



Review of the Chinese *Megahyliota* Thomas, 2004 (Coleoptera: Silvanidae: Brontinae), with description of a new species

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Abstract

Three species of the genus *Megahyliota* Thomas are recorded from the southwest of China, with description of a new species, *Megahyliota angustus* **sp. nov.** from Mèdog, Xizang; *Megahyliota feae* (Grouvelle, 1892) is newly recorded from China and redescribed. *Megahyliota cryptolucidus* is firstly recorded from Yunnan. Illustrations of the habitus and diagnostic characters are provided, with a key to species of the genus.

Key words: Silvanid flat bark beetle, taxonomy, Xizang, Yunnan, Brontini, key

Introduction

Brontini (Silvanidae: Brontinae) is distinguished from Telephanini by externally open procoxal cavities, comprising 13 extant genera worldwide (Thomas 2004, 2011; Liu *et al.* 2020), whose members are usually found under the bark of dead trees (Thomas and Leschen 2010). Only three genera and four species of Brontini are known for China at present (Halstead *et al.* 2007; Yoshida and Hirowatari 2016), all recorded from Taiwan. *Megahyliota* Thomas, 2004 is a genus of Brontini established for the species *Hyliota feae* Grouvelle from Southeast Asia, which can be recognized by the combination of present of scutellary striole, six discal striae on each elytron, “*Uleiota*-type” tarsi (tarsomeres I–IV short and subequal in length) and absence of mandibular horn in male (Thomas 2004). Yoshida and Hirowatari (2016) described the second species, *Megahyliota cryptolucidus* Yoshida & Hirowatari, 2016 from Taiwan, China, which was later recorded from Japan (Yoshida 2018).

During the examinations of Silvanidae specimens from mainland China, some of them were assigned to the genus *Megahyliota*, and at least three species could be recognized.

Material and methods

Specimens examined in this study are deposited in the following collections: Collection of Forest Entomology Laboratory, Beijing Forestry University, Beijing, China (CBFU); Institute of Zoology, Guangdong Academy of Sciences, Guangzhou, China (IZGAS); Museum of Hebei University, Baoding, China (MHBUS); and National Animal Collection Resource Centre, Institute of Zoology, Chinese Academy of Science, Beijing, China (NACRC).

The morphological terms used in this paper follow Lawrence and Ślipiński (2013). The measurements were made as follows: body length—from apical edge of clypeus to apex of elytra; pronotal length—median line from anterior margin to posterior margin; pronotal width—maximum width of pronotum including lateral teeth; elytral length—from base of scutellum to apex of elytra; elytral width—maximum width across the elytra; length of antennomeres—length between both ends at middle; length of ventrite 1—from posterior margin of metacoxal cavities to posterior margin of ventrite 1; length of other ventrites—length along midline.

For dissections, specimens' abdomens were removed and immersed to 10% solution of KOH for about 12 h at room temperature and then transferred to open glycerol slides for dissection and photographing. Dry specimens are mounted on cards using white emulsion glue, and the genitalia and dissected structures are preserved in genitalia vials with glycerol. Layered images of habitus and dissected structures were captured using the Canon 7D DSLR camera, Canon MPE-65 mm macro lens, or Mitutoyo 5×/10× objective lens on an adapter, with Helicon Remote (v. 3.9.10 M) and WeMacro Control software; the camera was mounted on the Focus Stacking Rail with a dual-headed flash. The images were stacked in Helicon Focus v. 8.1.1 and edited in Photoshop CC 2022.

Taxonomy

Megahyliota Thomas, 2004

Type species: *Hyliota feae* Grouvelle, 1892

Diagnosis. Within the tribe Brontini, *Megahyliota* shares “*Uleiota*-type” tarsi with *Parahyliota* Thomas, 2004 and *Uleiota* Latreille, 1796, but can be easily distinguished from them by the presence of scutellary striole. It also differs from *Uleiota* by the absence of mandibular horn in males and 5-5-5 tarsal formula in both sexes. Apart from the characters mentioned above, *Megahyliota* presents incrustated body, anterior angles of pronotum with long and bifid teeth, each elytron with six discal striae and alternate elytral intervals costate.

