

Six New Taxa of the Genus *Merionoeda* (Coleoptera, Cerambycidae) from Borneo, with a Redescription of *M. cariniger* HOLZSCHUH

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Abstract Five new species and one new subspecies of the genus *Merionoeda* PASCOE from Borneo, South Kalimantan and Sabah, are described; they are *M. karinae* sp. nov., *M. glabra* sp. nov., *M. johkii* sp. nov., *M. makiharai* sp. nov., *M. hendrai* sp. nov. and *M. anulus atra* ssp. nov. In addition, *Merionoeda cariniger* HOLZSCHUH, 2008 is redescribed regarding the male genital organs in particular.

Introduction

Until a few years ago, the *Merionoeda* fauna of Borneo was only insufficiently explored with less than 10 species recorded from there. Since the year 2008, however, C. HOLZSCHUH has described 12 new species of this genus from Sabah, Borneo, and the authors of this paper have added seven more new taxa, all of them from South Kalimantan. In the following we will introduce six new taxa. The total number of recorded species and subspecies from Borneo will thus by far surpass 30. This figure is itself impressive and comparable to that of Indochina, where this genus seems well developed and diversified. The *Merionoeda* fauna of Borneo is, however, not only rich in numerical sense, but also regarding its diversification. It includes a number of interesting species, of which no affiliated species has been found elsewhere. The remarkable diversity of male genitalia of the species from Borneo, as illustrated in the publications by the authors, should be also stressed. Similar, sympatric species have often very diverse male genitalia which thus facilitate identification and classification. Borneo seems to be one evolutionary centre of genus *Merionoeda* in Oriental Region, by far the most prolific region in so-called Sundaland. In this connection, we additionally redescribe *M. cariniger* HOLZSCHUH, 2008, its male genital organs in particular. This species notably shows a remarkable peculiarity in its external morphology. The difference in male genital organs are nonetheless striking, indicating a singular taxonomical position. The final classification of this species, however, is yet to be determined.

The abbreviation used for the ratio of the measurement are explained in our previous paper (YOKOI & NIISATO, 2009).

Merionoeda karinae sp. nov.

(Figs. 1, 7–11)

Body length 6.8–9.1 mm in ♂, 7.2–7.3 mm in ♀ (from apical margin of clypeus to abdominal apex).

M a l e a n d f e m a l e. Colour black, though reddish yellow in prothorax, scutellum and mesosternum; base of fore, basal third of mid and basal half or the entire peduncle of hind femur pale yellow; apical fourth of terminal segment of antennae more or less yellowish brown.

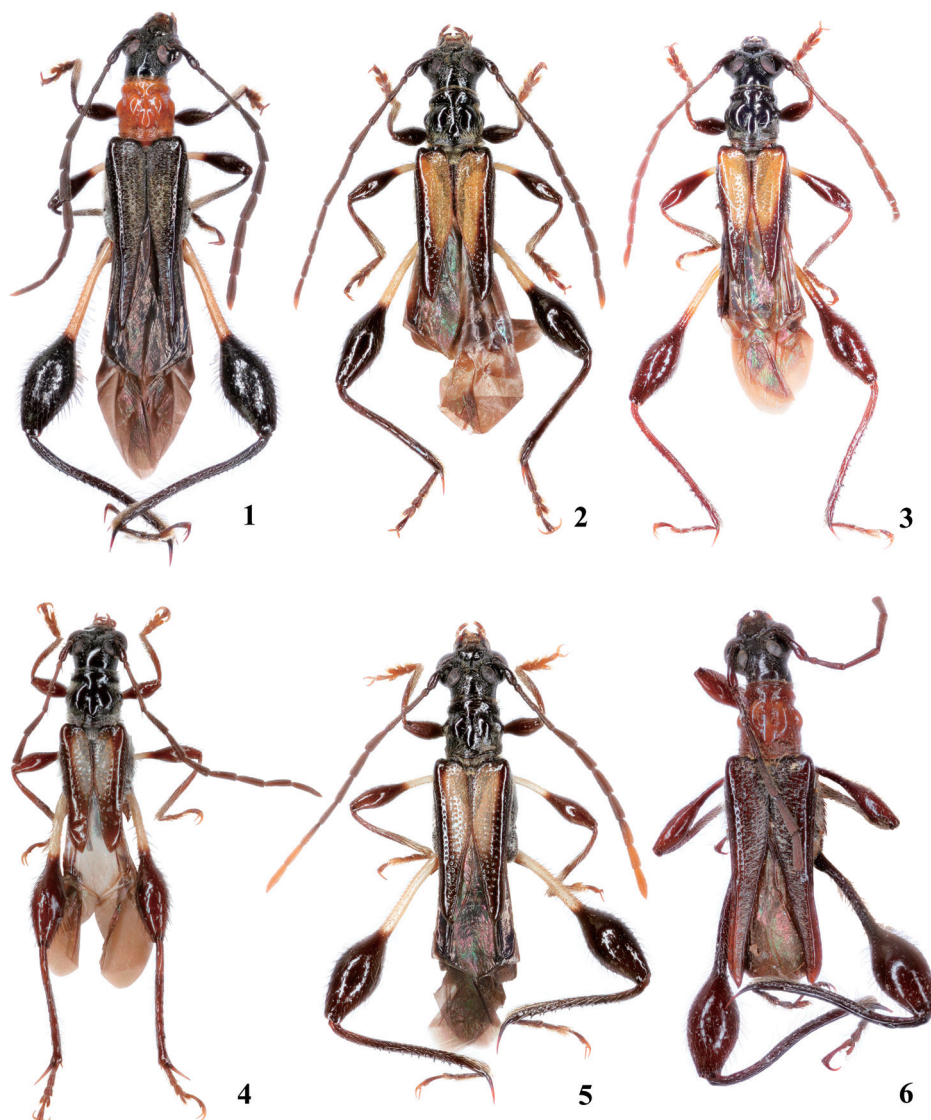
Head almost as in *M. subulata* PASCOE, moderately projected forward, with rather elongated neck, well convex, slightly wider than the maximum width of pronotum in ♂ and of the same width in ♀, HW/PW 1.07–1.11 (M 1.07) in ♂ and 1.0 in ♀, provided with dense medium-sized punctures and a few short silvery hairs near upper eye-lobes, narrowly glabrous near vertex; occiput provided with dense large punctures behind upper eye-lobes, with sides rugose or coarsely punctured; frons half the length of basal width, moderately declivous towards a deep and sharp median groove, scattered with large coarse punctures near the median groove, FA/FB 0.83–0.93 (M 0.88) in ♂ and 0.95 in ♀; clypeus rather long, about 2/3 the length of basal width, distinctly narrowed towards apex, raised near middle, with large coarse irregular punctures near the deep front-clypeal suture; eyes fairly large and prominent, very deeply and narrowly emarginated under antennal scapes, separated from one another by 2/5 the width of occiput. Antennae medium in length, attaining elytral apex in ♂ and apex of first visible abdominal sternite in ♀, clothed with minute yellowish pubescence on segments 5–11 and short yellowish hairs on segments 2–4, additionally with sparse short yellowish hairs on undersides of segments 2–6; scape moderately clavate and arcuate, scattered with small punctures, segments 3 and 4 nearly equal in length and 2/3 the length of scape, segment 5 obtusely, segments 5–11 moderately flattened, segments 6–10 moderately serrate, terminal segment bluntly toothed at apex.

