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## A remarkable new species of the genus *Lycocerus* Gorham, 1889 from Laos and Vietnam (Coleoptera, Cantharidae)

by Yûichi Okushima & Michel Brancucci

**Abstract.** A new species of *Lycocerus* Gorham, 1889 is described from Laos and Vietnam: *L. michiakii* sp.nov. The most striking character is the strongly narrowed elytra. A new species group for the species is proposed here based on this and other characters. The habitus and the aedeagus are illustrated.

**Key words.** Coleoptera – Cantharidae – *Lycocerus* – taxonomy – new species – Laos – Vietnam

### Introduction

Thirty species of the genus *Lycocerus* Gorham, 1889 have hitherto been recorded from the mainland Southeast Asia (the former Indochina) by WITTMER (1995, 1997), KASANTSEV (1999) and ŠVIHLA (2004, 2005), including members of the former genus *Athemus* Lewis, 1895. The latter has been later considered as a junior synonym of *Lycocerus* (OKUSHIMA, 2005).

Recently, we had the opportunity to examine a pair of a strange cantharid species which was collected by Japanese entomologists in the north-eastern area of Laos. Besides this, one more female from the same locality was found in the collection of the Department of Entomology, National Museum, Praha, and another one female from Vietnam belonging to same species was found in the collection of the Naturhistorisches Museum Basel. Most of the morphological characters show that they undoubtedly have to be placed in the subfamily Cantharinae. However, their elytra are peculiar, each being shorter than usual, strongly tapered and very narrow on the apical half. No species with such an appearance is known within the subfamily Cantharinae. A careful examination of these specimens, including genital organs of both sexes, shows that this strange species belongs to the genus *Lycocerus*. It is described here under the new name of *Lycocerus michiakii* sp.nov.

In the structure of the female genitalia, this new species seems to be somewhat related to members of the *Lycocerus lineatipennis* group, suggested by OKUSHIMA (2005). But the morphology of the aedeagus contradicts this supposition, an interpretation which is supported by the exceptional morphology of the elytra. Therefore, we propose a new species group for this remarkable new species.

### Material and Methods

The holotype and allotype are deposited in the Kurashiki Museum of Natural History (KURA), the paratype in the Naturhistorisches Museum Basel (NHMB) and the Department of Entomology, National Museum, Prague (NMPC).

The methods used here follow OKUSHIMA (2005), but methylene blue solution was used for staining the female genitalia examined in this study.

