

***Malayopsebium coerulea* gen. et sp. nov. (Coleoptera, Cerambycidae), New Genus and Species of the Tribe Psebiini from Northern Borneo**

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Abstract A new psebiine genus *Malayopsebium* nov. is erected for *Malayopsebium coerulea* sp. nov. from northern Borneo. The new genus is agreed in basic structure with *Pectinocallimus* NIISATO, 1989, however clearly distinguished from the latter by the serrate middle segments of male antennae, markedly emarginate elytral suture largely exposing the median costa of metanotum and long straight hind tibia with dense bristle area on the basal half.

Introduction

It was in 2000 that a strange brachelytrous longicorn beetle with metallic dark blue body was found at Trus Madi in northern Borneo. After more than ten years of discovery, it was submitted me for taxonomic study. It is no doubt that the longicorn beetle in question has a close relationship with *Pectinocallimus* NIISATO, 1989.

The genus *Pectinocallimus* had been placed under the tribe Stenopterini since the original description (NIISATO, 1989) because it could not be assumed in 1980's that the member of the Psebiini had not been occurred except the cosmopolitan *Nathrius brevipennis* (MULSANT, 1889) from the tropical Asia. The *Pectinocallimus* was later transferred to the Psebiini and three species were recorded from Borneo and the Malay Peninsula (NIISATO, 2012). It is an isolated genus among the members of the Psebiini and characterised by the pectinate male antennae, short pronotum with strongly uneven disc, and flattened hind femur with arcuate external margin. Up to now, twenty-four genera (including subgenera) of the tribe Psebiini are recorded mainly from Africa and a few from South America, of which only five genera, *Haplopsebium* AURIVILLIUS (1 sp.), *Bostrychopsebium* QUENTIN et VILLIERS (1 sp.), *Mourglia* HOLZSCHUH (2 spp.), *Nathrius* BRÈTHES (1 sp.) and *Pectinocallimus* (3 spp.) have so far been recorded from Asia (HOLZSCHUH, 1989, 2006; NIISATO, 2012; TAVAKILIAN & CHEVILLOTTE, 2016). It has been lengthily expected that the sister group of *Pectinocallimus* will be found from somewhere in tropical Asia.

The newly discovered genus is discriminated from *Pectinocallimus* by the serrate segments of male antennae instead of pectinate ones, markedly emarginate elytral suture largely exposing metanotum and long straight hind tibia. This discovery is very important for the presumption of dispersal and differentiation of the tribe Psebiini in tropical Asia. In the following paragraphs, I will describe and illustrate this interesting beetle named as *Malayopsebium coerulea* gen. et sp. nov.

Material and Method

The morphology of specimens were observed and photographed under a stereoscopic microscope (OLYMPUS SZX16), a light microscope (OLYMPUS BX53M) with a microscope digital camera (OLYMPUS DP73) and an image analysis software (OLYMPUS cellSens Standard). The combined

images of several structures were taken by the Keyence Ultra Depth Multi-angle Observation System (KEYENCE VHK-D500). The whole habitus of specimen was photographed by Canon digital camera EOS 70D with macro photo lens MP-E 65 mm. The drawing of structure was made by using of Adobe Illustrator CS3.

The abbreviations used for the ratio of the measurement in the description are as follows: HW – maximum width of head across; PL – length of pronotum; PW – maximum width of pronotum near middle; PA – apical width of pronotum; PB – basal width of pronotum; EL – length of elytra; EW – humeral width of elytra; M – arithmetic mean.

Taxonomy

Genus *Malayopsebium* nov.

Tribe Psebiini.

Type species: *Malayopsebium coerulea* gen. et sp. nov.

Head hemispherical including eyes; frons quadrate, almost as long as wide, with apical margin distinctly emarginate in almost straight line to midline, median groove barely attaining to base of frons; clypeus rather long though less than half the length of maximum width, widely truncate at apical margin; labrum short, emarginate at apical margin; mandibles distinctly broad, with inner margin almost straight though strongly bent inwardly near apex; maxilla with galea strongly constricted in basal half, palpus with terminal segment strongly convergent apicad; labium with ligula almost fan-shaped, weakly produced near middle of apical margin, palpus very long, with terminal segment distinctly convergent in apical half; eyes markedly large and prominent, deeply emarginate near antennal cavities; genae narrow, obtusely produced ventrad. Antennae not attaining to abdominal apex, serrate and flattened in segments 5–10, rather weakly so in segments 3–4, shagreened and densely setose in nine apical segments.

