). – Same data as holotype, but 17.–19.II.2006 (10 ♂♂ CG, 2 ♂♂ ZSMB, 3 ♀♀ CG). – Sabah, Keningau, 400 m, nachts, auf der Rinde von Bäumen, 17.II.2006, H. J. Bremer leg. (4 ♂♂ ZSMB, 1 ♂ BMNH, 1 ♀ ZSMB). – Malaysia, Sabah, Keningau, 24.–27.XI.2006, R. Grimm (3 ♂♂ CG, 1 ♂ ZSMB). – Borneo, Malaysia, Sabah, Keningau, 300 m, 20.–22.III.2007, R. Grimm (7 ♂♂ CG, 2 ♂♂ ZSMB, 1 ♂ CM, 6 ♀♀ CG). – Borneo, Malaysia, Sabah, E. Keningau, Bingkor, 20.–22.III.2007, R. Grimm (1 ♂, 1 ♀ CG). – Borneo, Malaysia, Sabah, Tambunan, 500 m, 20.II.2006, R. Grimm (1 ♀ CG). – Malaysia, Sabah, Tambunan, 21.XI.2006, R. Grimm (1 sex not determined CG).

Circumstances of collection: On the bark of trees, mainly in gardens and parks, at night.

Etymology

Tantillus (Lat.) = very small.

Diagnosis

Very tiny, oval, slightly elongate, outline of the elytra following the outline of the pronotum. Elytra with slightly incised striae with small to medium-sized punctures;

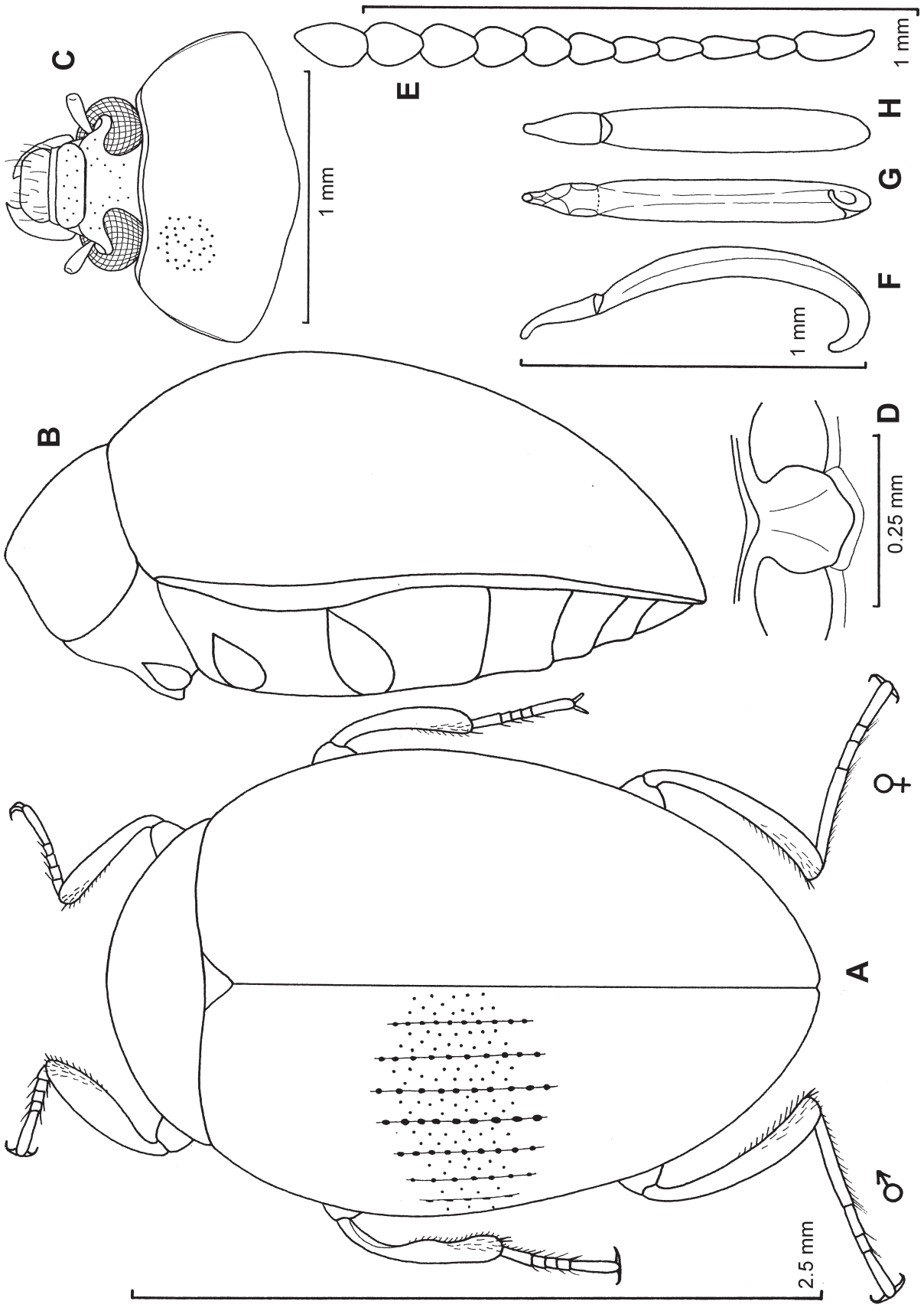


Fig. 51. *Amarygmus tantillus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

intervals on disc either flat or very slightly convex, laterally clearly convex. Frons of medium width. Upperside coppery. Especially characterized by features of the male legs (see description below). Male protarsomeres not widened. Frons in males somewhat narrower than in females.

This is currently the smallest species of *Amarygmus* which I know. With respect to size it can only be compared with the equally tiny *A. pygmaeus* n. sp. from the same area. Shape of elytra and striae and intervals are similar in both species. However, *A. pygmaeus* has the male pro- and mesotibiae not enlarged on inner side, the frons is wider, the fronto-clypeal suture is very slightly incised (clearly incised in the middle in *A. tantillus*), the pronotum is faintly punctured (distinctly punctured in *A. tantillus*), and the elytra are blackish blue (coppery in *A. tantillus*).

Description

M e a s u r e m e n t s : Body length 2.14–2.45 mm; body width 1.36–1.50 mm. – Ratios: Pronotum: width/length 2.05–2.12; width hind corners/width front corners 1.57–1.72. Elytra: length/width 1.34–1.37; length elytra/length pronotum 3.59–3.81; maximum width elytra/maximum width pronotum 1.27–1.32.

C o l o u r a t i o n : Elytra dark coppery, lustrous. Pronotum dark green, slightly microreticulated. Scutellum brown. Head brown, lustrous. Underside and legs brown. Antennomeres 1–7 brown, 8–11 dark brown to black (antennomere 11 apically brightened).

H e a d : Frons of medium width, somewhat wider than combined length of antennomeres 3+4 (like 10 : 9), descending towards fronto-clypeal suture. Genae short, anteriorly terminating somewhat behind the middle part of the fronto-clypeal suture. Fronto-clypeal suture clearly incised in its middle part. Clypeus rather short, slightly convex longitudinally. Punctures on clypeus and frons small, not very closely set. Mentum reversely trapezoidal, lateral margins wide, lustrous, flat, space in between opaque, slightly convex. Underside of neck with narrow, transverse sulci, punctures nearly lacking. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Wide. Lateral margins slightly convergent anteriorly, straight in the posterior half, somewhat bent in the anterior half. Anterior margin straight. Front corners widely rounded. Lateral and anterior margins continuously bordered. Lateral borders narrowly visible in the posterior four-fifths. Rounded front corners and angular hind corners slightly obtuse in lateral view. Surface with distinct, medium-sized, irregularly set punctures.

S c u t e l l u m : Triangular, with a few tiny punctures.

E l y t r a : Oval, slightly oblong, convex transversely and longitudinally. Maximum height and width at the level of the anterior third. Shoulders slightly noticeable. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible. With somewhat incised striae; distance between punctures in striae 3 and 4 about 1½–2 times diameter of a puncture. Intervals with very small, distinct, not very closely set punctures.

P r o s t e r n u m : Anterior margin narrowly bent upwards, retracted towards apophysis in the middle, where it is acute-angled. Apophysis wide, flat, laterally rounded, apically broadly pointed.

M e s o s t e r n u m : Anterior margin slightly excavated in its middle; lateral margins opaque, contrasting with the lustrous middle part.

M e t a s t e r n u m : Disc with a few minute punctures. Median line very faintly incised.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, narrowly bordered. Sternites 1 and 2 with some small punctures, subsequent sternites impunctate. Sternite 5 apicomedially not depressed in males.

A n t e n n a e : Short, reaching to anterior fifth of elytra. Lengths of antennomeres 1–11 equal to 6:4:5:4:4½:4:4:4:4:4:6.

L e g s : Short. Femora thickened towards the second third. Protibiae in females nearly straight on inner side, in males distinctly widened on about apical three-fourths. Mesotibiae in females bent on outer side, nearly straight in their apical half on inner side; mesotibiae in males straight on outer side, distinctly widened at about midlength on inner side, the widening with a few faint erect hairs of medium size. Metatibiae markedly bent in both sexes. Lengths of metatarsomeres 1–4 as 13:5:4:7½.

A e d e a g u s : See Fig. 51F–H.

Amarygmus urbanus **n. sp.**
(Fig. 52A–J)

H o l o t y p e (♂): Borneo, Malaysia, Sabah, Kota Kinabalu, Inanam, 22.II.2006, R. Grimm (CG).

