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# Descriptions of new species of the genus *Chaloenus* Westwood from Greater Sunda Islands (Coleoptera: Chrysomelidae: Alticinae)

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Abstract. The genus *Chaloenus* Westwood of the Greater Sunda Islands is revised. Twenty-three new species are described: *Chaloenus* (*Chaloenus*) *barioensis*, *fulvoantennatus*, *fulvohirtus*, *jamadai*, *kinabaluensis*, *lanjakensis*, *lehi*, *liwaguensis*, *monticola*, *permai*, *todai*, *yukikoae* n. spp. and *Chaloenus* (*Priostomus*) *kuningus*, *maryatiae*, *maklarini*, *minutus*, *moyogensis*, *muaya*, *nitidicupreatus*, *nitidihirtus*, *psi*, *tibowensis* n. spp. from Borneo, and *C.* (*C.*) *sumatrensis* n. sp. from Sumatra. Genus *Priostomus* Jacoby is resurrected from synonymy as a subgenus. This genus is most speciose in Borneo with 36 species among 42 known species, as stated by Medevedev (2004). Many of the species in the subgnenus *Chaloenus* are characterized by sexually dimorphic head shape. Sometimes male heads are polymorphic, with shapes correlated with their body-size. On the basis of plant associations in adults, the genus is tentatively divided into 5 groups. Subgenus *Chaloenus* is clearly associated with the family Araceae, while *Priostomus* has rather limited known host records in Araceae.

Key words: entomology, taxonomy, leaf beetles, Alticinae, Chaloenus, revision, Borneo, Sumatra, new species.

## INTRODUCTION

The genus *Chaloenus* Westwood was established in 1861 for *C. latifrons* Westwood. Jacoby, Baly, and Chapuis added several species in 19th century. Later Bryant described six species in 1943. These species were mainly characterized by their coloration and shape of male head. Since both characters have a wide range of variations, it is sometimes difficult to recognize each species based on fragmental original descriptions.

What is peculiar to this genus is that many species in the nominate subgenus have male heads transversely widened with their eyes protruding laterally. Male heads become distinctly wider than the pronotum in these species. Male heads are polymorphic in some species, for example in *C. dohertyi*, *schawalleri* and *matangensis*, the head size and shape correspond to body size of a specimen. Other species in the nominate subgenus have their head without such dimorphism. Two species in the subgenus *Priostomus* are sexually dimorphic in the shape of head, but their heads are longitudinally elongated, unlike the species of the nominate subgenus.

So far species of this genus have been recorded rather rarely. Medvedev (2004) based his revision on about 80 specimens including most of the holotypes. Toda (pers. com.) and Kumano & Yamaoka (2006) reported that some of the nominate subgenus are visiting inflorescenses of aroids. With this information, I focused collecting efforts around aroid plants for two years in Sabah and secured over 600 specimens. After detailed study of these specimens and their biology, I found 23 new species from Sabah and Sumatra. I describe them and give a key to most species of the Greater Sunda Islands in this paper. It seems appropriate to divide this genus into two subgenera, *Chaloenus* Westwood and *Priostomus* Jacoby. This treatment is justified by their morphology and biology, especially of their plant association (Takizawa 2011).

All the holotypes will be deposited in the collection "BORNEENSIS" in the Institute for Tropical Biology and Conservation (ITBC), Universiti Malaysia Sabah, Kota Kinabalu. A part of paratypes will be distributed among the collections of Centre for Insects Systematics, Universiti Kebansang Malaysia (UKM), Kuala Lumpur, Laboratory for Insect Systematics, Hokkaido University, Sapporo, US National Museum for National History, Washington, Ehime University Museum (EUM), Matsuyama and personal collection of Dr. L. Medvedev, Moscow and personal collection of the author.

Before going further I wish to acknowledge my sincere gratitude to Drs. Maryati Mohamed and A. H. Ahmad, the former and the present, respectively, directors of the Institute for Tropical Biology and Conservation, Kota Kinabalu for their kind supports during my survey from 2007 to 2010. My thanks are also due to Dr. M. Toda of Hokkaido Univ., Ms. Y. Kumano and K. Kishimoto of Kyoto Univ., Dr. C. Reid of Australian Museum for informations on the flower visiting behaviors in *Chaleonus*, and to Ms. I. Riza of the Universiti Kembasang Malaysia and Dr. H. Yoshitomi of Ehime University Museum for the loan of specimens. Finally, I would like to thank authorities of Japan International Corporation Agency, who supported me as a volunteer researcher in Universiti Malaysia Sabah.

## KEY TO SUBGENERA OF THE GENUS *CHALOENUS* WESTWOOD

1. Prothorax with or without distinct transverse impression; body slender with long antennae; 9-11th segments nearly as long as 8th; elytra heavily punctate, or at least with short punctate striae ..... subgenus *Priostomus* Jacoby
–. Prothorax evenly convex, without transverse impression; body oblong oval, with shorter and stout antennae; 9-11th segments generally strongly shortened; elytra

sometimes densely covered with punctures, or sometimes almost impunctate with a few short punctate striae behind subbasal elevation ..... ..... subgenus *Chaloenus* Westwood

KEY TO SPECIES OF THE SUBGENUS *CHALOENUS* WESTWOOD IN GREATER SUNDA ISLANDS

1. Elytra densely and confluently punctate; elytra generally metallic, but sometimes yellowish brown with slight metallic blue reflections ……..... 2.
–. Elytra with short punctate striae, sometimes almost impunctate except for a few large punctures behind subbasal elevation ……..... 6.
2. Dorsal surface wholly metallic ….....…… 3.
–. Head, pronotum and legs yellowish brown, with metallic blue elytra. ……. 4.
3. Male aedeagus simply narrowed to apex (Fig. 2a) …..….. *matangensis* Bryant
–. Male aedeagus slightly constricted subapically, with longitudinal groove on the venter (Fig. 2c) ….....…… *schawalleri* Medvedev
4. Elytra bluish, wholly covered with punctures; male with frons distinctly wider than pronotum; abdomen brown or largely dark brown ……..... 5.
–. Elytra dark greenish, with a few impunctate longitudinal lines; frons similar in both sexes, distinctly narrower than pronotum; venter yellowish brown; male aedeagus broadly rounded at apex (Fig. 2f) ….....…… *todai* n. sp.
5. Abdomen largely dark brown; male with antennae brown; male aedeagus acutely pointed at apex, triangularly expanded laterally (Fig. 2b) …..... *permai* n. sp.
–. Abdomen yellowish brown; antennae dark brown with last 2 segments yellowish white in both sexes; male aedeagus strongly constricted and curved down subapically (Fig. 1a) ……..... *brooksi* Bryant
6. Elytra with distinct subbasal elevation delimited behind and from humerus by deep impressions; disc almost impunctate except for a few large punctures in both the impressions ……..... 7.
–. Elytra without distinct subbasal elevation, weakly delimited behind; disc generally with punctate striae at least on anterior half ….....…… 12.
7. Elytra dull with dense microsculptures, metallic green with fulvous lateral stripe; male with head much wider than prothorax, clypeus much broader than long; body large, 10 mm in length; antennae longer than body …… *giganteus* Medvedev
–. Elytra smooth without dense microsculptures; male head at most a little wider than prothorax; antennae shorter ……..... 8.
8. Abdomen fulvous; female with antennae slender; 8th antennal segment variable in shape and length ….....…… 9.
–. Abdomen black; elytra rather widely reflexed on lateral margins; 8th segment robust, slightly longer than wide (male unknown) ….....…. *lanjakensis* n. sp.
9. Body smaller, less than 5 mm in length; short ovate, pale yellowish brown with elytra generally margined narrowly with black, except for on apical portion; male head not enlarged; male aedeagus broadly produced and curved down near apex (Fig. 1b) ….....……. *brunneus* Bryant

–. Body larger than 5 mm in length; body oblong ovate; coloration variable but elytra never margined with black ……..…. 10.
10. Male head enlarged, wider than pronotum; coloration variable; female with 8th antennal segment almost as wide as long ….....……. 11.
–. Male head not enlarged, narrower than prothorax; antennae slender with 8th segment distinctly longer than wide in both sexes; reddish brown with metallic dark bluish elytra; male aedeagus subparallel-sided and gently produced at apex (Fig. 2d) ……..…. *yukikoae* n. sp.
11. Elytra fulvous with basal 1/3 black. ……..…. *basalis* Bryant
–. Elytra entirely metallic green, violaceous or fulvous, or with combination of these two colors; male aedeagus subparallel-sided and gently produced at apex (Fig. 1h) . ….....……. *latifrons* Westwood
12. Body yellowish brown to reddish brown, with black spots on elytra; sometimes female lacking these spots; male head strongly enlarged or normal in size …….. 13.
–. Body differently colored, never with black spots on elytra ……..…. 14.
13. Elytron with a black spot behind weak subbasal elevation ..... .....……. *bipunctatus* Bryant
–. Elytron with 2 to 4 black spots variable in size and number; 2 basal ones sometimes united together, sometimes outer one absent; female sometimes without black spot; male aedeagus subparallel-sided and curved down at apex (Fig. 1d) ……..… *dohertyi* Bryant
14. Elytra bicolored, black with violaceous tinge, and with sutural area fulvous ….. 15.
–. Elytra colored otherwise ….....…… 16.
15. Clypeus triangular and wider than long; elytra with fulvous rhomboidal patch along suture ……..…. *erberi* Medvedev
–. Clypeus quadrangular; antennal furrow indistinct; elytra with fulvous patch widest at base, then straightly narrowed posteriorly ….....…… *suturalis* Baly
16. Elytra matt, with interstices more or less granulate ….....……. 17.
–. Elytra more or less shining and smooth ……..…. 22.
17. Elytra almost impunctate, with a few short punctate striae not reaching middle of elytra ….....……. 18.
–. Elytra with distinct punctate striae; striae generally reaching apical 1/3rd, sometimes distinct only on basal 1/3rd ……..…. 19.
18. Prothorax shining, widest at middle, thence roundly narrowed to both ends; elytra covered with fine hairs, with 2 short rows of punctures subbasally ……..... .....…. *monticola* n. sp. (female)
–. Prothorax finely punctate, widest at middle, thence linearly narrowed to base; elytra covered with fine recumbent and erect hairs; male aedeagus subparallel-sided, gently produced and curved down at apex (Fig. 1f) …..…… *fulvohirtus* n. sp. (male)
19. Elytra distinctly pubescent ….....……. 20.
–. Elytra almost glabrous ……..…. 21.
20. Elytra with punctate striate on shining basal 1/3, finely punctate and densely microsculptured on apical 2/3 ……..…. *pubescens* Medvedev (female)

–. Elytra black except for red brownish base, with punctate striae reaching apical 1/3rd; interstices wholly and densely granulate ……. *jamadai* n. sp. (female)

21. Posterior tibia short, distinctly flattened and widened at middle; elytra with distinct punctate striae even on subbasal elevation; interstices granulate and weakly raised; male aedeagus gently curved in lateral view (Fig. 1c) ……. *dimidiatus* JACOBY

–. Posterior tibia longer, weakly flattened and widened at middle; elytra with punctate striae starting behind subbasal elevation; male head wider than pronotum, genae strongly tubercualte at apex; female with elytra not granulate; male aedeagus strongly curved on basal half in lateral view (Fig. 1g) …. *kinabaluensis* n. sp.

22. Elytra with punctate striae short, not reaching the middle ……..……. 23.

–. Elytra with punctate striae longer, at least reaching the middle ……..…. 24.

23. Body shining, yellowish brown; head extremely large, distinctly wider than prothorax; eyes rather small, not producing laterally beyond outline of face in frontal view; male aedeagus with apex rather thick in lateral view (Fig. 1i) ……..... .....…. *lehi* n. sp. (male)

–. Body shining, yellowish brown, with blackish blue elytra; antennae dark brown on 2nd to 9th segments, yellowish white on last 2 segments; head narrower than prothorax, with eyes distinctly producing beyond outline of face …..... .....……. *barioensis* n. sp. (female)

24. Color variable: elytra from entirely fulvous to black, sometimes fulvous with darkened lateral and sutural areas; venter also variable from fulvous to entirely black; body oblong ovate; elytra somewhat dull on account of very fine microsculpturing, with 3 pairs of more or less distinct geminate punctate striae, interstices almost impunctate …….....…. *westwoodi* CHAPUIS

–. Body rather subparallel-sided; elytra with weak singular striae of punctures; interstices more or less finely punctate …….....…. 25.

25. Male with genae as deep as longitudinal diameter of eye; genae below eyes slightly convex ……..…. 26.

–. Male with genae distinctly shallower than longitudinal diameter of eye; genae below eyes distinctly depressed; body yellowish brown; 7th antennal segment almost as long as the following two combined; male aedeagus with a short longitudinal impression subapically on ventral view (Fig. 1j) ….....……. *liwaguensis* n. sp.

26. Head, antennae, legs, abdomen and meso- and metathorax largely dark brownish; antennae distinctly flattened; male aedeagus weakly constricted before median orifice (Fig. 2e) …….....…. *sumatrensis* n. sp. (male)

–. Body wholly light brownish; genae distinctly thickened and slightly produced laterally at apex; male aedeagus gently narrowed to apex (Fig. 1e) …..... .....…….*fulvoantennatus* n. sp.

KEY TO SPECIES OF THE SUBGENUS *PRIOSTOMUS* JACOBY IN GREATER SUNDA ISLANDS

1. Elytral disc densely and rugosely punctate even on apical 1/3 ….....…… 2.

–. Elytral disc mostly impunctate on subbasal elevation and on apical 1/3 …… 6.

2. Body larger, over 5 mm; antennae long, 2.5 times in male, 1.5 times in female as long as body ……..... 5.
–. Body less than 5 mm in length; antennae shorter, less than twice as long as body in male ……..... 3.
3. Pronotum with a pair of transverse fovea anteriorly to median transverse impression; body smaller; dorsum unicolored, dark greenish blue, sometimes head and pronotum yellowish brown; femora largely pale yellowish brown, tibiae and tarsi dark brown; subbasal elevation large, occupying basal 1/3 of elytra; male aedeagus gently curved in latral view, slightly narrowed near median orifice (Fig. 3d) ….....…… *maklarini* n. sp.
–. Dorsum bicolor, head and pronotum pale reddish brown, elytra dark bluish green; legs largely pale brownish ….....…… 4.
4. Elytra rugosely or foveolately punctate, with 3rd interstices apically, 5th and 7th distinctly costate on median portion in male; male aedeagus slender, slightly curved at apex (Fig. 3k) ……..... *subcostatus* Jacoby
–. Elytra rugosely or foveolately punctate, with 5th and 7th interstices weakly costate; male aedeagus robust, gently curved in lateral view (Fig. 3b) ….....
.....…… *aeneipennis* Jacoby
5. Body larger, over 7 mm in length; pale reddish brown, with legs and antennae largely dark brown to blackish; elytra dark metallic green; elytra more or less rugosely punctate with 3 costae; punctures with tendency to arrange in longitudinal rows; male aedeagus slender, with acute lateral projection near basal 2/3rd (Fig. 3a) ……..... *psi* n. sp.
–. Body smaller, 5 mm in length; pale yellowish brown, with antennae darker; elytra sometimes with bluish tinge; elytra rugosely and confusedly punctate, with distinct lateral costa, and a few weak, short costae postero-laterally; male aedeagus triangular at apex (Fig. 3c) ….....…….. *kuningus* n. sp.
6. Elytra with distinct punctate striae on subbasal elevation; disc rather densely punctate on basal 2/3, diameter of punctures almost as large as interspaces; pale yellowish brown, vertex and pronotum near anterior angles darkened; elytra on basal 2/3 largely with greenish tinge except for on lateral area; male aedeagus acutely and strongly produced apically (Fig. 3g) ….....…… *minutus* n. sp.
–. Elytra almost impunctate on subbasal elevation; punctures sparse and more or less arranged in longitudinal rows ….....……. 7.
7. Prothorax weakly narrowed to basal angles, narrower, almost 1.4 times as wide as long; elytra shining, with punctate striae mostly confined to impression behind subbasal elevation, except for longer intrahumeral stria; body flat and shining, dark chocolate brown with paler legs; sometimes head anteriorly and elytra on basal half light reddish brown; antennae stouter, reaching middle; male aedeagus rather robust, and rather acutely narrowed to apex (Fig. 3i) ……. *nitidicupreatus* n. sp.
–. Prothorax inverted trapezoid in shape, widest at hind corner of anterior angle, strongly narrowed to basal angle; 1.6-1.8 times as wide as long; punctuation sparse, punctate striae reaching at least apical 1/3rd ….....……. 8.

8. Elytra sparsely covered with short erect hairs; yellowish brown, with head, antennae, meso- & metathorax dark brown to blackish; elytra blackish green; male aedeagus slender, gently widened subapically and truncate at apex (Fig. 3j) …..……. *nitidihirtus* n. sp.
–. Elytra glabrous ……..…… 9.
9. Elytra with punctate striae stronger, distinctly reaching apical 1/3rd; intrahumeral area strongly depressed, with narrow humeral costa; 7th interstices more or less costate …..……. 10.
- Elytra with punctate striae weaker; inner ones becoming weaker posteriorly, and indistinct behind middle; humeral costa wider …….....…. 11.
10. 6th and 7th punctate striae well impressed, forming regular geminate rows, each composing of 7 or 8 punctures; elytral disc uniformly convex behind subbasal impression, with 7th interstices weakly costate; male aedeagus gently produced posteriorly at apex in lateral view; venter longitudinally depressed near median orifice (Fig. 3h) ……..... *moyogensis* n. sp.
–. 6th and 7th punctate striae indistinct and irregular, composing of 7-10 punctures in total; sometimes 6th almost indiscernible or more or less irregular; elytra blackish blue with greenish tinge; antennae dark brown; elytral disc weakly depressed before middle; male aedeagus gently curved down at apex (Fig. 3l) ….....
.....……. *tibowensis* n. sp.
11. 8th and 9th punctate striae rather short, composing of 5-6 punctures each, reaching middle of elytra; male aedeagus strongly produced apically, with a pair of acute, long lateral processes (Fig. 3e) ….....……. *maryatiae* n. sp.
–. 8th and 9th punctate striae distinct and long, extending beyond middle of elytra; male aedeagus without such processes (Fig. 3f) ….....……. *muaya* n. sp.

### *Chaloenus* Westwood, 1861

Westwood, 1861. Jour. Entomol. 1: 216 (Type species: *Chaloenus latifrons* Westwood); Mohamedsaid, 2004, Cat. Malay. Chrysom, 239 pp., Pensoft Publ., Sofia; Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 245-252.

This genus is characterized by the below combination of characters: antennae 11-segmented, with first segment very long, as long as, or longer than 2nd and 3rd combined together; 2nd very small; body oblong, not densely pubescent on the dorsum; pronotum with or without transverse impression; anterior coxal cavities open; tibiae without apical spine; 3rd tarsal segment bilobed with simple claw segment. Some species show characteristic sexual dimorphism of the head, i.e., males have their head strongly widened with eyes laterally produced. Some males have frons longitudinally lengthened. These characters of head are polymorphic in male individuals and correlated with their body size in some species. Males are clearly distinguished from females by the enlarged head, longer antennae, enlarged tarsal segments and by last abdominal segment more or less trilobed. Occasionally characters like head shape, length ratio of antennal segments and coloration were used as taxonomic characters, but these are sometimes vary between sexes and individuals.

Konstantinov & Prathapan (2008) summarized differences between the genus *Priostomus* and *Chaloenus*. The latter has a transverse impression on the pronotum and elytra strongly punctate-striate, while the pronotum is evenly convex in the nominate subgenus. Its elytra are practically impunctate, or strongly punctate-striate, or densely and confusedly punctate. They also listed a lot of shared characters and concluded that *Priostomus* is synonymous with *Chaloenus*. Takizawa (2011) divided the genus *Chaloenus* into two subgenera, viz. the nominate subgenus and subgenus B, based on Bornean species. The latter were found corresponding to the genus *Priostomus*. He showed these two groups have different tendencies in some morphological and biological traits. From this evidence I treat here these two groups as different subgenera.

## Subgenus *Chaloenus* Westwood

*Chaloenus* Westwood, 1861, Jour. Entomol. 1: 216 - Bryant, 1943, Ann. Mag. Nat. Hist., ser. 11, 10: 379 – Medvedev, 2004, Russ. Entomol. Jour. 13(4): 245

*Delocephala* Jacoby, 1884, Not. Leyden Mus., 6: 66 (Sumatra); Wilcox, 1971-1975, Coleopt. Cat., suppl. Chrysomelidae, Galerucinae, pars 78 (1-4): 1-770 (synonimized)

*Priostomus* Jacoby, 1884, Stett. Ent. Zeit. 45: 185-186 (type species: *Priostomus unicostatus* Jacoby) – Konstantinov & Prathapan, 2008, Coleopt. Bull. 62 (3): 390 (synonymized).

Table 1. Plant association in the genus *Chaloenus*

| Group | No. of spp. | Aroid association | Other association |
|---|---|---|---|
| 1a | 6 | attracted & feeding on inflorescences* ( 3 spp.); never feeding on leaves | attracted to *Pinanga* inflorescence (3 spp.) |
| 1b | 16 | no data | attracted to *Pinanga* inflorescence (3 spp.) |
| 2a | 1 | attracted to old flower of *Sapindapsis* sp. | attracted to *Pinanga* inflorescence (1 sp.) |
| 2b | 5 | gathering on *Schsimatoglottis* leaves (5 spp.) | gathering on *Ficus unicinata* (1 sp.); on *Wedelia* (1 sp.); feeding on *Impatiens* (1 sp.) |
| 2c | 5 | no association (5 spp.) | feeding on *Ficus unicinata* (1 sp.), on Theaceae tree (1 sp.), on *Melastoma* sp. (1); gathering on *Myrmeconauclea* sp. (3 spp.) |
| 2d | 2 | no data | no data |

* *Piptospatah havilandii*; *Hottarum kinabaluensis*; *Schistomatoglottis calypterata* & sp.; *Homalomena propinqua*.

