

Two New *Lycidioides* (Coleoptera, Tenebrionidae) from Borneo

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Abstract Two new tenebrionid species are described from Borneo under the names, *Lycidioides sakaii* sp. nov. and *L. melae* sp. nov. A key to three known species is also given. Morphological features of a female of *L. melae* sp. nov. are noted and systematic relationship of the genus *Lycidioides* is briefly discussed.

Kiyoshi ANDO (2003) erected the tenebrionid genus *Lycidioides* for a peculiar Bornean species, *L. kaniei*. It is small, ovate and well convex dorsad in general feature, possessing pectinate antennae and large eyes.

The first author (K. M.) was offered a specimen of the same genus by Kaoru SAKAI, one of his old friends in coleopterology, at the meeting of "So-Chû-Kai", a meeting for activating dead-stock specimens in private collections, of the Japanese Society of Coleopterology held in March 2007. He promptly noticed that this species can be distinguished from *Lycidioides kaniei* ANDO, and started a detailed examination about it with the second author (K. A.). Actually, he has deposited another specimen of this genus presented from Noboru KANIE. Further, the authors were also offered from him a female of *L. melae* sp. nov., for examination of morphological features of female and confirmation of the true taxonomic position of the genus. The authors are going to describe two new species, to give a key to the three species of the genus *Lycidioides*, and to prepare a note on a female for confirming the systematic relationship of this genus.

Before going into details, the authors would like to express their cordial thanks to Mr. Kaoru SAKAI, Tokyo, and Mr. Noboru KANIE, Aichi, for their offer of the invaluable materials. They also thank Dr. Makoto KIUCHI, Tsukuba City, for taking very clear photographs inserted in the present paper. They are indebted to Dr. Kiyoshi ANDO, Hubei University, for permission of using drawings and a photograph of *L.*

kaniei ANDO. Finally, they also wish to express their deep gratitude to Emeritus Curator Dr. Shun-Ichi UÉNO of the National Museum of Nature and Science, Tokyo, for critically reading the manuscript of this paper.

The abbreviations used herein are as follows: NSMT – National Museum of Nature and Science, Tokyo; NKC – Noboru KANIE collection, Aichi Pref.

Lycidioides sakaii sp. nov.

(Figs. 1, 5 & 9)