P a r a t y p e s : Same data as holotype (1 ♀ ZSMB). – Borneo, Malaysia, Sabah, Keningau, 10.II.2006, R. Grimm (1 ♀ CG, 1 ♂ ZSMB). – Malaysia, Borneo, Keningau, 24.–27.XI.2006, R. Grimm (1 sex not determined CG). – Borneo, Malaysia, Sabah, Keningau, 300 m, 20.–22.III.2007, R. Grimm (1 ♀ CG). – Borneo, Malaysia, Sabah, E. Keningau, Bingkor, 20.–22.III.2007, R. Grimm (1 ♀ CG). – Borneo, Malaysia, Sabah, Kinabalu NP, Poring vic., 380 m, 9.–11.III.2007, R. Grimm (1 ♂ CG, 2 ♂♂ ZSMB). – Borneo, Malaysia, Sabah, Sepilok, 12.–13.III.2007, R. Grimm (1 ♂, 2 ♀♀ CG). – Malaysia, Borneo, Sarawak, Kuching, Reservoir Park, 50 m, 4.–5.III.2008, R. Grimm (3 ♂♂ CG, 1 ♂ ZSMB). – Same data as before, but 9.–10.IX.2008 (1 ♀ CG). – Borneo, Sabah, Tawau Hills Park, 21.–22.X.2009, U. Bremer, primärer Tiefland-Regenwald, nachts auf Baumrinde.

Circumstances of collection: The holotype has been collected at night in the city area of Kota Kinabalu on the bark of an avenue tree; some paratypes on tree bark in gardens and parks, at night.

Etymology

Urbanus (Lat.) = citizen.

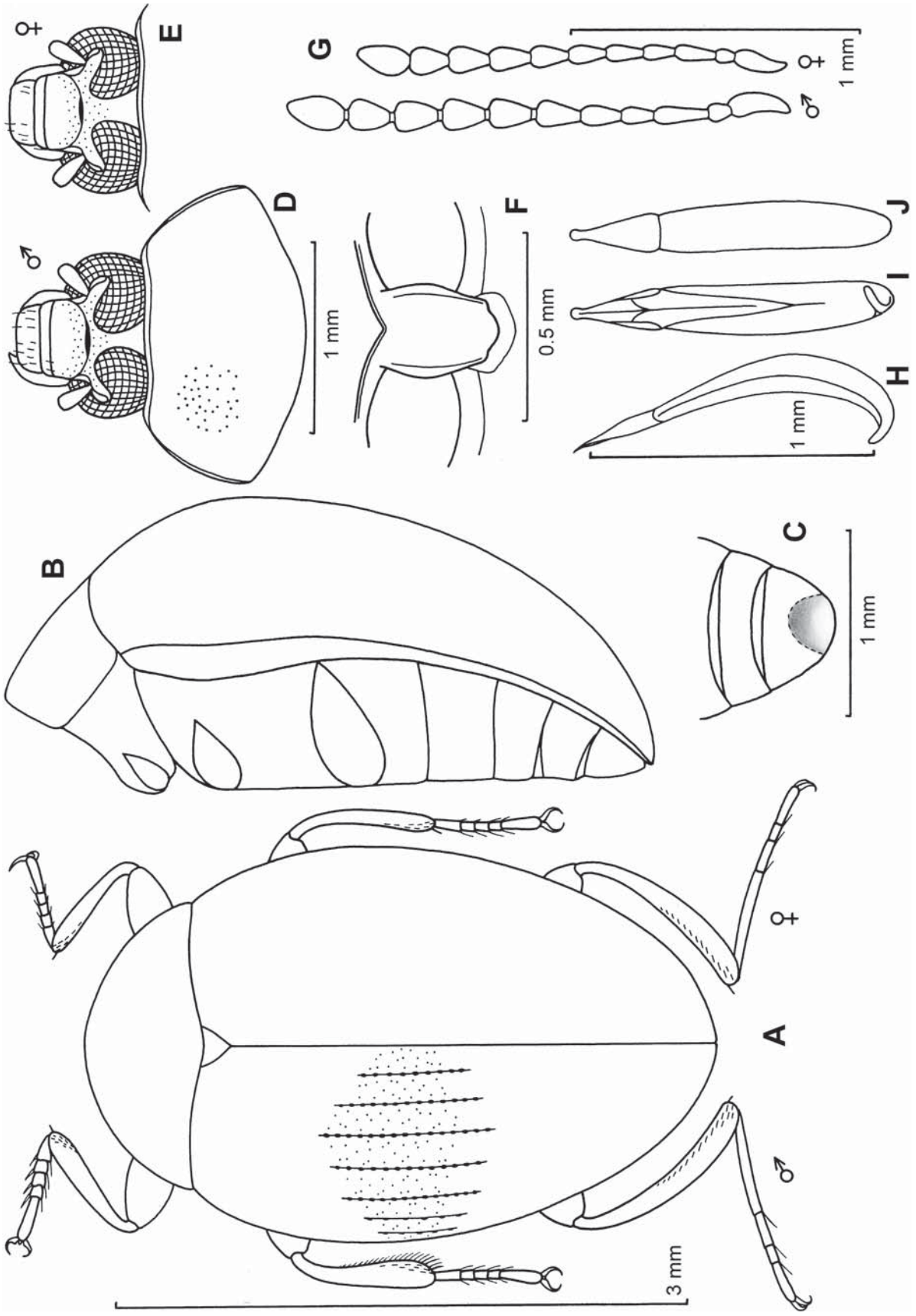


Fig. 52. *Amarygmus urbanus* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Sternites 3–5 ♂. **D** Head and pronotum ♂. **E** Head ♀. **F** Prosternal apophysis. **G** Antennae ♂ and ♀. **H** Aedeagus, lateral view. **I** Aedeagus, ventral view. **J** Aedeagus, dorsal view.

Diagnosis

Very small species, elongate oval. Elytra with striae. Frons rather narrow. Male protibiae widened apically on inner side; male mesotibiae similarly widened; male protarsomeres 1–3 slightly widened. Upperside black with a slight bluish tinge, legs light brown.

A. urbanus belongs to a group of very small species with elytral striae with punctures. The species of this group are difficult to separate from each other.

Amarygmus urbanus n. sp. is very similar to *A. sobrinus* Bremer, 2002 (Bremer 2002a: 41) from Sabah and the Malayan Peninsula. *A. sobrinus* is as large as *A. urbanus*, but has a brown interval 1 along the elytral suture, the punctures on the elytral intervals coarser and more closely set, the elytra more deeply incised, the punctures of the striae coarser, and the frons narrower.

A. sarawakensis n. sp. has the same size and shape as *A. urbanus*, but the frons is very narrow (in *A. sarawakensis* the eyes are touching each other on the frons).

Another very similar species of this group, also of the same size and shape, is *A. crenis* Bremer, 2009 from the Malayan Peninsula (Bremer 2009: 11–12, fig. 1). *A. crenis* has a brown interval 1 along the elytral suture, and the frons is wider than in *A. urbanus*.

Description

Measurements: Body length 3.03–3.38 mm; body width 1.91–2.02 mm. – Ratios: Pronotum: width/length 1.90–1.98; width hind corners/width front corners 1.74–1.76. Elytra: length/width 1.36–1.42; length elytra/length pronotum 3.48–3.52; maximum width elytra/maximum width pronotum 1.29–1.30.

Colouration: Head black. Pronotum and elytra black, slightly lustrous, with a slight bluish tinge. Underside brown, lustrous. Legs light brown (femora lighter brown than underside). Antennomeres 1–4 light brown, 5 dark brown, 6–11 black (antennomere 11 apically brightened). Mentum and palpi yellow. Underside of neck black

Head: Frons narrow, lustrous, with some minute punctures, approximately as wide as length of antennomere 2. Genae narrow, slightly raised, anteriorly terminating somewhat in front of the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture distinctly incised in its middle part, somewhat arched. Clypeus moderately stretched forwards, slightly convex transversely, covered with small, not very closely set punctures. Mentum reversely trapezoidal, lateral margins flat, wide, lustrous, space in between markedly convex. Underside of neck with coarse, closely set punctures anteriorly. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Not very wide, markedly convex transversely and longitudinally, on its anterior part more convex transversely than in its posterior part. Lateral margins narrowing anteriorly, bent. Front corners depressed, not visible in dorsal view. Anterior margin straight. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view visible only in their posterior three-fourths. Front corners in lateral view rounded, hind corners angular; both corners obtuse. Surface with medium-sized, rather closely set punctures.

Scutellum: Triangular, with slightly bent sides, impunctate.

Elytra: Oval, somewhat elongate, markedly convex transversely, somewhat less convex longitudinally. Maximum width and height at the level of the anterior third. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view very narrowly visible only in the middle. With slightly incised striae with small, elongate punctures; distance between punctures on disc in stria 4 about equal to the diameter of a puncture; about 34 punctures in stria 4. Intervals very slightly convex on disc, somewhat more convex laterally, with minute, indistinct, sparse punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards, somewhat retracted towards apophysis in its middle. Apophysis not very wide, lateral margins along procoxae somewhat roundly widened and raised; apophysis horizontally protruded posterior to coxae; margins behind coxae convergent (with straight margins) anteriorly, shortly retracted towards middle, rounded apically; space between coxae with a shallow groove.

Mesosternum: Hind part narrow; anterior margin excavated in its middle, area posterior to this excavation somewhat depressed, thus the lateral margins somewhat raised.

Metasternum: Anterior margin between mesocoxae rounded, bordered. Anterior fourth of the disc with several medium-sized punctures, posterior three-fourths with a few minute punctures. Median line somewhat incised in the posterior three-fourths.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, broadly bordered. Anterior borders behind metacoxae with small punctures. Sternites with minute, not very closely set punctures. Sternite 5 apicomedially strongly depressed in males.