This is characrteized by rather ovate body and rather robust and short antennae which have apical segments more or less shortened and wide. Prothorax is evenly convex, without transverse impression. Punctuation on elytra is divided into three types: 1. Elytra are densely and confluently punctate as in *matangensis*. 2. Elytra are regularly punctate-striate as in *oculata*. 3. Elytra essentially impunctate except for some large punctures around subbasal raised area as in *dohertyi*. A lot of species are characterized by sexually dimorphic heads (Tab. 2, 13 dimorphic species against 10 species without dimorphism).

Its plant association is summarized in Tab. 1. Although only eight species of the subgenus are known with respect to their plant association, six among those are known to gather and feed on inflorescences of family Araceae, such as *Piptospatha* sp., *Schismatoglottis* sp., *Alocassia* sp. and *Hottarum* sp. Additionally six species of the subgenus were found gathering onto an inflorescence of *Pinanga* sp. (Palmaceae). It thus seems that this subgenus has a strong association with aroid inflorescences. What is problematic is that they never feed on aroids leaves, so far known. There are no informations on plant association of other species. Most species are found on humid understorey of forests or streamsides, where a lot of aroids stocks are found. So the association with aroid inflorescences or stocks seems dominant in this subgenus.

### *Chaloenus apicicornis* (Jacoby, 1884)

*Delocephala apicicornis* Jacoby, 1884, Notes Leiden Mus. 6: 67 (Sarawak, Sumatra).
*Chaloenus apicicornis*: Wilcox, 1975, Col. Cat. Suppl. Chrysom.: Galerucinae, pars 78: 656 – Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 247 (Sumatra).
*Chaloenus matangensis*: Mohamedsaid, 2004, Cat. Malay. Chrysom.: 157 (synonymized).

Table 2. Head dimorphism in the genus *Chaloenus*

| Subgenus | Head with sexual dimorphism | Head without sexual dimorphism | Status unknown |
|---|---|---|---|
| *Chaloenus* | *basalis*; *brooksi*; *dohertyi*; *erberi*; *giganteus*; *latifrons*; *matangensis*; *schawalleri*; *apicicornis*?; *laetus*; *pseudobrooksi*; *kinabaluensis*; *lehi* (13 spp.) | *brunneus*; *dimidiatus*;*suturalis*; *bipunctatus*; *westwoodi*; *liwagensis*; *fulvoantennatus*; *sumatrensis*; *fulvohirtus*; *todai*; *yukikoae* (11 spp.) | *furthi*; *pubescens*; *barioensis*; *monticola*, *jamadai*; *lanjakensis* (6 spp.) |
| *Priostomus* | *psi*; *kuningus* (2 spp.) | *aeneipennis*; *subcostatus*; *maklarini*; *nitidihirtus*; *nitidicupreatus*; *moyogensis*; *minutus*; *maryatiae*; *tibowensis*; *muaya*; *unicostatus* (11 spp.) | ( - ) |

Remarks

This species was described from Sumatra, but has not been examined by either Medvedev (2004) or me. It is characterized by head and pronotum bluish black, and by elytra purplish blue. Its elytra are very densely and confluently punctate, and hind femora are not thickened. Males have heads enlarged and wider than the prothorax, and anterior legs elongate (Medvedev 2004). Coloration is somewhat similar to *C. matangensis*, and Mohamedsaid (2004) synonymized the latter with present species. Because original description refers to above peculiar characters of the legs (hind femora are not thickened), I refrain from following Mohamedsaid's synonymy.

Distribution

Borneo (Sarawak), Sumatra.

Host plants

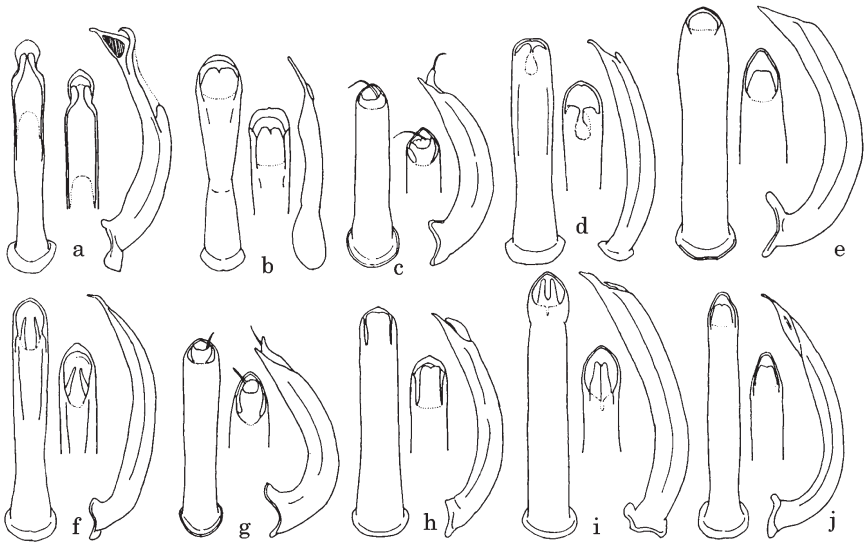
Unknown.

### *Chaloenus* (*Chaloenus*) *barioensis* n. sp.

(Fig. 5)

Type material

Holotype: Female. Al Dalan, Bario, Kelambit highland, Sarawak, 5-7.IX.2007, H. Takizawa leg. (BORNEENSIS collection, ITBC).

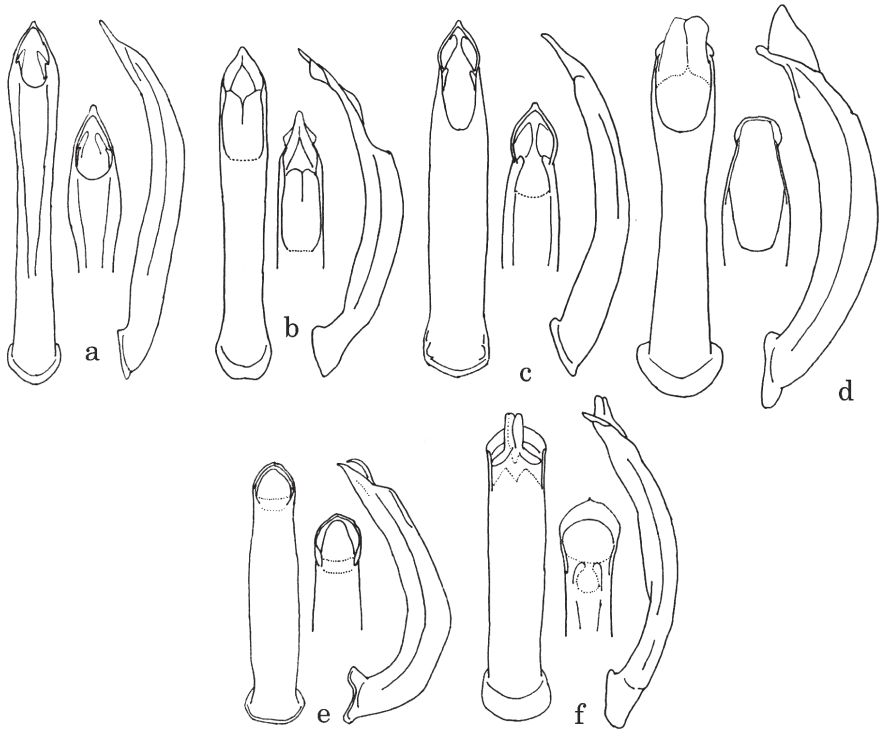



1. Aedeagus of *Chaloenus* (*Chaloenus*) species (1): a – *Chaloenus brooksi* (Tungud For. Res., Sabah; l*); b – *C. brunneus* (Kg. Moyog, Sabah; m); c – *C. dimidiatus* (Kg. Kipouvo, Sabah; l); d – *C. dohertyi* (Lambir Hills Nat. Park, Sarawak; l); e – *C. fulvoantennatus* n. sp. (holotype; l); f – *C. fulvohirtus* n. sp. (holotype; n); g – *C. kinabaluensis* n. sp. (holotype; l); h – *C. latifrons* (Is. Langkawi, Malay Pen.; l); i – *C. lehi* n. sp. (holotype; m); j – *C. liwaguensis* n. sp. (holotype; m) (* 'l', 'm' and 'n' denote relative scale size; figs. marked with 'm' or 'n' were enlarged 5/4 or 3/2 times relatively to figs. with 'l')

Description

Female. Body pale reddish brown, with lustrous black elytra; antennae on 5th to 9th segments dark brown; tarsi infuscate.

Head distinctly narrower than pronotum at anterior margin, shining and impunctate; vertex with a small longitudinal fovea medially; frontal tubercles quadrate, laterally and posteriorly delimited by shallow impression, oblique at anterior margin; eyes large, with the distance between them 1.5 times as wide as its longitudinal diameter; frons depressed and triangular, 3/4 as long as wide, matt with fine punctures; frontal carina short and sharp, abruptly raised between antennal sockets; antennal groove obscure; antennae short, 0.6 as long as body, pubescent beyond 3rd segment; 1st segment longest and club-like, 3 times as long as 2nd; 2nd 0.7 as long as 3rd; 7th 0.7 as wide as long; 9th as long as wide; relative length of antennal segments as: 1st>>11th>3rd=4th=5th>6th=7th>8th>10th>2nd=9th. Pronotum transverse, almost parallel-sided on basal 3/5, 1.8 times as wide as long, widest at basal 2/5th, slightly narrowed to base, rather strongly so to anterior angle, reflexed on lateral margins near both angles, gently emarginated at anterior margin, strongly arched at posterior margin; both anterior and posterior




2. Aedeagus of *Chaloenus* (*Chaloenus*) species (2): a – *Chaloenus matangensis* (Poring Park, Sabah; l*); b – *C. permai* (holotype; l); c – *C. schawalleri* (Kg. Moyog, Sabah; l); d – *C. yukikoae* n. sp. (holotype; l); e – *C. sumatrensis* n. sp. (holotype; l); f – *C. todai* n. sp. (holotype; l) (*'l' is same as in Fig. 1)

angles obtuse; disc evenly convex, shining with fine punctures; scutellum triangular, rounded at apex, 3/4 as long as wide, shining and impunctate. Elytron 3.6 times as long as wide, gently widened from base to middle, thence roundly narrowed to apex, narrowly reflexed on lateral margin; subbasal area feebly raised, bounded laterally by intrahumeral impression, with fine punctures; disc with 5 punctate striae; 3 median ones behind subbasal area short; intrahumeral one extending to middle of elytra; another one inside the lateral margin extending to apical margin; interstices covered with small punctures except for almost impunctate subbasal area, sparsely covered with fine recumbent hairs and stiff erect hairs on apical 1/3 under high magnification; 5th visible abdominal sternite simple at apex; 1st tarsal segment narrower than the 3rd; hind tibiae as long as pronotal width at anterior margin.

Remarks

Among small *Chaloenus* species, this new species is uniquely characterized by the shape of pronotum, which is subparallel-sided on basal 3/5, thence strongly narrowed to anterior angle. Further a combination of pale reddish brown body with lustrous black elytra is so far unknown among smaller *Chaloenus*. The specific name was derived from its type locality in Sarawak.

Distribution

Borneo (Sarawak).

Host plants

unknown.

### *Chaloenus* (*Chaloenus*) *basalis* Bryant, 1943

*Chaloenus basalis* Bryant, 1943, Ann. Mag. Nat. Hist. ser. 11 (10): 380 (Perak) – Kimoto, 2003, Leaf beetles of Thailand & Indochina: 106, fig. 31.I - Medvedev, 2004, Russ. Entomol. Jour. 13(4): 249 (Burma, Thailand).

Remarks

This species is characterized by its coloration: body fulvous with pronotum and elytra on basal 1/3 black; head sometimes black. Elytra are distinctly raised at the subbasal area, and are practically impunctate except for a few large punctures around the subbasal raised area. This is somewhat similar to a color form of *latifrons*, but males have head enlarged and distinctly wider than prothorax. This is recorded for the first time from Malay Peninsula, based on a single specimen in UKM collection.

Distribution

Burma, Thailand, Malay Peninsula

Host plants

Unknown.

Specimens examined. 1F, Perak, Temenggor, Eksp. MNS Belam, 15-20.XI.1993, Salleh, Ismail, Sham (UKM).

### *Chaloenus* (*Chaloenus*) *bipunctatus* Bryant, 1943

*Chaloenus bipunctatus* Bryant, 1943, Ann. Mag. Nat. Hist. ser 11, 10: 383 (Borneo, Malaya) – Mohamedsaid, 2004, Cat. Malay. Chrysom.: 157 - Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 252.

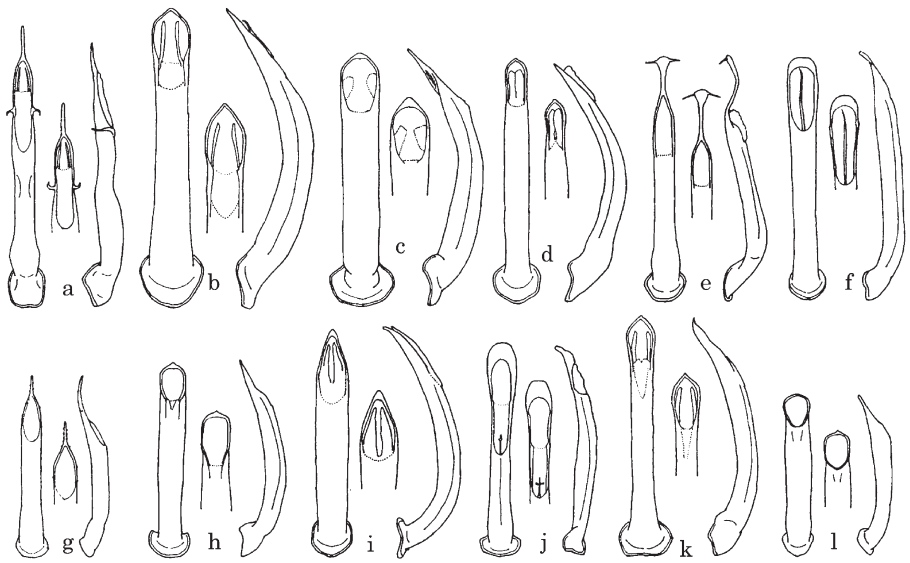
Remarks

This species is characterized by reddish brown body with a blackish spot behind the base of elytron; frons and antennae on 5th to 8th segments brown; body 6 mm in length; head as wide as prothorax with prominent eyes; face flattened, broad and subquadrate; elytral disc with feeble subbasal elevation, almost impunctate except for larger punctures around subbasal elevation.

This species was described from Sarawak and Perak, but I have seen no specimens. This might be a color variety of *C. dohertyi* Bryant as discussed under *C. dohertyi*.

Distribution

Borneo (Sarawak), Malay Peninsula (Perak).




3. Aedeagus of *Chaloenus* (*Priostomus*) species: a – *Chaloenus psi* n. sp. (holotype; k*); b – *C. aeneipennis* (from Lanjak Entimau, Sarawak; m); c – *C. kuningus* n. sp. (holotype; m); d – *C. maklarini* n. sp. (holotype; m); e – *C. maryatiae* n. sp. (holotype; m); f – *C. muaya* n. sp. (holotype; m); g – *C. minutus* n. sp. (holotype; m); h – *C. moyogensis* n. sp. (holotype; m); i – *C. nitidicupreatus* n. sp. (holotype; m); j – *C. nitidihirtus* n. sp. (holotype; m); k – *C. subcostatus* (from Urung Tama, Sumatra; m); l – *C. tibowensis* n. sp. (holotype; m) (*'m' is same as in Fig. 1; figs. with 'k' were enlarged 1.7 times relatively to figs with 'm')

Host plants
Unknown.

### *Chaloenus* (*Chaloenus*) *brooksi* Bryant, 1943
(Fig. 6)

*Chaloenus brooksi* Bryant, 1943, Ann. Mag. Nat. Hist. ser. 11, 10: 379 (Borneo) - Mohamedsaid, 2004, Cat. Malay. Chrysom.: 158 - Medvedev, 2004, Russ. Entomol. Jour. 13(4): 247 (Sarawak).

Remarks
The original description and Medvedev's note are insufficient for exact determination of this species. This species is characterized as: abdomen fulvous; antennae blackish brown, with 2 apical segments yellowish white; aedeagus much rounded at apex, strongly curved down at apex in lateral view (Fig. 1a). Three specimens collected at Poring Park are characteristic in having blue color of elytra faded in various degrees; one specimen is almost yellowish brown with slight bluish reflections on elytra. Males have their head enlarged and wider than the prothorax.

This species is usually collected by sweeping along streamside, and at Muaya waterfall, 3 specimens were collected gathering in the inflorescences of *Piptospatha* sp. growing on stream bed.

Distribution
Borneo (Sabah, Sarawak).

Host plants
Inflorescences of *Piptospatha* sp. (Araceae)

Specimens examined. 1M, Laguo Sebrang, Tenom, Sabah, 21.VIII.1990 (ITBC); 1 F., Kg. Moyog, Penampang, Sabah, 13.IX.2008, H. Takizawa leg.; 1 F., Tabin Wildlife Res., Tawau, Sabah, 25-26.XII.2008, H. Takizawa leg.; 1M, Tungud Forest Res., Upper Kinabatangan, Sandakan, Sabah, 22-23.II.2008, H. Takizawa leg.; 2M1F., Poring Park, Ranau, Sabah, 22,25.II.2009, H. Takizawa leg.; 3F, Muaya waterfall, Kg. Muaya, Sipitang, Sabah, 7-9.III.2009, H. Takizawa leg.

### *Chaloenus* (*Chaloenus*) *brunneus* Bryant
(Fig. 7)

*Chaloenus brunneus* Bryant, 1943, Ann. Mag. Nat. Hist. Ser 11, 10: 383 (Borneo) – Mohamedsaid, 2004, Cat. Malay. Chrysom.: 158 - Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 250.

Redescription
Male. Body short and robust, 4.8 mm in length, shining yellowish brown; antennae black on 4th to 8th segments, yellowish white on 3 apical segments, except for tip of 11th black; elytra narrowly black on basal, lateral and sutural margins and epipleuron.

Head distinctly narrower than prothorax; frontal tubercles rather triangular, distinctly narrowed laterally, acutely produced anteriorly, and strongly and roundly delimited behind; distance between eyes 1.5 times as wide as its longitudinal diameter; frons distinctly convex, with frontal carina separately elevated; antennal groove deeply impressed, but not well demarcated; antennae rather long, 0.8 as long as body; genae 2/3 as deep as longitudinal diameter of eye. Pronotum transverse, 1.8 times as wide as long, widest near hind corner of oblique anterior angle, thence strongly narrowed to base; disc impunctate and shining. Elytra with subbasal area strongly raised and delimited by subbasal transverse impression and by intrahumeral impression; disc covered with fine punctures, with large punctures around subbasal elevation; 5th visible abdominal sternite transversely trilobed at apex; male aedeagus rather straight in lateral view, weakly constricted subbasally, broadly rounded at apex; venter sharply margined on apical 1/3 (Fig.1b). Fore and middle legs with 1st tarsal segment weakly widened.

Remarks

Though the type series from Sarawak are different in coloration, having the head, prothorax and legs almost black, other characters agree well with present specimens. One specimen from Tabin Wildlife Reserve is wholly yellowish brown. This species was collected by sweeping along forest margin, or understorey at lowland of ca. 50-200 m asl.

Distribution

Borneo (Sabah, Sarawak).

Host plants

Unknown.

Specimens examined. 2F, Kg. Putanton, Penampang, Sabah, 29.IV.2007, H. Takizawa leg.; 1M, Kg. Kiapad, Inanam, Kota Kinabalu, Sabah, 11.I.2009, H. Takizawa leg.; 1F, Kg. Kipouvo, Penampang, Sabah, 20.V.2007, H. Takizawa leg.; 1F, Kg. Babagon, Penampang, Sabah, 11.XI.2007, H. Takizawa leg.; 1F, Kg. Moyog, Penampang, Sabah, 13.I.2008, H. Takizawa leg.; 1F, ditto, 21.I.2009, H. Takizawa leg.; 1M, ditto, 14.II.2008, H. Takizawa leg.; 1M, Tabin Wildlife Reserve, Lahad Datu, Sabah, 25-26.XII.2008, H. Takizawa leg.

### *Chaloenus* (*Chaloenus*) *dimidiatus* Jacoby, 1885

(Fig. 8)

*Chaloenus dimidiatus* Jacoby, 1885, Ann. Mus. Civ. Genova, 36: 434 (Sumatra, Malaya) – Mohamedsaid, 2004, Cat. Malay. Chrysom.: 158 - Medvedev, 2004, Russ. Entomol. Jour. 13(4): 250 (Borneo).

Remarks

Although the holotype from Sarawak is characteristic with elytra black or dark violet on the apical half, all the specimens from Sabah are pale reddish brown, except

for antennae on 5-10th segments blackish and on 11th yellowish white. This species is characterized as: body small, 4.0-4.5 mm in length; head distinctly narrower than prothorax in both sexes; genae simple, almost 1/3 as deep as longitudinal diameter of eye; antennae short, almost half as long as body in female; first segment forming a distinct club, subequal to 2nd to 4th combined together; pronotum transverse, 1.8 times as wide as long, strongly arched at posterior margin; anterior angle thickened and depressed inwardly; elytron 3 times as long as wide, rather widely reflexed on lateral margin, somewhat declivitous laterally; subbasal area weakly raised, delimited laterally by punctate stria; disc matt, with 8 punctate striae; interstices weakly raised and granulate; tibiae, especially of hind legs, flattened and widely expanded at middle; hind tibiae shorter than pronotal width; aedeagus short and robust, roundly produced at apex (Fig. 1c).

Distribution
Borneo (Sabah, Sarawak).

Host plants
Unknown.

Specimens examined. 1F, Kg. Kiapad, Inanam, Kota Kinabalu, Sabah, 12.VII.2009, H. Takizawa leg.; 1M, Kg. Kipouvo, Penampang, Sabah, 8.I.2008, H. Takizawa leg.; 1F, Kg. Babagon, Penampang, Sabah, 12.V.2007, H. Takizawa leg.; 1F, Poring Park, Ranau, Sabah, 13-15.II.2009, H. Takizawa leg.; 1F, ditto, 4.VI.1992, K. Maruyama leg.; 1F, ditto, 21-22.VIII.2008, H. Takizawa leg.; 1F, ditto, 29.IX.2007, H. Takizawa leg.