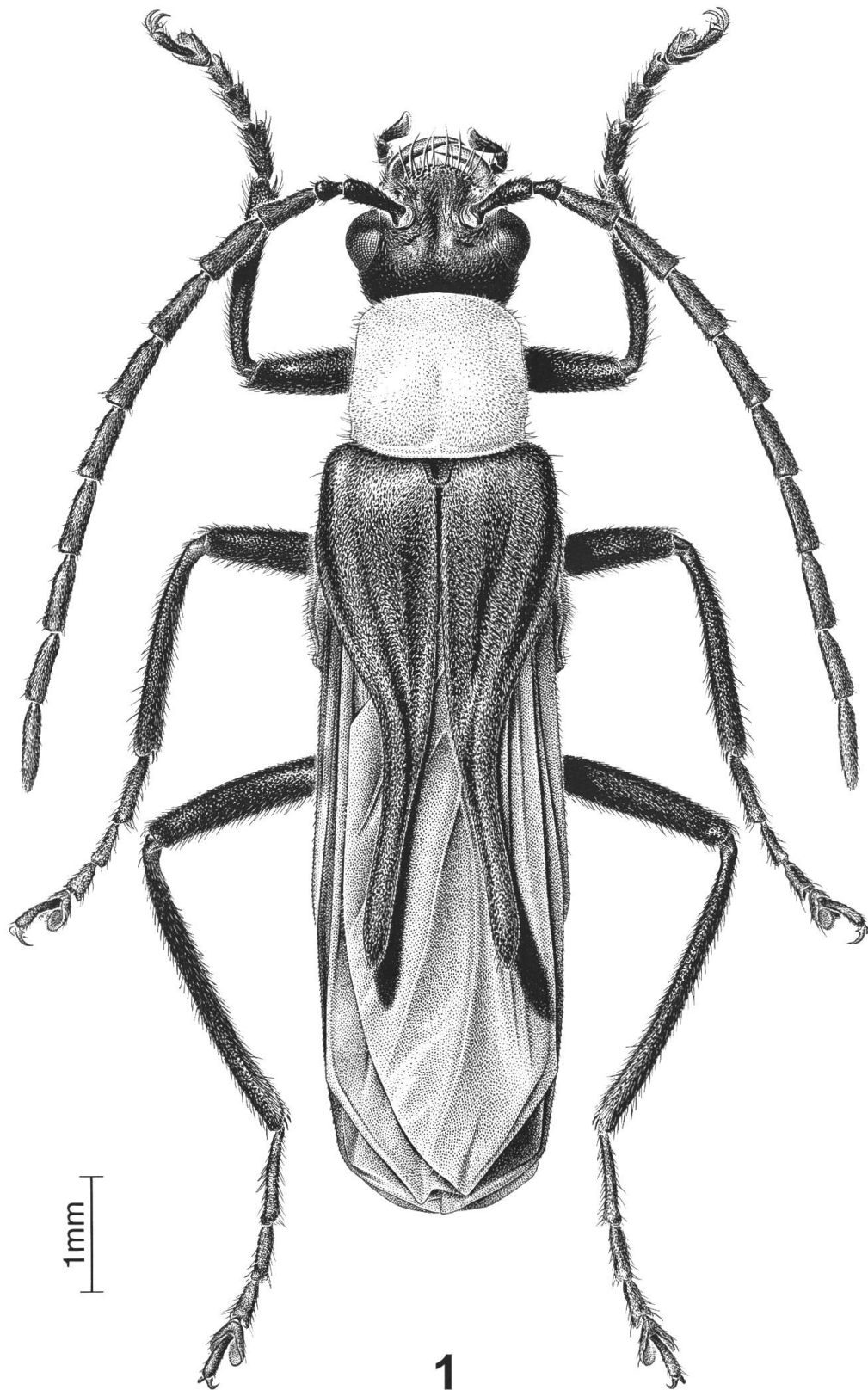


Fig. 1. *Lycocerus michiakii* sp.nov.: ♂ from Ban Saleui, NE Laos.

**Group of *Lycocerus michiakii***

**Diagnosis.** Body middle-sized and moderately elongate. Eyes moderately prominent. Apical segment of maxillary palpus broadened cultellate. Antennae filiform, provided with a groove on several middle segments in male. Pronotum subquadrate, and slightly dilated posteriorly. Each elytron reduced, very narrow and slender on the apical half. Outer claw of fore and middle legs in female with a digitiform tooth at the base, the other claws simple. Median lobe of male genitalia simple, without conspicuous process. Spermathecal duct short; spermatheca abruptly expanded at basal part and with one spiral tube.

This species-group is composed of the new species described here.