Antennae: Of medium length. Length/width ratio of antennomeres 1–11 equals to 8:5 / 5:3 / 9:3 / 6:3 / 7:3½ / 7:4 / 7:5 / 6:5 / 7:5 / 6:5 / 10:6.

Legs: Short. Femora somewhat compressed, thickened towards the second third. Protibiae straight, in males on inner side apically thickened with an area of short hairs. Mesotibiae somewhat bent, in males apically on inner side with a short area with thick, somewhat erect hairs. Metatibiae more bent than mesotibiae. Pro- and mesotarsomeres 1–3 somewhat widened in males. Lengths of protarsomeres 1–5 in male as 3:3:3:2½:11, lengths of mesotarsomeres 1–5 as 6:5:4:3:11, lengths of metatarsomeres 1–4 as 20:8:4:12.

Aedeagus: See Fig. 52H–J.

Amarygmus verecundus **n. sp.**
(Fig. 53A–E)

Holotype (♀): Malaysia, Sabah, Sepilok, 22.–23.XI. 2006, R. Grimm (CG).

Paratypes: Same data as holotype (1 damaged, sex not determined, probably ♀ ZSMB). – Malaysia, Sabah, Ranau, 28.XI.2006, R. Grimm (1 damaged, sex not determined, probably ♀ CG).

Circumstances of collection: On tree bark in park-like habitats; in Sepilok at edge of lowland primary forest.

Etymology

Verecundus (Lat.) = unpretentious.

Diagnosis

Small, elongate oval. Elytra with striae with small, elongate punctures. Frons rather narrow. Antennae of medium length. Pronotum, and less intensively elytra, with slight coloured reflections. Metatarsomere 1 longer than combined metatarsomeres 2–4.

A. verecundus n. sp. resembles in shape, elytral striae and intervals *A. tenellus* Bremer, 2003 (Bremer 2003b: 60–61) from Sabah, but *A. tenellus* is distinctly larger (body length 6.26–6.40 mm). Because of the body shape it can be suspected that both species belong to the species group affine *A. fulgurans* Gebien, 1927, but this cannot be proved because only females are known.

Description

Measurements: Body length 4.47–4.59 mm; body width 2.41–2.67 mm. – Ratios: Pronotum: width/length 1.85–1.98; width hind corners/width front corners 1.56–1.59. Elytra: length/width 1.50–1.60; length elytra/length pronotum 3.81–4.04; maximum width elytra/maximum width pronotum 1.28–1.35.

Colouration: Pronotum purple, with coloured reflections especially in its hind part. Elytra filthy green, modestly lustrous, with a narrow purple band along the suture and with a purple spot on the shoulders. Underside blackish brown, lustrous. Femora and tibiae dark brown, tarsi brown. Antennomeres 1–6 brown, 7–11 black.

Head: Frons rather narrow, as wide as the diameter of antennomere 2. Genae narrow, slightly raised, anteriorly terminating at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture clearly depressed in its middle part. Clypeus moderately stretched forwards, convex transversely and longitudinally, with small, indistinct punctures; punctures on frons markedly smaller and more widely separated than those on clypeus. Mentum reversely trapezoidal, lateral margins flat, wide, lustrous, space in between opaque and convex transversely. Underside of neck strongly microreticulated, with a few not striking punctures. Outer surface of mandibles with a sulcus, apically bifid.

Pronotum: Not very wide, markedly convex transversely, slightly convex longitudinally. Lateral margins narrowing anteriorly, slightly bent. Hind corners slightly obtuse, front corners not projecting. Anterior margin very slightly excavated and somewhat protruded towards head in its middle. Lateral and anterior margins continuously bordered. Lateral borders visible in dorsal view, extremely narrow in the anterior half, slightly wider in the posterior half. Front corners in lateral view rectangular, hind corners with an angle of 100°. Surface laterally with distinct, small punctures, smaller towards the middle and less regularly set.

Scutellum: Triangular, with slightly bent sides.

Elytra: Elongate oval, strongly convex transversely, somewhat less convex longitudinally. Maximum height and width approximately in the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With distinct striae with small, elongate punctures; distance between punctures in stria 4 about 1–2 times diameter of a puncture; about 38 punctures in stria 4. Intervals very slightly convex, with minute, indistinct, not very closely set punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards, in the middle retracted towards apophysis like a trough. Apophysis long, relatively narrow, protruded backwards, somewhat widened and raised along procoxae, space in between with a narrow, deep groove; margins behind coxae somewhat convergent and straight, slightly raised; apophysis straight apically, its ground markedly microreticulated.

Mesosternum: Hind part narrow; lateral margins somewhat raised; anterior margin excavated in the middle.

Metasternum: Anterior margin between mesocoxae narrowly rounded. Disc slightly convex, spaciously covered with tiny punctures which are the origin of very short, recumbent, tender hairs. Median line widely and deeply depressed in the posterior half.

Sternites: Anterior margin of sternite 1 between metacoxae narrowly ogival, bordered. No punctures are recognizable on sternites at 50-fold magnification, but there are short, widely separated, very thin, recumbent hairs.

Antennae: Of medium length, reaching slightly anterior to middle of elytra. Length/width ratio of antennomeres 1–11 equals to 16:5 / 7:4 / 16:4 / 10:4 / 10:4½ / 11:5½ / 10:5½ / 11:5½ / 10:5½ / 10:5½ / 15:5½.

Legs: Short. Femora thickened 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 4:3:3:3:17, lengths of mesotarsomeres 1–5 as 12:8:6:5:16, lengths of metatarsomeres 1–4 as 38:11:6:15.

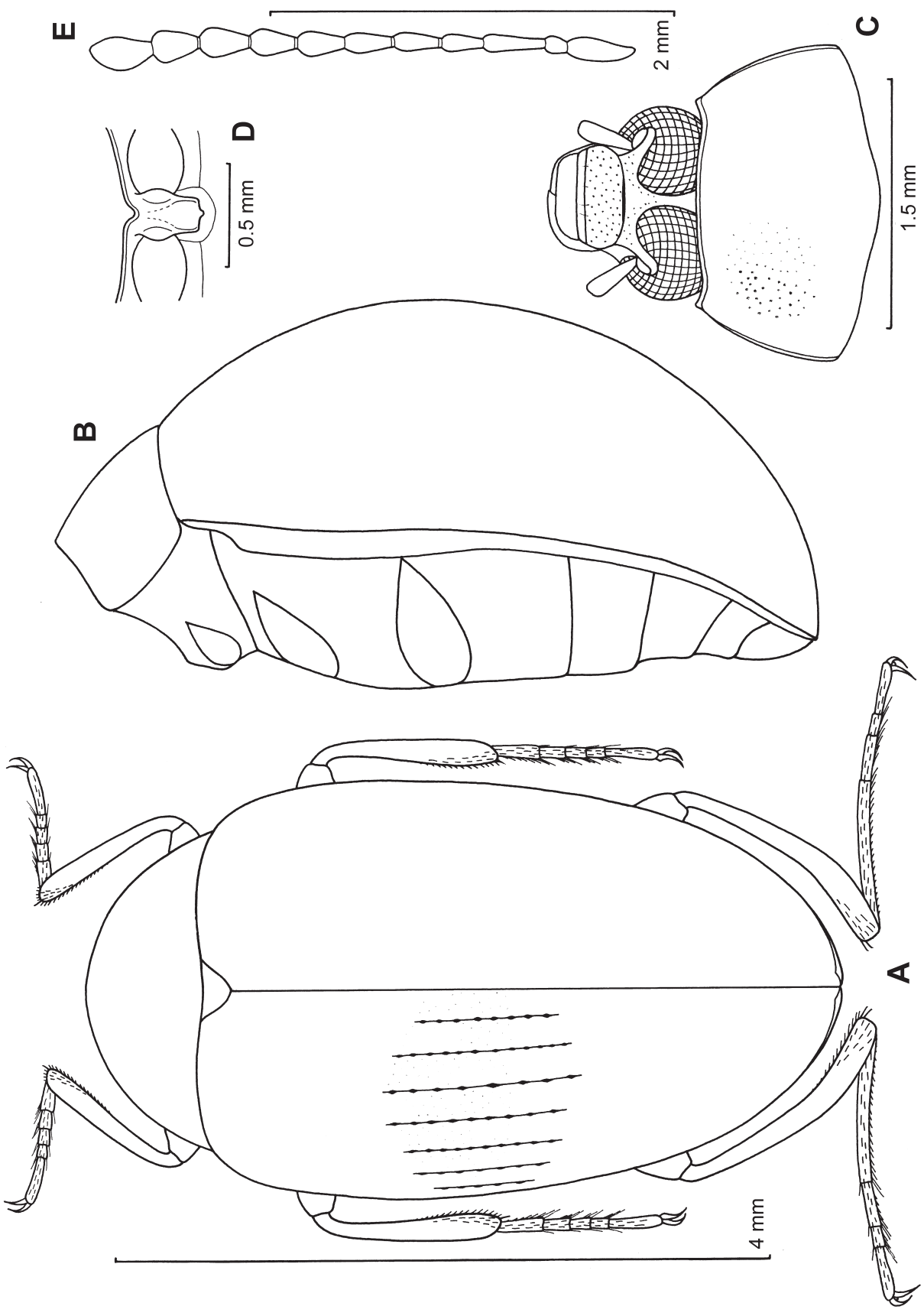


Fig. 53. *Amarygmus verecundus* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

Amarygmus vespertinus **n. sp.**
(Fig. 54A–H)

H o l o t y p e (♂): Sabah, Keningau, 400 m, nachts, auf der Rinde von Bäumen, 19.II.2006, H. J. Bremer leg. (ZSMB).