### *Chaloenus* (*Chaloenus*) *dohertyi* Bryant, 1943
(Fig. 9)

*Chaloenus dohertyi* Bryant, 1943, Ann. Mag. Nat. Hist. ser 11, 10: 380 (Borneo) – Mohamedsaid, 2004, Cat. Malay. Chrysom.: 158 - Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 251.

Remarks
This species is characterized by shining reddish brown body with 3 or 4 black spots on each elytron; number and size of black spots variable (Fig. 4): humeral spots sometimes fused with medio-basal one, or sometimes disappearing; apical spots sometimes disappearing; specimens from Sarawak with strongly reduced spots, leaving small middle and apical spots; most female specimens from Kg. Kiapad near Kota Kinabalu wholly reddish brown, without black spots; antennae on 5th to 9th segments and apical half of 11th black, on 10th and basal half of 11th yellowish white; head strongly widened and subquadrate, distinctly wider than prothorax in males; elytra with subbasal area feebly elevated and delimited posteriorly by a shallow transverse impression; elytra almost impunctate except for larger punctures at subbasal impression, intrahumeral and marginal striae; frons elongately triangular, distinctly longer than wide. Basing on the original description and Medvedev's note on type specimens, it is difficult to find

any morphological characters which clearly distinguish this species from *bipunctatus*, except for the number of black spots on elytron. However, number and size of these spots are quite variable from 4 to 2 spots among individuals even from a single locality as shown in Fig. 4. It is quite probable that these two forms are conspecific.

The size and shape of heads are sexually dimorphic in this species. Males have the head usually strongly developed and pronotum inverted trapezoidal. Females in contrast to males have heads distinctly narrower than the prothorax. The pronotum transverse, not conspicuously narrowed to base. Further, these characters of males are also polymorphic according to the body size (Figs. 39-40). That is, larger males have always wider head, while smaller ones have smaller head, narrower than the prothorax. TAKIZAWA (2011) discussed this phenomenon in terms of sexual competition for mating, referring to the case of similarly shaped anthribid beetles, *Exechesops leucopis* (JORDAN) in Japan without concrete e vidences.

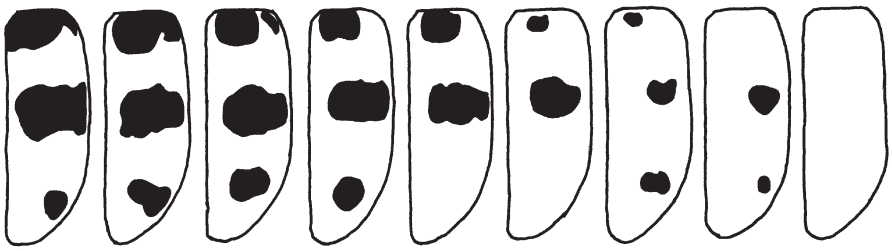
DISTRIBUTION

Borneo (Sabah, Sarawak).

HOST PLANTS

Inflorescences of *Schismatoglottis* spp. and a few aroid species.

SPECIMENS EXAMINED. 1M1F, Kg. Moyog, Penampang, Sabah, 22.I.2009, H. Takizawa leg.; 1M, ditto, 13.IX.2008, H. Takizawa leg.; 1F, Kg. Kionsum Kecil, Inanam, Kota Kinabalu, Sabah, 1.I.2008, H. Takizawa leg.; 1M3F, Kg. Kiapad, Inanam, Kota Kinabalu, Sabah, 11.I.2009, H. Takizawa leg.; 1M5F, ditto, 8.II.2009, H. Takizawa leg.; 2M, ditto, 22.III.2009, H. Takizawa leg.; 1M, ditto, 30.III.2008, H. Takizawa leg.; 1F, ditto, 18.V.2008, H. Takizawa leg.; 24M8F, ditto, 5.VII.2008, H. Takizawa leg.; 1M1F, ditto, 4.X.2008, H. Takizawa leg.; 1M, ditto, 9.XI.2008, H. Takizawa leg.; 2M13F, ditto, 6.XII.2008, H. Takizawa leg.; 1M, Kg. Keliangau, Menggatal, Kota Kinabalu, Sabah, 7.X.2007, H. Takizawa leg.; 1F, Kg. Sinarut Baru, Ranau, Sabah, 21.VII.2007, H. Takizawa leg.; 1M, Poring Park, Ranau, Sabah, 21-22.I.2008, H. Takizawa leg.; 1M, ditto, 13-15.II.2009, H. Takizawa leg.; 1M1F, ditto, 22,25.II.2009, H. Takizawa leg.; 2M, ditto, 11-12.III.2009, H. Takizawa leg.; 1F, 22,24.III.2008, H. Takizawa



4. Elytral patterns in *Chaloenus dohertyi.* Collected localities from left to right: Kg. Moyog, Penampang, Sabah; Poring Park, Ranau; 3rd to 6th & 9th, Kg. Kiapad, Kota Kinabalu, Sabah; 7th & 8th, Lanjak Entimau, Sarawak

leg.; 2M1F, 4-5.IV.2008, H. Takizawa leg.; 1M2F, ditto, 16-17.V.2008, H. Takizawa leg.; 2M, 4-5.VII.2009, H. Takizawa leg.; 4M1F, ditto, 9-10.VII.2008, H. Takizawa leg.; 2M, ditto, 21-22.VIII.2008, H. Takizawa leg.; 5M1F, ditto, 25-26.VIII.2007, H. Takizawa leg.; 4M2F, ditto, 25-26.IX.2008, H. Takizawa leg.; 2M3F, ditto, 3.X.1999, on *Schismatoglottis* spp., M. Toda leg.; 1M, ditto, 21-22.X.2008, H. Takizawa leg.; 1F, ditto, 20-21.XI.2008, H. Takizawa leg.; 1M, ditto, 29-30.XI.2007, H. Takizawa leg.; 1F, 7-8.XII.2008, H. Takizawa leg.; 1M1F, ditto, 11.XII.2008, H. Takizawa leg.; 1F, 19-20.XII.2007, H. Takizawa leg.; 3M, Muaya waterfall, Kg. Muaya, Sipitang, Sabah, 7-9.III.2009, H. Takizawa leg. 1M, Lambir Hills, Miri, Sarawak, 28.IV.2004, Y. Kumano leg.; 1F, ditto, 6.V.2004, Y. Kumano leg.; 2M, Lanjak Entimau Wildlife Sanctuary, HQ., Kapit, Sarawak, 18-28.VI.2008, H. Takizawa leg.

### *Chaloenus* (*Chaloenus*) *erberi* Medvedev, 2004

(Fig. 10)

*Chaloenus erberi* Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 251 (Sumatra, Pen. Malay).

Redescription

Male. Body yellowish brown, with antennae, 3 last abdominal sternites, tibiae and tarsi dark brown; elytra blackish with a rhomboidal yellowish white marking behind scutellum; 6.5 mm in length.

Head wide, 0.7 as wide as prothorax, impunctate and shining, weakly narrowed behind eyes; frontal tubercles subquadrate, with outer anterior angle curved down along antennal sockets, inner anterior one produced anteriorly; frons broadly triangle, 1.5 times as wide as long, sinuate at anterior margin, with distinct transverse depression behind the anterior margin, covered with fine punctures, with fine hairs latero-anteriorly; narrow frontal carina raised between antennal sockets; antennal groove shallow and dinstinct; eyes large, but not protruding laterally; distance between eyes almost twice as wide as longitudinal diameter of eye; genae as long as longitudinal diameter of eye, densely punctate with fine hairs near lower margin; antennae 0.9 as long as body, thickly pubescent beyond 2nd segment, flattened on 3rd to 7th segments; 1st segment shorter than 3rd and 4th combined together, longer than 4 times the 2nd; 7th 0.6 as wide as long; relative length of antennal segments as: 1st >> 3rd > 4th > 5th > 6th = 7th > 11th > 8th > 2nd = 9th > 10th. Pronotum transverse, twice as wide as long, widest at basal 2/3rd, thence roundly narrowed to anterior angle, sinuately narrowed to posterior angle, distinctly explanate on lateral margins, weakly emarginated at anterior margin, arched on posterior margin; anterior angle oblique, posterior angle obtusely produced laterally; disc convex and shining, with fine punctures; scutellum roundly triangular 0.7 as long as wide, flat and shining; elytron 2.2 times as long as wide, densely covered with fine punctures; interstices finely granulate; disc evenly convex, with a weak longitudinal intrahumeral impression, with 3 or 4 short rows of punctate striae behind subbasal area; punctate stria inside lateral margin reaching apical margin; lateral margin narrowly explanate; elytral epipleuron concave near apex; prothoracic sternite rather wide, distinctly separating coxae; abdomen damaged, without aedeagus.

Remarks

This species is characterized by blackish elytra with somewhat rhomboidal yellowish brown marking behind the scutellum; body smaller, 5.5-6.5 mm in length; elytra with 6 punctate striae, reaching the middle of elytra, except for lateral most one reaching apical 1/3rd; interstices finely granulate with fine punctures. This was described from Sumatra and Perak in Malay Peninsula based on 2 female specimens. Based on a male specimen from UKM collection, a short description of male is given here. This is somewhat similar to *suturalis* Westwood, but the latter has the elytra with an oblique stripe along the suture.

Distribution

Malay Peninsula (Perak, Selangor), Sumatra.

Host plants

Unknown.

Specimens examined. 1M, Bukit Larut, Perak, W. Malaysia, 8-9.III.1990, Ismaril Ruslan leg. (UKM); 1F, nr. K. K. Bahru, Selangor, W. Malaysia, 27.III.1976, K. Sakai leg.; 1F, Si Rimbe, Hulu Kelang, Selangor, W. Malyasia, 7.IV.2007, H. Takizawa leg.; 1F, Templer's Park, Batu, Selangor, 29.X.2009, H. Takizawa leg.

### ***Chaloenus* (*Chaloenus*) *fulvoantennatus* n. sp.**

(Fig. 11)

Type series

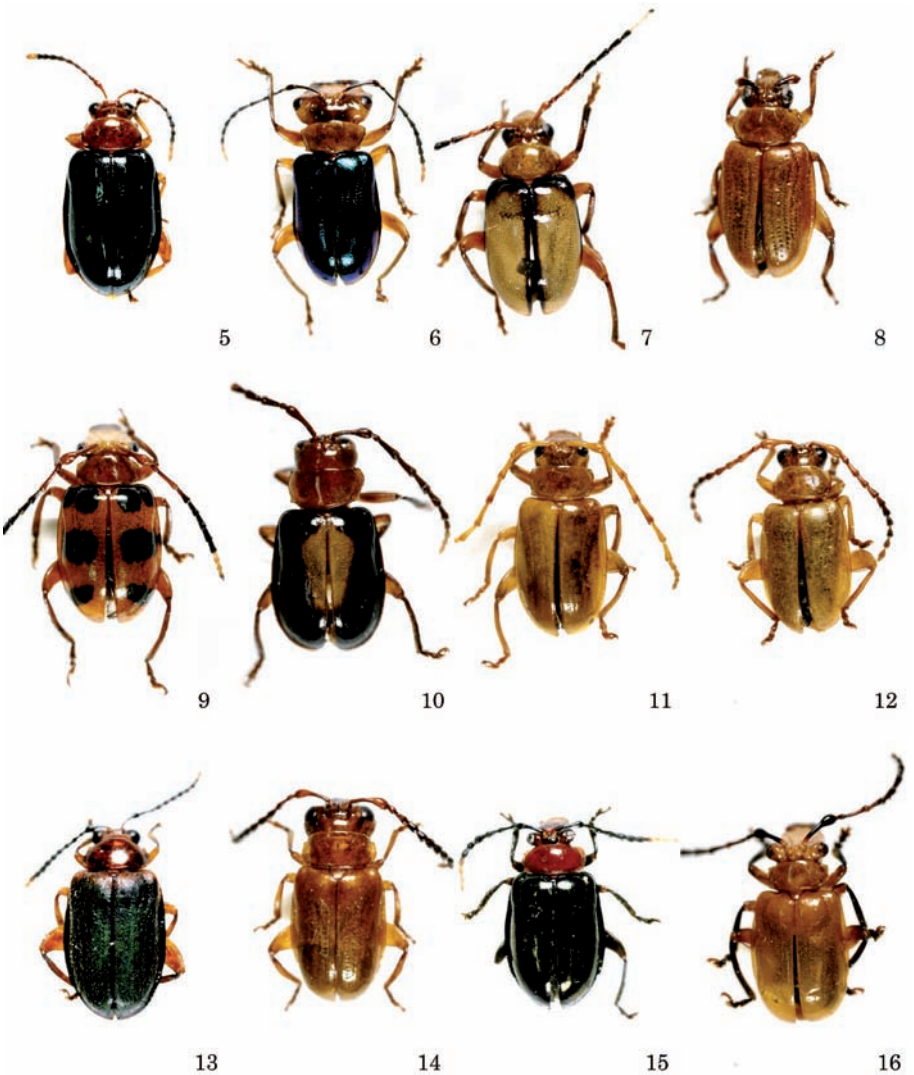
Holotype: Male, Kundasang, Ranau, Sabah, Malaysia, 16.VIII.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 1F, Kundasang, Ranau, Sabah, 30.VI.2008, H. Takizawa leg.; 1F, Mamut Mines, Ranau, Sabah, 2.III.2008, H. Takizawa leg.

Description

Male. Body somewhat subparallel-sided, 7mm in length; pale yellowish brown with metathorax and abdomen blackish except for last 2 sternites partially yellowish brown.

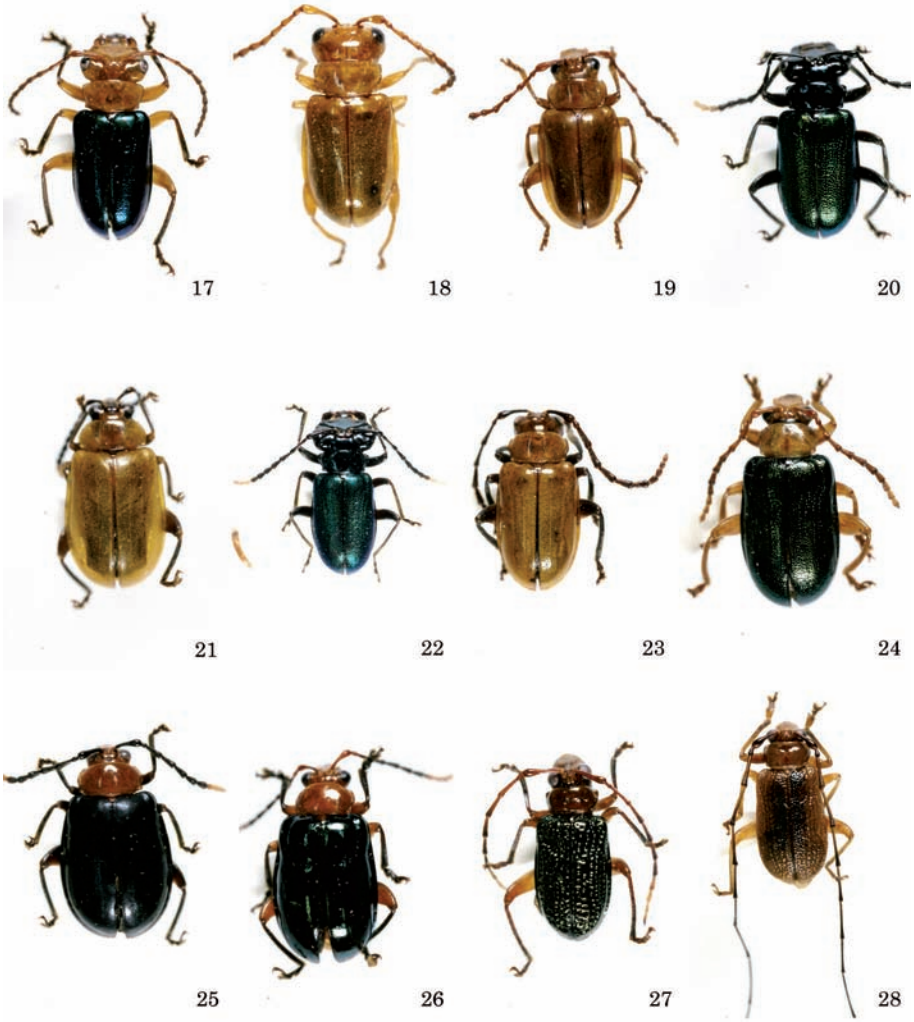
Head narrower than prothorax at anterior margin, subquadrate, impunctate and shining, slightly narrowed posteriorly on occiput; frontal tubercles flat and shining, subquadrate with anteromedian angle rather strongly produced, contiguous to each other with thin median line; eyes rather small, not protruding, distance between eyes twice as wide as its longitudinal diameter; frons flat and finely punctate, broadly triangular, 2/3 as long as wide; with short and acute frontal carina between antennal sockets; antennal groove obscure, weakly depressed; genae almost as deep as longitudinal diameter of eye, thickly tuberculate at anterior margin; mandibles carinate along upper and lower margins, between carinae deeply depressed; antennae long, as long as body, thickly pubescent beyond 3rd segment; 3rd to 8th segments slightly flattened; 1st segment conspicuously

club-like, as long as 2nd and 3rd combined together, 4 times as long as 9th; relative length of antennal segment as: 1st >> 3rd = 4th > 5th > 6th > 7th > 8th = 11th > 2nd > 9th > 10th. Pronotum transverse 1.9 times as wide as long, widest near basal 2/3rd, thence weakly narrowed anteriorly, rather strongly and sinuately narrowed to posterior angle, weakly emarginated at anterior margin, well arched at posterior margin, narrowly reflexed at lateral margins, distinctly depressed inside the posterior angle, which is




5-16. Habitus of *Chaloenus* spp. 5 – *Chaloenus* (*Chaloenus*) *barioensis* n. sp. (holotype); 6 – *C. brooksi* (Tungud For. Res, Sabah); 7 – *C. brunneus* (Kg. Moyog, Sabah); 8 – *C. dimidiatus* (Kg. Kipouvo, Sabah); 9 – *C. dohertyi* (Lambir hills, Sarawak); 10 – *C. erberi* (Bukit Larut, Perak); 11 – *C. fulvoantennatus* n. sp. (holotype); 12 – *C. fulvohirtus* n. sp. (holotype); 13 – *C. jamadai* n. sp. (holotype); 14 – *C. kinabaluensis* n. sp. (holotype); 15 – *C. lanjakensis* n. sp. (holotype); 16 – *C. latifrons* (Langkawi Is., Malay Pen.)

obtusely produced laterally; disc impunctate and shining; scutellum broadly triangular and rounded at apex, almost half as long as wide, impunctate, flat and shining. Elytron 2.6 times as long as wide, subparallel-sided on middle 1/3, thence weakly narrowed to base, roundly narrowed to apex, narrowly reflexed on lateral margins; disc with 8 rows of distinct punctate striae, starting behind subbasal area, extending to apical 1/3rd; subbasal area hardly raised; disc densely punctate and finely transversely shagreened;




17-28. Habitus of *Chaloenus* spp. 17 – *C. lehi* n. sp. (holotype); 18 – *C. liwaguenis* n. sp. (holotype); 19 – *C. matangensis* (Poring Park, Sabah); 20 – *C. monticola* n. sp. (holotype); 21 – *C. permai* n. sp. (holotype); 22 – *C. schawalleri* (Kg. Moyog, Sabah); 23 – *C. sumatrensis* n. sp. (holotype); 24 – *C. todai* n. sp. (holotype); 25 – *C. westwoodi* (Lanjak Entimau, Sarawak); 26 – *C. yukikoae* n. sp. (holotype); 27 – *C. aeneipennis* (Lanjak Entimau, Sarawak); 28 – *C. kuningus* n. sp. (holotype)

interstices weakly raised; 5th visible abdominal sternite trilobed, with transverse median lobe, almost 3 times as wide as long; male aedeagus strongly curved in lateral view, gradually narrowed to obtusely pointed apex (Fig. 1e). Legs stout; fore- and middle legs with 1st tarsal segment slightly enlarged, as wide as 3rd.

Female. Body 6.0-7.0 mm in length; head smaller, distinctly narrower than prothorax at anterior margin; eyes smaller but protruding laterally; distance between eyes 1.6 times as wide as longitudinal diameter of eys; genae half as deep as longitudinal diameter of eye; antennae shorter, 0.7 as long as body; 1st segment fully 4 times as long as 2nd, distinctly longer than 2nd and 3rd combined together; relative length of antennal segments as: 1st >> 3rd = 4th > 5th > 6th > 7th > 11th > 8th > 9th > 2nd = 10th. Elytra with punctate striae much stronger, extending beyond apical 1/3rd; legs with 1st tarsal segment narrower than 3rd.

Remarks

This species is characterized by wholly yellowish brown dorsum, elytra with subbasal area hardly raised; distinct punctate striae extending to apical 1/3rd; interstices finely shagreened and matt. It is somewhat similar to yellowish brown form of *C. westwoodi*, but the latter is broadly ovate in shape, with antennae as long as the body in males; disc with shorter and weaker punctate striae, etc. This new species is narrower in the body shape, with striate elytra; disc strongly punctate with interstices raised and finely shagreened. It is closely related to *C. sumatrensis* n. sp., but is easily distinguished from the latter by the shape of male aedeagus which is gently narrowed to apex, elytra with punctate striae longer, and by interstices weakly but distinctly raised and covered with smaller punctures, etc. Specific name is derived from its characters, fulvous dorsum and long antennae. This was collected by sweeping in good forests at 1100 m (Mamut Mine) to 1500 m asl. (Kundasang).

Distribution

Borneo (Sabah).

Host plants

unknown.

