

Lisubatrus dongzhiweii gen. et sp. nov.
from the Gaoligong Mountains, China
(Coleoptera: Staphylinidae: Pselaphinae)

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Abstract. A new genus and species of the subfamily Pselaphinae, *Lisubatrus dongzhiweii* gen. et sp. nov., is described from the Gaoligong Mountains, southwestern China. *Lisubatrus* is assigned to the tribe Batrisini, subtribe Batrisina, and placed in a group of genera related to *Dendrolasiophilus* Nomura, 2010. Members of this group share the characteristic cephalic setose tufts, and have the aedeagus with a large basal capsule, and a well-developed dorsal lobe. Important diagnostic features of *Lisubatrus* are illustrated, and an identification key to distinguish *Lisubatrus* from the allied genera is given.

Key words. Ant-loving beetles, Batrisitae, Batrisini, taxonomy, new taxa, Asia

Introduction

The tribe Batrisini are a diverse group of ant-loving beetles (Pselaphinae), comprising more than 210 genera mainly distributed in the tropical and subtropical regions around the world (absent in New Zealand) (CHANDLER & NEWTON 1989, CHANDLER 2001, LÖBL & KURBATOV 2001, and subsequently published papers). A rich obligate or facultative myrmecophilous taxa are included in this tribe, e.g., all species of the Palearctic genus *Batrisus* Aubé, 1833, and many species of the largely Holarctic genus *Batrisodes* Reitter, 1882. Almost 100 species placed in 31 genera of the Batrisini have been described from China so far (SCHÜLKE & SMETANA 2015), among them are a handful of genera harboring inquilines associated with different groups of ants. Based on their similar stout body form, aedeagal structures, and unique presence of tufts of setae on the posterolateral margins of the head, the genera *Dendrolasiophilus* Nomura, 2010, *Songi* Yin & Li, 2010, and *Tangius* Yin & Li, 2010 may form a small myrmecophilous lineage (here termed ‘*Dendrolasiophilus* group of genera’) hosted by ants of the genus *Lasius* Fabricius, 1804 (NOMURA 2008, 2010; YIN et al. 2010, 2012; YIN & LI 2013a).

Recently, a single batrisine specimen was sent to me for identification by Mr. Zhi-Wei Dong of the Kunming Institute of Zoology, CAS. The specimen was collected by a Malaise trap set in an ever-green forest in western Yunnan near the border with Myanmar. Examination of the specimen revealed a new genus and species of Batrisini. This new taxon also displays cephalic tufts of setae, and is believed to be closely related to the *Dendrolasiophilus* group of genera.

Material and methods

The type material is to be deposited in the Insect Collection of the Shanghai Normal University, Shanghai, China (SNUC). Aedeagus and terminal abdominal segments were dissected and preserved in Euparal mounting medium on a plastic slide that was placed on the same pin with the specimen. For protection of the specimen, I refrained from disarticulating the single male, therefore the foveal pattern on the ventrites and abdomen cannot be clearly observed. The collecting data of the material are quoted verbatim; information not included on the label is placed in parentheses.

Habitus images were taken using a Canon 5D Mark III camera in conjunction with a Canon MP-E 65mm f/2.8 1–5× Macro Lens, and a Canon MT-24EX Macro Twin Lite Flash was used as light source. Images of the morphological details were made using a Canon G9 camera mounted on an Olympus CX31 microscope. Zerene Stacker version 1.04 was used for image stacking. All images were edited and grouped in Adobe Photoshop CS5 Extended.

Taxonomy

Lisubatrus gen. nov.

(Figs 1–3)

Type species. *Lisubatrus dongzhiweii* sp. nov., here designated.

Diagnosis. Head rectangular; lacking frontal rostrum; with punctiform vertexal foveae; posterolateral margins of head with row of dense setae; ocular-mandibular carinae distinct; antennomeres elongate, antennal club formed by apical three antennomeres. Pronotum slightly elongate, lacking foveae, with one pair of antebasal spines. Elytra lacking basal foveae and discal striae, strongly constricted at base and apex. Abdomen with thick triangular discal carinae on tergite IV (first visible tergite), lacking marginal carinae; tergite IV longest, much longer than tergites V–VIII combined.

