

RESEARCH PAPER

Two new sympatric species of *Songius* from Mount Fanjing, Southwest China (Coleoptera: Staphylinidae: Pselaphinae)

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Abstract. The ant-loving beetle genus *Songius* Yin & Li, 2010 (Coleoptera: Staphylinidae: Pselaphinae: Batrisini) is rarely collected due to a cryptic myrmecophilous lifestyle, and its diversity remains insufficiently explored. Here we describe two new sympatrically distributed species from Mount Fanjing, Guizhou Province, Southwest China. *Songius brevisetus* sp. nov. is characterized by the relatively parallel-sided body with a densely setose integument, and different forms of the spines/projections of the legs and the aedeagus. *Songius hubenqii* sp. nov. differs in the shiny, almost asetose body segments and antennomeres 1–6, the mesofemora lacking tubercles and bearing long bristles on the ventral margins, and a different form of the aedeagus. A re-examination of the types and additional material supported the conclusion that *S. hlavaci* Zhao, Yin & Li, 2010 is a widely distributed species in eastern, central and southwestern China, leading to the placement of *S. pseudohlavaci* Yin & Li 2015, syn. nov. from Hunan as its junior synonym; and the species is newly recorded from Fujian and Chongqing. An updated key and a distribution map for the genus are provided.

Key words. Ant-loving beetles, distribution map, identification key, myrmecophily, new record, new synonym, taxonomy, Guizhou, China

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Introduction

The first published scientific record of *Songius* Yin, Li & Zhao, 2010 was provided by HLAVÁČ et al. (2002), who reported a female of a shiny, glabrous '*Batristilbus*' sp. from Longwang Mountain, eastern China that occurs in a colony of *Lasius* Fabricius, 1804 ants nested under a stone. Later the genus was formally erected based on a different species from West Tianmu Mountain that has a setose cuticle (YIN et al. 2010). Along with the discovery of the male from West Tianmu Mountain, a new species conspecific with the female reported by HLAVÁČ et al. (2002) was added soon after, and a presumed associated larva was described (ZHAO et al. 2010). In 2015, two more species were described from Guangxi and Hunan, and new records of two previously described species were given (YIN & LI

2015). The genus appears to be widely distributed in eastern, southern, and southwestern territories of China (YIN & LI 2015), as far as suitable temperate habitat (usually at mid- to high altitudes) for their hosts, i.e., *Lasius* ants (WILSON 1955), can be retained.

Recently the junior author (Z.-K. H.) collected a series of *Songius* specimens from Mount Fanjing in Guizhou Province, southwestern China by using a newly developed method (the procedure will be described separately). In this material, we recognized two new sympatric species which are described here. Moreover, a re-examination of the types and other specimens of previously known species led to the placement of *S. pseudohlavaci* Yin & Li, 2015 as a junior synonym of *S. hlavaci* Zhao, Yin & Li, 2010.



Material and methods

All material studied in this paper is deposited in the Insect Collection of Shanghai Normal University, Shanghai, China (SNUC). The text of the specimen label is quoted verbatim in quotation marks (“”).

Dissected parts were mounted in Euparal on plastic slides pinned with the specimen. The habitus images were taken using a Canon EOS R5 camera, equipped with a 7.5× Mitutoyo M Plan Apo lens, and two Godox V860III-C TTL Li-Ion flashes were used as the light source. Images of morphological details were produced using a Canon G9 camera mounted to an Olympus CX31 microscope under reflected or transmitted light. Helicon Focus v. 8.2.0 Pro was used for image stacking. Line drawings were done in Adobe Illustrator 2023 Ver. 27.3.1. All images were modified and grouped into plates using Adobe Photoshop CC 2019 Ver. 20.0.9.

Measurements were taken as follows: the total body length was measured from the anterior margin of the rostrum to the apex of the abdomen; the head length was measured from the anterior margin of the rostrum to the head base, excluding the cervical constriction, the head width is the maximum width across or anterior to the eyes; the length of the pronotum was measured along the midline, the width equals the maximum width; the length of the elytra was measured along the suture; the width was measured as the maximum width across both elytra; the length of the abdomen is the length of the dorsally exposed part of the abdomen along its midline, the width is the maximum width.

The terminology follows CHANDLER (2001) and YIN (2022). The abdominal tergites and sternites are numbered in Arabic (starting from the first visible segment) and Roman (reflecting true morphological position) numerals, e.g., tergite 1 (IV), or sternite 1 (III). Paired appendages in the description and identification key are treated as singular.

Taxonomy

Songius brevisetus sp. nov.

Chinese common name: 短毛梯胸蚁甲
(Figs 1, 3)

Type material (3 exx.). **HOLOTYPE**: CHINA: GUIZHOU: ♂, ‘China: Guizhou, Tongren City, Mount Fanjing, Wanbaoyan to Huixiangping, 27°54′24″N, 108°42′9″E, 1930 m, 23.vii.2023, nest of *Lasius* sp., Z-K Hu leg., 梵净山万宝岩至回乡坪, 胡政坤采’ (SNUC). **PARATYPES**: CHINA: GUIZHOU: 1 ♂, same data as that of holotype except ‘16.viii.2023’; 1 ♀, same data as that of holotype except ‘27°54′32″N, 108°41′58″E, 2020 m, 17.viii.2023’ (both in SNUC).