P a r a t y p e s : Same data as holotype (1 ♂, 1 ♀ ZSMB). – Same data as holotype, but 17.II.2006 (1 ♂, 2 ♀♀ ZSMB; 1 ♂ BMNH). – Borneo, Malaysia, Sabah, Keningau, 17.–19.II.2006, R. Grimm (11 sex not determined CG). – Same data as before, but 10.II.2006 (7 sex not determined CG). – Same data as before, but 6.–7.II.2006 (1 ♂, 3 ♀♀, 9 sex not determined CG). – Same data as before, but 20.–22.III.2007 (3 ♂♂ CG, 1 ♂ ZSMB). – Borneo, Sabah, S Keningau, 350 m, 20.–22.III.2007, leg. W. Schawaller (1 ♂, 1 ♀ SMNS). – Nr. Keningau, Sabah, Borneo, 28.IV.1994 (1 ♀ CM). – Borneo, Malaysia, Sabah, 24 km NE Keningau (Apin Apin), 500 m, 18.II.2006, R. Grimm (3 sex not determined CG). – Malaysia, Sabah, 25 km NE Keningau, N Apin Apin, 25.XI.2006, R. Grimm (3 ♀♀ CG). – Sabah, 5 km NNE Apin Apin, 500 m, nachts, auf der Baumrinde, 18.II.2006, H. J. Bremer leg. (1 ♀ ZSMB). – Borneo, Malaysia, Sabah, Tenom, 300 m, 18.–19.III.2007, R. Grimm (2 ♂♂ CG, 1 ♂ ZSMB). – Sabah, Umg. Kudat, Bäume am Strand Bak Bak, nachts, auf der Baumrinde, 16.II.2006, Ulf Bremer leg. (1 ♀ ZSMB). – Borneo, Malaysia, Sabah, Kudat, Bak Bak, 14.–16.II.2006, R. Grimm (2 ♀♀ CG). – Same data as before, but 25.–26.III.2007 (1 ♂ CG).

Circumstances of collection: The majority of specimens have been collected on the bark of trees in gardens, parks or avenues, at night.

Etymology

Vespertinus (Lat.) = at evening.

Diagnosis

Small, narrow, elongate oval, markedly convex transversely. Upperside of elytra markedly lustrous, dark green, with reflections of the spectral colours; legs brown. Punctures of elytral rows small, closely set, rarely linked; elytral intervals flat, densely covered with minute, distinct punctures. Metatibiae strongly bent. Frons of medium width. Antennae of medium length. Males with short erect hairs on front of profemora and on back of meso- and metafemora. Male sternite 5 with a depression apicomedially.

Amarygmus vespertinus n. sp. resembles in size and shape, frontal width and shape and colouration of metatibiae *A. noctivagus* Bremer, 2005 (Bremer 2005a: 21–22) from northern Thailand. However, the pronotum of *A. noctivagus* is somewhat narrower, the pronotal punctures are smaller, the antennae are shorter, and the punctures of the elytral rows are always linked by thin lines.

A. proventus Bremer, 2002 (Bremer 2002a: 33) from the same area is also similar to *A. vespertinus*. However, in *A. proventus* the punctures on the elytral intervals are smaller and sparser, and the punctures of the elytral rows are larger.

With respect to shape and structure of the elytra *A. vespertinus* also resembles *A. jasarensis* Bremer, 2004 (Bremer 2004e: 116–117) from the Cameron Highlands of the Malayan Peninsula. However, in *A. vespertinus* the metatibiae are markedly and uniformly bent (straight in the basal half and slightly incurved in the apical half in *A. jasarensis*), and the elytrae show coloured reflections (absent in *A. jasarensis*).

Description

M e a s u r e m e n t s : Body length 4.16–4.63 mm; body width 2.33–2.68 mm. – Ratios: Pronotum: width/length 1.96–2.02; width hind corners/width front corners 1.74–1.82. Elytra: length/width 1.39–1.45; length elytra/length pronotum 3.62–3.78; maximum width elytra/maximum width pronotum 1.29–1.33.

C o l o u r a t i o n : Upperside markedly lustrous, blackish green, with distinct, transverse reflections of the spectral colours. Femora, tibiae and tarsi brown. Antennomeres 1–5 light brown, 6–11 black (antennomere 11 apically brightened). Underside brown, lustrous. Underside of neck black, lustrous. Mentum and palpi light brown.

H e a d : Frons longitudinally somewhat convex, of medium width, as wide as length of antennomere 3. Genae narrow, short, slightly raised. Fronto-clypeal suture incised in the middle. Clypeus stretched forwards, somewhat convex transversely, with small, widely separated punctures which are the origin of short recumbent hairs. Frons similarly punctated as clypeus but without hairs. Mentum with bent lateral margins, diverging anteriorly, transition between lateral margins and base rounded, lateral margins with flat, wide margins, space in between transversely convex. Underside of neck slightly microreticulated, anteriorly with coarse, closely set punctures. Outer surface of mandibles with a sulcus, apically bifid.

P r o n o t u m : Short, relatively narrow, uniformly convex transversely and longitudinally. Lateral margins narrowing anteriorly, bent. Front corners rounded. Anterior margin slightly excavated. Lateral and anterior margins bordered, lateral borders in dorsal view narrowly visible on the posterior three-fifths. Rounded front corners and angular hind corners slightly obtuse in lateral view. Surface with small, rather closely set punctures.

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Elongate oval, the lateral outline following the outline of the pronotum, markedly convex transversely, also longitudinally relatively convex. Maximum width and height slightly behind level of the anterior third. Shoulders not prominent. Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With rows of small, closely set punctures which are rarely linked by thin lines on disc, changing to thin striae on the apical part of the elytra; distance between punctures on disc in row 4 about 1–1½ times diameter of a puncture; about 34 punctures in row 4. Intervals flat, with minute, distinct, rather closely set punctures.

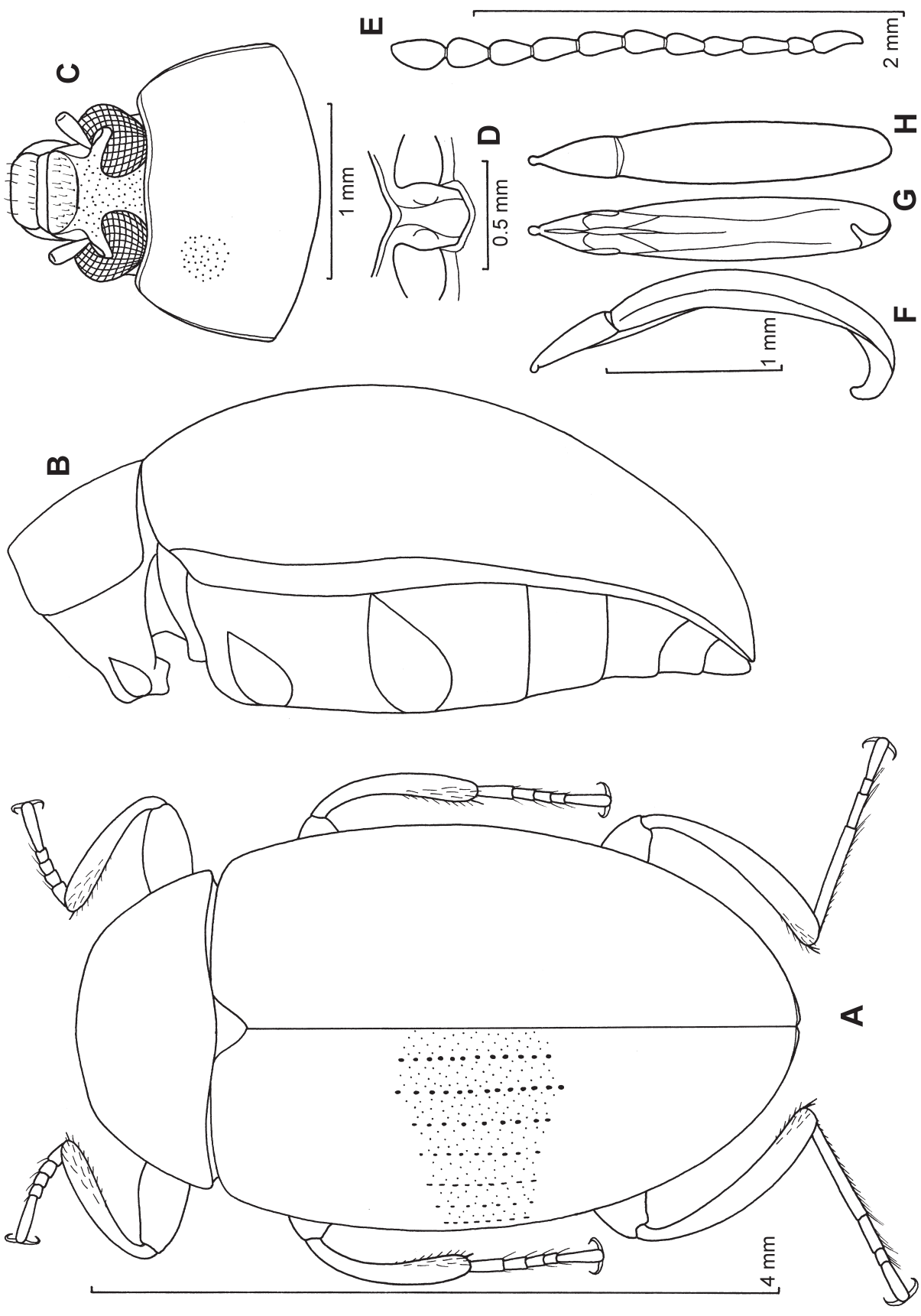


Fig. 54. *Amarygmus vespertinus* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna. **F** Aedeagus, lateral view. **G** Aedeagus, ventral view. **H** Aedeagus, dorsal view.