Pronotum divergent to apex, slightly longer than wide, with prominent lateral swellings near middle, moderately raised near apical half of sides; disc extremely raised at a level between apical third and basal sixth, provided with a pair of large swellings at sides near middle and a median small swelling near basal fourth, densely pubescent except for large area near midline. Mesonotum distinctly divergent to base, rugosely punctured and pubescent except for the median area, without stridulatory file.

Elytra strongly reduced, barely reaching the base of abdominal tergite, exposing the sides of metathorax, with apical 3/4 of sutural margins dehiscent and markedly emarginate in arcuate line and largely exposing the median costa of metanotum, thickly bordered along sutural margins. Hind wings elongate, strongly narrowed near base, with anal veins quite agreed with that of *Pectinocallimus* though without jugal area.

Prosternum with fore coxal cavities angulated externally, completely closed behind; inter-coxal process compressed near middle between approximate coxae, with triangularly dilated apical part. Mesosternum with coxal cavities widely opened to mesepimera; inter-coxal process wide, moderately narrowed to apex which is broadly conjoined the apical part of metasternum. Abdomen broad, arcuately narrowed apicad, with anal ventrite obtusely produced at apical margin.

Legs rather short in fore and mid pairs though very long in hind pair; hind femur clavate, not compressed, with setiferous shallow concavity in underside of clavate part; hind tibia long and almost

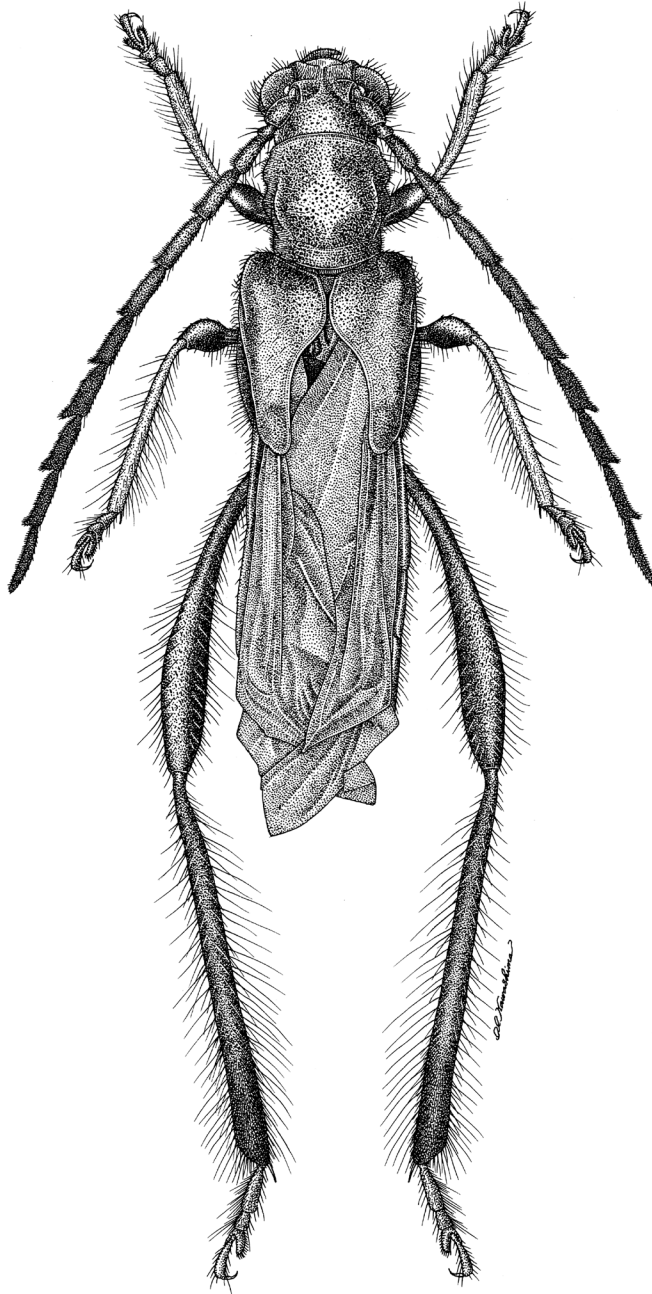


Fig. 1. *Malayopsebiium coerulea* gen. et sp. nov. from northern Borneo, East Malaysia, holotype male.

straight, with setiferous area as in femur in basal half of underside; all tarsi very short.