Diagnosis. Male. Habitus stout and compact, body length 2.7–2.8 mm; dorsal surface of body and antennae densely punctate and pubescent. Head with distinct cervical constriction, posterolateral margins bearing scattered and short row of thickened, stiff setae; eyes weakly protruding from head lateral profile; antennomeres moniliform, lacking modification. Pronotal disc broadly and moderately impressed along median longitudinal sulcus. Elytral disc moderately convex, humeri roundly prominent. Protrochanter spinose on both ventral and dorsal margin;

mesotrochanter and mesofemur each with one protuberance on ventral margin, mesotibia at apex with small denticle; metacoxa with one round and metatrochanter with one blunt projection on ventral margin. Aedeagus asymmetric, median lobe with enlarged basal capsule and foramen, ventral lobe with short membranous apophysis on left side, right side of apical margin split to form two apically pointed branches; dorsal lobe composed of apically greatly curved sclerite with slight serration and membranous structures; endophallus armature absent; parameres reduced to membranous structure.

Female. Body length approximately 2.7 mm. Legs lacking spines or projections. Genital complex as in Fig. 1I.

Description. Male. Body (Fig. 1A) stout and compact, length 2.73–2.78 mm; color reddish-brown, tarsi and mouthparts lighter. Dorsal surface of body and antennae densely punctate and with dense and relatively short pubescence.

Head (Fig. 1B) sub-trapezoidal, approximately as long as wide, length 0.56–0.57 mm, maximum width across eyes 0.54–0.57 mm, with distinct cervical constriction at base; vertex weakly convex medially, with tiny, widely separated cuticle remnants of foveae (dorsal tentorial pits) (Fig. 1B, indicated by arrowhead), with short and faint mediobasal carina; postocular margins evenly convergent, much longer than eyes, posteriorly with scattered thickened, stiff setae, posterolateral corners with short row of similar setae; frons broadening apically, broadest anterior to eyes, anteriorly largely fused with clypeus, area between barely raised antennal tubercles flat; clypeus moderately descending, densely punctate, its entire anterior margin moderately carinate and raised; ocular-mandibular carinae short due to closeness between eyes and mouthpart. Venter with granulate surface; gular region medially broadly and deeply impressed at base, small gular foveae (posterior tentorial pits) originating from shared large oval opening with ridged edge, with distinct median carina extending from opening anteriorly to mouthparts. Compound eyes weakly prominent, each composed of approximately 65 small ommatidia. Antenna moderately short, lacking modifications, length 1.49–1.50 mm, club formed by single terminal antennomere (11); antennomere 1 short and thick, subcylindrical, 2–10 moniliform, more-or-less transverse, 11 largest, distinctly longer than 9 and 10 combined (35:23), suboval, truncate at base.

Pronotum (Fig. 1B) slightly longer than wide, length 0.65–0.66 mm, width 0.62 mm, widest in approximately basal 1/3; lateral margin rounded at widest point and then convergent anteriorly and slightly less so posteriorly, anterior margin almost straight, weakly emarginate in middle, posterior margin evenly arched; disc broadly impressed along median longitudinal sulcus, sulcus followed anteriorly by short, thin carina, posteriorly by small, long oval impression and then short, thin mediobasal carina. Prosternum with anterior part in middle slightly longer than coxal part, with tiny, widely separated lateral procoxal foveae; thin hypomerall carinae complete, extending from posterior to anterior margin; margin of coxal cavity moderately carinate.