P r o s t e r n u m : Anterior margin narrowly bent upwards, retracted towards apophysis in the middle. Apophysis plain, only slightly grooved in its middle; lateral margins slightly widened along procoxae, only very littles raised; margins posterior to coxae somewhat narrowing; lateral margins at the apex shortly retracted towards middle, widely rounded in the middle.

M e s o s t e r n u m : Short. Anterior margin excavated in the middle.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, border outlined by a darkened margin. Just behind the margin there is a row of large punctures, otherwise disc with minute, widely separated punctures on its anterior half and tiny punctures on its posterior half; the punctures of the disc are the origin of semi-erect short hairs. Median line slightly incised in nearly its whole length.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, bordered; inner part of this border and borders behind metacoxae with coarse punctures. Sternites with tiny, widely separated punctures which are usually the origin of short semi-erect hairs.

A n t e n n a e : Not very long, reaching anterior third of elytra in males, somewhat shorter in females. Antennomere 11 rounded apically. Length/width ratio of antennomeres 1–11 in male equals to 10:4½ / 6:4 / 11:4 / 7:4½ / 8:5 / 8:5 / 10:6 / 10:6 / 10:6 / 9:6 / 12:6½, in female to 10:5 / 5½:4 / 9:4 / 6:4 / 7½:4½ / 8:5 / 9:5 / 9:6 / 9:6 / 8½:6 / 11:6½.

L e g s : Short. Femora thickened towards the second third; front of profemora and back of meso- and metafemora in the basal three-fourths with short erect hairs. Protibiae very slightly bent, mesotibiae slightly bent, metatibiae distinctly bent and compressed. Protarsomeres 1–3 not widened in males. Lengths of protarsomeres 1–5 as 3:3:3:3:14, lengths of mesotarsomeres 1–5 as 8:5:4½:4:14, lengths of metatarsomeres 1–4 as 28:9:4:12.

A e d e a g u s : See Fig. 54F–H.

Amarygmus viduatus **n. sp.**
(Fig. 55A–E)

H o l o t y p e (♀): Borneo, Malaysia, Sarawak, Santubong Peninsula, Permai Rainforest Resort, 10–200 m, 11.–14.IX.2008, Lux, R. Grimm (CG).

P a r a t y p e : Same data as holotype, but 23.–27.III.2009 (1 ♀ ZSMB).

Circumstances of collection: Edge of lowland primary forest, at light.

Etymology

Viduatus (Lat.) = widowed, isolated.

Diagnosis

Oblong, narrow, of medium size. Elytra widest just behind base, becoming slightly narrower posteriorly, with straight margins. Elytra with clearly incised striae with elongate punctures. Frons of medium width, antennae very short. Protibiae straight; mesotibiae very slightly bent on outer side; metatibiae nearly straight in the basal half, incurved in the apical half. Upperside blue, not very lustrous; legs dark brown to black.

Amarygmus viduatus n. sp. is very similar to *A. viridicatus* Bremer, 2004 (Bremer 2004a: 51, fig. 32) from Sabah. However, the legs of *A. viridicatus* are light brown (brownish black in *A. viduatus*), the mesotibiae are distinctly bent (only slightly bent in *A. viduatus*), and the fronto-clypeal suture is less strongly incised.

A. viduatus might turn out as a subspecies of *A. viridicatus*, but this can only be proved by the study of males (currently only females are known of both species).

Description

M e a s u r e m e n t s : Body length 5.41+5.65 mm; body width 2.63+2.68 mm. – Ratios: Pronotum: width/length 1.74+1.88; width hind corners/width front corners 1.70+1.71. Elytra: length/width 1.76+1.86; length elytra/length pronotum 3.62+3.64; maximum width elytra/maximum width pronotum 1.11+1.12.

C o l o u r a t i o n : Upperside blue, opaque by microreticulation. Femora and tibiae brownish black, tarsomeres brown. Antennomeres 1–4 brown, 5 dark brown, 6–11 black. Underside brown, the last 2½ sternites dark brown.

H e a d : Frons of medium width, wider than length of antennomere 3 (like 12 : 9). Eyes very large, circumventing genae and roots of antennae. Genae narrow, anteriorly significantly surpassing the middle part of the fronto-clypeal suture. Fronto-clypeal suture markedly incised. Clypeus slightly stretched forwards, its sides becoming narrower anteriorly, convex longitudinally, with small, distinct punctures; punctures on frons smaller than those on clypeus. Mentum reversely trapezoidal, with slightly bent sides; lateral margins flat, strongly lustrous, space in between convex. Underside of neck covered with small, dense punctures. Mandibles on their outer surface with a longitudinal sulcus, apically bifid.

P r o n o t u m : Not significantly wider than elytra, markedly convex transversely, moderately convex longitudinally. Lateral margins narrowing anteriorly, bent. Front corners not visible in dorsal view. Anterior margin nearly straight. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view visible only in the posterior half. Front and hind corners in lateral view rounded, clearly obtuse. Surface with small, distinct, relatively closely set punctures.

S c u t e l l u m : Triangular, with some tiny punctures.

E l y t r a : Elongate, markedly convex transversely, convex longitudinally. Maximum height at the level of the anterior third, widest just behind shoulders, narrowing with straight margins posteriorly. Shoulders prominent.

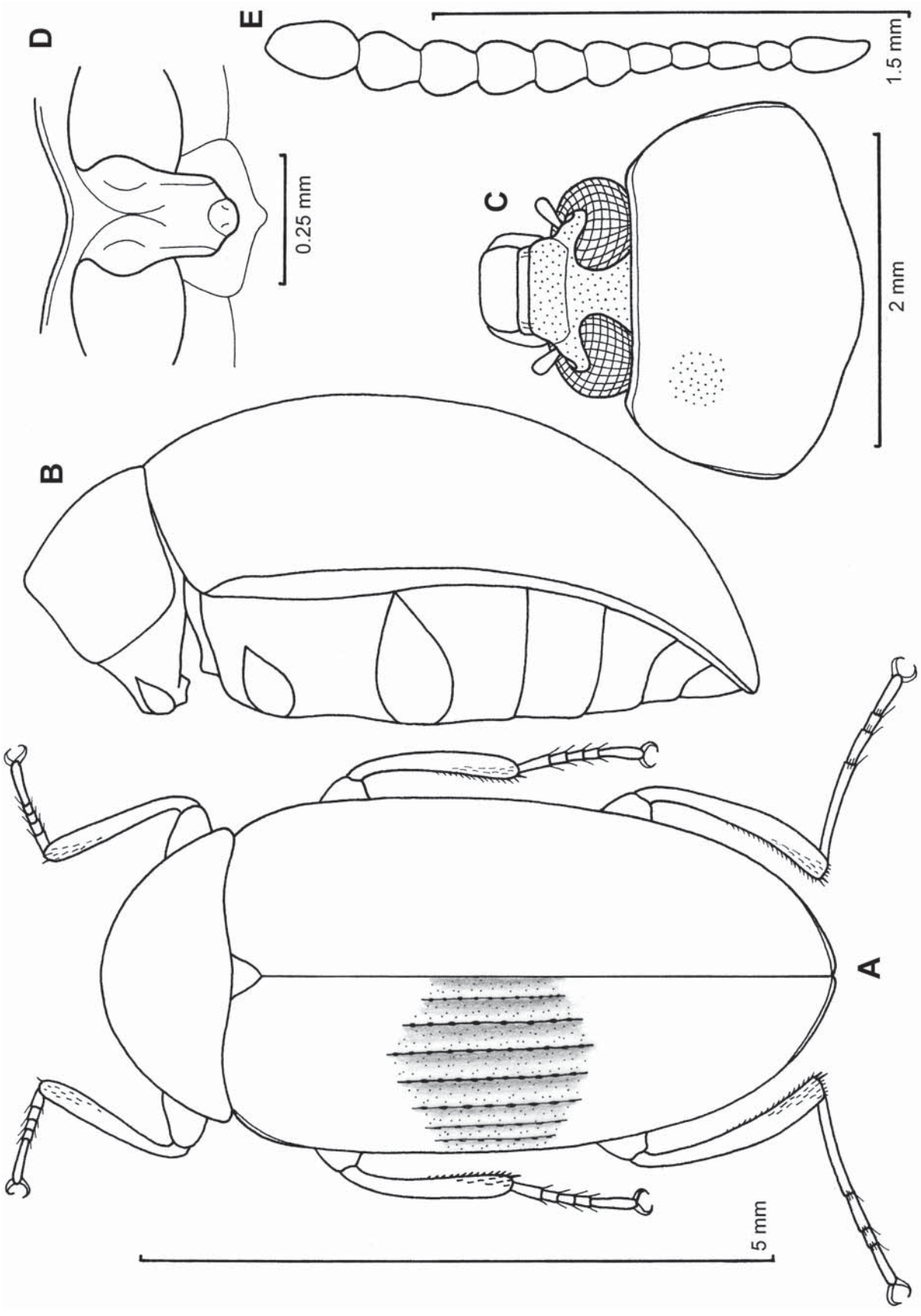


Fig. 55. *Amarygmus viduatus* n. sp. – **A** Habitus, ♀. **B** Body, lateral view. **C** Head and pronotum. **D** Prosternal apophysis. **E** Antenna.

Apices of elytra mutually rounded. Lateral edges not visible in dorsal view. With moderately incised striae with elongate punctures; distance between punctures on disc in stria 4 about 2–3 times diameter of a puncture. Intervals on disc very slightly convex, clearly convex laterally, with sparse, tiny punctures.