### ***Chaloenus* (*Chaloenus*) *fulvohirtus* n. sp.**

(Fig. 12)

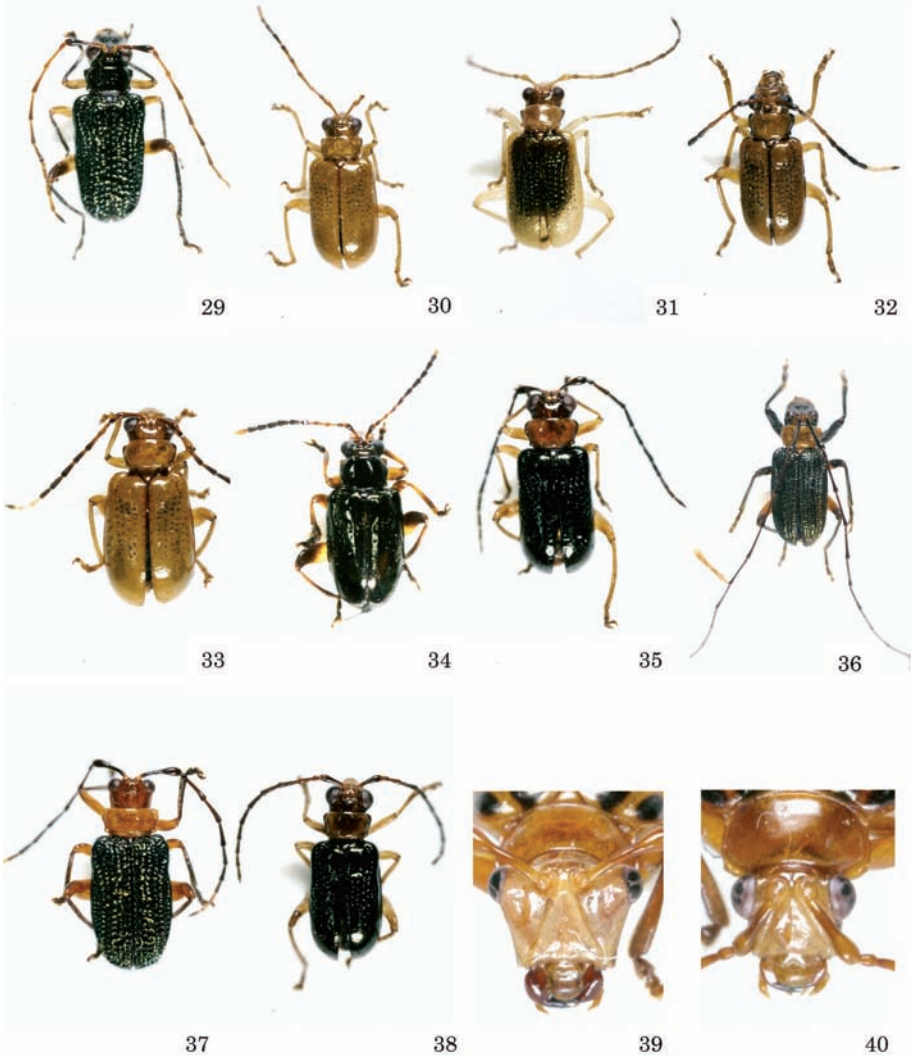
Type series

Holotype: Male, Kinabalu Park, HQ., Ranau, Sabah, Malaysia, 18-20,23.I.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 1M, same as the holotype. 1F, Al Dalan, Bario, Kelambit highland, Sarawak, 5-7.IX.2007, H. Takizawa leg.

Description

Male. Body 4.0-4.5mm in length; yellowish brown, antennae on 7th to10th segments dark on account of dense dark brown hairs.

Head as wide as prothorax at anterior margin, impunctate and shining; frontal tubercles large and subquadrate, archedly delimited behind, laterally not delimited; antero-interior angle slightly produced; eyes large and convex; frons depressed, triangular, almost half as long as wide; frontal carina narrow and sharp; genae almost half as deep as longitudinal diameter of eye; antennal grooves indistinct; antennae robust, 0.7 as long as body, pubescent beyond 3rd segment; 1st segment conspicuously club-like,




29-40. *Chaloenus* spp. 29-38. Habitus of *Chaloenus* spp. 29 – *C. maklarini* n. sp. (holotype); 30 – *C. maryatiae* n. sp. (holotype); 31 – *C. minutus* n. sp. (holotype); 32 – *C.moyogensis* n. sp. (holotype); 33 – *C. muaya* n. sp. (holotype); 34 – *C. nitidicupreatus* n. sp. (holotype); 35 – *C. nitidihirtus* n. sp. (holotype); 36 – *C. psi* n. sp. (holotype); 37 – *C. subcostatus* (Urung Tama, N. Sumatra); 38 – *C. tibowensis* n. sp. (holotype) 39-40. Male head polymorphism in *C. dohertyi*. 39 – enlarged head; 40 – small head (both from Poring Park, Sabah)

longest, distinctly longer than 2nd and 3rd combined together, 0.3 as wide as long; 7th 0.7 as wide as long; relative length of antennal segments as: 1st >> 3rd > 4th > 5th > 6th > 7th = 11th > 2nd > 8th = 9th = 10th. Pronotum transverse, 1.7 times as long as wide, slightly narrower at anterior margin than at base, widest before middle, thence gently narrowed to both ends, gently emarginated at anterior margin, rather strongly arched at posterior margin; anterior angle produced antero-laterally, delimited inwardly by narrow depression; disc finely shagreened with sparse fine punctures; scutellum matt, triangular, broadly rounded at apex, 0.6 as long as wide. Elytron 3 times as long as wide, gradually widened from base to basal 1/3rd, subparallel-sided on middle 1/3, thence roundly narrowed to apex, narrowly reflexed on lateral margins; disc granulate and almost impunctate, except for a short intrahumeral punctate stria not extending beyond basal 1/3rd, 2 or 3 shorter striae posterior to subbasal area, a short stria behind humerus and a long stria inside the lateral margin reaching apical margin; subbasal area feebly raised, delimited laterally by striae; disc covered with whitish hairs and sparsely with erect dark brown hairs; prothoracic sternite narrow but distinct between coxae; 5th visible abdominal sternite trilobed, with the transverse median lobe almost 3 times as wide as long, feebly emarginated at apical margin; male aedeagus slender, gently curved in lateral view, triangularly produced at apex (Fig. 1f). Hind tibiae as long as pronotal width; fore and middle legs with 1st tarsal segment enlarged, as wide as the 3rd.

Female. Body 4.5 mm in length; antennae shorter, 0.6 as long as body; 10th segment as long as wide; relative length of antennal segments: 1st >> 3rd = 11th > 4th > 5th = 7th > 8th = 10th > 2nd = 6th = 9th; fore and middle legs with 1st tarsal segment distinctly narrower than 3rd.

### Remarks

This species somewhat resembles *C. pubescens* Medvedev on account of pubescent elytra, but is clearly distinguished from it by smooth elytra covered with both recumbent and erect hairs. It is noteworthy that this genus includes a few distinctly pubescent species like *pubescens* in the nominate subgenus and *nitidihirtus* n. sp. in the subgenus *Priostomus*, and glabrous species like *dohertyi* and most species in the former. Moreover there are some finely pubescent species like *yukikoae* and *permai* n. spp. in the former. This new species was collected by sweeping along riparian forest margin in Kinabalu Park Headquaters area, ca. 1700 m asl. On one occasion, adults were found gathering in a flower sack of *Pinanga* sp. (Arecaceae) together with *C. matangensis*, etc. The specific name is derived from its characters of elytra.

### Distribution

Borneo (Sabah, Sarawak).

### Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *furthi* Medvedev, 2002

*Chaloenus furthi* Medvedev, 2002, Spixiana 25 (1): 65 (Philippines: Palawan); 2004, Russ. Entomol. Jour. 13 (4): 247

Remarks

This species was described from Philippines and is unknown to me. It is close to *C. brooksi* in the body shape and color, but is clearly distinguished from the latter by elytra which are covered with large and foveolate punctures and more or less punctate striae (after Medvedev).

Distribution

Philippines (Palawan).

Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *giganteus* Medvedev, 2004

*Chaloenus giganteus* Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 248 (C. Sumatra).

Remarks

This species was described from C Sumatra on a single specimen, and is unknown to me. Head seems sexually dimorphic in its shape and size. It is characterized by its robust body of 10 mm in length, metallic dark green elytra with lateral margin and apex fulvous and by long and thin antennae.

Distribution

Sumatra.

Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *jamadai* n. sp.

(Fig. 13)

Type series

Holotype: Female, Poring Park, Ranau, Sabah, Malaysia, 11-12.III.2009, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 1F, Poring Park, Ranau, Sabah, 9-10.VII.2008, H. Takizawa leg.; 1F, Kg. Moyog, Penampang, Sabah, 13.IX.2008, H. Takizawa leg.; 1F, Mamut Mine, Ranau, Sabah, 2.III.2008, H. Takizawa leg. 1F, Al Dalan, Bario, Kelambit highland, Sarawak, 5-7.IX.2007, H. Takizawa leg.

Description

Female. Body reddish brown, 4.0-4.5 mm in length; elytra largely blackish, narrowly reddish brown basally, this color expanded to middle in one specimen; antennae blackish except for yellowish-white 11th segment.

Head impunctate and shining, distinctly narrower than prothorax; eyes large, widely separated from each other, the distance between them 1.3 times as wide as longitudinal diameter of eye; frontal tubercles quadrate, straightly delimited behind, with antero-interior angle slightly produced anteriorly; frons triangularly raised, 0.7 as long as wide; frontal carina slender and sharp; antennal grooves broad and shallow; genae short, almost 1/3 as deep as longitudinal diameter of eye; antennae short and stout, half as long as body, pubescent beyond 2nd; 1st segment longest, almost as long as 2nd to 4th combined together, strongly widened apically, 0.4 as wide as long; 6th to 9th each wider than long; relative length of antennal segments as: 1st >> 3rd >> 11th = 4th = 5th > 6th = 7th > 2nd = 8th = 9th > 10th. Pronotum transverse, almost twice as wide as long, widest before middle, thence narrowed to both ends, rather deeply emarginated at anterior margin, at anterior margin almost as wide as at posterior margin, strongly arched at posterior margin, distinctly reflexed at lateral margins; anterior angle oblique, strongly depressed inwardly; disc shining, covered sparsely with fine punctures; interspaces finely granulate; scutellum impunctate and shining, broadly rounded at apex, 0.7 as long as wide. Elytron 3 times as long as wide, weakly widened from base to basal 1/3rd, thence roundly narrowed to apex, slightly expanded at lateral margins; subbasal area feebly raised, delimited laterally by intrahumeral stria; disc granulate and matt, densely covered with fine white hairs, with 6 short and weak punctate striae reaching apical 1/3rd; interstices of punctate striae feebly raised laterally; 5th visible abdominal sternite simple; legs stout, with tibiae flat and wide; hind tibiae long, as long as pronotal width, slightly wider than 1/10 of its length.

Remarks

This new species strongly resembles *C. pubescens* Medvedev on account of the densely pubescent and granulate elytra and small body size. It is easily distinguished from the latter by the elytra wholly granulate and largely black. This species was collected by sweeping along humid trails among forests. This is named after a nickname of my old friend, Mr. N. Yamada in Tokyo, who joined in the survey at Poring Park on 11-12th, March in 2009.

Distribution

Borneo (Sabah, Sarawak).

Host plants

Unknown.

### ***Chaloenus* (*Chaloenus*) *kinabaluensis* n. sp.**

(Fig. 14)

Type series

Holotype: Male, Kinabalu Park, HQ., Ranau, Sabah, Malaysia, 18-20,23.I.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 1M1F, same as the holotype; 1F, ditto, 14-15.IV.2008, H. Takizawa leg.; 1F, ditto, 17-18.IX.2008, H. Takizawa leg.; 1F, Kundasang, Ranau, Sabah, 16.III.2008, H. Takizawa leg.; 1M, ditto, 22.IX.2007, H. Takizawa leg.; 1F, Kg. Kiapad, Inanam, Kota Kinabalu, Sabah, 11.I.2009, H. Takizawa leg.

Description

Male. Body rather broad, 4.5-5.0 mm in length; light reddish brown, antennae on 2nd to 10th segments dark brown, on 11th yellowish white.

Head as wide as prothorax, widest anteriorly to eyes, impunctate and shining; frontal tubercles subquadrate, almost as wide as long, straightly delimited behind; frons triangular, 3/4 as long as wide, depressed and finely granulate; frontal carina narrow and sharp, reaching between frontal tubercles; antennal groove indistinct; eyes rather small, with distance between them almost twice as wide as its longitudinal diameter; genae finely granulate, 4/5 as long as longitudinal diameter of eye, deeply depressed below eyes; this depression bounded by distinct ridge posteriorly, and by distinct tuberculation anteriorly; mandibles strongly depressed on lateral side; antennae short and robust, 0.7 as long as body, pubescent beyond 3rd segment; 1st segment longest, distinctly longer than 4 times the 2nd, and longer than 2nd to 5th combined together, conspicuously club-like, 0.3 as wide as long; 7th to 10th each transverse, wider than long; relative length of antennal segments as: 1st >> 3rd > 11th > 4th = 5th > 6th > 7th > 8th > 2nd = 9th > 10th. Pronotum transverse, 2.2 times as wide as long, widest before middle, thence feebly narrowed to anterior angle, strongly so to posterior angle, almost straight at anterior margin, gently arched at posterior margin, distinctly reflexed on lateral margins; anterior angle obtuse, posterior one slightly produced laterally; disc smooth and shining, scattered with fine punctures; scutellum triangular, rounded at apex, 0.7 as long as wide; disc flat and shining. Elytron 3.2 times as long as wide, gently widened from base to apical 1/3rd, thence roundly narrowed to apex, rather declivitous on lateral portion; subbasal area weakly raised with sparse punctures, bounded by intrahumeral impression laterally and by short punctate striae posteriorly; disc with 8 punctate striae: 4 stronger striae reaching apical 1/3rd; stria inside the lateral margin attaining to basal 1/3rd; interstices finely granulate and shining; epipleuron widest basally, gradually narrowed and disappearing near apical margin; 5th visible abdominal sternite with very short median lobe; male aedeagus robust, strongly curved in lateral view, ending apically in a round projection (Fig. 1g). Legs with tibiae flattened but slender; fore and middle legs with 1st tarsal segment enlarged, as wide as 3rd.

Female. Body 4.0-4.5 mm in length; antennae with 2 apical segments yellowish white; head distinctly narrower than prothorax; genae 2/5 as deep as longitudinal diameter of eye, with small round tuberculation at apex; 6th to 10th antennal segments

each wider than long; antennae shorter, 0.6 as long as body; 1st segment as long as 2nd to 4th combined together; relative length of antennal segments as: 1st >> 3rd > 4th = 11th > 5th > 6th > 7th > 8th > 9th > 2nd =10th; elytra with punctuation stronger; fore and middle legs with 1st tarsal segment distinctly narrower than 3rd.

Remarks

This species is characterized by its small, shining and pale brownish body, elytra with distinctly punctate striae, and by narrow and flat tibiae. In contrast to similarly shaped *dimidiatus*, the head is sexually dimorphic in this species. Head is almost as wide as the prothorax in the male; genae 3/4 as deep as longitudinal diameter of eye, with ridge and tubercle. In *lehi* n. sp. from Sarawak, male head with its wide flat frons is distinctly wider than the prothorax. This species was collected at Liwagu trail in Kinabalu Park, Headquaters area, ca. 1700 m, asl. by sweeping along forest margin, and also at Kg. Kiapad, ca. 100 m asl., near Kota Kinabalu. Specific name was derived from its type locality.

Distribution

Borneo (Sabah).

Host plants

unknown.

### *Chaloenus* (*Chaloenus*) *laetus* Medvedev, 2004

*Chaloenus laetus* Medvedev, 2004, Russ. Entomol. Jour. 13(4): 247 (Sumatra).

Remarks

This species was described from Sumatra, and is unknown to me. It is also close to *C. brooksi* and *C. furthi* in the body shape and color, but is clearly distinguished from the both by violaceous blue elytra which are covered with large punctures arranged in distinct rows (after Medvedev).

Distribution

Sumatra.

Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *lanjakensis* n. sp.

(Fig. 15)

Type material

Holotype: Female, Menyaring, Lanjak Entimau Wildlife Sanct., Kapit, Sarawak, 24-25.VI.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC).

Description

Female. Body oblong ovate, widest at middle of elytra, 6.5mm in length; head, prothorax and scutellum reddish brown; elytra blackish blue with weak grennish reflections; frons infuscate; antennae black except for 8th on apical half, and 9th to 11th yellowish white; 11th apically infuscate; clypeus and labrum paler; legs and abdominal sternites blackish; thorax ventrally light brown.

Head subquadrate, weakly narrowed anteriorly, distinctly narrower than prothorax; eyes large and protruded laterally, widely separated from each other, with distance between them almost twice the longitudinal diameter of eye; frontal tubercles strongly arched on posterior margin; antero-interior angle rather broadly produced between antennal sockets; outer angle narrowly curved down along antennal sockets; frons roundly triangular, gently emarginated on anterior margin, almost as wide as long; disc flat and microgranulate, between antennal sockets with a short obscure carina; antennal groove distinct and sharp; labrum transverse, distinctly wider than twice the length; mandibles weakly concave latero-basally; antennae robust, 0.7 as long as body, thickly pubescent beyond 2nd segment; lst conspicuously club-like, 4 times as long as 2nd, and twice the 3rd; 4 to 7th segments distinctly wider than last 4 segments; 7th slightly longer than wide; relative length of antennal segments as: 1st >> 3rd = 4th > 5th > 11th > 6th > 7th > 8th > 9th > 2nd >10th. Pronotum transverse, twice as wide as long, widest at apical 1/3rd, thence weakly narrowed to anterior angle, strongly so to posterior angle, gently emarginated at anterior margin, gently arched at posterior margin, narrowly reflexed on lateral margin; both anterior and posterior angles thickened; disc convex, covered with fine punctures; scutellum roundly triangular, slightly wider than long. Elytron 2.6 as wide as long, gently widened from base to middle, thence roundly narrowed to apex, rather widely reflexed on lateral margin; subbasal area distinctly raised and finely punctate, delimited laterally by intra-humeral punctate stria, posteriorly by broad and shallow impression with several large punctures; punctate striae reaching basal 1/3rd, except for the lateral most one reaching apical 1/5th; disc glabrous, scattered with fine punctures and somewhat minutely wrinkled; epipleuron widest at base, gradually narrowed to apical 1/3rd; anterior coxal cavities closed; 5th visible abdominal sternite weakly produced posteriorly and pale yellowish brown in color. Fore and middle legs with 1st tarsal segment triangular, almost as long as wide; hind legs with 1st tarsal segment 2/3 as wide as long.

Remarks

This species is characterized by its blackish blue elytra with a slight greenish luster; subbasal area distinctly raised; large punctures confined to transverse impression behind subbasal elevation, except for intra-humeral and lateral punctate striae. This is somewhat similar to *C. yukikoae* n. sp. in the body shape and coloration, but it is distinguished from the latter by genae which are as deep as the transverse diameter of eyes, stout antennae, blackish abdominal sternites, and by wider pronotum which is twice as wide as long, etc. Also it is somewhat similar to blackish form of *C. westwoodi*, but the latter has the pronotum longer and elytra with punctate striae distinctly reaching apical 1/3rd.

A single specimen was collected by sweeping on herbaceous trail along stream at Lanjak Entimau Wildlife Sanctuary, Sarawak.

Distribution
Borneo (Sarawak).

Host plants
Unknown.

### *Chaloenus* (*Chaloenus*) *latifrons* Westwood
(Fig. 16)

*Chaloenus latifrons* Westwood, 1861, Jour. Entomol. 1: 216 (Philippines, Sumatra) – Mohamedsaid, 2004, Cat. Malay. Chrysom.: 158 - Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 249.
*Chaloenus abdominalis* Jacoby, 1899, Stett. Ent. Zeit. 60: 279 (Sumatra) – Mohamedsaid, 2004, Cat. Malay. Chrysom.: 157 (Malay Pen., Sumatra) – Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 249 (synonymized).
*Chaloenus capitatus* Jacoby, 1896, Ann. Mus. Civ. Genova, 36: 434 (Sumatra, Malaya) – Mohamedsaid, 2004, Cat. Malay. Chrysom.: 158 – Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 249 (synonymized).
*Chaloenus marginipennis* Bryant, 1943, Ann. Mag. Nat. Hist. ser. 11, 10: 381 (Malaya) – Mohamedsaid, 2004, Cat. Malay. Chrysom.: 158 - Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 249 (synonymized).
*Chaloenus oculatus* Jacoby, 1899, Stett. Ent. Zeit. 60: 281 (Sumatra) – Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 249 (synonymized).

Remarks
This species is characterized by its head more or less wider than the prothorax in males; frons longer than wide in males or as long as wide in females; elytra with distinct subbasal elevation, delimited by shallow and broad postbasal impression with punctate striae of larger punctures, and laterally by intrahumeral impression; otherwise disc impunctate and shining; coloration variable from wholly yellowish brown with partially dark antennae and tibiae, to sometimes reddish brown with blackish head, pronotum, antennae partially and legs; venter sometimes blackish; elytra sometimes wholly metallic violaceous or blackish with metallic reflections, or on basal 1/3. This species was collected by sweeping around forest understrorey or forest margin mainly at lowland, ca. 40-200 m asl. and sometimes at higher elevation of 1400 m (Lojing). This is newly recorded from Borneo.

Distribution
Borneo (Sarawak), Malay Peninsula (Selangor, Kelantan), Is. Langkawi; Sumatra.

Host plants
Unknown.

Specimens examined. 1F, Menyaring, Lanjak Entimau Wildlife Sanctuary, HQ., Kapit, Sarawak, 24-25.VI.2008, H. Takizawa leg. 1M, Gunung Raya, Is. Langkaui,

Malaysia, 31.XII.2002, A. et R. Abe leg.; 1F, Lojing, trail 3, Gua Musang, Kelantan, 8.VI.2008, H. Takizawa leg.; 1F, Kg. Sungai Buloh, Selangor, 24.XI.2008, H. Takizawa leg. 1F, Bandaru Baru, Sibolangit, N. Sumatra, 26,31.X.1999, H. Takizawa leg.; 1F, Merlung, 42m, Jambi, S. Sumatra, 15.I.2006, A. Dedi leg.; 1F, Suban, 194m, Jambi, S. Sumatra, 5.II.2006, H. Takizawa leg.