Pronotum as in *M. subulata* PASCOE, slightly longer than wide, moderately narrowed to apex, PL/PW 0.95–1.10 (M 1.04) in ♂ or 1.00 in ♀, PA/PW 0.68–0.77 (M 0.73) in ♂ or 0.67–0.70 (M 0.69) in ♀, PB/PW 0.88–0.98 (M 0.93) in ♂ or 0.91–0.92 (M 0.92) in ♀; sides with fairly large lateral swellings near middle, moderately constricted before and hardly so behind swellings; apex and base thickly bordered; disc with three distinct callosities, of which the median one smallest, drop-shaped, raised at a level between basal 1/4 to 3/4 and linked to the middle of apical margin by a flattened longitudinal costa, a pair of large oblique semi-elliptical one of half the length of pronotum at a level between basal fourth to apical sixth, glabrous on callosities and scattered with large coarse punctures in the interspaces between callosities and on the basal margin, provided with a few long standing pale yellow hairs on sides near the base, shagreened more or less on basal eighth. Scutellum trapezoidal with emarginate apex, clothed with pale yellow pubescence.

Elytra resembles those of *M. anusulus* HOLZSCHUH, long and fairly narrow, reaching the base of tergite 5, EL/EW 2.40–2.50 (M 2.45) in ♂ or 2.38–2.40 (M 2.40) in ♀; sides strongly projected forward at humeri, distinctly emarginated between basal eighth to apical sixth, strongly dehiscent in apical 3/5, with apical part pronounced knife-shaped, with prominent sutural border; disc nearly flat, declivous at sides, provided with a weak longitudinal costa in apical half, with medium to large punctures in irregular rows which decrease in number from 9 to 2 towards apices, additionally clothed with thick short silvery to yellowish hair, stretching from suture and covering nearly half of elytron.

Venter of thoraces rather matted, clothed with yellowish pubescence though weakly so for apical third and basal tenth of prosternum; prosternum moderately prominent behind apical margin, with inter-coxal process very strongly compressed between coxae; mesosternal process broad and almost parallel-sided, widely and deeply emarginated at apex; metasternum well convex. Abdomen moderately arcuate at sides, clothed more or less with silvery pubescence on ventrites 1–2 except for the middle of apical margins, more sparsely so on ventrites 3–4; basal ventrite 2/5 the length of abdomen in ♂ and more than half in ♀; ventrite 2 likewise 1/5 in ♂, 1/4 though nearly covered by basal ventrite and invisible in ♀; anal ventrite widely deeply emarginated in ♂, shallowly so in ♀.

Legs similar to those of *M. subulata*; hind femur medium in length, surpassing abdominal apex by about apical 2/5, slightly arcuate, rather suddenly clavate in apical half, clothed with short erect hairs; hind tibia 4/5 the length of femur, distinctly arcuate, with small dents in two rows at external sides, terminal spur long, reaching the apex of 1st tarsal segment, adjacent secondary terminal spur



Figs. 1–6. *Merionoeda* spp. from Borneo. — 1, *M. karinae* sp. nov., holotype ♂; 2, *M. glabra* sp. nov., holotype ♂; 3, *M. johkii* sp. nov., holotype ♂; 4, *M. makiharai* sp. nov., holotype ♂; 5, *M. hendrai* sp. nov., holotype ♂; 6, *M. anulus atra* ssp. nov., holotype ♂.

very short, only 1/5 the length of main spur.

Median lobe barrel-shaped, nearly half the length of abdomen, wholly distinctly convex; dorsal plate subparallel in weakly sinuate line at sides, suddenly convergent just before apex, with pair of crescent plates in apical half which are approximate at posterior ends and apart at anterior; apical part of dorsal plate rounded with truncate margin, slightly exposing in dorsal view; median struts half the length of median lobe; copulatory piece as shown in Fig. 7. Tegmen trapezoidal, half the length of median lobe; parameres convergent in almost straight line to apical margin which is sinuate and provided with a few setae, with obtuse short dent at each side; ring part transverse quadrate in dorsal

view. Eighth abdominal segment somewhat fan-shaped though convergent to apex; tergite linearly convergent to apical margin, which is emarginate in almost quadrate-shape, with blunt projections at sides; sternite almost triangular though very deeply emarginate at middle of apical margin, with basal appendages markedly prolonged laterad in arcuate line. Seventh tergite triangularly produced.

Type series. Holotype ♂, Ubud, near Alat/Barabai, about 700 m in alt., South Kalimantan, Indonesia, IV–2011, local collector leg. Paratypes: 1 ♀ (allotype), same date as the holotype; 4 ♂♂, 1 ♀, same data as the holotype; 2 ♂♂, Arang Anik near Alat/Barabai by the same collector with the collection period VI–2011. The holotype and allotype are preserved in the National Museum of Nature and Science, Tsukuba, and the paratypes are in the private collections of YOKOI and NIISATO.

Distribution. Borneo: South Kalimantan, Indonesia.

Etymology. The name of this new species is dedicated to Mrs. Karin de Wit-Yokoi, wife of one author of this paper, who has patiently supported the research activities of the authors and thus enabled this publication.

Notes. The new species can be compared to *M. acuta* PASCOE from Singapore (PASCOE, 1864), *M. subulata* PASCOE from Sarawak (PASCOE, 1864) or *M. hasta* HOLZSCHUH from southern Thailand (HOLZSCHUH, 1995) which share a number of common external characteristics regarding the structure of head, pronotum and legs etc. It can be distinguished, however, by the flatter elytra with flying hairs on it. Further, the relative length of elytra with 2.45 for ♂ and 2.40 for ♀ lies between those of *M. acuta* on one hand and *M. subulata* as well as *M. hasta* on the other. Elytral apex of the new species are, however, not so acute as those of these three known species. They are neither thin nor elongated in apical half as *M. subulata*. The black colouration of the elytra is also conspicuous, though the variation in colour is often observed within the related species of the genus.

Another interesting affinity could be observed with *M. aurorensis* VIVES from Luzon of the Philippines (VIVES, 2009), even though the difference in colour of femora and antenna is obvious, whereas the basic structure and form of body, elytra, head and pronotum seems analogous.

Further, the elytra of *M. karinae* sp. nov. resemble those of *M. anulus* HOLZSCHUH from southern Thailand (HOLZSCHUH, 1995). The elytral disc of this new species is, however, more densely covered with pubescence. The new species differs also in colouration of the peduncle of the hind femur. It is entirely pale yellow in case of the new species, whereas it is black with a pale ring just before the clavate part for the nominotypical *M. anulus* or totally black for *M. anulus atra* ssp. nov. as described in this paper. The resemblance is, therefore, more of an accidental nature.

As to the male genitalia, *M. karinae* sp. nov. is quite unique in having a tegmen with two lateral spines at apical part of parameres. As *M. subulata* and *M. acuta* have also two acute, prominent prolongation on the apex of tegmen, though distinctly different in form, they seem to share an analogous evolutionary tendency. In addition, the anal sternites are quite similar.