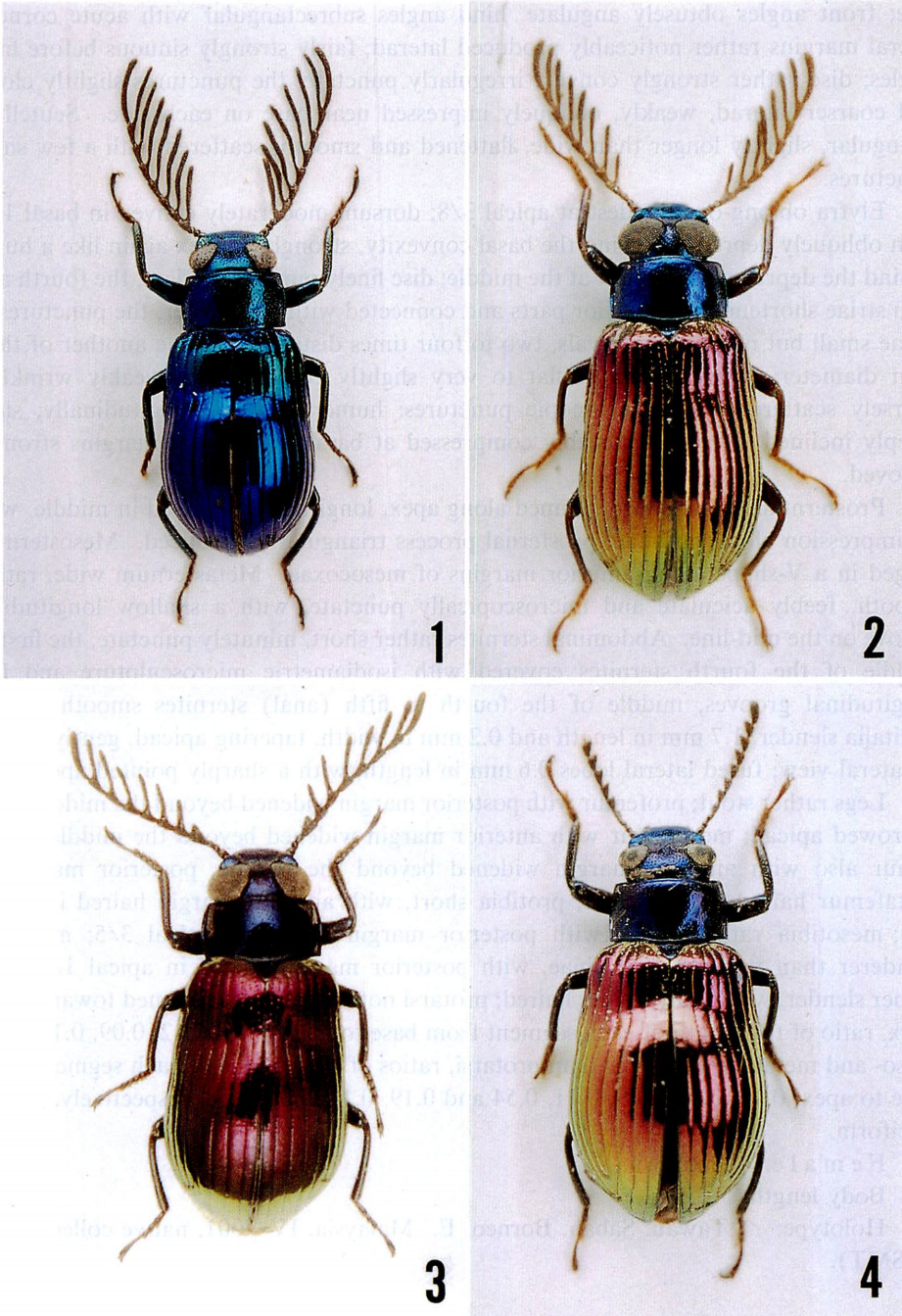
Dorsal parts dark blue, anterior parts of head, pro-, meso- and metasterna, and legs except tarsi with greenish tinge under certain light, antennae and tarsi brownish black, mouth parts and trochanters dark brown; posterior part of head, pronotum and elytra strongly, metallicly shining, anterior part of head, ventral parts, tibiae and tarsi moderately shining, antennae rather mat; each surface almost glabrous, antennae, apical parts of tibiae, and tarsi finely haired. Body oblong-oval, strongly convex dorsad in posterior part.

Male. Head transversely subelliptical, inclined in anterior parts; clypeus transversely subhexagonal, rather closely, irregularly punctate, bent downwards and straight in front, fronto-clypeal border clearly impressed in a wide U-shape; genae rather closely, irregularly punctate, the punctures often fused with one another, bordered from clypeus by fine sulci, but not defined from frons, convex laterad, with outer margins rounded; frons closely, coarsely punctate, the punctures in anterior part larger than those on clypeus and genae, diatone slightly narrower than eye diameter, with deep sulci along eyes. Eyes large, subreniform in dorsal view, convex laterad, obliquely invading into head.

Antennae long, extending beyond the middle of elytra, strongly pectinate from fourth to terminal segments; first segment robust, about three times the length of second; second the shortest and wider than long; third slightly longer than second, with anterior side weakly angulate; fourth with elongated ramus and shortest of the pectinate segments, about 2.8 times the length of second; fifth and sixth (about 3.2 times the length of second), seventh to tenth subequal in length (about 3.4 times the length of second), respectively, rami longest of sixth to ninth, terminal segment the longest, about 13 times the length of second. Terminal segments of maxillary palpi subsecuriform; mentum obtapezoidal, strongly convex in antero-medial part. Gula triangular, finely sulcate along both sides, longitudinally grooved along mid-line.