***Lycocerus michiakii* sp.nov.**

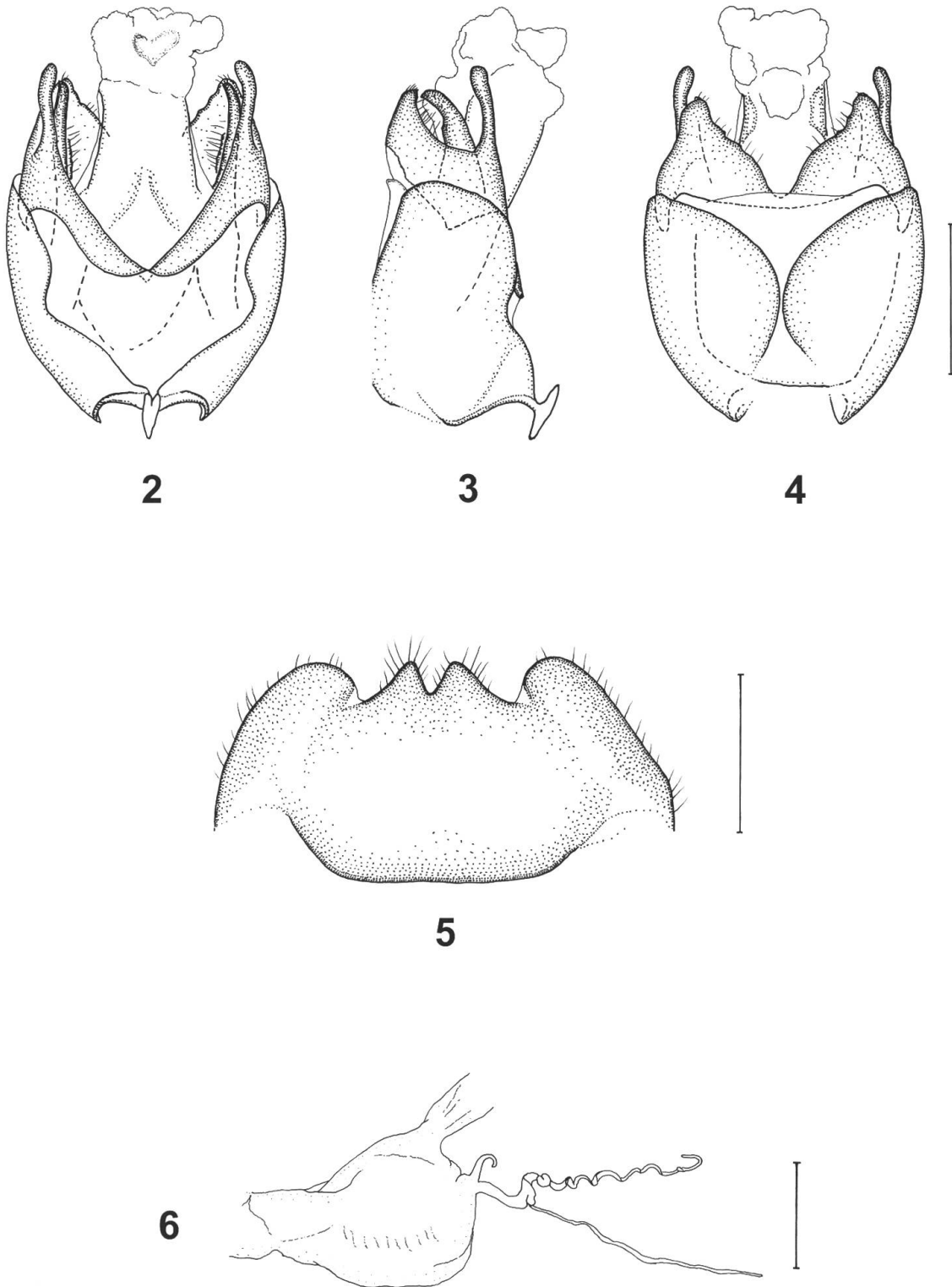
(Figs 1–6)

**Type material.** Holotype: ♂, near Ban Saleui, 1,365 m alt., N20°13', E103°59', Houaphan Prov., NE. Laos, 9–IV–2004, M. Hasegawa leg. (KURA). Allotype: ♀, Phu Pan (Mt.), Houaphan Prov., NE. Laos, 24–27–III–2005, no collector's name (KURA). Paratypes: ♀, Ban Salui - Phou Pane Mts., 1,340–1,870 m alt., N20°12'–13.5', E103°59.5'–104°01', Houaphan Prov., NE. Laos, 15–20–IV–2008, Lao collectors leg. (NMPC); ♀, "Annam-Vinh" / "1910", "Indo Chine" / "Coll. Dussault" (NHMB).