In all, *M. karinae* sp. nov. should be placed near *M. subulata* and *M. acuta* with some affiliation with *M. hasta* and *M. aurorensis*.

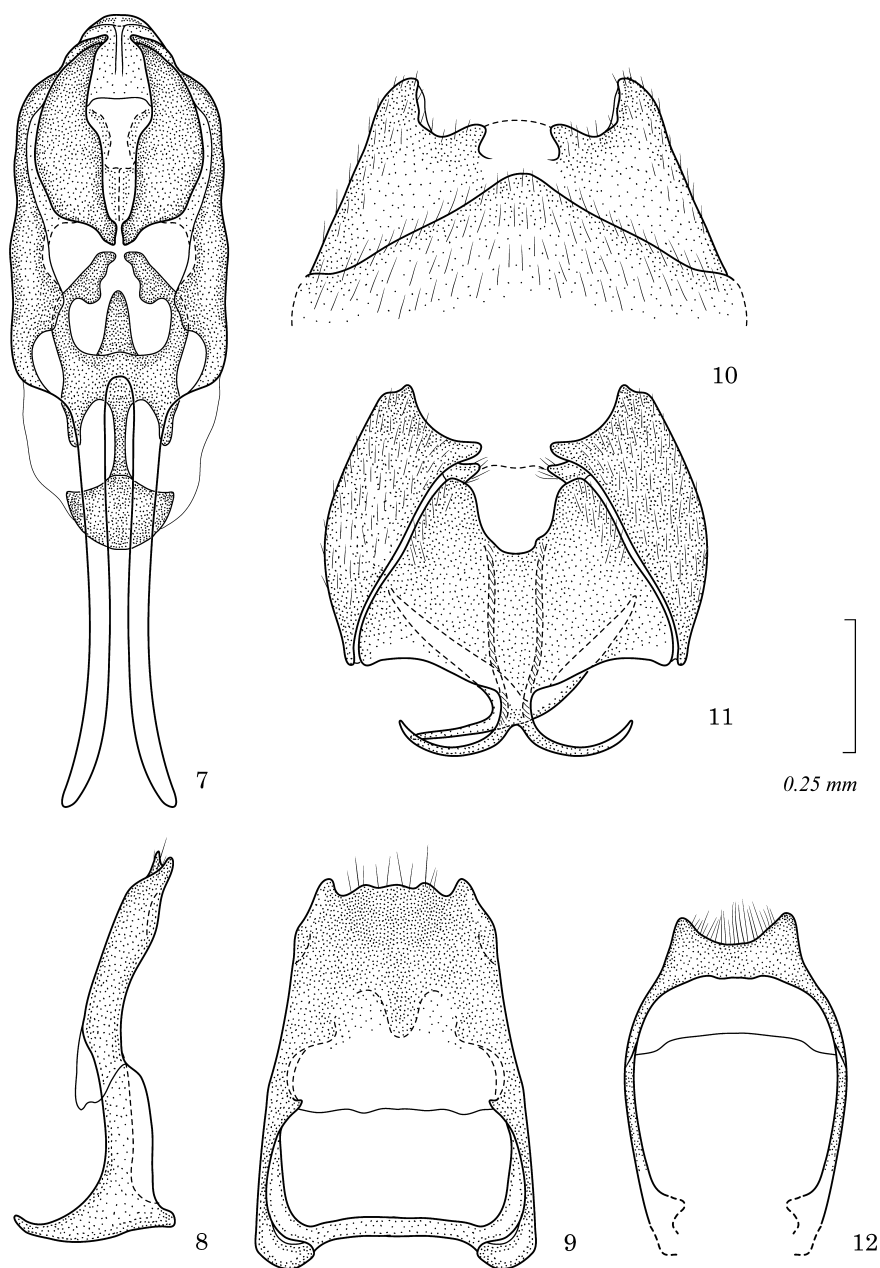
Specimens of *M. karinae* sp. nov. were collected on various white blooming tree flowers in and near virgin forests in South Kalimantan in the months from April to June. They have never been collected before in previous exploitation in October to December.

Merionoeda glabra sp. nov.

(Fig. 2)

Body length 5.0–5.2 mm in ♂ (from apical margin of clypeus to abdominal apex).

Male. Colour black, shiny; elytron decorated with an elongated triangular yellowish brown



Figs. 7–12. Male genital organs of *Merionoeda karinae* sp. nov. (7–11) and *M. johkii* sp. nov. (12) from Borneo.
 — 7, Median lobe, dorsal view; 8, tegmen, lateral view; 9, 12, ditto, dorsal view; 10, tergite 8, dorsal view;
 11, sternite 8, ventral view.

maculation on basal 2/3, about 9/10 the width of disc near humeri and gradually convergent apicad; peduncle of mid- and hind femora pale yellow.

Head a little wider than the maximum width of pronotum, HW/PW 1.04–1.09 (M 1.07), some-

what similar to *M. nigricollis* AURIVILLIUS, though furnished with more numerous and dense punctures and pale yellow hairs along the upper eye-lobes; occiput irregularly punctured behind upper eye-lobes and rugose at sides; frons 2/5 long as the basal width, distinctly convergent to apex, FA/FB 0.75, declivous towards a deep median groove; clypeus long, with 2/3 the length of basal width, clothed with, fairly long pale yellow hairs at sides; eyes similar, separated from one another by about 7/20 the width of occiput; antennae medium in length, surpassing elytral apices and almost attaining abdominal apex, clothed with minute silvery pubescence on segment 4–11 and a few short silvery hairs on segments 1–4, with additional sparse pale yellow hairs of medium length on the undersides of segments 2–6, scape distinctly clavate and arcuate, segment 4 about as long as segment 3, segment 5 weakly and 6–11 distinctly flattened, terminal segment bluntly toothed at apex.

Pronotum almost as in *M. nigricollis*, slightly longer than wide; PL/PW 1.01–1.02 (M 1.02), PA/PW 0.74–0.75 (M 0.75), PB/PW 0.90–0.91 (M 0.91); lateral swellings rather prominent; disc with three distinct callosities, of which the median one is club-shaped and raised at a level between the basal sixth to half, a pair of oblique ones of 3/5 the length of pronotum are semi-elliptical and raised at a level between basal seventh to apical fourth, glabrous on the callosities, provided with a few coarse punctures and rather long pale yellow hairs in the interspaces between the callosities, clothed with fairly long, dense, flat-lying pale yellow hairs on basal margin. Scutellum trapezoidal, emarginated at apex, clothed with pale yellow pubescence.

Elytra almost as in *M. nigricollis*, moderate in length, reaching the base of tergite 5, EL/EW 2.00–2.08 (M 2.04); sides moderately projected forward at humeri, almost linear though weakly convergent from basal tenth to 2/3, then slightly arcuate towards apices, strongly dehiscent in apical half, apical part broadly knife-shaped; disc weakly transversally depressed near apical third, moderately declivous at sides, provided with medium to large punctures in irregular rows, which decrease in number from 8 to 1 towards apices, smooth in lateral halves of apical third.

