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## Revision of the genus *Amarygmus* DALMAN, 1823 and related genera. Part LXXII.

### The Amarygmini of Borneo (Coleoptera: Tenebrionidae), part IV. Species of the genus *Plesiophthalmus* and related genera (including species of Sumatra, Java and - partially - Peninsular Malaysia)

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#### Abstract

The species of the genus *Plesiophthalmus* MOTSCHULSKY, 1857 and of related genera from Borneo are revised. This revision also includes most species from Java, Sumatra, and Peninsular Malaysia because these species also occur or might occur on Borneo. The genus characters of *Plesiophthalmus* are discussed. Subgenera of *Plesiophthalmus* are named. From all species a short diagnosis or description (if new species are concerned) are provided; most of them are illustrated. A determination key of these species is developed.

The relations of *Plesiophthalmus* with the following neighbouring genera are discussed: *Euspinamarygmus* MASUMOTO, 1989, *Sylvanoplonyx* BREMER, 2010, *Hoplobrachium* FAIRMAIRE, 1886 and *Amarygmus* DALMAN, 1823.

New subgenera of *Plesiophthalmus*:

*Plesiophthalmus* MOTSCHULSKY s. str. is instituted as subgenus for species affine *Plesiophthalmus nigrocyaneus* MOTSCHULSKY, 1857; *Plesiophthalmus nigrocyaneus* MOTSCHULSKY is type species;

*Cyriogeton* PASCOE, 1871 is instituted as subgenus for species affine *Plesiophthalmus insignis* (PASCOE, 1871); *Cyriogeton insignis* PASCOE, 1871 is type species;

*Eumolpocyriogeton* PIC, 1922 is instituted as subgenus for species affine *Plesiophthalmus convexus* (PIC, 1922) [new name because of homonymy: *Plesiophthalmus concameratus* **nom. n.**]; *Cyriogeton convexus* PIC, 1922 is type species;

*Opacoplonyx* **subgen. n.** is instituted as subgenus for species near *Plesiophthalmus davidis* FAIRMAIRE, 1878; *Plesiophthalmus davidis* FAIRMAIRE is type species;

*Inspinogeton* PIC, 1937 is rehabilitated as subgenus for *Plesiophthalmus* MOTSCHULSKY, 1857; *Cyriogeton*, *Inspinogeton*, *impressipennis* PIC, 1937 is type species;

*Chaeroplonyx* **subgen. n.** is instituted as subgenus for the species affine *Plesiophthalmus kimanisensis* MASUMOTO, 2001 (type species) (*Euspinamarygmus komiyai* MASUMOTO, 1989 from Thailand probably also belongs to this subgenus of *Plesiophthalmus*);

New genera affine *Plesiophthalmus*:

*Dasyplonyx* **gen. n.**, *Cyriogeton maculosum* PIC, 1922 is type species;

*Pilosoplonyx* **gen. n.**, *Plesiophthalmus bremeri* MASUMOTO, 1999 is type species.

*Pyanirygmus* PIC, 1937 is confirmed as subgenus of *Amarygmus* DALMAN, 1823; *Pyanirygmus corinthius* PIC, 1937 is type species;

*Varogeton* **subgen. n.** is instituted as subgenus of *Amarygmus* DALMAN, 1823; *Dietysus subannulipes* PIC, 1922 is type species.

The following taxonomic changes have to be recognized (valid names in bold-faced letters):

*Plesiophthalmus insignis* (PASCOE) **ssp. magnus** (BREMER, 2010) = *Amarygmus*, subgen. *Pyanirygmus*, *magnus* BREMER, 2010 [**comb. n.**];

*Amarygmus*, subgen. *Varogeton*, *cameronensis* (MASUMOTO, 2001) = *Amarygmus*, subgen. *Pyanirygmus*, *cameronensis* (MASUMOTO, 2001) = *Plesiophthalmus cameronensis* MASUMOTO, 2001 [**comb. et stat. n.**];

*Amarygmus*, subgen. *Varogeton*, *kerleyi* (MASUMOTO, 2001) = *Amarygmus*, subgen. *Pyanirygmus*, *kerleyi* (MASUMOTO, 2001) = *Plesiophthalmus kerleyi* MASUMOTO, 2001 [**comb. et stat. n.**];

- Amarygmus*, subgen. *Varogeton*, *proconsul* BREMER, 2010 = *Amarygmus*, subgen. *Pyanirygmus*, *proconsul* BREMER, 2010 [stat. n.];
- Amarygmus*, subgen. *Varogeton*, *martinbrendelli* BREMER, 2005 = *Amarygmus*, subgen. *Pyanirygmus*, *martinbrendelli* BREMER, 2005 [stat. n.];
- Amarygmus*, subgen. *Varogeton*, *subannulipes* (PIC, 1922) = *Amarygmus*, subgen. *Pyanirygmus*, *subannulipes* (PIC, 1922) [stat. n.];
- Plesiophthalmus*, subgen. *Chaeroplonyx*, *kimanisensis* MASUMOTO, 2001 = *Plesiophthalmus cuccodoroi* MASUMOTO, 2001 [syn. n.];
- Plesiophthalmus*, subgen. *Eumolpocyriogeton*, *malayensis* (MASUMOTO, 1988) [comb. n.] = *Eumolpocyriogeton malayense* MASUMOTO, 1988 = *Plesiophthalmus evae* MASUMOTO, 2000 [syn. n.];
- Plesiophthalmus*, subgen. *Cyriogeton*, *subelongatus* (PIC, 1915) = *Plesiophthalmus levis* (KULZER, 1950) [syn. n.] (*Plesiophthalmus levis* (KULZER, 1950) has been described as *Spinamarygmus levis* KULZER, 1950 and was transferred to *Plesiophthalmus* by MASUMOTO 1990d, 701).

The following new species are described and illustrated:

*Plesiophthalmus kimioi* sp. n. (Sabah); *Plesiophthalmus phaedon* sp. n. (Kalimantan); *Plesiophthalmus masumotoi* sp. n. (Sabah); *Plesiophthalmus motschulskyi* sp. n. (Sabah); *Plesiophthalmus tiomanensis* sp. n. (Peninsular Malaysia: Tioman Island); *Plesiophthalmus violaceipes* sp. n. (Sabah).

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## Introduction

Three papers on the Amarygmini of Borneo have been published previously (BREMER 2010a, 2011, 2012). The first one contains a determination key of Bornean genera and a description of two new genera with species. The first, second and third parts also present descriptions of 100 new species of *Amarygmus* DALMAN, 1823.

The genus *Plesiophthalmus* contains a great number of species (about 180 species known). They occur mainly in the subtropical and tropical areas of the Oriental region, but several of them also occur in the Eastern Palaearctic region. Between 1989 and 2009 MASUMOTO published several papers on genera and species affine *Plesiophthalmus* MOTSCHULSKY, 1857. These papers represent a first systematic attempt to revise these genera, and they are an important contribution to the systematics of Amarygmini. MASUMOTO (1989) correctly synonymized *Cyriogeton* PASCOE, 1871 with *Plesiophthalmus* MOTSCHULSKY because transitions between the main characters of both taxa exist. Additionally, MASUMOTO & AKITA (2009) synonymized *Spinamarygmus* PIC, 1915 and *Eumolpocyriogeton* PIC, 1922 with *Plesiophthalmus* because these genera are not well defined and transitions towards *Plesiophthalmus* are present. A confusing situation also concerns the genus *Amarygmus* DALMAN, 1923 with it nearly 900 described species. This is also true with respect to delimitation between *Amarygmus* and *Plesiophthalmus* because the borders thought in the past as being practicable are no longer practicable for placing several species which had been described during the last 20 years. However, there are some characters which remain stable concerning the majority of species. In order to alleviate the determination of the large number of species and to combine related species

it is recommendable to place most species into subgenera. The former genera *Cyriogeton*, *Eumolpocyriogeton*, *Spinamarygmus* and the former subgenus *Inspinigeton* PIC, 1937 may be used as blueprints for these subgenera of *Plesiophthalmus* provided their definitions are adapted to the new demands. As a new subgenus I am introducing a subgenus *Chaeroplonyx* (for *Plesiophthalmus kimanisensis* MASUMOTO, 2001 and allied species). For some species which are in between *Amarygmus* and *Plesiophthalmus* the subgenus *Pyanirygmus* PIC, 1915 of *Amarygmus* is confirmed, and *Varogeton* **subgen. n.** is created as another one.

In this paper I am providing a diagnosis and an illustration of nearly all species of *Plesiophthalmus* of the Greater Sunda-Islands and of Peninsular Malaysia, additionally of the species of the subgenera *Pyanirygmus* and *Varogeton* of *Amarygmus*. Furthermore, I am describing six new species of *Plesiophthalmus*. Moreover, I am providing a determination key which includes the species of the genus *Plesiophthalmus* MOTSCHULSKY and the species of the subgenera *Pyanirygmus* and *Varogeton* of *Amarygmus*.

## Methods

The “body length” corresponds to distance between the middle of anterior edge of pronotum and apices of elytra, “body width” to maximum width across the elytra; “length of elytra” to distance between the base of scutellum and apices of elytra; “length of pronotum” to distance between the middle of their anterior and posterior edges when body edges are on the same level.

### Abbreviations of depositories

CA = Entomological Laboratory of Dr. K. ANDO, Osaka, Japan  
 CG = Collection of Dr. R. GRIMM, Neuenbürg, Germany  
 CL = Collection of M. LILLIG, Saarbrücken, Germany  
 CM = Collection of Dr. K. MASUMOTO, Tokyo, Japan  
 BMNH = Natural History Museum, London, U.K.  
 MNHN = Muséum National d'Histoire Naturelle, Paris, France  
 NHMB = Natural History Museum, Basel, Switzerland  
 NHMG = Musée d'histoire naturelle, Genève, Switzerland  
 NHMP = Museum of Natural History, Prague, Czech Republic  
 NSMT = National Science Museum (Natural History), Tokyo, Japan  
 SMNS = Staatliches Museum für Naturkunde, Stuttgart, Germany  
 SSB = Collection of S. BEČVÁŘ, České Budějovice, Czech Republic  
 ZSM = Zoologische Staatssammlung, München, Germany

## A *Plesiophthalmus* MOTSCHULSKY, 1857

*Plesiophthalmus* MOTSCHULSKY, 1857: 34.

*Cyriogeton* PASCOE, 1871: 356; [syn.]: MASUMOTO 1989c, 536.

*Spinamarygmus* PIC, 1915: 7; [syn.]: MASUMOTO & AKITA 2009, 110.

*Eumolpocyriogeton* PIC, 1922; [syn.]: MASUMOTO & AKITA 2009, 116.

Type species of *Plesiophthalmus* MOTSCHULSKY: *Plesiophthalmus nigrocyaneus* MOTSCHULSKY, 1857.

Type species of *Cyriogeton* PASCOE: *Cyriogeton insigne* PASCOE, 1871.

Type species of *Spinamarygmus* PIC: *Spinamarygmus indicus* PIC, 1915.

Type species of *Eumolpocyriogeton* PIC: *Eumolpocyriogeton convexum* PIC, 1922.

In GEBIEN's Catalogue of Tenebrionidae (1944) those amarygmine species have been added to *Plesiophthalmus* which are large, elongate, without a clear difference of elytral and pronotal width, with long legs and, on profemora, with either a tooth or a clear step-like descent on their frontal side. They mainly occur in the Eastern Palearctic area (and North Vietnam).

To *Cyriogeton* those species have been placed which are large, possess a wider base of elytra than of the base of pronotum, a tooth or a clear step-like decrease on the frontal side of profemora, usually a lustrous upperside. They mainly occur in the subtropical and tropical parts of the Oriental area.

The original descriptions of these two genera (and of most species) are relatively vague and do neither exactly define the borders of these genera nor the delimitation between them. Therefore, MASUMOTO (1989) correctly synonymized both genera.

Some neighbouring genera are likewise vaguely defined, and their delimitations towards *Plesiophthalmus* and *Cyriogeton* are also not clearly settled. These are mainly *Amarygmus* DALMAN, 1823 (heterogenous genus with currently 885 described species), *Eupezoplonyx* PIC, 1922 (2 species), *Hoplobrachium* FAIRMAIRE, 1886 (3 species), *Euspinamarygmus* MASUMOTO, 1989 (5 species), *Spinamarygmus* PIC, 1915 (approxima-

tely 12 species), *Pontianacus* FAIRMAIRE, 1898 (1 species), *Sylvanoplonyx* BREMER, 2010 (2 species), and *Eumolpocyriogeton* PIC, 1922 (6 species). The crucial features which characterize these genera in most of the former papers leave room for arbitrary assignments, and indeed some species have been described in two different genera. MASUMOTO in his revision of *Plesiophthalmus* related genera (1988-1990) and the author of this paper (BREMER 2001, 2005, 2013, 2014) tried to find an answer concerning a clear generic differentiation, but probably we were not always successful.

In order to place *Plesiophthalmus* related taxa correctly it is necessary to unravel again their taxonomic problems. As result of this reevaluation I have to regroup their placement. These new placements are partially different from those which I and MASUMOTO published previously.

In my opinion the following characters should be present for assigning a species to *Plesiophthalmus*: The tribe characters of Amarygmini (fused parameres and asymmetry of base of aedeagus; characteristic shape of female genitalia as described by TSCHINKEL & DOYAN (1980), freely visible membrane between anterior margin of clypeus and labrum; ventral side of prothorax (prosternum) shorter than dorsal side (pronotum), a somewhat ventrally inclined head; segmented antennomeres 1-11, absence of a narrow and deep sulcus which separates frons from genae; apically symmetrically bifid mandibles (the only reliable character towards *Eupezoplonyx* PIC, 1922, but in most species described as *Plesiophthalmus* the shape of mandibles has not been checked yet); absence of widened protarsomeres 1-3 in males; relatively short metatarsomere 1 (shorter or nearly of equal length of metatarsomere 4) (delimitation against most, but not all *Amarygmus*); allusive to moderate broadening of the apical part of inner side of protibiae in males; either a tooth, a step-like descent towards apex or at least an intimately obtuse angle on the frontal side of profemora between middle to three fourths.

Characters without importance to assign a species to *Plesiophthalmus* (but they may be important for separating species groups or subgenera): Shape of elytra (elongate oval, shortly oval or with subparallel margins), pronotum widest at base or near middle; degree of bending of tibiae (uniformly bent, abruptly bent in the middle or at apical third); rasp-like areas at the apical part of aedeagus (this also occurs in several *Amarygmus* which are not related to *Plesiophthalmus*).

Characters in question: There are some characters which formerly had been differently judged, e. g. presence or absence of a tooth or a sharp step-like descent of the frontal side of profemora between middle and two-thirds (judged as not essential by MASUMOTO (1989-1990), judged as essential to separate *Amarygmus* from *Plesiophthalmus* by BREMER (2005) (see below); presence or absence of wings (reduced wings or absent wings was e. g. a character for creating the genus *Pseudoogeton* MASUMOTO, 1889). In my opinion a winged state is of doubtful importance, because, in *Amarygmus* at least, winged and wingless specimens occur in two species (*Amarygmus metallicus* (PERTY, 1831) and *Amarygmus convexus* PASCOE, 1866); the length of wings is gradually changing in several species according to altitude where they occur; furthermore, the wingless status is not always easily discernible by inspection from above.

It should also be discussed whether it is possible to separate *Plesiophthalmus* into species groups (as MASUMOTO did), into subgenera (as I am favouring), or concerning a few species separating them into newly founded genera. The grouping of species into subgenera could save the species name when the generic status changed which sometimes is to be expected in future (fewer homonyms), it could alleviate the determination, additionally, could combine phylogenetically related species.

However, an examination of the molecular genetic status of several *Plesiophthalmus* species will change some current taxonomic placements in my opinion. As long as this has not been done I would like to group the heterogenous genus *Plesiophthalmus* into the following subgenera (see next paragraphs) and, concerning *Amarygmus*, add to the already existing subgenera new ones for species with a certain relation to *Plesiophthalmus*:

### ***Plesiophthalmus sensu stricto*:**

Species near the type species *Plesiophthalmus nigrocyaneus* MOTSCHULSKY, 1857. These species are large, elongate, narrow, possess long legs, show either no or only a little difference between width of pronotal and elytral base. Clearly discernible hairs on elytra and pronotum are missing. In males the inner side of protibiae in their apical half is allusively to clearly widened and occupied with small, closely set hairs over the whole length of this area. MOTSCHULSKY mentioned in his description of *P. nigrocyaneus* a bulge in the mid of profemora but he did not report on a thorn or spine. But indeed the type species possesses a slight but sharp step-like descent on the frontal side of profemora which is directed towards the apex. This subgenus comprises mostly species of the Eastern Palearctic area (Japan, China, North Vietnam), but also a few species of more tropical regions of the Oriental area have to be placed here. Phylogenetically these species are probably related.

***Plesiophthalmus* subgen. *Cyriogeton*:**

The type species of *Cyriogeton*, *Cyriogeton insigne* PASCOE, 1871, is very large, has long legs, its pronotal base is narrower than the elytral base. It also presents a slight step-like descent on the frontal side of profemora which PASCOE interpreted as a tooth ("femoribus anticis infra in medio dente valido, aliquando minore, armatis"). Clearly discernible hairs on pronotum and elytra are missing. In males the inner side of protibiae in their apical half is allusively to clearly widened and occupied with small, closely set hairs over the whole length of this area. In PASCOE's description of the genus *Cyriogeton* no clear character is mentioned which really separates it from *Plesiophthalmus* (or from other related genera). Later-on medium-sized to large species with a wider elytral base and a narrower pronotal base (and with armed profemora) had been described as species of the genus *Cyriogeton*; most of them possess a body shape which resembles that of *Cyriogeton insigne*.

MASUMOTO incorporated *Cyriogeton* into *Plesiophthalmus* because the evaluation of the many species of both genera elicits some taxa which are difficult to place either to *Plesiophthalmus* or to *Cyriogeton*. This synonymy of both genera should be maintained in my opinion. However, one should rehabilitate a taxon *Cyriogeton* as subgenus for the numerous species with a narrower pronotal base than an elytral base.

*Plesiophthalmus*, subgen. *Cyriogeton* (PASCOE, 1871) [**comb. et stat. n.**].

***Plesiophthalmus* subgen. *Eumolpocyriogeton*:**

PIC created 1922 a genus *Eumolpocyriogeton* for a large species with spined profemora and relatively short, globose elytra. More species with a similar body shape have been described later-on. Those species from which males are known possess abruptly bent protibiae in males, mostly at midlength, and a widened inner side apically to the bending. Females do not show these abruptly bent protibiae. Clearly discernible hairs on pronotum and elytra are missing. These species are large (body length 9.5-14.8 mm) and possess short elytra (elytral length/width <1.34:1). Two species of this group are from Borneo and one from Peninsular Malaysia.

MASUMOTO & AKITA (2009) recommended placing *Eumolpocyriogeton* as a synonym to *Plesiophthalmus*. I generally agree with this assumption, but I have to admit that most of these species form a somewhat special group. I therefore recommend keeping *Eumolpocyriogeton* as a subgenus of *Plesiophthalmus* for species with the characters mentioned above.

*Plesiophthalmus* subgen. *Eumolpocyriogeton* (PIC, 1922): *Eumolpocyriogeton convexum* PIC, 1922 as type species (because of homonymy the species name has to be changed to *Plesiophthalmus concameratus* **nom. n.**). Besides the three species of this group from the faunal region treated in this paper [*P. sasajii* (MASUMOTO, 1988), *P. nagaii* (MASUMOTO, 1988), *P. malayensis* (MASUMOTO, 1988)], several other species of the Oriental region belong to this subgenus, among them *P. perpulchrus* (PIC, 1930)]. But it has to be stressed that several species of the genus *Amarygmus* DALMAN, 1823 from the Papuan faunal area also present similarly bent protibiae in males, but they do not possess armed profemora.

***Plesiophthalmus*, subgen. *Opacoplonyx* subgen. n.:**

Species of this subgenus display a markedly opaque upperside, a clear tooth, or an allusive to clear descent on frontal side of profemora, no clearly discernible hairs on pronotum and elytra, and, in males on protibiae, an allusive to clear broadening on inner side in apical half together with short, closely set hairs. They are easily to recognize, and occur in Korea, China, Taiwan and Vietnam. A good determination key of species of this group has been published by MASUMOTO 1989d (pp.750-752).

*Plesiophthalmus*, subgen. *Opacoplonyx*, **subgen. n.** (*Plesiophthalmus davidis* FAIRMAIRE, 1878 as type species).

***Plesiophthalmus* subgen. *Spinamarygmus* PIC (1915):**

A genus *Spinamarygmus* has been created by PIC 1915 for a small amarygmine species from India with abruptly bent protibiae in their apical third in males (*Spinamarygmus indicus* PIC, 1915 as type species). Later-on, KULZER (1950) added several species to *Spinamarygmus* which do not fully show these specific characters, because they do not present abruptly bent protibiae in their apical third in males or because only females were known, e. g. *Spinamarygmus levis* KULZER, 1959 from Java, *Spinamarygmus eumolpoides* KULZER, 1950 from Sri Lanka, and *Spinamarygmus chrysomeloides* (WALKER, 1858) from Sri Lanka. MASUMOTO & AKITA (2009) therefore recommended placing *Spinamarygmus* as a synonym of *Plesiophthalmus*. This new assignment eliminates the fact that females of this group cannot be placed to a special genus. The following characters should be present in this subgenus: Small to medium size, body shape either oval or with subparallel elytral sides, no clearly discernible hairs on pronotum or elytra; males present protibiae with an abrupt bending approximately at the beginning of apical third with a widening on inner side anterior

to this bending. In my opinion one should assign only species to this subgenus which have the abruptly bent protibiae within the apical third in males (see species of the subgenus *Eumolpocyriogeton*!). Species of this subgenus only occur in India and on Sri Lanka. Some species formerly assigned to *Spinamarygmus* have to be placed differently.

***Plesiophthalmus*, subgen. *Chaeroplonyx* subgen. n.:**

Species of this subgenus are relatively small (body length <9.35 mm), present short elytra (length/width <1.38:1), a very deep incision of fronto-clypeal suture, a marked sulcus on inner side of eyes (towards frons), and broad borders of pronotum (especially the lateral ones). The body shape is either oval or the elytra are subparallel. The already described species are *Plesiophthalmus beardae* MASUMOTO, 2000, *P. kimanisensis* MASUMOTO, 2001, *P. keningauensis* MASUMOTO, 2001, and *P. cuccodoroi* MASUMOTO, 2001. A further species probably belongs to this subgenus: *Euspinamarygmus komiyai* MASUMOTO, 1989 from Thailand. One more species of this subgenus is described in this paper: *Plesiophthalmus phaedon* **sp. n.** (see below). Males probably always possess a broadened part on inner side of protibiae in the apical half with short, closely set hairs. Clearly discernible hairs are missing on pronotum and elytra. Altogether, it was difficult to distinguish these species from species of the genus *Euspinamarygmus* MASUMOTO, 1989. In order to overcome the problems of generic differentiation from *Euspinamarygmus* I adapted the former definition of *Euspinamarygmus* insofar, that no longer an overlapping of *Euspinamarygmus* species with the *Plesiophthalmus* species of this group occurs (BREMER 2013).

*Plesiophthalmus kimanisensis* MASUMOTO, 2001 is type species of the subgenus *Chaeroplonyx* **subgen. n.** (Etymology: χαίρω, enjoy; plonyx = frequently used suffix for amarygmine genera).

***Plesiophthalmus*, subgen. *Inspinogeton* PIC, 1937 (PIC's subgenus of *Cyriogeton* rehabilitated):**

According to my new definition this subgenus comprises *Plesiophthalmus* species without a tooth or clear step-like descent on the frontal side of profemora but with a broad, obtuse angle at this site. Additionally, in males, the apical part of inner side of protibiae is broadened. I formerly assigned all these species to the subgenus *Pyanirygmus* PIC, 1915 of *Amarygmus* DALMAN, 1823. This probably does not reflect their phylogenetic relations. Presence or absence of spined profemora is a clear-cut character for a generic separation of Amarygmini of the African Subsaharian faunal area (see ARDOIN's monography of the African Amarygmini 1962-1969), and also of several genera of Coelometopini of the Oriental region. But I probably jumped rashly to the conclusion that it is also true for all *Plesiophthalmus* species. The more intensive evaluation of the characters of *Plesiophthalmus* (and related species of *Amarygmus*) convinced me that MASUMOTO's opinion about most species of this group is probably true as they present a broad, obtuse angle on profemora and apically broadened protibiae on inner side. By using the characters mentioned above it is possible to separate most of these species from *Amarygmus* s. g. *Pyanirygmus*. However, some species formerly placed to *Plesiophthalmus* may neither easily be placed to *Plesiophthalmus* s. g. *Inspinogeton* nor to *Amarygmus* s. g. *Pyanirygmus* (species with a blunt bulge on the frontal side of profemora, as it is usually found in *Amarygmus*, and without apically broadened inner side of protibiae in males; these species present markedly bent protibiae in males (less bent in females) and a yellowish or reddish brown ring on femora with a dark apical cap. I unite these species in a separate subgenus of *Amarygmus* (see below).

*Plesiophthalmus* subgen. *Inspinogeton* PIC, 1937 [**subgen. rehab.**, type species *Cyriogeton impressipennis* PIC, 1937].

**New genera (*Dasyplonyx* and *Pilosoplonyx*):**

Two species currently placed to *Plesiophthalmus* are quite special as they present well discernible hairs on upperside and on underside, femora and tibiae recumbent, relatively closely set hairs of medium or long length; this form of pilosity is not found in other *Plesiophthalmus*:

*Plesiophthalmus maculosus* (PIC, 1922) from Vietnam and Laos displays spotted areas of relatively long, nearly recumbent hairs on upperside of body combined with rows of elytral punctures which circumvent these spots of hairs; additionally, in males, on protibiae only short, closely set hairs instead of a broadening on inner side in the apical half.

*Plesiophthalmus bremeri* MASUMOTO, 1999 presents a uniformly haired upper- and underside of body, hairs are also found on legs and on antennae; in males there is apically no broadening on inner side of protibia.

I would like to place these species into newly founded genera:

***Dasyplonyx* gen. n.** (type species *Cyriogeton maculosum* PIC, 1922):

Spotted areas of long hairs do not occur in other *Plesiophthalmus* species, additionally the type species presents a distinct tooth in the frontal side of profemora and apically bifid mandibles. I therefore place this species in a separate genus affine *Plesiophthalmus* and name it *Dasyplonyx*. The assignment as a different genus is an adaptation to the nomenclature of an amarygmine genus from New Guinea with a similar body shape and size and also with spotted areas of long, recumbent hairs on its upperside (*Pubamarygmus* PIC, 1915). *Pubamarygmus* species are delimited from species of the similarly looking *Chalcopteroides* STRAND, 1935 (from New Guinea and Australia) because the *Chalcopteroides* species miss these spotted areas of long hairs on the upperside of body. *Pubamarygmus* and *Chalcopteroides* differ from *Plesiophthalmus* mainly by a different shape of mandibles and by the shape of profemora.

Etymology: δασύς = close, closely haired; plonyx = frequently used suffix for amarygmine genera.

***Pilosoplonyx* gen. n.** (type species *Plesiophthalmus bremeri* MASUMOTO, 1999):

*Plesiophthalmus bremeri* MASUMOTO, 1999 from North Thailand is very special because it presents uniformly short, but well discernible hairs on the upper- and underside of body, on legs and on antennae which are not found in other *Plesiophthalmus* species. Additionally, the absence of a widened apical part on the inner side of the protibiae is remarkable in males. Its body shape is similar to the body shape of *Plesiophthalmus spectabilis* HAROLD, 1875 (and the elytral width is only slightly wider than the pronotal width); the upperside is opaque as it is found in species of the subgenus *Opacoplonyx*; the elytral intervals are clearly convex which is found only in a few *Plesiophthalmus* species, the elytral rows of punctures are distinctly impressed (but not connected by lines as it is typical for striae). Its mandibles are apically bifid. This species is certainly a foreign element among *Plesiophthalmus*, therefore I want to create a separate genus on it.

Etymology: *Pilosus* (Lat.) = hirsute; plonyx = frequently used suffix of amarygmine genera.

**Subgenera more related to *Amarygmus* DALMAN, 1823*****Amarygmus* subgen. *Varogeton* subgen. n.:**

The subgenus comprises large species with a wide frons, a bulge on the frontal side of profemora at about two thirds (no obtuse angle there!), in males with markedly and uniformly bent protibiae (in females less bent). Femora present a reddish or yellow ring basad of a dark apical cap. One of these species has formerly been described as *Dietyus* PASCOE, 1866, a genus which GEBIEN 1920 synonymized with *Amarygmus* DALMAN, 1823 [(*Amarygmus subannulipes* (PIC, 1922)], another as *Amarygmus* s. g. *Pyanirygmus* [*Amarygmus*, s. g. *Pyanirygmus*, *proconsul* BREMER, 2010], others as *Plesiophthalmus* [*Plesiophthalmus brendelli* MASUMOTO, 2001 (now *Amarygmus*, s. g. *Varogeton*, *martinbrendelli* BREMER, 2005)], *Plesiophthalmus cameronensis* MASUMOTO, 2001, *Plesiophthalmus kerleyi* MASUMOTO, 2001]. I formerly assigned all of them to *Amarygmus* s. g. *Pyanirygmus* which I want to correct hereby. In males three of these species possess hairs on the frontal side of profemora and the back sides of meso- and metafemora (e. g. *Amarygmus subannulipes* (PIC, 1922) from Vietnam, *Plesiophthalmus brendelli* MASUMOTO, 2001 from North India, *Plesiophthalmus cameronensis* MASUMOTO, 2001 from Peninsular Malaysia). *Plesiophthalmus kerleyi* and *A. proconsul* do not present hairs of the frontal side of profemora and of the back side of meso- and metafemora. Etymology. *Varus* (Lat.) = bow-legged; *geton* = frequently used suffix for amarygmine genera.

***Amarygmus*, subgen. *Pyanirygmus* (PIC, 1915):**

A genus *Pyanirygmus* has been described for *corinthius* PIC, 1915. This species currently known from Borneo and Sumatra is large, possesses long elytra with subparallel sides, elytral rows of small, closely set punctures, closely punctured elytral intervals, straight, relatively short protibiae, and an aedeagus with no special particularity. A second species is *Amarygmus*, s. g. *Pyanirygmus*, *visendus* BREMER, 2007 from Central and South Thailand. This species presents shorter elytra than *A. corinthius* with large, wider separated punctures of the elytral rows, slightly bent protibiae, and an aedeagus with tiny prickles on its anterior part. The base of elytra of both species is distinctly wider than the base of pronotum, as it is also found in species of *Plesiophthalmus* s. g. *Cyriogeton*, however the discrepancy of elytral ad pronotal width is also found in several *Amarygmus* species which otherwise have no similarities with *Plesiophthalmus* species. The protibiae of both species do not present a broadened inner side of protibiae in males. Profemora display a uniform bulge at approximately two thirds of length from base; metatarsomere I is approximately as long as metatarsomere 4 or slightly longer. The shape of prosternal apophysis corresponds to the shape which is frequently found in *Amarygmus* species; see Figs 25 and 26.