### ***Chaloenus* (*Chaloenus*) *lehi* n. sp.**

(Fig. 17)

Type material

Holotype. Male, Al Dalan, Bario, Kelambit highland, Sarawak, Malaysia, 5-7.IX.2007, H. Takizawa leg. (BORNEENSIS collection, ITBC)

Description

Male. Body light yellowish brown, 5.0 mm in length; antennae slightly infuscate on 6th to 10th segments. Head distinctly wider than prothorax, widest below eyes, thence slightly narrowed anteriorly and strongly so posteriorly, impunctate and shining; frontal tubercles quadrate with antero-interior angle rather widely produced between antennal sockets; eyes small, widely separated from each other, with distance between them 3 times as wide as transverse diameter of eye; frons broadly triangular, twice as wide as long, flat and finely granulate with fine sparse punctures, archedly produced at anterior margin; antennal groove undeveloped; frontal carina short and sharp, abruptly raised between antennal sockets; mandibles large, strongly depressed and triangular on lateral side; genae half as deep as longitudinal diameter of eye; antennae 0.9 as long as body, pubescent beyond 3rd segment; 1st segment club-like, 1/5 as wide as long, distinctly longer than 3rd and 4th combined together; 3rd twice as long as 2nd; 7th 1/3 as wide as long; relative length of antennal segments as: 1st >> 3rd > 4th > 5th > 6th = 11th > 7th > 8th = 9th > 2nd = 10th. Prothorax transverse, almost twice as wide as long, widest slightly before middle, almost subparallel-sided on basal half, strongly narrowed to anterior angle, almost straight at anterior margin, gently arched at posterior margin, narrowly reflexed on lateral margins; anterior angle weakly oblique, posterior angle obtusely produced laterally; disc evenly convex, scattered with fine punctures; scutellum broadly triangular, rounded at apex, 3/5 as long as wide; disc smooth and shining. Elytron 2.1 times as long as wide, weakly widened from base to middle, thence roundly narrowed to apex, distinctly reflexed on lateral margin; subbasal area weakly raised, delimited laterally by intrahumeral impression; with 7 punctate striae; 3 short ones starting behind subbasal elevation extending to basal 1/3rd; stria inside the lateral margin extending to apical 1/3rd; disc shining, interstices with fine punctures and fine transverse wrinkles; epipeluron wide, gradually narrowed and disappearing near apical margin; 5th visible abdominal sternite weakly trilobed, with very short median lobe which is archedly emarginated at posterior margin; male aedeagus subparallel-sided, weakly widened near apex; apex rather thick in lateral view (Fig. 1i). Legs with 1st tarsal segment narrower than 3rd; hind tibiae slightly curved, distinctly shorter than pronotal width.

Remarks

This species is somewhat similar to *kinabaluensis* n. sp. in its small yellow- brownish body, but male head is distinctly wider than the prothorax; frons flat and not delimited from genae; genae without tuberculation in male; elytra with punctate striae shorter; interstices with fine transverse wrinkles and fine punctures. This species was collected by sweeping in primary forest at Bario, ca 1500-1800 m asl. in Sarawak. Specific name was dedicated to Dr. C. M. V. Leh, an icthyologist of the Sarawak Museum, who kindly supported my survey in Bario.

Distribution

Borneo (Sarawak).

Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *liwaguensis* n. sp.

(Fig. 18)

Type series

Holotype: Male, Kinabalu Park, HQ., Ranau, Sabah, Malaysia, 17-19.X.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 1M, Kinabalu Park, HQ., Ranau, Sabah, 14-15.IV.2008, H. Takizawa leg.

Description

Male. Body rather broad, 6 mm in length; pale reddish brown with 2 apical segments of antennae yellowish white.

Head distinctly narrower than prothorax at anterior margin, impunctate and shining; frontal tubercles transverse and strongly raised, archedly delimited behind; antero-exterior angle acute and curved down along antennal sockets; eyes large, widely separated from each other, with distance between them 2.6 times as wide as its transverse diameter; frons smooth and shining, twice as wide as long; antennal groove undeveloped; genae half as deep as longitudinal diameter of eye, longitudinally depressed below eyes; antennae rather long, 0.8 as long as body, pubescent beyond 4th segment; 1st segment club-like, shorter than 3rd and 4th combined together, 0.3 as wide as long; 7th 0.7 as wide as long; 8th to 10th each as wide as long; relative length of antennal segments as: 1st >> 3rd = 4th > 5th > 7th > 6th > 2nd = 11th > 8th > 9th > 10th. Pronotum transverse, twice as wide as long, widest at apical 2/5th, thence roundly narrowed to anterior angle, sinuately narrowed to posterior angle, gently emarginated at anterior margin, rather strongly arched at posterior margin, reflexed on lateral margins; anterior angle obtuse, posterior angle rectangular; disc shining, with scattered minute punctures; scutellum triangular, rounded at apex, 3/5 as long as wide; disc flat and shining. Elytron 2.4 times as long as wide, weakly widened from base to basal 1/4th, almost subparallel-sided to apical 1/3rd, thence roundly narrowed to apex, widely reflexed on lateral margin; subbasal area feebly raised, bounded laterally by weak intrahumeral impression; with

6 punctate striae; 2 striae inside the humerus obscurely extending to the middle of elytra, with larger punctures; stria inside the lateral margin extending to apical 1/3rd; interstices with minute punctures and fine transverse wrinkles, and with fine recumbent hairs on posterior half; 5th visible abdominal sternite weakly trilobed, with short, transverse median lobe, which is apically emarginated; male aedeagus slender, with apical portion broadly produced and curved down at apex (Fig. 1j). Fore and middle legs with 1st tarsal segment enlarged, as wide as the 3rd; hind tibiae almost as long as pronotal width at anterior margin.

Remarks

This species is similar to *westwoodi*, but is distinguished easily by its reddish brown body with shining elytra, of which interstices are only feebly reticulate; Male aedeagus is rather slender with its apex distinctly curved down. Two female specimens collected at Kinabalu Park Headquaters area on 20-26.II.2009 and 21-22.XII.2007 might be females of this species. These fairly agree with males, but with elytral disc dull on account of fine granulation. Since there are no cases of sexually dimorphic elytra known in this genus, I refrain from referring these to *liwaguensis* n. sp. at present. The specific name is derived from the collecting site, Liwagu trail 1600-1800 m. asl. at Kinabalu Park, Headquaters area, Ranau.

Distribution

Borneo (Sabah).

Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *matangensis* Bryant, 1943

(Fig. 19)

*Chaloenus matangensis* Bryant, 1943, Ann. Mag. Nat. Hist. ser 11, 10: 378 (Borneo) – Mohamedsaid, 2004, Cat. Malay. Chrysom.: 157 (synonymized with *apicicornis*) - Medvedev, 2004, Russ. Entomol. Jour., 13 (4): 247 (as distinct species).

Remarks

Medvedev (2004) stated in his key on the basis of 2 males and 1 female of type series "*4* apical segments whitish; head and prothorax *black with bluish tinge*; Head of male very broad, *1.4* times as wide as prothorax; genae with long acute process *directed laterally*; legs black, more or less *tinged with fulvous*; body large, length *8* mm" Further he figured its male aedeagus. While *C. schawalleri* was described on a single specimen, the male has "*3* apical segments whitish; head and prothorax *metallic blue*; head of male moderately broad, *1.1-1.15* times as wide as prothorax; genae with short acute process *directed almost forward*; legs *entirely blackish blue*; body smaller, *6.5-6.6* mm." The aedeagus was illustrated and described as "with longitudinal groove on underside, ridged on each side". Examination of many specimens makes clear that

both the species are polymorphic in the male head size and shape. The ratio of 'head width/pronotal width at anterior angle varies from 0.93 to 1.32 in *matangensis*, and 0.84 to 1.30 in *schawalleri*. Acute process on genae tends to produce laterally in larger specimens, and straightly in smaller specimens in both the species. Thus the head width with its related characters is not useful for distinguishing them. Coloration of apical antennal segments sometimes varies in related species. Actually there is only one specimen of *schawalleri* with 4 whitish apical segments among all the specimens examined. The body length is 5.5 to 7.0 mm. in *matangensis* and 6.0 to 8.5 mm in *schawalleri*. Coloration of the head and pronotum may be useful for distinguishing them, but it is somewhat ambiguous. So the only reliable character seems the shape of the male aedeagus. One group has aedeagus simply narrowed to apex (Fig. 2a), and the other has aedeagus slightly constricted subapically and with longitudinal groove on the ventral side (Fig. 2c). The 2nd group well correspond to *schawalleri* in overall characters. The first group seems to correspond to *matangensis*. What is problematic is the male aedeagus figured in MEDVEDEV is somewhat different from that of the first group collected in Sabah. But tentatively I treat these specimens as *matangensis*. Body length in males is 5.5-7.0mm, in females 6.5-7.0 mm; body dark metallic green, sometimes dark violaceous blue with 3 apical segments of antennae yellowish white.

This species was collected mostly gathering in the inflorescences of *Piptospatha* sp. and some aroids near stream or along humid forest trails from ca. 700 m (Poring Park to 1800 m (Kinabalu Park, Headquaters area) asl. Dr. TODA recorded *Piptospatha havilandii* ENGLER and *Hottarum kinabalensis* BOGNER as its host on specimen labels. On one occasion *matangensis* was collected in the flower sack of *Pinanga* sp. (Arecaceae) together with *C. todai*, *C. kinabaluensis*, *C. yukikoae*, *C. fulvohirtus*, *C. nitidicupreatus* n. spp. at Kinabalu Park, Headquaters area.

DISTRIBUTION

Borneo (Sabah, Sarawak).

HOST PLANTS

Inflorescences of *Piptospatha* sp., *Piptospatha havilandii*, *Hottarum kinabalensis* (Araceae).

SPECIMENS EXAMINED: 1M1F, Poring Park, Ranau, Sabah, 25-26.IX.2008, H. Takizawa leg.; 1M, ditto, 7-8.XII.2008, H. Takizawa leg.; 1M1F, Kundasang, Ranau, Sabah, 30.VI.2007, H. Takizawa leg.; 1M1F, Kinabalu Park, HQ., Ranau, Sabah, 18-20, 23.I.2008, H. Takizawa leg.; 1F, ditto, 20-26.II.2009, H. Takizawa leg.; 2M3F, ditto, 28-29.II.2008, H. Takizawa leg.; 1F, ditto, 11.III.1999, M. Toda leg. (on *Piptospatha havilandii* Engler); 1M, ditto, 14-15.IV.2008, H. Takizawa leg.; 1M, ditto, 27-28.V.2008, H. Takizawa leg.; 1M1F, Kinabalu P., HQ, Ranau, 30.VI.2007, H. Takizawa leg.; 2M, ditto, 23-25.VII.2008, H. Takizawa leg.; 2M3F, ditto, 17-18.IX.2008, H. Takizawa leg.; 1F, ditto, 2.X.1999, M. Toda leg. (on *Piptospatha havilandii* Engler); 2M1F, ditto, 7.X.1999, M. Toda leg. (on *Piptospatha havilandii* Engler); 1F, ditto, 6.X.1999, M. Toda leg. (on *Hottarum kinabalensis* Bogner); 3M 5F, ditto, 17-19.X.2008, H.

Takizawa leg.; 1M, ditto, 7-8.XII.2008, H. Takizawa leg.; 2M, ditto, 23-24.XII.2008, H. Takizawa leg.

### ***Chaloenus* (*Chaloenus*) *monticola* n. sp.**

(Fig. 20)

Type series

Holotype: Female, Gn. Alab, 1,700-1,900m, Crocker Range Park, Tambunan (erroneously as Penampang on the label), Sabah, Malaysia, 17.VI.2007, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 1F, same locality as holotype, 12.IV.2008, H. Takizawa leg.; 1F, Kinabalu Park, HQ., Ranau, Sabah, 23-24.XII.2008, H. Takizawa leg.

Description

Female. Body pale yellowish brown, oblong ovate and small, 5.0 mm in length; head largely dark brown to blackish brown, except for vertex and mouth parts which are lighter, antennae except for two apical segments, tibiae and tarsi dark brown to blackish brown; sometimes wholly pale yellowish brown except for 2nd to 9th antennal segments dark brown.

Head distinctly narrower than prothorax at anterior margin, impunctate and shining; frontal tubercles subquadrate, strongly raised; distance between eyes 1.4 times as wide as longitudinal diameter of eye; frons well raised, broadly triangular, 2/3 as long as wide, finely granulate; frontal carina flat, short and sharp between antennal sockets; antennal groove broad and deep; genae 2/5 as deep as longitudinal diameter of eye; antennae short, 0.5 as long as body, thickly pubescent beyond the 2nd; 1st segment almost 3 times as long as 2nd, as long as 3rd and 4th combined together; 8th to10th each wider than long; relative length of antennal segments as 1st >> 3rd = 11th > 4th > 5th = 6th = 7th > 2nd > 8th = 9th = 10th. Pronotum transverse, 2.1 times as wide as long, widest near middle, thence strongly narrowed to anterior angle, gently so to posterior angle, rounded at lateral margins, rather deeply arched at anterior margin, strongly arched at posterior margin, reflexed on lateral margins; both anterior and posterior angles obtusely produced; disc evenly convex, impunctate and shining; scutellum broadly triangular, 0.6 as long as wide, impunctate and shining. Elytron convex, 2.4 times as long as wide, gently widened from base to middle, thence gradually narrowed to apex, narrowly reflexed on lateral margin; subbasal area hardly raised; disc finely granulate, covered with fine recumbent hairs, impunctate except for 2 rows of punctate striae behind the subbasal area, and intrahumeral stria; sometimes these striae extending to middle; sutural stria absent, but with a stria along lateral margin, extending to apical 1/3rd; 5th visible abdominal sternite simple at apex; fore and middle legs with 1st tarsal segment distinctly narrower than the 3rd.

Remarks

This species is characterized by its small, yellowish brown-body, elytra finely granulate with obscure punctate striae, and by the pronotum rather strongly and roundly narrowed from middle to apex. This is somewhat similar to *C. liwaguensis* n. sp., but

finely granulate elytra with weak, shorter punctate striae clearly distinguish this from the latter. It was collected by sweeping in forests between 1600 m (Kinabalu Park, Headquaters area) – 1900 m (Mt. Alab). Its specific name was derived from its habitat in montane areas.

Distribution
Borneo (Sabah).

Host plants
Unknown.

### *Chaloenus* (*Chaloenus*) *permai* n. sp.
(Fig. 21)

Type series
Holotype: Male, Ridon, Lanjak Entimau Wildlife Sanct., HQ., Kapit, Sarawak, Malaysia, 18-20.VI.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 2M, same as the holotype; 1F, Joh, Lanjak Entimau Wildlife Sanct., HQ., Kapit, Sarawak, 21-22.VI.2008, H. Takizawa leg.; 1F, Lanjak Entimau Wildlife Sanct., HQ., Kapit, Sarawak, 18-28.VI.2008, H. Takizawa leg.

Description
Male. Body almost subparallel-sided, 5.5-6.5 mm in length; pale yellowish brown; elytra light blue with metallic reflections; abdomen blackish brown, with pale apex; antennae dark brownish on 8 apical segments; tibiae and tarsi dark brown.

Head subquadrate, distinctly wider than prothorax, impunctate and shining; occipit behind eyes strongly and roundly swelled; frontal tubercles flat, separated from each other anteriorly by frontal carina; antero-interior angle slightly produced; frons flat, broadly triangular, distinctly wider than long; antennal groove distinct; eyes small, with distance between them 2.8 times as wide as its longitudinal diameter; genae 3/4 as deep as longitudinal diameter of eye, distinctly and acutely produced laterally at apex; labrum transverse, 3.5 times as wide as long; mandibles large with thin acute ridge at both dorsal and ventral margins, deeply sulcate between these ridges; antennae stout, 0.7 as long as body, pubescent beyond 3rd; 1st segment club-like and longest, as long as 3rd and 4th combined together; 3rd longer than twice the 2nd; 7th nearly twice as long as wide; relative length of antennal segments as: 1st >> 3rd > 4th >5th > 6th > 7th = 11th > 8th > 2nd = 9th > 10th. Pronotum transverse, 1.7 times as wide as long, widest at hind corner of anterior angle, thence roundly narrowed to anterior corner of posterior angle, weakly emarginated at anterior margin, gently arched at posterior margin; anterior angle obliquely truncate and thickened; posterior angle sub-angularly produced laterally; disc evenly convex, impunctate and shining, but micro reticulate under high magnigication; scutellum broadly triangular, 3/4 as long as wide; disc flat and shining. Elytron subpallalel-sided on basal 2/3, 3 times as long as wide; subbasal area weakly raised and delimited laterally by intrahumeral impression, posteriorly by

weak transverse impression, narrowly reflexed at lateral margin; disc densely covered with punctures behind subbasal elevation, weakly transversely rugose on middle 1/3; punctuation weaker on apical 1/3; interstices with fine, short hairs; 5th visible abdominal sternite trilobed, with transverse median lobe almost 3 times as wide as long; male aedeagus spear-shaped apically, gently curved down near apex in lateral view, angularly produced laterally in ventral view (Fig. 2b). Fore and middle legs with 1st tarsal segment weakly enlarged.

Female. Body slightly widened to behind middle of elytra, thence roundly narrowed to apex, 5.5-6.5 mm in length; one specimen with violaceous blue elytra; antennae 0.6 as long as body; 1st segment almost 4 times as long as 2nd; 2nd half as long as 3rd; relative length of antennal segments as: 1st >> 3rd = 4th > 5th = 6th = 11th > 7th > 8th > 9th > 10th = 2nd; fore and middle legs with 1st tarsal segment not enlarged.

Remarks

This species is very close to *C. brooksi* in the body form and coloration, but is clearly distinguished from the latter in having antennae dark brown on 8 apical segments. Males are further distinguished by the blackish abdomen and acutely pointed aedeagus. These specimens were collected by sweeping near waterside. Specific name is derived from a Malay adjective "*permai*", meaning beautiful.

Distribution

Borneo (Sarawak).

Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *pubescens* Medvedev, 2004

*Chaloenus pubescens* Medvedev, 2004, Russ. Entomol. Jour. 13(4): 250 (Borneo: Barat).

Remarks

This species was described from Sarawak from a single female specimen. It is characterized by its fulvous small body of 4.5 mm in length and by elytra which are covered with light pubescens and with 6 short punctate striae. Further elytra are densely microsculptured on apical 2/3. This species is close to *C. jamadai* n. sp., but is unknown to me.

Distribution

Borneo (Sarawak).

Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *schawalleri* Medvedev, 2004
(Fig. 22)

*Chaloenus schawalleri* Medvedev, 2004, Russ. Entomol. Jour. 13(4): 247 (Borneo: Sabah).

Remarks

As mentioned under *matangensis*, this species is very close to *C. matangensis*, but is distinguished clearly from the latter by the shape of male aedeagus (Fig. 2c). Body length in males is 6.0-8.5 mm, and 6.0-7.0 mm in females. Its coloration is variable: dark metallic blue, dark metallic green, dark metallic violaceous blue to reddish violaceous, with 3 or 4 apical segments of antennae yellowish white. This species is found in aroid inflorescences at lowland forests below 200 m, unlike *matangensis*, but the holotype was collected at Poring, 500 m, Kinabalu N. P. So far both the species differ in their altitudinal distribution. The hosts are *Alocassia macrorrhiza* and *Piptospatha* sp.

Distribution

Borneo (Sabah, Sarawak).

Host plants

Gathering to inflorescences of *Piptospatha* sp. and *Alocassia macrorrhiza* (Araceae).

Specimens examined: 1F, Kg. Kiapad, Inanam, Kota Kinabalu, Sabah, 8.II.2009, H. Takizawa leg.; 1M1F, ditto, 22.III.2009, H. Takizawa leg.; 1F, ditto, 5.VII.2008, H. Takizawa leg.; 1F, ditto, 7.IX.2008, H. Takizawa leg.; 2F, ditto, 4.X.2008, H. Takizawa leg.; 2F, ditto, 6.XII.2008, H. Takizawa leg.; 1M2F, Kg. Kipao, Kionsom, Inanam, Kota Kinabalu, Sabah, 7.VII.2007, H. Takizawa leg.; 1M1F, ditto, 19.VIII.2007, H. Takizawa leg.; 1F, Kg. Babagon, Penampang, Sabah, 12.V.2007, H. Takizawa leg.; 4M8F, Kg. Moyog, Penampang, Sabah, 13.IX.2008, H. Takizawa leg. 2F, Ridon, Lanjak Entimau Wildlife Sanctuary, Kapit, Sarawak, 18,20.VI.2008, H. Takizawa leg.; 1M, Lambir Hills N. P., Miri, Sarawak, 15.II.2003, Y. Kumano leg.; 1F, ditto, 18.II.2003, Y. Kumano leg.; 1M1F, ditto, 4.III.2003, Y. Kumano leg.

### *Chaloenus* (*Chaloenus*) *sumatrensis* n. sp.
(Fig. 23)

Type series

Holotype: Male, Urung Tama, Sibolangit, N. Sumatra, 13,18.IX.1998, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 1F, same as the holotype, H. Takizawa leg.; 1F, ditto, 3.V.2000, K. Maruyama leg.; 1F, Bandar Baru, Sumatra U., 3.V.1999, K. Maruyama leg.

Description

Male. Body 6.0 mm in length; dirty yellowish brown; head dark brown, antennae, legs except for basal half of femora, meso- and metathorax, and abdomen largely dark brown to blackish brown.