Venter of thoraces rather matted, clothed with fairly long silvery pubescence though weakly so for the middle of metasternum; prosternum weakly prominent behind apical margin, with inter-coxal process strongly compressed between coxae; mesosternal process very broad, widely and deeply emarginated at apex, metasternum well convex. Abdomen clothed with fairly long silvery hairs on ventrites 1–2 except for the middle of apical margins, more sparsely so on ventrites 3–5.

Legs moderate in length and rather stout; hind femur surpassing abdominal apex by about apical half, weakly arcuate, gradually clavate for apical half, with mostly dark erect hairs of moderate length; hind tibia smooth, without the usual dents on the outer side, though furnished with fairly long pale yellow hairs, with terminal spur fairly long, though not reaching the apex of 1st tarsal segment.

Male genital organs could not be examined (type series including the holotype are damaged in the abdomen).

Type series. Holotype ♂, Papagaran, about 700 m in alt., near Alat/Barabai, South Kalimantan, Indonesia, 8~16-X-2006, Y. YOKOI leg. Paratype: 1 ♂, same data as the holotype. The holotype is preserved in the National Museum of Nature and Science, Tsukuba, and the paratype is in the private collection of YOKOI.

Distribution. Borneo: South Kalimantan, Indonesia.

Etymology. *Merionoeda glabra* sp. nov. is named so, as its hind tibia is totally glabrous, lacking the usual dents on the outer side.

Notes. *Merionoeda glabra* sp. nov. shares certain characteristics such as black body colour, small size and yellowish maculation on elytra with a number of species. It can be, however, easily distinguished from other species, as it lacks the usual dents on the outer side of hind tibia. Notwithstanding this clear distinction, it can be compared to *M. nigricollis* AURIVILLIUS from Borneo (AURIVILLIUS,

1923). They differ, however, additionally regarding the frons and puncture on head, pronotum and body. It is interesting to note that *M. glabra* sp. nov. shares the characteristics of toothless hind tibia with *M. anulus* HOLZSCHUH from southern Thailand (HOLZSCHUH, 1991), which is quite different in other respects.

Specimens of *M. glabra* sp. nov. were collected on white blooming tree flowers in and near a virgin forest in South Kalimantan. They seem to be rather rare.

***Merionoeda johkii* sp. nov.**

(Figs. 3 & 12)

Body length 6.0–6.5 mm in ♂ (from apical margin of clypeus to abdominal apex).

M a l e. Colour similar to *M. planicollis* YOKOI et NIISATO, black, shiny; elytron decorated with an elongated triangular yellowish brown maculation on basal 3/5, about 3/4 to 9/10 the width of disc near humeri and gradually convergent apicad; base of fore, peduncle of mid and 5/6 of the peduncle of hind femora pale yellow to yellowish brown, gradually darkening apicad.

Head almost as in *M. planicollis*, a little wider than the maximum width of pronotum, HW/PW 1.09–1.01 (M 1.10); eyes similar; antennae also similar though slightly longer, surpassing elytral apices and almost attaining abdominal apex, with 6th to 11th segments 7/0 as wide as long. Pronotum almost as in *M. planicollis*, though nearly as long as wide; PL/PW 1.00, PA/PW 0.67–0.70 (M 0.69), PB/PW 0.89–0.90 (M 0.90); disc rather flattened, though less so than in *M. planicollis*, with the three callosities a little more distinct. Elytra as in *M. planicollis*, though a little broader, EL/EW 1.94–1.96 (M 1.95). Ventral sides of thoraces and abdomen as in *M. planicollis*. Legs as in *M. planicollis*.

Parameres widely emarginated at apical margin, with bluntly but distinctly produced at sides. Other parts of male genital organs could not be examined (type series including the holotype are damaged in the abdomen).

Type series. Holotype ♂, Sepilok, Sabah, Borneo, 30–VII–1981, Y. JOHKI leg. Paratype: 1 ♂, Bukit Soeharto, Kalimantan Timur, Indonesia, 23–VI–2007, M. MAKIHARA leg. The holotype is preserved in the National Museum of Nature and Science, Tsukuba, and the paratype is in the Forestry and Forest Products Research Institute, Tsukuba.

Distribution. Borneo; Sabah, East Malaysia and East Kalimantan, Indonesia.

Etymology. The name of this new species is dedicated to Dr. Yutaka JOHKI who offers us the invaluable *Merionoeda* specimens collected from Sabah of East Malaysia.

Notes. *Merionoeda johkii* sp. nov. is very similar to sympatric *M. planicollis* (YOKOI & NIISATO, 2009). In fact, it is not easy to distinguish the new species from the latter on external morphology alone. The slight difference in colour, form of elytra and structure of pronotum could be easily overlooked. On the other hand, the difference in the male genitalia is quite obvious and fundamental, thus it is certainly a new species differing from *M. planicollis*. It is interesting to note that these two sympatric species have very similar external morphology, but differ clearly in the male genitalia, notably in parameres, which first contacts the female genitalia in the initial phase of copulatory act. It is also interesting to note that the male genitalia of those new species, the apical part of parameres in particular, resembles that of *M. nigricollis* AURIVILLIUS from Borneo (AURIVILLIUS, 1923) which obviously differs in the external morphology.

Incidentally, *M. johkii* sp. nov. bears also certain resemblance to *M. dulcis* HOLZSCHUH from Sabah of East Malaysia (HOLZSCHUH, 2008). It differs, however, by colouration of elytra and femora.

Merionoeda makiharai sp. nov.

(Figs. 3, 13–17)

Body length 4.0 mm in ♂, 4.7–5.0 mm in ♀ (from apical margin of clypeus to abdominal apex).

M a l e and **f e m a l e**. Colour black, strongly shiny; elytra, legs and antennae dark brown, each elytron provided with elongated triangular pale yellow maculation near suture on basal half with about 7/10 the width of elytron near humerus, gradually convergent apicad; base of fore and nearly whole peduncle of mid as well as hind femur pale yellow.

Head a little wider than the maximum width of pronotum in ♂ or a little narrower in ♀, HW/PW 1.05 in ♂ or 0.96 in ♀, well convex near vertex; eyes less prominent than comparable species of the genus and separated from one another by almost half the width of occiput; almost glabrous without punctures though provided rather sparsely with pale yellow hairs on frons and near the upper eye-lobes, weakly rugose on occiput behind upper eye-lobes; frons about 1/3 the length of the basal width, weakly convergent apicad, weakly declivous towards the deep, sharp though short median groove, FA/FB 0.80 in ♂ or 0.90–0.95 (M 0.93) in ♀; clypeus clothed with fairly long pale yellow hairs. Antennae fairly long, reaching abdominal apex in ♂ or surpassing elytral apices in ♀, furnished with minute silvery pubescence on segments 5–11 and additionally with sparse, fairly long silvery hairs on undersides of segments 2–6; scape stout, moderately clavate and arcuate, segments 4 slightly longer than segment 3 and as long as scape, segments 5–11 weakly flattened and obtusely serrate, segments 6–10 about 3/10 as wide as long in ♂ and 7/18 so in ♀, terminal segment bluntly toothed at apex.