Size and body shape of species of *Amarygmus*, s. g. *Pyanirygmus* correspond to size and body shape of many species of *Plesiophthalmus* ssp. *Cyriogeton*, but also many *Amarygmus* species present such a shape.

The outline of the frontal side of profemora equals that of *Amarygmus* in which a more or less club-like broadening of the frontal side of profemora frequently occurs. The presence of tiny prickles on the anterior part of aedeagus is certainly a character of many *Plesiophthalmus* species, but it also occurs in a certain number of *Amarygmus* species, and in *Amarygmus* it will not be corroborated by other simultaneously present characters. After knowing most species described as *Plesiophthalmus* without armed profemora I have to admit that this species group is more heterogenous than I believed formerly. I currently consider that the taxon *corinthius* should still be placed to *Amarygmus* ssp. *Pyanirygmus*, probably also *Amarygmus visendus* BREMER, 2007. Most of the remaining species should be assigned to *Plesiophthalmus* ssp. *Inspinogeton* or *Amarygmus* ssp. *Variogeton*. But currently I find it difficult placing some other species without armed profemora to a special genus or subgenus, e. g. *Plesiophthalmus chujoi* MASUMOTO, 2005 from Taiwan.

In the Catalogue of Amarygmini (BREMER & LILLIG, 2014) which is published parallel to this paper the assignment of the different *Plesiophthalmus* to subgenera is indicated if such a placement is currently possible.

## B Differential diagnosis of *Plesiophthalmus* MOTSCHULSKY

*Sylvanoplonyx* BREMER, 2010:

This is a genus with a sharp step-like decent on the frontal side of profemora just next to apex (*Plesiophthalmus* species present a tooth or a sharp step-like descent between middle and three fourth of profemora). The *Sylvanoplonyx* species display additionally quite different alterations of tibiae in males which *Plesiophthalmus* species do not have and a very special shape of aedeagus. By these characters this genus differs from *Plesiophthalmus*: see BREMER 2010a (pp.150, 157, 158), 2010b (pp.65-67) and 2012 (p.35).

*Euspinamarygmus*:

I consider the genus *Euspinamarygmus* MASUMOTO, 1989 to be different from *Plesiophthalmus* because its species present uniformly bent protibiae in both sexes, have no clear-cut broadening of protibiae on inner side in the apical half in males, and, according to my extended definition of this genus (BREMER 2013), they miss a sulcus on the inner side of eyes (between eyes and frons). The last mentioned character is especially important to separate the *Euspinamarygmus* species from species of *Plesiophthalmus* subgen. *Chaeroplonyx*. Species of this genus occur on the Greater Sunda-Islands and in Laos, Vietnam and Cambodia.

*Pontianacus* FAIRMAIRE, 1898:

This monotypic genus with the large, elongate, opaque *Pontianacus rubricrus* FAIRMAIRE, 1898 has some characters in common with *Plesiophthalmus* like spined profemora, apically bifid mandibles, and short metatarsomere 1. But the sexual dimorphic characters in males are quite unusual for *Plesiophthalmus* species: Males possess long hairs on the frontal side of profemora which are so long and closely set that they entirely hide the spine; additionally they have long hairs on the inner side of protibiae in the apical half, hairs on the back side of mesofemora, moreover there are tender, long, projecting hairs on prosternal apophysis, mesosternum and on metasternum. Females do not possess these hairs. The shape of aedeagus more resembles the shape which is frequently found in *Amarygmus*. It is a matter of arbitrariness to place this genus either as separate genus or as subgenus of *Plesiophthalmus*, but I think there are no good arguments to change the present generic status. A figure of *Pontianacus rubricrus* is published in BREMER (2010a, p.149), further remarks on this genus are made in BREMER (2014a).

*Hoplobrachium* FAIRMAIRE, 1886:

Besides one species from Sri Lanka and India, another one from Thailand, a third species of *Hoplobrachium* occurs on Borneo (BREMER 2014). Species of this genus possess approximately the same shape as *Plesiophthalmus* and also apically bifid mandibles. They differ from *Plesiophthalmus* by a deep sulcus which separates frons from genae. In one species, *H. dentipes* (FABRICIUS, 1781), an additional median sulcus is directed from fronto-clypeal suture into frons. A relict of this median sulcus is discernible in *H. hideoi* (MASUMOTO, 1988), but the Bornean species, *Hoplobrachium pyritis* BREMER, 2014, does not show this median sulcus or a relict of this median sulcus. These species are figured in BREMER (2014).

*Eupezoplonyx* PIC, 1922:

Very similar to *Plesiophthalmus* but different by the form of mandibles (concerning annotations on generic characters and species, see BREMER 2014). Species of this genus are currently not known from the Greater Sunda-Islands.



## **C *Plesiophthalmus*, diagnoses of already described species from Borneo, Java, Sumatra and Peninsular Malaysia**

### ***Plesiophthalmus andoi* MASUMOTO, 1989**

*Plesiophthalmus andoi* MASUMOTO, 1989: 1989c, 555-558, fig. p.545.

Figures on habitus, head, pronotum and antennae and aedeagus: BREMER 2010a, p.154.

*Plesiophthalmus andoi* belongs to the subgenus *Cyriogeton*.

**Holotype**, ♂, NSMT: Bang Wangi, West Java, III.1981, H. DETANI. - I studied this holotype.

**Paratypes** (according to MASUMOTO, without remarks on their deposition): Same labels as holotype (2 sp.) - Java Occ., Toegoe, 1902 (1 sp.) - Mt. Gede, W. Java, IX.1985 (1 sp.) - Sulawesi, Sampuraga, 29.X.1985, M. TAO (1 sp.).

**Additional material** (seen by the author): Java, J. D. PASTEUR 268-94, robustus PIC, det. KASZAB (1 ♂, HMNH). - Java orient., Mt. Ardjoeno (1 ♂, HMNH). - East Java, XII.1990 (1 ♀, CM). - Same data as before, but XII.1992 (1 ♂, CM). - Same data as before, but XII.1996 (1 ♂, CM). - Mt. Gumiter, E. Java, Dec. 1996 (1 ♂, ZSM).

**Diagnosis.** Body length: 19.1-24.7 mm. Body width: 11.6-12.9 mm. Ratios. Pronotum: width/length 1.63-1.76; width hind corners/width front corners 1.59-1.63. Elytra: length/width 1.52-1.62; length elytra/length pronotum 3.96-4.41; maximum width elytra/maximum width pronotum 1.58-1.61).

Colouration. Auburn, pronotum and elytra lustrous, frons opaque because of close punctation.

Very large, slightly convex. Elytra with rows of small, distinct, irregularly set punctures; several punctures of the rows are fusing and are forming short striae. Frons relatively narrow, conspicuously narrower than length of antennomere 4 in males (as 17:26). Antennae thin; reaching over one fifth of elytra; length/width ratio of antennomeres 1-11 in a male equals to 21:13 / 12:11 / 43:11 / 26:11 / 35:11 / 34:11 / 38:12 / 27:12 / 24:12 / 23:12 / 29:12; antennae of females are somewhat shorter. Legs long; profemora on their frontal side with a faint, step-like descent towards apex; protibiae slightly bent and slightly broadened on inner side in apical half in males; mesotibiae nearly straight and faintly incurved within apical tenth; metatibiae allusively curved; lengths of of metatarsomeres 1-4 as 56:23:19:54. *P. andoi* possesses apically bifid mandibles with narrowly rounded tips.

*P. andoi* MASUMOTO is very similar to *P. insignis* (PASCOE, 1871). The nominate form of *P. insignis* occurs in Peninsular Malaysia and on Sumatra. A subspecies, *P. insignis* ssp. *magnus* (BREMER, 2010), is found at and near the mountains of the Crocker Range of Sabah, mostly at higher altitudes. Intermediate forms between the ssp. *insignis* and the ssp. *magnus* occur in Sarawak and Kalimantan. The protibiae of males are straighter in *P. andoi* than in *P. insignis*, the pronotum of *P. andoi* is narrower than that of *P. insignis*, elytra of *P. andoi* are additionally somewhat narrower and longer than those of *P. insignis* s. str. and resemble more the elytra of *P. insignis* ssp. *magnus*. The aedeagus does not show the waisted tapering in the middle in *P. andoi* which is typical for *P. insignis* s. l. (Fig. 7G), and the aedeagus is shorter in *P. andoi*.

### ***Plesiophthalmus beardae* MASUMOTO, 1999 (Fig. 1A-H)**

*Plesiophthalmus beardae* MASUMOTO, 1999: 358-360; figs. pp.357, 365.

*Plesiophthalmus beardae* belongs to the subgenus *Chaeroplonyx*.

**Holotype**, ♂, NSMT, labelled: Nr. Keningau, N. Borneo, 26.III.92, ITO. - According to MASUMOTO (1999) there is one paratype in NSMT (sex not mentioned). - I studied the holotype.

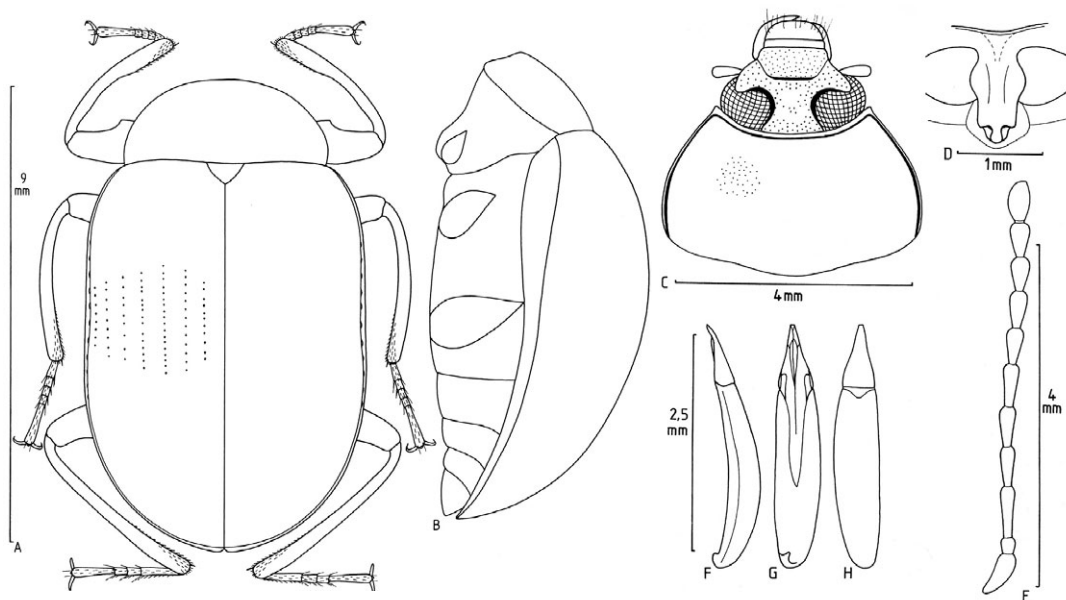
**Diagnosis.** Measurements (of holotype): Body length: 9.31 mm. Body width: 5.81 mm. Ratios. Pronotum: width/length 1.92; width hind corners/width front corners 1.71. Elytra: length/width 1.38; length elytra/length pronotum 3.65; maximum width elytra/maximum width pronotum 1.38.

Colouration. Pronotum brown, without a colourful tinge; elytra uniformly brown, markedly lustrous.

Of medium size, relatively wide; lateral margins of elytra straight and slightly widening posteriorly; the lateral edges of elytra are broadly visible in dorsal view; frons of medium width; eyes anteriorly and medially circumvented by a shallow sulcus; fronto-clypeal suture somewhat incised; clypeus slightly convex. Tip of aedeagus not suddenly widened. Lengths of metatarsomeres 1-4 as 16:8:7:20.

Concerning differential diagnosis I am referring here only to *P. kimanisensis*; for differential diagnoses towards other species, see *P. kimanisensis* and determination key (p. 76):

The sulcus around eyes is less deep in *P. beardae* than in *P. kimanisensis*; the fronto-clypeal suture is less incised than in *P. kimanisensis*; the front corners of pronotum are more pointed in *P. beardae* than in *P. kimanisensis*; the colour of pronotum of *P. kimanisensis* displays a reddish-violet shimmer, the elytra of *P. kimanisensis* are blackish green but without a reddish-violet tinge, lustrous. The tip of aedeagus of *P. beardae* is not widened (Fig. 1G), that of *P. kimanisensis* is widened (Fig. 8G).



**Fig. 1:** *Plesiophthalmus beardae* MASUMOTO, 1999: **A** Habitus, male, **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.

***Plesiophthalmus bicoloratus* MASUMOTO, 1989** (Fig. 2A-H)

*Plesiophthalmus bicoloratus* MASUMOTO, 1989: 1989c, 562-563; figs. pp.545, 557.

*Plesiophthalmus bicoloratus* belongs to the subgenus *Inspinogeton*.

**Holotype**, ♂, NSMT, labelled: Sabah, Borneo, 14.IV.-12.V.'84, S. NAGAI. – I examined this holotype.

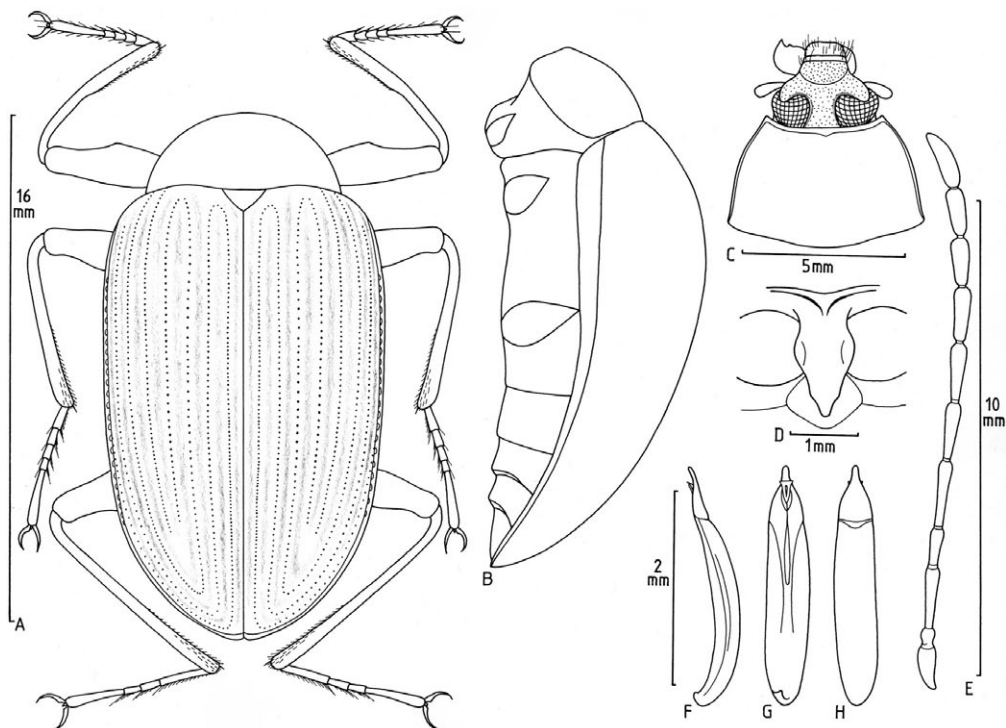
**Additional material** (seen by the author). Sabah, Borneo, Mt. Trus Madi, 14.V.2007, S. CHEW leg. (1 ♂, ZSM). – Sabah, Kimanis Road, 10 miles nr. Keningau, 1000 m, 18.IV.1996, S. KANIE leg. (1 ♂, CA).

**Diagnosis.** Body length: 16.4-17.5 mm. Body width: 8.6-9.7 mm. Ratios. Pronotum: width/length 1.67-1.75; width hind corners/width front corners 1.67-1.77. Elytra: length/width 1.62-1.65; length elytra/length pronotum 3.83-4.13; maximum width elytra/maximum width pronotum 1.40-1.45.

**Colouration.** Upperside markedly lustrous, coppery, with colourful reflections on pronotum; elytra with faint pink-coloured stripes on intervals and with faint green stripes which occupy the areas around the rows of punctures; legs dark brown, with greenish or reddish tinge. Underside with a pink shimmer, metasternum markedly lustrous, sternites more opaque.

Large, elongate. Elytra rather long, with rows of small, rather closely set punctures, intervals flat and with widely separated, tiny punctures; lateral margins between shoulders and hind third straight, but slightly widened posteriorly. Lateral margins of pronotum are widened near hind corners, these cause slightly laterally projecting hind corners. Frons of medium width; inner margins of eyes with a marked sulcus. Pronotum and elytra with tiny, tender hairs, just visible at 50-fold magnification. Profemora on their frontal side with an obtuse angle at approximately two-thirds, but without a tooth or a sharp descent; protibiae somewhat bent in males, on their inner side with a slight broadening within apical half in males, in females protibiae slightly bent, without this intimate broadening. Prosternal apophysis apically pointed and projecting. Mesosternum slightly lifted ventrad.

Concerning size and body shape very similar to *Plesiophthalmus kimioi* **sp. n.** This species shows laterally more strongly projecting hind corners of pronotum than *P. bicoloratus*. *Plesiophthalmus kimioi* does not display colourful elytral stripes; the prosternal apophysis of *P. kimioi* is longer and narrower than that of *P. bicoloratus* (see Figs. 2D and 17C).



**Fig. 2:** *Plesiophthalmus bicoloratus* MASUMOTO, 1989; **A** Habitus, male; **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.

***Plesiophthalmus borneensis* (PIC, 1915)** (Fig. 3A-E)

*Coriogeton* [misspelling] *borneense* PIC, 1915: 20.

*Cyriogeton borneense* PIC, 1915; [corr.]: GEBIEN 1944, 510.

*Plesiophthalmus borneensis* (PIC, 1915): MASUMOTO 1991a, 14; figs. pp.12, 20. I did not see the holotype of this species yet.

*Cyriogeton tenuistriatum* BLAIR, 1929: 87; [syn.]: MASUMOTO 1991a, 15.

*Coriogeton* (misspelling) *borneensis* v. *niasensis* PIC, 1916, 21; according to MASUMOTO (1991a, 15): *Plesiophthalmus borneensis* (PIC) ssp. *niasensis* PIC, 1916.

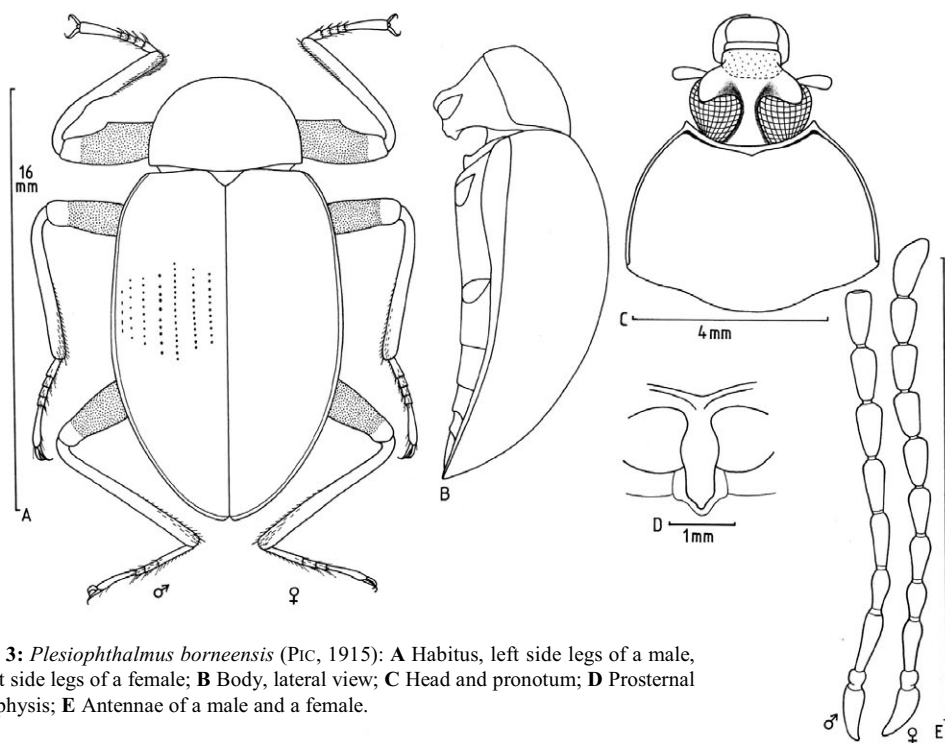
*Plesiophthalmus borneensis* belongs to the subgenus *Cyriogeton*.

**Material** (seen by the author). Bornéo occ., Pontianak, 1899 (*borneensis* PIC, det. KASZAB) (1 ♂, HMNH). – Sabah, Kinabalu NP, Poring vic., 380 m, 9.-11.3.2007, R. GRIMM (1 ♀, CG). – Borneo, Bowring (1 ♀, BMNH; holotype of *Cyriogeton tenuistriatum*). – N.O. Sumatra, Tandjong Morawa, Serdang, Dr. B. HAGEN (1 ♀, HMNH). – Sumatra Barat, Lembah Anai Resort (Kandang Ampek), ca. 15 km SE Padang Panjang, ca. 500 m, III.1996, leg. C. ZORN (1 ♀, SMNS).

**Diagnosis.** Body length: 14.0-18.8 mm. Body width: 7.40-7.72 mm. Ratios. Pronotum: width/length 1.56-1.69; width hind corners/width front corners 1.84-1.98. Elytra: length/width 1.51-1.56; length elytra/length pronotum 3.55-3.84; maximum width elytra/maximum width pronotum 1.39-1.49.

**Colouration.** Femora reddish brown with a dark apical cap. Upperside of body uniformly brown to dark brown, lustrous (the holotype of *P. tenuistriatus* possesses a light violet pronotum); underside brown, lustrous.

Large; elongate oval, relatively wide. Elytra with small, rather closely set punctures in rows (their distances on disc in row 4 equal to ½- to 1-time the diameter of a puncture, about 50 punctures in row 4); elytral intervals flat, impunctate. Frons rather narrow, slightly wider than length of antennomere 2 (like 9:6½), frons in females slightly wider than in males; no sulcus at the inner margins of eyes; middle part of fronto-clypeal suture wide and distinctly impressed; genae large and clearly lifted towards their lateral margins; clypeus with small and widely separated punctures. Pronotum conspicuously convex transversely



**Fig. 3:** *Plesiophthalmus borneensis* (Pic, 1915): **A** Habitus, left side legs of a male, right side legs of a female; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antennae of a male and a female.

and longitudinally, impunctate, its lateral margins subparallel in the hind half; anterior margin markedly excavated; lateral borders in dorsal view visible in their whole length. Prosternal apophysis narrow, elongate, its lateral parts depressed posterior to procoxae; surface smooth, impunctate. Antennae of medium length; in males longer than in females. Length/width ratio of antennomeres 1-11 equals in a female to 13:8 / 6½:6½ / 20:7 / 12:7 / 16:7½ / 16:8 / 18:9½ / 18:10 / 17:10 / 17:10 / 21:9, in a male to 13:7½ / 6½:6½ / 24:7 / 15:7 / 22:7 / 21:8 / 21:8½ / 21:9 / 20:9. Legs long; frontal side of profemora with a small, step-like descent at apical thirds; protibiae bent within the basal third in males, within the apical two thirds straight on inner and outer side, slightly broadened and pilose on inner side; in females protibiae approximately straight, on inner side with short, closely set hairs; mesotibiae nearly straight in both sexes; metatibiae approximately straight and very slightly concave on outer side in their middle. Lengths of metatarsomeres 1-4 as 26:10:8:31.

It is a relatively characteristic species by colouration of femora, narrow frons and marked convexity of pronotum. *Plesiophthalmus tiomanensis* sp. n. is very similar concerning shape, convexity of pronotum, width of frons, but it does not show the colouration of femora of *P. borneensis*.

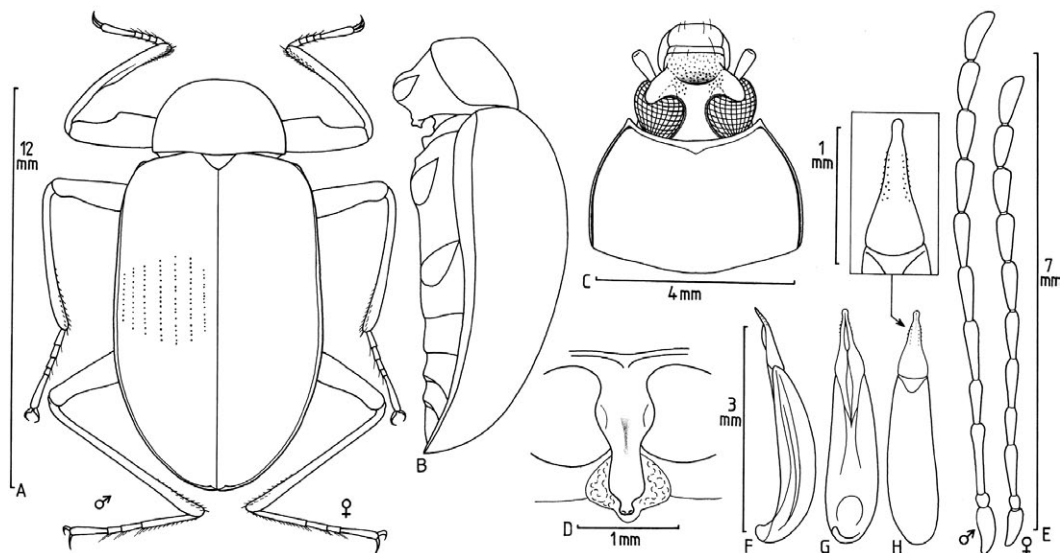
***Plesiophthalmus cameronensis* MASUMOTO, 2001,**  
see *Amarygmus*, subgen. *Varogeton*, *cameronensis* (MASUMOTO, 2001) (p. 71)

***Plesiophthalmus gedensis* MASUMOTO & AKITA, 2009,**  
see *Plesiophthalmus minutus* (Pic, 1915) (p. 53)

***Plesiophthalmus gokani* MASUMOTO, 1991** (Fig. 4A-H)  
*Plesiophthalmus gokani* MASUMOTO, 1991: 1991a, 23-24; figs. pp.13, 21.  
*Plesiophthalmus gokani* belongs to the subgenus *Cyriogeton*.

**Holotype**, ♂, NSMT, labelled: Headquarter [of Mt. Kinabalu Nat. Park], N. Borneo, 18.II.1980, H. DETANI leg. – I studied the holotype.

**Paratypes** (as cited by MASUMOTO 1991, the depositories not mentioned): Same data as holotype, but 30.I.1980 (1 sp.). – Same data as holotype, but 20.II.1980 (1 sp.). – Same data as holotype, but 27.IV.1979 (1 sp.). – Same data as holotype, but 30.V.1976 (1 sp.). – Same data as holotype, but 2.-4.VI.1976 (1 sp.). – Same locality as holotype, R. FUJITA leg. (1 sp.).



**Fig. 4:** *Plesiophthalmus gokani* MASUMOTO, 1991: **A** Habitus, left side legs of a male, right side legs of a female; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antennae, male and female; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view.

**No type material** (mentioned by MASUMOTO 1991): Sabah, Borneo, Crocker Range, 1,400 m. alt., 16 miles NW of Keningau, 14.IV.-12.V.1984, S. NAGAI leg. (1 ex.). – Same data as before, but 14.IV.-19.V.1984 (1 ex.). – Same data as before, but 2.-26.IV.1984 (2 ex.). – Same data as before, but I.1983 (1 ex.). – Sabah, Borneo, Kiminis 10 miles, 4.IV.1987, N. KOBAYASHI leg. (2 ex.). – Near Keningau, 24.III.1988, M. ITO leg. (1 ex.). – Same data as before, but 1.-22.IV.1988 (1 ex.). – Mt. Kinabalu, 25.IV.1979, H. MATSUDA leg. (1 ex.). – Nr. Keningau, 30.VI.1989 (no collector name) (1 ex.).

**Material** (seen by the author): Sabah, Kinabalu N. P., Headquarters, 1500-1600 m, 11.-15.XI.1996, leg. W. SCHAWALLER (1 ♀, SMNS). – Sabah, Mt. Kinabalu Nat. Pk., HQ, 1560 m, 24.-30.IV.87, A. SMETANA (1 ♀, NHMG). – Sabah, Mt. Kinabalu Nat. Pk., Headquarters, 1560 m, 3.-13.8.88, A. SMETANA (B175) (1 ♂, NHMG). – Sabah, Crocker Mts., Gunung Emas, 500-1800 m, 8.-21.V.1995, IVO JENIŠ leg. (1 ♂, ZSM). – Sabah, Kimanis Road (16 mi.) near Keningau, light, 29.IV.1991, KEITARŌ HARUSAWA leg. (1 ♂, CM).

**Diagnosis.** Body length 12.6-14.0 mm. Body width: 6.1-6.7 mm. Ratios. Pronotum: width/length 1.61-1.82; width hind corners/width front corners 1.64-1.76. Elytra: length/width 1.51-1.70; length elytra/length pronotum 3.94-4.38; maximum width elytra/maximum width pronotum 1.48-1.54.

Colouration. Pronotum dark, nearly black; elytra brown, both lustrous. Legs and antennae dark brown.

Of medium size; markedly convex transversely. Elytra with straight lateral margins which slightly widen between shoulders and hind third; with rows of small punctures and flat intervals with tiny punctures. Pronotum narrow, maximum of width somewhat behind middle, somewhat and roundedly narrowing towards hind corners, more narrowing, but less roundedly towards front corners; anterior margin distinctly excavated. Frons narrow and narrower than length of antennomere 3 (like 10:15), slightly wider in females than in males; fronto-clypeal suture slightly arched, markedly impressed. Metasternum smooth; in both sexes without a hump on both sides of the median line in the hind part. Antennae long; longer in males than in females; length/width ratio of antennomeres 1-11 equals in a male to 15:7 / 6:6 / 25:6 / 15:6 / 20:6 / 20:6 / 19:6½ / 21:7 / 19:7 / 18:7 / 19:7, in a female to 14:6 / 5:5½ / 18:5½ / 13:5½ / 19:5½ / 17:6 / 18:6½ / 17:6½ / 17:7 / 16:7 / 18:7. Legs long, profemora with a distinct step-wise decline near second thirds basally on the frontal side; protibiae thin, somewhat bent in basal third in males, anteriorly thence straight, somewhat broadened on inner side and with tender, short, inconspicuous hairs; protibiae in females nearly straight and not broadened on inner side; meso- and metatibiae nearly straight; lengths of metatarsomeres 1-4 as 24:11:9:28.