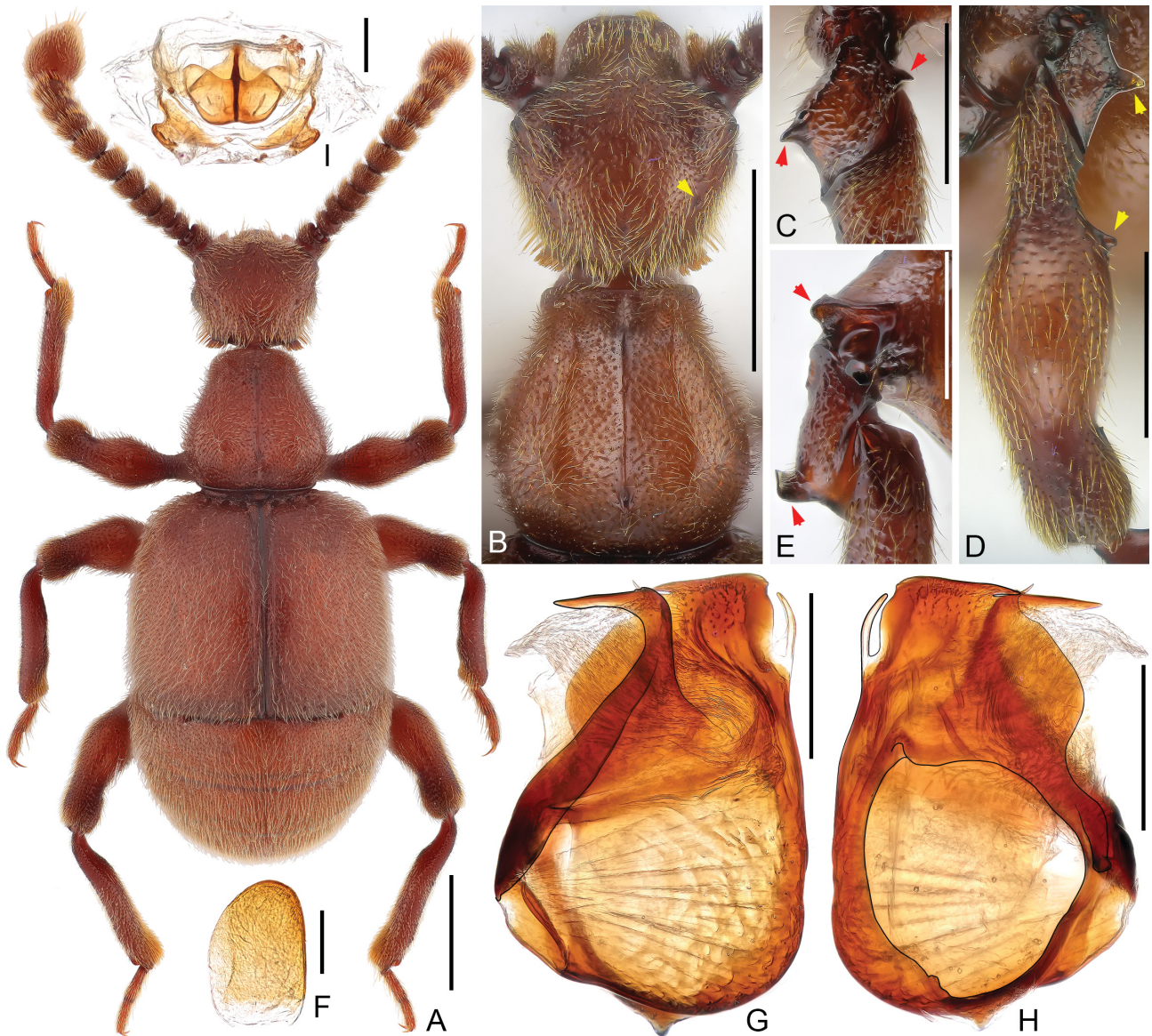


Fig. 1. *Songius brevisetus* sp. nov., male (A–H) and female (I). A – dorsal habitus; B – head and pronotum; C – protrochanter; D – mesotrochanter and mesofemur; E – metacoxa and metatrochanter; F – sternite 7 (IX); G, H – aedeagus, dorsal (G), and ventral (H); I – genital complex. Scale bars: 0.5 mm in A, B; 0.2 mm in C, E, G, H; 0.3 mm in D; 0.1 mm in F, I.

Elytra roundly quadrate, slightly wider than long, length 0.94 mm, width 1.15–1.17 mm, disc with distinct punctures; each elytron with three small, asetose basal foveae; lacking discal striae; humeri roundly prominent, lacking subhumeral foveae or marginal striae; posterolateral margins shortly truncate to form clefts. Metathoracic wings fully developed.

Mesoventrite short, fully demarcated from metaventrite by oblique carinae lateral to mesocoxal cavities; median mesoventral fovea absent, small lateral mesoventral foveae unforked internally, with markedly short, subtriangular mesoventral process, with complete marginal striae. Metaventrite moderately projected admesally, inclined towards middle, with well-developed lateral mesocoxal and two small lateral metaventral foveae, posterior margin with deep, narrow split in middle.

Legs moderately elongate, apical portions of ventral margins of femora with deep furrows to receive tibiae; protrochanter (Fig. 1C) with acute spine on both ventral and dorsal margins; mesotrochanter (Fig. 1D) with large tooth on ventral margin, mesofemur (Fig. 1D) with small ventral tubercle on basal 1/3, mesotibia with acute denticle at apex of mesal margin; metacoxa (Fig. 1E) with round ventral protuberance, metatrochanter (Fig. 1E) with short, curved and truncate projection on ventral margin.

Abdomen relatively short, rounded, widest at lateral margins of tergite 1 (IV), length 0.84–0.87 mm, width 1.12–1.13 mm. Tergite 1 (IV) slight longer than 2 (V) (33:25), with distinct basal sulcus and three pairs of basolateral foveae (inner two pairs much smaller than outer one), lacking discal carinae, marginal carinae short, extending to 1/4 tergal length; tergite 2 to 4 (VII) subequal in length in

middle, 2 and 3 (VI) each with short, indistinct and 4 with complete lateral carinae; tergite 5 (VIII) roundly transverse, posterior margin broadly emarginate in middle. Sternite 2 (IV) in middle as long as 3–5 (V–VII) combined, with one pair of mediobasal and two pairs of basolateral foveae, lacking carinae, 3 and 4 (VI) subequal in length in middle, 5 shorter, 3–5 lacking foveae or carinae, 6 (VIII) greatly transverse, posterior margin sinuate, medially roundly convex, 7 (IX) (Fig. 1F) composed of pair of membranous lateral and suboval, moderately sclerotized median plates.

Aedeagus (Figs 1G, H) 0.56 mm long, stout, asymmetric; median lobe with enlarged basal capsule and foramen, ventral stalk broad, with thin, elongate membranous apophysis on left side (orientation as in Fig. 1H), apical margin split on right side, forming two short, apically pointed branches; dorsal lobe elongate, apical part bent towards left and narrowing apically, apical margin slightly serrate at turning point; endophallus armature absent; parameres reduced to single membranous structure.

Female. Similar to male in external morphology; antenna slightly shorter; legs lacking modifications; each compound eye composed of approximately 52 ommatidia. Measurements (as for male): body length 2.73 mm; length/width of head 0.58/0.53 mm, pronotum 0.64/0.62 mm, elytra 0.94/1.16 mm; abdomen 0.81/1.13 mm; length of antenna 1.32 mm; maximum width of genitalia (Fig. 1I) 0.31 mm.