P r o s t e r n u m : Anterior margin narrowly bent upwards. Apophysis narrow, margins along coxae widened and raised, space in between with a deep groove; apophysis subparallel posterior to coxae, apicomedially with a markedly raised tip.

M e s o s t e r n u m : Hind part narrow; anterior margin excavated in the middle; excavation depressed posteriorly.

M e t a s t e r n u m : Anterior part of disc with two transverse rows of large punctures, posterior part with a few tiny punctures. Median line incised.

S t e r n i t e s : Sternite 1 with a few small punctures, sternites 2–5 without punctures.

A n t e n n a e : Very short, reaching over base of elytra by about two antennomeres. Length/width ratio of antennomeres 1–11 equals to 9:5½ / 6:5 / 9:4 / 6:4½ / 6½:5 / 8:7½ / 8½:8½ / 8:8½ / 9:8½ / 9:8½ / 15:8½.

L e g s : Short. Femora thickened towards the second third. Protibiae straight; mesotibiae slightly bent on outer side, straight on inner side; metatibiae nearly straight in the basal half, markedly incurved in the apical half. Lengths of protarsomeres 1–5 as 5:5:4:4:15, lengths of mesotarsomeres 1–5 as 11:7:5:5:17, lengths of metatarsomeres 1–4 as 34:12:8:17.

Amarygmus vilis **n. sp.**
(Fig. 56A–I)

H o l o t y p e (♂): Borneo, Malaysia, Sabah, Kinabalu NP, Poring vic., 380 m, 9.–11.III.2007, R. Grimm (CG).

P a r a t y p e s : Same data as holotype (1 ♂, 1 ♀ CG; 1 ♂, 2 ♀♀ ZSMB).

Circumstances of collection: Lowland primary forest, on tree bark, at night.

Etymology

Vilis (Lat.) = poor, humble.

Diagnosis

Small, oval. Elytra with rows of small punctures which are mostly linked by thin lines; intervals on disc flat, with minute, distinct punctures. Frons narrow, antennae short. Upperside dark copper-coloured, legs brown. Apical half of protibiae and protarsomeres 1–3 not widened in males.

A. cyclaeus n. sp. resembles *A. vilis* in size, structure of elytra and colouration. For the differences see under *A. cyclaeus*.

Description

M e a s u r e m e n t s : Body length 3.81–4.09 mm; body width 2.33–2.37 mm. – Ratios: Pronotum: width/length 1.96–2.00; width hind corners/width front corners 1.61–1.75. Elytra: length/width 1.38–1.40; length elytra/length pronotum 3.50–3.65; maximum width elytra/maximum width pronotum 1.26–1.32.

C o l o u r a t i o n : Upperside (except scutellum) dark copper-coloured, moderately lustrous. Scutellum, underside and legs brown. Antennomeres 1–6 brown, 7–11 black.

H e a d : Frons narrow, its width corresponding to the diameter of two ocelli of the eyes. Genae somewhat raised, narrow, anteriorly terminating approximately at the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture strongly incised in the middle, weakly incised laterally, situated somewhat distant to the eyes. Clypeus moderately stretched forwards, somewhat convex transversely and longitudinally. Clypeus and frons on a microreticulated ground with small, irregularly set punctures. Mentum enlarged anteriorly, sides bent, lateral margins flat, lustrous, space in between transversely convex. Underside of neck markedly microreticulated, on its anterior part with some large, shallow punctures. Mandibles on their outer surface with a longitudinal sulcus, apically bifid.

P r o n o t u m : Wide, convex transversely and longitudinally. Lateral margins narrowing anteriorly, bent. Anterior margin straight. Front corners depressed. Lateral and anterior margins continuously bordered. Lateral borders and front corners not visible in the anterior half. Front corners in lateral view narrowly rounded and slightly obtuse, hind corners angular and somewhat more obtuse. Surface with small, irregularly set punctures which are the origin of very short, semi-erect hairs (visible at 100-fold magnification).

S c u t e l l u m : Triangular, impunctate.

E l y t r a : Elongate oval, markedly convex transversely (particularly in the anterior part), less convex longitudinally. Maximum height and width at the level of the anterior third. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible at the shoulders. With rows of small punctures which are linked by faint lines (best visible in oblique view); distance between punctures on disc 1–2 times diameter of a puncture; about 33 punctures in row 4. Intervals flat on disc, slightly convex latero-apically, with minute, distinct, moderately closely set punctures; very short hairs originating from the punctures (visible at 100-fold magnification).

P r o s t e r n u m : Anterior margin narrowly bent upwards laterally, in the middle interrupted by a short, wide keel which is directed towards apophysis. Apophysis short, wide, margins along procoxae roundedly enlarged, space in between with a wide, shallow groove which is separated into two areas by a shallow median keel; posterior to coxae retracted towards apex which is slightly prominent in the middle.

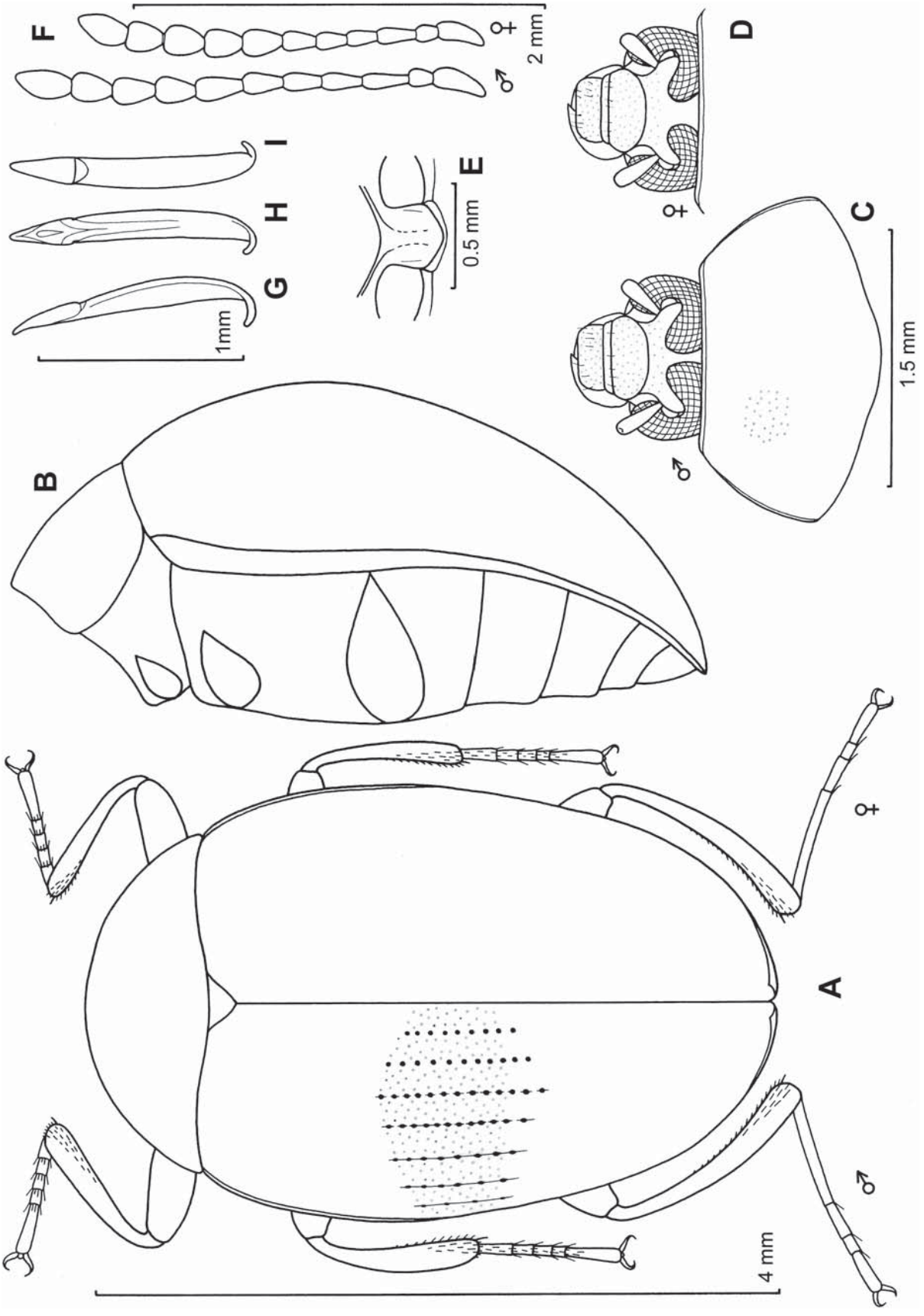


Fig. 56. *Amarygmus vilis* n. sp. – **A** Habitus; legs on left side ♂, right side ♀. **B** Body, lateral view. **C** Head and pronotum ♂. **D** Head ♀. **E** Prosternal apophysis. **F** Antennae ♂ and ♀. **G** Aedeagus, lateral view. **H** Aedeagus, ventral view. **I** Aedeagus, dorsal view.

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

Metasternum: Anterior margin between mesocoxae rounded, narrowly bordered. Disc slightly convex, anterior part with medium-sized, not very closely set punctures, posterior part with minute punctures; the punctures are the origin of short to medium-sized, semi-erect hairs. Median line translucent.

Sternites: Anterior margin of sternite 1 between metacoxae ogival, narrowly bordered. Sternites with tiny, sparse punctures which are the origin of short, recumbent, tender hairs. Sternite 5 apicomedially not depressed in males.