Description. Body (Fig. 1) elongate, strongly constricted between pronotum and elytra, and between elytra and abdomen. Body length less than 2 mm. Head (Figs 2B–C) rectangular; lacking frontal rostrum, antennal tubercles indistinct; vertexal foveae small and punctiform, lacking sulcus connecting foveae; posterolateral margins of head with row of gold, thick setae; antennae (Fig. 2A) with 11 antennomeres, clubs formed by apical three antennomeres, antennomeres XI largest, elongate and conical; ocular-mandibular carinae distinct; eyes nearly oval; maxillary palpi with short and triangular palpomeres III, palpomeres IV fusiform, widest at middle; gular region with single fovea just anterior of occipital constriction. Pronotum (Figs 2B–C) slightly elongate, rounded at lateral margins, constricted and parallel-sided at basal



Fig. 1. Habitus of *Lisubatrus dongzhiweii* gen. & sp. nov., male in dorsal (A) and dorsolateral (B) views. Scale bars: 0.5 mm.

fourth, lacking any foveae or carinae, antebasal spines present, antebasal sulcus distinct at sides, faint in middle; disc slightly convex; lacking paranotal carinae; prosternum with small procoxal foveae. Elytra (Fig. 2D) constricted at base and at apex; lacking basal foveae, lacking discal striae, with complete sutural striae; lacking marginal striae; weak humeri present. Posterior margin of metaventrite (Fig. 2E) with small split. Abdomen (Fig. 2F) constricted at base; tergite V largest, much longer than remaining tergites combined, lacking lateral carinae,