Very similar to *P. miyakei* MASUMOTO, 1989 which also occurs at the same locations. *P. gokani* displays a dark, nearly black pronotum and brown elytra, the discrepancy of colour between pronotum and elytra are less marked in *P. miyakei*. Protibiae of *P. gokani* are clearly straighter than those of *P. miyakei*. The

punctures of the elytral rows of *P. gokani* are smaller than those of *P. miyakei*. The metasternum of *P. miyakei* displays a moderate bossing on each side in the hind half in males which is not present in *P. gokani*. Prosternal apophysis posterior to procoxae of *P. gokani* is distinctly narrower than that of *P. miyakei*, and prosternal apophysis of *P. miyakei* is descending to base of pronotum just behind procoxae, it is not descending to base in *P. gokani*. Aedeagi of both species are different.

### ***Plesiophthalmus insignis* (PASCOE, 1871)**

*Cyriogeton insigne* PASCOE, 1871: 356.

*Plesiophthalmus insignis* (PASCOE, 1871): MASUMOTO 1989c, 553; figs. pp.545, 557.

*Plesiophthalmus robustus* PIC, 1916, 11; [syn.]: MASUMOTO 1989c: 553.

*Plesiophthalmus insignis* (PASCOE) belongs to the subgenus *Cyriogeton*.

**Holotype**, ♂, BMNH, labelled: (Small, round label with a red margin) Type; (small, oval label, handwritten) labrum; (rectangular label, handwritten) *Cyriogeton insignis* Pasc., type; (rectangular label) *Cyriogeton insignis* PASCOE, Type!, J. PICKA det. (BMNH) (hind right leg missing).

*Plesiophthalmus insignis* (PASCOE) s. l. is a very large species with rows of small, very closely set punctures on elytra (individually either well separated or so closely set that they look like striae). Profemora with a weak, step-like descent on the frontal side. Antennae long, tender (in males longer than in females). Aedeagus with a characteristic shape with a waisted narrowing in the middle. The step-like decrease on the front side of profemora is clearly visible in the species from Peninsular Malaysia and Sarawak, but in species from Sabah (especially in those of the Crocker Mountains) it is very weak or absent.

Annotation: The origin of the holotype of *P. insignis* (PASCOE) should be Silhet (Bangladesh) according to PASCOE's publication (1871). However, on the holotype there is no label with a reference to this location. Insofar, it is unsettled whether the statement in PASCOE's paper is true. I have only seen specimens with the characters of the holotype from Peninsular Malaysia and on Sumatra. A very similar taxon, also with the typical aedeagus, occurs at the Crocker Range of Sabah.

I am separating *P. insignis* into two subspecies:

*Plesiophthalmus insignis* s. str. from Peninsular Malaysia and Sumatra and *P. insignis* ssp. *magnus* (BREMER, 2010) at and near the Crocker Range of Sabah:

The transverse convexity of pronotum is more marked in the nominate form than in the subspecies from the Crocker Range; the elytra of both taxa are long, but somewhat shorter in the nominate form than in the subspecies; *P. insignis* s. str. shows a slightly oval shape of elytra, *P. insignis* s. sp. *magnus* subparallel and somewhat longer elytra; the step-like descent on the frontal side of profemora is well visible in the nominate form, it is either absent or very weakly present in the subspecies from the Crocker range; the broadening of inner side in the apical half of protibiae in males is distinct in the nominate form, it is inconspicuous in the subspecies; a bending of protibiae is somewhat stronger in the nominate form than in the subspecies from Sabah.

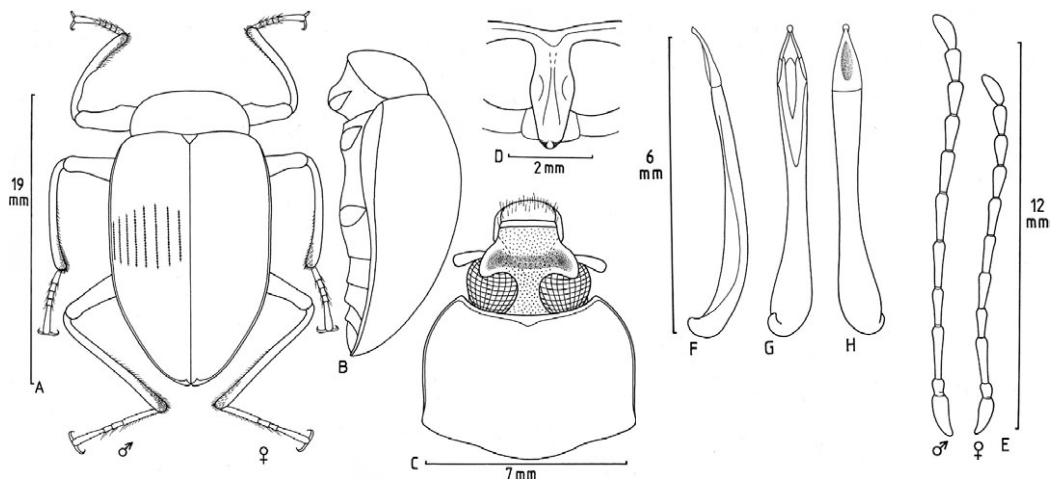
*Plesiophthalmus insignis* from Sarawak and from Kalimantan presents a less marked transverse convexity of body than that of *P. insignis* s. str.; its step-like descent on the frontal side of profemora is less distinct, but the elytra show a less oval form as that of *P. insignis* s. str. do; these specimens are therefore in between both taxa, and I consider them as transitional forms.

I primarily described the subspecies from the Crocker Range as *Amarygmus*, s. g. *Pyanirygmus*, *magnus* BREMER, 2010 because the holotype does not present a step-like decline on the frontal side of profemora. I currently consider that this taxon is better assigned to *Plesiophthalmus* than to *Amarygmus* s. g. *Pyanirygmus* because several specimens present a weak step-like decline on the frontal side of profemora. The shape of the aedeagus of the specimens from the Crocker Range is congruent with that of *Plesiophthalmus insignis* s. str. (PASCOE).

*Plesiophthalmus insignis* ssp. *magnus* (BREMER, 2010) [**comb. n.**] = *Amarygmus*, subgen. *Pyanirygmus*, *magnus* BREMER, 2010.

### ***Plesiophthalmus insignis* ssp. *insignis* (PASCOE, 1871)** (Fig. 5A-H)

**Material** (seen by the author): Peninsular Malaysia: Malay, Kg. Sahom (1 ♂, HMNH). – Malaysia, Cameron Highlands, vicinity of Tapah, 4.V.1995, G. HUNGAY (1 ♂, HMNH). – Malaysia, Cameron Highlands, Tanah Rata, 18.V.1996, leg. WONG TETT FETT (1 ♀, HMNH). – Malaysia, Taiping, April 1978; *P. robustus* PIC det. KASZAB; *P. insignis* (PASCOE) det. MASUMOTO (2 ♀, HMNH). – Malay States, 1909, C. J. BROOKS, B.M.1931-570 (1 ♀, BMNH) – Malaysia, Perak, Banjaran Titi Wangsa, Fraser's Hill, 9.III.1997, IVO JENIŠ leg. (1 ♂, ZSM). – Malaysia, Benom Mts., 15 km E Kampong Dong, 700 m, 3.53°N-102.01°E, 1.IV.1996, DEMBICKÝ & PACHOLÁTKO leg. (1 ♂, CM). – Sumatra, Payakumbuh, Harau Valley, 1000 m (1 ♀, CM). – West Sumatra, Harau Valley, 700 m, VI-VII.2004, ST. JÁKL leg. (1 ♂, ZSM).



**Fig. 5:** *Plesiophthalmus insignis* ssp. *insignis* (PASCOE, 1871): **A** Habitus, left side legs of a male, right side legs of a female; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antennae, male and female; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view.

**Diagnosis.**: Body length: 19.7-20.7 mm. Body width: 10.7-11.5 mm. Ratios. Pronotum: width/length 1.73-1.87; width hind corners/width front corners 1.59-1.71. Elytra: length/width 1.49-1.55; length elytra/length pronotum 4.23-4.31; maximum width elytra/maximum width pronotum 1.49-1.57.

Colouration. Upperside lustrous, dark brown, with a certain metallic shine. Legs and antennae black.

A very similar species occurs on Java: *Plesiophthalmus andoi* MASUMOTO, 1989. The protibiae of males are straighter in *P. andoi* than in *P. insignis* s. str., and they resemble more those of *P. insignis* ssp. *magnus*, the pronotum of *P. andoi* is narrower than that of *P. insignis*, the elytra of *P. andoi* are somewhat narrower and longer than those of *P. insignis* s. str. The aedeagus of *P. andoi* does not show the waisted tapering in the middle which is typical for *P. insignis* s. l., and it is shorter.

### *Plesiophthalmus insignis* ssp. *magnus* (BREMER, 2010)

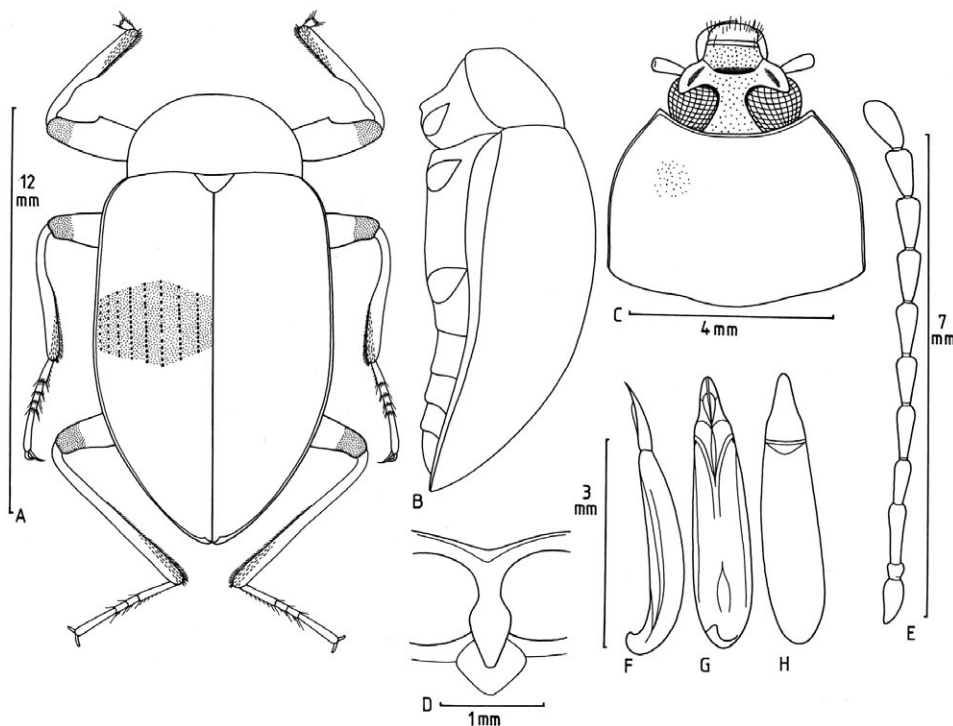
*Amarygmus*, subgen. *Pyanirygmus*, *magnus* BREMER, 2010: 2010, 201-204 8; Fig: dito p.202).

*Plesiophthalmus insignis* ssp. *magnus* (BREMER 2010) [**comb. n.**].

**Holotype**, ♂, ZSM: Sabah, Borneo, vic. Ranau, 22.IV.2007, S. CHEW leg.

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

**Material** (seen by the author): Sabah, Mt. Trus Madi, 1000 m, 1.IV.1994, N. KANIE leg. (1 ♂, CA). – Same data as before, but 6.-13.IV.1994 (1 ♀, ZSM). – Sabah, Mt. Trus Madi, 10.-13.IV.1993, leg. S. NIRASAWA (1 ♂, 1 ♀, CM). – Sabah, Crocker Range, NW of Keningau, 1400 m, 22.IV.1992, S. NAGAI leg. (1 ♂, CM). – Sabah, Crocker Range, nr. Keningau, 1000-1400 m, 21-25.IV.1988, N. KOBAYASHI lgt. (1 ♂, CM). – Same data as before, but 6.-10.IV.1988 (1 ♂, CM). – Same data as before, but 11.-15.V.1988 (2 ♂, 2 ♀, CM). – Same data as before, but 16.-20.IV.1988 (2 ♂, 1 ♀, CM). – Same data as before, but 23.IV.1988 (1 ♂, CM). – E. Malaysia, Crocker Range, 1000-1400 m, nr Keningau City, 8.IV.1988, N. KOBAYASHI (1 ♂, CM). – Same data as before, but 23.IV.1988 (1 ♂?, CM). – Sabah, N. Borneo, Sabah, Keningau, 4.IV.1989, M. ITOH leg. (2 ♂, 1 ♀, CA). – Same data as before, but 7.IV.1989 (1 ♂, CA, 1 ♀, ZSM). – Same data as before, but 1.V.1989 (2 ♂, 1 ♀?, CA, 1 ♂, ZSM). – Same data as before, but 14.V.1989 (1 ♂, CA). – Same data as before, but 24.V.1989 (1 ♂, CA). – Same data as before, but 25.V.1989 (2 ♂, CA). – Same data as before, but 27.V.1989 (1 ♂, CA). – Same data as before, but 28.V.1989 (1 ♂, CA, 2 ♂, ZSM). – Same data as before, but 10.VI.1989 (2 ♂, CA). – Same data as before, but 11.VI.1989 (1 ♂, CA). – Same data as before, but V.1992, M. ITO leg. (2 ♂, 1 ♀, CM). – Sabah, Keningau, 1.V.1989, M. ITOH (1 ♀, CM). – Same data as before, but 1.-2.IV.1992 (1 ♂, CM). – Sabah, 10.5 miles from Keningau, 5.-9.IV.1990, OSAMA FURUTA leg. (1 ♂, ZSM). – Borneo, Pengaron, DOHERTY, FRY Coll. (2 ♂, BMNH). – Sabah, Kimanis 10 miles, 1.IV.1987, N. KOBAYASHI (1 ♂, 2 ♀, CM). – Same data as before, but 1.V.1987 (1 ♀, CM). – Same data as before, but 13.V.1987 (1 ♂, CM). – Sabah, Kimanis Road nr. Keningau, 3.III.1994 (1 ♂, CM). – Same data as before, but 5.V.1994 (2 ♂, CM). – Same data as before, but 3.III.1994 (1 ♀, CM). – Kimanis road, 1000-1400 m, nr. Keningau, 6.IV.1988, N. KOBAYASHI (1 ♂, CM). – near Keningau, N. Borneo, 8.May 1987 (2 ♂, 1 ♀, CM).



**Fig. 6:** *Plesiophthalmus javaensis* MASUMOTO, 1999: **A** Habitus, male, **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.

– near Keningau, N. Borneo, 8.Jun.1989, MASAO ITO leg. (1 ♂, CM). – Nr. Keningau, Sabah, 9.V.1994 (2 ♂, CM). – Same data as before, but 28.IV.1994 (1 ♀, CM). – Same data as before, but 12.VI.1989 (1 ♀, CM). – Same data as before, but 23.III.1988, M. ITO (1 ♂, 1 ♀, CM). – Same data as before, but 20.IV.1988 (1 ♀, CM). – Same data as before, but 18.IV.1989 (1 ♂, 2 ♀, CM). – N. Borneo, nr. Keningau, 8.VI.1989, MASAO ITO leg. (1 ♂, CM). – Sabah, Keningau, Bandukan area, 28.III.1995, CH. ADRIAN lgt. (1 ♀, CM). – Sabah, Kinabalu Nat. Park, vic. Poring Hot Springs, 525 m, 8.-10.IV.2013, R. GRIMM (1 ♂, CG).

Transitional forms between *insignis* s. str. and ssp. *magnus*: Sarawak: Kuching, Borneo, 23.IV.1989 (1 ♂, CM). – Kuching, Borneo, 14.V.1988 (1 ♂, CM). – Kuching, Borneo, 25.IV.1989 (1 ♀, ZSM). – Kuching, 3.III. (1 ♂, CM). – E. Kalimantan, Tubu riv., 3°04-5'N-116°10-11'E, 22.V.-7.VI.2001, J. HORÁČEK lgt. (1 ♀, CM). – South Kalimantan, Loksado, 1000 m, 7.-22.IX.1997, ST. JÁKL leg. (1 ♂, 1 ♀, CM). – Sabah, Tawau Hills, My, 4°24'37.9"N-117°53'53.3"E, *Aporusa acuminatissima* [fogging], 6.IX.2009, A. FLOREN (1 ♀, ZSM).

***Plesiophthalmus javaensis* MASUMOTO, 1999** (Fig. 6A-H)

*Plesiophthalmus javaensis* MASUMOTO, 1999: 362-363; photo p.357.

*Plesiophthalmus javaensis* belongs to the subgenus *Cyriogeton*.

**Holotype**, ♂, ZSM: Ost-Java, Idjen, H. LUCHT leg.

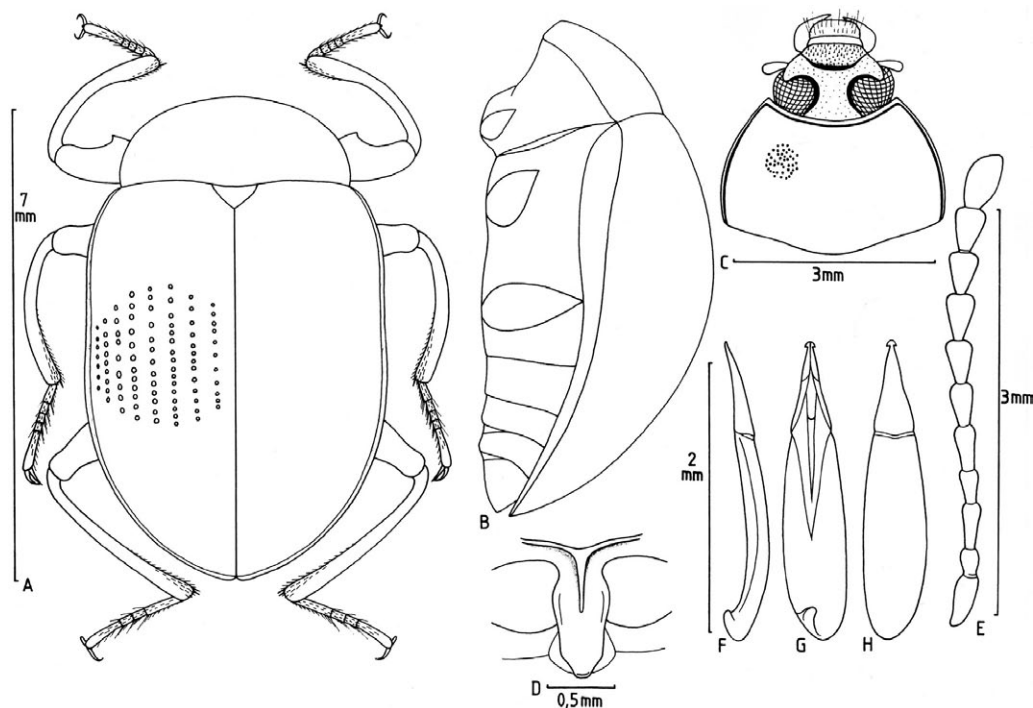
**Paratype**. Same data as holotype (1, CM).

**Diagnosis.** (Measurements of holotype): Body length: 12.1 mm. Body width: 6.8 mm. Ratios. Pronotum: width/length 1.74; width hind corners/width front corners 1.79. Elytra: length/width 1.51; length elytra/length pronotum 3.66; maximum width elytra/maximum width pronotum 1.39.

**Colouration.** Elytra brown, slightly opaque because of close punctation and weak microreticulation; pronotum brown, somewhat more lustrous than elytra; femora with a dark brown apical cap and a lighter brown shaft; tibiae dark brown; antennomeres 1-6 brown, 7-11 dark brown.

Elytra with rows of small, closely set, but not fusing punctures; elytral intervals flat, with tiny, inconspicuous, closely set punctures; sides over a long distance subparallel. Pronotum with subparallel sides





**Fig. 7:** *Plesiophthalmus keningauensis* MASUMOTO, 2001: **A** Habitus, male; **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.

within hind half, narrowing within frontal half; front corners pointed and protruding; surface with tiny, well separated punctures. Frons not very wide; inner margins of eyes with an allusive sulcus; fronto-clypeal suture well incised in the middle. Femora on frontal side with a small, pointed tooth; protibiae nearly straight on outer side, broadened on inner side in apical half (certainly only in males); mesotibiae broadened on inner side within apical 60 percent; metatibiae nearly straight. Mandibles apically symmetrically bifid. Lengths of metatarsomeres 1-4 as 25:13:10:39.

This is the only *Plesiophthalmus* species on Java with tiny, closely set punctures on the elytral intervals. A black apical cap and brown shaft of femora is also found in *P. borneensis* (PIC, 1915). This species is distributed on Borneo, Sumatra and the Mentawai Islands and may also occur on Java. On average, *P. borneensis* is somewhat longer, more compact, its pronotum is wider, its frons is narrower; the upperside of *P. borneensis* is very lustrous, and tiny, closely set punctures on elytral intervals are missing.

***Plesiophthalmus keningauensis* MASUMOTO, 2001** (Fig. 7A-H)

*Plesiophthalmus keningauensis* MASUMOTO, 2001: 71-72; figs. pp.61, 65.

*Plesiophthalmus keningauensis* MASUMOTO belongs to the subgenus *Chaeroplonyx*.

**Holotype**, ♂, CM: Keningau, Sabah, N. Borneo, V.1992, M. Iro leg.

**Paratype**. Same data, in CM. – I studied only the holotype.

**Diagnosis** (Measurements of holotype): Body length 7.01 mm. Body width: 4.42 mm. Ratios. Pronotum: width/length 1.75; width hind corners/width front corners 1.71. Elytra: length/width 1.28; length elytra/length pronotum 2.96; maximum width elytra/maximum width pronotum 1.32.

**Colouration**. The somewhat immature holotype is brown, lustrous; the pronotum displays a light bluish shimmer on its lateral parts; underside brown, lustrous; legs and antennae brown.

Small, relatively wide. Elytra short, with straight sides which slightly widen towards hind third; clearly convex transversely and longitudinally, maximum of height about in the middle; lateral edges of elytra wide and well visible in dorsal view; with rows of relatively large punctures which become smaller and

inconspicuous near apex, their distances on disc in row 4 equal to  $\frac{1}{2}$ - to 1-time the diameter of a puncture; intervals flat, with tiny, widely separated punctures. Pronotum with the maximum of width somewhat behind middle; front corners in dorsal view rectangular; lateral and anterior margins with a deep inner rim of border; surface with small, irregularly set punctures. Frons somewhat wider than length of antennomere 3 (like 20:18); a deep sulcus is present on inner margin of eyes; fronto-clypeal suture bent, very deeply incised in its middle part; mandibles apically bifid. Sternite 5 with a sclerotized, pilose and somewhat lifted process which looks like a slightly truncate apex (probably only in males). Antennae reaching with 3 antennomeres beyond pronotal base; length/width ratio of antennomeres 1-11 equals to 15:8 / 9:6½ / 18:7 / 15:7 / 19:7½ / 17:8 / 18:8 / 17:10 / 14:11 / 14:11 / 29:11. Profemora on the frontal side of its basal two thirds with a sharp edge which terminates in a distinct step-like descent; protibiae conspicuously bent in both sexes, on inner side in apical half with a slight broadening in males; mesotibiae markedly bent; metatibiae slightly bent; metatarsomere 1 distinctly shorter than metatarsomere 4.

*P. keningauensis* differs from the closely related *P. kimanisensis* MASUMOTO, 2001 by a smaller size, longitudinally more convex elytra, by somewhat larger punctures of the elytral rows, and by a different prosternal apophysis. Aedeagi of both taxa are identical.

***Plesiophthalmus kerleyi* MASUMOTO, 2001,**

see *Amarygmus*, subgen. *Varogeton*, *kerleyi* (MASUMOTO, 2001) (p.72)

***Plesiophthalmus kimanisensis* MASUMOTO, 2001** (Fig. 8A-H)

*Plesiophthalmus kimanisensis* MASUMOTO, 2001: 69-70; figs. pp.61, 65.

*Plesiophthalmus cuccodoroi* MASUMOTO, 2001: 70-71, figs. pp.61, 65 [syn. n.].

*Plesiophthalmus kimanisensis* belongs to the subgenus *Chaeroplonyx*.

**Holotype** (of *P. kimanisensis*), ♂, NSMT: Sabah, Near Keningau, Kimanis Road, 3-V-1994, H. ITO leg.

**Paratypes** (of *P. kimanisensis*): Same data as holotype (1 NSMT). – Another paratype is labeled according to MASUMOTO's paper (2001, 70): Borneo, Sabah, Crocker Mts., 500-1900 m, Gunung Emas, 6.-21.V.1995, IVO JENIS leg., Coll. H. J. BREMER; SMNM (this specimen is certainly from my former collection; I cannot assign the abbreviation SMNM to a special collection, however, this paratype is currently neither deposited in ZSM nor in my former collection).

**Holotype** (of *P. cuccodoroi*), ♂, NHMG: Sumatra, Sitahoan, IV.81, DIEHL.

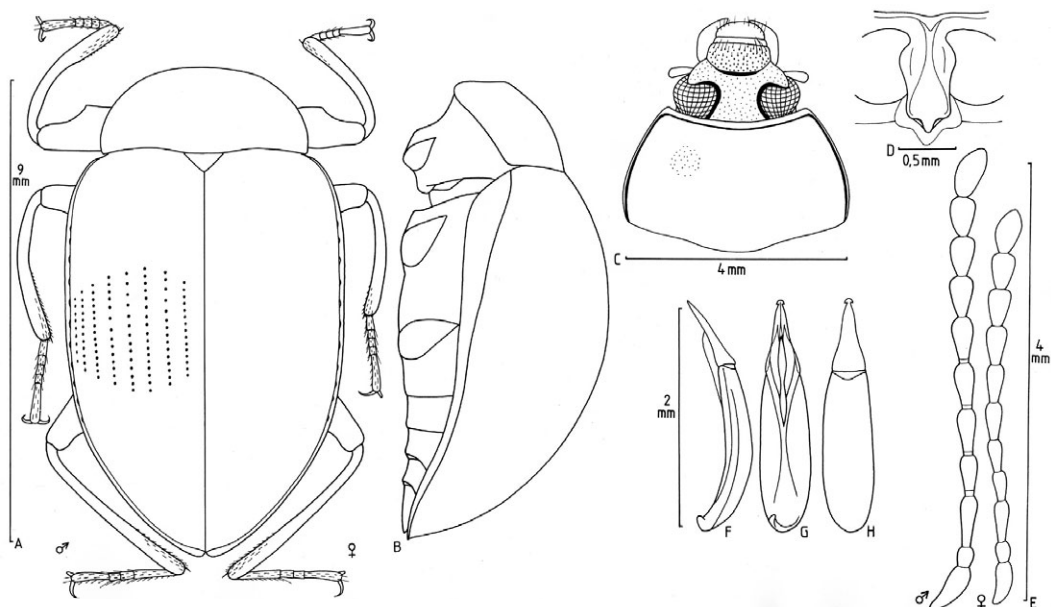
I studied the holotypes of *P. kimanisensis* and *P. cuccodoroi*.

**Further material** (seen by the author). *Sabah*, Mt. Trus Madi, 14.V.2007, S. CHEW leg. (1 ♂, ZSM). – Sabah, Mt. Trus Madi, 6.-13.IV.1996, N. KANIE leg. (1 ♂, CA). – Sabah, near Keningau, 12.VI.1989 (1 ♂, CM, 1 ♀, ZSM). – Kimanis Road, Keningau, 3.III.1994 (1 ♂, CM). – Sabah, 15 km NE Tambunan, 600 m, 20.2.2006, R. GRIMM (1 ♂, CG). – Sabah, Tambunan, 500 m, lux, 30.I.2010, R. GRIMM (1 ♂, 1 ♀, CG). – *Brunei*: Temburong, 4°26'N-115°15'E, 300 m, Mxs. dipt forest, Light trap, 127 m above ground; 2.X.78, S. I. SUTTON, B.M.1983-39 (1 ♀, BMNH). – *Sumatra*: Bastagi, N. Sumatra, 8.-13.IV.1985 (1 ♀, CM). – *Peninsular Malaysia*, Templer Park vic. Kuala Lumpur, 1.II.2000, P. ČECHOVSKÝ leg. (1 ♀, ZSM).

**Diagnosis.** Body length: 8.24-9.36 mm. Body width: 4.86-5.57 mm. Ratios. Pronotum: width/length 1.72-1.87, width hind corners/width front corners 1.52-1.66. Elytra: length/width 1.30-1.38; length elytra/length pronotum 3.48-3.61; maximum width elytra/maximum width pronotum 1.39-1.48.

Colouration. Pronotum black, with a slight pink/violet tinge, lustrous, its lateral parts greenish; elytra blackish green, shoulders usually somewhat more green; head black, lustrous; legs and antennae black.

Frons of medium width, width equals to double the length of antennomere 3; inner margin of eyes with a deep sulcus; fronto-clypeal suture markedly incised and bent; clypeus and frons with minute, not very closely set punctures; clypeal punctures are origine of tiny hairs. Pronotum wide, with a groove-like inner rim of lateral and anterior borders; maximum of width somewhat posterior to middle, towards hind corners somewhat roundedly narrowing, towards front corners more narrowing, mostly with straight margins; front corners rectangular in dorsal view; surface with small, irregularly set punctures. Elytra wide; maximum of height somewhat in front of middle, with nearly straight lateral margins between shoulders and hind third; lateral edges in dorsal view widely visible; elytra with rows of small to medium-sized punctures, distances between punctures on disc in row 4 equal to  $\frac{1}{2}$ - to 1-time the diameter of a punctures; intervals flat, with tiny, widely separated punctures. Sternite 5 slightly truncate at apex in males, with a faint border along outer margin. Antennae reaching with about 3 antennomeres over base of elytra; length/width ratio of antennomeres 1-11 equals to 18:9 / 9:7 / 16:7 / 12:7 / 13:8 / 12:10 / 14:11 / 14:11 / 14:11 / 14:11 / 19:12. Frontal side of profemora in the basal two thirds with a sharp edge which terminates in a clear step-like descent; protibiae bent in both sexes, in males with a slight broadening on inner side in apical half; lengths of metatarsomeres 1-4 as 21:8:8:30.



**Fig. 8:** *Plesiophthalmus kimanisensis* MASUMOTO, 2001: **A** Habitus, left side legs of a male, right side legs of a female; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antennae, male and female; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view.

Annotation. According to MASUMOTO (2001) *Plesiophthalmus cuccodoroi* should be distinguished from *P. kimanisensis* by more narrowing pronotal sides in the frontal part than in *P. kimanisensis*, and with rows of larger elytral punctures. I have seen several specimens from Sabah, Brunei, Sumatra and Peninsular Malaysia, and can state that *P. kimanisensis* displays a great variability concerning body length, size of punctures of elytral rows, degree of constriction of pronotum towards front and hind corners and of colouration (e. g. greenish shoulders). I therefore consider *P. cuccodoroi* as a junior synonym of *P. kimanisensis*.

*Plesiophthalmus kimanisensis* is very similar to the somewhat smaller *P. keningauensis* MASUMOTO, 2001 by body shape and form of legs; its elytra are wider and shorter (elytral length/width 1.28:1); for more details, see *P. keningauensis*.