Pronotum widely quadrate, about twice as wide as long, widest at the middle, with four margins bordered; apex feebly sinuous on each side; base weakly produced posteriad, slightly truncate in medial part opposite to scutellum, gently sinuous on each

Figs. 1–4. Habitus of *Lycidioides* spp. — 1, *L. sakaii* sp. nov., holotype, male; 2, *L. melae* sp. nov., holotype, male; 3, *L. kaniei*, holotype, male (photo ANDO); 4, *L. melae* sp. nov., paratype, female.



side; front angles obtusely angulate, hind angles subrectangular with acute corners; lateral margins rather noticeably produced laterad, fairly strongly sinuous before hind angles; disc rather strongly convex, irregularly punctate, the punctures slightly closer and coarser laterad, weakly, obliquely impressed near base on each side. Scutellum triangular, slightly longer than wide, flattened and smooth, scattered with a few small punctures.

Elytra oblong-oval, widest at apical $3/8$; dorsum moderately convex in basal $1/4$, then obliquely depressed behind the basal convexity, strongly convex again like a hump behind the depressions, highest at the middle; disc finely punctato-striate, the fourth and fifth striae shortened in posterior parts and connected with each other, the punctures in striae small but notching intervals, two to four times distant from one another of their own diameter; intervals almost flat to very slightly convex, very weakly wrinkled, sparsely scattered with microscopic punctures; humeri swollen longitudinally; sides steeply inclined laterad, noticeably compressed at basal $3/7$; lateral margins strongly grooved.

Prosternum rather short, rimmed along apex, longitudinally raised in middle, with an impression along mid-line; prosternal process triangularly produced. Mesosternum ridged in a V-shape along anterior margins of mesocoxae. Metasternum wide, rather smooth, feebly aciculate and microscopically punctate, with a shallow longitudinal groove on the mid-line. Abdominal sternites rather short, minutely punctate, the first to middle of the fourth sternites covered with isodiametric microsculpture and fine longitudinal grooves, middle of the fourth to fifth (anal) sternites smooth. Male genitalia slender, 1.7 mm in length and 0.2 mm in width, tapering apicad, gently curved in lateral view; fused lateral lobes 0.6 mm in length, with a sharply pointed apex.

Legs rather stout; profemur with posterior margin widened beyond the middle, then narrowed apicad; mesofemur with anterior margin widened beyond the middle; meta-femur also with anterior margin widened beyond the middle, posterior margin of metafemur haired in basal half; protibia short, with anterior margin haired in apical $3/5$; mesotibia rather short, with posterior margin haired in apical $3/5$; metatibia slenderer than two anterior tibiae, with posterior margin haired in apical $1/5$; tarsi rather slender, with ventral sides haired; protarsi not bilobate but widened towards each apex, ratio of the length of each segment from base to apex: 0.19, 0.12, 0.09, 0.10, 0.51; meso- and metatarsi slenderer than protarsi, ratios of the lengths of each segment from base to apex: 0.17, 0.09, 0.09, 0.11, 0.54 and 0.19, 0.11, 0.09, 0.58, respectively. Claws falciform.

F e m a l e. Unknown.

Body length: 5.2 mm.

Holotype: ♂, Tawau, Sabah, Borneo, E. Malaysia, IV-2001, native collector leg. (NSMT).

Lycidioides melae sp. nov.

(Figs. 2, 4, 6, 8, 10 & 12)

Brownish black partly with dark bluish tinge, anterior part of head dark blue with feeble greenish tinge, posterior part of head, pronotum, scutellum and prosternum dark blue, major parts of elytra reddish purple, humeral parts darker in colour, medial part of elytra with golden reflection, apical parts of femora with weak bluish tinge; head and pronotum rather strongly, feebly sericeously shining, elytra strongly metallicly shining, pro- and mesosterna gently, metallicly shining, metasternum moderately shining, abdomen alutaceously shining, antennae mat; each surface almost glabrous, antennae and ventral sides of tibiae finely haired. Body oblong-oval, strongly convex dorsad in posterior part.