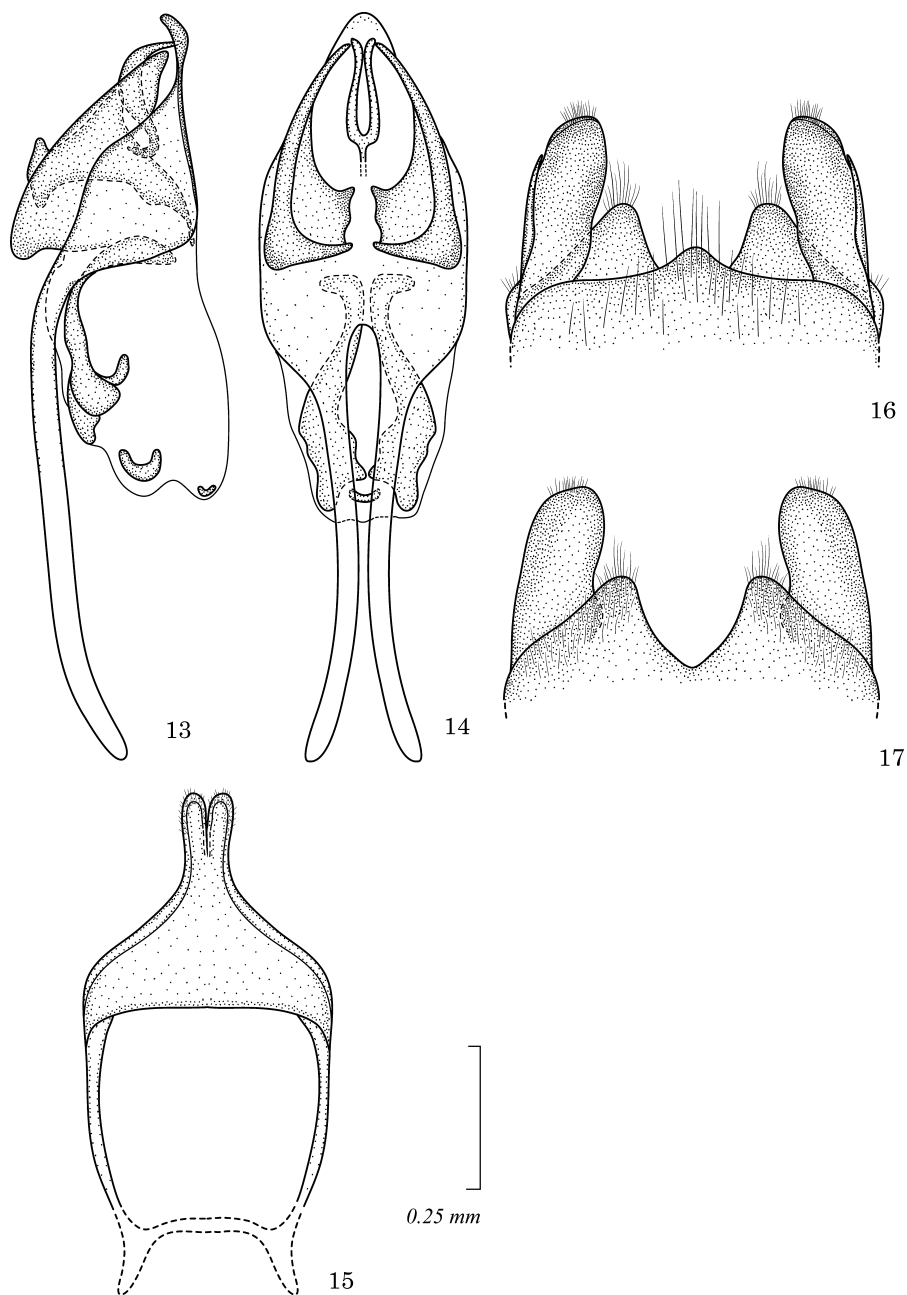
Pronotum similar to that of *M. planicollis*, nearly as wide as long, PL/PW 0.98 in ♂ or 0.98–1.00 (M 0.99) in ♀, PA/PW 0.73 in ♂ or 0.72–0.73 (M 0.73) in ♀, PB/PW 0.88 in ♂ or 0.88–0.90 (M 0.89) in ♀; three callosities on disc rather flattened though more prominent than in *M. planicollis*, scattered rather sparsely with medium-sized punctures around the callosities, glabrous on apical margin and on callosities; basal margin and sides clothed rather densely with pale yellow hairs of moderate length, except on the lateral swellings. Scutellum trapezoidal, slightly emarginated at apex, clothed with pale yellow pubescence.

Elytra very broad and moderate in length, reaching the base of tergite 5, EL/EW 1.88 in ♂ or 1.82–1.87 (M 1.85) in ♀; sides moderately projected forward at humeri, almost linear though weakly convergent from basal tenth to 2/3, then distinctly arcuate towards apices, dehiscent in apical half, with apical part very broadly pronounced knife-shaped; disc weakly impressed between apical 1/3 and 2/3 near middle, moderately declivous at side, provided with mostly large punctures arranged in irregular rows which decrease in number from 9 to 1 towards apices, apical fourth without puncture except on the suture.

Ventral surface shiny, widely glabrous though closed with silvery pubescence at sides, inter-coxal processes not so strongly compressed between coxae as usual for comparable species of the genus, abdomen shiny and glabrous except at sides with silvery hairs, sides of abdomen almost parallel and linear towards anal ventrite.

Legs as *M. planicollis*; hind femur surpassing abdominal apex by about apical half, slightly arcuate, rather gradually clavate in apical 5/9, more sparsely closed with longer yellowish to dark hairs; hind tibia 4/5 the length of femur, slightly arcuate with two rows of small dents on external side, terminal spur fairly long, reaching the apex of 1st tarsal segment.

Median lobe spindle-shaped, nearly 3/5 the length of abdomen, wholly distinctly convex towards base; dorsal plate gently arcuate at sides, with apical third strongly convergent in arcuate line to obtuse apex, with a pair of elongate drop-shaped plates in apical 2/3 which are approximate at both anterior and posterior ends, and provided with inner projections in basal 3/5, supplementary with a pair of



Figs. 13–17. Male genital organs of *Merionoeda makiharai* sp. nov. from Borneo. — 13, Median lobe, lateral view; 14, ditto, dorsal view; 15, tegmen, dorsal view; 16, tergite 8, dorsal view; 17, sternite 8, ventral view.

sinuate plate in apical fourth; apical part of dorsal plate rounded produced, slightly exposing in dorsal view; median struts a little longer than the half length of median lobe; copulatory piece as shown in Figs. 13–14. Tegmen quadrate with prolonged apical part of parameres, $\frac{3}{5}$ the length of median lobe; parameres strongly convergent at sides, with prolonged lobes which are thickened at each extremity,

dehiscent in a short distance, provided with minute setae; ring part quadrate and slightly divergent basad in dorsal view. Eighth tergite provided with two pairs of projection, of which the external pair is formed arcuate lobes, and the inner pair is subtriangular. Eighth sternite convergent apicad, deeply triangularly concave at middle of apical margin. Seventh tergite obtusely produced at middle.