Head distinctly narrower than prothorax at anterior margin; frontal tubercles weakly curved down at antero-inner angle; eyes not protruded, with the distance between them 1.7 times as wide as its longitudinal diameter; frons broadly triangular, 2/3 as long as wide; genae half as deep as longitudinal diameter of eye, without tubercles apically; antennae almost as long as body, densely pubescent beyond 2nd, depressed on 3rd to 8h segments; 1st segment as long as 2nd and 3rd combined together, 4 times as long as 2nd; relative length of antennal segments as: 1st >> 3rd > 4th > 5th > 6th > 7th > 8th = 11th > 9th > 2nd =10th. Pronotum transverse, 1.8 times as wide as long, widest at apical 2/5th, thence roundly narrowed to anterior angle, sinuately and strongly narrowed to posterior angle, almost straight at anterior margin, gently arched at posterior margin, narrowly reflexed on lateral margins, depressed interiorly to the oblique anterior angle; posterior angle produced laterally; disc almost impunctate and shining; scutellum broadly triangular, 0.7 as long as wide; disc impunctate and shining. Elytron 3 times as long as wide, subparallel-sided on middle 1/3, widest slightly behind basal 1/3rd, thence gradually and weakly narrowed to base, roundly narrowed to apex, narrowly reflexed on lateral margins; subbasal area hardly raised; disc with 7 punctate striae, at most extending to behind the middle; striae somewhat obscure and confused; interstices flat, covered with smaller punctures; epipleuron gradually narrowed from base to apical 1/5th; last visible abdominal sternite trilobed, with median lobe 1/6 as long as wide; male aedeagus strongly curved in lateral view, weakly but distinctly constricted before median orifice (Fig. 2e). Fore and middle legs with 1st tarsal segment narrower than 3rd.

Female. Body 5.8-6.0 mm in length; head smaller, with the distance between eyes 1.4 times as wide as longitudinal diameter of eye; antennae shorter, 0.7 as long as body; 1st segment shorter than 4 times the 2nd; 9th as long as wide; relative length of antennal segments as: 1st >> 3rd > 4th > 5th > 6th > 7th = 11th > 8th > 2nd = 9th = 10th. Elytra with punctuation somewhat stronger than in males; fore and middle legs with 1st tarsal segments distinctly narrower than 3rd.

### Remarks

This new species is very closely related to *fulvoantennatus* n. sp. from Sabah in the yellowish brown body with long antennae, but is distinguished by the elytral disc shining with obscurely punctate striae, and by the male aedeagus weakly but distinctly constricted before median orifice. This was collected by sweeping in the forest of Urung Tama, N. Sumatra. Its specific name is derived from its type locality.

### Distribution

Sumatra.

### Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *suturalis* Westwood, 1861

*Chaloenus suturalis* Westwood, 1861, Jour. Entomol. 1: 217 (Amboina) – Medvedev, 2004, Russ. Entomol. Jour. 13(4): 251 (Singapore, Amboina).

Remarks

This species is unknown to me, but Medvedev (2004) gave short redescription of the holotype. It is somewhat similar to *C. erberi*, but is distinguished from the latter by violaceous black elytra with a broad fulvous stripe along the suture. Males have their head narrower than pronotum. While *erberi* has a rhomboidal fulvous patch along the suture and has the head distinctly wider than the prothorax in males.

Distribution

Malay Peninsula (Singapore), Is. Amboina.

Host plants

Unknown.

### *Chaloenus* (*Chaloenus*) *todai* n. sp.

(Fig. 24)

Type series

Holotype: Male, Poring Park, Ranau, Sabah, Malaysia, 25-26.IX.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 2F, same locality as the holotype, 13-15.II.2009, H. Takizawa leg.; 1M, ditto, 21-22.VIII.2008, H. Takizawa leg.; 4M4F, ditto, 25-26.IX.2008, H. Takizawa leg.; 3M2F, ditto, 20-21.XI.2008, H. Takizawa leg.; 1F, Manggis substation, Kinabalu Park, Ranau, Sabah, 9-10.XII.2006, H. Takizawa leg.; 3M, Kinabalu Park, HQ., Ranau, Sabah, 18-20,23.I.2008, H. Takizawa leg.; 1M, ditto, 20-26.II.2009, H. Takizawa leg.; 1M, ditto, 17-19.III.2008, H. Takizawa leg.; 2M, ditto, 14-15.IV.2008, H. Takizawa leg.; 1M5F, ditto, 23-25.VII.2008, H. Takizawa leg.; 2M, ditto, 19-20.VIII.2008, H. Takizawa leg.; 3M3F, ditto, 17-18.IX.2008, H. Takizawa leg.; 1M1F, ditto, 5.X.1999, M. Toda leg.; 2F, ditto, 7.X.1999, M. Toda leg.; 1F, ditto, 22.X.2007, H. Takizawa leg.; 1F, Mahua B. C., Crocker Range Park, 15.X.1999, M. Toda leg.; 1F, Muaya Waterfall, Kg. Muaya, Sipitang, Sabah, 7-9.III.2009, H. Takizawa leg.

Description

Male. Body rather flat and broad, subparallel-sided, 6.0-6.5 mm in length; pale yellowish brown; elytra dark green with metallic reflections; sometimes occipit and pronotum medially darkened; antennae sometimes dark brown on 4th to 8th, with 3 apical segments light yellowish brown; tibiae sometimes dark brownish.

Head distinctly narrower than prothorax, impunctate and shining with occipit microreticulate and slightly matt; frontal tubercles raised, somewhat trapezoid, gently arched on posterior margin; anterior inner angle slightly drawn between antennal sockets; frons

roundly triangular, broad and flat, with distinct antennal groove laterally; genae 1/3 as deep as longitudinal diameter of eye; labrum transverse; antennae rather robust, 0.7 as long as body, pubescent beyond 3rd segment; 1st segment longest and conspicuously club-like, longer than 2nd and 3rd combined together; 2nd shortest, subequal to 10th, shorter than 1/3 of 1st; 3rd to 5th distinctly widened subapically; 3 last segments each shorter and narrower than 8th; relative length of antennal segments as: 1st >> 4th > 3rd > 5th > 6th > 7th = 11th > 8th > 9th > 2nd = 10th. Pronotum transverse, distinctly narrower than elytra, 1.6 times as wide as long, widest at apical 2/5th, thence gently narrowed to posterior angle, narrowly reflexed on lateral margins near anterior angle; anterior angle broadly rounded; disc rather flat and shining, sparsely and finely punctate and reticulate under high magnification; scutellum broadly triangular, broadly rounded at apex, 3/4 as wide as long, shining and impunctate. Elytron 3.2 times as long as wide, weakly widened from base to behind middle, thence roundly narrowed to apex, narrowly reflexed on lateral margin; subbasal area weakly raised, delimited laterally by deep humeral impression, but postero-medially without transverse impression; disc shining, densely and irregularly covered with small and large punctures and fine short hairs sparsely; diameter of large punctures larger than interspaces; 7 or 8 irregular striae of larger punctures discernible; interstices of these punctate striae slightly costate on lateral portion; 5th visible abdominal sternite distinctly trilobed, with median lobe transverse, which is 3/4 as long as wide; male aedeagus gently widened near apex, rather broadly flattened at apex, with a minute process medially (Fig. 2f). Legs stout; fore and middle legs with 1st tarsal segment strongly widened, as wide as 3rd.

Female. Body slightly larger, 6.5-7.0 mm in length; antennae shorter, 3/5 as long as body; 1st segment distinctly longer than 2nd and 3rd combined together; 3rd subequal to 5th in length; relative length of antennal segments as: 1st >> 4th > 3rd = 5th > 6th > 7th > 11th > 8th.> 9th > 2nd =10th; 5th visible abdominal sternite somewhat elevated longitudinally at median line; fore and middle legs with 1st tarsal segment distinctly narrower than 3rd.

Remarks

This species is characterized by the pale body with dark metallic green elytra, which are densely and somewhat rugosely punctate with 7 or 8 rows of larger punctures discernible. This somewhat resembles to *C. laetus* or *C. brooksi* in its appearance with the densely punctured metallic elytra, but is easily distinguished from the both by the dark green elytra which are weakly costate laterally and with 7 or 8 irregular striae of larger punctures. Further the shape of male aedeagus is quite different as shown in Figs. 1a & 2f.

Individuals of this species were found gathering and feeding on inflorescences of *Schismatoglottis calypterata* (Roxb.) Zoll et Mor. *Schismatoglottis* sp., *Piptospatha havilandi* Enger and *Piptospatha* sp. at 400 m (Manggis substation) to 1800 m asl. (Kinabalu Park, HQ) on humid forest understorey and along stream. They are found almost throughout the year, except for May and June. This new species was named after Dr. M. Toda of Hokkaido Univ., Sapporo, who in 1999 found that many *Chaloenus* species are gathering in inflorescences of aroid plants.

Distribution
Borneo (Sabah).

Host plants
Gathering and feeding on inflorescences of *Schismatoglottis calypterata, Schismatoglottis* sp., *Piptospatha havilandi* and *Piptospatha* sp. (Araceae)

### *Chaloenus* (*Chaloenus*) *westwoodi* Chapuis, 1875
(Fig. 25)

*Chaloenus westwoodi* Chapuis, 1875, in Lacordaire, Gen. Col. 11: 46 (Indian Archpelago) - Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 252 (Malay Pen., Borneo, Sumatra).
*Chaloenus semipunctatus* Jacoby, 1899, Stett. Ent. Zeit. 60: 280 (Sumatra) – Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 252 (synonymized).

Remarks
This species is characterized by rather broad body and elytra evenly convex with 4 or 5 punctate striae extending to the middle to apical 1/3rd; interstices impunctate, feebly raised; aedeagus suddenly narrowed sub-apically and ended in a small acute process. Its coloration is variable from wholly fulvous to fulvous with elytra, underside, tibiae and tarsi blackish. Since I have seen only one female specimen, the above diagnosis is largely based on Medvedev (2004).

Distribution
Borneo (Sarawak), Malay Peninsula; Sumatra.

Host plants
Unknown.

Specimens examined. 1F, Menyaring, Lanjak Entimau Wildlife Sanctuary, Kapit, Sarawak, 24-25.VI.2008, H. Takizawa leg.

### *Chaloenus* (*Chaloenus*) *yukikoae* n. sp.
(Fig. 26)

Type series
Holotype: Male, Kundasang, Ranau, Sabah, Malaysia, 1.X.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 2F, Manggis substation, Kinabalu Park, Ranau, Sabah, 9-10.XII.2008, H. Takizawa leg.; 1M1F, Mahua, Crocker Range Park, Sabah, 15.X.1999, feeding on *Schismatoglottis calypterata* (Roxb.) Zoll et. Mor., M. Toda leg.; 1F, Poring Park, Ranau, Sabah, 22,25.II.2009, H. Takizawa leg.; 1M1F, ditto, 20-21.XI.2008, H. Takizawa leg.; 2F, ditto, 27.IX.1999, 31.XII.1998, feeding on *Schismatoglottis calypterata*, M. Toda leg.; 1M1F, Kundasang, Ranau, Sabah, 30.VI.2008, H. Takizawa leg.; 1M, ditto, 14.VII.2007, H. Takizawa leg.; 1F, ditto, 20.XI.2007, H. Takizawa leg.; 4M2F, Kinabalu Park, HQ., Ranau, Sabah, 18-20.I.2008, H. Takizawa

leg.; 1M, ditto, 27-28.V.2008, H. Takizawa leg.; 1F, ditto, 18-20.VIII.2008, H. Takizawa leg.; 1M, ditto, 7.X.1999, feeding on *Schismatoglottis* sp. H, M. Toda leg.; 1F, ditto, 23-24.XII.2008, H. Takizawa leg.

Description

Male. Body oblong ovate, 6.5-7.0 mm in length; yellowish brown with blackish blue elytra; metathorax with more or less blackish blue tinge; abdomen pale yellowish brown; antennae dark brown with 3 basal segments yellowish brown, 3 or 4 apical segments whitish brown; tibiae and tarsi dark brown.

Head distinctly narrower than prothorax, shining and impunctate; frontal tubercles subquadrate, arched and delimited posteriorly by a transverse impression; antero-interior angle acutely produced between antennal sockets; eyes small, widely separated from each other, with the distance between them 1.5 times as wide as its longitudinal diameterr; frons broadly triangular and flat, with antennal groove; frontal carina short and flat; genae shallower than half the longitudinal diameter of eye; labrum transverse, strongly arched at anterior margin, 1.5 times as wide as long; antennae rather short and stout, pubescent beyond 3rd segment, 0.7 as long as body; 1st segment club-like and longest, almost 4 times as long as 2nd; 4th longer than 3rd or 5th; 7th 1.5 times as long as wide. Pronotum transverse, 1.7 times as wide as long, widest at middle, thence rather straightly narrowed to posterior angle, roundly narrowed to anterior angle, almost straight at anterior margin, gently arched at posterior margin, narrowly reflexed near anterior angle; posterior angle slightly produced laterally; disc rather flat, impunctate and shining; scutellum triangular, flat and shining, rounded at apex. Elytron 3.4 times as long as wide, gently widened from base to middle, thence roundly narrowed to apex, narrowly reflexed along lateral margin; disc shining, covered with minute punctures, reticulation, and with sparse, fine and short hairs on posterior 1/3; basal area distinctly raised and delimited laterally by intrahumeral impression and posteriorly by broad transverse impression; scattered large punctures arranged in 4 short rows in the transverse impression; prothoracic sternite narrow but distinct between coxae; 5th visible abdominal sternite deeply trilobed, with rectangular median lobe which is slightly longer than wide; male aedeagus truncate and rounded laterally at apex, curved down apically in lateral view (Fig.2d). Legs stout; fore and middle legs with 1st tarsal segment almost as wide as 3rd.

Female. Body 6.5-7.0mm in length; antennae shorter, 0.6 as long as body; fore and middle legs with 1st tarsal segment distinctly narrower than 3rd.

Remarks

This species is characterized by the pale brownish body with metallic blackish blue elytra, which are largely impunctate with distinctly raised basal elevation, and by the shape of male aedeagus. This resembles the black form of *C. latifrons*, but males have the head not enlarged and females have antennae much slender. This also similar to *lanjakensis* n. sp. from Sarawak, but is easily distinguished from the latter having blackish elytra, deeper genae and shorter pronotum almost twice as wide as long, etc. This species has been collected together with *C. todai* n. sp. and *C. matangensis* in the

aroid inflorescences such as *Schismatoglottis calypterata* and *Piptospatha* sp. at 300 m (Manggis substation) to 1800 m (Kinabalu Park, HQ.) asl. throughout the year, except for March and April. This species is named after Miss. Yukiko Nagaya of the Poring Park, Ranau for her kind helps in collecting there.

Distribution
Borneo (Sabah).

Host plants
Inflorescences of *Schismatoglottis calypterata* and *Piptospatha* sp. (Araceae).

## Subgenus *Priostomus* Jacoby, 1884

*Priostomus* Jacoby, 1884, Stett. Entomol. Zeit. 45: 185-186 – Konstantinov & Prathapan, 2008, Coleopt. Bull. 62 (3): 390 (synonymized with *Chaloenus* Westwood).

This is characterized by the oblong and subparallel-sided body, and by usually longer and slender antennae, of which apical segments are slender. The prothorax is usually inverted trapezoidal, with or without a transverse impression (7/13 spp. with impression). Elytra are densely covered with large punctures, which have tendenciy to arrange themselves in longitudinal striae, or are longitudinally striate. Those punctate striae are sometimes short. Sometimes interstices are more or less costate. Two species, *kuningus* and *psi* n. spp., among 13 known species are sexually dimorphic in the shape of the head. The males have their head longitudinally lengthened in contrast to transversely widened heads in the subgenus *Chaloenus*.

The plant associations in this genus are summarized in Tab. 1. Members of this subgenus are divided into three groups: 1st group: *C. nitidicupreatus* n. sp. gathers onto old inflorescences of *Sapindapsis* sp. (Araceae); 2nd group: species like *maklarini* n. sp. gather onto the leaves of *Piptospatha* spp. and *Schismatoglottis* spp. (Araceae). Feeding/association on *Ficus* sp., *Wedelia* sp. or *Impatiens* sp. are known in this group; 3rd group: morphologically abberent species like *psi* and *kuningus* lacking association with aroid plants. *Ficus* sp., *Melastoma* sp. and a shrub tree of Theaceae are known as host plants in this group.

Unlike subgenus *Chaloenus*, members of this subgenus have diverse host plant associations, and association with aroids seems rather limited.

### *Chaloenus* (*Priostomus*) *aeneipennis* Jacoby, 1896
(Fig. 27)

*Chaloenus aeneipennis* Jacoby, 1896, Ann. Mus. Civ. Genova 36: 432 (Sumatra) – Medvedev, 2004, Russ. Entomol. Jour. 13 (4): 248 (Malay Pen., Sumatra).

Remarks
This is characterized by rather larger body of 4.5-5.0 mm in length, fulvous body with dark metallic bluish green elytra, and by densely and rugosely punctate elytra.

With these characters it is quite similar to *C. subcostatus* Jacoby, but is distinguished from the latter by the elytra with the 3rd interstices apically, 5th and 7th distinctly costate on median portion, and by slender aedeagus in males (Fig. 3b). It was collected on leaves of *Myrcinauclea* sp. usually along streams.

Distribution

Borneo (Sabah, Sarawak), Malay Peninsula, Sumatra.

Host plants

*Myrcinauclea* sp. (Rubiaceae) and *Melastoma* sp. (Melastomataceae).

Specimens examined. 1 F, Kundasang, Ranau, Sabah, 23.II.2009, H. Takizawa leg.; 1F, Poring Park, Ranau, Sabah, 11-12.III.2009, H. Takizawa leg.; 1F, ditto, 4-5.IV.2008, H. Takizawa leg.; 1F, ditto, 25-26.VIII.2007, H. Takizawa leg.; 1M, ditto, 11.XII.2008, H. Takizawa leg.; 1F, Kinabalu Park, HQ., Ranau, 23-25.VII.2008, H. Takizawa leg.; 1M1F, Kg. Moyog, Penampang, 13.IX.2008, H. Takizawa leg.; 3F, Tibow, HQ., Sapulut Forest Res., Pensiangan, 17-19.XII.2008, H. Takizawa leg.; 1F, Muaya Waterfall, Kg. Muaya, Sipitang, Sabah, 7-9.III.2009, H. Takizawa leg. 8M,12F, Menyaring, Lanjak Entimau, W. Sanct., Kapit, Sarawak, 24-25.VI.2008, H. Takizawa leg.; 3M2F, Joh, Lanjak Entimau, W. Sanct., 21-22.VI.2008, H. Takizawa leg.; 2M4F, Ridon, Lanjak Entimau, W. Sanct., 18,20.VI.2008, H. Takizawa leg.

### ***Chaloenus* (*Priostomus*) *kuningus* n. sp.**

(Fig. 28)

Type series

Holotype: Male, Kinabalu Park, HQ., Ranau, Sabah, Malaysia, 14-15.IV.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 13M14F, same as the holotype; 1M1F, ditto, 17-19.III.2008, H. Takizawa leg.; 1M2F, ditto, 27-28.V.2008, H. Takizawa leg.; 4M4F, Kinabalu Park, HQ., 18-20.VIII.2008, H. Takizawa leg.; 1M1F, Memping tr., Kinabalu Park, HQ., Ranau, Sabah, 10.VIII.2007, H. Takizawa leg.; 3M1F, Liwagu tr., Kinabalu Park, HQ., Ranau, 27.IX.2007, H. Takizawa leg.; 4F, Kinabalu Park, HQ., Ranau, 24-25.VII.2008, H. Takizawa leg.

Description

Male. Body flat and subparallel-sided, 5mm in length, yellowish brown; elytra largely with dark aeneous tinge; frons with whitish tinge; antennae dark brown, with 6 basal segments pale brown on basal portion.

Head impunctate and shining, strongly perpendicular, highest at frontal tubercles in lateral view, distinctly narrower than pronotum; frontal tubercles contiguous, forming transverse hexagonal raised area, with narrow median line; antennal sockets separated from each other by a distance between eye and antennal socket; frons almost as long as wide, flat and finely granulate, keeled between antennal sockets, deeply and widely incised at anterior margin; antennal groove obscure; distance between

eyes distinctly wider than longitudinal diameter of eye; genae long, 2/3 as deep as longitudinal diameter of eye; clypeus half as long as wide; labrum elongate shield-shaped; mandibles apically dark; antennae filiform, twice as long as body, pubescent on 6 apical segments; 1st segment conspicuously club-like, distinctly shorter than 2nd and 3rd combined together; 2nd shortest, 1/5 as long as 9th; 11th slender, as long as 1st; relative length of each antennal segments as: 9th = 10th > 4th = 5th > 7th = 8th > 6th > 3rd > 1st = 11th >> 2nd. Pronotum transverse, 1.7 times as wide as long, widest at anterior 1/3rd, thence weakly narrowed anteriorly, strongly narrowed posteriorly, almost straight at anterior margin, broadly produced at posterior margin; both anterior and posterior angles obtusely thickened; disc convex, shining with scattered fine punctures, with shallow broad impression behind anterior margin, sometimes with a short obscure longitudinal impression anterior to scutellum; scutellum right triangle, and impunctate. Elytron 3 times as long as wide, sharply perpendicular below acute lateral costa running parallel to the lateral margin from humerus, with 2 or 3 rows of smaller punctures below the costa; disc densely and foveolately covered with large punctures, the diameter of which is distinctly wider than interspaces; punctures with a distinct tendency to arrange in longitudinal rows on lateral side, with sparse erect hairs on apical area; 5th visible abdominal sternite trilobed, with a transverse median lobe; male aedeagus slender, curved gently in lateral view and obtusely pointed at apex (Fig. 3c). Legs rather slender; fore leg with 1st tarsal segment distinctly enlarged, roundly triangular, a little longer than twice the width.

Female. Body slightly widened posteriorly, widest before apical 1/3rd, 4.5-5.0 mm in length; antennae slender, 1.3 times as long as body; 4th antennal segment longest, almost 5 times as long as 2nd; 11th pointed, 3 times as long as 2nd; relative length of antennal segments as: 4th> 5th > 6th > 7th > 1st =3rd = 8th= 9th> 10th =11th >>2nd; fore leg with 1st tarsal segment slender, 1.5 times as long as wide.