Comparative notes. The male of *Songius brevisetus* sp. nov. shares the setose body surface and antennae with *S. lasiuohospes* Yin, Li & Zhao, 2010 (Zhejiang, E China) and *S. kiwi* Yin & Li, 2015 (Guangxi, SW China), but differs from both in (1) protrochanters with a dorsal and a ventral spine (lacking spines in both *S. lasiuohospes* and *S. kiwi*), (2) metatrochanters with an apically truncate and curved projection (with an apically acute, large blade-like spine in *S. lasiuohospes*, and a basally broad and apically narrowing spine in *S. kiwi*), and (3) a much narrower apically curved part and a barely serrate apical margin of the dorsal lobe of the aedeagus. It further differs from *S. kiwi* in elytra having subparallel lateral margins (lateral margins distinctly divergent posteriorly in *S. kiwi*). This species is more similar to *S. lasiuohospes* in the sub-parallel sides of the elytra and can be further separated from the latter by the small ventral tubercle of the mesofemora and small mesal denticle of the mesotibiae (with a wide, subtriangular ventral spine on mesofemora and a large, blade-like triangular spine at the apices of mesotibiae in *S. lasiuohospes*). One indistinct aedeagal character of *S. lasiuohospes*, which was overlooked in previous studies, is the lateral side of the median lobe with a tiny protuberance bearing a few short setae at the apex (see Yin & Li 2015: figs 5A, B) which is absent in the new species and all other congeners.

Biology. All material was collected from *Lasius* ant colonies. The holotype male was collected together with a male of *Songius hubenqii* sp. nov. at an altitude of 1930 m. **Etymology.** The epithet *brevisetus* (-a, -um) is a Latin adjective composed of the adjective *brevis* (short) and the noun *sēta* (hair), referring to the shortly and densely setose cuticle of this species.

Distribution. Southwest China: Guizhou (Fig. 3).

Songius hubenqii sp. nov.

Chinese common name: 胡氏梯胸蚁甲
(Figs 2, 3)

Type material (9 exx.). HOLOTYPE: CHINA: GUIZHOU: ♂, 'China: Guizhou, Tongren City, Mount Fanjing, Wanbaoyan to Huixiangping, 27°54'24"N, 108°42'9"E, 1930 m, 23.vii.2023, nest of *Lasius* sp., Z-K Hu leg., 梵净山万宝岩至回乡坪, 胡政坤采' (SNUC). PARATYPES: CHINA: GUIZHOU: 1 ♂, 4 ♀♀, same data as that of holotype except '28.vi.2023'; 1 ♂, same data as that of holotype except '06.viii.2023'; 1 ♂, same data as that of holotype except '16.viii.2023'; 1 ♀, same data as that of holotype except '27°54'32"N, 108°41'58"E, 2020 m, 17.viii.2023'. (SNUC).

Diagnosis. Male. Habitus stout and compact, body length 2.4–2.6 mm; dorsal surface of body and antennomeres 1–6 asetose, shiny, antennomeres 7–11 densely setose. Head with distinct cervical constriction, posterolateral margins bearing scattered and row of thickened, stiff setae; eyes barely protruding from head lateral profile; antennomeres moniliform, lacking modification. Pronotal disc broadly and moderately impressed along median longitudinal sulcus. Elytral disc moderately convex, humeri roundly prominent. Protrochanter lacking spine on ventral margin; mesotrochanter with small protuberance on ventral margin, mesofemur with long bristles on ventral margin; metacoxa simple, metatrochanter with blunt, apically curved projection on ventral margin. Aedeagus asymmetric, median lobe with enlarged basal capsule and foramen, ventral lobe with short membranous apophysis on left side, right side of apical margin split to form two apically pointed branches; dorsal lobe composed of apically greatly curved sclerite with smooth apical margin and membranous structures; endophallus armature absent; parameres reduced to membranous structure.

Female. Body length 2.5–2.6 mm. Legs lacking spines or projections; mesofemur lacking bristles on ventral margin. Genital complex as in Fig. 2I.

Description. Male. Body (Fig. 2A) stout and compact, length 2.40–2.60 mm; color reddish-brown, tarsi and mouthparts lighter. Dorsal surface of body and antennomeres 1–7 asetose, glabrous, antennomeres 8–11 with dense suberect setae.

Head (Fig. 2B) sub-trapezoidal, approximately as long as wide, length 0.56–0.58 mm, maximum width across postantennal area 0.52–0.54 mm, with distinct cervical constriction at base; vertex weakly convex medially, with tiny, widely separated cuticle remnants of foveae (dorsal tentorial pits) (Fig. 2B, indicated by arrowhead), lacking mediobasal carina, apical area with pair of small admesal impressions; postocular margins evenly convergent, much longer than eyes, posteriorly with bunches of thickened stiff setae, posterolateral corners with short row of similar setae; frons broadening apically, broadest anterior to eyes, anteriorly fused with clypeus, area between barely raised antennal tubercles flat; clypeus smoothly descending, finely punctate, its entire anterior margin weakly carinate and raised; ocular-mandibular carinae short, due to closeness between eyes and mouthpart. Venter with rough surface; gular region medially broadly and deeply impressed at base, small gular foveae (posterior tentorial pits) originating from shared large oval opening with ridged edge, with distinct median carina extending from opening anteriorly

