Entomologica Basiliensia et Collectionis Frey	34	129–135	2013	ISSN 1661–8041

A revision of the genus *Laccosternus* Brancucci, 1983 (Coleoptera, Dytiscidae)

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Abstract. The genus *Laccosternus* was described for a species from Sumatra, *L. grouvellei* (Régimbart). In the course of our recent investigation in Laos, a new species was found in the province of Savannakhet. It is described here as *Laccosternus krausi* sp.nov. It is here compared to the single previously known species and its status within the genus is discussed. The most important characters are illustrated and the habitat thoroughly described. The known distribution and ecology of the two species are briefly outlined. Several characters that are generally used and accepted as reliable for phylogenetic analysis are discussed.

Key words. Coleoptera – Dytiscidae – *Laccosternus* – Laos – systematics – new species

Introduction

The dytiscid genus *Laccosternus* Brancucci, 1983, arose out of a revision of the genus *Laccophilus* (Brancucci 1983a) for one species that did not fit into the latter genus, *Laccophilus grouvellei* Régimbart, 1895. Unfortunately the type specimen from Sumatra is a female and the single other specimen at our disposal was also a female from Vietnam. Since that time Toledo *et al.* (2002) have mentioned one further specimen from western Malaysia, a third female.

During our expedition to Laos in 2011 we found several specimens in a small forest pond in Savannakhet. After thorough study, the few specimens we had at our disposal, males and females, proved to belong to a species new to science, which is here described as *L. krausi* sp.nov.

Material

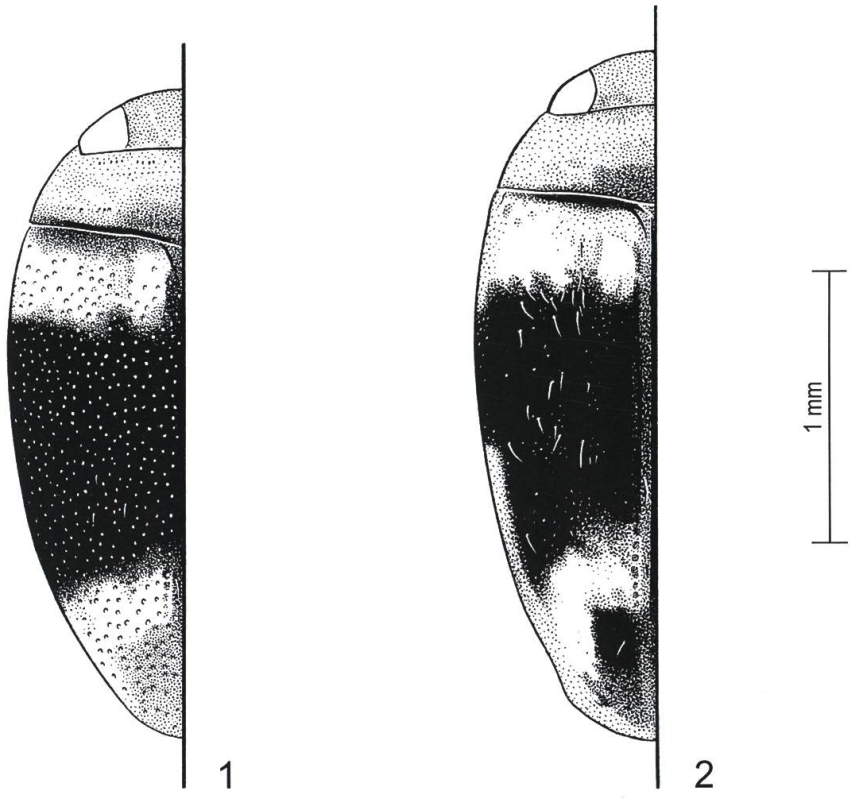
CLH ..... Dr. Lars Hendrich Collection, Berlin, Germany
HMNH ..... Hungarian Natural History Museum, Budapest
MHNP ..... Muséum d'Histoire Naturelle, Paris
NHMB ..... Naturhistorisches Museum Basel, Basel, Switzerland
NMW ..... Naturhistorisches Museum Wien, Vienna, Austria

Taxonomy

Laccosternus Brancucci, 1983

Laccosternus Brancucci, 1983, Aquatic Insects 5(4): 251 (**type species:** *Laccophilus grouvellei* Régimbart, 1899).