Male genital organs are basically identical with those of *Pectinocallimus* though ventral plate of median lobe is bilobed with hooked apical parts. Detail morphology is given in the description of the species.

Etymology. The name of this new genus, *Malayopsebium* nov. is a combination of “Malay” and “Psebium”. “Malay” is the type area of the new beetle and “Psebium” is one of the genera belonging to the tribe Psebiini. The gender is feminine.

Range. Borneo.

Notes. *Malayopsebium* nov. is no doubt to a close relative of the genus *Pectinocallimus* NIISATO, 1989 from the perspective of morphological similarity: the hemispherical head including large eyes, mouthparts such as the broad mandibles and long labial palpus, arrangement of discal and lateral swellings on pronotum, venation of hind wings, setiferous concavity on hind femur in male, and also basic conformation of male genital organs. The new genus is readily distinguished from this related genus by the serrate middle segments of male antennae instead of the pectinate ones, markedly dehiscent and emarginate elytral suture with widely exposed the median costa of metanotum, and long straight hind tibiae of which underside is provided with the setiferous area.

The serrate male antennae of the new genus are similar to the female antennae of *Pectinocallimus* such as *P. befui* NIISATO, 2012 and *P. malayanus* NIISATO, 2012. Also the dehiscent elytral suture is similar to that of *P. malayanus*, but not so distinctly emarginate (NIISATO, 2012). It may be unique that the type species has the bilobed ventral plate of the median lobe with hooked apical parts, despite that the male genital organs are basically agreed with those of *Pectinocallimus*. It is uncertain whether this structure is autapomorphy in the new genus or the type species.

The monotypic new genus has so far been known to occur in northern Borneo, the type locality of type species. Additional member of the genus may be found from neighboring areas such as the Malay Peninsula as in the case of *Pectinocallimus*.