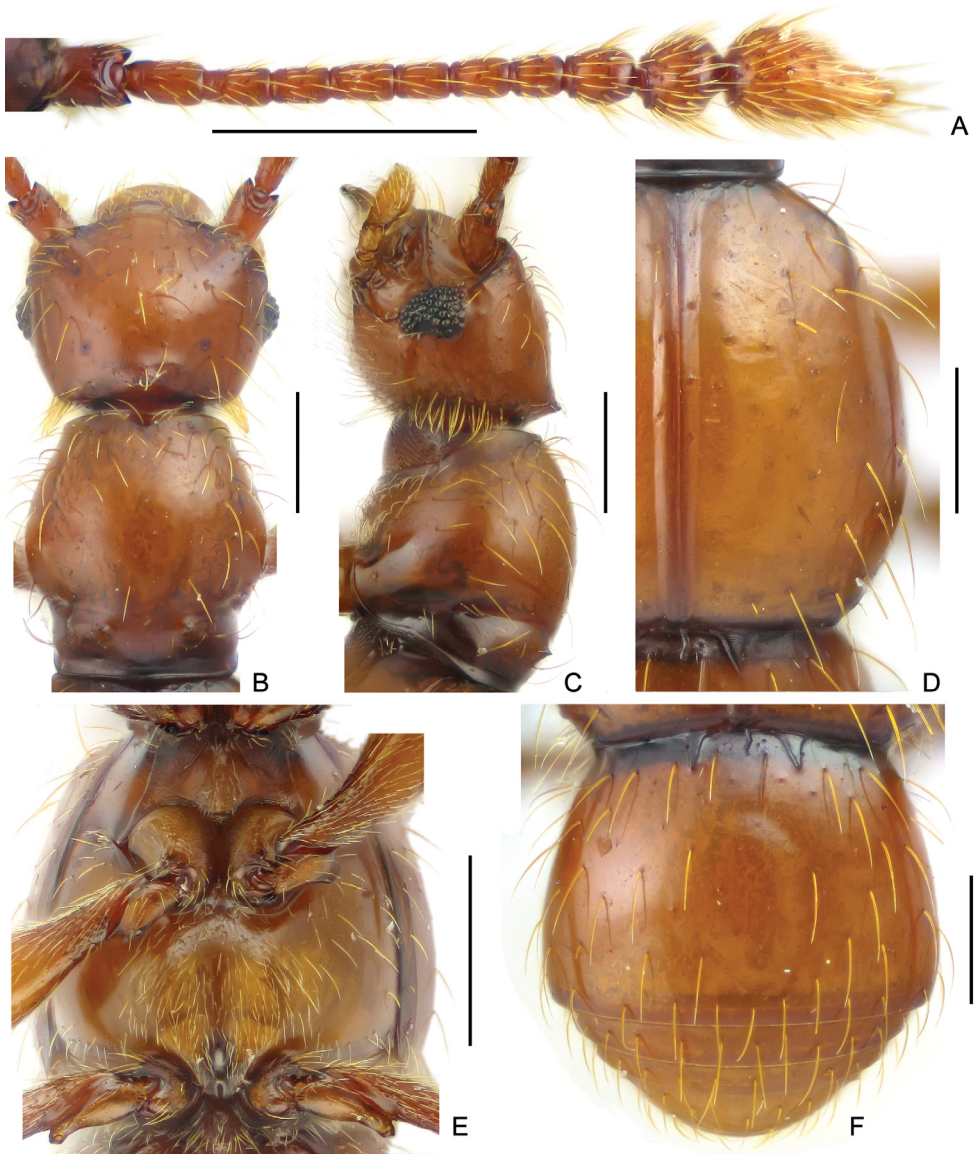


Fig. 2. Morphological details of *Lisubatrus dongzhiweii* gen. & sp. nov., male. A – left antenna. B–C – head and pronotum, in dorsal (B), and lateral (C) views. D – right elytron. E – meso- and metaventrite. F – abdomen in dorsal view, showing tergites IV–VII. Scale bars: 0.3 mm in A, F; 0.2 mm in B–E.

with thick, triangular discal carinae; tergites V–VI short, subequal in length, VII as long as V and VI combined. Legs with tarsomeres II slightly longer than tarsomeres III. Males with head, and meso- and metatrochanters modified. Aedeagus (Figs 3C–E) with parameres fused with median lobe to form elongate ventral lobe.

Relationships. The new genus is placed in the group of genera related to *Dendrolasiophilus* (Fig. 4A), which also includes the genera *Songius* (Fig. 4B) and *Tangius* (Fig. 4C). These taxa form a small myrmecophilous lineage within the Asian Batrisitae, sharing a usually glabrous body, presence of a setose tuft at the basolateral margins of the head, and aedeagus with a large basal capsule, and a well-developed dorsal lobe. *Lisubatrus* can be readily separated from these genera by the elongate antennomeres, a sub-cylindrical pronotum rounded at the lateral margins, elytra strongly constricted apically, and predominantly enlarged abdominal tergite IV. The genera *Maajappia* Nomura, 2010 (Fig. 4D) from Japan, and *Myrmicophila* Yin & Li, 2011 from China may also belong to this group based on the general body form and aedeagal structures, but both these genera lack the cephalic setose tufts (NOMURA 2008, 2010; YIN et al. 2011). *Maajappia* have a distinct U-shaped sulcus connecting vertexal foveae, and were collected from leaf litter samples, whereas *Myrmicophila* have modified antennomeres V in the male, and are hosted by *Myrmica* ants. The key given below serves to a quick separation of *Lisubatrus* from all these likely allied genera.

Etymology. The new generic name is derived from ‘*Lisu*’, the name of the local minority ethnic group, and combined with ‘*batrus*’, an arbitrary abbreviation of *Batrisus*. The gender is masculine.