Type series. Holotype ♂, Sepilok, Sabah, Borneo, 30–VII–1981, Y. JOHKEI leg. Paratypes: 1 ♀ (allotype), same data as the holotype; 1 ♀, Bukit Soeharto, Kalimantan Timur, Indoensia, 29–X–1998, H. MAKIHARA leg. The holotype and allotype are preserved in the National Museum of Nature and Science, Tsukuba, and the paratype is in the Forestry and Forest Products Research Institute, Tsukuba.

Distribution. Borneo: Sabah, East Malaysia, and East Kalimantan, Indonesia.

Etymology. The name of this new species is dedicated to Mr. Hiroshi MAKIHARA who offers us the invaluable *Merionoeda* specimens collected from East Kalimantan including the female paratype of this interesting new species.

Notes. *Merionoeda makiharai* sp. nov. shares some external characteristics such as small size, black body colour and a maculation on elytra with a number of species. It is, however, easily distinguished on account of the form of the short elytra which remains very broad towards apices. Moreover, its head is rather peculiar with eyes less prominent and more widely separated from one another. Finally, *M. makiharai* sp. nov. is clearly smaller than other species of the genus, probably being the smallest in size. Notwithstanding these differences, it can be compared to *M. nigricollis* AURIVILLIUS from Borneo (AURIVILLIUS, 1923) for example. It differs, however, regarding the structure of pronotum, punctures on head, pronotum and elytra, in addition.

Merionoeda hendrai sp. nov.

(Figs. 5, 18–23)

Body length 5.0–6.5 mm in ♂, 5.6–6.6 mm in ♀ (from apical margin of clypeus to abdominal apex).

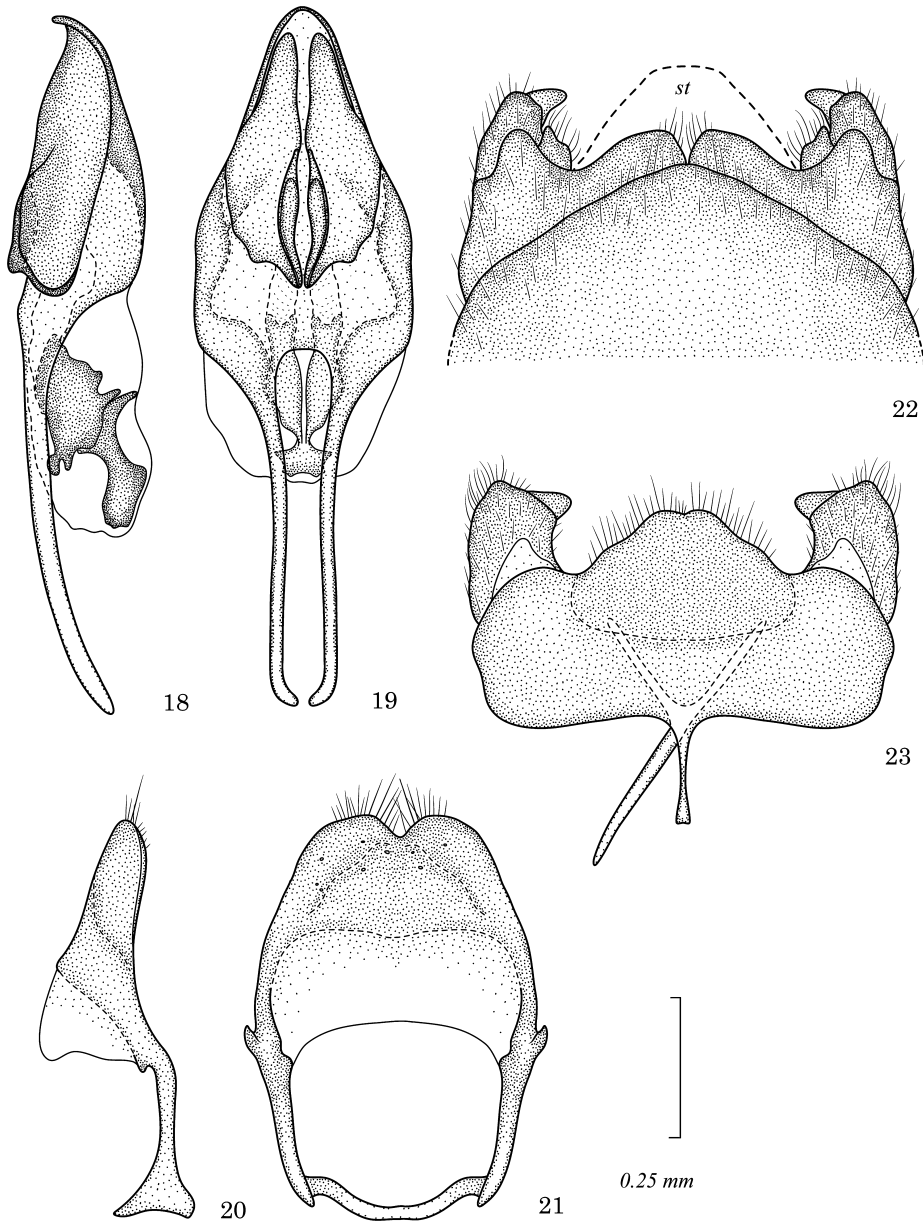
Male and female. Colour almost as in *M. apicicornis* HOLZSCHUH from southern Thailand, though more than basal 2/3 or often the whole of the peduncle of hind femora pale yellow; with yellowish brown maculation on the basal half of elytra; last two or two and half, often three antennal segments paler, varying from pale brown to brown.

Head basically similar to that of *M. apicicornis*; HW/PW 1.06–1.16 (M 1.13) in ♂ and 1.06–1.12 (M 1.08) in ♀; frons 1/3 the length of the basal width, slightly convergent to apex, FA/FB 0.90–1.00 (M 0.93) in ♂ and 0.93–1.02 (M 0.99) in ♀; clypeus long, 2/3 the length of basal width, with sparse, fairly long pale yellow hairs; eyes separated from one another by nearly half the width of occiput in ♂ and by 11/20 in ♀. Antennae fairly short, surpassing elytral apex by last segment or hardly reaching this in ♀, clothed similarly with pubescence and setae, with segment 5 moderately and segments 6–11 distinctly flattened, segments 8–9 7/18 as wide as long in ♂ and half as wide in ♀, segments 6–10 weakly serrate.

Pronotum almost as in *M. apicicornis*, slightly shorter than width between lateral swellings, PL/PW 0.96–1.00 (M 0.98) in ♂ or 0.96–1.00 (M 0.97) in ♀, PA/PW 0.69–0.75 (M 0.71) in ♂ or 0.71–0.76 (M 0.74) in ♀, PB/PW 0.85–0.91 (M 0.89) in ♂ or 0.86–0.93 (M 0.89) in ♀, with lateral swellings rather prominent. Scutellum trapezoidal, weakly emarginated at apex, weakly silvery pubescent or almost glabrous.

Elytra almost as in *M. apicicornis*, EL/EW 1.97–2.12 (M 2.03) in ♂ or 1.92–2.07 (M 2.02) in ♀.