Distribution. Southeast Asia and East Asia.

Remarks. Thomas (2004) designated *Uleiota feae* Grouvelle as the type species when describing the genus, while it was described as *Hyliota feae* by Grouvelle (1892), thus the type species should be *Hyliota feae* Grouvelle, 1892 according to Article 67B of the International Code of Zoological Nomenclature (ICZN 1999).

Megahyliota feae (Grouvelle, 1892)

(Figs 1, 4A, B, 5A, D, G)

Hyliota feae Grouvelle, 1892: 858.

Megahyliota feae: Thomas, 2004: 21.

Material examined. CHINA: 1♂, Yunnan, Honghe Prefecture, Hekou County, Nanxi, 21.v.2009, Li leg. (CBFU); 1♀, Xizang, Nyingchi, Mêdog County, Rinqenbung Temple Road, 29.30463N, 95.35358E, 2037 m, 10.vii.2019, Yin & Zhou leg., IOZ(E)2446187 (NACRC).

Diagnosis. This species resembles *M. cryptolucidus* in body shape, with elytra laterally broadly explanate, which is much narrower in *M. angustus*. But it can be separated from *M. cryptolucidus* by alternate elytral intervals much more distinctly costate (Fig. 1A), lateral margins of head above eyes emarginate at about middle (Fig. 4A), which is slightly arcuate in later species (Fig. 4C). Also, the papillate apex of penis (Fig. 5A), slender posterior extensions of sternite VIII, and protruding anterior margin of spiculum gastrale (Fig. 5D) in *M. feae* are different from other two species (Fig. 5E, F).

Redescription. Body length 8.2–8.6 mm, width 2.9–3.2 mm. Body dorso-ventrally flattened, almost uniformly rufous.

Male. Head (Fig. 4A) quadrate, dorsal surface with U-shaped groove at middle and a pair of pits on lateral arms of groove, intermediate area convex; lateral edges distinctly elevated, with lateral margins emarginate; temples distinct, incised around eyes, about 0.5 times as long as eye length; occiput with transverse groove behind temples; clypeus sub-trapezoid, with apical margin nearly truncate. Antennae inserted in front of eyes, insertions invisible from dorsal side. Antenna filiform and 11-segmented, distinctly longer than body length; scape long and thickened, pedicel shortest, remaining antennomeres cylindrical; ratios of each antennomere about 6.4 : 1.0 : 2.5 : 2.5 : 2.4 : 2.4 : 2.3 : 2.3 : 2.2 : 2.1 : 2.4. Labrum transverse, anterior margin slightly curved, covered with dense golden setae; mandibles tridentate apically, lateral edges expanded; maxillary palps 4-segmented, with terminal segment cylindrical, narrower than penultimate segment; labial palps 3-segmented, with terminal segment strongly expanded apically; mentum transverse, with pair of transverse lateral concavities. Ventral surface (Fig. 1B) with areas around

eyes narrowly incised; submentum and subgenal areas unevenly punctured, with pair of oblique subgenal sulcus; gular areas smooth, with a pair of short gular sutures.

Pronotum (Fig. 4B) about 0.6 times as long as wide, with several (4–5) pairs of lateral teeth, usually asymmetrical; anterolateral angles usually with bifid teeth; disc with pair of transverse depression near anterior and posterior margins, and pair of broad longitudinal sublateral depressions, surface densely punctate. Prosternum large, laterally fused to pronotal epipleura, incised around procoxae; procoxal process broad, posterior margin broadly rounded, slightly expanded. Procoxal cavities externally open, separated by about 1.7 times procoxal width at middle. Scutellum pentagonal.