Key to *Lisubatrus* gen. nov. and allied genera

- 1 Head lacking row/tuft of setae at the posterolateral margins. 2
- Head with row/tuft of setae at the posterolateral margins. 3
- 2 Vertex with distinct U-shaped sulcus connecting foveae, and longitudinal median carina; antennomere V simple in males; elytra lacking fovea.
..... *Maajappia* Nomura, 2010 (Fig. 4D; 1 sp. from Japan)
- Vertex lacking U-shaped sulcus as well as longitudinal median carina; antennomere V modified in males; each elytron with three large basal foveae.
..... *Myrmicophila* Yin & Li, 2011 (Fig. 4E; 1 sp. from China)
- 3 Antennomeres elongate (except for antennomeres X); distinct antennal club formed by apical three antennomeres; elytra lacking basal fovea; pronotum with pair of antebasal spines. *Lisubatrus* gen. nov. (Fig. 1; 1 sp. from China)
- Antennomeres moniliform; antennal club indistinct; each elytron with one to three basal foveae; pronotum lacking antebasal spines/tubercles. 4
- 4 Head strongly transverse; each elytron with one basal fovea.
..... *Dendrolasiophilus* Nomura, 2010 (Fig. 4A; 4 spp. from China and Japan)
- Head as long as to slightly longer than wide; each elytron with three basal foveae. 5
- 5 Pronotum trapezoidal, widest near base; elytra lacking discal striae; area between elytra and abdomen not constricted; tergite IV much shorter than tergites V–VII combined.
..... *Songius* Yin & Li, 2010 (Fig. 4B; 4 spp. from China)

- Pronotum about as long as wide, widest at middle, with round lateral margins; elytra with short discal striae; area between elytra and abdomen constricted; tergite IV longer than tergites V–VII combined.
 *Tangius* Yin & Li, 2012 (Fig. 4C; 2 spp. from China and India)

Lisubatrus dongzhiweii sp. nov.

(Figs 1–3)

Type locality. Qinlangdan, Dulongjiang Village, Nujiang Lisu Autonomous Prefecture, Yunnan, China.

Type material. HOLOTYPE: ♂, CHINA, YUNNAN, Nujiang Lisu Autonomous Prefecture (怒江傈僳族自治州), Dulongjiang Village (独龙江乡), Qinlangdan (钦兰当, ca. 27°41'N, 98°16'E), 1200–1400 m, Malaise trap, vi.2016, Zhi-Wei Dong leg. (SNUC).

Diagnosis. Same as the genus, with the following additions: vertex with an acute spine in middle; antennomeres II–VII distinctly elongate, VIII shorter than VII, IX–XI much wider than previous ones; mesotrochanter with a blunt ventral projection; metatrochanter with a long, apically curved projection; aedeagus with dorsal lobe bifurcate at the apex.