Venter of thoraces weakly shiny, clothed with dense silvery hairs of medium length, apical margin flattened in prosternum and the inter-coxal process compressed, mesosternal inter-coxal process



Figs. 18–23. Male genital organs of *Merionoeda henderai* sp. nov. from Borneo. — 18, Median lobe, lateral view; 19, ditto, dorsal view; 20, tegmen, lateral view; 21, ditto, dorsal view; 22, tergite 8, dorsal view; 23, sternite 8, ventral view; *st*, 8th sternite.

broad and almost parallel, metasternum well convex and with a distinct transversal groove; two basal ventrites in abdomen clothed with silvery pubescence, hardly so in ventrites 3–4.

Median lobe spindle-shaped, nearly $\frac{2}{5}$ the length of abdomen, weakly convex throughout; dorsal plate subparallel in basal $\frac{2}{5}$ then almost linearly convergent apicad, with pair of broad crescent plates in apical $\frac{3}{5}$ which are approximate at posterior ends, narrowly dehiscent in apical half, supple-

mentary with a pair of narrow arcuate scales along basal 2/5 at insides of the crescent plates; apical part of dorsal plate rounded produced, slightly exposing in dorsal view; median struts a half the length of median lobe; copulatory piece as shown in Figs. 18–19. Tegmen ovoid, nearly 2/3 the length of median lobe; parameres convergent in sinuate line to rounded apical margin which is triangularly concave at middle, provided with rather short setae; ring part transverse quadrate in dorsal view. Eighth abdominal segment strongly transverse; tergite provided with two pairs of projections at sides, of which the external pair is broad and arcuate, with short triangular appendices at extremities; the inner pair is short, shortly bifurcate at apical margins; sternite transverse quadrate, triangularly produced near middle, with gently emarginate apical margin. Seventh tergite weakly subtriangularly produced.

Type series. Holotype ♂, Batu Kembar, near Alat/Barabai, South Kalimantan, Indonesia, 10~16–XI–2009, Y. YOKOI leg. Paratypes: 1 ♀ (allotype), same data as the holotype; 3 ♂♂, 2 ♀♀, same data as the holotype; 6 ♂♂, 6 ♀♀, Papagaran, about 700 m in alt., near Alat/Barabai, South Kalimantan, Indonesia, 23~30–X–2007, Y. YOKOI leg.; 2 ♂♂, 10.5 miles from Keningau, Kimanis Road, Crocker Ranges, Sabah, East Malaysia, 24–V–1988, N. KOBAYASHI leg.; 1 ♀, Bukit Soeharto, Kalimantan Timur, Indonesia, 9~22–VI–1998, H. MAKIHARA leg. The holotype and allotype are preserved in the National Museum of Nature and Science, Tsukuba, and the paratypes are in the Forestry and Forest Products Research Institute, Tsukuba, and the private collection of YOKOI and NIISATO.

Distribution. Borneo: Sabah, East Malaysia and, South and East Kalimantan, Indonesia.

Etymology. The name of this new species is dedicated to Mr. HENDRA Widarto, a citizen of Indonesia, who assisted the authors during various field works in South Kalimantan, Indonesia and contributed a great deal to the exploration of the *Merionoeda* fauna in the region.

Notes. *Merionoeda hendrai* sp. nov. from Borneo is rather similar in appearance and probably closely related to *M. apicicornis* HOLZSCHUH from Southern Thailand (HOLZSCHUH, 1991). The both species differ, however, in colouration of the peduncle of hind femora. While it is invariably dark in apical half for *M. apicicornis*, the pale portion is, though variable, much larger for the new species, often being totally pale. Whereas the difference in external morphology is less conspicuous, it is more evident as to the male genitalia. The 8th ventrite is, even though similar in basic structure, wider and more flattened in the new species. The difference in tegmen, or notably parameres, is more obvious. While the apical border is sinuate and moderately emarginated in the middle for *M. apicicornis*, it is two-fold semi-circular with a deep notch in the middle for the new species. Thus it can be concluded that the both are closely related but distinct species geographically isolated from each other, occurring in Southern Thailand and the Malay Peninsula on one hand and in Borneo on the other. *Merionoeda hendrai* sp. nov., especially in case of those specimens with wholly pale peduncle of hind femora, resembles also the sympatric *M. consonaria* HOLZSCHUH from Borneo, the more so, as the both species are rather variable regarding the colouration of hind femora and antennae. The new species can be distinguished, however, by wider elytra with EL/EW about 2.00, whereas it varies from about 2.10 to 2.30 in *M. consonaria*. The yellowish brown maculation on elytra is also shorter in general, not stretching into the apical half. On the other hand, the difference in male genitalia is quite obvious and fundamental.

As this new species and comparable species often vary and overlap in some external characteristics, it often requires a close observation of male genital organ for reliable determination of specimens in question.



Fig. 24. *Merionoeda cariniger* HOLZSCHUH, 2008 from Borneo.

***Merionoeda annulus atra* ssp. nov.**

(Fig. 6)

Body length 6.6 mm (from apical margin of clypeus to abdominal apex).

M a l e. Colour comparable to the nominotypical *M. annulus annulus* HOLZSCHUH from southern Thailand, though clearly differing in a few ways. The hind femur is totally black, lacking the pale yellow ring just before the clavate part. In addition, the elytra are entirely dark without maculation.

Head as in *M. annulus annulus*, though distinctly wider than the maximum width of pronotum, HW/PW 1.15. Pronotum also similar, though clearly longer than wide, PL/PW 1.18, PA/PW 0.73, PB/PW 0.96; median callosity on disc narrower, longer and hardly impressed near apical collar. Elytra analogous, though obviously narrower, EL/EW 2.60. Legs similar.

Type specimen. Holotype ♂, Borneo (details unknown). The holotype is preserved in the Staatliches Museum für Tierkunde in Dresden, Germany. It is provided with a printed labels; "Borneo", "GehrW. Müller Vermächt. 1909", "Staatlich. Museum für Tierkunde, Dresden".

Distribution. Borneo (details unknown).

Etymology. *Merionoeda annulus atra* ssp. nov. is named so, as its elytra and legs are entirely dark in contrast to the nominotypical *M. annulus* HOLZSCHUH.

Notes. *Merionoeda annulus atra* ssp. nov. from Borneo differs from the nominotypical subspecies described from southern Thailand (HOLZSCHUH, 1991) firstly in colour. Its hind femur is totally black, while the elytra are entirely dark. The pale ring on hind femur near apex as well as the maculation on elytra are always observed in *M. annulus annulus* throughout its hitherto known distribution area in Thailand, the Malay Peninsula and Sumatra, and thus can be considered as stable characteristics. The difference in colour is, therefore, distinct enough for the justification of the new subspecies. The same can be said regarding the form or relative proportion of head, pronotum and elytra. While the head is always a little wider than the pronotum in the original description as well as for the specimens

collected in the Malay Peninsula and Sumatra, it is clearly wider with HW/PW 1.15 in the case of the new subspecies. The pronotum itself is also longer with PL/PW 1.18, whereas 1.07–1.13 (M 1.09) for eight male specimens from the Malay Peninsula, 1.06–1.13 (M 1.10) for two males from Sumatra while PL/PB 1.10 for the types from southern Thailand in the original description. The difference in the relative width of elytra is probably more conspicuous. While the relative width of the nominotypical species remains stable with EL/EW around 2.4, it is much narrower with EL/EW 2.60 for the new subspecies. It is interesting to note that, while the nominotypical *M. a. anulus* is distributed also in the Malay Peninsula and Sumatra, a subspecies is found in Borneo, indicating thus its unique position.