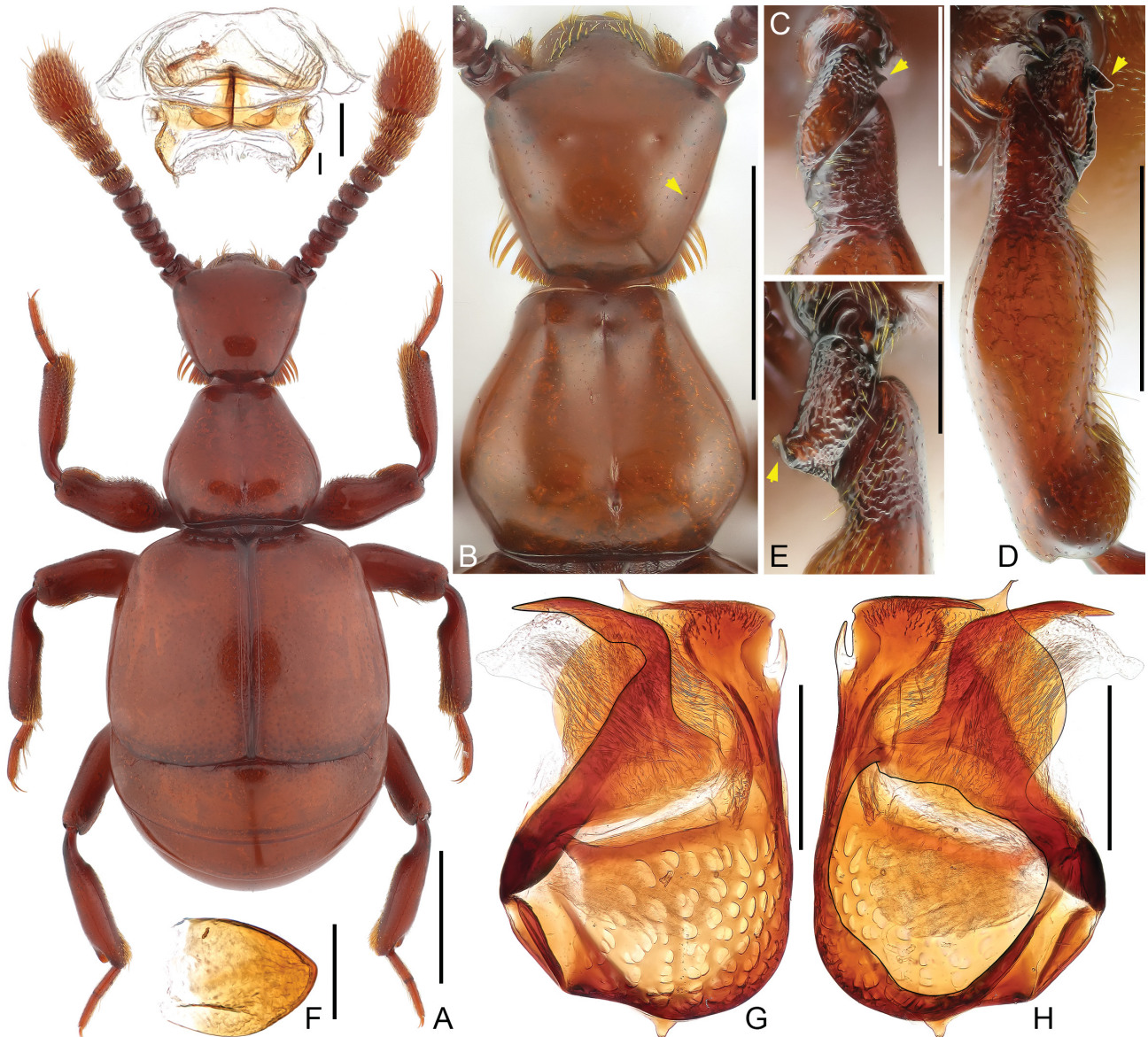


Fig. 2. *Songius hubenqii* sp. nov., male (A–H) and female (I). A – dorsal habitus; B – head and pronotum; C – protrochanter; D – mesotrochanter and mesofemur; E – metatrochanter; F – sternite 7 (IX); G, H – aedeagus, dorsal (G), and ventral (H); I – genital complex. Scale bars: 0.5 mm in A, B; 0.2 mm in C, E, G, H; 0.3 mm in D; 0.1 mm in F, I.

to mouthparts. Compound eyes weakly prominent, each composed of approximately 45 small ommatidia. Antenna moderately short, lacking modifications, length 1.15–1.19 mm, club formed by single terminal antennomere (11); antennomere 1 short and thick, subcylindrical, 2–10 moniliform, distinctly transverse, 11 largest, distinctly longer than 9 and 10 combined (37:18), suboval, truncate at base.

Pronotum (Fig. 2B) approximately as long as wide, length 0.57–0.59 mm, width 0.61–0.62 mm, widest in approximately basal 1/3; lateral margin rounded at widest point and then convergent anteriorly and posteriorly, anterior margin almost straight, weakly emarginate in middle, posterior margin almost straight, weakly emarginate in middle; disc broadly impressed along thin median longitudinal sulcus, sulcus followed anteriorly by short, indistinct carina, posteriorly by small, long oval impression and then short, thin mediobasal carina. Prosternum with anterior part

in middle as long as coxal part, with tiny, widely separated lateral procoxal foveae; thin hypomeral carinae complete, extending from posterior to anterior margin; margin of coxal cavity moderately carinate.