*Plesiophthalmus beardae* MASUMOTO, 1999 is also similar. The sulcus around the inner and frontal margins of eyes is less deep in *P. beardae* than in *P. kimanisensis*. Colouration of upperside of *P. kimanisensis* is different from the uniformly brown colour of *P. beardae* which is devoid of any colourful tinge. The aedeagus of *P. kimanisensis* presents a widened tip, this is missing in *P. beardae*.

***Plesiophthalmus levis* (KULZER, 1950),**  
see *Plesiophthalmus subelongatus* (PIC, 1915) (p.59)

***Plesiophthalmus lewisi* MASUMOTO, 1990** (Fig. 9A-H)

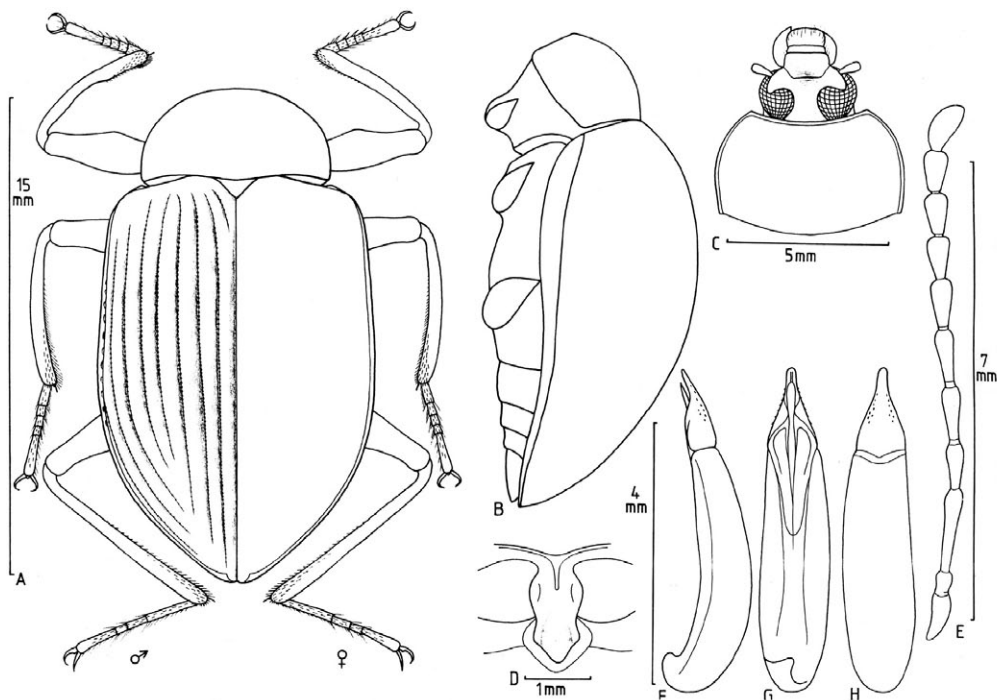
*Plesiophthalmus lewisi* MASUMOTO, 1990: 1990d, 700-701; figs. pp.695, 706.

*Plesiophthalmus lewisi* belongs to the subgenus *Inspinogeton*.

**Holotype**, ♂, BMNH, labelled: (handwritten) Sarawak, 6.24; (holotype label) Holotype, *Plesiophthalmus lewisi* Masumoto.

**Paratypes**: Kuching, Western East Malaysia, 1910-116, J. E. A. LEWIS (1, BMNH). – Kuching, 11.V.09 (1, BMNH). – I have seen the holotype.

**Material** (seen by the author): Sarawak, Gunong Mulu Nat. Park, R. G. S. Exped. 1977-8, J. D. HOLLOWAY et al., B.M.1978-206; site W G. Api, 3000', limestone (1 ♂, BMNH). – [Sabah], Bergil, My SW3, 6°17'27.8"N-116°42'30.5"E, *V. pinnata*, B6F2 [fogging], 14.III.1997, A. FLOREN (1 ♂, ZSM). – Sumatra-Aceh, Alas-Tal, Ketambe, ca. 30 km NW Kutacane, 21.-15.I.1995, leg. C. ZORN (1 ♀ SMNS) (c.t.c.).



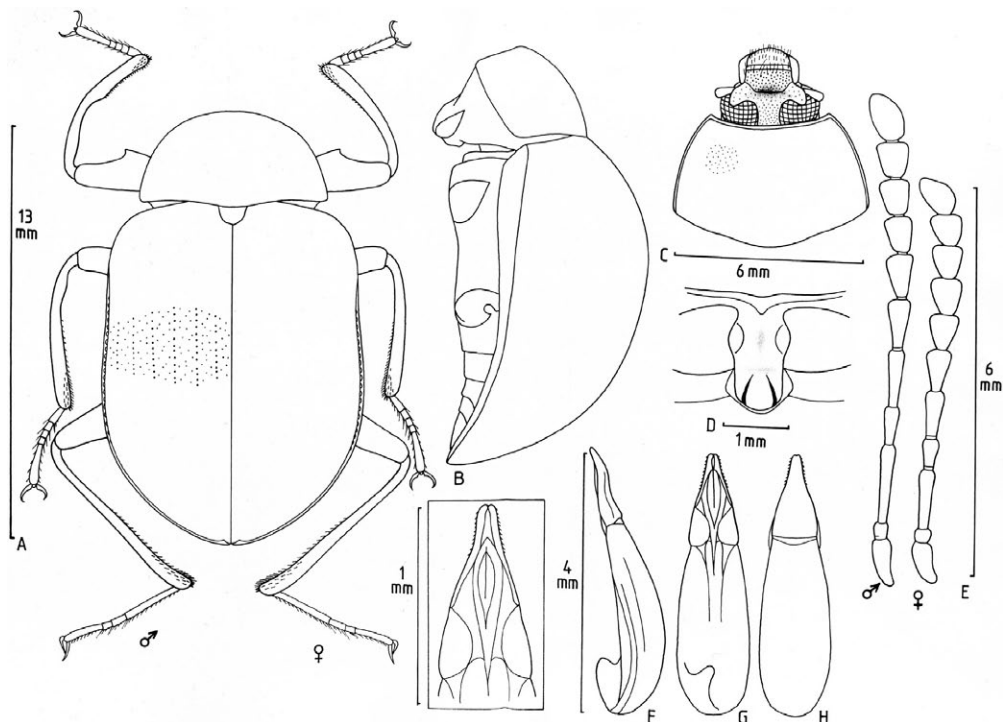
**Fig. 9:** *Plesiophthalmus lewisi* MASUMOTO, 1990: **A** Habitus, left side legs of a male, right side legs of a female; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antennae, male; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view.

**Diagnosis.** Body length: 14.8-15.8 mm. Body width: 8.4-8.8 mm. Ratios. Pronotum: width/length 1.58-1.64; width hind corners/width front corners 1.52-1.64. Elytra: length/width 1.43-1.47; length elytra/length pronotum 3.38-3.67, maximum width elytra/maximum width pronotum 1.45-1.60.

**Colouration.** Dark reddish brown to blackish brown, with a brass-like tinge. Underside dark brown; metasternum lustrous; sternites 1+2 opaque by microreticulation, sternites 3-5 lustrous. Legs dark brown, lustrous. Antennae black. Hairs yellowish brown.

Frons of medium width. Fronto-clypeal suture markedly impressed in the middle and slightly incised. Clypeus convex longitudinally, with fine, rather closely set punctures. Mandibles apically bifid. Pronotum wide; markedly convex transversely and longitudinally. Maximum of width in the middle, towards front and hind corners roundedly narrowing but less so towards hind corners. Surface with tiny, widely separated punctures. Base of elytra wider than base of pronotum. Elytra relatively wide and short. Maximum of height shortly in front of middle. Between shoulders and hind third sides subparallel. Lateral edges in dorsal view broadly visible and punctured. Apices of each elytron slightly protruding and somewhat retracted towards suture. With slightly incised striae which are formed by small, very closely set, nearly fusing punctures. Intervals allusively to slightly convex, impunctate. Sternite 1 with narrow, longitudinal wrinkles. Sternite 5 apico-median excavated in males and circumvented by long hairs. Antennae short; reaching over one tenth of elytra; length/width ratio of antennomeres 1-11 equals to 12:9 / 8:6½ / 31:7½ / 19:8 / 22:8 / 19:8 / 20:8½ / 16:9 / 17:10 / 15:10 / 21:10. Legs slender, long. Base of femora very slender; towards middle club-like broadened; within apical tenth frontal and back sides subparallel. Protibiae broadened on inner side in apical half and with shortly projecting, thin hairs. Mesotibiae slightly bent, with closely set, obliquely projecting hairs of medium length within apical half. Metatibiae nearly straight. Lengths of metatarsomeres 1-4 as 32:15:9:30.

Among the species of this area *P.*, subgen. *Inspinogeton*, *morimotoi* MASUMOTO, 1990 is the only comparable species, see *A. morimotoi*.



**Fig. 10:** *Plesiophthalmus malayensis* (MASUMOTO, 1988) (holotype): **A** Habitus, left side legs of a male, right side legs of a female; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antennae, male and female; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view (with a magnification of top part); **H** Aedeagus, dorsal part.

***Plesiophthalmus malayensis* (MASUMOTO, 1988) (Fig. 10A-H)**

*Eumolpocyriogeton malayense* MASUMOTO, 1988: 1988b, 774-776.

*Plesiophthalmus malayensis* (MASUMOTO, 1988) [comb. n.].

*Plesiophthalmus evae* MASUMOTO, 2000: 154-156; figs. pp.146, 147 [syn. n.].

*Plesiophthalmus malayensis* belongs to the subgenus *Eumolpocyriogeton*.

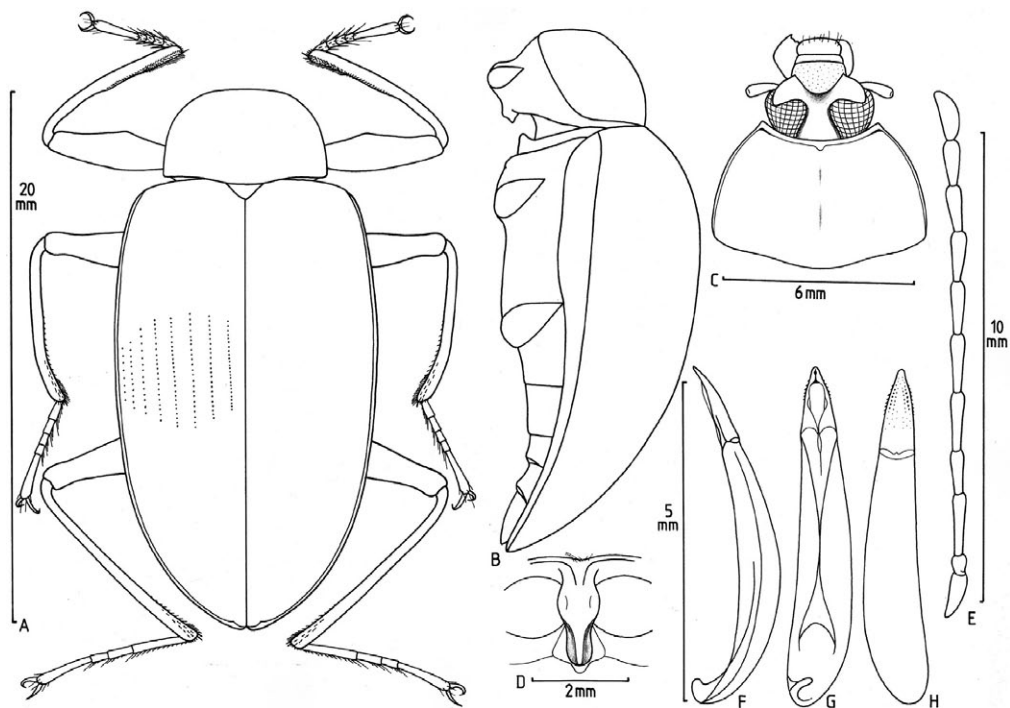
**Holotype** (of *E. malayense*) ♀, BMNH, labelled: Selongor-Pahang, The gap, 2700', Jan.: 1915; Brit. Mus. (NH), 1992-113; (round label with red margin): Holotype; (on pink paper) Holotype; *Eumolpocyriogeton malayense* Masumoto (the hind legs and sternites are missing). - I studied the holotype.

**Holotype** (of *P. evae*) ♂, NHMP: Cameron Highlands, Tanah Rata, Pahang, W. Malaysia, IV.1994, FATT leg.; I studied the holotype.

**Diagnosis.** (Measurements of holotype of *E. malayense*): Body length: 11.5+11.9 mm. Body width: 7.32+7.44 mm. Ratios. Pronotum: width/length 1.72+1.78. Elytra: length/width 1.23+1.33; length elytra/length pronotum 2.95+3.10; maximum width elytra/maximum width pronotum 1.40+1.41.

**Colouration.** Elytra brightly yellowish red, without iridescence, elytral edges blue; scutellum blue; pronotum markedly iridescent with all colours of the light spectrum, its borders are blue; upperside of head blue; pro-, meso-, metasternum and femora blue; tibiae nearly black (with a slight bluish tinge); tarsomeres black.

Because of colouration and habitus a very characteristic species. Of medium size; body relatively short and wide. Elytra markedly convex transversely, moderately convex longitudinally; with nearly straight lateral margins, its lateral edges are broadly exposed, coarsely punctured and well visible in dorsal view; elytra with rows of small, widely separated, not very distinct punctures; their distances on disc in row 4 equals about to 2- to 3-times the diameter of a puncture; elytral intervals flat, with minute, widely separated punctures; surface of elytra slightly chagreened. Pronotum nearly trapezoidal, convex transversely and somewhat less convex longitudinally; the lateral and anterior margins are clearly bordered and these borders are well visible in dorsal view; pronotum with tiny, widely separated punctures; its surface smooth and lustrous. Frons of



**Fig. 11:** *Plesiophthalmus maruyamai* (MASUMOTO, 1989): **A** Habitus, male; **B** Body, lateral view; **C** Head, pronotum, antenna; **D** Prosternal apophysis; **E** Antenna; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view.

medium width, with minute, relatively closely set punctures. Genae markedly lifted towards lateral margins, nearly impunctate, anteriorly terminating well in front of fronto-clypeal suture. Fronto-clypeal suture distinctly impressed, the frons is descending towards this suture, and the clypeus is ascending anteriorly. Antennae short and of the same length in both sexes, reaching over one tenth of elytra, the last 4 antennomeres are relatively short, wide. Profemora with a thorn-like tooth at apical two-fifths, its sharp tip in directed outwards; protibiae in the male of *P. evae* abruptly bent in the middle and somewhat broadened in apical half on inner side, in the female holotype of *E. malayense* markedly and uniformly bent; mesotibiae nearly straight in basal 70 percent, in their apical 30 percent slightly incurved. Prosternal apophysis is descending to the bottom of prosternum just behind procoxae.

***Plesiophthalmus maruyamai* MASUMOTO, 1989** (Fig. 11A-H)

*Plesiophthalmus maruyamai* MASUMOTO, 1989: 561-562; figs. pp.545, 557.

*Plesiophthalmus maruyamai* belongs to the subgenus *Inspinogeton*.

**Holotype**, ♂, NSMT: Sabah, Crocker Range, 16 m. [miles] N.W. of Keningau, 2.-26.IV.1984, SHINJI NAGAI leg.

**Paratypes**. Sabah, 14.IV-19.V.1984, S. NAGAI leg. (1 NSMT). – nr. Keningau, VI.1989, native collector (3 NSMT) – I examined only the holotype.

**Diagnosis.** (Measurements of holotype) Body length: 20.1 mm. Body width: 9.2 mm. Ratios. Pronotum: width/length 1.81; width hind corners/width front corners 1.93. Elytra: length/width 1.76; length elytra/length pronotum 4.79; maximum width elytra/maximum width pronotum 1.40.

**Colouration.** Upperside dark green, lustrous. Legs, antennae dark brown to black. Underside black (mesosternum and apophysis of metasternum brown). Hairs on tarsi yellow.

Frons as wide as length of antennomere 4; frons is situated higher than eyes and without a median sulcus. Fronto-clypeal suture markedly impressed and slightly incised in its middle. Clypeus convex longitudinally, with minute, widely separated punctures. Mandibles on their outer surface with a sulcus, apically they are notched in the middle. Pronotum convex transversely; with a slight longitudinal incision median; lateral

margins anteriorly narrowing and bent. Front corners nearly acute-angled. Front corners in lateral view rectangular, hind corners rounded, obtuse. Surface with tiny punctures (just visible at 50-fold magnification). Elytra elongate, with subparallel sides; not very strongly convex transversely and longitudinally; maximum of height between first third and middle. Apex of each elytron slightly retracted towards suture. With rows of small, very closely set punctures; distances between these punctures equal to the diameter of a puncture; in row 4 about 54 punctures. Intervals flat, impunctate. Metasternum: Inner rim of anterior border with small, longitudinally stitched impressions. Disc with tiny, widely separated punctures. Median line slightly impressed. Sternites 1+2 with minute, widely separated punctures; sternites 3-5 nearly impunctate. Antennae slender, reaching over about 20 percent of elytra. Length/width ratio of antennomeres 1-11 equals to 21:10 / 8:8 / 31:8½ / 19:8½ / 21:8½ / 29:8½ / 29:8½ / 27:8½ / 27:8½ / 22:8½ / 28:8½. Legs slender, long. Base of femora very slender, towards their middle markedly broadened and on frontal side with a broadly obtuse angle; within apical tenth subparallel. Protibiae slightly bent within basal half (in males), straight on outer side apically, slightly broadened on inner side in apical half. Mesotibiae shortly bent basally, thence straight (except apically where they are slightly incurved). Metatibiae nearly straight. Lengths of metatarsomeres 1-4 as 41:22:15:49.

Because of body length and the tiny punctuation of elytral intervals similar to *Plesiophthalmus insignis* ssp. *magnus* (BREMER, 2010). Pronotum of *P. insignis magnus* is wider and less convex than that of *P. maruyamai*. *P. insignis magnus* possesses subparallel sides of pronotum in its hind half, *P. maruyamai*'s sides are uniformly bent towards front corners, and pronotum is widest at base; the anterior margin of pronotum of *P. insignis magnus* is markedly more excavated than that of *P. maruyamai*. *P. insignis magnus* does not possess a faint incision in the median line of pronotum which *P. maruyamai* shows. The profemora on their frontal side display mostly a weak but clear step-like descent in *P. insignis magnus* which *P. maruyamai* does not have.

*Amarygmus*, subgen. *Pyanirygmus*, *corinthius* (PIC, 1915) has about the same size as *P. maruyamai* but, in contrast to *P. maruyamai*, it possesses very closely set punctures on intervals of elytra, its punctures of pronotum are coarse (those of *P. maruyamai* are tiny), legs of *A. corinthius* are shorter and stouter than those of *P. maruyamai*; and in males of *A. corinthius* there is no slight widening of inner sides of protibiae as in *P. maruyamai*.

*Plesiophthalmus lewisi* and *P. kerleyi* are smaller than *P. maruyamai*. In contrast to *P. maruyamai* *P. lewisi* presents striae on elytra. The femora of *P. kerleyi* possess a reddish brown ring near apex, those of *P. maruyamai* are uniformly blackish brown.

### ***Plesiophthalmus minutus* (PIC, 1915)**

*Cyriogeton minutum* PIC, 1915: 21.

*Euspinarmygmus minutus* (PIC, 1915): MASUMOTO 1989b, 301.

*Plesiophthalmus minutus* (PIC, 1915) (comb. n., short diagnosis and illustration): BREMER 2013, 161-162.

*Plesiophthalmus gedensis* MASUMOTO & AKITA, 2009: 124-126, fig. p.109 [?syn. to *P. minutus* (PIC, 1915)].

*Plesiophthalmus minutus* belongs to the subgenus *Cyriogeton*.

**Holotype**, ♂, MNHN, labeled: (printed) Java orient.; Montes Tengger, 4000', 1890, H. Fruhstorfer; (red label) Type; (handwritten) minutum Pic. –Antennae of both sides, both middle legs, left hind leg, right metatarsomeres are missing in the holotype; it is somewhat immature. – I studied the holotype.

**Material** (seen by the author and compared with holotype): East Java, Argopura Mt., Bermi vic., IX.2004 (1 ♂, ZSM)

Body length: 9.7+10.4 mm. Body width: 5.9+6.0 mm. Ratios. Pronotum: width/length 1.88+1.91; width hind corners/width front corners 1.73+1.78. Elytra: length/width 1.33+1.39; length elytra/length pronotum 3.55+3.57; maximum width elytra/maximum width pronotum 1.33+1.41.

Annotation: Concerning further details of shape and colouration, see BREMER 2013, 161-162.

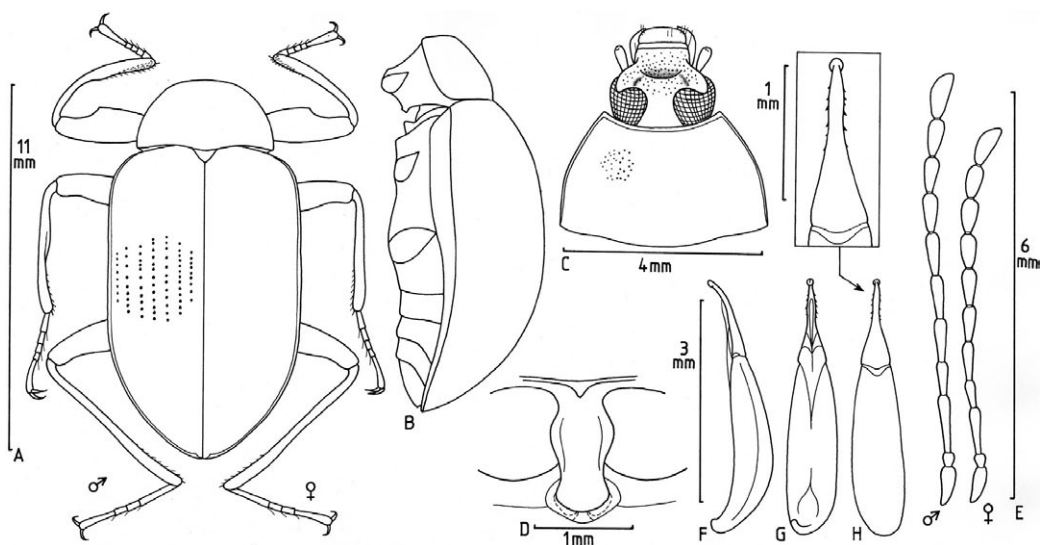
I did not see the types of *Plesiophthalmus gedensis* MASUMOTO & AKITA, 2009 yet, but according to description, photo and location of collection it seems to me probable that *P. gedensis* is a synonym of *P. minutus*.

### ***Plesiophthalmus miyakei* MASUMOTO, 1991 (Fig. 12A-H)**

*Plesiophthalmus miyakei* MASUMOTO, 1991: 1991a, 24-26; figs. pp.13, 21.

**Holotype**, ♂, NSMT: Headquarter [of Mt. Kinabalu National Park; 1600 m]; N. Borneo, 18.II.1980, H. DETANI leg. – I studied the holotype. Several paratypes: see MASUMOTO 1991a: 26.

**Material** (seen by the author). Sabah, Kinabalu NP, HQ vic., 1550 m, 18.V.2005, R. GRIMM (1 ♂, CG). – Same data as before, but 11.-13.II.2006 (1 ♀, CG). – Sabah, Mt. Kinabalu Nat. Pk., HQ, 1560 m, 15.-24.V.87, A. SMETANA (B175) (1 ♂, 1 ♀, NHMG). – Sabah, Mt. Kinabalu Nat. Pk., Headquarters, 1560 m, 3.-11.VIII.88, A. SMETANA (B175) (2 ♀, NHMG).



**Fig. 12:** *Plesiophthalmus miyakei* MASUMOTO, 1991: **A** Habitus, left side legs of a male, right side legs of a female; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antennae, male and female; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view.

– Sabah, Mt. Kinabalu Nat. Pk., 1560 m, 1.-5.IX.88, D. SMETANA (B176) (3 ♀, NHMG). – Sabah, Kinabalu N. P., Headquarters, 1500-1600 m, 11.-15.XI.1996, leg. W. SCHAWALLER (2 ♂, 2 ♀, SMNS). – Sabah, Kinabalu N. P., Headquarters, 1500-1600 m, at light, 13.XI.1996, leg. D. GRIMM (1 ♂, 1 ♀, SMNS). – Sabah, Mt. Kinabalu Park, Headquarter, 1600 m, 6°01'N-116°32'E, 23.VIII.1998, am Licht, D. BARTSCH & C. HÄUSER (1 ♂, SMNS). – Borneo, Mt. Kinabalu, XI.1983, coll. G. SAMA (1 ♀, SMNS). – Sabah, Mt. Kinabalu, 1550 m, 28.IV.1987, BURCKHARDT-LÖBL (1 ♂, NHMG). – Sabah, Mt. Kinabalu, 1509 m, Eingang z. NP [entrance to National Park], 19.-28.III.2001, leg. S. LÖFFLER (2 ♂, CA). – Sabah, Mt. Kinabalu, Liwagu Trail, 22.V.1987, BURCKHARDT-LÖBL (1 ♂, NHMG). – Kinabalu Park, 11.VII.99, 6°02'N-116°34'E, leg. M. HÄUSER (1 ♀, SMNS). – Same data as before, but 17.VII.1999 (1 ♀?, SMNS). – Sabah, Crocker Range, Gunung Alab, 1700 m, 23.-29.V.1998, leg. KODADA & CIAMPOR (1 ♂, 1 ♀, SMNS). – Sabah, Gunung Alab, 1350 m, 1.-2.II.2006, R. GRIMM (1 ♀, CG). – Sabah, Gunung Alab, 1600 m, 15.-24.II.2001, P. SPONA (1 ♂, CL). – Sabah, Crocker Mts., Gunung Emas, 1700 m, 21.III.-20.IV.1996, J. KADLEC leg. (3 ♂, 6 ♀, ZSM). – Crocker Mts., Gunung Emas, 6.-21.V.1995, IVO JENIŠ leg. (3 ♂, ZSM). – Sabah, Gunung Emas Highlands Resort, 5°49'N-116°19'E, 1600-1700 m, LF, 11.-13.V.2002, T. KOTHE (1 ♂, CG).

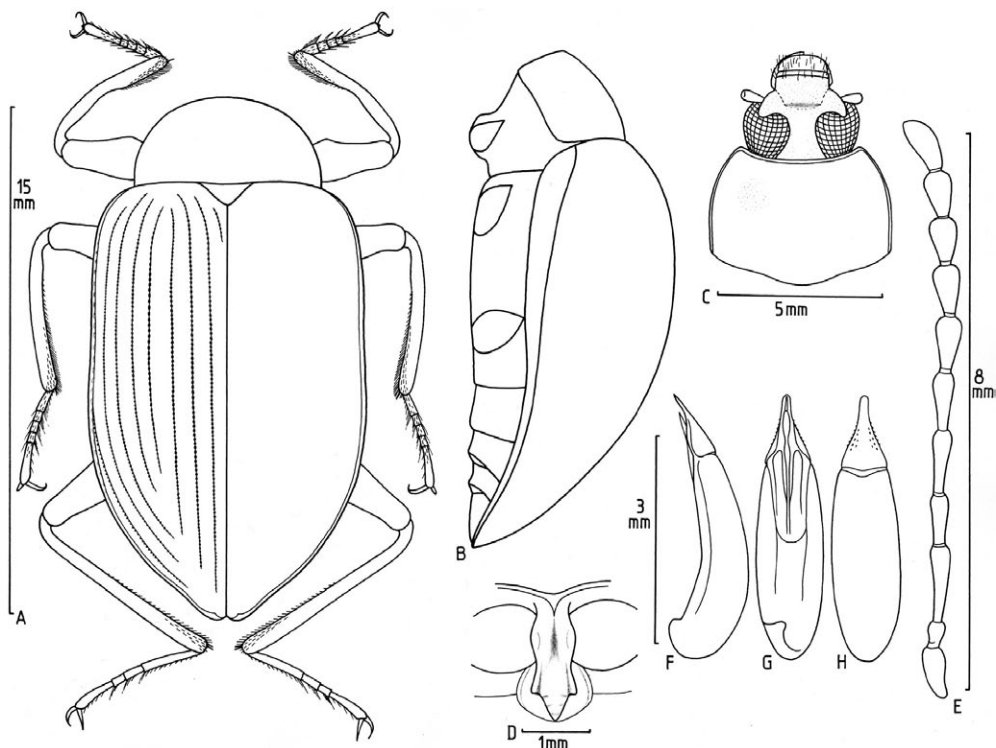
*Plesiophthalmus miyakei* belongs to the subgenus *Cyriogeton*.

**Diagnosis.** Body length: 10.6-12.3 mm. Body width: 5.7-6.4 mm. Ratios. Pronotum: width/length 1.74-1.79; width hind corners/width front corners 1.72-1.82. Elytra: length/width 1.52-1.59; length elytra/length pronotum 3.93-3.97; maximum width elytra/maximum width pronotum 1.38-1.47.

**Colouration.** Elytra brown to blackish brown, lustrous; the elytral shoulders are looking green in view from the front; pronotum somewhat darker than elytra, with a metallic shine. Frons dark brown, metallic. Underside, legs, antennae brown to dark brown.

A frequently occurring species at higher altitudes of Crocker Range with a characteristic metasternum in males. Profemora with a distinct tooth. Protibiae are abruptly bent at about 40 percent basally in males. Elytra long, markedly convex transversely, with subparallel sides, elytral rows with distinct, medium-sized punctures which are closely set; intervals flat, impunctate. Elytral base somewhat wider than pronotal base. Pronotal sides are narrowing and bent anteriorly; anterior margin conspicuously excavated. Frons slightly wider than length of antennomere 4 (as 14:12); fronto-clypeal suture impressed and somewhat incised in the middle. Males present a swelling on the posterior part of metasternum which is separated into two lateral parts by a deeply incised median line; its surface is uneven by distinct micro-ridges; female show a less marked swelling, and its surface is smooth. Antennae slender, rather long; in males longer than in females; reaching in males over 45 percent of elytra; length/width ratio of antennomeres 1-11 in a male equals to





**Fig. 13:** *Plesiophthalmus morimotoi* (MASUMOTO, 1990): **A** Habitus, male; **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.

12:6 / 6:4½ / 21:4½ / 12:4½ / 16:4½ / 15:5½ / 16:5½ / 16:5½ / 13:5½ / 13:5½ / 17:5½, in a female to 11:5½ / 5:4½ / 16:4½ / 10:4½ / 13:4½ / 12:5 / 12:6 / 12:6 / 11:6 / 16:6. Legs slender; protibiae nearly regularly and slightly bent in females; mesotibiae distinctly bent in males, nearly straight in females; metatibiae inconspicuously concave in males, straight in females; lengths of metatarsomeres 1-4 as 26:11:9:26.

Very similar to *Plesiophthalmus gokani* MASUMOTO, 1989 which also occurs at higher altitudes in Crocker Range; concerning differences, see *P. gokani*.