***Merionoeda cariniger* HOLZSCHUH, 2008**

(Figs. 24–29)

HOLZSCHUH, 2008: 202, fig. 37. Type locality: Trus Madi, Crocker Range, Sabah, Malaysia.

Diagnosis. Colour blackish brown, with reddish yellow head and prothorax; elytra largely pale yellow, with dark brown margins; antennae and legs blackish brown, pale yellow in peduncles of femora. Head with elongated neck, closely punctured, with prominent eyes. Antennae long, slightly flattened in apical eight segments, clothed with minute pubescence on segments 3–11. Pronotum not contracted to apex and base, with arcuately rounded sides, wholly punctured, without callosities on disc except for a median smooth area in apical fifth, only irregularly reticulate near middle. Elytra moderate in length, about 1.7 times as long as the humeral width, largely exposing the sides of metathorax, dehiscent in apical halves. Prosternal process subquadrate in apical part which is deeply concave at middle. Mesosternal process broad, deeply concave at apical margin. Legs short and stout; hind femur moderately clavate in apical half; hind tibia arcuate though strongly sinuate in apical half, provided with coarse dents along external margin.

Male genital organ. Male genital organs small and weakly sclerotized, without copulatory piece in endophallus, and not so specialized in structure as those of other members of the genus from Borneo. Median lobe drop-shaped, less than 1/3 the length of abdomen, strongly flattened; dorsal plate widely dehiscent in barrel-shape in apical half, bearing a pair of elongate sclerites along inner sides, exposing rounded apex of ventral plate which is moderately thickened; median struts thin, 2/5 the length of median lobe. Tegmen with paramere broad, slightly divergent to apex, which is slightly concave at middle, provided with two short setae at each lobe; ring part broad, with small projections at sides of apical margin. Eighth abdominal segment ordinary trapezoidal; tergite weakly emarginated at apical margin, with blunt projection at sides; sternite almost triangular, with apical margin narrow, gently emarginate.

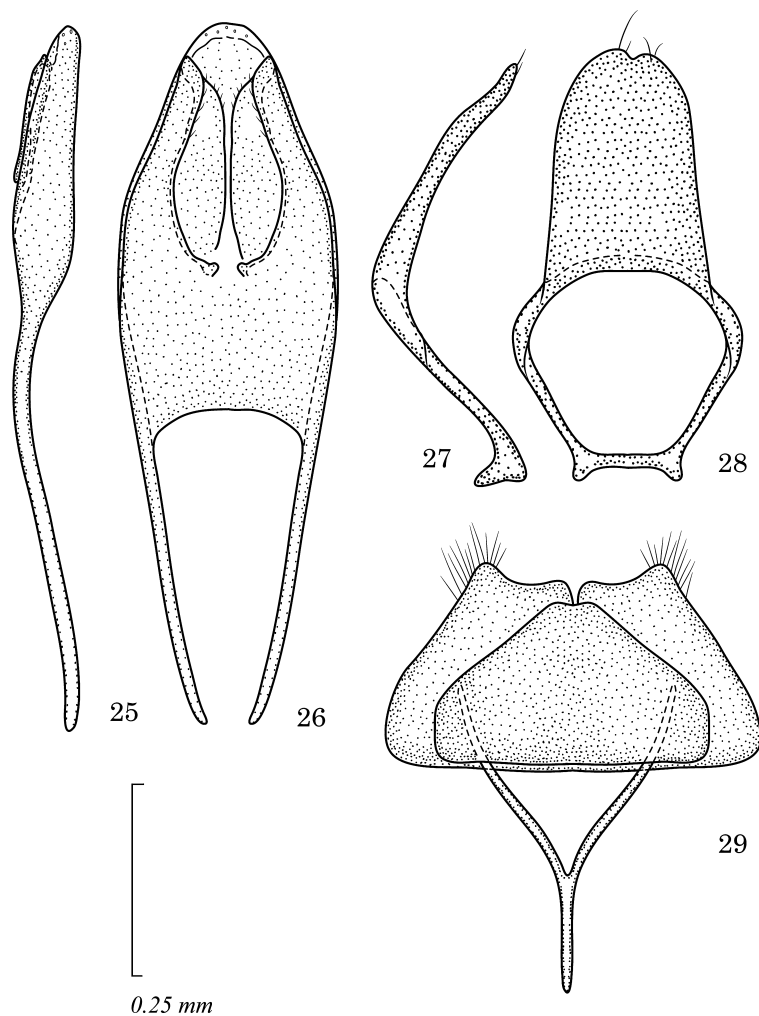
Specimen examined. 1 ♂, “Borneo”, “Gehr. W. Müller/Vermächt. 1909” “Staatl. Museum für Tierkunde, Dresden”.

Distribution. Borneo (detail unknown).

Notes. *Merionoeda cariniger* is a very peculiar species in having the large head and pronotum which are entirely punctured on surface, elongate elytra, and short stout legs. Its male genital organs are not so highly specialized as in those of the other members of the genus.

Acknowledgements

We would like to thank Dr. Klaus-Dieter KLASS of Staatliche Naturhistorische Sammlungen Dresden for allowing us to study the collection preserved there. A new subspecies, *M. anulus atra* ssp.



Figs. 25–29. Male genital organs of *Merionoeda cariniger* HOLZSCHUH, 2008 from Borneo — 25, Median lobe, lateral view (omitted endophallus); 26, ditto, dorsal view (omitted endophallus); 27, tegmen, lateral view; 28, ditto, dorsal view; 29, 8th tergite and sternite, ventral view.

nov. is described and *M. cariniger* HOLZSCHUH is redescribed above based on the specimens from the collection. We are grateful to Dr. Yutaka JOHKEI of Showa Women's University, Tokyo, and Mr. Hiroshi MAKIHARA of the Forestry and Forest Products Research Institute, Tsukuba, Mr. Nobuyuki KOBAYASHI of Kawasaki who generously provided us with specimens from their collections. Finally, we would like to thank Mr. Theodore L. CHILDERS for his critical reading of the original draft of this paper.

要 約

横井彌平太・新里達也：ボルネオ産のモモプトコバナカミキリ属5新種・1新亜種および *Merionoeda cariniger* HOLZSCHUH の再記載 (鞘翅目カミキリムシ科)。 — ボルネオ産のモモプトコバナカミキリ属は、ごく最近までは10種が知られているに過ぎなかったが、HOLZSCHUH (2008) や YOKOI and NIISATO (2009) らにより15

種以上にのぼる新種が記載され、生物地理区の小単位としては最も多い30種以上が知られている。本論文では同地域からさらに6種の新種・新亜種を追加記載した。ボルネオに分布する本属の種は、互いの外見が非常に似ているものが多いが、それぞれの雄交尾器は著しい特殊化を示していて、種の同定は容易である。また、本属としては特異な形態をもつ *Merionoeda cariniger* HOLZSCHUH について、とくに雄交尾器について詳細に再記載を行った。

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Manuscript received 21 October 2012;
revised and accepted 4 November 2012.