Elytra roundly quadrate, slightly wider than long, length 0.79–0.84 mm, width 1.08–1.10 mm, disc with indistinct, fine punctures; each elytron with three small, asetose basal foveae; lacking discal striae; humeri roundly prominent, lacking subhumeral foveae or marginal striae; posterolateral margins shortly truncate to form clefts. Metathoracic wings fully developed.

Mesoventrite short, fully demarcated from metaventrite by oblique carinae lateral to mesocoxal cavities; median mesoventral fovea tiny, small lateral mesoventral foveae unforked internally, with markedly short, subtriangular mesoventral process, with complete marginal striae. Meta-ventrite moderately projected admesally, inclined towards

middle, with well-developed lateral mesocoxal and two small lateral metaventral foveae, posterior margin with deep, narrow split at middle.

Legs moderately elongate, apical portions of ventral margins of femora with deep furrows to receive tibiae; protochanter (Fig. 2C) with acute spine on dorsal margin, ventral margin lacking spine; mesotrochanter (Fig. 2D) with short tooth on ventral margin, mesofemur (Fig. 2D) with long bristles along apical 2/3, mesotibia with small denticle at apex of mesal margin; metacoxa with blunt ventral protuberance, metatrochanter (Fig. 2E) with short, curved and truncate projection on ventral margin.

Abdomen relatively short, rounded, widest at lateral margins of tergite 1 (IV), length 0.79–0.80 mm, width 1.06–1.08 mm. Tergite 1 (IV) slight longer than 2 (V) (33:22), with distinct basal sulcus and one pair of small

basolateral foveae, lacking discal carinae, marginal carinae markedly short, extending to 1/8 tergal length; tergite 3 (VI) shorter than 2 (V) and 4 (VII) in middle, 2 and 3 (VI) lacking and 4 with complete lateral carinae; tergite 5 (VIII) roundly transverse, posterior margin broadly emarginate in middle. Sternite 2 (IV) in middle slightly shorter than 3–5 (V–VII) combined, with one pair of mediobasal and two pairs of basolateral foveae, lacking carinae, 3 to 5 (VII) subequal in length in middle, lacking foveae or carinae, 6 (VIII) greatly transverse, posterior margin sinuate, medially roundly convex, 7 (IX) (Fig. 2F) composed of pair of membranous lateral and suboval, moderately sclerotized median plate.

Aedeagus (Figs 2G, H) 0.56 mm long, stout, asymmetric; median lobe with enlarged basal capsule and foramen, ventral stalk broad, with thin, elongate membranous apo-