Antennae: Rather short, reaching to anterior fourth of elytra, in females somewhat shorter than in males. Length/width ratio of antennomeres 1–11 in male equals to 13:5 / 6:5 / 12:4 / 9½:4½ / 9½:5 / 11:5 / 11:7 / 11:7 / 10:7 / 9:7 / 14:7, in female to 11:5 / 5½:4½ / 9:4 / 6½:4 / 7:4½ / 7:5 / 9:7 / 9½:7 / 9:7 / 8:7 / 13:7.

Legs: Short. Femora thickened towards the second third. Protibiae straight; meso- and metatibiae somewhat bent. Lengths of protarsomeres 1–5 as 4:4:4:4:14, lengths of mesotarsomeres 1–5 as 10:6:5½:5:16, lengths of metatarsomeres 1–4 as 30:11:6:12.

Aedeagus: See Fig. 56G–I.

Amarygmus viridis **n. sp.**
(Fig. 57A–E)

Holotype (♀): Borneo, Sabah W, Crocker Range W, W of Apin Apin, II.2000, M. Sniżek leg. (ZSMB).

Etymology

Viridis (Lat.) = green.

Diagnosis

Of medium size, oval. Elytra with striae with elongate punctures. Frons rather narrow, antennae long. This species is especially characterized by the greenish blue colour of the elytra, the blue colour of the pronotum and the reddish brown legs and antennae.

A. viridis resembles in shape of pronotum and elytra *A. michaeli* Bremer, 2004 (Bremer 2004d: 138–139) from the same area. However, *A. michaeli* is smaller than *A. viridis* (body length 5.1 mm), the fronto-clypeal suture is incised in the middle (incised on the whole width of the head in *A. viridis*), the frons is wider, and the elytra are bluish violet (greenish blue in *A. viridis*).

A specimen in the collection of MNHN, labelled "type, *Amarygmus reductepurpureus* Pic", is very similar to *A. viridis*, but it has dark legs. *A. reductepurpureus* Pic is probably a species in litteris because I could not find a description.

Description

Measurements: Body length 6.69 mm; body width 4.22 mm. – Ratios: Pronotum: width/length 1.94; width hind corners/width front corners 1.79. Elytra: length/width 1.30; length elytra/length pronotum 3.83; maximum width elytra/maximum width pronotum 1.51.

Colouration: Frons greenish blue; genae brown; clypeus dark brown. Pronotum blue. Scutellum brown. Elytra greenish blue. Legs reddish brown. Antennomeres 1–5 reddish brown, 6–11 dark brown. Underside brown, slightly lustrous.

Head: Frons rather narrow, narrower than length of antennomere 4 (like 13 : 16). Genae short, slightly raised, anteriorly terminating just behind the middle part of the fronto-clypeal suture. Fronto-clypeal suture incised on the whole width of the head. Clypeus stretched forwards, slightly convex transversely and longitudinally, covered with small, shallow, moderately closely set punctures which are the origin of tiny recumbent hairs; punctures of frons similarly closely set but smaller. Mentum reversely trapezoidal, lateral margins wide, flat, lustrous, space in between opaque and convex transversely. Outer surface of mandibles with a longitudinal sulcus, apically bifid.

Pronotum: Wide, moderately convex transversely and longitudinally. Lateral margins narrowing anteriorly, bent. Anterior margin markedly excavated. Front corners narrowly rounded; hind corners wider rounded. Lateral and anterior margins continuously bordered. Lateral borders in dorsal view visible. Front corners in lateral view rounded, obtuse, hind corners more obtuse. Surface with minute to small, irregularly and not very closely set punctures.

Scutellum: Triangular, with some tiny punctures.

Elytra: Widely oval, convex transversely and longitudinally. Maximum width and height somewhat anterior to the middle. Shoulders not very prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view nearly entirely visible. With superficial but distinct striae which are intermittently widened by elongate, small punctures; distance between punctures on disc in stria 4 about ½–1 times diameter of a puncture; about 30 punctures in stria 4. Intervals flat, slightly convex latero-apically, with tiny, sparse punctures.

Prosternum: Anterior margin continuously and narrowly bent upwards, retracted towards apophysis in the middle. Apophysis wide, not very long; lateral margins along procoxae widened and raised, space in between with a wide, shallow groove; obtuse-angled apically; ground of the apophysis microreticulated, with hairs of medium length which are partially erect or recumbent.

Mesosternum: Anterior margin excavated in the middle; lateral to the excavation somewhat lifted like a roll; surface with nondirectional hairs of medium length.

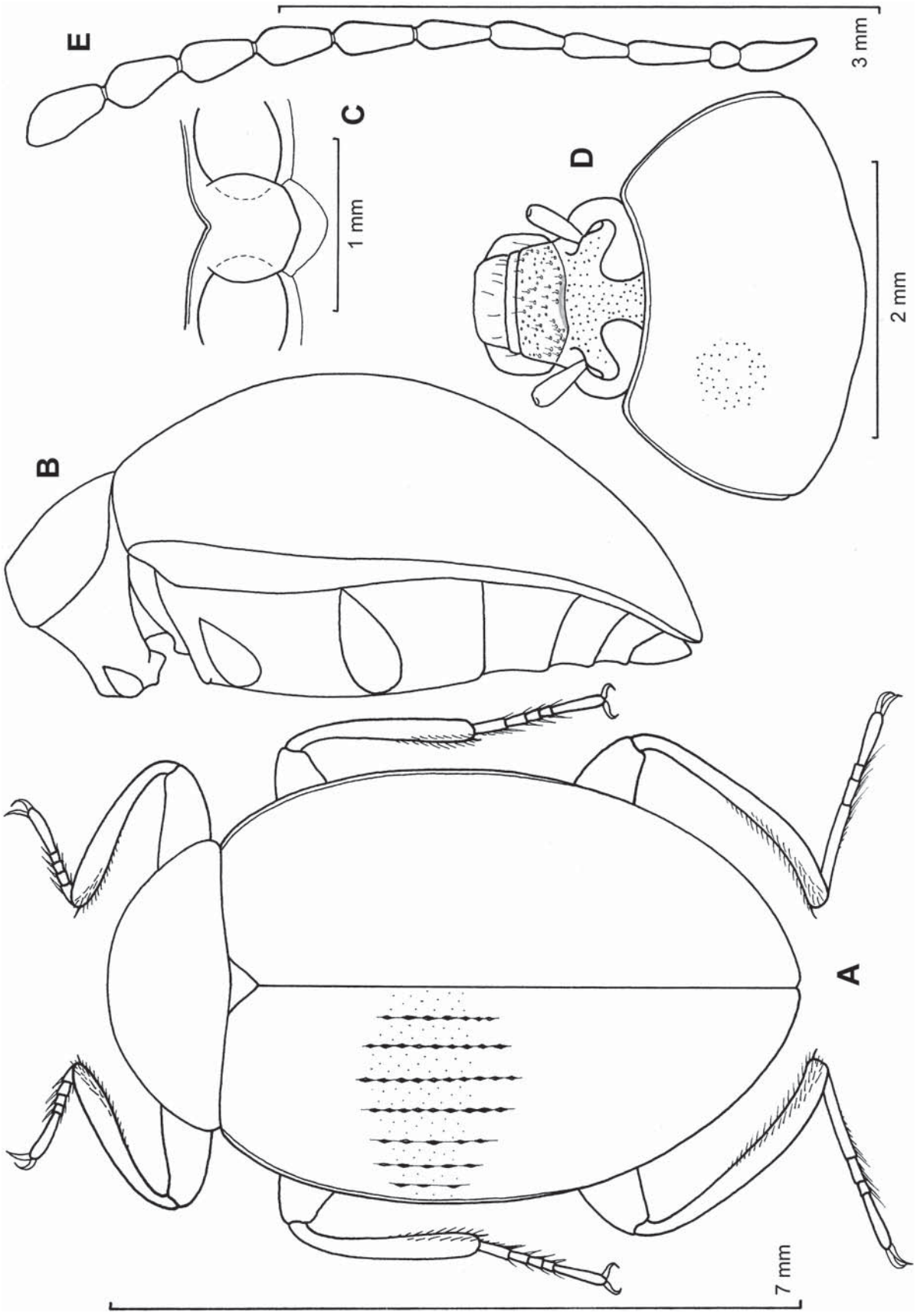


Fig. 57. *Amarygmus viridis* n. sp. – **A** Habitus. **B** Body, lateral view. **C** Prosternal apophysis. **D** Head and pronotum. **E** Antenna.

Metasternum: Anterior part of disc with coarse punctures which are the origin of semi-erect hairs of medium length, posterior part with tiny, widely separated punctures. Median line translucent.

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

Antennae: Of medium length, reaching slightly anterior to middle of elytra. Antennomere 11 rounded apically. Length/width ratio of antennomeres 1–11 equals to 21:9 / 9:7½ / 20:6½ / 16:7 / 18:7 / 19:7 / 19:9 / 18:10 / 19:10 / 18:10 / 22:10.

Legs: Of medium length. Femora somewhat thickened towards the second third. Protibiae straight on outer side, somewhat widened apically on inner side. Mesotibiae straight on inner side, slightly bent on outer side. Metatibiae widened apically, somewhat incurved in the apical half. Lengths of protarsomeres 1–5 as 6:6:6:5:27, lengths of mesotarsomeres 1–5 as 13:9:7:6:27, lengths of metatarsomeres 1–4 as 36:12:11:26.

Amarygmus votivus **n. sp.**
(Fig. 58A–I)

Holotype (♂): Borneo, Malaysia, Sabah, Crocker Mts., Gunung Emas, 1600 m, 13.V.2005, R. Grimm (CG).