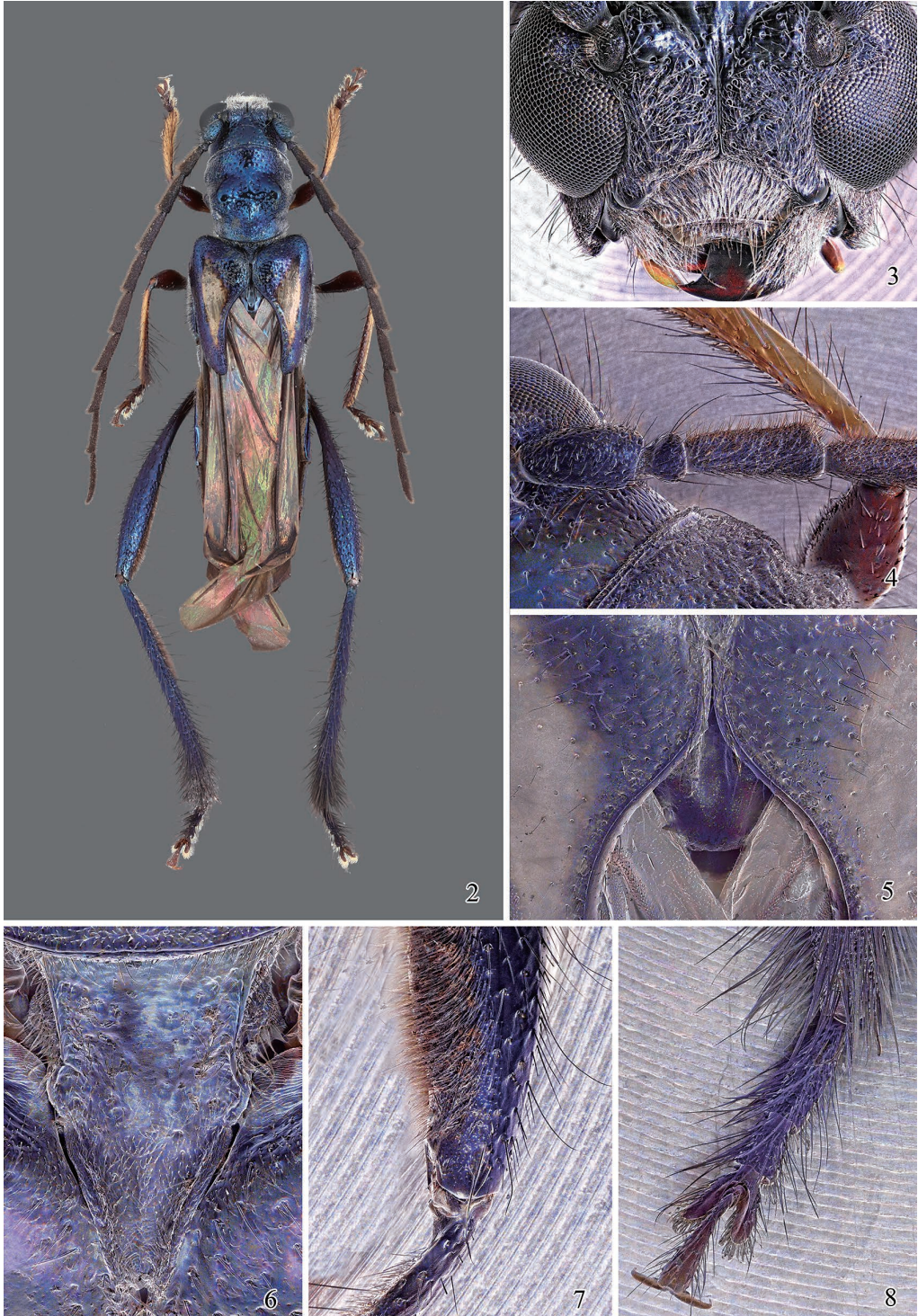
Malayopsebium coerulea sp. nov.

(Figs. 1–20)

M a l e. Body length: 9.5 mm (from front margin of head to abdominal apex).

Colour dark metallic blue, partly black and pale yellow, shiny; head dark metallic blue, black in eyes and antennal segments 3–11, yellowish brown in mouthparts except for almost black mandibles; pronotum and elytra dark metallic blue though more or less brighter than in other parts, the latter decorated with light yellowish brown stripe at a level between basal tenth and apical fifth, with the inner margin strongly oblique in basal half and arcuate in apical half along suture; hind wings translucent light brown; ventral surface largely dark metallic blue, more or less infuscate in metathorax, tinged with weak purplish lustre in apical part of prosternum and abdomen; coxae and trochanters dark chestnut brown, though almost black in those of hind leg; fore and mid legs blackish brown, light yellowish brown in basal halves of femora, fore tibia and dorsal side of mid tibia; hind leg dark metallic blue, with brown claw.

Figs. 2–8. *Malayopsebium coerulea* gen. et sp. nov. from northern Borneo, East Malaysia, holotype male. — 2, Whole habitus; 3, head, frontal view; 4, antennal segments 1–3; 5, metanotum exposed between elytra; 6, mesonotum; 7, hind femur and tibia, showing both setiferous areas on undersides; 8, tarsus and apical part of tibia of hind leg. — 2, Optical image; 3–8, combined images of optics and SEM.



Body clothed with short to long, erect black hairs, partly with silvery white pubescence; head thinly haired, with long black hairs on tempora and dense silvery white pubescence mostly on frons, genae, clypeus and external 2/5 of mandible; antennae with medium-sized black hairs on basal two segments and each apex of segments 3–6, very densely with short brownish setae on segments 3–11; pronotum with a few long to medium black hairs, densely with silvery white pubescence except for a large area near midline; scutellum sparsely with minute pale pubescence; elytra in most parts sparsely with short black hairs, though haired more long and dense near bases; ventral surface rather densely with black hairs, partly with silvery white pubescence at sides of thoraces and margins of hind coxae; legs rather sparsely with long to very long erect black hairs on all tibiae and hind femur, the hairs are partly pale yellow in fore and mid tibiae; hind tibia with a tuft of long black hairs near apical part; hind tarsus densely with short black hairs; fore and mid femora with silvery white pubescence on underside; hind femur densely with short dark brown bristles on shallow concavity in underside of apical 3/5; hind tibia also with the same bristles as in femur on underside of basal half except for narrow basal part.

