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Author: Yin, Zi-Wei

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A New Species of the Rare Myrmecophilous Genus *Myrmicophila* Yin and Li from Xizang, China (Coleoptera: Staphylinidae: Pselaphinae)

Zi-Wei Yin
College of Life Sciences, Shanghai Normal University
100 Guilin Road, Xuhui District, Shanghai 200234, CHINA
pselaphinae@gmail.com

Abstract

A second species of the rare myrmecophilous genus *Myrmicophila* Yin and Li, *Myrmicophila motuoensis* Yin, **new species**, is described and figured based on material collected in Xizang, southwestern China. The new species can be separated from *Myrmicophila tangliangi* Yin and Li from Yunnan by the different shapes of male sexual modifications on the antennae and metafemora, and of the aedeagus.

Keywords: Batrisini, taxonomy, new species, myrmecophily, *Myrmica* ants

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Introduction

The ant-loving beetle genus *Myrmicophila* Yin and Li (Batrisitae: Batrisini) contains a single species, *Myrmicophila tangliangi* Yin and Li, distributed in Yunnan, southwestern China (Yin *et al*. 2011). This is one of the most poorly known pselaphine genera with regard to species richness and natural history. Only a single adult male, associated with *Myrmica* Latreille ants (Hymenoptera: Formicidae), has been collected by my colleague Dr. Liang Tang in the Gaoligong Mountains in 2010. Recently I found in the SNUC collection an additional series of *Myrmicophila* collected from Xizang, which represents a second species of the genus. Here the new species is formally described and compared to the only congener.

Material and Methods

The type material of the new species described in this paper is deposited in the Insect Collection of Shanghai Normal University (SNUC). The text of the specimen label is quoted verbatim in quotation marks (“”).

Dissected parts were preserved in Euparal on plastic slides that were placed on the same pin with the specimen. The habitus images of the beetle and host ant, as well as the ant’s full-face image were taken using a Canon 5D Mark III camera in conjunction with a Canon MP-E 65-mm f/2.8 1–5X Macro Lens, and a Canon MT-24EX Macro Twin Lite Flash was used as the light source. Images of the morphological details were produced using a Canon G9 camera mounted to an Olympus CX31 microscope under reflected or transmitted light. Zerene Stacker (version 1.04) was used for image stacking. All images were optimized and grouped into plates using Adobe Photoshop CC 2018.

Taxonomy

Genus *Myrmicophila* Yin and Li, 2011

Myrmicophila Yin and Li *in* Yin *et al*. 2011: 176.
Type species: *Myrmicophila tangliangi* Yin and Li, 2011, by monotypy.

Comments. Two superficially similar species occurring exclusively in nests of *Myrmica* spp. (Hymenoptera: Formicidae) are distributed in montane areas of Yunnan and Xizang (Fig. 3C). The diagnosis of *Myrmicophila* in Yin *et al*. (2011) still holds for the new species described in this paper.

Myrmicophila motuoensis Yin, new species

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7CB30425-F9ED-43AF-8ED0-73A7B66440A3
(Figs. 1, 2A, C, E, F, 3C)
Chinese common name: 墨脱梨蚁甲

Type Material. Holotype: CHINA: ♂, “China: Xizang Prov., Motuo County (墨脱县), 62 K, 28.viii.2011, 2780 m, [ant nest], Wen-Xuan Bi leg” (SNUC). **Paratypes: CHINA:** 1 ♂, 6 ♀♀, same collection data as the holotype (SNUC). Note: each of the two male specimens has one *Myrmica* worker pinned under the respective specimen.