**Description.** Male. Body black with pronotum entirely orange; mandibles and claws dark reddish brown to black; surface of hind wings with a slight iridescence. Body densely covered with fine brownish pubescence; it is dark coloured on elytra, antennae and legs, and pale coloured on head, pronotum and ventral side of meso- and metathorax. Anterior margin of clypeus and hind corners of pronotum fringed with pale bristles. Each antennal segment with brown bristles mostly near apex.

Body moderately elongate. Head slightly shorter than broad; dorsum slightly concave between antennal sockets and depressed along anterior margin of clypeus as well as in lateral areas before eyes. Surface with faint lustre, somewhat rugose on anterior half and closely punctate with minute punctures on posterior half. Anterior margin of clypeus arcuate, the middle part somewhat indented. Eyes moderately large, globular; ratio of an eye diameter to interocular space 1:1.8. Labial palpus with semicircular apical segment. Maxillary palpus with broadened cultellate apical segment which is more slender than that of labial palpus. Antennae filiform, hardly reaching the apex of elytra; 1st segment clavate, 2nd short and strongly dilated apically, 3rd to 11th subcylindrical and somewhat depressed; 3rd to 10th somewhat dilated apically; 4th to 9th with a very short groove on the external side of apical one third. Relative lengths of antennal segments as follows: 25: 10: 24: 28: 29: 28: 28: 28: 29: 25.5: 33.

Pronotum subquadrate, slightly dilated posteriorly, 0.92 times as broad as head width, 0.93 times as long as broad. Anterior margin strongly arcuate; posterior margin weakly arcuate; lateral margins weakly sinuate; anterior angles rounded; posterior angles obtuse. Dorsum convex, particularly so on the postero-lateral areas, strongly depressed along the posterior margin; antero-lateral areas hollowed along the lateral sides. Medio-longitudinal groove clearly distinguishable only on posterior part. Surface smooth without lustre. Scutellum triangular with rounded apex.



**Figs 2–6.** *Lycocerus michiakii* sp. nov. Figs 2–4, male genitalia (2, ventral view; 3, lateral view; 4, dorsal view); 5, 8th abdominal sternite in female; 6, lateral view of female genitalia. (Scales: 0.5 mm.)

Elytra short, 1.43 times as broad as pronotum width, 2.02 times as long as both elytra measured together at their greatest width, slightly convex along outer margin around basal fifth, strongly tapered posteriorly and strongly narrowed apically; ratio of the width of apical fourth to widest part 1 : 4.8; tip narrowly rounded. Inner margins of elytra parallel on basal fourth, gradually diverging apically, dorsum of elytron with a costa along the inner margin; weakly visible at base, clearly visible on remainder of anterior part and disappearing in posterior half. Dorsum semi-matt, strongly convex along outer margin and on apical part, rugose along costa.

Legs, particularly the hind legs, slender. Femora mostly straight. Tibia weakly arcuate on basal part in all legs and on the apical portion of metatibia. Surface of femora and tibiae with slight lustre; all claws simple.

Aedeagus: Ventral process of each paramere slender and sinuate, broad at base and near the tip, with the apical part slightly curved inwards; inner margins of dorsal plate sinuate, outer margins roundly concave, with longitudinal carina on inner side, lateral parts narrowly rounded posteriorly; laterophysis tapered, slightly angulate at the middle of dorsal side, curved dorsad with its pointed tip towards the apex of dorsal plate. Median lobe without process. (Figs 2–4).

Total length: 8.8 mm (measured from the anterior margin of clypeus to the apices of hind wings in the naturally folded state as shown in Fig. 1); width: 2.25 mm (measured at the widest part of thorax).