M a l e. Head transversely subelliptical, depressed in anterior parts; clypeus transversely subhexagonal, rather closely covered with isodiametric microsculpture, irregularly scattered with microscopic punctures, bent downwards in front, fronto-clypeal border clearly sulcate in a wide U-shape; genae oblique and narrow, rather closely, irregularly punctate, the punctures smaller than those on clypeus, and often fused with one another, bordered from clypeus by fine sulci, but not defined from frons, convex laterad, with outer margins gently arcuate; frons somewhat boldly X-shaped, steeply inclined anteriad, longitudinally concave between eyes, covered with isodiametric microsculpture, rather closely punctate, the punctures almost of the same size on clypeus, diatone about 0.28 times the width of an eye diameter, with sulci along eyes, which become deeper posteriad, and finely ridged. Eyes large, transversely subelliptical, rather strongly convex laterad, rather obliquely, widely invading into head. Antennae rather long, reaching near the middle of elytra, strongly pectinate from fourth to terminal segments; first segment robust, subrectangular, about 2.5 times the length of second; second somewhat round, shortest and slightly wider than long; third rather triangular, about 1.5 times longer than second, with apical part of anterior side weakly angulate; fourth to tenth subequal in length, about three times the length of second, each with elongated ramus, rami being shortest in fourth, longest in sixth, terminal segment the longest in length, about nine times the length of second.

Pronotum widely quadrate, about twice as wide as long, widest slightly before the middle, four margins strongly bordered; apex feebly sinuous on each side; base weakly produced posteriad, slightly sinuous on each side; front angles subrectangular and feebly projected anteriad, hind angles obtusely angulate; lateral margins moderately produced; disc rather strongly convex, weakly covered with isodiametric microsculpture, irregularly scattered with minute punctures, which are slightly smaller than cephalic punctures. Scutellum sublinguiform, flattened and smooth, hardly punctate.

Elytra oblong-oval, widest at apical 3/8; dorsum moderately convex in basal 1/4, then obliquely depressed behind the basal convexity, and strongly convex again like a hump behind the depressions, highest at the middle; disc finely punctato-striate, the second and seventh striae connected with each other in apical part, third and sixth

shortened and connected with each other in apical part, fourth and fifth more noticeably shortened in posterior parts, the punctures in striae small but notching intervals, distant among them two to four times of their own diameter; intervals almost flat to very slightly convex, very weakly wrinkled, sparsely scattered with microscopic punctures; humeri swollen longitudinally; sides steeply inclined laterad; lateral margins strongly grooved.

Abdominal sternites medium-sized, minutely punctate, first to middle of fourth sternites covered with isodiametric microsculpture and fine longitudinal grooves, particularly so in lateral parts, middle of the fourth to fifth (anal) sternites smooth. Male genitalia slender, 2.0 mm in length and 0.3 mm in width, tapering apicad, weakly constricted between basal piece and lateral lobes, gently curved in lateral view; fused lateral lobes 0.6 mm in length, with a moderately pointed apex.

Legs rather stout; profemur with posterior margin widened beyond the middle, then narrowed apicad; meso- and metafemora with anterior margins widened beyond the middle, then narrowed apicad; posterior margin of metafemur haired in basal half; protibia short, with anterior margin haired in apical 3/5; mesotibia rather short, with posterior margin haired in apical 3/5; metatibia slenderer than two anterior tibiae, with posterior margin weakly gouged and haired in apical half; tarsi rather slender, with ventral sides haired; protarsi not bilobate but widened towards each apex, ratio of the length of each segment from base to apex: 0.21, 0.12, 0.14, 0.13, 0.68; meso- and metatarsi slenderer than protarsi, ratios of the lengths of each segment from base to apex: 0.18, 0.12, 0.13, 0.11, 0.64; 0.19, 0.13, 0.14, 0.65. Claws falciform.