Description. Male (Fig. 1A). Body generally stout; length (combined length of head, pronotum,

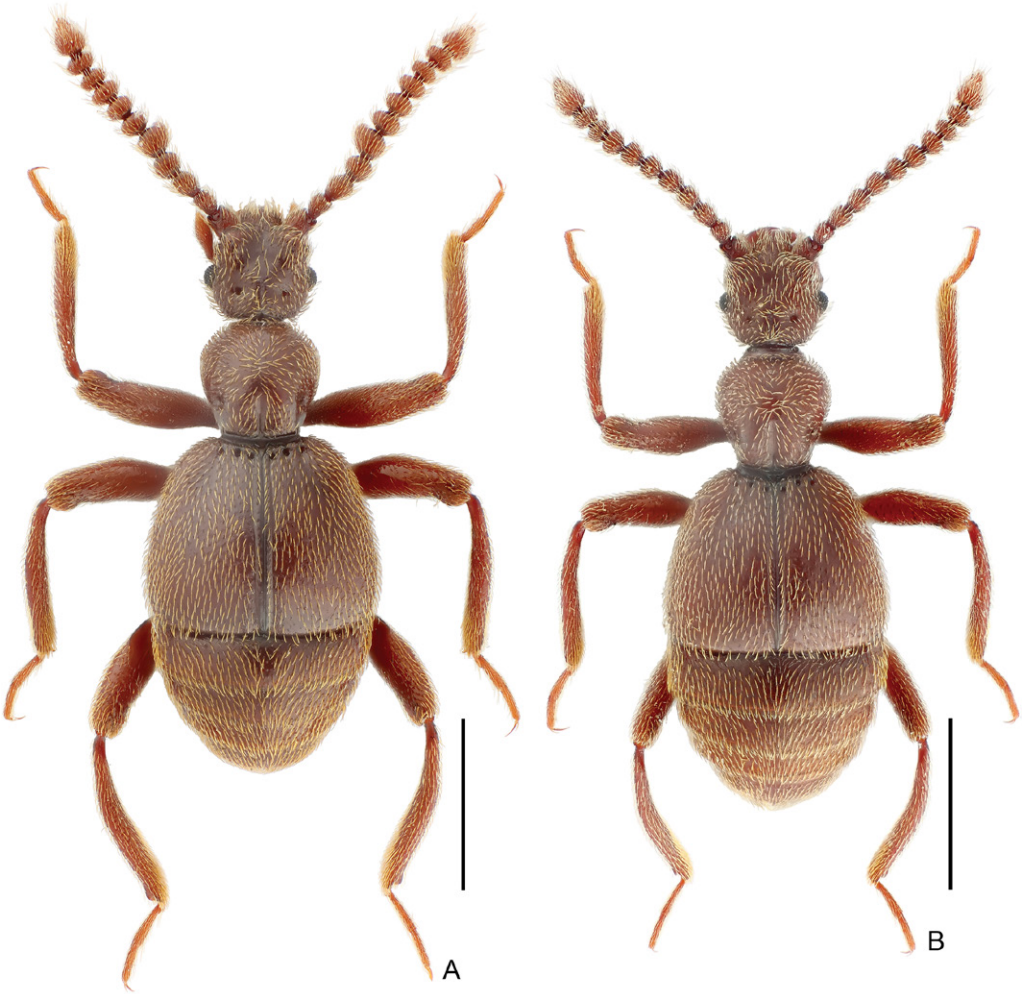

Fig. 1. Dorsal habitus of *Myrmicophila motuoensis*, **new species**. A) Male, B) Female. Scale bars: 1.0 mm.

elytra and abdomen) 3.47–3.48 mm; color uniformly reddish-brown; dorsal surface of whole body covered with short decumbent setae.