Paratypes: Malaysia, Sabah Prov., Banjaran Crocker Mts., Gunung Alab peak, 1650–1800 m, 30.IV.–27.V.1996, M. Štrba & R. Hergovits leg. (1 ♀ ZSMB). – Borneo, Malaysia, Sabah, Crocker Range, Gunung Emas, 1500 m, 16.–21.III.2007, R. Grimm (1 ♀ ZSMB).

Circumstances of collection: Mountainous primary forest, on tree bark, at night (leg. R. Grimm).

Etymology

Votivus (Lat.), epithet = welcome, desirable.

Diagnosis

Small, oval, markedly convex, strongly shiny. Elytra blue laterally, disc copper-coloured, pronotum greenish golden. Elytra with rows of medium-sized punctures, distance between punctures irregular; intervals flat, only with a few tiny punctures. Frons relatively narrow. Antennae of medium length, in male longer than in female. Male protarsomeres 1–3 not widened.

A. cinaediae Bremer, 2004 (Bremer 2004e: 107–109) from Sarawak and Sumatra is of similar size and shows also a blue frame on the elytra. However, *A. cinaediae* has a wider frons, the pronotal front corners are slightly acute-angled (rounded in *A. votivus*), the punctures of the elytral rows are larger and linked by faint lines at least laterally, and the maximum elytral width and height is approximately in its middle (maximum height clearly anterior to the middle in *A. votivus*).

Other species with a blue or violet colour of the lateral parts of the elytra are *A. jenisi* Bremer, 2004 and *A. affectus* n. sp., but these species are smaller than *A. votivus*. For additional characters see under *A. affectus*.

Description

Measurements: Body length 5.65–5.98 mm; body width 3.57–3.78 mm. – Ratios: Pronotum: width/length 2.00–2.02; width hind corners/width front corners 1.89–1.94. Elytra: length/width 1.28–1.35; length elytra/length pronotum 3.37–3.68; maximum width elytra/maximum width pronotum 1.31–1.39.

Colouration: Upperside and underside clearly lustrous. Frons and clypeus greenish blue. Pronotum greenish golden. Lateral parts of elytra blue, disc copper-coloured. Underside brown. Femora brown, tibiae dark brown, tarsi light brown. Antennomeres 1–6 brown, 7 dark brown, 8–11 black.

Head: Frons moderately wide, in male slightly wider than in female; relation width of frons/length of antennomere 4 in male 10 : 13, in female 13 : 10. Genae short, somewhat raised, anteriorly terminating behind the level of the middle part of the fronto-clypeal suture. Fronto-clypeal suture distinctly but narrowly incised in its middle part, only slightly incised in its lateral part. Clypeus moderately stretched forwards, very slightly convex transversely and longitudinally. Clypeus and frons with minute, widely separated punctures. Mentum wide, reversely trapezoidal, lateral margins flat, space in between convex transversely. Underside of neck with rather closely set, shallow punctures of medium size. Outer surface of mandibles with a longitudinal sulcus, apically bifid.

Pronotum: Wide, uniformly convex transversely, slightly convex longitudinally. Lateral margins anteriorly narrowing, bent. Anterior margin somewhat excavated. Front corners rounded. Lateral and anterior margins bordered. Lateral borders in dorsal view very narrowly visible in their whole length. Front and hind corners in lateral view obtuse. Surface with minute, widely separated punctures.

Scutellum: Triangular, with a few tiny punctures.

Elytra: Widely oval, distinctly convex transversely and longitudinally. Maximum height at the level of the anterior third, maximum width somewhat anterior to the middle. Shoulders slightly prominent. Apices of elytra mutually rounded. Lateral edges in dorsal view very narrowly visible. With rows of small punctures which are not linked by lines; distance between punctures on disc in row 4 irregular, about 1½–4 times diameter of a puncture; about 28 punctures in row 4. Intervals flat, with tiny, widely separated punctures.

Prosternum: Anterior margin continuously bent upwards, somewhat retracted towards apophysis in the middle. Apophysis wide, short, lateral margins along

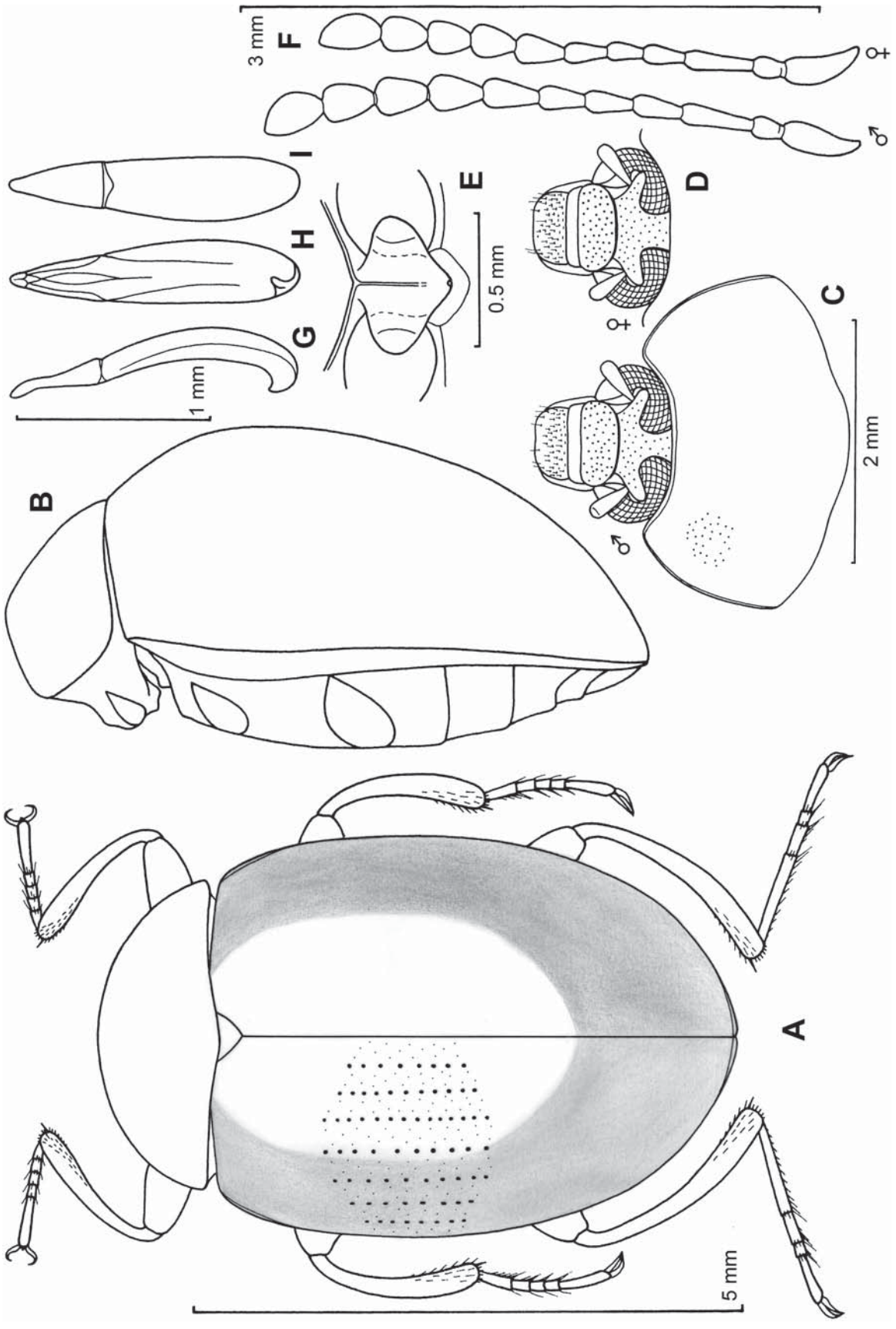


Fig. 58. *Amarygmus votivus* n. sp. – **A** Habitus, ♂ (shaded area of elytra blue). **B** Body, lateral view. **C** Head and pronotum ♂. **D** Head ♀. **E** Prosternal apophysis. **F** Antennae ♂ and ♀. **G** Aedeagus, lateral view. **H** Aedeagus, ventral view. **I** Aedeagus, dorsal view.

procoxae widened, raised, nearly wing-shaped; space in between with a shallow groove, interrupted in the middle by a narrow, low keel which extends across almost the whole apophysis; margins markedly narrowing posterior to coxae; apically broadly pointed.

M e s o s t e r n u m : Hind part wide; anterior margin widely, almost triangularly excavated in the middle.

M e t a s t e r n u m : Anterior margin between mesocoxae rounded, bordered. Anterior part of disc with sparse, small punctures, posterior part with minute punctures; disc bare in male. Median line neither depressed nor incised.

S t e r n i t e s : Anterior margin of sternite 1 between metacoxae ogival, bordered. Sternites bare in both sexes, with tiny, sparse punctures. Sternite 5 without apicomedial depression in males.

A n t e n n a e : Not very long, reaching to about anterior two-fifths of elytra in male and about anterior third in female. Length/width ratio of antennomeres 1–11 in male equals to 16:7 / 9:6 / 19:5½ / 13:6 / 12:6 / 11:6 / 16:8 / 14:9 / 14:9 / 13:9 / 16:9, in female to 14:7 / 8:6 / 18:6 / 11:6 / 11:6 / 10:6 / 13:8 / 13:9 / 12:9 / 12:9 / 16:9.

L e g s : Short. Femora distinctly thickened towards the second third. Protibiae slightly bent; mesotibiae more bent than protibiae, pro- and mesotibiae thickened apically; metatibiae slightly incurved in the apical half. Lengths of protarsomeres 1–5 as 6:6:6:6:21, lengths of mesotarsomeres 1–5 as 12:8:6:6:21, lengths of metatarsomeres 1–4 as 34:12:7:21.

A e d e a g u s : See Fig. 58G–I.

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