***Plesiophthalmus morimotoi* MASUMOTO, 1990 (Fig. 13A-H)**

*Plesiophthalmus morimotoi* MASUMOTO, 1990: 1990d, 698-699; figs. pp.695, 706.

**Holotype**, ♂, NSMT, labelled: Borneo, near Keningau, 8.VI.1989, M. ITO leg. - I studied only the holotype.

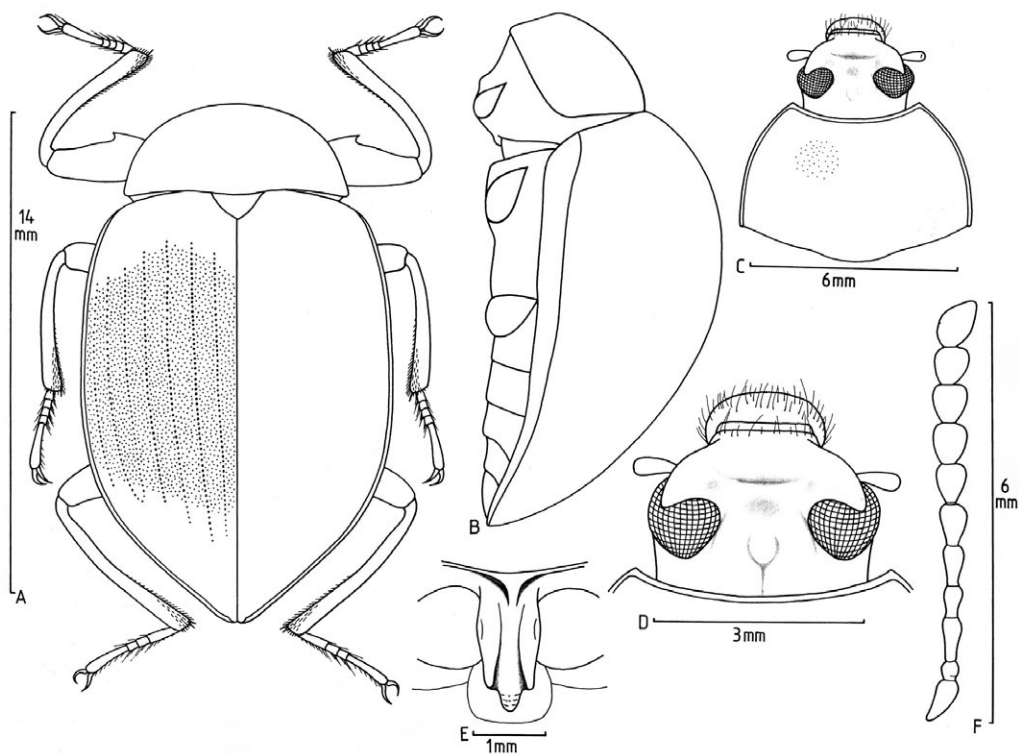
**Paratypes** (according to MASUMOTO's paper): Same data as holotype (3 NSMT). - Same data as before, but 1.V.1989 (1 NSMT). - Same data as before, but 25.V.1989 (5 NSMT). - Same data as before, but 11.VI.1989 (1 NSMT). - Same data as before, but 30.VI.1989 (2 NSMT).

*P. morimotoi* belongs to the subgenus *Inspinogeton*.

**Diagnosis.** Measurements (holotype). Body length: 15.9 mm. Body width: 8.8 mm. Ratios. Pronotum: width/length 1.71; width hind corners/width front corners 1.53. Elytra: length/width 1.55; length elytra/length pronotum 4.05; maximum width elytra/maximum width pronotum 1.54.

Colouration. Upperside coppery, lustrous; underside blackish brown, somewhat less lustrous than upperside. Femora, tibiae, tarsi black, lustrous. Antennae black (except the dark brown antennomeres 1+2). Hairs on legs blond.

Elytra relatively wide, long; with fine striae. Intervals flat, scarcely punctured. Frons of medium width. Upperside of head with minute punctures. Fronto-clypeal suture straight-line impressed. Mandibles apically bifid. Pronotum wide, but markedly narrower than base of elytra; very convex transversely; maximum of width shortly behind middle; sides slightly convergent towards base; front corners not projecting anteriorly,



**Fig. 14:** *Plesiophthalmus nagaii* (MASUMOTO, 1988) **A** Habitus, female; **B** Body, lateral view; **C** Head and pronotum; **D** Head; **E** Prosternal apophysis; **F** Antenna.

about rectangular; surface with tiny, widely separated punctures which are the origin of tiny hairs (visible at 100-fold magnification). Elytra rather wide and long; maximum of height shortly in front of middle; sides subparallel; lateral edges behind shoulders in dorsal view widely visible, coarsely punctured; apices of elytra slightly retracted towards suture; the distinct elytral striae consist of small punctures which are very closely set and partially merge into each other; intervals with tiny punctures and hairs which just become visible at 100-fold magnification. Sternites slightly lustrous; sternites 1+2 with longitudinal wrinkles and with tiny, relatively closely set punctures; punctures still smaller on sternites 3-5; sternite 5 apico-median excavated and impressed in males; this depression is circumvented by a garland of medium-sized hairs. Antennae are overlapping one quarter of elytra; length/width ratio of antennomeres 1-11 equals to 12:8 / 9:6½ / 28:7 / 16:7½ / 23:7½ / 22:7½ / 19:9 / 17:10 / 16:10 / 16:10 / 20:9. Legs long; femora with a very slender base, towards their middle slightly broadened, within the apical 15 percent again slender and with subparallel margins, with a broad, obtuse angle on the frontal side of profemora; basal half of protibiae straight in males, thence slightly incurved and on inner sides somewhat broadened and with short hairs; mesotibiae slightly bent in males, on inner side within apical half with closely set, not very long, obliquely projecting hairs; metatibiae straight; lengths metatarsomeres 1-4 as 35:14:12:32.

Annotation. According to MASUMOTO's description a spine on the frontal side of profemora is present within the apical two fifth, in the figure of his publication no spine is visible; after examining the holotype I can confirm that no spine is present on profemora.

Concerning species from Borneo *P. morimotoi* may only be compared with *P. lewisi* MASUMOTO; this species also possesses similar striae on elytra. *P. lewisi* is slightly smaller; elytra are somewhat shorter and longitudinally more convex. In contrast to *P. morimotoi* elytral intervals of *P. lewisi* are slightly convex; pronotum of *P. lewisi* is more convex, and their sides are more bent. Pronotum and elytra of *P. lewisi* possess no hairs on surface (examined at 100-fold magnification).

***Plesiophthalmus nagaii* (MASUMOTO, 1988)** (Fig. 14A-F)*Eumolpocyriogeton nagaii* MASUMOTO, 1988: 1988b, 772-773; figs. pp.769, 775.*Plesiophthalmus nagaii* (MASUMOTO, 1988); [comb. n.]: MASUMOTO & AKITA 2009, 116.*P. nagaii* probably belongs to the subgenus *Eumolpocyriogeton*.**Holotype**, ♀, NSMT: Malaysia, Crocker Range, alt. 1400 m, 16 m[iles] N.W. of Keningau, Sabah, Borneo, 2.-26.IV.1984, SHINJI NAGAI leg.. – Only the female holotype known which I could study.**Diagnosis.** Body length: 15.6 mm. Body width: 9.8 mm. Ratios. Pronotum: width/length 1.83; width hind corners/width front corners 1.83. Elytra: length/width 1.30; length elytra/length pronotum 3.33; maximum width elytra/maximum width pronotum 1.40.

Colouration. Upperside of pronotum dark green, with purple reflections in oblique view, especially intensive near base and near lateral margins. Scutellum purple. Elytra coppery with a golden tinge, near base and along median suture weakly purple; near lateral margins indigo-blue. Prosternum, metasternum and sternites (except sternite 5) greenish blue, very lustrous, sternite 5 brown. Legs brown. Antennae black.

Elytra short, hemispherical and markedly convex transversely and longitudinally; with rows of small, closely set punctures and flat intervals; punctures of intervals somewhat smaller than those of rows but very closely set; this is the reason why the punctures of the rows are not clearly recognizable. Pronotum lustrous and not very closely punctured; maximum of width of pronotum at base, anteriorly narrowing and bent; front corners accentuated. Frons of medium width, approximately as wide as the lengths of antennomeres 3+4 jointly, towards fronto-clypeal suture precipitously descending, surface uneven, with a transverse wrinkle and additionally with a median swelling between eyes, this swelling is passing over posteriorly into a narrow, median keel. Inner side of eyes without a sulcus. Clypeus short, distinctly convex longitudinally, the short anterior margin markedly bent downwards, with short and long hairs. Mandibles apically bifid. Antennae very short, surpassing base of pronotum with only one antennomere; length/width ratio of antennomeres 1-11 equals to 13:7½ / 7:6 / 15:6½ / 11:6½ / 12:7 / 13:8 / 14:8½ / 14:9 / 14:10 / 14:10 / 18:10. Metatarsomere 1 markedly shorter than metatarsomere 4.

*P. sasajii*, also occurring on Borneo, is another species which belongs to the subgenus *Eumolpocyriogeton*. The differences between both species are mentioned in the „Determination key“. Only a female is known from *Plesiophthalmus nagaii* (MASUMOTO), therefore, no information presently exists whether it possesses markedly and abruptly bent protibiae in males which other species of this subgenus present.***Plesiophthalmus nakanei* MASUMOTO, 1991** (Fig. 15A-I)*Plesiophthalmus nakanei* MASUMOTO, 1991: 1991a, 27-29.*Plesiophthalmus nakanei* belongs to the subgenus *Cyriogeton*.**Holotype**, ♂, NSMT, labelled: Tanahrata, Cameron Highlands, Malaysia, 14.I.1980, H. DETANI leg. – I examined the holotype.**Paratype**: 19 miles from Tapah, Malaysia, 3.IV.1976; Y. MIYAKE leg. (I, sex and depository no mentioned).**Material** (seen by the author). Malaysia, Prov. Perak, 30 km SE Ipoh, Ringlet, 1200 m, 18.-22.I.1999, P. ČECHOVSKÝ leg. (1 ♂, ZSM). – Malaysia, Pahang, Tanah Rata, 1500-1700 m, 1.-13.III.2003, P. PACHOLÁTKO leg. (1 ♀, ZSM). – Same data as before, but 1.-13.II.2003 (1 ♂, 1 ♀, ZSM). – Malaysia-W., Pahang, 30 km E of Itoh, Cameron Highlands, Tanah Rata, 1500 m, 22.-26.I.1999, P. ČECHOVSKÝ leg. (1 ♂, ZSM). – Malaysia-W., Pahang, Cameron Highlands, Tanah Rata, 4°28'N-101°23'E, 19.-31.III.2003, ŘÍHA & NĚMEC leg. (1 ♂, 1 ♀, ZSM).**Diagnosis.** Body length: 10.4-11.6 mm. Body width: 6.1-6.8 mm. Ratios. Pronotum: width/length 1.79-1.91; width hind corners/width front corners 1.85-1.89. Elytra: length/width 1.42-1.45; length elytra/length pronotum 3.30-3.59; maximum width elytra/maximum width pronotum 1.21-1.34.

Colouration. Upperside coppery with a faint reddish tinge, shoulders present a uniformly reddish colour (in some specimens the odd elytral intervals present a weak violet and the even intervals a yellowish-golden colour).

Elytra with striae which consists of medium-sized, very closely set and mostly fusing punctures; intervals flat, impunctate; elytra relatively large, between shoulders and posterior third sides are subparallel with clearly visible lateral edges in dorsal view. Pronotum widest on base; front angles slightly acute-angled; anterior margin deeply excavated. Frons of medium width, in males somewhat narrower than in females (inner margin of eyes without a sulcus). Antennae thin, reaching in males over one third of elytra, in females somewhat shorter. Legs thin, of medium length; anterior edge of femora with a sharp descent at about two thirds; protibiae uniformly bent in females, in males straight in apical half on outer side, and, in this part, slightly broadened on inner sides; mesotibiae straighter in males than in females; metatibiae nearly straight (and apically slightly incurved). Lengths of metatarsomeres 1-4 as 23:12:8:28.

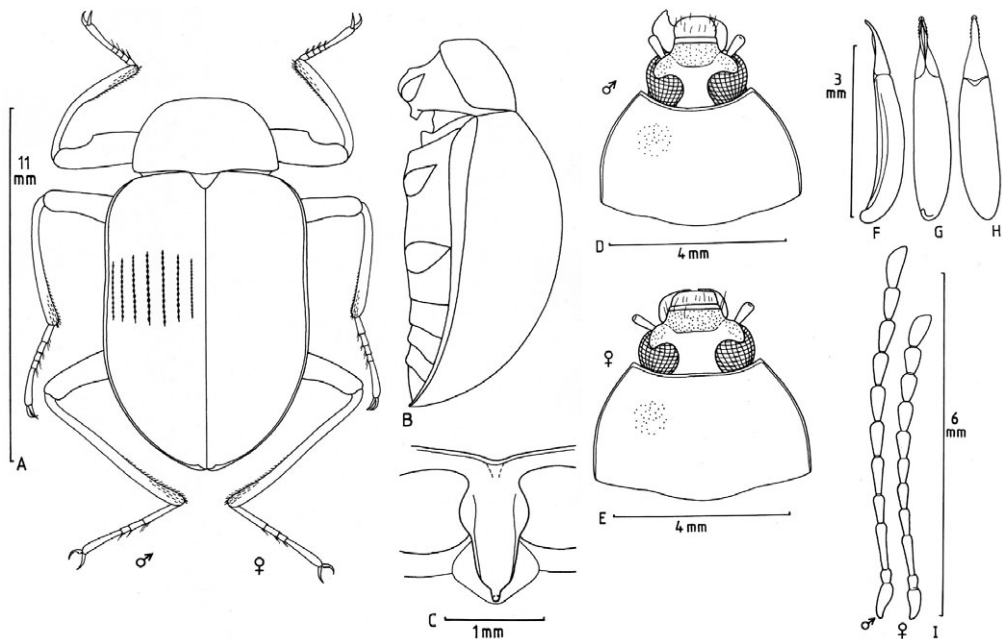


Fig. 15: *Plesiophthalmus nakanei* MASUMOTO, 1989: **A** Habitus, left side legs of a male, right side legs of a female; **B** Body, lateral view; **C** Prosternal apophysis; **D** Head and pronotum, male; **E** Head and pronotum, female; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view; **I** Antennae, male and female.

*Plesiophthalmus tsugeae* MASUMOTO & AKITA, 2000 from the Maxwell Hills of Peninsular Malaysia seems to be very near to *P. nakanei* MASUMOTO according to description and photo. The differences between both species should be checked by comparing the holotypes. I had no opportunity to examine the holotype of *P. tsugeae* yet.

*Plesiophthalmus motschulskyi* sp. n. also presents slightly incised elytral striae. *P. nakanei* is somewhat smaller than *P. motschulskyi* (body length: 12.8-14.8 mm). *P. motschulskyi* presents a uniformly dark coppery colouration of upperside without a reddish colour on the elytral shoulders.

### *Plesiophthalmus sasajii* (MASUMOTO, 1988)

*Eumolpocyriogeton sasajii* MASUMOTO, 1988: 1988b, 771-772; figs. pp.769, 775. Additional figure: BREMER 2010a, 155.

*Plesiophthalmus sasajii* (MASUMOTO, 1988); [comb. n.]: MASUMOTO & AKITA 2009, 116.

**Holotype**, ♂, NSMT, labelled: Malaysia, Sabah, Borneo, Crocker Range, alt. 1400 m, 16 m[iles] N.W. of Keningau, 2.-26.IV.1984, SHINJI NAGAI leg. - I studied the holotype.

**Paratypes**: Same data as holotype, but 22.IV.1983 (1 NSMT). - Same data as holotype, but 13.-20.V.1983 (1 NSMT). - Same data as holotype, but 14.IV.-19.V.1984 (5 NSMT). - Same data as holotype, but 2.-13.V.1984 (1 NSMT). - Same data as holotype, but 12.V.1984 (1 NSMT).

**Additional material** (seen by the author). Sabah, Keningau, 13.III.1989, M. ITOH (1 ♀, ZSM). - Same data as before, but 16.III.1989 (1 ♂, ZSM, 1 ♀, CA). - Same data as before, but 28.V.1989 (1 ♂, CA, 1 ♀, CA). - Same data as before, but 4.VI.1989 (1 ♂, CA).

*P. sasajii* belongs to the subgenus *Eumolpocyriogeton*.

**Diagnosis**. Body length: 13.5-14.8 mm. Body width: 8.5-9.8 mm. Ratios. Pronotum: width/length 1.80-1.87; width hind corners/width front corners 1.75-1.77. Elytra: length/width 1.24-1.34; length elytra/length pronotum 3.18-3.43; maximum width elytra/maximum width pronotum 1.37-1.46.

**Colouration**. Upperside microreticulated, opaque; pronotum widely purple on disc, the colour changes posteriorly and laterally to green and yellow; scutellum dark blue; shoulders of elytra green, disc of elytra greenish golden, lateral parts dark green; legs blackish blue; antennae black; underside dark blue, slightly lustrous; hairs brightly grey.

Elytra short, wide, markedly convex longitudinally, with straight lateral margins between shoulders and apical 40 percent; with rows of small, inconspicuous punctures, their distances on disc in row 4 equal to 1- to 2-times the diameter of a puncture; intervals flat, with a leather-like surface which induces an uneven appearance; the apices are allusively protruding posteriorly. Pronotum opaque; widest at base, slightly converging anteriorly and bent; hind corners angular, obtuse; front corners rounded, obtuse; anterior margin negligibly excavated; surface with minute, indistinct punctures from which tiny hairs originate (visible in oblique view and 50-fold magnification). Width of frons equals to length of antennomere 5; frons slightly higher situated than eyes, but there is no clear sulcus on inner margin of eyes; clypeus distinctly convex longitudinally, with small, closely set punctures from which long, recumbent hairs originate; mandibles apically bifid. Anterior margin of metasternum between mesocoxae nearly straight, bordered. Sternite 5 apico-medial excavated and impressed in males. Antennae of medium length, reaching about to middle of elytra in males; they are markedly shorter in females; length/width ratio of antennomeres 1-11 equals in a male to 12:7 / 7:6 / 28:6 / 11:6 / 17:6 / 17:6 / 18:7 / 14:9 / 13:10 / 11:10 / 17:10. Frontal side of profemora within the basal 50 percent with a sharp edge which terminates into a peaked small tooth; in males protibiae are suddenly incurved in the middle and somewhat broadened and pilose on inner side anteriorly to the bending, in females protibiae are uniformly bent; mesotibiae markedly bent and, in males, within apical 60 percent slightly broadened; metatibiae tender, nearly straight; lengths of metatarsomeres 1-4 as 30:11:7:31.

Aedeagus. Anterior part of parameres distinctly narrowed and laterally with tiny prickles (visible at 50-fold magnification).

***Plesiophthalmus subelongatus* (PIC, 1915)** (Fig. 16A-E)

*Cyriogeton subelongatum* PIC, 1915: 48.

*Plesiophthalmus subelongatus* (PIC, 1915): MASUMOTO 1991a, 16; figs. pp.13, 20 (the photo in MASUMOTO's paper does not show *P. subelongatus*, but a species which I am describing in this paper as *Plesiophthalmus kimioi* sp. n.).

*Spinamarygmus levis* KULZER, 1950: 308-314; fig. 1.

*Plesiophthalmus levis* (KULZER, 1950): MASUMOTO 1990d, 701.

*Plesiophthalmus levis* (KULZER, 1950) [syn. n.].

*Plesiophthalmus subelongatus* belongs to the subgenus *Cyriogeton*.

After studying the holotypes of *Cyriogeton subelongatum* PIC, 1915 and of *Spinamarygmus levis* KULZER, 1950 I am able to state that both taxa are synonyms.

**Holotype** (of *Cyriogeton subelongatum* PIC, 1915), ♀, MNHN, labelled: (printed) Java occident., Pengalengan 4000', 1893, H. FRUHSTORFER; (printed) Muséum Paris, Coll. M. PIC; (handwritten, PIC's handwriting) C. subelongatum PIC; (printed, red paper) TYPUS.

**Holotype** (of *Spinamarygmus levis* KULZER, 1950), ♂, NHMB, labelled: (handwritten) Java, Prahoc, Goenung Tangkoenam; (pink label, printed) TYPE; (handwritten) Spinamarygmus laevis KLZR., det. H. KULZER 1950 [right antennomeres 6-11, metatarsomeres of both sides missing].

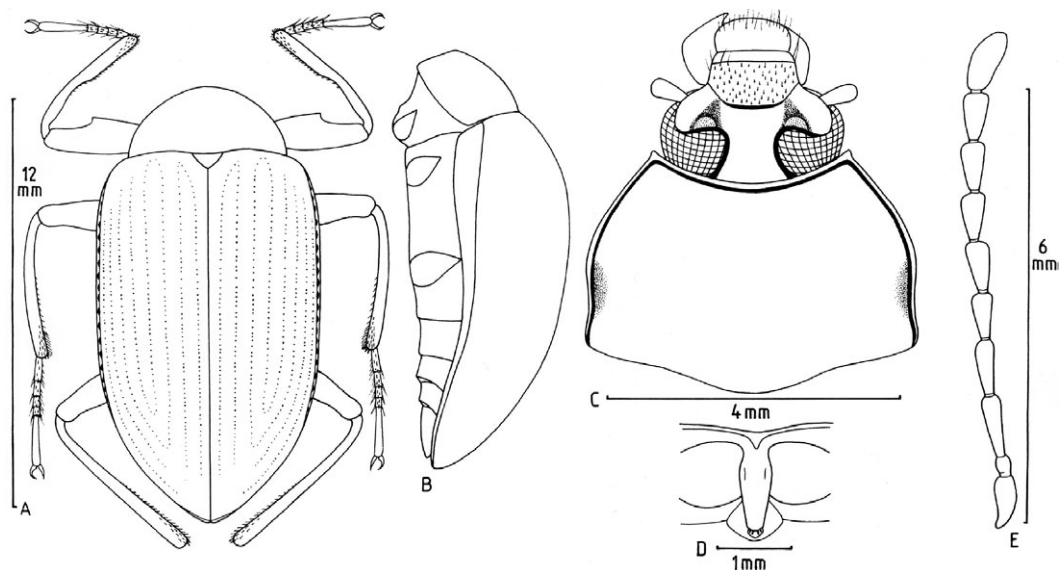
**Paratype** of *Spinamarygmus levis*: (printed label) P. F. SUTHOFF, Preanger, Java; (pink label, printed) COTYPE; (handwritten) Spinamarygmus laevis KLZR., det. H. KULZER 1950 [right antennomeres 10-11, left antennomeres 2-11, right protarsomeres, left tibiae and protarsomeres, metatarsomeres 3+4 of both sides missing]. (holotype and paratype are bearing labels with the species name *laevis*, in KULZER's paper the name is printed *levis*).

*P. subelongatus* is currently only known from Java.

**Diagnosis.** Body length: 10.7+13.1 mm. Body width: 6.0+6.4 mm. Ratios. Pronotum: width/length 1.69+1.82; width hind corners/width front corners 1.76+1.77. Elytra: length/width 1.59+1.70; length elytra/length pronotum 3.89+4.10; maximum width elytra/maximum width pronotum 1.36+1.42.

Colouration. Upperside and underside dark brown, very lustrous, with metallic shimmer; sternites 1+2 with a golden tinge; legs and antennae dark auburn.

Elytra long, wide, with subparallel sides; moderately convex transversely and longitudinally; elytral edges in dorsal view well and broadly visible (except at shoulders); with rows of small, well separated punctures and flat, impunctate intervals. Pronotum narrower than base of elytra; their lateral borders are well visible from above, these borders are somewhat impressed at about 20 to 30 percent from base; hind half subparallel and hind corners not protruding laterally, sides are bent in the middle, and thence straightly narrowing to front corners; front corners slightly protruding and pointed; anterior margin distinctly excavated; surface impunctate, lustrous. Frons of medium width, as wide as antennomere 4 long, with a few tiny punctures; genae well separated from frons and raised towards lateral margins; fronto-clypeal suture slightly impressed in its middle part; clypeus moderately stretched forwards, with small, distinct punctures; mandibles apically bifid. Prosternal apophysis spindle-like, its apex bordered. Hind part of mesosternum



**Fig. 16:** *Plesiophthalmus subelongatus* (PIC, 1915): **A** Habitus, male; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antenna.

narrow, somewhat raised. Metasternum with some minute punctures, very lustrous. Sternites 1+2 microstriolated, and with small, distinct punctures. Legs long; frontal side of profemora with a sharp, tooth-like descent towards apex; meso- and metafemora with a moderate, club-like broadening; protibiae in basal half thin and nearly straight, slightly bent at middle and broadened at inner side withing apical 40 percent in the male; mesotibiae slightly bent; metatibiae nearly straight. Antennae thin, reaching over 40 percent of elytra; length/width ratio of antennomeres 1-11 equals to 15:7 / 6:5½ / 24:6 / 14:6 / 15:7 / 17:7½ / 17:8½ / 18:9 / 15:9 / 14:9 / 20:11.

*Plesiophthalmus andoi* MASUMOTO, 1989, also from Java, is much larger than *P. subelongatus* (body length: 19.1-24.7 mm); the elytra are more oval; its punctures of the elytral rows are so closely set that they feign striae; the sides of pronotum are regularly bent with the maximum of width in the middle; the front corners are not as pointed as in *P. subelongatus*; the frons is slightly narrower; the step on the frontal side of profemora is not as pointed as in *P. subelongatus*. Elytral length/width of *P. andoi* about 1.55:1.

***Plesiophthalmus tsugeae* MASUMOTO & AKITA, 2000,**  
see *Plesiophthalmus nakanei* MASUMOTO, 1991 (p.57).

## D Description of new species

### ***Plesiophthalmus kimioi* sp. n.**

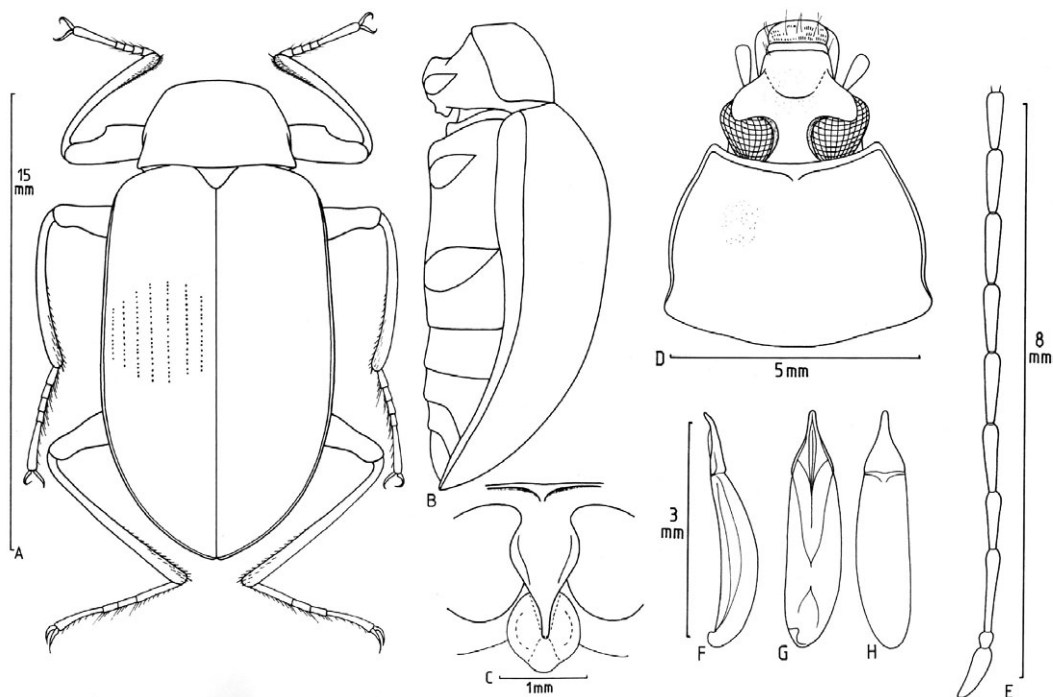
(Fig. 17A-H)

**Holotype**, ♂, ZSM: Borneo, Sabah, Crocker Mts., 500-1900 m, Gunung Emas, 6.-21.V.1995, IVO JENIŠ leg. (left protarsomeres and the antennomeres 11 missing).

*Plesiophthalmus kimioi* belongs to the subgenus *Cyriogeton*.

The illustration of *Plesiophthalmus subelongatus* (Pic, 1915) in MASUMOTO's paper (1991a, p.13) shows probably *Plesiophthalmus kimioi* sp. n.

**Diagnosis.** Large; elongate, with long, subparallel elytra of medium width; maximum of elytral height somewhat in front of middle. Elytra with rows of small, closely set punctures; elytral intervals flat, impunctate. Pronotum narrow, approximately trapezoidal; hind corners are distinctly protruding laterally;



**Fig. 17:** *Plesiophthalmus kimioi* sp. n.: **A** Habitus, male; **B** Body, lateral view; **C** Prosternal apophysis; **D** Head and pronotum; **E** Antennomeres 1-9; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view.

anterior margin excavated. Frons not very wide; eyes with a moderately deep sulcus at inner margin; fronto-clypeal suture moderately incised in the middle. Antennae long, tender, reaching over one third of elytra. Legs long; profemora with a sharp step-like descent at two thirds basally; in males inner side of protibiae within apical half allusively broadened. Prosternal apophysis markedly protruding caudad. Upperside brown, distinctly lustrous; femora with a reddish-brown shaft and a darker apical cap.

Very similar in shape and size to *Plesiophthalmus bicoloratus* MASUMOTO, 1989 and to *Plesiophthalmus violaceipes* sp. n., both are also found in Sabah.

*P. bicoloratus* displays faintly pink and green stripes on elytra; the hind corners of pronotum are slightly laterally protruding (but less so than those of *P. kimioi*); the frons of *P. bicoloratus* is slightly narrower than the frons of *P. kimioi*; its prosternal apophysis is apically not as narrow and posteriorly not as protruding; the pronotum of *P. bicoloratus* is somewhat wider than that of *P. kimioi* (when related to elytra).

*P. violaceipes* possesses a nearly trapezoidal shape of pronotum and only allusively laterally protruding hind corners; femora are violet-pink in the shaft region basad of the dark apical cap. The elytra of *P. violaceipes* are slightly oval; the elytral punctures are very similar to those of *P. kimioi*. The protibiae show a slightly broadening on inner side in males, and this broadening is more marked than that of *P. kimioi*.

**Description.** Body length: 14.8 mm. Body width: 7.6 mm. Ratios. Pronotum: width/length 1.72; width hind corners/width front corners 1.59. Elytra: length/width 1.58; length elytra/length pronotum 4.00; maximum width elytra/maximum width pronotum 1.54.

**Colouration.** Upperside markedly lustrous, elytra brown, pronotum darker brown; underside brown, moderately opaque; shafts of femora reddish-violet, their apical fifth dark brown; tibiae dark coppery with a greenish tinge, tarsi brown; antennae brown.