Remarks and Diagnosis. The description given for the genus (Brancucci 1983b) remains, even after this discovery, up to date and even though some males are now known, no substantial further characters have to be added to the original description. If



Figs 1–2. 1 – *Laccosternus grouvellei* (Régimbart), habitus. 2 – *L. krausi* sp.nov., habitus.

males of the type species are discovered, any peculiar characters may be added, for instance the form of the aedeagus (See also "Discussion" below).

Laccosternus was defined as having metatibial spurs simple, prosternal process short and broad, cordiform, rounded posteriorly and bordered laterally, metacoxal processes rounded posteriorly and incised at centre. However, whereas the pro- and mesofemora of *Laccophilus* species have a few long, strong setae at the proximal part of posterior margin, both *Laccosternus* species have a row of very long but much less strong setae in the middle of the posterior margin, as well as a row of fine setae on the ventral surface of the femora along mid-width. Further, the protarsal claws are in both species, male and female, extremely long, distinctly more so than the fifth joints, whereas in *Laccophilus*, the claws are always smaller than the last tarsal joint.

The elongate-oval form of the body is also confirmed with the discovery of the new species. However, the elytral punctation in *L. krausi* sp.nov. is quite superficial, the punctures much less impressed and dense, but nonetheless reminiscent of those observed in *L. grouvellei* (Régimbart). No such sculpture has been observed in species of the genus *Laccophilus*.

Laccosternus grouvellei (Regimbart, 1895) Figs 1, 3, 5, 6, 7

Laccophilus grouvellei Regimbart, 1895, Ann. Soc. Ent. Fr. 64: 344. *Laccophilus grouvellei*, 1899, Régimbart, Ann. Soc. Ent. Fr. 68: 263. Zimmermann, 1920, Coleopterorum Catalogus. 71: 19. Zimmermann, 1920, Suppl. Ent 16: 15.

Laccosternus grouvellei (Régimbart), Brancucci, 1983, Aquatic Insects 5(4): 252 (n.comb). Toledo *et al.*, 2002, Linzer biol. Beitr. 35(1): 194.

Material examined. Holotype ♀ (MHNP): Sumatra, Tabacs, A. Grouvelle, Muséum Paris, Maurice Régimbart, 1908.
Other material: Vietnam, Tuong linh, near Phy ly, 24–28.V. 1966, Gy. Topál, Nr. 565, collected by lamp (1 ♀, HMNH). Malaysia, W. Perak, Korbu mt, Banjaran Titi Wangsa mts, 25 km NE of Ipoh, 1200 m, 1.–15.IV.2000, P. Čechovský leg. (1 ♀, NMW).

Remarks. After comparison of the three specimens cited below, we were unable to disclose any differences, so we assume that all three ♀ belongs to the same species. This means that *L. grouvellei* (Régimbart) is widely distributed, but must occur in very special habitats.