Female. Body somewhat longer and wider than in male. Eyes not so large as in male, ratio of the diameter of an eye to interocular space 1: 1.95. Antennae a little shorter than in male, hardly reaching the middle of elytra and lacking groove on each segment. Pronotum 0.91–0.94 times as broad as head width, 0.89–0.97 times as long as broad. Elytra 1.40–1.41 times as broad as pronotum, 2.16–2.23 times as long as both elytra measured together at their greatest width; apical part of each elytron not so slender as in male, ratio of the width of apical quarter to widest part 1: 2.3–3.4. Outer claw of fore and middle legs with a digitiform tooth at base, the other claw simple. Eighth abdominal sternite deeply emarginated on both sides of posterior margin, forming large lateral lobes rounded apically and with a deeply emarginated median part (Fig. 5).

Female genitalia: Vagina moderately broad. Diverticulum and spermathecal duct arising from ventro-apical portion of vagina. Diverticulum very short and spiral in apical part; spermathecal duct short and somewhat stout; spermatheca stout at base, with a short and thin spiral tube which is clearly longer than four times the length of diverticulum; accessory gland moderately thin but slightly stout in the middle, of almost same length as the spermatheca in extended position (Fig. 6).

Total length: 9.0–9.1 mm; width: 2.20–2.30 mm.

Remarks: Apical segment of left antenna is missing in the holotype, joints 6 to 11 of right antenna are missing and left middle leg is a little dwarfed in the allotype.

**Distribution.** Laos (north-eastern area), Vietnam (northern area).

**Derivatio nominis.** The specific name is given in honour of Mr. Michiaki Hasegawa who collected this strange new species and who gave us important ecological information on this species.

**Differential diagnosis.** This new species can be easily distinguished from all other members of the genus *Lycocerus* hitherto known by the strange form of the elytra, which are very slender on the apical half. At the moment, it is difficult to assess the relationship of this species with other known species. The special morphology of the elytra has to be considered as an apomorphic character within the genus *Lycocerus*.

**Biology.** The holotype was collected on flowers of *Castanopsis* sp. in the morning according to its collector, Mr. M. Hasegawa. The type series were collected from late March to mid-April except for the paratype from Vietnam which is not precisely labelled. No material was collected in May and June from the same localities although many cantharid specimens were collected for the authors' museums. This new species seems to be in the adult stage only in early spring.

### Notes on brachelytry

In the subfamily Cantharinae, most species have complete elytra covering the hind wings and abdomen, and only a few species have reduced elytra, for example, *Lycocerus terricola* (Champion, 1926), *Themus* (*Haplothemus*) *kolibaci* Wittmer, 1997, *T. (H.) pakistanus* (Wittmer, 1960), *Podistra* (*Hemipodistra*) *rupicola* Kiesenwetter, 1863, *Rhagonycha* (*Rhagonycha*) *alagoesa* (Reitter, 1893), etc. However, in the latter, the hind wings are also reduced leaving the posterior part of the abdomen visible in dorsal view. Therefore, the new species, which has complete hind wings, does not seem to be related to the above cited species.

In other cantharid subfamilies, such as Malthininae or Chauliognathinae, on the other hand, the elytra are often reduced and hind wings visible in dorsal view. In these groups, *Malthesis hickeri* Pic, 1926, and some related species have a similar appearance, that is reduced elytra and complete hind wings. Similarities are also known in some members of families Oedemeridae (mainly *Oedemera* spp.) and Cerambycidae (Lepturinae and Cerambycinae), although these groups are not at all related systematically to Cantharidae.

One of the authors, Okushima, observed in northern Vietnam that many individuals of *Merionoeda* Pascoe, 1858 species (Cerambycidae: Cerambycinae), with reduced elytra as in *Lycocerus michiakii* sp.nov., were found on flowers of *Castanopsis* sp. and were flying around the flowers very slowly. We suppose that these characteristic elytra are to be considered as a convergent development in different families, due to an adaptation to moving short distances from flowers to flowers.

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