**Head.** Frons of medium width, somewhat descending to fronto-clypeal suture; inner margin of eyes with a narrow, shallow sulcus. Genae markedly raised towards lateral margins, anteriorly terminating distinctly in front of the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture arched in the middle part, somewhat impressed and slightly incised. Clypeus stretched forwards, markedly convex longitudinally,

slightly convex transversely; with small, not very closely set punctures which are the origin of tiny hairs; punctures of frons and especially genae smaller and more distantly set than those of clypeus. Mentum anteriorly widened, its lateral margins bent and with a rounded transition between lateral margins and base; opaque and convex transversely. Underside of neck with small, rather narrowly set punctures. Mandibles with a sulcus on outer surface, apically bifid.

**Pronotum.** Rather narrow; conspicuously convex transversely, less convex longitudinally; widest at base. Lateral margins broadly bordered, but this border is missing in front of the hind corners in dorsal view where the laterally projecting sides are overlapping the marginal borders. In front of the laterally projecting part the sides are slightly bent with a maximum of width in the middle; in the frontal quarter the sides are straight. Front corners are projecting anteriorly and with a somewhat acute angle. Anterior margin continuously and markedly excavated, very broadly bordered, with a short, narrow, posteriorly directed point in the middle. Front and hind corners in lateral view angular, the front ones rectangular, the hind ones obtuse. Upperside with tiny, widely separated punctures.

**Scutellum.** Triangular, somewhat convex transversely, impunctate.

**Elytra.** Elongate. Elytral base distinctly wider than base of pronotum; elytra markedly convex transversely, moderately convex longitudinally; between shoulders and hind third the sides are nearly straight; maximum of height somewhat in front of middle. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges distinct and in dorsal view well visible posterior to shoulders. Surface with rows of small punctures which become evanescent near apex; their distances on disc in row 4 equal to 1- to 2-times the diameter of a puncture; about 48 punctures in row 4. Intervals flat; the tiny, widely separated punctures become visible at 50-fold magnification.

**Prosternum.** Anterior margin narrowly bent upwards, retracted and acute-angled towards apophysis in the middle. Lateral margins of apophysis along procoxae widened and somewhat lifted, in between with a deep median groove; behind procoxae protruding and markedly narrowing.

**Metosternum.** Anterior margin of hind part distinctly excavated in the middle. Surface smooth, lustrous.

**Metasternum.** Disc somewhat concave longitudinally, with a slightly incised median line, with tiny punctures and hairs (visible at 50-fold magnification).

**Sternites.** Anterior margin between metacoxae ogive, weakly bordered. Sternites with tiny, widely separated punctures and tiny hairs. Sternite 5 bordered apically and straight in this region in males, with long, posteriorly directed, recumbent hairs.

**Antennae.** Slender, of medium length. Length/width ratio of antennomeres 1-10 equals to 17:8 / 6:7 / 26:6 / 21:6 / 24:6 / 25:6 / 24:7 / 23:7 / 22:7 / 21:7.

**Legs.** Long. Femora slightly club-like broadened; profemora with a marked step-like descent towards apex at approximately two-thirds. Protibiae slightly bent and not suddenly broadened within the apical 45 percent on inner side in the male, but there with short, rather closely set hairs; mesotibiae thin, somewhat bent; metatibiae approximately straight. Lengths of protarsomeres 1-5 as 7:8:8:8:41, lengths of mesotarsomeres 1-5 as 15:12:11:9:42, lengths of metatarsomeres 1-4 as 29:17:12:43.

**Etymology.** Dedicated to Dr. KIMIOI MASUMOTO, Tokyo, in acknowledging his longstanding and continuous cooperation.

### ***Plesiophthalmus masumotoi* sp. n.**

(Fig. 18A-E)

**Holotype**, ♀, CA: Keningau, Sabah, N. Borneo, 14.V.1989, M. ITOH. – I only know the holotype.

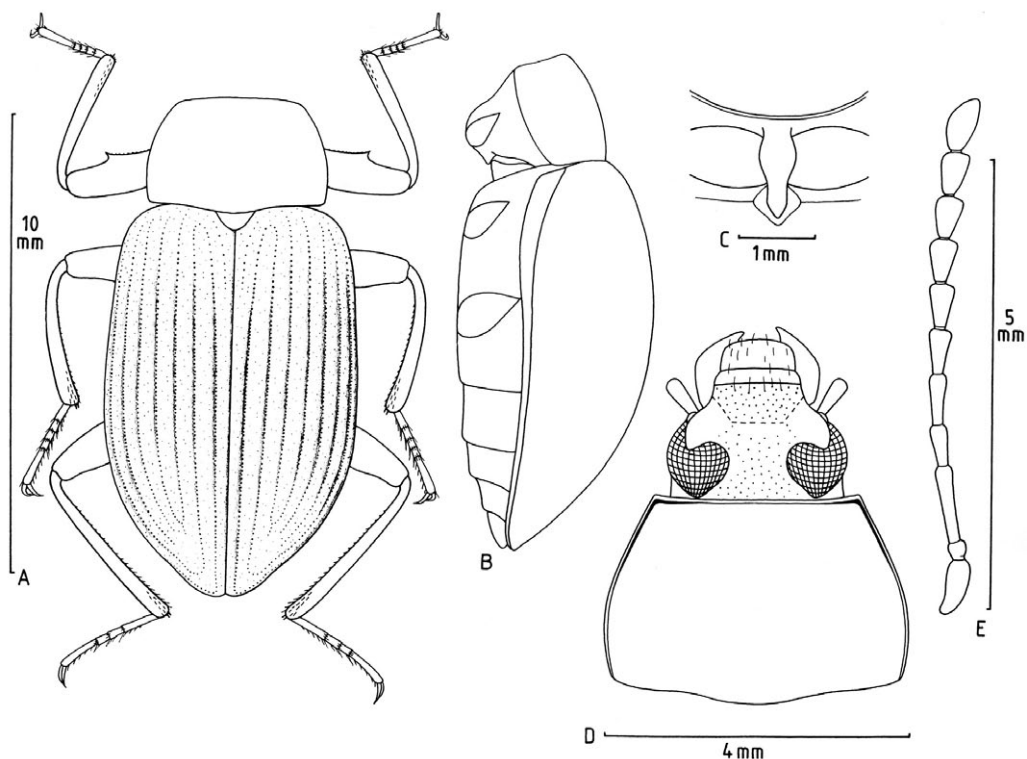
*Plesiophthalmus masumotoi* is in between the subgenera *Plesiophthalmus* s. str. and *Cyriogeton*.

**Diagnosis.** Of medium size, elongate. Base of elytra only slightly wider than base of pronotum. Elytra with rows of medium-sized punctures which are closely set and somewhat depressed, they feign striae; elytra widen slightly between shoulders and hind third. Pronotum narrow, maximum of width somewhat behind middle. Frons of medium width; genae on upperside of head. Antennae relatively long. Profemora with a sharp tooth; protibiae straight; mesotibiae bent; metatibiae straight; very short metatarsomere 1. Pronotum black, lustrous; elytra brown.

This is the only *Plesiophthalmus* of this area with an elongate shape and an elytral base which is not clearly wider than pronotal base.

**Description.** Body length: 9.47 mm. Body width: 4.94 mm. Ratios. Pronotum: width/length 1.52; width hind corners/width front corners 1.33. Elytra: length/width 1.52; length elytra/length pronotum 3.86; maximum width elytra/maximum width pronotum 1.41.





**Fig. 18:** *Plesiophthalmus masumotoi* sp. n.: **A** Habitus, female; **B** Body, lateral view; **C** Prosternal apophysis; **D** Head and pronotum; **E** Antenna.

Colouration: Upperside, see “Diagnosis”; upperside of head black. Legs dark brown. Antennomeres 1-6 brown, 7-11 dark brown to black. Underside black, lustrous, the black underside is forming a contrast to the dark brown coloured femora.

Head. Frons relatively wide, approximately as wide as length of antennomere 3, with small, inconspicuous punctures. Genae markedly lifted towards lateral margins; anteriorly terminating in front of the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture distinctly impressed, slightly incised in its middle part. Clypeus stretched forwards, clypeal punctures larger than punctures of frons. Mentum widened anteriorly, with allusively bent sides; slightly convex transversely. Mandibles on outer side with a longitudinal sulcus, apically sharply pointed and bifid.

Pronotum: Relatively narrow; convex transversely and longitudinally. Maximum of width somewhat behind middle; towards hind corners slightly narrowing, towards front corners more narrowing (with straight margins). Hind and front corners angular; hind ones obtuse, front ones rectangular. Anterior margin slightly excavated. Posterior margin not bordered. Lateral and anterior margins bordered. Lateral borders in dorsal view narrow, but well visible. In lateral view front corners rectangular, hind ones obtuse. Surface with tiny, widely separated punctures.

Scutellum. Triangular; with slightly bent lateral margins; with a few inconspicuous punctures.

Elytra. Elongate. Rather narrow. Markedly convex transversely, moderately convex longitudinally; maximum of width and height somewhat posterior to middle. Lateral margins slightly widened posteriorly and nearly straight between shoulders and hind third. Shoulders rounded. Apices of elytra mutually rounded. Lateral edges in dorsal view narrowly visible behind shoulders. Surface with somewhat depressed rows of small to medium-sized, very closely set punctures; these punctures are not connected by lines; distances between punctures on disc in row 4 equal to the diameter of a puncture; about 60 punctures in row 4. Intervals on disc slightly, laterally distinctly convex; with minute, not very closely set punctures.

Prosternum. Anterior margin narrowly and continuously bent upwards. Apophysis narrow, long and apically pointed, somewhat ascending between anterior margin and level along procoxae, and somewhat descending posterior to procoxae.

Mesosternum. Hind part with a shallow sulcus on each side; its anterior margin deeply excavated in the middle.

Metasternum. Anterior margin between mesocoxae rounded, broadly bordered. Disc with tiny, widely separated punctures. Median line neither incised nor impressed.

Sternites. Anterior margin between metacoxae ogive, bordered. Discs of sternites with tiny, widely separated punctures, lateral parts of sternites with small punctures.

Antennae. Reaching over one third of elytra. Length/width ratio of antennomeres 1-11 equals to 12:5 / 4:4 / 21:4 / 11:4½ / 12:4½ / 11:5 / 12:6 / 12:7 / 11:7 / 10:7 / 13:7.

Legs. Of medium length. Profemora with a sharply pointed tooth. Tibiae, see "Diagnosis". Lengths of protarsomeres 1-5 as 7:6:5:5:21; lengths of mesotarsomeres 1-5 as 8:6:5:4:22; lengths of metatarsomeres 1-4 as 14:8:6:21.

**Etymology.** Masumotoi, honouring Dr. K. MASUMOTO, Tokyo who constituted the basis for subsequent work with his first systematic evaluation of the genus *Plesiophthalmus*.

### ***Plesiophthalmus motschulskyi* sp. n.**

(Fig. 19A-H)

**Holotype**, ♂, CA: Mt. Trus Madi, alt. 1000 m, Sabah, Borneo, 6.-13.IV.1996, N. KANIE leg.

**Paratypes**. Mt. Trus Madi, alt. 1000 m, Sabah, Borneo, 6.IV.1994, N. KANIE leg. (1 ♂, ZSM). – Kimanis Road, 10 miles nr. Kaningau, 1000 m, Sabah, Borneo, 18.IV.1996, N. KANIE (1 ♀, CA, 1 ♀, ZSM).

*Plesiophthalmus motschulskyi* belongs to the subgenus *Cyriogeton*.

**Diagnosis.** Large, oval, very convex transversely. Frons of medium width, as wide in both sexes. Eyes without a sulcus on inner margin. Pronotum widest at base. Elytra subparallel, with slightly incised striae. Antennae not very long, longer in males than in females. Metatarsomere 1 longer than metatarsomere 4. Upperside dark coppery, slightly lustrous; legs black.

*Plesiophthalmus motschulskyi* sp. n. is one of the few *Plesiophthalmus* species with a longer metatarsomere 1 than metatarsomere 4, and one of the few species with elytral striae. It resembles somewhat *P. beardae* MASUMOTO, 1999 which also occurs in Sabah: *P. motschulskyi* is larger than *P. beardae* (body length 12.8-14.8 mm vs. 9.31 mm); *P. beardae* presents a sulcus on inner margin of eyes (no sulcus in *P. motschulskyi*); the pronotum is widest in basal 3/7 in *P. beardae* (widest at base in *P. motschulskyi*); punctures of elytral rows not connected by striae in *P. beardae* (the punctures of elytral rows are situated in somewhat depressed striae in *P. motschulskyi*); elytral intervals flat in *P. beardae* (those of *P. motschulskyi* slightly to moderately convex); shape of aedeagus different (see Fig. 1F-H in *P. beardae*, Fig. 19F-H in *P. motschulskyi*); metatarsomere 1 is shorter than metatarsomere 4 in *P. beardae*, longer in *P. motschulskyi*.

**Description.** Body length: 12.8-14.8 mm. Body width: 6.5-8.1 mm.

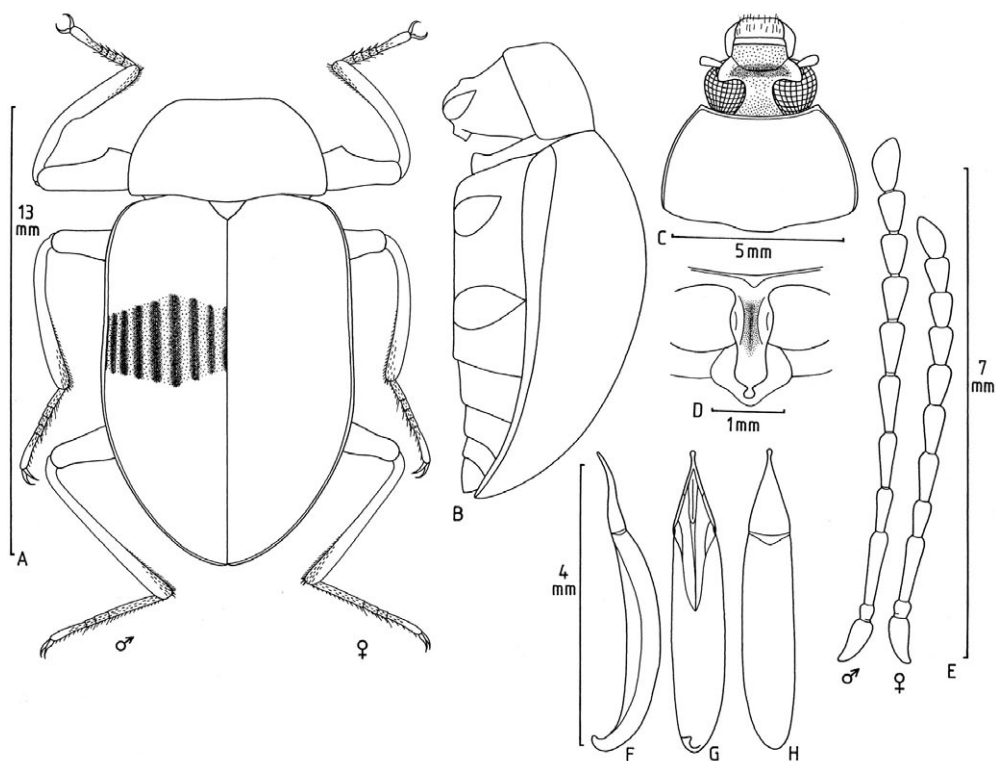
Ratios. Pronotum: width/length 1.86-1.94; width hind corners/width front corners 1.67-1.81. Elytra: length/width 1.47-1.51; length elytra/length pronotum 3.72-3.95; maximum width elytra/maximum width pronotum 1.35-1.41.

Colouration. Upperside, legs, see "Diagnosis". Underside brown to dark brown. Antennomeres 1-3 dark brown, 4-11 black.

Head. Frons of medium width, narrower than length of antennomere 3 (like 19:25); with minute, not very closely set punctures. Outer margin of genae markedly raised upwards, anteriorly terminating in front of the middle part of fronto-clypeal suture. Fronto-clypeal suture distinctly impressed in its middle part, and somewhat incised. Clypeus clearly convex longitudinally; nearly flat transversely; with minute punctures. Mentum reversely trapezoidal, lateral margins flat, strongly lustrous; space in between opaque, punctured, convex transversely. Underside of neck with large, transversely arranged, closely set punctures. Mandibles sulcated on outer surface, apically bifid.

Pronotum. Disc only slightly convex transversely and longitudinally, clearly bent downwards near lateral margins. Widest at base; anteriorly narrowing and bent. Hind corners somewhat obtuse, front corners about rectangular, Anterior margin moderately excavated. Lateral and anterior margins continuously bordered with a distinct inner rim. Lateral borders in dorsal view well visible in their whole length. Hind and front corners in lateral view angular and with an angle of about 110°. Surface with tiny, well separated punctures.

Scutellum. Triangular, with a few tiny punctures.



**Fig. 19:** *Plesiophthalmus motschulskyi* sp. n.: **A** Habitus, left side legs of a male, right side legs of a female; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antennae, male and female; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view.

**Elytra.** Somewhat elongate; markedly convex transversely, moderately convex longitudinally; maximum of height somewhat in front of middle. Shoulders rounded. Lateral margins subparallel over a short distance posterior to shoulders; within the hind third the margins are narrowing and bent. Apices of elytra mutually rounded. Lateral edges in dorsal view well visible. Surface with slightly incised striae and small, closely set punctures. Intervals slightly to moderately convex; with minute, inconspicuous punctures.

**Prosternum.** Anterior margin narrowly bent upwards, slightly retracted towards apophysis in the middle. Apophysis narrow, long, horizontally projecting posteriorly, apically with a protruding cone; lateral margins along procoxae markedly raised ventrad, space in between as a deep, median groove.

**Mesosternum.** Anterior margin of hind part excavated in the middle; median part smooth, separated from lateral margins by a groove on each side.

**Metasternum.** Anterior margin between mesocoxae rounded, broadly bordered. Disc smooth, with tiny, barely visible punctures. Median line slightly incised.

**Sternites.** Anterior margin between metacoxae widely ogive, faintly bordered. Sternites more opaque than metasternum, covered with small, closely set punctures. Sternite 5 only barely impressed postero-apically in males and with a few hairs of medium length circumventing this.

**Antennae.** Reaching over a quarter of elytra in males, over one fifth of elytra in females. Length/width ratio of antennomere 1-11 equals in a males to 14:6½ / 6:6 / 25:6 / 14:6 / 19:6 / 18:7½ / 19:8 / 14:9 / 14:9 / 13:9 / 18:9.

**Legs.** Of medium length. Profemora with a step-like descent between apical third and middle. Protibiae moderately bent in basal 40 percent, nearly straight in apical 60 percent, and slightly broadened on inner side in apical 60 percent in males, moderately bent in basal 40 percent and nearly straight in apical 60 percent, but without a broadening on inner side in females. Mesotibiae moderately bent in basal 40 percent and nearly

straight in apical 60 percent (but flattened on inner side in apical 60 percent only in males). Metatibiae nearly straight in both sexes, but metatibiae somewhat longer in males than in females. Lengths of protarsomeres 1-5 as 6:6:6:6:27; lengths of mesotarsomeres 1-5 as 13:8:7:6:28; lengths of metatarsomeres 1-4 as 34:10:8:27.

**Etymology.** Motschulskyi, honouring the Russian entomologist V. DE MOTSCHULSKY who described the genus *Plesiophthalmus*.

***Plesiophthalmus phaedon* sp. n.**

(Fig. 20A-F)

**Holotype**, ♀, CA: Bukit Bangkirai near Balikpapan, Kalimantan, Indonesia, 25.IV.2000, light trap, H. MAKIHARA leg. (mesotarsomeres missing).

**Paratype**: Same data as holotype, but 19.VII.1999 (1 ♀? ZSM) (left antennomeres 9-11, right antennomeres 3-11, and right protarsi missing).

*Plesiophthalmus phaedon* belongs to the subgenus *Cheiroplonyx*.

**Diagnosis.** Of medium size, oval, stout. Base of pronotum about as wide as base of elytra. Elytra markedly convex transversely, with maximum of width shortly behind middle; with rows of relatively small, closely set punctures and flat intervals. Pronotum with maximum of width nearly in the middle; with very broad, exposed lateral borders, and the inner rim of lateral borders deeply incised undermining the lateral parts of disc; the lateral parts of disc are somewhat overhanging this inner rims; anterior pronotal margin with a broad border and also with a deeply incised inner rim. Frons of medium width, inner margins of eyes with a broad, deep sulcus which circumvents eyes also anteriorly. Antennae short. Legs short; anterior side of profemora with a sharp edge which terminates in a tooth at two thirds (the tooth in not seen from above at normal position of legs because of the shortness of legs); meso- and metafemora only bulge-like broadened; protibiae markedly bent; mesotibiae conspicuously bent; metatibiae slightly bent in basal 60 percent, nearly straight in apical 40 percent; metatarsomere 1 shorter than metatarsomere 4. Pronotum greenish, elytra brown, with a weak reddish tinge and, in view from the front, with a weak iridescence.

Concerning size and shape of elytra similar to *Plesiophthalmus beardae* MASUMOTO, 1999, but shape and colouration of pronotum are different (see Figs. 1A and 20A). The circumventing sulci around eyes are narrower in *P. beardae*. The elytra of *P. beardae* are longer.

**Description.** Body length: 8.68+9.24 mm. Body width: 5.29+5.30 mm.

Ratios. Pronotum: width/length 1.73+1.83; width hind corners/width front corners 1.60+1.63. Elytra: length/width 1.28+1.31; length elytra/length pronotum 2.87+3.05; maximum width elytra/maximum width pronotum 1.26+1.29.

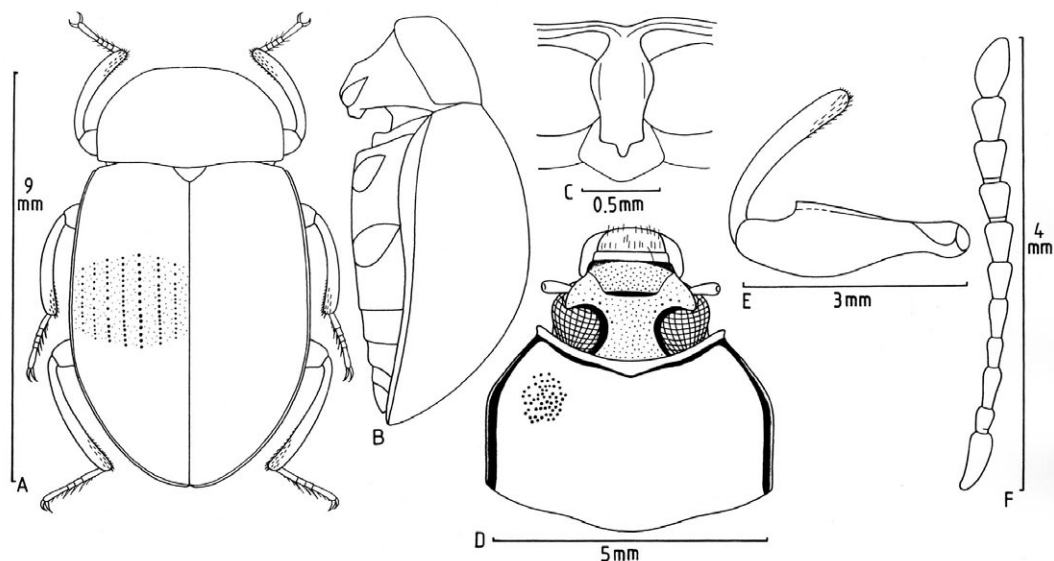
Colouration. Pronotum and elytra, see "Diagnosis"; upperside of head black; femora and tibiae black, tarsi brown; antennomeres 1-3 brown, 4-11 black; underside brown to dark brown; metasternum somewhat lustrous, sternites opaque.

Head. Frons of medium width, width approximately equals to the double of the length of antennomere 3. Frons is situated on a higher level than eyes; its highest level is between eyes, and it is roundedly descending posteriorly and anteriorly; with minute, not very closely set punctures. Eyes protruding laterad, with bent lateral margins, anteriorly impressed by the genae; inner and anterior margins of eyes with a deep and broad sulcus. Genae somewhat lifted towards lateral margins, lateral margins roundedly, anteriorly terminating slightly in front of the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture arched, markedly incised. Clypeus short, its surface similarly punctured as frons and anteriorly roundedly terminating. Mentum reversely trapezoidal, with somewhat bent sides; lateral margins flat, lustrous, space in between opaque, slightly convex transversely. Mandibles with a sulcus on outer surface, apically bifid.

Pronotum. Wide, short; relatively flattish transversely, lateral parts descending as mentioned in "Diagnosis"; slightly convex longitudinally. Pronotum widest in the middle, slightly narrowing towards hind corners with straight sides, more narrowing towards front corners, also with straight sides. Hind corners nearly rectangular; front corners are formed by the anterior border; they are acute and somewhat protruding. Anterior margin distinctly emarginated; concerning its border see "Diagnosis". Surface with small, conspicuous, closely set punctures.

Scutellum. Triangular, with bent sides; impunctate.

Elytra. With bent sides and maximum of width somewhat behind middle, maximum of height about in the middle. Markedly convex transversely, moderately convex longitudinally. Shoulders angular, obtuse. Apices of elytra mutually rounded. Lateral edges in dorsal view very narrowly visible. Surface with rows of small punctures, their distances on disc in row 4 equal to ½- to 1-time the diameter of a puncture, they remain



**Fig. 20:** *Plesiophthalmus phaedon* sp. n.: **A** Habitus, female; **B** Body, lateral view; **C** Prosternal apophysis; **D** Head and pronotum; **E** Femur and tibia; **F** Antenna.

distinct towards apex; about 46 punctures in row 4. Intervals with tiny, widely separated punctures and tiny hairs which both become visible at 50-fold magnification.

**Prosternum.** Anterior margin narrowly bent upwards, with a short keel in the middle. Apophysis narrow, long; along procoxae slightly widened and lateral margins lifted ventrad, space in between as a shallow median groove with an uneven ground; posterior to procoxae the sides are slightly concave, apically with a somewhat protruding and upwards directed “nose” in the middle; apical part of apophysis uneven with many micro-tubercles.

**Mesosternum.** Hind part narrowing posteriorly, lateral margins with micro-tubercles; its anterior margin deeply excavated in the middle.

**Metasternum.** Anterior margin between mesosternum rounded, bordered. Disc vaulted. Anterior part of disc with small punctures, posterior part with a few tiny punctures. Median line slightly incised in the hind half.

**Sternites.** Anterior margin between metacoxae broadly ogive, scarcely bordered. Sternites 1-3 and partly 4 striolated with longitudinal, closely set micro-ridges. Sternite 5 with minute, closely set punctures.

**Antennae.** Reaching barely over base of elytra. Length/width ratio of antennomeres 1-11 equals to 10:4 / 4½:3½ / 8:3 / 6:3 / 6½:3 / 6:5 / 6½:5 / 7:5 / 6½:5 / 6:5 / 11:5½.

**Legs.** Short. Femora and tibiae, see “Diagnosis”. Lengths of protarsomeres 1-5 as 4:4:4:3:13; lengths of mesotarsomeres 1-5 as 5:4:3:3:13; lengths of metatarsomeres 1-4 as 10:5:4:15.

**Etymology.** Phaédon (Greek, Φαίδων) = Greek name.

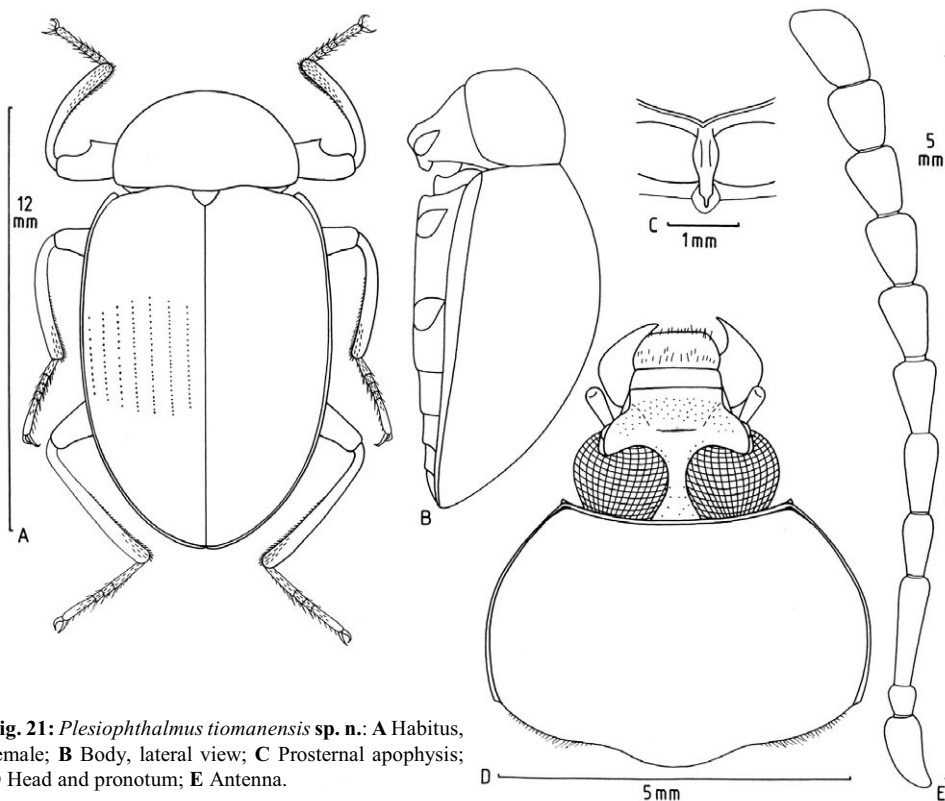
### ***Plesiophthalmus tiomanensis* sp. n.**

(Fig. 21A-E)

**Holotype**, ♀, ZSM: W-Malaysia, Pahang, Tioman Island, 1998, D. HAUPT leg. – I only know the holotype.

*Plesiophthalmus tiomanensis* belongs to the subgenus *Cyriogeton*.

**Diagnosis.** Large; stout. Frons very narrow. Pronotum and elytra distinctly convex transversely, pronotum also longitudinally markedly convex. Pronotum widest somewhat behind middle, front corners angular, not protruding, anterior margin of pronotum slightly excavated. Elytra somewhat elongate and oval; with rows of medium-sized, distinct punctures, and with flat intervals which are scarcely punctured. Legs moderately long; profemora with a clearly pointed tooth, protibiae uniformly bent (in the female!). Metatarsomere 1 slightly shorter than metatarsomere 4. Upperside uniformly brown, lustrous, legs dark brown to black.



**Fig. 21:** *Plesiophthalmus tiomanensis* sp. n.: **A** Habitus, female; **B** Body, lateral view; **C** Prosternal apophysis; **D** Head and pronotum; **E** Antenna.