Lacconectus krausi sp.nov. Figs 2, 4, 8, 9, 10

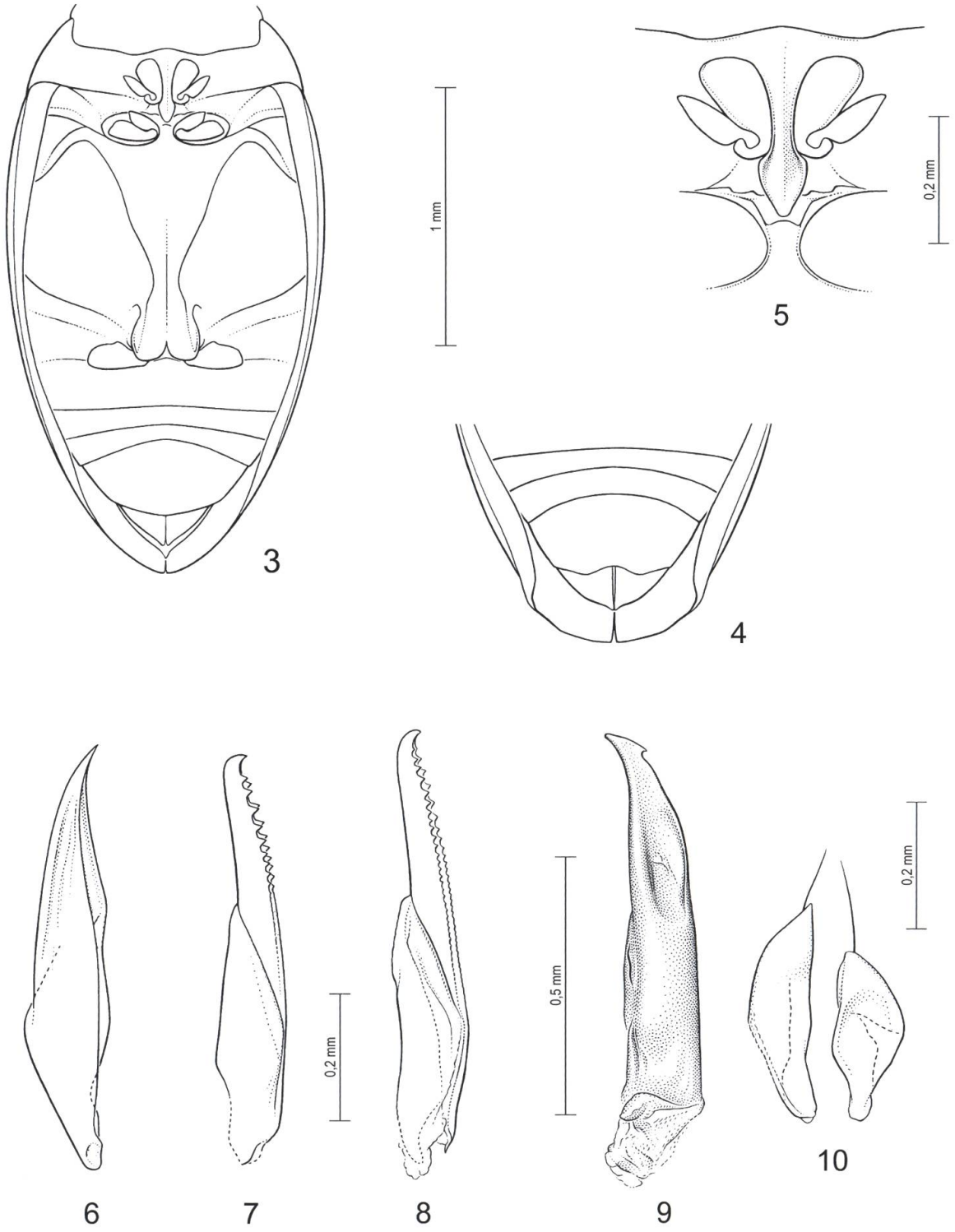
Type material. Holotypes ♂ Savannakhet Prov., Phou Xang He NBCA, ca. 5 km SW Ban Pa Phaknau, 250–400 m, 17°00′ N / 105°38′ E, 31. V.–6. VI. 2011; NHMB Laos Expedition 2011, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan. 3 paratypes (1 ♂ and 1 ♀, NHMB; 1 ♀, CLH): same locality as holotype.

Description. Elongate-oval, extended apically, distinctly convex. Head and pronotum testaceous; pronotum broadly brown at middle of base. Elytra brownish-black with two transverse testaceous bands and lateral spots (Fig. 1).

Head testaceous, with superficial surface sculpture composed of small, rounded meshes. Frons (alongside the eyes) and clypeal grooves with a series of medium-sized punctures. There are a few small punctures on the disc. Antennae testaceous, slender, first joint short, the second broad and long, joints 3–11 thin, strongly cylindrical and of constant width, not distinctly shouldered.

Pronotum testaceous, distinctly and broadly brown at middle of base. Surface sculpture composed of small, well-marked, rounded meshes and with some large, sparse punctures particularly numerous medially. Anterior margin with two parallel rows of large punctures, one alongside anterior margin, the other behind it, broadly interrupted midway. Posterior border with a sub-basal row of large punctures, which is widely interrupted midway.

Elytra with testaceous bands both basal and oblique subapical, with lateral postmedian spots. Epipleura testaceous to brown. Surface very superficially wrinkled. Background sculpture consisting of small, rounded meshes and small, sparse punctures. Sutural row of punctures with only a few large punctures along entire length. Disc and discal rows with large, sparse and irregularly distributed punctures; the punctures are superficial and often interfere with the light wrinkles. Apex with several larger punctures



Figs 3–10. *Laccosternus grouvellei* (Régimbart): 3 – underside; 5 – metasternal process; 6. valvula; 7 – ovipositor. *L. krausi* sp.nov.: 4 – last abdominal segment and elytra, ventrally; 8 – ovipositor; 9 – median lobe; 10 – parameres.

Underside testaceous-brown. Whole surface microstriolate. Prosternal process short and broad, 1.3 times as long as broad, bluntly carinate along centre part, strongly bordered laterally, also along basal part, narrowly rounded at the rear. Metasternal wings long and narrow. Metaxocal lines distinct for their entire length. Sternites III–V with small, sparse and irregularly-distributed punctures, particularly at their mid-length. Protarsal claws elongate. Profemora with a row of long, strong setae (4–5 setae) along posterior border. Metatibial spurs apically acuminated. Metacoxal processes incised in the middle of their posterior margin.