Head large and voluminous, slightly wider than pronotum, sparsely provided with large coarse punctures; HW/PA 1.17, HW/PW 1.02; frons quadrate, flattened above, with deep median groove; clypeus a little less than half of the basal width; genae 2/5 the depth of eye-lobes; eyes large, moderately prominent, with each lobe a little more than half the width of frons. Antennae attaining to apical margin of abdominal tergite 4; scape thick, 9/10 the length of segment 3, scattered with a few punctures; segments 3–4 bluntly angulate at each apico-external corner, the latter segment the longest, slightly longer than the former; segments 5–10 more or less flattened, distinctly serrate apico-externally; terminal segment flattened, gently arcuate.

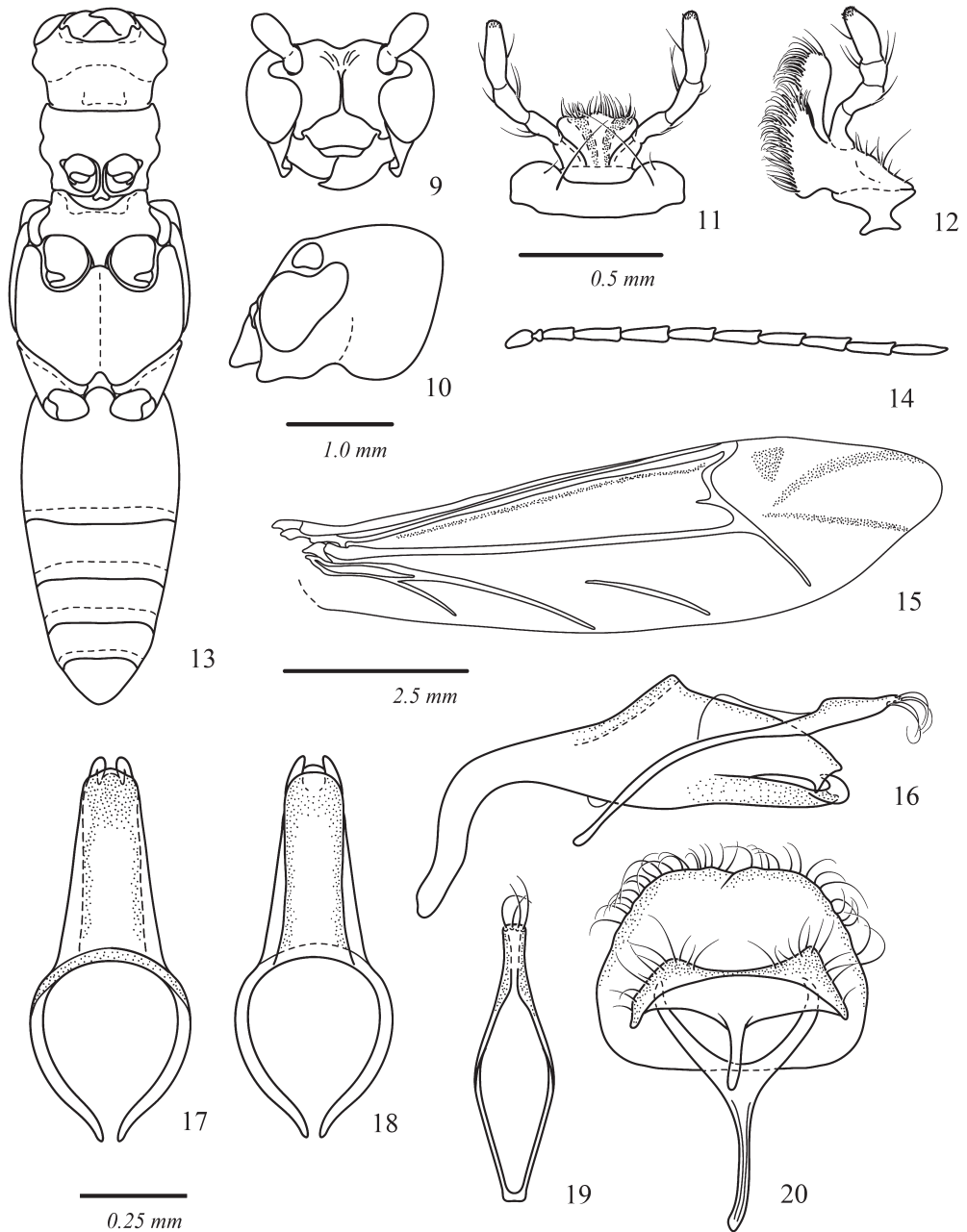
Pronotum slightly longer than the maximum width between lateral swellings; PL/PW 1.05, PL/PA 1.20, PB/PA 0.91; sides rather strongly arcuate in apical 9/10 except for a short distance from apex, provided with prominent swellings near behind middle, narrowed in sinuate line to base in basal third; disc with a pair of large oblique and strongly prominent swellings, and a median swelling which is rather weak and slightly produced posteriad; surface irregularly scattered with large coarse punctures, the punctures very sparse on the discal swellings, more or less rugose in basal third. Scutellum elongate triangular, distinctly concave, coarsely shagreened.