Head sub-rectangular; length from anterior margin of clypeus to posterior margin of vertex 0.71–0.72 mm, width across eyes 0.65–0.67 mm; with distinct asetose vertexal foveae at level of posterior margin of eyes; mediobasal ridge extending from head base toward approximately basal third of head length; frons broadly and shallowly impressed medially and between moderately raised antennal tubercles; postocular margins slightly rounded, posterolateral corners angulate; eyes moderately prominent, each composed of about 50 facets. Antenna moderately long; length 1.58–1.60 mm; lacking distinct club, with moniliform antennomeres; antennomere 1 (scape) thick, with deep dorso-ventral notch at apex; 2 (pedicel) and 3 much narrower than 1, elongate, successively wider and longer; 4 wider than 3, transverse; 5 (Fig. 2A) transverse, strongly expanded on mesal margin; 6–10 each transverse and of similar width; 11 conical, about as wide as 10. Gular area with foveae (posterior tentorial pits) close to each other, in shared opening, with thin gular ridge extending to mouthparts.

Pronotum sub-globose, widest at apical two-fifths, length along midline 0.65–0.67 mm, maximum width 0.68–0.70 mm, with round lateral margins gradually narrowing from broadest point toward base, anterior margin nearly straight, posterior margin slightly arcuate; with short median longitudinal sulcus at base, and distinct, asetose lateral antebasal foveae.