Measurements: Holotype: TL: 2.5 mm; TL-h: 2.1, TW = 1.35 mm. Paratypes: TL: 2.5–2.55 (2.52, n = 3), TL-h: 2.1 (2.1 mm, n= 3), TW: 1.3–1.4 (1.35 mm, n= 3).

♂. Elytra elongate, not truncate at the rear, merely somewhat "stretched" apically. Anal sternite tectiform, rather long, more than three times as long as the fifth, covered with large and irregularly-distributed punctures. Posterior margin straight, not bordered and indented midway. Metasternal claws very unequal, the inner slender, the outer broadened, with a row of tiny but distinctly visible teeth along outer edge and obliquely cut apically. Median lobe elongate, flattened (Fig. 9), parameres (Fig. 10).

♀. Elytra ventrally distinctly emarginated towards the rear then strongly truncate at apex (Fig. 4). Anal sternite tectiform, quite long, more than three times as long as fifth, covered with large and irregularly-distributed punctures. Ovipositor serrated ventrally (Fig. 8).

Etymology. Dedicated to our friend Zdeněk Kraus (Mikulovice u Znojma) who helped us collect numerous Dytiscidae in Laos.

Differential diagnosis. This species is closely related to *L. grouvellei* Régimbart but may easily be distinguished by elytra truncate at the rear (in females) and by ovipositor serrate ventrally; the teeth are much smaller and much more numerous in the new species.

Collecting circumstances. A species was observed and collected in a small forest pond. Although we collected actively in waters nearby, these specimens were taken in just one place, probably the richest habitat in the whole region: a water-hole in a depression in the ground probably filled by water during heavy rain. During the rainy season and after heavy rain, the water hole joins a forest streamlet for a while. The hole is about 60 cm in diameter and 30–40 cm deep. The substrate is composed of gravel with some detritus on it. We found several species there, among them three *Lacconectus* species (*L. punctatus* Brancucci, *L. schillhammeri* Brancucci and a species at the time undescribed). We also took at least one *Copelatus* species, *Platynectes major* Nilsson, as well as *Laccophilus wittmeri* Brancucci, *L. parvulus obtusus* Sharp and *L. smithi* Brancucci.

Key to species

Elytral punctation strong and distinctly impressed on a superficially microreticulated, but not wrinkled, background. Apex of elytra in female not truncate. Smaller species (2.35–2.40 mm). Sumatra, most probably also Malay Peninsula and Vietnam. ..... ***Laccosternus grouvellei* (Régimbart)**

– Elytra punctation weak, punctures superficial and very sparse on a distinctly microreticulated, somewhat wrinkled background. Apex of elytra in female distinctly truncate. Larger species (2.52–2.57). Laos. ..... ***Laccosternus krausi* sp.nov.**

Discussion

RÉGIMBART (1895) described *Laccophilus grouvellei* Régimbart and did not realise that this very small species does not belong to the genus *Laccophilus*. Therefore, BRANCUCCI (1983b) proposed a new genus for that species collected in Sumatra. Since that time another specimen, a female from Vietnam (BRANCUCCI 1983b) and a female from Malaysia (TOLEDO *et al.* 2002), have been attributed to the same species. If the above considerations are correct, this would mean that *L. grouvellei* (Régimbart) may be a widespread species but very rare, even if the specimen from Vietnam was apparently collected at light. Then another species was discovered in Laos, both males and females. The species may have strict habitat requirements that preclude its frequent collection. One character, the strongly modified metatarsal claws, seems to correspond to a particular adaptation to that habitat. In the same water-hole in Laos we found at least one more new species and several very rarely collected species, such as *Laccophilus smithi* Brancucci.

As provided, the description of the genus *Laccosternus* Brancucci as given in BRANCUCCI (1983b) appears to remain unchanged for the moment, except for the row of long, fine setae midway along the posterior margin of the pro- and mesofemora. The modified metatarsal claws may become a generic character as soon as males of maore species are discovered. The simple metatibial spurs seem to characterise all species and was correctly interpreted in the description. The same applies to the prosternal process.

Acknowledgements

We should like to thank our colleagues and friends Dr. Manfred Jäch (Vienna), Dr. Gyözö Szel (Budapest), Antoine Mantilleri (Paris) and Dr. Lars Hendrich (Münich) for the loan of specimens. Our thanks also go to Armin Coray for the excellent illustrations.

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