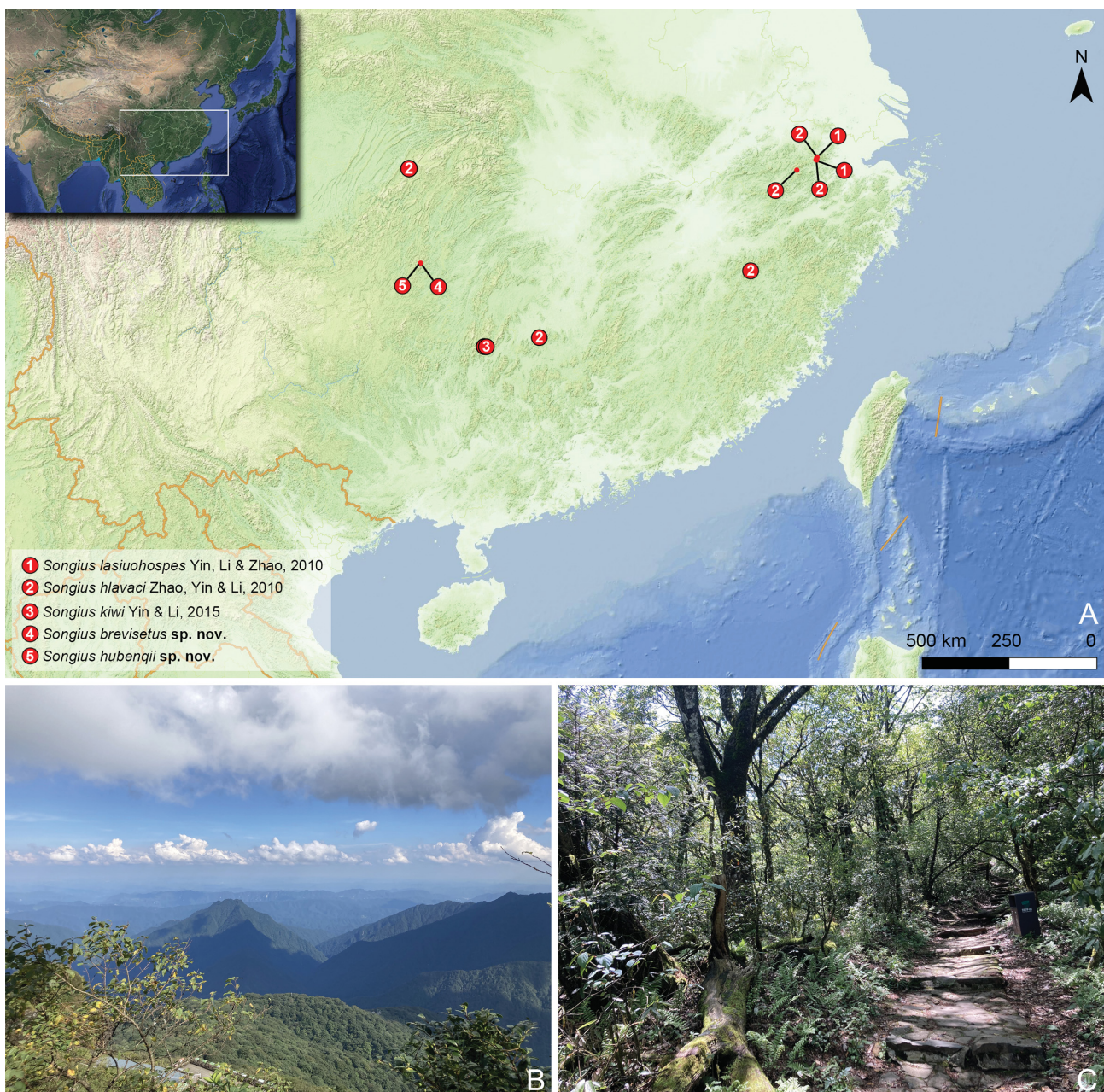


Fig. 3. Distribution and collecting environment of *Songius*. A – Map showing the distribution of five *Songius* species in China. B, C – General environment (A) and habitat (B) of *S. brevisetus* sp. nov. and *S. hubenqii* sp. nov. of Mount Fanjing, Guizhou, SW China.

physis on left side (orientation as in Fig. 2H), apical margin split on right side, forming two relatively long, apically pointed branches; dorsal lobe elongate, apical part bent towards left and narrowing apically, apical margin smooth, lacking serration; endophallus armature absent; parameres reduced to single membranous structure.

Female. Similar to male in external morphology; antenna slightly shorter; legs lacking modifications; each compound eye composed of approximately 35 ommatidia. Measurements (as for male): body length 2.51–2.60 mm; length/width of head 0.56/0.53 mm, pronotum 0.58–0.59/0.62 mm, elytra 0.82–0.86/1.09–1.10 mm; abdomen 0.77–0.82/1.09–1.11 mm; length of antenna 0.96–0.99 mm; maximum width of genitalia (Fig. 2I) 0.35 mm.

Comparative notes. The male of this species shares a shiny, glabrous cuticle with *S. hlavaci*. The new species differs in the eyes much less protruding laterally so that they are hardly visible dorsally, antennomeres 1–6 almost aseptose, mesofemora with long bristles on the ventral margins, and apically curved portion of the dorsal lobe of aedeagus much narrower and with a smooth apical margin. In *S. hlavaci*, the antennomeres 1–6 are densely setose, the mesofemora lack bristles on the ventral margins, and the apical portion of the dorsal lobe of aedeagus is much broader and with a serrate apical margin.

Biology. All individuals were collected in nests of *Lasius* ants. One male was obtained together with *S. brevisetus* sp. nov. from the same colony.

Etymology. The species is named after Ben-Qi Hu, son of the junior author.

Distribution. Southwest China: Guizhou (Fig. 3).

Songius hlavaci Zhao, Yin & Li, 2010

Chinese common name: 赫氏梯胸蚁甲

Songius hlavaci Zhao, Yin & Li, 2010: 79. Type locality: China: Zhejiang Province, Lin'an City, West Tianmushan Mountain, elev. 1,450 m.

Songius pseudohlavaci Yin & Li, 2015: 295, **syn. nov.** Type locality: China: Hunan Prov., Yongzhou City, Shuangpai County, Yangming Shan Nature Reserve (ca. 26°02–07'N, 111°53–59'E).

Type material examined. *Songius hlavaci*: HOLOTYPE: CHINA: ZHEJIANG: ♂, 'China: Zhejiang Province, Lin'an City, West Tianmushan Mountain, elev. 1,450 m, 19.ix.2009, Xiao-Bin Song leg.' (SNUC). PARATYPES: CHINA: ZHEJIANG: 2 ♀♀, same collecting data as for holotype, except '1300 m, 2.v.2009' and '22.viii.2009, 1200 m (SNUC)'.
Songius pseudohlavaci: HOLOTYPE: CHINA: HUNAN: ♂, 'China: Hunan Prov., Yongzhou City, Shuangpai County, Yangming Shan Nature Reserve [ca. 26°02–07'N, 111°53–59'E], 2004.x.02, Jian-Hua Huang leg.' (SNUC).

Other material examined (12 exx.). CHINA: ZHEJIANG: 1 ♂ 3 ♀♀, 'China: Zhejiang, Anji County, Longwang Shan, N. R., Qianmutian–Qianmu Peak, 30°23'47"N, 119°26'17"E, 1250–1450 m, mixed leaf litter, sifted, 14.v.2013, Chen & Pan leg.'; 1 ♂, also from Longwang Shan, 'Qianmutian, 30°24'20"N, 119°26'39"E, ca. 1300 m, sifted from mixed leaf litter, 2012.vi.08, Zi-Wei Yin & Jia-Yao Hu leg.'; 1 ♀, also from Longwang Shan, 'Tong-hang-gang Hill, 30°24'54"N, 119°26'53"E, bamboo, pine leaf litter, sifted, 10.vi.2012, Jia-Yao Hu & Zi-Wei Yin leg.'; 1 ♀, 'CHINA: Zhejiang, Linan City, W. Tianmu Shan N. R., firebreak between peak and Longfengjian, 30°20'56"N, 119°25'55"E, 1320 m, from nest of *Lasius* sp., 06.ix.2012, Feng, Hu, Yin leg.'; 1 ♀, 'China, Zhejiang, Qingliangfeng Mt., Luminyougu Valley, ca. 30°06'32"N, 118°54'01"E, 890 m, 20.vii.2009, Feng, Yuan & Yin leg.' [Note: these eight specimens were listed in Yin & Li (2015) under *S. hlavaci*.]; 1 ♂, 'China: Zhejiang, An'ji, Longwang Shan Mt., Dongguan-Qianmutian, 30°24'15"N,