Another species with a narrow frons is *Plesiophthalmus borneensis* (PIC, 1915). This species displays also a similar body shape. The frons of *P. borneensis*, although narrow, is wider than that of *P. tiomanensis*; additionally *P. borneensis* displays a reddish brown shaft of femora and a dark apical cap, the femora of *P. tiomanensis* are uniformly dark brown to black; the punctures of the elytral rows of *P. borneensis* are smaller than those of *P. tiomanensis*, the pronotum of *P. borneensis* is less convex and widest at base, while that of *P. tiomanensis* is conspicuously more convex and widest somewhat behind middle.

**Description.** Body length: 11.1 mm. Body width: 6.1 mm.

Ratios. Pronotum: width/length 1.75; width hind corners/width front corners 1.80. Elytra: length/width 1.47; length elytra/length pronotum 3.11; maximum width elytra/maximum width pronotum 1.21.

**Colouration.** Upperside brown, lustrous; legs and antennae dark brown to black. Metasternum black; sternites brown.

**Head.** Frons narrow, narrower than length of antennomere 4 (as 7:10); slightly higher situated than eyes; with minute punctures which are moderately closely set. Genae markedly lifted towards lateral margin; anteriorly terminating in front of the level of the middle part of fronto-clypeal suture. Eyes are protruding laterally, their inner margins towards frons without a sulcus. Fronto-clypeal suture markedly impressed, in its middle part arcuate and somewhat incised. Clypeus moderately stretched forwards, convex longitudinally, only slightly convex transversely; punctures larger than on frons. Mentum reversely trapezoidal; with flat lateral margins; space in between slightly convex transversely. Mandibles with a longitudinal sulcus on outer surface, apically bifid.

**Pronotum.** Short. Markedly convex transversely and longitudinally. Widest somewhat behind middle. Hind corners are formed by the lateral border, obtuse; front corners angular, they are obtuse. Anterior margin slightly excavated. Lateral and anterior margins bordered, posterior margin not bordered. Lateral borders in dorsal view distinct and visible in their whole length. Hind and front borders in lateral view angular, obtuse. Surface impunctate (at 25-fold magnification).

**Scutellum.** Ogive, with a few tiny punctures.

Elytra. Somewhat elongate, allusively oval. Markedly convex transversely; moderately convex longitudinally; maximum of width and height somewhat in front of middle. Shoulders obtuse. Apices of elytra mutually rounded. Lateral edges in dorsal view visible in the whole length. Surface with rows of medium-sized, conspicuous punctures which become smaller and evanescent near apex; distances between punctures on disc in row 4 equal to the diameter of a puncture; about 50 punctures in row 4. Intervals flat, impunctate.

Prosternum. Anterior margin continuously and narrowly bent upwards. Apophysis narrow, long, apically pointed; with a median groove along procoxae.

Mesosternum. Hind part with a longitudinal groove on each side; its anterior margin very deeply excavated.

Metasternum. Anterior margin between mesocoxae rounded, bordered. Disc impunctate. Median line allusively impressed.

Sternites. Anterior margin between metacoxae ogive, bordered. Sternites 1-4 with many longitudinal micro-wrinkles; only on sternite 5 laterally with a few tiny punctures.

Antennae. Reaching over one quarter of elytra. Length/width ratio of antennomeres 1-11 equals to 10:7 / 6:5 / 16:6 / 10:6 / 13:7 / 13:8 / 12:9½ / 12:9½ / 11:9½ / 10:9½ / 15:9½.

Legs. Not very long. Profemora with a sharp tooth at about 4/5 basally. Protibiae distinctly and uniformly bent. Mesotibiae bent in the basal 40 percent, straight in the apical 60 percent. Metatibiae nearly straight. Lengths of protarsomeres 1-5 as 6:5:5:4½:22; lengths of mesotarsomeres 1-5 as 10:6:6:5½:23; lengths of metatarsomeres 1-4 as 21:8:6:24.

**Etymology.** Tiomanensis; from Tioman Island, the location where this species has been collected.

### *Plesiophthalmus violaceipes* sp. n.

(Fig. 22A-H)

**Holotype**, ♂, ZSM: Sabah, Borneo, Mt. Trus Madi, 14.V.2007, S. CHEW leg.

**Paratype**: Sabah, Borneo, vic. Ranau, 22.IV.2007, S. CHEW leg. (1 ♂, ZSM).

*Plesiophthalmus violaceipes* belongs to the subgenus *Cyriogeton*.

**Diagnosis.** Large, with reddish-violet coloured lustrous femora; elytra elongate-oval, with rows of small, closely set punctures; profemora with a particularly formed tooth on the frontal side; in males protibiae very slightly broadened on inner side in apical half and pilose; antennae rather long; upperside coppery, lustrous.

Similar to the mostly somewhat smaller *Plesiophthalmus borneensis* (PIC, 1915) (body length of *P. borneensis* 14.0-18.8 mm.), but frons of *P. borneensis* narrower than that of *P. violaceipes*; pronotum more convex in *P. borneensis*; shaft of femora of *P. borneensis* are reddish brown basad of the black apical caps, *P. violaceipes* possesses a black base of femora and a violet to reddish shaft including the apical part.

**Description.** Body length: 17.8+19.3 mm. Body width: 9.6+9.7 mm.

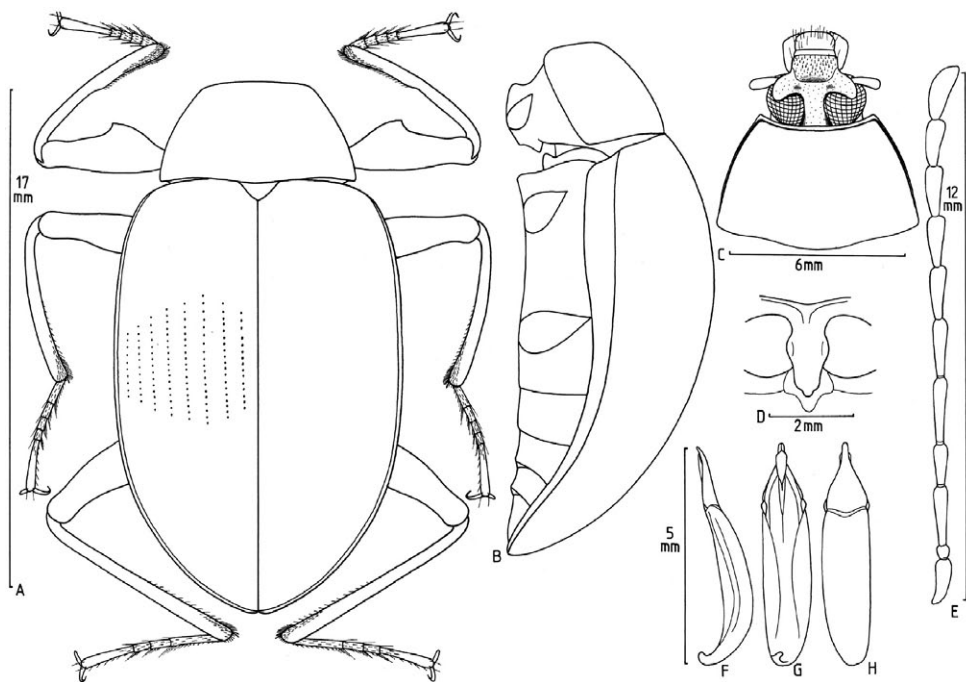
Ratios. Pronotum: width/length 1.63+1.72; width hind corners/width front corners 1.80+1.83. Elytra: length/width 1.55+1.66; length elytra/length pronotum 3.68+3.74; maximum width elytra/maximum width pronotum 1.38+1.39.

Colouration. Upperside markedly lustrous, dark coppery; frons, genae and clypeus coppery with a slight reddish tinge; underside black, with a slight (metasternum) or strong (sternites) violet shimmer; base of femora black, shafts reddish violet, very lustrous; tibiae and tarsi black; antennae black. Hairs blond.

Head. Frons of medium width, somewhat descending to fronto-clypeal suture; inner and anterior margin of eyes with a narrow, shallow sulcus. Lateral margins of genae markedly raised upwards, anteriorly terminating distinctly in front of the level of the middle part of fronto-clypeal suture. Fronto-clypeal suture arched in the middle part, somewhat impressed and slightly incised. Clypeus stretched forwards, markedly convex longitudinally; with small, moderately closely set punctures which are the origin of mostly short, but also a few long hairs; punctures of frons and genae smaller and wider separated than those of clypeus. Mentum anteriorly widened, its lateral margins flat, with tiny tubercles, bent and with a rounded transition between lateral margins and base, space in between more opaque and convex transversely. Underside of neck with small, rather narrowly set punctures. Mandibles with a sulcus on outer surface, apically bifid.

Pronotum. Not very wide; slightly convex transversely and longitudinally; widest at base, between base and middle allusively bent, between middle and front corners converging with straight margins. Front corners accentuated and acute-angled. Anterior margin distinctly excavated. Lateral and anterior margins continuously bordered. Lateral margins visible in dorsal view. Front corners in lateral view rectangular, hind corners angular, slightly obtuse. Surface with tiny punctures and tiny hairs, both become visible at 50-fold magnification.

Scutellum. Triangular, impunctate.



**Fig. 22:** *Plesiophthalmus violaceipes* sp. n.: **A** Habitus, male, **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.

**Elytra.** Elongate-oval; moderately convex transversely and longitudinally; maximum of height just in front of middle. Shoulders accentuated. Apices of elytra slightly retracted towards median suture. Lateral edges in their whole length and mostly broadly visible in dorsal view. Surface with rows of small, rather closely set punctures, the space between them on disc in row 4 equals about  $1\frac{1}{2}$ - to 2-times the diameter of a punctures, about 50 punctures in row 4. Intervals flat, covered with tiny, widely separated punctures which are the origin of tiny hairs (visible between 50- to 100-fold magnification).

**Prosternum.** Anterior margin narrowly bent upwards, in the middle somewhat retracted towards apophysis, there a small, blunt keel is branching off this margin. Apophysis narrow, along procoxae slightly widened, but without a median groove at this site; posterior to procoxae the apophysis is somewhat descending and narrowing; apex with a posteriorly projecting cone.

**Mesosternum.** Hind part somewhat lifted ventrad; its anterior margin markedly excavated. Surface smooth, lustrous.

**Metasternum.** Disc somewhat concave longitudinally, with a slightly incised median line, with tiny punctures and hairs (visible at 50-fold magnification).

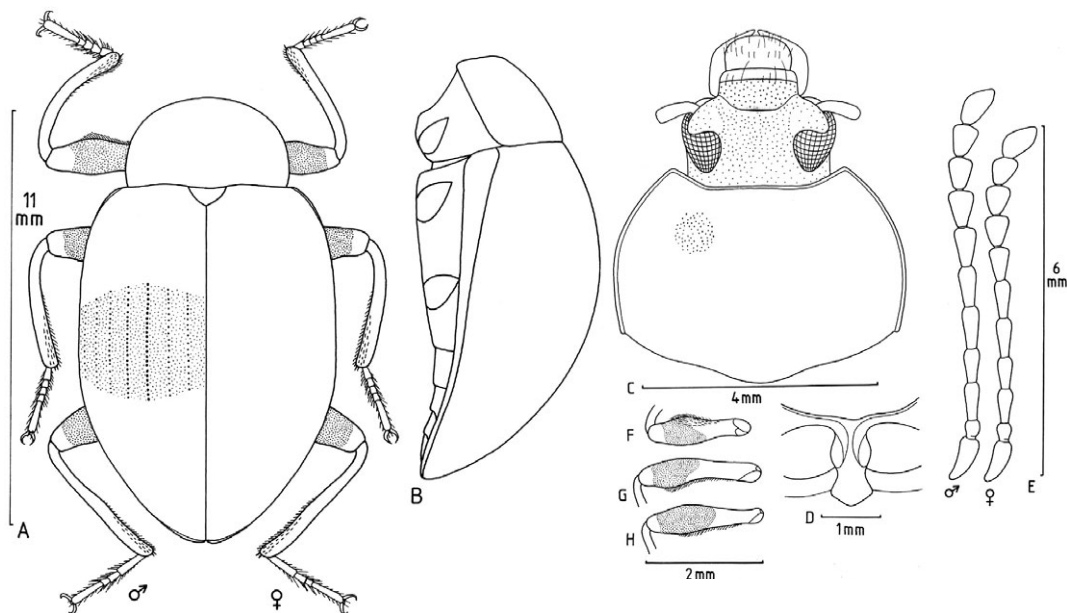
**Sternites.** Anterior margin between metacoxae ogive, weakly bordered. Sternites with tiny, widely separated punctures and tiny hairs. Sternite 5 bordered apically and straight at apex in males, with long, posteriorly projecting, recumbent hairs.

**Antennae.** Rather long and tender, reaching nearly to the middle of elytra. Length/width ratio of antennomeres 1-11 equals to 23:9 / 7:8 / 32:8½ / 25:8½ / 36:9 / 34:9 / 31:11 / 31:11 / 27:11 / 25:11 / 27:11.

**Legs.** Long, markedly projecting beyond the lateral borders of body. Femora narrow at base, towards their second thirds thickened, on frontal side within their second third part from base with a sharp edge which terminates in a small, sharp tooth. Protibiae near base slightly bent, apically thence straight on outer side, slightly broadened on inner side and with a closely-set pilosity of medium length (certainly only in males). Mesotibiae allusively bent. Metatibiae thin, long, straight. Lengths of protarsomeres 1-5 as 10:10:10:10:46, lengths of mesotarsomeres 1-5 as 16:14:12:11:48, lengths of metatarsomeres 1-4 as 42:19:15:49.

**Etymology.** Violaceus (Lat.) = violet; pes (Lat.) = leg.





**Fig. 23:** *Amarygmus cameronensis* (MASUMOTO, 2001): **A** Habitus, left side legs of ♂, right side legs of ♀; **B** Body, lateral view; **C** Head and pronotum; **D** Prosternal apophysis; **E** Antennae of ♂ and ♀; **F** Profemur of ♂; **G** Mesofemur of ♂; **H** Metafemur of ♂.

### **E Species of *Amarygmus*, subgen. *Varogeton* and of *Amarygmus*, subgen. *Pyanirygmus***

#### ***Amarygmus*, subgen. *Varogeton*, *cameronensis* (MASUMOTO, 2001)**

(Fig. 23A-H)

*Plesiophthalmus cameronensis* MASUMOTO, 2001: 66-67; figs. pp.65, 67.

*Amarygmus*, subgen. *Pyanirygmus*, *cameronensis* (MASUMOTO, 2001): BREMER 2005, 208.

*Amarygmus*, subgen. *Varogeton*, *cameronensis* (MASUMOTO, 2001) [stat. n.].

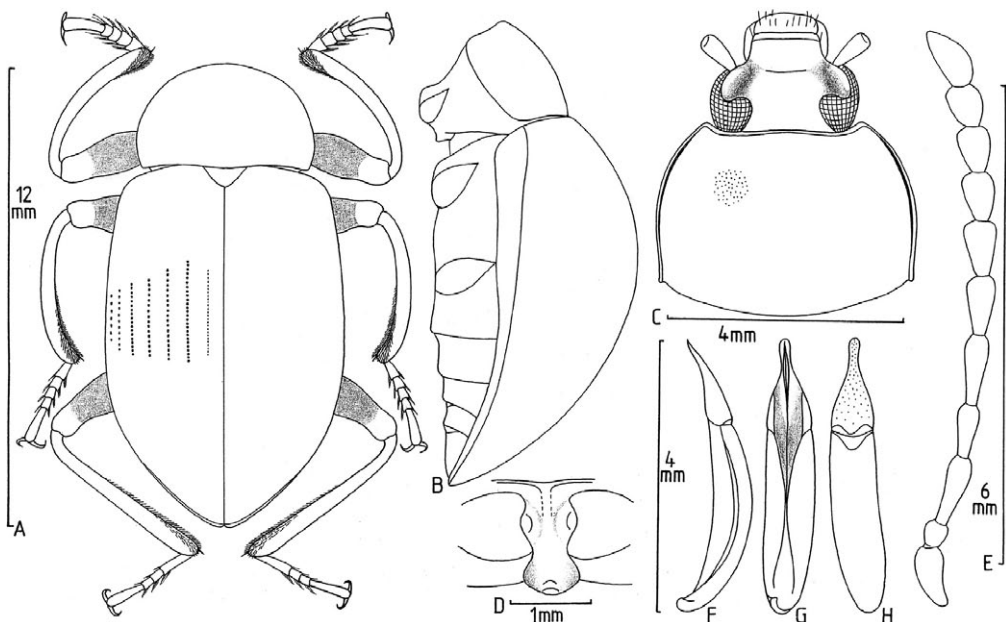
**Holotype**, ♂, NSMT: Cameron Highlands, Tanah Rata, 27.I.1993, S. NIRASAWA leg. – I did not see the holotype.

**Material** (seen by the author): Taiping, III.1978 (1 ♂, ZSM). – Taiping, VI.1997, WONG leg. (1 ♀, ZSM).

**Diagnosis.** Body length: 10.4+11.1 mm. Body width: 5.89+5.97 mm. Ratios. Pronotum width/length 1.51+1.58; length hind corners/length front corners 1.52+1.58. Elytra: length/width 1.41+1.47; length elytra/length pronotum 3.11+3.12; maximum width elytra/maximum width pronotum 1.39+1.40.

**Colouration.** Upper- and underside brown, moderately lustrous, frons reddish. Antennomeres 1-6 dark brown, 7-11 black. Basal half of femora brown, followed apically by a reddish-yellow ring and apically a black cap; basal 40 percent of tibiae dark brown, apical half reddish. Hairs yellow.

Elytra oval with the maximum of width behind middle; moderately convex transversely and longitudinally; maximum of height in the middle; with rows of small, very closely set punctures; distances between punctures on disc in row 4 less than the diameter of a puncture; intervals flat, with tiny, distinct punctures from which tiny hairs originate in the apical region which become visible at 100-fold magnification. Pronotum moderately convex transversely and longitudinally; with the maximum of width in the middle, distinctly narrowed and bent towards hind and front corners; hind corners very obtuse, front corners rounded, very obtuse; surface with tiny, relatively widely separated punctures; from some punctures tiny hairs originate (at 100-fold magnification visible). Frons wide; genae markedly raised towards lateral margins; eyes without a sulcus on inner margin. Femora somewhat club-like broadened towards their middle, thence gradually narrowing towards their apex, in males with somewhat projecting hairs of medium length on the frontal side of profemora and on the back side of meso- and metafemora; protibiae in males markedly and regularly bent, in females less bent; mesotibiae nearly straight, metatibiae straight. Lengths of metatarsomeres 1-4 as 12:7:7:20.



**Fig. 24:** *Amarygmus kerleyi* (MASUMOTO, 2001): **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. cameronensis* is very similar to *A.*, s. g. *Varogeton*, *kerleyi* MASUMOTO, 2001 and to *A.*, s. g. *Varogeton*, *proconsul* BREMER, 2010 because of size, colouration (especially the yellowish or reddish ring around femora), length and form of antennae and width of frons. Both species miss the hairs on femora in males, and both species have clearly bent mesotibiae while *A. cameronensis* possesses nearly straight mesotibiae. The punctuation of intervals of elytra is much closer in *A. proconsul* than in *A. cameronensis*, but less close in *A. kerleyi*.

A reddish ring around the femora is also present in the large *Amarygmus ovoideus* (FAIRMAIRE, 1882) which occurs on the Greater Sunda-Islands and on Peninsular Malaysia; this species presents striae on elytra and no rows of punctures as *A. cameronensis*, *A. kerleyi* and *A. proconsul* do.

#### ***Amarygmus*, subgen. *Varogeton*, *kerleyi* (MASUMOTO, 2001)**

(Fig. 24A-H)

*Plesiophthalmus kerleyi* MASUMOTO, 2001: 67.

*Amarygmus*, subgen. *Pyanirygmus*, *kerleyi* (MASUMOTO, 2001); [comb. n.]: BREMER 2005, 208.

*Amarygmus*, subgen. *Varogeton*, *kerleyi* MASUMOTO, 2001 [stat. n.].

I examined the holotype.

**Holotype**, ♂, NSMT: Near Keningau, Borneo, 27.VI.1989, K. KUME leg.

**Paratypes** (according to MASUMOTO, 2001). Near Keningau, 18.IV.1989, K. KUME (1, NSMT). – Same data as before, but 12.VI.1989 (2, NSMT). – Same data as before, but 30.VI.1989 (1, NSMT). – Near Keningau, Borneo, 1 BAPR 1989, BMNH(E) 2001-74 (1, BMNH). – Kinabalu NP, Poring, 500 m, 29.XI-2.XII.1996, leg. W. SCHAWALLER (1, SMNS). – Sabah, Batu Punggul Resort, 24.VI.-1.VII.1996, leg. J. KODADA (1, SMNS). – Sarawak, Kapit, 17-V-1966, J. DOMALAIAN leg. (1, MNHN). – Pontianak, Bornéo (1 ♂, MNHN).

**Material** (seen by the author): *Sabah*, Keningau, 12.III.1989, M. ITOH (1 ZSM). – Same data as before, but 15.III.1989 (1 CA). – Same data as before, but 1.V.1989 (1 CA). – Same data as before, but 30.V.1989 (1 ZSM). – Same data as before, but 7.VI.1989 (1 CA). – Same data as before, but 7.VI.1989 (1 CA). – Wallau? (scarcely decipherable), Samml. HAAG-RUTENBERG (1 ♂, ZSM). – *Sarawak*, Belaga, Long Linau, 17.-21.III.1990, leg. A. RIEDEL (1 SMNS). – *Sarawak*, Matang, leg. XANTUS (1 HNHN). – *Kalimantan Barat*, Pontianak, MULOT (1 HNHN). – *Sumatra*, Riau Prov., Bukit Tigapuluh N. P., 0°50'N-102°26'E, 18.-26.I.2000, D. HAUCK leg. (1 ♂, ZSM).

**Diagnosis.** Body length: 12.1-12.6 mm. Body width: 6.09-6.29 mm. Length/width ratio of elytra 1.46-1.52:1. Lengths of metatarsomeres 1-4 as 19:8:7:28.

Colouration. Pronotum black, with sericeous shine; elytra black, with a slight lustre; underside brown; femora within the basal third and the apical fifth black, in between reddish brown; tarsi blackish brown; antennae brown.

Large. Characterized by markedly bent pro- and mesotibiae and by a reddish brown ring around femora with an apical black cap. Maximum width of pronotum in the middle, slightly narrowing towards hind corners. Frons rather wide. Elytra markedly convex transversely and longitudinally, with rows of small, very closely set punctures; elytral intervals allusively convex, with some microscopically small punctures. Legs rather long, femora somewhat club-like broadened towards their middle, again gradually narrowing towards their apex; in males without hairs on frontal side of profemora and on back side of meso- and metafemora. Very short metatarsomere 1. Antennae short, reaching over one quarter of elytra.

*A. kerleyi* is very near to *A. cameronensis* (MASUMOTO, 2001) and to *A. proconsul* (BREMER, 2010) which also possess a reddish or yellow ring around the femora. It displays about the same size, and a very similar shape. Concerning delimitation towards these species, see *A. cameronensis*.

***Amarygmus*, subgen. *Varogeton*, *proconsul* (BREMER, 2010)**

*Amarygmus*, subgen. *Pyanirygmus*, *proconsul* BREMER, 2010: 2010b, 50-52; figs. pp.50, 51.

*Amarygmus*, subgen. *Varogeton*, *proconsul* BREMER, 2010 [stat. n.].

**Holotype**, ♂, HMNH: Nord-Sumatra, Brastagi, 1300 m, 2.VIII.1972, ERBER leg.; *Amarygmus* sp., Dr. Z. KASZAB det. 1980.

**Paratype**. Sumatra, Si-Rambe, XII.90-III.91[1891], E. MODIGLIANI (1 ♀, ZSM).

**Diagnosis**. Body length: 10.0+10.2 mm. Body width: 5.73+6.05 mm. Ratios. Pronotum: width/length 1.39+1.44; width hind corners/width front corners 1.44+1.46. Elytra: length/width 1.38+1.40; length elytra/length pronotum 3.06+3.39; maximum width elytra/maximum width pronotum 1.57+1.65.

Colouration. Upperside brown (with a slight metallic lustre and a greasy shine). Basal part of femora and the apical cap black, in between yellowish or brownish red; tibiae black; tarsi dark brown. Antennomeres 1-4 dark brown, 5-11 black. Underside dark brown to black.

Elytra wide and highly convex, widest at the hind third, with small, closely set punctures in rows; intervals flat, with small, closely set punctures. Pronotum markedly narrower than base of elytra, with the maximum of width in the middle. Frons very wide. Antennae of medium length. Femora with a club-like bulge between middle and second third, and with a yellowish red ring basad to apex. Protarsomeres 1-3 not widened in males, but soles of protarsomeres 1-4 brush-like pilose in males. Lengths of metatarsomeres 1-4 as 24:12:12:46.

Very similar to *A. cameronensis* (MASUMOTO, 2001) and to *A. kerleyi* (MASUMOTO, 2001) with respect to size, body shape, and colouration (including the yellowish or red ring around femora), for differentiation, see also *A. cameronensis*. But in *A. proconsul* the punctures of elytral rows are smaller, the punctuation of elytral intervals is denser (and therefore there is less lustre on elytra), the pronotum and upperside of head are much closer punctured.

***Amarygmus*, subgen. *Pyanirygmus*, *corinthius* (PIC, 1915)**

(Fig. 25A-H)

*Pyanirygmus corinthius* PIC, 1915: 1915d, 9.

*Amarygmus*, subgen. *Pyanirygmus*, *corinthius* (PIC, 1915): BREMER 2005d, 213-214.

Redescription: BREMER 2005, 213-214. – I studied the type specimens.

**Holotype**, sex not determined, MNHN: labelled “Pontianak, Bornéo Holl.”, (Pic’s handwriting) type, *Pyanirygmus corinthius* Pic

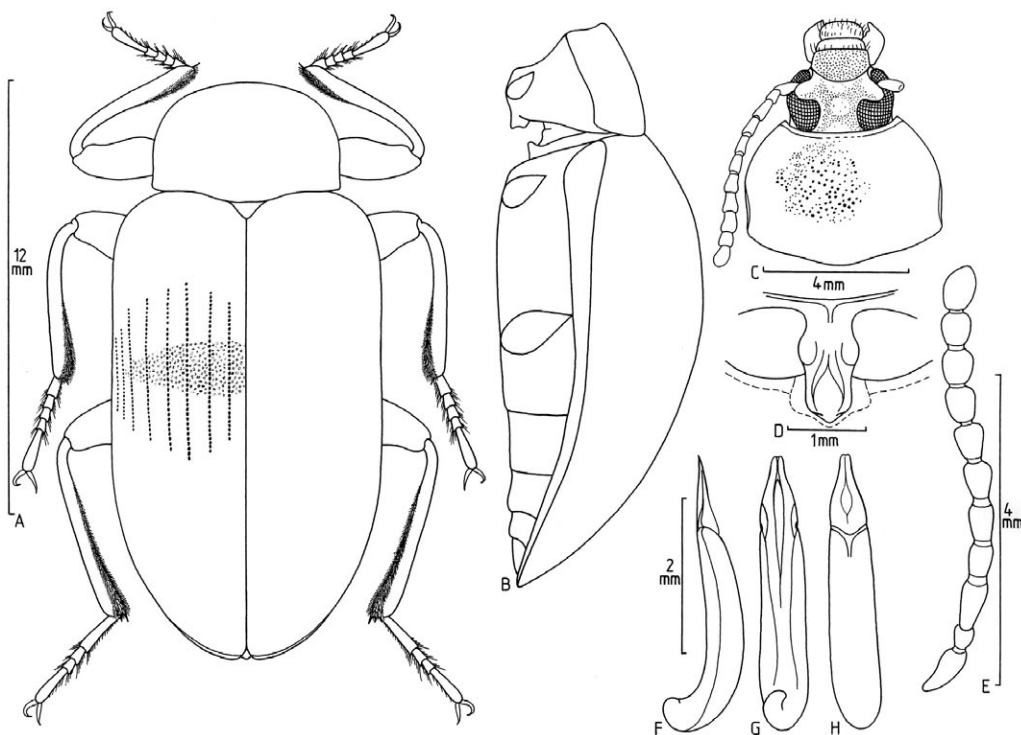
**Paratypes**. Bornéo Holl. (2, MNHN).

**Material** (seen by the author). *Kalimantan*: Bornéo holl. (1, MNHN). – *Sabah*: Sabah, Tambunan, 500 m, 28.-31.III.2007, LUX, R. GRIMM (1 CG). – *Sumatra*: Nord Sumatra, Dolok-Mérangir, III.-IV.1971, Dr. DIEHL leg. (2 ♀, MNHN). – West Sumatra, Bukittinggi env., 900 m, 10.IV.1998, leg. VIT KABOUREK (2 ZSM)). – South. Hills above Padangpanjang, 2.-6.IV.1996, lgt. S. BEČVÁŘ (4 SSB, 1 ZSM).

**Diagnosis**. Body length: 16.9-17.3 mm. Body width: 7.73-8.20 mm. Length/width ratio of elytra 1.70-1.83:1. Lengths of metatarsomeres 1-4 as 36:12:11:42.

Colouration. Upperside copper-coloured. Pronotum lustrous. Elytra with reduced lustre. Legs, antennae black. Underside black. Hairs on legs and metasternum reddish brown.

Very large, elongate. Elytra subparallel and relatively long, with rows of small, narrowly set punctures and with flat, closely punctured intervals. Pronotum narrow and markedly narrower than base of elytra; sides of pronotum subparallel in its hind half. Antennae very short. In males metasternum very closely pilose.



**Fig. 25:** *Amarygmus corinthius* (Pic, 1915) (reproduction from BREMER 2005, 213-214): **A** Habitus, male; **B** Body, lateral view; **C** Head, pronotum; **D** Prosternal apophysis; **E** Antenna; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view.

Metatarsomere 1 shorter than metatarsomere 4. Frons of medium width (slightly wider than lengths of antennomeres 2+3).

The subgenus *Pyanirygmus* of *Amarygmus* possesses no coloured ring around femora and no markedly and regularly bent protibiae. The punctures of the elytral rows are small and closely set in *A. corinthius* (in contrast to *A.*, s. g. *Pyanirygmus*, *visendus* BREMER, 2005 (see below). Closely punctured intervals of elytra as they are found in *A. corinthius* are also found in *A.*, s. g. *Varogeton*, *proconsul* BREMER, 2010 (see there).