### Remarks

This species is characterized by its large and rather flat body shape with long slender antennae. Its coloration is generally light brown, but sometimes with an aeneous lustre on elytra. In one female specimen elytra almost wholly dull blue black, except for narrow light area below humerus. Also densely and somewhat longitudinally arranged punctuation of elytra, and vague impression on pronotum distinguish this species well. This species was found feeding on unidentified small trees of Theaceae near streams in the Headquaters area, Kinabalu Park, 1600-1700 m asl.

Specific name was derived from a Malay word ‘kuning’, of which meaning is yellow.

### Distribution

Borneo (Sabah).

### Hosts plants

Unidentified small tree of Theaceae.

### ***Chaloenus* (*Priostomus*) *maklarini* n. sp.**
(Fig. 29)

Type series

Holotype: Male, Kinabalu Park, HQ., Ranau, Sabah, Malaysia, 18-20, 23. I. 2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 16M15F, same as the holotype, H. Takizawa leg.; 1 F, ditto, 20-26.II.2009, H. Takizawa leg.; 1M, ditto, 28,29. II.2008, H. Takizawa leg.; 3M, ditto, 17-19.III.2008, H. Takizawa leg.; 6M2F, ditto, 14-15.IV.2008, H. Takizawa leg.; 1M, ditto, 27-28.V.2008, H. Takizawa leg.; 6M4F, ditto, 23-25.VII.2008, H. Takizawa leg.; 1M1F, ditto, 19-20.VIII.2008, H. Takizawa leg.; 2 exs., 17-18.IX.2008, H. Takizawa leg.; 1M1F, ditto, 17-19.X.2008, H. Takizawa leg.; 1 F, ditto, 23-24.XII.2008, H. Takizawa leg.

Description

Male. Body small and slender, 4.5-5.0 mm in length, widest at humerus, thence weakly narrowed posteriorly; antennae distinctly longer than body; dorsum dark metallic green; venter, mouth parts, femora except for hind femur apically and antennae except for 1st segment yellowish brown; tibiae, tarsi, hind femur apically and 1st antennal segment dark brown; frontal tubercles, pronotum marginally dark reddish brown.

Head perpendicular, slightly narrower than pronotum; vertex impunctate and shining; frontal tubercles roundly rectangular, contiguous with a thin median line, strongly convex and shining, forming the highest point in lateral view; anterior angle acutely produced between antennal sockets; distance between eyes almost as wide as longitudinal diameter of eye; distance between antennal sockets distinctly narrower than the distance between eye and antennal sockets; frons longitudinally triangular, almost as long as wide, with distinct carina on upper part, deeply and triangularly notched at anterior margin; surface very finely granulate and with sparse hairs; antennal groove broad and shallow; genae long, about 2/5 as deep as longitudinal diameter of eye; labrum ovate, as long as wide; mandibles depressed at lateral side; right mandible with a distinct roundish depression at lateral area between 2 short carinae; antennae slender, 1. 2 times as long as body, beyond 3rd segment thickly pubescent; 1st segment conspicuously club-like, longest and longer than 2nd and 3rd combined together; 2nd shortest 1/5 as long as 1st; 11th twice as long as 2nd; relative length of antennal segments as: 1st >> 3rd = 4th = 5th > 6th > 7th = 11th > 8th = 9th =10th > 2nd. Pronotum transverse, distinctly narrower than elytra, twice as wide as long, widest at anterior angle, thence somewhat sinuately narrowed to posterior angle, straight at anterior margin; both anterior and posterior angles markedly thickened; disc convex with a pair of transverse fovea-like impressions medially which are united to each other, and with a pair of shallower ones anteriorly; disc shining and impunctate; basal margin broad, well delimited by thin transverse sulcus; scutellum impunctate, broadly triangular, distinctly wider than long. Elytron 3.8 times as long as wide, declivitous below the costa and impunctate on apical 2/3, with a distinct costa from humerus to basal 1/3rd, which is divaricate into 2 parallel ones, and then united again at apical 1/3rd; subbasal area strongly raised and partially impunctate, delimited behind by a deep broad impression; disc transversely

rugose, covered with foveolate, irregular punctures, which are arranged in longitudinal rows; 5th visible abdominal sternite transversely trilobed, with median lobe concave and distinctly thickened near basal angles; male aedeagus slender, almost subparallel-sided; apex somewhat roundly produced with a dull median process (Fig. 3d). Legs rather stout; 1st tarsal segment of fore legs 1.5 times as long as wide.

Female. Coloration different; head and pronotum light brownish; antennae light brown on first 3 segments, except for dark apex of 1st segment; 4-8th and 11th dark brown, with 9th and 10th yellowish brown; hind femur wholly light brown; antennae shorter, almost as long as body; 10th segment 1.5 times as long as 2nd; relative length of antennal segments as: 1st >> 3rd = 4th > 5th = 6th > 7th > 11th > 8th > 9th = 10th > 2nd; elytron 3.6 times as long as wide.

Remarks

This species is characterized by its rugosely and transversely rugged elytra with a longitudinal costa, and is similar to *C. subcostatus* Jacoby or *C. aeneipennis* Jacoby. These two species are distinguished by the robuster shape of aedeagus; pronotum without the 2nd pair of impressions; elytra widest near middle, rather regularly punctate striate, and so on. *Subcostatus* has elytra much more heavily covered with foveolate punctures, even on subbasal raised area, lateral and apical portions. Both sexes have pronotum and head light reddish brown. *Aeneipenni*s has antennae shorter than the body length in females, as long as the body in males. This species, so far, has been collected at Kinabalu Park Headquaters area along Liwagu River (1500-1700 m asl.), almost throughout the year. This species was named after Dr. Maklarin Lakim of the Researach and Education Division, Sabah Parks, as a token of my hearty thanks to his kind support for my research in Sabah Parks.

Distribution

Borneo (Sabah).

Host plants

*Ficus unicinata* (Moraceae); often gregariously gathering on the leaves of *Schistomaglottis* sp. (Araceae) and *Wedelia* sp. (Compositae).

### ***Chaloenus* (*Priostomus*) *maryatiae* n. sp.**

(Fig. 30)

Type series

Holotype: Male, Kinabalu Park, HQ. 1,600-1,800m asl., Ranau, Sabah, Malaysia, 18-20,23.I.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 3M, same as the holotype; 3M 2F, ditto, 28-29.II.2009, H. Takizawa leg.; 1M, ditto, 27-28.V.2008, H. Takizawa leg.; 1M, ditto, 23-25.VII.2008, H. Takizawa leg.; 1M, ditto, 17-18.IX.2008, H. Takizawa leg.; 2M 2F, ditto, 17-18.X.2008, H. Takizawa leg.; 1M, Mesilau, 1,600-1,800m asl., Ranau, Sabah, 30.I.2009, H. Takizawa leg.; 1M, Poring Park, 700-1,000m asl., Ranau, Sabah, 9-10.I.2009, H. Takizawa leg.; 1F, 25-26.II.2008,

H. Takizawa leg.; 1M, ditto, 13-15.II.2009, H. Takizawa leg.; 1M, ditto, 22,25.II.2009, H. Takizawa leg.; 1M, ditto, 11-12.III.2009, H. Takizawa leg.; 1M, ditto, 9-10.VII.2008, H. Takizawa leg.; 1F, ditto, 21-22.VIII.2008, H. Takizawa leg.; 1M1F, 25-26.IX.2008, H. Takizawa leg.; 2M1F, 21-22.X.2008, H. Takizawa leg.; 2M1 F, 7-8.XII.2008, H. Takizawa leg.

Description

Male. Body subparallel-sided with rather slender elytra, 4.0-4.5 mm in length, wholly light yellowish brown; antennae on 5th to7th segments and 11th apically infuscate; mandibles and tarsi infuscate.

Head smooth, shining and impunctate, narrower than pronotum; eyes large and convex; distance between eyes 0.8 as wide as longitudinal diameter of eye; frons transverse, triangularly raised with distinct antennal grooves; frontal tubercles raised, subpentagonal, delimited posteriorly by a strong transverse impression; genae shallower than half the longitudinal diameter of eye; labrum long, as long as genae; antennae slender, slightly shorter than body, pubescent beyond 3rd segment; 1st segment long and conspicuously club-like, distinctly longer than 2nd and 3rd combined together, 4 times as long as 2nd, 1.3 times as long as 3rd; relative length of antennal segments as: 1st >> 4th > 5th > 6th = 7th = 11th > 3rd > 8th > 9th > 10th > 2nd. Pronotum transverse and inverted trapezoidal, widest at anterior angles, thence straightly narrowed to posterior angles; weakly emarginated at anterior margin, rather strongly arched at posterior margin, near posterior angle obliquely truncate; the maximum width 1.1 times as wide as the width at posterior angles; disc rather flat and almost impunctate; both angles tuberculate; posterior angle distinctly produced; scutellum impunctate, shining and triangular, almost as long as wide, broadly rounded at apex. Elytron 3.4 times as long as wide, almost subparallel-sided, declivitous on lateral portion with 2 punctate striae; subbasal area strongly raised and impunctate, delimited laterally by intrahumeral punctate stria, and posteriorly by weak and broad subbasal impression; disc with 6 or 7 short punctate striae, not extending beyond middle; punctures sparse and strong, distance between punctures wider than their diameter; interstices smooth and shining; anterior coxae almost contigious; prosternal process invisible between anterior coxae; mesosternal process distinctly narrower than coxal cavity; 5th visible abdominal sternite weakly trilobed, with a short and transverse median lobe; male aedeagus slender, produced apically with a pair of acute lateral processes at apex (Fig. 3e). Legs slender with long tibiae; hind leg with 1st tarsal segment long, distinctly longer than the 2 following combined together; hind coxae widely separated.

Female. Body 3.5-4.0 mm in length; similar to male with elytra generally darker.

Remarks

This species is characterized by generally pale brownish body with rather sparsely punctate elytra. Further the male aedeagus is peculiarly shaped with a slender apical process which has a pair of acute processes laterally. It is usually found on leaves of *Piptospatha* sp. at streamside together with *C. moyogensis* n. sp. at 800-1800 m asl. throughout the year. The species density is much lower than that of *C. moyogensis*

n. sp. Its host plant is not confirmed, but it never feeds on *Piptospatha* leaves. This species is dedicated to Dr. Maryati Mohamed, the former director of ITBC, for her continuous and kind support during my stay at the Institute.

Distribution
Borneo (Sabah).

Host plants
Unknown; gathering on leaves of *Piptospatha* sp. (Araceae).

### *Chaloenus* (*Priostomus*) *minutus* n. sp.
(Fig. 31)

Type series
Holotype: Male, Mt. Kinabalu, Summit trail, 1,900-2,300m asl., Ranau, Sabah, Malaysia, 10.IX.2007, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 1M, Kinabalu P., HQ., Bukit Ular tr., Ranau, 27.II.2007, H. Takizawa leg.; 1M, Mesilau, Kundasang, Ranau, 2,000-2,300m, 11.IX.2007, H. Takizawa leg.; 11M, Mesilau, summit trail, 2,200-2,300m, 31.I.2009, H. Takizawa leg.; 1M, ditto, 1,800-2,300m, 29.I.2009, H. Takizawa leg.; 8M, Mesilau, 29-30.I.2009, H. Takizawa leg.

Females not included in the paratypes: 1F, Mt. Kinabalu, 2,300m, Ranau, Sabah, 10.IX.2007, H. Takizawa leg.; 2F, Mesilau, 1,600-1,800m, Ranau, Sabah, 30.I.2009, H. Takizawa leg.; 1F, Mesilau, PHQ, Ranau, Sabah, 29-30.I.2009, H. Takizawa leg.; 6F, Mesilau, summit trail, 2,000-2,300m, Ranau, Sabah, 31.I.2009, H. Takizawa leg.

Description
Male. Body small, 3.5 mm in length, subparallel-sided; pale yellowish brown; scutellum and elytra on basal 2/3 largely metallic greenish, margined with pale yellowish brown; antennae darker on apical 4 or 5 segments.

Head slightly narrower than pronotum; vertex impunctate and shining; frontal tubercles subquadrate, well-raised, delimited behind by a distinct groove; anterior angle slightly extending between antennal sockets; eyes well produced, with distance between eyes distinctly wider than its longitudinal diameter; distance between antennal sockets almost as wide as the distance between eye and antennal socket; frons triangular, almost as wide as long, weakly emarginated at anterior margin, broadly raised with a carina on upper portion; antennal groove broad and shallow; genae short, almost half as deep as longitudinal diameter of eye; labrum long, 2/3 as long as wide; mandible basally on lateral area broadly depressed; antennae slender, almost as long as body, rather thickly pubescent beyond 3rd segment; 1st segment conspicuously club-like, almost as long as 2nd and 3rd combined together; 2nd shortest, 1/3 as long as 1st, 2/3 as long as 10th; relative length of antennal segments as: 1st > 4th > 5th = 6th > 3rd = 7th = 11th > 8th = 9th > 10th > 2nd. Pronotum transverse, half as long as wide, widest at anterior angle, thence almost straightly narrowed to before basal angle, gently emarginated at anterior margin, broadly produced on posterior margin; both angles thickly tuberculate with

pore and long seta; disc impunctate, very finely granulate, convex with a pair of large shallow depressions medially, along basal margin linearly depressed; scutellum convex and shining, broadly triangular, slightly wider than long. Elytron 3 times as long as wide, declivitous on lateral portion, so that lateral margin hardly visible from above; subbasal portion raised and followed by obscure broad impression posteriorly, weakly punctate; humerus impunctate, well demarcated internally by a row of strong punctures; disc glabrous, distinctly punctate-striate on basal 2/3 including lateral declivitous area; diameter of punctures smaller than longitudinal distance between punctures; male aedeagus slender, subparallel-sided from basal 1/3rd to apical 1/4th, thence narrowed to slender apical process, which is curved slightly upward (Fig. 3g). Legs slender; 1st tarsal segment weakly enlarged; last abdominal sternite transversely trilobed; median lobe 2.5 times as wide as long.

Distribution

Borneo (Sabah).

Host plants

*Impatiens* sp. (Balsamiferae); gathering on leaves of *Piptospatha* sp. (Araceae).

Remarks

This new species is characterized by its small, pale body with greenish coloration on elytra, and by elytra rather regularly punctate-striate on basal 2/3 without costae. Elytra are rather broadly margined with yellowish brown, but greenish parts on elytra may be reduced to a narrower area. *C. moyogensis* n. sp. looks like the present new species, but has the pronotum slightly longer, elytra wholly impunctate on the subbasal raised area, and male aedeagus with a long apical process. All the specimens in type series are males. There is a series of female specimens from the type localities. These are characterized by the larger body of 3.8-4.2 mm in length and almost wholly dark greenish elytra, which are much more heavily, densely and widely covered by large punctures than in males of *minutus*. These may be females of *minutus* n. sp., but I refrain from assigning them to type series. Specimens were collected by sweeping at the height of 1800-2300 m asl. on Mt. Kinabalu. Some were feeding on leaves of *Impatiens* sp. (Balsamiferae) and gathering on *Piptospatha* sp. (Araceae). Specific name relates to its small body size.

### ***Chaloenus* (*Priostomus*) *moyogensis* n. sp.**

(Fig. 32)

Type series

Holotype: Male, Kg. Moyog, Jln. Tambunan, Penampang, Sabah, Malaysia, 30.X.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC,). Paratypes: 3M, same as the holotype; 1M, ditto, 13.I.2008, H. Takizawa leg.; 1F, ditto, 22.I.2009, H. Takizawa leg.; 16M11F, ditto, 14.II.2008, H. Takizawa leg.; 7M3F, ditto, 13.IX.2008, H. Takizawa leg.; 1M, Mahua Waterfall, Crocker R. P., Tambunan, Sabah, 22-24.VI.2007,

H. Takizawa leg.; 22M13F, Kinabalu Park, HQ., Ranau, 18-20,23.I.2008, H. Takizawa leg.; 3M1F, ditto, 26-27.I.2008, H. Takizawa leg.; 1M, ditto, 25-26.II.2008, H. Takizawa leg.; 3M1F, ditto, 20-26.II.2009, H. Takizawa leg.; 11M3F, ditto, 28-29.II.2008, H. Takizawa leg.; 3M2F, ditto, 17-19.III.2008, H. Takizawa leg.; 2M, ditto, 4-5.IV.2008, H. Takizawa leg.; 2F, ditto, 14-15.IV.2008, H. Takizawa leg.; 2F, ditto, 27-28.V.2008, H. Takizawa leg.; 2M1F, ditto, 4-5.VII.2009, H. Takizawa leg.; 5M2F, ditto, 23-25.VII.2008, H. Takizawa leg.;; 3M2F, ditto, 19-20.VIII.2008, H. Takizawa leg.; 2M, ditto, 17-18.IX.2008, H. Takizawa leg.; 6M1F, ditto, 17-19.X.2008, H. Takizawa leg.; 1M, ditto, 16,17.XI.2007, H. Takizawa leg.; 1M, Manggis subst., Kinabalu Park, Ranau, Sabah, 9-10.XII.2008, H. Takizawa leg.; 1M, Poring, Ranau, Sabah, 9-10.I.2009, H. Takizawa leg.; 1M, ditto, 13-15.II.2009, H. Takizawa leg.; 2M2F, ditto, 25-26.II.2008, H. Takizawa leg.; 1M, ditto, 22-25.II.2009, H. Takizawa leg.; 1M, ditto, 11-12.III.2009, H. Takizawa leg.; 3M2F, ditto, 9-10.VII.2008, H. Takizawa leg.; 1M1F, ditto, 21-22.VIII.2008, H. Takizawa leg.; 9M4F, ditto, 25-26.IX.2008, H. Takizawa leg.; 7M, 6.XI.2008, H. Takizawa leg.; 7M1F, Kundasang, Ranau, Sabah, 8.II.2008, H. Takizawa leg.; 1M, ditto, 23.II.2009, H. Takizawa leg.; 1F, ditto, 13.IV.2008, H. Takizawa leg.; 1M, ditto, 24.V.2008, H. Takizawa leg.; 1M1F, ditto, 16.VIII.2008, H. Takizawa leg.; 3M3F, ditto, 1.X.2008, H. Takizawa leg.; 7M3F, ditto, 6.XI.2008, H. Takizawa leg.; 1 M, ditto, 27.XII.2008, H. Takizawa leg.; 1M, Mesilau, Ranau, Sabah, 30.I.2009, H. Takizawa leg.; 4M2F, ditto, 23.III.2008, H. Takizawa leg. 1M, Joh, Lanjak Entimau Wildlife Sanct., Kapit, Sarawak, 21-22.VI.2008, H. Takizawa leg.

Description

Male. Body subparallel-sided, 3.5-4.0 mm in length, pale brownish; coloration variable with elytra darker and sometimes with cupreous lustre; pronotum laterally and elytral epipleuron margined with dark brown; antennae dark brown, blackish on 1st, 2nd, 5th-8th and apical half of 11th segment, yellowish white on 9th to10th and basal half of 11th ; legs and abdomen paler.

Head impunctate and shining, slightly narrower than pronotum; vertex strongly depressed behind subpentagonal frontal tubercles; frons triangularly raised; eyes widely separated; distance between eyes 1.4 times as long as longitudinal diameter of eye; genae longer, 4/5 as deep as longitudinal diameter of eye; labrum shield-shaped, as long as wide; antennae almost as long as body, densely pubescent beyond 3rd segment; 1st segment club-like, slightly shorter than 2nd and 3rd combined together, 2.7 times as long as 2nd; 3rd segment almost twice as long as 2nd; 8th nearly 3 times as long as wide; relative length of antennal segments as: 1st >>3rd = 4th = 5th> 6th > 7th = 11th > 8th > 9th > 10th > 2nd. Pronotum inverted trapezoidal, almost twice as wide as long, widest at anterior angles, thence straightly narrowed to posterior angles; both anterior and posterior angles tuberculate; disc impunctate, weakly convex from side to side, without transverse impression; scutellum impunctate, broadly triangular, rounded at apex, 2/3 as wide as long. Elytra subparallel-sided, almost 4 times as long as wide; disc covered with strong punctures on basal 2/3, with 10 rows of punctures, with a weak costa running from humerus to apical 1/3rd, laterally declivitous with 2 rows of irregular punctures; distance between seriate punctures as wide as diameter of punctures;

subbasal area distinctly raised, delimited laterally by deeply punctate stria, posteriorly by a broad shallow impression, impunctate except for a few large punctures; 5th visible abdominal sternite weakly trilobed, with median lobe transverse; male aedeagus slender, slightly widened sub-apically, with a median projection apically (Fig. 3h). Legs rather slender; fore leg with 1st tarsal segment triangularly widened, slightly shorter than the 2 following combined together; hind leg with 1st tarsal segment elongate triangular, as long as the 2 following combined together.

Female. Body 3.8-4.0 mm in length; usually coloration much darker; elytra sometimes dark brown with slight aeneous reflection; antennae almost 7/9 as long as body; 1st segment 3.5 times as long as 2nd, as long as 2nd and 3rd combined together; 8th almost half as wide as long; relative length of antennal segments as: 1st >> 4th > 3rd = 11th > 5th = 6th > 7th = 8th = 9th > 10th >2nd. Elytra with punctures much larger; 7th interstices distinctly costate on middle 1/3.

Remarks

This new species is closely similar to *C. maryatiae* n. sp. in its paler coloration and body shape, but is clearly distinguished by elytra which are sparsely covered with strong punctures on basal 2/3; punctuation somewhat rugose near subbasal elevation; legs more robust; hind legs with 1st tarsal segment shorter, as long as 2nd and 3rd combined together; male aedeagus gently rounded apically with a weak median process; female with a distinct costa on 7th interstices of elytra. It is easily distinguished from *C. tibowensis* n. sp. of similar body size, by elytra with the 7th interstices weakly costate and by aedeagus slightly constricted subapically, etc.

This species is named after type locality, Kampung Moyog along Tambunan Road, in Penampang. It was found gathering on leaves of *Piptospatha* sp. and *Schismatoglottis* sp. along stream almost throughout the year at 100-1500 m, asl., but they never feed on them nor enter into their inflorescences. They actively fly about leaves, when disturbed.