119°26'36"E, ca. 1350 m, leaf litter, sifted, 08.vi.2012, Hu & Yin leg.'. FUJIAN: 1 ♂, 'China: Fujian Province, Wuyishan City, Tongmu Village, Guadun, 27°44'06"N, 117°38'26"E, mixed forest, leaf litter, wood, sifted, 1218 m, 2.x.2015, Yan, Tu, Shen, Jiang, Zhu leg.'. CHONGQING: 1 ♂, 1 ♀, 'China: Chongqing, Shizhu Co., Dafengbao Scenic Area, ca. 30°9'47"N, 108°24'1"E, 1800–1930 m, 26.ix.2003, X.-B. Song leg., 重庆大风堡原始森林风景区 [♂ with an *Lasius* ant, ♀ sifted]' (all in SNUC).

Revised diagnosis of male. Habitus stout and compact, body length 2.4–2.6 mm; dorsal surface of body glabrous, shiny; antennomeres densely setose. Head with distinct cervical constriction, posterolateral margins bearing scattered row of thickened stiff setae; eyes weakly protruding from head lateral profile; antennomeres moniliform, lacking modification. Pronotal disc broadly and moderately impressed along median longitudinal sulcus. Elytral disc strongly convex, humeri roundly prominent. Protrochanter lacking spine on ventral margin; mesotrochanter with small and mesofemur with tiny tubercle on ventral margin; metacoxa simple, metatrochanter with broad subtriangular ventral spine. Aedeagus asymmetric, median lobe with enlarged basal capsule and foramen, ventral lobe with short membranous apophysis on left side, right side of apical margin split to form two apically pointed branches; dorsal lobe composed of apically greatly curved plate and membranous structures, apical margin of plate strongly serrate; endophallus armature absent; parameres reduced to membranous structure.

Distribution. East China: Zhejiang, Fujian; Central China: Hunan; Southwest China: Chongqing (Fig. 3). **New provincial record for Fujian and Chongqing.**

Remarks. *Songius pseudohlavaci* was separated from *S. hlavaci* by slight differences in aedeagal character, i.e., the dorsal lobe is relatively broader at the apex and lacks a narrow basal expansion on the right margin. Examination of all available material also showed small differences in size of the body and forms of the ventral spines of metafemora. Here we consider all these differences as intraspecific variations among different geographical populations, and conclude this species is widely distributed in eastern, central and southwestern territories of China. The species can be distinguished by characters listed in the 'revised diagnosis' section above.

Revised key to *Songius* males

- 1 Cuticle of body segments glabrous, shiny, almost lacking setae. 2
- Cuticle of body segments densely setose. 3
- 2 Antennomeres 1–6 almost aseptose (Fig. 2A); eyes relatively smaller, hardly visible from dorsal side; mesofemur lacking ventral tubercle and bearing long bristles (Fig. 2D); apical margin of aedeagal dorsal lobe smooth, lacking serration (Fig. 2G) (Southwest China: Guizhou; Fig. 3). *S. hubenqii* sp. nov.
- Antennomeres 1–6 setose (ZHAO et al. 2010: fig. 8; YIN & LI 2015: fig. 1B); eyes relatively larger, clearly visible from dorsal side; mesofemur with small ventral tubercle and lacking bristles (ZHAO et al. 2010: fig. 13; YIN & LI 2015: fig. 3C); apical margin of aedeagal dorsal lobe distinctly serrate (YIN & LI 2015: figs

- 3E, F) (East China: Zhejiang, Fujian; Central China: Hunan; Fig. 3). ***S. hlavaci*** Zhao, Yin & Li, 2010
- 3 Sides of elytra distinctly divergent posteriorly, so that habitus appears to be stouter (YIN & LI 2015: fig. 1A) (South China: Guangxi; Fig. 3).
..... ***S. kiwi*** Yin & Li, 2015
- Sides of elytra sub-parallel, so that habitus appears to be more elongate.4
- 4 Protrochanter with distinct ventral spine (Fig. 1C); mesofemur with small ventral tubercle (Fig. 1D) and mesotibia with small mesal denticle at apex; apically curved part of aedeagal dorsal lobe much narrower (Fig. 1G) (Southwest China: Guizhou; Fig. 3).
..... ***S. brevisetus* sp. nov.**
- Protrochanter lacking ventral spine (YIN et al. 2010: fig. 6); mesofemur with wide ventral spine and mesotibia with large, blade-like mesal spine at apex (YIN et al. 2010: fig. 7); apically curved part of aedeagal dorsal lobe much broader (YIN & LI 2015: fig. 5A) (East China: Zhejiang; Fig. 3).
..... ***S. lasiuohospes*** Yin, Li & Zhao, 2010

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