#### ***Amarygmus*, subgen. *Pyanirygmus*, *visendus* BREMER, 2007**

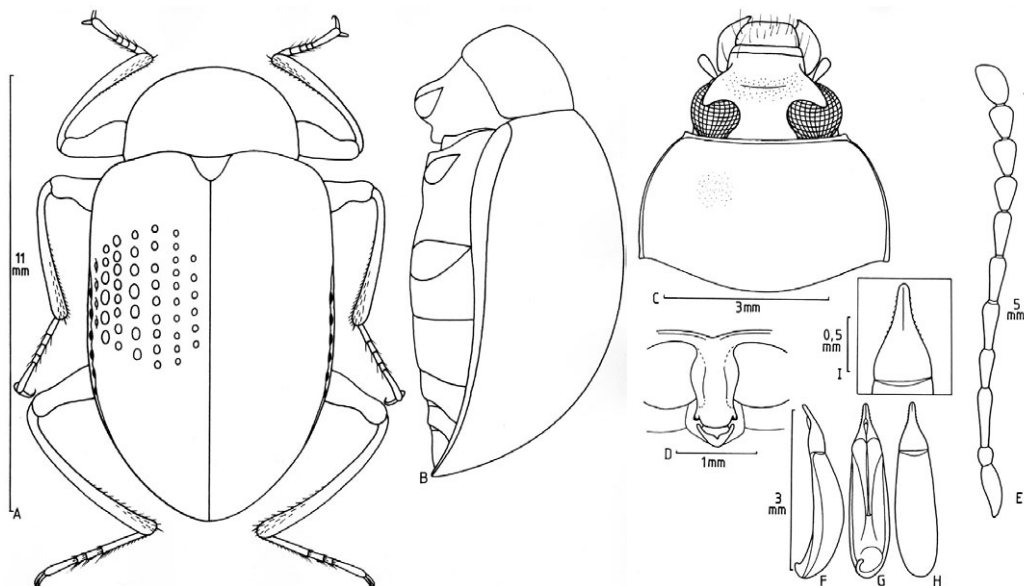
(Fig. 26A-I)

BREMER 2007, 23-26.

This is a species which occurs in Central and South Thailand and might be found in Peninsular Malaysia.

**Diagnosis.** Elytra with rows of large punctures which are widely separated (about 16 punctures in row 4); intervals on elytra nearly flat and covered with such tiny punctures that they only get visible at 50-fold magnification; elytra relatively short (length/width ratio 1.38-1.48:1), and elytral width clearly wider than pronotal width. Protibiae slender and rather long clearly bent in males, less bent in females. Upperside brilliant, black with golden shimmer. Metatarsomere 1 longer than metatarsomere 4. Body length 9.4-10.7 mm.

The large, widely separated elytral punctures of the rows are not a usual character of most species of *Plesiophthalmus*, nor of *Amarygmus* s. g. *Varogeton* or of *Amarygmus* s. g. *Pyanirygmus*, *corinthius* (PIC). The wider elytral base than pronotal base is found as well in species of *Plesiophthalmus* s. g. *Cyriogeton* as in many species of *Amarygmus*, it is also true concerning the subparallel sides of elytra. I leave *A. visendus* in the s. g. *Pyanirygmus* of *Amarygmus* as described because of the form of profemora and the protibiae, but a final taxonomic placement should be attempted after we obtained additional informations about the molecular genetic state of species the s. g. *Pyanirygmus*.



**Fig. 26:** *Amarygmus visendus* BREMER, 2007 (reproduction from BREMER 2007, 24): **A** Habitus, male; **B** Body, lateral view; **C** Head, pronotum; **D** Prosternal apophysis; **E** Antenna; **F** Aedeagus, lateral view; **G** Aedeagus, ventral view; **H** Aedeagus, dorsal view; **I** Anterior part of aedeagus, dorsal view.

**F Determination key of *Plesiophthalmus* species  
of Borneo, Java, Sumatra and Peninsular Malaysia and of species of  
*Amarygmus* subgen. *Varogeton* and of  
*Amarygmus* subgen. *Pyanirygmus***

(*Plesiophthalmus gedensis* MASUMOTO from Java and *P. tsugeae* MASUMOTO from Peninsular Malaysia  
are not considered)

- 1 Species with a tooth or sharp step-like descent on profemora ..... 2
- Species without a tooth or sharp step-like descent on profemora, either with a blunt obtuse angle (subgenus *Inspinogeton*) (see Fig. 9A) or a uniform bulge without any angle (*Amarygmus*, subgen. *Pyanirygmus* or *Amarygmus*, subgen. *Varogeton*) (see Fig. 24A) ..... 24
- 2 Shaft of profemora reddish brown with a black apical cap or with a red, reddish brown or yellow ring basad of the black apical cap; elytra relatively long (length/width >1.50:1); inner side of protibiae within apical 60 percent somewhat broadened with short hairs in males ..... 3
- Profemora uniformly coloured, either brown, black, violet or reddish; length of elytra different; form of protibiae different in males ..... 4
- 3 Elytra oval, relatively long (length/width of elytra 1.54-1.56:1), with rows of small, relatively closely set, distinct punctures and with flat, impunctate intervals. Pronotum widest at base, anteriorly narrowing and bent. Frons rather narrow. Upperside uniformly brown to dark brown, lustrous. Body length 14.3-16.8 mm. (Mentawai Isls., Sumatra, Borneo) (Fig. 3) ..... *Plesiophthalmus borneensis* (PIC)
- Elytra subparallel, also with rows of small, closely set, indistinct punctures, but intervals closely punctured, however, these punctures are inconspicuous and induce a reduced, more or less sericeous shine; elytral length/width 1.51:1. Sides of pronotum subparallel within the hind half. Frons narrow, but somewhat wider than frons of preceding species. Upperside brown, pronotum somewhat darker brown than elytra. Body length 12.0-15.0 mm (Java) (Fig. 6) ..... *Plesiophthalmus javaensis* MASUMOTO

- 4 Elytra short (length/width of elytra  $<1.35:1$ ). Species of different body length . . . . . 5
- Elytra in most species elongate oval or elongate subparallel (length/width of elytra in most species  $>1.45:1$ ) (only one species from Java of this couplet possesses somewhat shorter elytra,  $1.33-1.39:1$ , the elytra of this species are dark green, the pronotum black, and in males protibiae are not abruptly bent in the middle: see at couplet 23) . . . . . 11
- 5 Relatively small species (body length  $<9$  mm). Lateral pronotal borders are very broad and with a distinct inner rim. Inner margin of eyes with a distinct sulcus. Fronto-clypeal suture very deeply incised (*Plesiophthalmus*, subgen. *Chaeroplonyx*) . . . . . 6
- Species with a body length  $>10$  mm. Inner margin of eyes without a sulcus. Protibiae markedly bent in both sexes but in males abruptly incurved in the middle and broadened apicad of this bending on inner side (in one of these species only a female currently known) (*Plesiophthalmus*, subgen. *Eumolpocyriogeton*) . . . . . 9
- 6 Elytra distinctly oval, short (length/width of elytra  $1.28-1.31:1$ ); with rows of relatively small, closely set punctures, intervals flat with widely separated tiny punctures and hairs (punctures and hairs just become visible at 50-fold magnification). Pronotum on disc flattish, its lateral parts steeply descending towards the broad borders; hind part of pronotum with subparallel sides. Pronotum greenish, elytra brown with a weak reddish tinge; femora and tibiae black. Body length: 8.68-9.24 mm (Kalimantan) (Fig. 20) . . . . . *Plesiophthalmus phaedon* sp. n.
- Elytral sides straight between shoulders and hind third, and in most species they slightly widen towards the hind third . . . . . 7
- 7 Aedeagus not abruptly widened at tip (Fig. 1G). Elytra with rows of medium-sized punctures (length/width of elytra  $\approx 1.29:1$ ). Sides of pronotum are narrowing and bent between hind corners and front corners. Frontal side of profemora with a distinct step-like descent, directed towards apex. Protibiae markedly bent in ♂♂ and with a slight broadening in the apical 40 percent on inner part. Upperside brown, lustrous, but the lateral parts of pronotum blue; elytral shoulders conspicuously green. Body length of holotype 8.20 mm (Sabah) (Fig. 1) . . . . . *Plesiophthalmus beardae* MASUMOTO
- Aedeagus abruptly widened at tip (Fig. 7G, Fig. 8G) . . . . . 8
- 8 From the middle of anterior margin of prosternum a sharp crest is passing into prosternal apophysis towards the level along procoxae (see Fig. 7D). Elytra very short (length/width ratio  $\approx 1.28:1$ ); elytra longitudinally more convex than elytra of the following species; punctures of the elytral rows somewhat larger than those of the following species; frons somewhat narrower than frons of the following species; Elytra blackish brown; the centre of pronotum is dark brown, the lateral parts are dark green; underside brown, lustrous; legs and antennae are brown. Body length 7.1-7.6 mm (Sabah) (Fig. 7) . . . . . *Plesiophthalmus keningauensis* MASUMOTO
- From the middle of anterior margin of prosternum only a very short point is directed towards prosternum apophysis (see Fig. 8D). Elytra also short, but somewhat longer than elytra of preceding species (length/width of elytra  $1.31-1.35:1$ ), longitudinally less convex than preceding species; punctures of the elytral rows smaller; frons somewhat wider than that of the preceding species. Upperside of elytra and pronotum brown and lustrous, lateral parts of pronotum green; antennae and legs black. Body length 7.64-8.91 mm (Sabah, Brunei, Sumatra, Peninsular Malaysia) (Fig. 8) . . . . . *Plesiophthalmus kimanisensis* MASUMOTO
- 9 Elytra with a distinct leather-like surface; pronotum opaque and intensively colourful (purple to greenish yellow according to incidence of light); scutellum dark blue; shoulders of elytra green, disc of elytra greenish golden, lateral parts dark green. Elytra short (length/width ratio  $1.24-1.34:1$ ), with minute, shallow, widely separated punctures on intervals. Frons even, closely punctured. Mesotibiae markedly bent in both sexes; protibiae are abruptly bent in the middle in males. Body length 13.5-14.8 mm (Sabah: Crocker Range) (Fig.: BREMER 2010a, 155) . . . . . *Plesiophthalmus sasajii* (MASUMOTO)
- Elytra without a distinct leather-like surface and more or less lustrous . . . . . 10
- 10 Pronotum dark green, slightly lustrous, with purple reflections in oblique view, they are especially intensive near base and near lateral margins; scutellum purple; elytra coppery with a golden tinge, near base and along median suture weakly purple; near lateral margins indigo-blue; legs brown. Elytral intervals with small, very closely set punctures but without a leather-like structure (length/width of elytra  $1.30:1$ ). Surface of frons uneven, wider than frons of following species; posterior to fronto-clypeal suture

- with a transverse wrinkle and, behind it, with a swelling; mesotibiae only slightly bent. Body length 15.6 mm (Sabah: Crocker Range) (Fig. 14) . . . . . *Plesiophthalmus nagaii* (MASUMOTO) (Only the female holotype known)
- Pronotum markedly and uniformly iridescent with the colours of the light spectrum, pronotal borders blue; scutellum blue; elytra brightly yellowish red and not iridescent, their lateral edges blue; legs brightly blue. Elytra with rows of small, widely separated, not very distinct punctures; elytral intervals flat, with widely separated punctures. Frons narrower than frons of preceding species. Body length 11.9-13.5 mm (Peninsular Malaysia, probably at higher altitudes) (Fig. 10) . . . . . *Plesiophthalmus malayensis* (MASUMOTO)
- 11 Body length >16.5 mm . . . . . 12
- Body length <16.5 mm . . . . . 15
- 12 Femora, especially profemora, lustrous, with a violet or reddish colour; basad the distinct tooth-like descent on the profemora there is a vaulted frontal margin (Fig. 22A). Elytra elongate oval, length/width 1.55-1.66:1, with rows of small, rather closely set punctures, intervals flat, with tiny, widely separated punctures. Sides of pronotum nearly trapezoidal, only slightly bent. Frons rather narrow. Antennae rather long. Upperside of body coppery, lustrous. Body length 17.8-19.3 mm (Sabah) (Fig. 22) . . . . . *Plesiophthalmus violaceipes* **sp. n.**
- Femora uniformly coppery, dark brown or black and not brightly violet or reddish; basad the tooth-like descent on profemora there is no vaulted frontal margin (Fig. 5A) . . . . . 13
- 13 Maximum of pronotal width approximately in the middle, towards hind corners slightly, towards front corners somewhat more narrowed. Very large, slightly convex (body length 19.1-24.7 mm). Elytra with rows of small, distinct, irregularly and closely set punctures which may fuse and form striae over short distances. Frons relatively narrow. Antennae tender. Aedeagus without a waisted part in the middle. Upperside lustrous, auburn (Java) (Fig.: BREMER 2010a, 154) . . . . . *Plesiophthalmus andoi* MASUMOTO
- Species are not occurring on Java; aedeagus with a waisted middle part (Fig. 5A). Maximum of pronotal width at or near base; species are likewise large . . . . . 14
- 14 Elytra long and somewhat oval (length/width 1.49-1.55); the punctures of the elytral rows are small, they are closely set and partially fusing (at low magnification an impression may arise that all of them are fused to striae). Upperside lustrous, dark brown, with a certain metallic shine, legs, antennae black. Body length: 19.0-23.4 mm. (Peninsular Malaysia; Sumatra) (Fig. 5) . . . . . *Plesiophthalmus insignis* ssp. *insignis* (PASCOE)
- Elytra are somewhat longer and subparallel (length/width 1.59-1.63), with rows of small, closely set, but not fusing punctures. Pronotum is less convex transversely than pronotum of preceding taxon. Body length: 21.3-23.1 mm (Crocker Range of Sabah, usually on higher altitudes) (Fig.: BREMER 2010a, 202) . . . . . *Plesiophthalmus insignis* s. sp. *magnus* (BREMER) (A transitional form between subspecies *insignis* s. str. and *insignis* ssp. *magnus* occurs in Sarawak and Kalimantan)
- 15 The lateral margins of pronotum do suddenly widen close to base, and this part is distinctly projecting laterad (Fig. 17D). Elytra rather long (length/width of elytra 1.64:1), elytra with rows of small, rather closely set punctures; the elytral sides are straight between shoulders and hind two-third, and posteriorly they are widening a little; pronotum and elytra with tiny, smooth, at 50-fold magnification visible hairs. Frons of medium width, on inner margin of eyes with a distinct sulcus. Protibiae slightly bent, in ♂ not broadened on the inner side in the apical half. Upperside of body markedly lustrous and coppery; femora uniformly dark coppery; Body length 14.8 mm (Sabah) (Fig. 17)... . . *Plesiophthalmus kimioi* **sp. n.**
- The lateral margins of pronotum do not clearly widen close to base; elytra with rows of small, closely set punctures or with striae which are formed of very closely set, medium-sized puncture . . . . . 17
- 17 Elytra with rows of small, closely set punctures which are not linked by lines; elytra relatively long (length/width of elytra 1.45-1.70:1) . . . . . 18
- Elytra with striae and convex intervals or with rows of small punctures which are so closely set that they touch each other; elytral length/width in one species <1.39:1, in two other species >1.42:1 . . . . . 22
- 18 The lateral parts of pronotum are somewhat impressed in front or hind corners (Fig. 16C). The punctures of the elytral rows are faint and less distinct than those of the following species. Frons somewhat wider than frons of the following species. Upperside dark brown, very lustrous, with metallic shimmer; legs and antennae dark auburn. Body length: 10.7+13.1 mm (Java) (Fig. 16) . . . . . *Plesiophthalmus subelongatus* (PIC)

- The lateral parts of pronotum are not impressed near base, and the lateral pronotal margins are uniformly bent and narrowing towards front corners (Figs. 4C + 12C) ..... 19
- 19 Pronotum widest in the middle or somewhat behind middle, towards hind and front corners somewhat retracted ..... 20
- Pronotum widest at base; punctures of elytral rows small, the rows are not impressed and the intervals are not convex; body shape wider than the width of preceding species ..... 21
- 20 The small, distinct, closely set elytral punctures are not situated in somewhat impressed rows, elytral intervals flat; elytral length/width  $\approx 1.47:1$ . Pronotum conspicuously convex longitudinally. Body shape much wider than in the following species. Frons rather narrow. Protibiae distinctly bent. Upperside brown, legs and antennae dark brown. Body length: 11.1 mm (Peninsular Malaysia: Tioman Isl.) (Fig. 21) ..... *Plesiophthalmus tiomanensis* sp. n.
- The medium-sized, closely set elytral punctures are situated in somewhat impressed rows which induces slightly convex intervals. Body shape narrower than that of the preceding and the following two species. Elytral length/width  $\approx 1.52:1$ . Pronotum little convex longitudinally. Frons relatively wide and wider than in the preceding and the following two species. protibiae straight. Pronotum black; elytra brown. Body length 9.47 mm (Sabah) (Fig. 18) ..... *Plesiophthalmus masumotoi* sp. n.
- 21 Protibiae bent in both sexes, in  $\sigma\sigma$  markedly and abruptly bent, in  $\varphi\varphi$  less and not abruptly bent. Elytra long and relatively narrow (length/width 1.52-1.59:1), with subparallel sides; elytral rows with medium-sized, distinct, closely set punctures; intervals flat, impunctate.  $\sigma\sigma$  present a large swelling on the posterior part of metasternum which is separated into two lateral parts by a markedly incised median line, its surface is uneven by wrinkles, in  $\varphi\varphi$  the swelling is less marked, and the surface is smooth. Elytra brown, very lustrous (in view from the front the shoulders are green); pronotum darker than elytra, metallic shining; legs and antennae dark brown. Body length 10.6-12.3 mm. (Sabah, Crocker Range, at higher altitudes) (Fig. 12) ..... *Plesiophthalmus miyakei* MASUMOTO
- Very similar to preceding species, but the protibiae are straighter in both sexes than in the preceding species. There is no swelling on the posterior part of metasternum in  $\sigma\sigma$ . Elytra as long as in the preceding species; the punctures of the elytral rows are somewhat smaller than those of *P. miyakei*. Pronotum distinctly darker than elytra, in several specimens nearly black. Body length 12.6-14.0 mm (Sabah, Crocker Range, at higher altitudes) (Fig. 4) ..... *Plesiophthalmus gokani* MASUMOTO
- 22 Elytra with distinct striae which consists of medium-sized punctures; elytral intervals convex; elytra oval; elytral length/width 1.47-1.51:1. Upperside dark coppery to black. Body length 12.8-14.8 mm (Sabah) (Fig. 19) ..... *Plesiophthalmus motschulskyi* sp. n.
- Elytral rows of closely set punctures which frequently touch each other and look alike striae ..... 23
- 23 Elytra are relatively wide and not very long (length/width of elytra 1.42-1.45:1); elytra intervals are impunctate; sides of elytra subparallel between shoulders and hind third straight and with clearly visible lateral edges in dorsal view. Inner side of eyes not sulcated. Frons of medium width, in  $\sigma\sigma$  narrower than in  $\varphi\varphi$ . Pronotum somewhat narrower in  $\sigma\sigma$  than in  $\varphi\varphi$ . Protibiae uniformly bent in  $\varphi\varphi$ , in  $\sigma\sigma$  in apical half on outer side straight and, in this part, on inner sides slightly broadened; mesotibiae of  $\sigma\sigma$  straighter than the moderately bent ones of  $\varphi\varphi$ ; metatibiae nearly straight (and apically slightly incurved). Upperside coppery with a faint reddish tinge and frequently with allusively coloured stripes, shoulders present a reddish colour. Body length: 10.4-11.6 mm (Peninsular Malaysia: Cameron Highlands) (Fig. 15) ..... *Plesiophthalmus nakanei* MASUMOTO
- Elytra shorter (length/width 1.33-1.39:1); elytral intervals flat, with tiny, widely separated punctures. Sides of elytra subparallel between shoulders and hind third. Inner side of eyes sulcated. From anterior margin of prosternum a narrow median keel is passing into apophysis, and the lateral margins along procoxae are narrower than those of preceding species. Pronotum and frons similar to those of preceding species. Elytra uniformly dark green and without coloured shoulders, but in dorsal view the elytra rows/striae are slightly lighter green. Body length: 9.7-10.4 mm (Java) (Fig.: BREMER 2013, 161) ..... *Plesiophthalmus minutus* (PIC)
- 24 Profemora with a widely obtuse angle on the frontal side; protibiae in males with a slight broadening of protibiae on inner side within apical half (see Fig. 11A) (*Plesiophthalmus*, subgen. *Inspinogeton*). . . 25
- Profemora only with a bulge-like swelling at two thirds from base (Fig. 25A); protibiae in males without a broadened inner side in the apical half (*Amarygmus*, subgen. *Pyanirygmus* and *Varogeton*) . . . . 28



- 25 Elytra with weak blue and purple stripes; pronotum with an irregular, bluish-purple lustre. Elytra elongate oval (length/width  $\approx 1.80:1$ ); elytra with fine striae with small punctures which are situated in some distance. Protibiae moderately bent and somewhat broadened on inner sides within the apical half in  $\sigma\sigma$ . Body length 16.5-19.5 mm (Sabah) (Fig. 2) . . . . . *Plesiophthalmus bicoloratus* MASUMOTO
- Elytra without blue and purple stripes and pronotum without an irregular, bluish-purple lustre . . . . . 26
- 26 Pronotum relatively narrow and narrower than in the following species, clearly widest at base; in the middle of anterior margin of pronotum there is a small point originating from the border which is directed to a slight, median incision on pronotum which is shortly interrupted on the disc; sides of pronotum are uniformly bent from base to front corners; anterior margin of pronotum less excavated than that of the following species. Elytra with rows of small, relatively closely set, but well separated punctures; length/width ratio of elytra 1.76:1. Body length 17-20 mm (Sabah) (p. ; Fig. 11) . . . . . *Plesiophthalmus mariyamai* MASUMOTO
- Pronotum not clearly widest at base, with a maximum of width in front of hind corners, slightly retracted towards hind corners. An allusive to slight median incision of pronotum is missing. The small punctures of the elytral rows are so closely set that they are in contact to each other or fuse to form striae. Protibiae more or less bent at or shortly in front of middle in males, and apically of this bending they are more or less widened on inner side . . . . . 27
- 27 Intervals of elytra nearly flat, and intervals of elytra and pronotum with tiny punctures and hairs (at 100-fold magnification visible). Pronotum less convex transversely and longitudinally than pronotum of the following species, sides are subparallel within the hind half. Elytra with rows of small, so closely set punctures that they touch each other and feign striae; length/width ratio of elytra 1.55:1. Body length 13.0-15.5 mm (Sabah) (Fig. 13) . . . . . *Plesiophthalmus morimotoi* MASUMOTO
- Elytra somewhat shorter and longitudinally more convex than elytra of the preceding species (length/width ratio 1.45-1.47:1); in contrast to preceding species intervals of elytra slightly convex. Pronotum and intervals of elytra without tiny hairs, visible at 100-fold magnification. Sides of pronotum more bent than those of preceding species, and maximum of width somewhat behind middle. Body length 14.0-15.2 mm (Sabah, Sarawak, Sumatra) (Fig. 9) . . . . . *Plesiophthalmus lewisi* MASUMOTO
- 28 Protibiae in males markedly bent, in females moderately bent; in both sexes femora either with a reddish brown shaft or a reddish brown ring basad of a dark coloured apical cap (*Amarygmus*, subgen. *Varogeton*) . . . . . 29
- Protibiae in both sexes straight, anteriorly thickened, and uniformly dark coloured (*Amarygmus*, subgen. *Pyanirygmus*). Pronotum with coarse, irregularly set punctures. Elytra rather long, subparallel (length/width ratio 1.70-1.83:1); elytra with scarcely incised striae which consist of small, round punctures and of tender, connecting lines; elytral intervals flat, with small, relatively closely set punctures. Antennae short, in females shorter than in males. Body length 16.9-17.3 mm (Kalimantan, Sabah, Peninsular Malaysia, Sumatra) (Fig. 25) . . . . . *Amarygmus corinthius* (PIC) (Probably also *A.*, subgen. *Pyanirygmus*, *visendus* BREMER, 2007 from Central and South Thailand belongs to this subgenus: see Fig. 26)
- 29 Pronotum within hind half subparallel or only slightly narrowed towards hind corners. Elytral intervals allusively convex, with microscopically small, indistinct punctures. Apical part of aedeagus relatively narrow and subparallel. Length/width ratio of elytra 1.46-1.52:1. Pronotum and elytra black. Body length 12.1-12.6 mm (Sabah, Sarawak, Sumatra) (Fig. 24) . . . . . *Amarygmus kerleyi* (MASUMOTO)
- Pronotum widest near middle. Apical part of aedeagus gradually narrowing towards top . . . . . 30
- 30 Front side of profemora and back sides of meso- and metafemora in males without hairs. Elytral intervals with minute, closely set and distinct punctures. Apical part of aedeagus gradually narrowing towards top, but not subparallel in this part. Upperside brown. Body length 10.0-10.2 mm (Sumatra) (Figs.: BREMER 2010b, pp.50, 51) . . . . . *Amarygmus proconsul* BREMER
- Front side of profemora and back sides of meso- and metafemora with short, projecting hairs in males. Elytral intervals flat, with minute, clearly separated punctures. Length/width ratio of elytra 1.46-1.57:1. Pronotum and elytra copper-coloured, lustrous. Body length 11.0-12.1 mm (Cameron Highlands of Peninsular Malaysia) (Fig. 23) . . . . . *Amarygmus cameronensis* (MASUMOTO)

Additional related species with projecting hairs on the frontal side of profemora and back sides of meso- and metafemora in males and a ring-like light brown colouration of femora are *Amarygmus*, subgen. *Varogeton*, *subannulipes* (PIC, 1922) [stat. n.] from Vietnam and Laos which had been described as *Dietyesus* PASCOE, 1866, and also *Amarygmus*, subgen. *Varogeton*, *martinbrendelli* BREMER, 2005 [stat. n.] from North India.

## G Zusammenfassung

Arten der Gattung *Plesiophthalmus* MOTSCHULSKY, 1857 und verwandter Gattungen aus Borneo werden revidiert. Die Revision schließt auch die meisten Arten von Java, Sumatra und des Teiles von Malaysia ein, der auf der Malayischen Halbinsel liegt. Die Gattungsmerkmale von *Plesiophthalmus* werden diskutiert und teilweise neu definiert. Mehrere Untergattungen von *Plesiophthalmus* werden benannt. Eine Kurzdiagnose aller Arten wird geliefert, und die meisten der Arten werden abgebildet. Außerdem wird ein Bestimmungsschlüssel dieser Arten entwickelt.

Die Beziehungen von *Plesiophthalmus* zu folgenden Gattungen werden diskutiert:

*Amarygmus* DALMAN, 1823, *Pontianacus* FAIRMAIRE, 1898, *Euspinamarygmus* MASUMOTO, 1989, *Sylvanoplonyx* BREMER, 2010 und *Hoplobrachium* FAIRMAIRE, 1886.

Neue Untergattungen von *Plesiophthalmus*:

*Plesiophthalmus* MOTSCHULSKY s. str. für Arten affine *Plesiophthalmus nigrocyaneus* MOTSCHULSKY, 1857; *Cyriogeton* PASCOE, 1871 als neue Untergattung für Arten affine *Plesiophthalmus insignis* (PASCOE, 1871); *Eumolpocyriogeton* PIC, 1922 als Untergattungen für Arten affine *Plesiophthalmus convexus* (PIC, 1922) [ein neuer Name für diese Art wegen Homonymie: *Plesiophthalmus concameratus* **nom. n.**];

*Chaeroplonyx* **subgen. n.** wird als neue Untergattung für Arten affine *Plesiophthalmus kimanisensis* MASUMOTO, 2001 geschaffen. *Euspinamarygmus komiyai* MASUMOTO, 1989 aus Thailand gehört wahrscheinlich in diese Untergattung von *Plesiophthalmus*;

*Inspinogeton* PIC, 1937 als Untergattung von *Plesiophthalmus* MOTSCHULSKY, 1857 wird wiederbelebt. *Cyriogeton impressipennis* PIC, 1937 ist der Typus dieser Untergattung;

*Pyanirygmus* PIC, 1937 als Untergattung von *Amarygmus* DALMAN, 1823 wird bestätigt für *Pyanirygmus corinthius* PIC, 1937 (und für *Amarygmus visensus* BREMER, 2007);

*Varogeton* **subgen. n.** wird als Untergattung von *Amarygmus* DALMAN, 1823 für die Arten *Amarygmus kerleyi* (MASUMOTO, 2001), *A. martinbrendelli* BREMER, 2007, *A. cameronensis* (MASUMOTO, 2001), *A. proconsul* BREMER, 2010 und *A. subannulipes* (PIC, 1922) geschaffen. *Dietyssus subannulipes* PIC, 1922 ist die Typusart.

Neue Genera affine *Plesiophthalmus*:

*Pilosoplonyx* **gen. n.** (*Plesiophthalmus bremeri* MASUMOTO, 1999 als Genotypus).

*Dasyplonyx* **gen. n.** (*Cyriogeton maculosum* PIC, 1922 als Genotypus).

Folgende taxonomische Änderungen werden angezeigt (die neu gültigen Namen fett):

***Plesiophthalmus insignis* (PASCOE) ssp. *magnus* (BREMER, 2010) = *Amarygmus*, subgen. *Pyanirygmus*, *magnus* BREMER, 2010 [comb. n.].**

***Amarygmus*, subgen. *Varogeton*, *cameronensis* (MASUMOTO, 2001) = *Plesiophthalmus cameronensis* MASUMOTO, 2001 [comb. n.].**

***Amarygmus*, subgen. *Varogeton*, *kerleyi* MASUMOTO, 2001 = *Plesiophthalmus kerleyi* Masumoto, 2001 [comb. n.].**

***Amarygmus*, subgen. *Varogeton*, *proconsul* BREMER, 2010 = *Amarygmus*, subgen. *Pyanirygmus*, *proconsul* BREMER, 2010 [stat. n.].**

***Amarygmus*, subgen. *Varogeton*, *martinbrendelli* BREMER, 2005 = *Amarygmus*, subgen. *Pyanirygmus*, *martinbrendelli* BREMER, 2005 [stat. n.].**

***Amarygmus*, subgen. *Varogeton*, *subannulipes* (PIC, 1922) = *Amarygmus*, subgen. *Pyanirygmus*, *subannulipes* (PIC, 1922) [stat. n.].**

***Plesiophthalmus kimanisensis* MASUMOTO, 2001 = *Plesiophthalmus cuccodoroi* MASUMOTO, 2001 [syn. n.].**

***Plesiophthalmus malayensis* (MASUMOTO, 1988) [comb. n.] = *Eumolpocyriogeton malayense* MASUMOTO, 1988 = *Plesiophthalmus evae* MASUMOTO, 2000 [syn. n.].**

***Plesiophthalmus subelongatus* (PIC, 1915) = *Plesiophthalmus levis* (KULZER, 1950) [syn. n.] (*Plesiophthalmus levis* (KULZER, 1950) wurde als *Spinamarygmus levis* KULZER, 1950 beschrieben und nach *Plesiophthalmus* transferiert durch MASUMOTO 1990d, 701).**

Die folgenden neuen Arten werden beschrieben und abgebildet:

*Plesiophthalmus kimioi* **sp. n.** (Sabah),

*Plesiophthalmus phaedon* **sp. n.** (Kalimantan),

*Plesiophthalmus masumotoi* **sp. n.** (Sabah),

*Plesiophthalmus motschulskyi* **sp. n.** (Sabah),

*Plesiophthalmus tiomanensis* **sp. n.** (Peninsular Malaysia: Tioman Island),

*Plesiophthalmus violaceipes* **sp. n.** (Sabah).

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