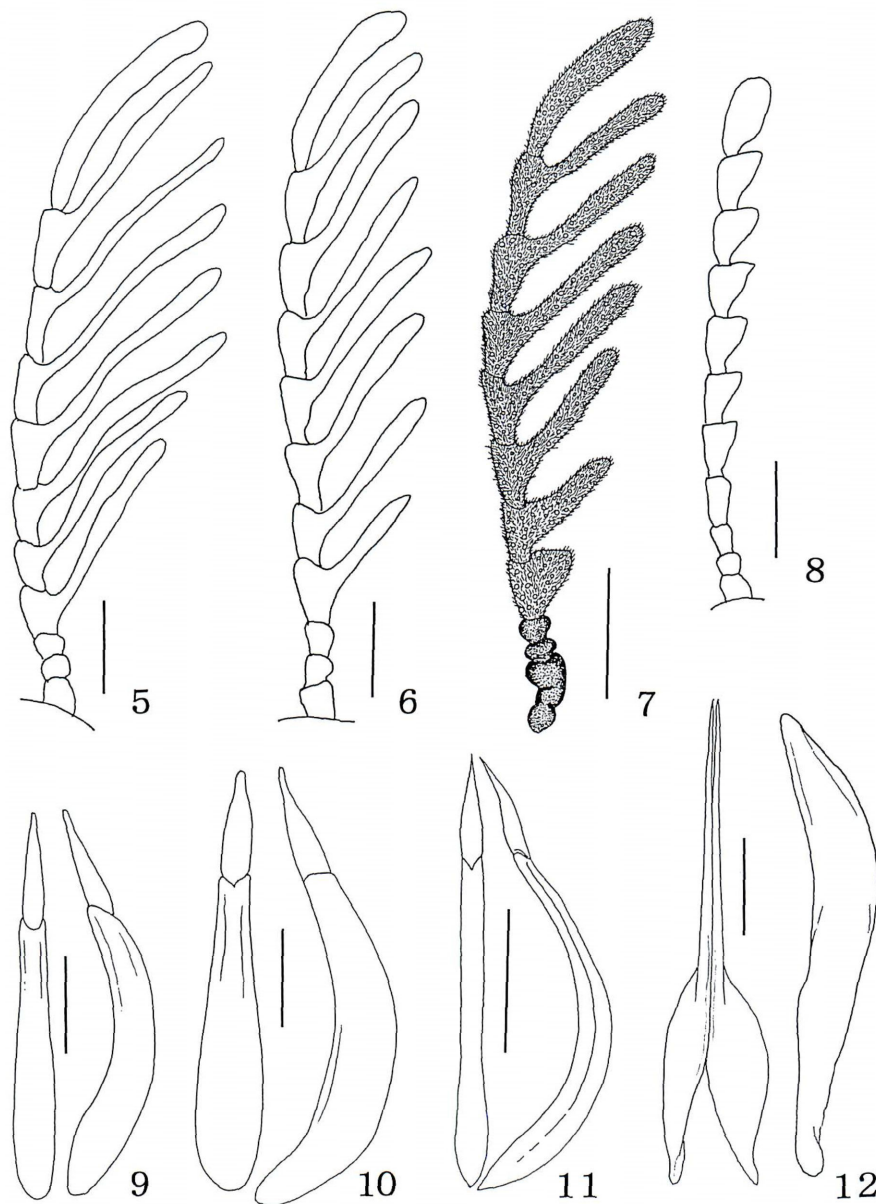
Female. Antennae not pectinate but serrate in fifth to tenth segments; eyes smaller, transversely subelliptical, not approximate to each other, with diatone about 1.3 times the width of an eye diameter; pronotum more clearly impressed near base on each side; metatibia not gouged in apical half of posterior margin. Ovipositor chitinous, somewhat hatchet-shaped.