Distribution

Borneo (Sabah, Sarawak).

Host plants

Unknown; gathering on leaves of *Piptospatha* sp. & *Schismatoglottis* sp. (Araceae).

### ***Chaloenus* (*Priostomus*) *muaya* n. sp.**

(Fig. 33)

Type series

Holotype: Male, Muaya Waterfall, Kg. Muaya, Sipitang, Sabah, Malaysia, 7-9.III.2009, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 6M11F, same as the holotype.

Description

Male. Body subparallel-sided, 3.8-4.5 mm in lengh; pale yellowish brown; mandibles apically, pronotum on lateral margins and scutellum infuscate; antennae on first 4 segments apically, 5-8th segments and on 11th apically dark brownish; 9th and 10th, 11th basally yellowish white.

Head distinctly narrower than prothorax; frontal tubercles subquadrate, triangularly produced between antennal sockets, almost straight at posterior margin and well demarcated from vertex; eyes large, with distance between them 1.4 times as wide as their longitudinal diameter; frons convex and transverse, almost twice as wide as long, not counting for length of frontal carina; frontal carina short and flat between antennal sockets; antennae filiform, thickly pubescent beyond 3rd segment, 0.8 as long as body; 1st segment club-like and longest, distinctly longer than 2nd and 3rd combined together; 2nd half as long as 6th; 4th as long as 2nd and 3rd combined together; relative length of antennal segments as: 1st >> 4th > 5th > 6th > 3rd = 7th > 8th = 11th > 9th > 10th > 2nd. Pronotum inverted trapezoidal, almost twice as long as wide, widest at anterior angles, thence almost straightly narrowed to posterior angle, gently emarginated at anterior margin, arched at posterior margin; both anterior and posterior angles strongly thickened; disc shining and impunctate, convex from side to side without transverse impression; scutellum triangle almost as wide as long. Elytron 3 times as long as wide, weakly widened from base to behind middle, thence roundly narrowed to apex; subbasal area distinctly raised, delimited laterally by intra-humeral stria, posteriorly by broad, shallow impression; disc shining, with 10 punctate striae, almost impunctate on apical 1/3; sutural stria indistinct, but reaching the middle; 2nd to 5th starting near subbasal impression, reaching apical 1/3rd; intra-sutural one well impressed from base to apical 1/3rd; 6th and 7th short and distinct on middle 1/3; 8th, 9th and lateral most one reaching apical 1/3rd; interstices with fine microsculptures; 5th visible abdominal sternite trilobed; male aedeagus slender, slightly widened and somewhat broadly flattened subapically, broadly rounded on apical margin (Fig.3f ). First tarsal segment slightly narrower than 3rd.

Remarks

This new species closely resembles *C. maryatiae* n. sp. in the pale yellowish brown body and sparsely punctate elytra, but is distinguished clearly from the latter by the shape of male aedeagus.

Many specimens were collected together with *C. moyogensis* n. sp. gathering on leaves of *Piptospatha* sp. at stream bed of Muaya Waterfall, Sipitang, ca. 1200 m asl. They were more or less teneral at that time. The latter species in Muaya were characteristic in having elytra largely dark coppery with greenish reflections, unlike individuals from other localities. The specific name is derived from the type locality.

Distribution

Borneo (Sabah).

Host plants

Unknown; gathering on leaves of *Piptospatha* sp. (Araceae).

### ***Chaloenus* (*Priostomus*) *nitidicupreatus* n. sp.**

(Fig. 34)

Type series

Holotype: Male, Kinabalu Park, HQ., Ranau, Sabah, Malaysia, 14-15.IV.2008, H. Takizawa leg. (BORNEENSIS collection, ITBP). Paratypes: 1F, Kinabalu Park, HQ., Ranau, Sabah, 17-19.III.2008, H. Takizawa leg.; 7M2F, ditto, 23-24.XII.2008, H. Takizawa leg.

Description

Male. Body small and subparallel-sided, 3.5 mm in length, blackish with dark coppery luster; head dark brown, legs light brown, tibiae apically, tarsi and hind femora apically dark brown; antennae black, with 2nd to 4th segments basally brown, 11th light brown; abdomen light brown.

Head almost as wide as pronotum, rather flat; vertex convex, impunctate and shining; frontal tubercles subquadrate and flat not forming the highest point in lateral view, longitudinal with anterior angle acutely extending between interantennal area, distinctly delimited behind by deep impression with a few large punctures; eyes large and convex, widely separated from each other, with distance between them 1.5 times as wide as its longitudinal diameter; frons transverse, triangularly raised, almost 1.5 times as wide as long, sharply carinate between antennal sockets, straight at apical margin; antennal grooves distinct; genae shallower than half the longitudinal diameter of eye; clypeus and labrum transverse; antennae 2/3 as long as body, slightly robust, beyond 5th segments thickly pubescent; 1st segment conspicuously club-like, longest, distinctly longer than 2nd and 3rd combined together; 6th to 10th rather robust, each distinctly shorter than twice the width; 11th pointed at apex, 0.6 as long as 1st; relative length of antennal segments as: 1st >> 11th > 4th > 3rd = 5th = 6th = 7th > 8th = 9th = 10th> 2nd. Pronotum transverse and longer, about 1.4 times as wide as long, almost straight at anterior margin, gently arched at posterior margin, almost subparallel-sided on apical half, thence sinuately narrowed to posterior angle; both anterior and posterior angles strongly thickened; disc evenly convex, impunctate and shining; scutellum distinctly wider than long, impunctate and shining. Elytron 3 times as long as wide, gently narrowed on apical 1/3; subbasal area strongly raised and delimited behind and laterally by a few short rows of strong punctures, which are not attaining middle of elytra, narrowly reflexed with a row of punctures reaching apical 1/3rd on lateral margins; laterally 2 short rows of punctures discernible; male aedeagus subparallel-sided, gently curved down ventrally, triangularly narrowed to apex (Fig. 3i). Legs rather stout; fore leg with 1st tarsal segment enlarged, almost as long as wide.

Remarks

This species is characterized by its small body size and dark coloration. Though the size is similar to *C. nitidihirtus* n. sp., it is clearly distinguished from the latter by glabrous elytra. It is somewhat peculiar among the subgenus *Priostomus* with flat frontal tubercles and frons. This species was collected by sweeping on understorey of forests. Once 9 individuals were collected gathering on old flowers of *Sapindapsis* sp. at Kinabablu Park, Headquarters area (1600-1800 m, asl.). The specific name is derived from its coloration.

Distribution

Borneo (Sabah).

Host plants

Gathering on old flowers of *Sapindapsis* sp. (Araceae).

### ***Chaloenus* (*Priostomus*) *nitidihirtus* n. sp.**

(Fig.35 )

Type series

Holotype: Male, Ridon, Lanjak Entimau Wildlife Sanctuary, Kapit, Sarawak, 18,20. VI.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 5M4F, same as the holotype; 1M, Menyaring, Lanjak Entimau Wildlife Sanctuary, Kapit, Sarawak, 24-25.VI.2008, H. Takizawa leg.

Description

Male. Body small, 3.8-4.0 mm in length, subparallel-sided; dark reddish brown; frons, mouthparts and venter pale brown; elytra black with aeneous metallic luster; pronotum dark brown on lateral margins; meso- and metathorax blackish brown; legs pale brown with tibiae and tarsi dark brown; legs and elytra sparsely covered with short erect hairs.

Head transverse and short, shining and impunctate, slightly narrower than pronotum; frontal tubercles raised, with apex acutely extending between antennal sockets, delimited behind by a shallow impression with a few deep punctures; distance between eyes almost 1.3 times as wide as longitudinal diameter of eye; frons triangularly raised, 2/3 as long as wide, slightly arched at anterior margin; antennal groove well developed; genae rather short, almost half as deep as longitudinal diameter of eye; labrum oblong, shield-shaped; mandibles simply depressed and flat on lateral area; antennae filiform, rather robust, as long as body, beyond 3rd segment thickly pubescent; 1st segment club-like, longer than 2nd and 3rd combined together; 11th pointed, twice as long as 2nd; relative length of antennal segments as: 1st > 4th = 5th > 6th = 7th > 3rd > 8th = 11th > 9th = 10th >> 2nd. Pronotum transverse, almost twice as wide as long, widest just behind anterior angle, thence strongly narrowed sinuately to posterior angle, weakly emarginated at anterior margin, gently arched at posterior margin; both anterior and posterior angles thickened, with setigerous pore; seta almost as long as

4th antennal segment; disc convex without any transverse impression, slightly reflexed along lateral margins; basal margin rather narrow; scutellum roundly triangular, shining and impunctate. Elytron 3 times as long as wide, impunctate and shining on apical 2/5; subbasal area broadly raised, laterally delimited by a deep row of punctures, posteriorly by deep impression with short rows of punctures; punctate rows reaching to apical 2/5th of elytron; these punctures distinctly larger than their interspace, giving somewhat foveolate impression; interstices inside the raised lateral declivitous area; 5th visible abdominal sternite trilobed, with transverse median lobe; male aedeagus slender, narrowed from base to middle, thence gradually expanded to near apex; this widened sub-apical part concave on ventral side like a spoon (Fig.3j). Tibia rather closely covered with long hairs; fore legs with first tarsal segment weakly enlarged; 1st tarsal segment of hind leg as long as 2nd and 3rd combined together.

Female. Size almost same as in males; antennae slightly shorter, not reaching to apex of elytra; 1st segment club-like, and longest, as long as 2nd and 3rd combined together; relative length of antennal segments as: 1st > 3rd = 4th = 5th > 7th = 8th = 11th > 6th > 9th > 10th > 2nd; fore leg with first tarsal segment slender.

Distribution

Borneo (Sarawak).

Host plants

Unconfirmed; gathering on leaves of *Myrmeconauclea* sp. (Rubiaceae).

Remarks

This species is characterized by its blackish aeneous elytra, which is covered by sparse erect hairs. These characters clearly distinguish this from glabrous *nitidicupreatus* n. sp. and related species. Host plants are not confirmed, but these specimens are collected by sweeping shrubs and herbaceous plants such as *Myrmeconauclea* sp. along pebble beach of streams at Lanjak Entimau Wildlife Sanctuary (ca. 100 -200 m asl.). The specific name is derived from characteristics of its elytra.

### ***Chaloenus* (*Priostomus*) *psi* n. sp.**

(Fig. 36)

Type series

Holotype: Male, Liwagu Tr., Kinabalu Park, HQ., Ranau, Sabah, Malaysia, 27.IX.2007, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 1M, same as the holotype; 1F, ditto, 22.X.2007, H. Takizawa leg.; 2M4F, Kinabalu P., HQ., Ranau, Sabah, 18-20,23.I.2008, H. Takizawa leg.; 1M2F, ditto, 28-29.II.2008, H. Takizawa leg.; 1F, ditto, 20-26.II.2009, H. Takizawa leg.; 1M1F, ditto, 17-19.III.2008, H. Takizawa leg.; 1F, ditto, 14-15.IV.2008, H. Takizawa leg.; 2M, ditto, 27-28.V.2008, H. Takizawa leg.; 1 M, ditto, 23-25.VII.2008, H. Takizawa leg.; 1M1F, ditto, 19-20.VIII.2008, H. Takizawa leg.; 2 F, ditto, 23-24.XII.2008, H. Takizawa leg.; 3M2F, Mt. Kinabalu, Headquaters, N. Borneo, 1.V.1980, M. & A. Sakai leg. (EUM); 2M, Mt. Kinabalu, He-

adquaters, alt. 1500-2000m, Sabah, Malaysia, N. Yashiro leg. (EUM); 1M, Kundasang, Ranau, 24.V.2008, H. Takizawa leg.; 1M1F, TM tower, Kimanis, Papar, 27.III.2008, H. Takizawa leg.; 1M2F, Poring Park, Langanan tr., Ranau, Sabah, 25-26.IX.2008, H. Takizawa leg.; 2M1F, Poring Park, Ranau, 25-26.IX.2009, H. Takizawa leg.

Description

Male. Body somewhat robust, almost parallel-sided and widest at humerus, 7.5 mm in length; head largely black, except for pale brownish mouthparts, clypeus, frons behind antennal insertions and genae pale brown; prothorax and venter fulvous; elytra dark metallic green; antennae blackish brown except for basal portion of each segment paler; legs blackish brown, except for fore femora basally, middle femora on basal half and hind femora largely light brown; mandibles apically black.

Head elongate, flat and perpendicular, a little narrower than prothorax, impunctate and shining; vertex narrow; frontal tubercles situated just behind antennal sockets, forming the highest point in lateral view, united together and transversely oval in shape; frons 1.5 times as long as wide, deeply emarginated at anterior margin, flat with a narrow median carina on upper half; antennal groove weakly impressed; antennal sockets raised and situated close to each other, widely separated from eye; distance between eyes distinctly wider than longitudinal diameter of eye; genae distinctly deeper than a longitudinal diameter of eye; clypeus long; labrum long shield-shaped; antennae inserted just anteriorly to frontal tubercles, slender, almost 2.2 times as long as body, more or less thickly pubescent on 4 apical segments; 1st segment conspicuously club-like, longer than 2nd and 3rd combined together; 2nd shortest 1/6 as long as 1st; 3rd to 6th each similar in shape and length; 11th as long as 8th; relative length of antennal segments as: 1st >> 3rd = 4th = 5th = 6th > 7th > 8th = 11th > 9th = 10th >> 2nd. Prothorax transverse, twice as long as wide, widest at apical 1/3rd, thence strongly narrowed to posterior angles and weakly so to anterior angles, gently concave at anterior margin, weakly arched at posterior margin; both anterior and posterior angles obtusely produced and thickened; disc impunctate, convex from side to side, with a pair of deep fovea, which are connected with a median shallower impression; scutellum triangular, shining and glabrous. Elytron subparallel-sided on basal 2/3, 3.4 times as long as wide, widest at humeri, with a strong lateral costa running behind humeri to near apex; declivitous below the lateral costa with 3 or 4 very regular punctuate-striae; on account of strongly developed lateral costa, lateral margin of elytron almost invisible from above; disc covered with irregular 7 rows of deep and large, transverse punctures, giving foveolate or rugose impression; interstices more or less costate; apical 2/5 of the declivitous area impunctate and shining; legs slender; fore femora slightly reticulate near apex; 5th visible abdominal sternite long and trilobed at apex; male aedeagus long and slender, with acute long apical projection; a pair of acute lateral processes produced downward like a hook at middle of orifice (Fig. 3a). Fore leg with 1st tarsal segment slightly enlarged, twice as long as wide; hind leg with first tarsal segment distinctly longer than 2 followings combined together.

Female. Body slightly smaller, 6.5 mm in length; antennae shorter, 1.2 times as long as body; pubescent on 6 apical segments; 2nd segment 1/6 as long as 1st; relative

length of antennal segments as: 1st >> 3rd > 4th > 5th > 6th > 7th = 11th > 8th = 9th > 10th >> 2nd.

DISTRIBUTION
Borneo (Sabah).

HOST PLANTS
*Ficus unicinata* (Moraceae) and unidentified low tree.

REMARKS
This species is characterized by its large metallic green body, with its long antennae among the subgenus *Priostomus*. It is somewhat similar to *C. subcostatus* (JACOBY) and *C. aeneipennis* (JACOBY) on account of strongly punctate elytra and pronotum with distinct transverse impression, but is easily distinguished from them by its larger body size and longer antennae. This species was collected at montane areas, usually feeding on *Ficus unicinata* (Moraceae). At Headquaters area, Kinabalu Park (1600-1800 m asl.), several individuals were found feeding on a young shoot of unidentified low tree. This species is dedicated to my late father Yutaka MATSUZAWA, a conceptual artist. 'Psi' was a symbol of his life long artistic activity.

### ***Chaloenus* (*Priostomus*) *subcostatus* JACOBY, 1899**
(Fig. 37)

*Chaloenus subcostatus* JACOBY, 1899, Stett. Entomol. Zeit. 60: 281 (Sumatra) – MOHAMEDSAID, 2004, Cat. Malay. Chrysom.: 158 (Borneo, Malay Pen., Sumatra) – MEDVEDEV, 2004, Russ. Entomol. Jour. 13 (4): 247.

REMARKS
This closely resembles *C. aeneipennis* JACOBY in its general body shape and coloration, and particularly in densely and rugosely punctate elytra. But it is clearly distinguished from the latter by elytra weakly costate on 5th and 7th interstices, and by robuster aedeagus in males (Fig. 3k). It was collected by sweeping on understorey in forests.

DISTRIBUTION
Borneo, Sumatra.

HOST PLANTS
Unknown.

SPECIMENS EXAMINED. 2M, Urung Tama, Sibolangit, N. Sumatra, 27,30.X.1999, H. Takizawa leg.; 1M, Dolok Barus, Sibolangit, N. Sumatra, 17.IX.1998, H. Takizawa leg.

### *Chaloenus* (*Priostomus*) *tibowensis* n. sp.
(Fig. 38)

Type series

Holotype: Male, 6km from Tibow, HQ., Sapulut Forest Reserve, Pensiangan, Sabah, Malaysia, 17-19.XII.2008, H. Takizawa leg. (BORNEENSIS collection, ITBC). Paratypes: 15M6F, same as the holotype.

Description

Male. Body small and subparallel-sided, 3.0-3.5 mm in length; yellowish brown with vertex, head ventrally and antennae dark brown to blackish; elytra dark bluish green with metallic reflection.

Head impunctate and shining, as wide as prothorax; frontal tubercles subquadrate; anterior angle triangularly inserted between antennal sockets; eyes large, with distance between them almost as wide as its longitudinal diameter; frons triangularly raised, with distinct median carina between antennal sockets; genae 1/3 as long as longitudinal diameter of eye; labrum broadly ovate, as long as wide; antennae slender, as long as body, densely pubescent beyond 3rd segment; 1st segment long and club-like, longer than 2nd and 3rd combined together; 4th as long as 2nd and 3rd combined together; 8th almost 3 times as long as wide; relative length of antennal segments as: 1st > 4th > 5th = 6th > 7th > 11th> 3rd = 8th > 9th = 10th > 2nd. Pronotum inverted trapezoidal, 1.8 times as wide as long, widest at anterior angles, thence straightly narrowed to posterior angle, weakly emarginated at anterior margin, at posterior margin broadly arched; both anterior and posterior angles tuberculate; disc impunctate and shining, weakly convex from side to side; scutellum impunctate and shining, broadly triangular, rounded at apex, slightly shorter than wide. Elytron subparallel-sided, almost 4 times as long as wide, declivitous on lateral portion; disc largely depressed behind basal elevation, covered with sparse, large punctures on basal 2/3; punctate striae somewhat irregular; distance between punctures distinctly wider than its interspaces; subbasal area distinctly raised and almost impunctate, laterally delimited by intrahumeral punctate stria; epipleuron wide at base, almost subparallel-sided to behind middle, then gently narrowed on apical 1/3; 5th visible abdominal sternite distinctly trilobed; male aedeagus rounded at apical margin, with a minute tooth medially at apex (Fig. 3l). Legs slender; 1st tarsal segment not enlarged; hind leg with 1st tarsal segment distinctly longer than 2nd and 3rd combined together.

Female. Body slightly larger, 3.5-3.8 mm in length; almost identical with males; coloration generally somewhat darker; 5th visible abdominal sternite simple.

Remarks

This species is characterized by its dark metallic aeneous elytra, and aedeagus rounded apically. It is somewhat similar to *nitidicupreatus* n. sp., but is distinguished by its smaller body size, elytra with subbasal elevation almost impunctate and by the shape of male aedeagus. This species was found gathering and feeding on *Myrmeco-*

*nauclea* sp. (Rubiaceae) along stream near Tibow HQ., ca. 600 m asl. together with a few individuals of *C. aeneipennis*.

Distribution
Borneo (Sabah).

Host plants
*Myrmeconauclea* sp. (Rubiaceae).

### *Chaloenus* (*Priostomus*) *unicostatus* (Jacoby, 1884)

*Priostomus unicostatus* Jacoby, 1884, Stett. Entomol. Zeit., 45: 185-186 (Java).
*Chaloenus unicostatus*: Konstantinov & Prathapan, 2008, Coleopt. Bull, 62: 390.

Remarks
This species was described from Java based on two male specimens, and is unknown to me. It is charactertized by its small light brownish body with elytra laterally and on posterior half metallic blue green. Elytra are densely and irregularly covered with deep punctures, having a strong costa running from humerus to the middle of elytra. Males have its antennae twice as long as body. Body length is ca. 2.4 mm in length.

Distribution
Java.

Host plants
Unknown.

## NOTE ON THE DISTRIBUTION OF THE GENUS *CHALOENUS*

The forty-two known species are geographically distributed as follows: 35 species are known from Sabah, Sarawak and Brunei; 8 species from Sumatra; 7 species from Malay Peninsula; and 1 species each from Is. Amboina, Palawan, Thailand and Burma. So far as known, there is no record of the genus from Kalimantan (Indonesian Borneo). From this we may conclude that species diversity in this genus is centered in Borneo. However, it is probable that many species will be found in other localities, when careful surveys around aroids inflorescenses are carried out.

These species may be roughly grouped according to their altitudinal distributions. 1st group, ca. 50-300 m asl.: *brunneus*, *entimaensis*, *lanjakensis*, *latifrons*, *schawalleri*, *westwoodi* and *nitidihirtus*. 2nd group, ca. 50-800 m: *dimidiatus*, *dohertyi* and *tibowensis*. 3rd group, ca. 100-1800 m: *brooksi*, *jamadai*, *todai*, *yukikoae* and *aeneipennis*. 4th group, ca. 800-1800 m: *barioensis*, *fulvoantennatus*, *fulvohirtus*, *kinabaluensis*, *lehi*, *liwaguensis*, *matangensis*, *maryatiae*, *moyogensis*, *muaya* and *psi*. 5th group, ca. 1600-1800 m: *monticola*, *kuningus*, *maklarini* and *nitidicupreatus*. 6th group, ca. 1600-2300 m: *minutus*.

Thus species tend to segregate according to the altitude. This tendency, together with diverse plant association in this genus (Tab. 1) may account for high species diversity of the genus in Borneo.

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