Elytra longer than wide, with apices attaining the base of 1st abdominal tergite, distinctly wider than pronotum; EL/EW 1.17; sides with humeri projected forwardly, slightly arcuate in basal 2/3, then straightly narrowed just before apices, which are bluntly pointed in arcuate line; disc almost flattened above, irregularly provided with large coarse punctures, the punctures very sparse or almost disappeared on external halves especially on the pale maculations.

Prosternum transversely raised in apical third, provided with distinct furrows and scattered with coarse punctures; inter-coxal process with apical part raised above, and concave at apical margin. Meso- and metathoraces densely provided with punctures in various size and partly rugose near bases of both sterna; inter-coxal process distinctly concave above except for reflexed margins. Abdomen moderately narrowed apicad in arcuate line, coarsely rugosely punctured in 1st ventrite though sparsely so in the following ventrites; 1st ventrite well convex, equal in length to the following two ventrites combined.

Legs long and stout; hind femur gently clavate in apical 2/3, reaching abdominal apex; hind tibia more than 1.2 time as long as hind femur, gently sinuate in apical half; hind tarsus with 1st segment a little longer than the following two segments combined.

Male genitalia: Median lobe very small, about 1/8 the length of abdomen, strongly convex; ventral plate slightly emarginate at sides, rounded at apical margin which is provided with a pair of dorsal



Figs. 9–20. Body parts and male genital organs of *Malayopsebiium coerulea* gen. et sp. nov. from northern Borneo, East Malaysia, holotype male. — 9, Head, frontal view; 10, ditto, lateral view; 11, labium; 12, maxilla; 13, body, ventral view; 14, antenna; 15, hind wing; 16, median lobe with tegmen, lateral view; 17, median lobe, dorsal view; 18, ditto, ventral view; 19, tegmen, dorsal view; 20, 8th abdominal segment, ventral view. Scale: 1.0 mm for 9–10, 0.5 mm for 11–12, 2.5 mm for 13–15 and 0.25 mm for 16–20.

hooks; dorsal plate slightly longer than ventral plate though not attaining the apical hooks of the latter; median struts strongly bent ventrad in apical half. Tegmen with unilobed parameres slightly divergent apicad, with truncate apex which has four medium-sized setae; ring part elongate. Eighth sternite distinctly transverse, widely shallowly emarginate at apical margin. Eighth tergite almost semicircular, arcuately transverse at apical margin.

F e m a l e. Unknown.

Type specimen. Holotype: ♂, Trus Madi, Crocker Range, northern Borneo, Sabah, East Malaysia, V. 2000, Local collector leg. The holotype is tentatively in the author's collection, and will be preserved in the Universti Malaysia Sabah (UMS), Kota Kinabalu, Malaysia.