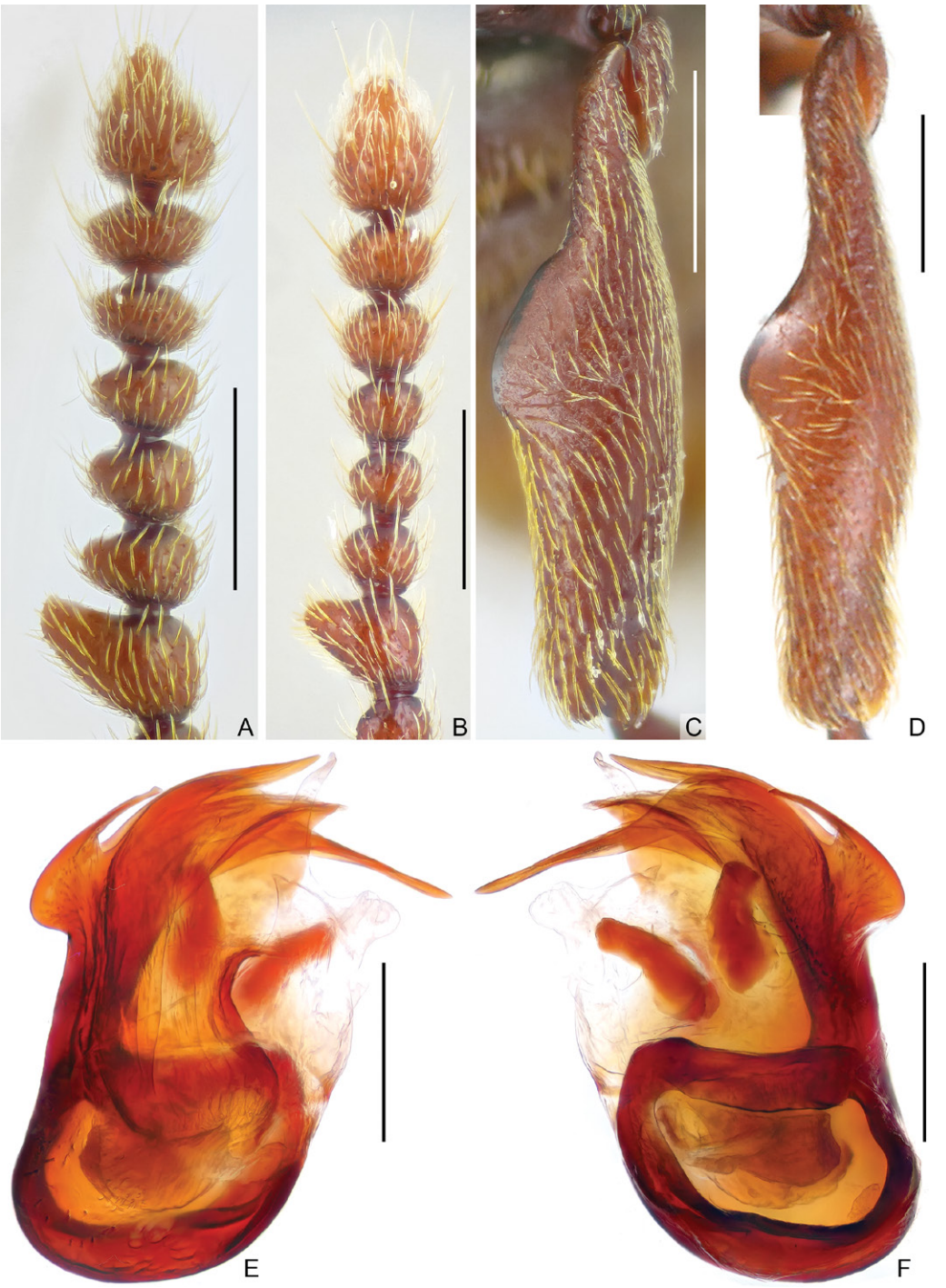

Fig. 2. Male diagnostic characters of *Myrmicophila motuoensis*, **new species** (A, C, E, F) and *M. tangliangi* (B, D). A, B) Antennomeres 5–11, C, D) Metafemur, E, F) Aedeagus, dorsal (E) and ventral (F). Scale bar: 0.3 mm in A–D; 0.2 mm in E, F.