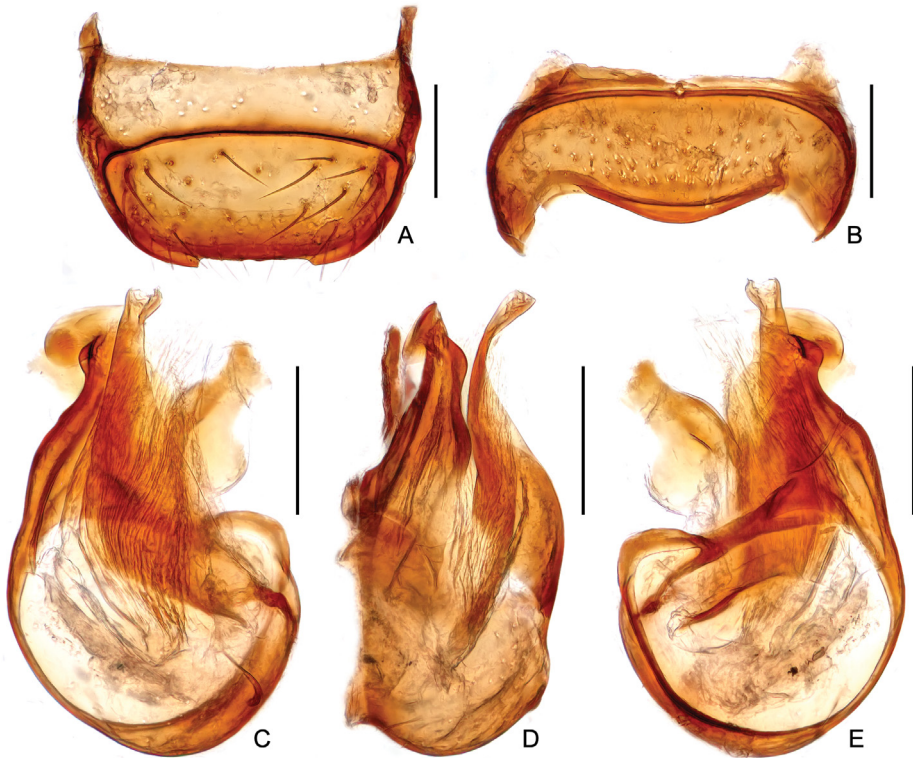


Fig. 3. Morphological details of *Lisubatrus dongzhiweii* gen. & sp. nov., male. A – tergite VIII. B – sternite VIII. C–E – aedeagus, in dorsal (C), lateral (D), and ventral (E) views. Scale bars: 0.2 mm.

Description. Male (Fig. 1). Length 1.91 mm. Body uniformly reddish-brown, mouth parts, tibiae and tarsi lighter in color.

Head (Figs 2B–C) sub-rectangular, slightly wider than long, length from clypeal anterior margin to head base 0.33 mm, width across eyes 0.44 mm, glabrous, dorsum sparsely with



Fig. 4. Representatives of the *Dendrolasiophilus* group of genera. A – *Dendrolasiophilus wenhsini* Yin & Li, 2013, female. B – *Songius hlavaci* Zhao, Yin & Li, 2010, male. C – *Tangius indicus* Yin & Li, 2013, male. D – *Maajappia omotonis* Nomura, 2010, male. E – *Myrmicophila tangliangi* Yin & Li, 2011, male (Figs 4A–C reproduced from YIN & LI 2013a,b, 2015, respectively). Scale bars: 0.5 mm.

long setae; vertex with small, punctiform foveae at level of posterior margin of eyes, lacking sulcus connecting foveae, and lacking lateral carinae, posterolateral margins with row of dense setae; antennae (Fig. 2A) long and slender, distinct clubs formed by apical three antennomeres, antennomeres I–VIII strongly elongate, IX–XI enlarged. Pronotum (Figs 2B–C) about as long as wide, widest at middle, length along midline 0.43 mm, maximum width 0.41 mm; disc glabrous, setation similar to that of head; pronotum lacking foveae, with pair of small, acute antebasal spines. Elytra (Fig. 2D) slightly wider than long, strongly constricted at base and at apex; length along suture 0.64 mm, maximum width 0.68 mm; lacking basal foveae and discal striae, with shallow but complete sutural striae, lacking marginal fovea and striae, humeri slightly angulate. Mesoventrite (Fig. 2E) with pair of distinct lateral carinae. Metaventrite (Fig. 2E) more densely setose in middle than at lateral portions; posterior margin with small notch in middle. Mesotrochanters with broad and blunt projection on ventral margin (Fig. 2E); metatrochanters with long, apically curved ventral projection. Tergite IV (Fig. 2F) predominantly large, much longer than tergites V–VII combined; with pair of thick, triangular discal carinae, lacking marginal carinae and distinct basal impression, tergites V and VI subequal in length at middle, VII longer than V and VI combined, VIII (Fig. 3A) transverse, with broad emargination at middle of posterior margin. Sternite IV longer than V–VIII combined, with broad and flat basolateral ridges, sternites V–VII subequal in length in midline, sternite VIII (Fig. 3B) strongly transverse, and with rounded posterior margin. Length of aedeagus (Figs 3C–E) 0.32 mm; aedeagal median lobe with large, transverse basal bulb and foramen, and round and bent apex; with flat and weakly sclerotized ventral membrane; dorsal lobe broad at base and narrowed apically, bifurcate at apex.

Female. Unknown.

Biology. The single specimen was collected by a Malaise trap, so the exact habitat of this species is unknown at the moment. However, as inferred from the presence of cephalic setose tufts at the posterolateral margins of the head and glabrous body, which are typical character states shared by a number of allied genera that exclusively include myrmecophilous species, *Lisubatrus dongzhiwei* is likely an inquiline of ants as well.

Distribution. This species is currently known only from the type locality in Yunnan, southwestern China.

Etymology. The new species is dedicated to Zhi-Wei Dong, who collected the holotype.

Acknowledgements

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