Etymology. The specific name, "*coerulea*" is derived from the dark blue body.

Distribution. Borneo.

Notes. There is no ecological information of the new species since the unique specimen examined was brought through the local insect collector. It may be unwittingly and occasionally collected at the slope of Trus Madi as in the case of other rare beetles. I have not heard any reliable information that the same beetle was additionally found from the type locality for more than 15 years. It may be a very rare species as the members of *Pectinocallimus*.

Discussion

The tribe Psebiini was established by LACORDAIRE (1868, p. 479) on the basis of four genera, *Psebiium* PASCOE, *Chorotyse* PASCOE, *Nephitea* PASCOE and *Leptidea* MULSANT (= *Nathrius* BRÉTHES), and twelve genera were subsequently recognised by QUENTIN and VILLIERS (1971). Currently 24 genera including subgenera are known mainly from Africa and a few from Asia and South America. According to the traditional system such as LACORDAIRE (1868), or QUENTIN and VILLIERS (1971), the Psebiini is characterised by the externally angulated fore coxal cavities, reduced elytra and a set of long bristles in second ventrite of female abdomen. The tribe is distinguished from the Oabriini by the externally angulated fore coxal cavities as well as by the reduced elytra from the Gahaniini, the Hyboderiini, the Megacoelini, the Oxycoleini and the Plectogasteriini. It may be somewhat similar in the structures of coxal cavities and elytra to those of the Stenopterini. However, the Psebiini is characterised by the hemispherical head including large eyes and rather simple structure of male genital organs (NIISATO, 2012). From the above point of view, *Malayopsebiium* nov. and *Pectinocallimus* no doubt belong to the tribe Psebiini.

On the other hand, the systematic position of these two genera in the tribe is uncertain, since there is no relative at least among the five genera from Asian Psebiini. *Pectinocallimus* is somewhat similar in general appearance to *Frontipedia* MARTINS et NAPP from Brazil, South America (MARTINS & NAPP, 1984; MARTINS, 2003), and also to *Duffyia* QUENTIN et VILLIERS from Rwanda, Central Africa (QUENTIN & VILLIERS, 1971). However, their similarity is difficult to inspect on the ground of the direct lineage since the three genera occur in three continents far apart from each other respectively. *Malayopsebiium* nov. may have slight similarity in facies to *Haplopsebiium* AURIVILLIUS, however, their similarities also do not reflect their lineage (AURIVILLIUS, 1892; QUENTIN & VILLIERS, *op. cit.*). It is most probable that these two genera are sister groups to each other in the Psebiini as was described in above paragraphs, however they are isolated in the tribe as in the case of some specialised genera of the Psebiini.

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要 約

新里達也：北ボルネオから発見されたPsebiini族の新属新種・*Malayopsebiium coerulea* gen. et sp. nov. (鞘翅目カミキリムシ科)。——— 北ボルネオから得られた未知のコバネカミキリを詳しく検討したところ、クシヒゲコバネカミキリ属*Pectinocallimus* NIISATOに近縁であるものの、いくつかの重要な形質において相違が見出されたので新属を創設し、*Malayopsebiium coerulea* gen. et sp. nov. (ノコヒゲコバネカミキリ(新称))のように命名記載した。本新属は、上翅会合部が著しくえぐれて後胸背板を大きく露出させるとともに、雄の触角中間節が鋸歯状になる(クシヒゲコバネ属では櫛歯状)、後肢の腿節と頸節に刺毛帯をもつ(クシヒゲコバネ属では腿節のみ)、後脛節は細長くほぼ直線状になる(クシヒゲコバネ属ではやや短く幅広く、その外縁は弧状に張り出す)などの特徴をもっている。

本新属と比肩されるクシヒゲコバネカミキリ属は、ボルネオのタイプ種およびマレー半島の2種の合計3種が知られるが、多様な諸属から構成されるPsebiini族のなかでも、とくに近縁なものは従来知られていなかった。族内で孤立していたクシヒゲコバネカミキリ属に近縁群が発見されたことは、熱帯アジアにおけるPsebiini族の分化の様相を解明するうえで、きわめて重要な進展といえよう。

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