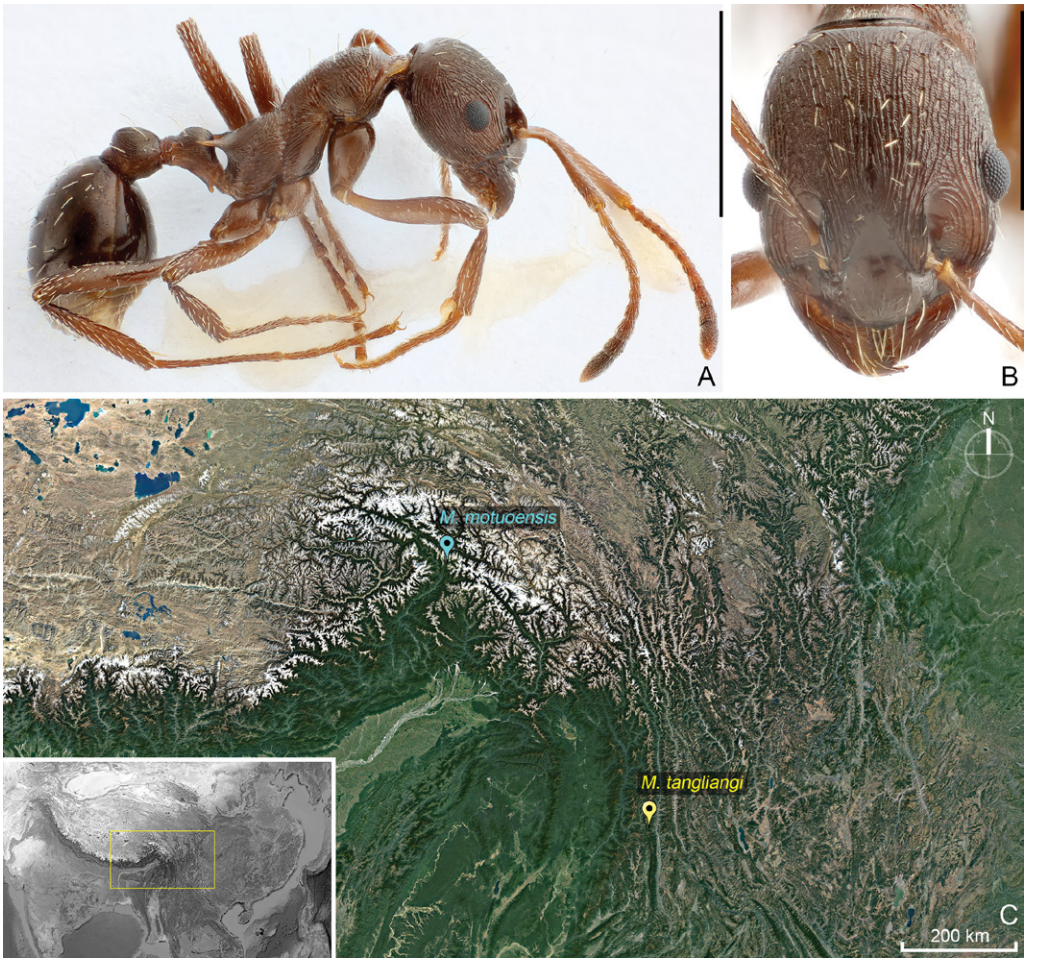

Fig. 3. Host ant (*Myrmica* sp.) of *Myrmicophila motuoensis*, **new species** (A, B), and distribution of *Myrmicophila* (C). A) Lateral habitus, B) Full-face view, C) *M. tangliangi* is distributed in the southern part of the Gaoligong Mountains (Yunnan), and *M. motuoensis*, **new species** in Motuo (Xizang). Scale bars: 2.0 mm in A; 1.0 mm in B.

Elytra wider than long, length along suture 1.05–1.07 mm, maximum combined width 1.31–1.38 mm, with three large nude basal foveae, sutural striae complete, lacking discal and marginal striae. Metaventrite strongly convex lateral to midline.

Legs moderately elongate; foreleg simple; midleg has tibia with small protuberance at apex; hindleg has femur (Fig. 2C) broadly expanded on dorsal margin.

Abdomen slightly wider than long, widest at tergite 1 (IV), length along midline 1.01–1.02 mm, maximum width 1.21–1.24 mm. Tergite 1 (IV) at mid-length slightly longer than 2 (V), tergites 1 to 3 (VI) successively shorter, 4 (VII) approximately as long as 1. Sternite 2 (IV) to 5 (VII) successively shorter at mid-length.

Aedeagus (Figs. 2E, F) elongate, length 0.54 mm; median lobe with large, transverse basal capsule and foramen; ventral and dorsal lobe each composed of flattened, apically pointed and curved sclerites; parameres paired and weakly sclerotized, attached to ventral side of capsule.

Female (Fig. 1B). External morphology similar to male; antenna shorter and unmodified; pronotum and elytra relatively narrower at their bases; metafemur lacking expansion. Measurements (as for male): body length 3.29–3.50 mm, length/width of head 0.69–0.70/0.61–0.64 mm, pronotum 0.64–0.67/0.61–0.66 mm, elytra combined 0.93–1.01/1.21–1.31 mm, abdomen 1.02–1.13/1.17–1.30 mm, length of antenna 1.44–1.54 mm, each eye composed of about 45–47 facets.

Comparative Notes. The two species of *Myrmicophila* are morphologically similar, sharing identical positions of the male sexual characters on antennomeres 5 and on the metafemora, which indicates a close relationship between these species. The male of *M. motuoensis* may be separated from that of *M. tangliangi* by antennomere 5 being more greatly extended on the mesal margin (Figs. 2A, B), antennomeres 6–11 more transverse and of subequal width (Figs. 2A, B), the larger expansion on the dorsal margin of metafemur (Figs. 2C, D), and by the different shape of the aedeagus (Figs. 2E, F; Yin *et al*. 2011: figs. 13, 15).

Distribution. Southwest China: Xizang (Fig. 3C). The discovery of the new species considerably extends the known range of *Myrmicophila* some 520 km to the northwest.

Host Ant. *Myrmica* sp. (Figs. 3A, B). The host ant of *M. motuoensis* obviously belongs to a different species compared to that of *M. tangliangi*. The *Myrmica* species from Motuo has a much larger head, and bears much less distinct longitudinal carinae on the clypeus.

Etymology. The specific epithet refers to the type locality of the new species, *i.e.*, Motuo County.

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