Body length: 6.3 mm.

Holotype: ♂, "Mt. Turs Madi (1200 m), Sabah, Malaysia, 9-IV-1994, N. KANIE leg." (NSMT). Paratype: 1♀, 27-III-1993, same locality and collector as for the holotype (NKC).

Notes. ANDO (2003) noted that the male of the type species of this genus is similar to those of the genera *Augolesthus* and *Plamius* by having the strongly convex dorsum. He also noted that it is closely related to the genus *Pseudonautes*, by the construction of head and pro- and mesosterna. In the present study, the authors had the opportunity of examining a female specimen, and confirmed that the ovipositor is chitinous. This is one of the important evidences that this genus is closely related to the genus *Pseudonautes*.

The specific name is given after Dr. Melisanda BERUKOWITZ, Nagoya University, who is the wife of Mr. Noboru KANIE and usually called "Mela".



Figs. 5—12. — 5-8, Left antennae; 5, *Lycidioides sakaii* sp. nov., male; 6, *L. melae* sp. nov., male; 7, *L. kaniei* ANDO, male (del. ANDO); 8, *L. melae* sp. nov., female. — 9-11, Genitalia (left in dorsal view; right in lateral view); 9, *L. sakaii* sp. nov., male; 10, *L. melae* sp. nov., male; 11, *L. kaniei* ANDO, male (del. ANDO); 12, *L. melae* sp. nov., female (ovipositor, left in ventral view; right in lateral view). Scale 0.5 mm.

Key to the Species of the Genus *Lycidioides* in Males

- 1(2) Antennae with third segment devoid of ramus and simply triangular.
 Head with diatone about a half the width of an eye; elytra with sides not compressed; metatibia simple; head and pronotum metallic dark violet-blue, elytra metallic reddish purple. Body length: 4.7–4.8 mm. Mt. Trus Madi, Sabah, Borneo. (Figs. 3, 7 & 11). *L. kaniei* ANDO
- 2(1) Antennae with third segment not triangular but with ramus. 3
- 3(4) Head with diatone slightly narrower than eye diameter; elytra with sides compressed at basal 3/7; metatibia simple; dorsal parts mostly dark blue. Body length: 5.2 mm. Tawau, Sabah, Borneo. *L. sakaii* sp. nov.
- 4(3) Head with diatone about 0.28 times as wide as the diameter of an eye; elytra with sides not compressed; metatibia with posterior margin weakly gouged and haired in apical half; posterior part of head, pronotum and scutellum dark blue, major parts of elytra reddish purple. Body length: 6.3 mm. Mt. Turs Madi, Sabah, Borneo. *L. melae* sp. nov.

要 約

益本仁雄・秋田勝己：ボルネオ産 *Lycidioides* 属の2新種。—— ANDO (2003) は、ボルネオより触角が櫛状で特異な形状のゴミュシダマンに対し、*Lycidioides* 属をたて、*L. kaniei* を記載した。その後、筆者らは酒井香氏から同属の1種、蟹江昇氏から別の1種の提供を受け詳細に検討したところ、いずれも新種であることを突き止めたので、*Lycidioides sakaii* sp. nov. および *L. melae* sp. nov. と命名した。ANDO は、本属が *Augolesthus*, *Plamius* および *ルリスジキマワリモドキ* (*Pseudonantes*) 属に近縁であると指摘していた。今回、*L. melae* sp. nov. の雌個体も検することができたが、産卵管はキチン化し、形状は *ルリスジキマワリモドキ* 属のものに酷似していることから、本属と関係性が深いことが明らかになった。なお、3種の検索表も付記した。

Reference

- ANDO, K., 2003. A new tenebrionid genus from Borneo, with description of a new species (Coleoptera: Tenebrionidae). *Ent. Rev. Japan, Osaka*, **58**: 107–112.