Elytra (Fig. 1A) about 1.8 times as long as wide, widest behind humeral areas; lateral margins broadly flattened, gradually narrowed to apex, with posterior margin rounded; surface with short scutellary striole and six discal striae, punctures coarse and not contiguous; costae on interval areas relatively distinct, with four elevated costae extending to subapical areas (one along elytra suture, one between striae 2 and 3, one between striae 4 and 5, one on outside of stria 6); lateral margins without denticle. Epipleura broad, not extending to apex. Mesosternum with anterior edge transversely depressed; metasternum slightly convex, with discrimen not extending to anterior margin; meso-metaventral junction simple and straight. Mesocoxal cavities separated by about 1.1 times of its width, laterally open to mesepimeron. Legs slender; procoxae rounded, mesocoxae oval; femora dilated at about middle, tibiae slender; tarsal formula 5-5-5, with last segment longer than basal four combined.

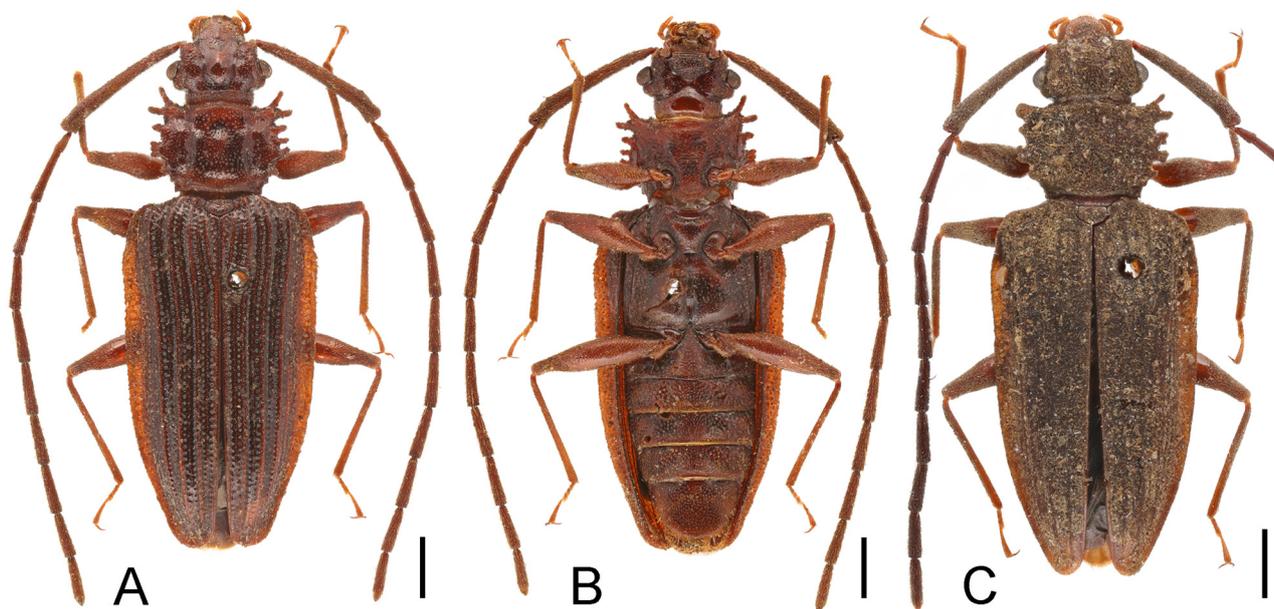


FIGURE 1. Habitus of *Megahyliota feae* (Grouvelle, 1892). **A.** Male, cleaned, dorsal view. **B.** Male, cleaned, ventral view. **C.** Female, with incrustation, dorsal view. Scale bars: 1 mm.

Abdomen (Fig. 1B) with five freely articulated ventrites, anterior process of ventrite 1 acute apically; length of each ventrite about 1.0 : 1.1 : 1.1 : 1.2 : 2.0. Sternite VIII (Fig. 5D) divided into two parts, each with long and acute posterior extension; spiculum gastrale (Fig. 5D) broadly connected at base, anterior margin broadly acute. Genitalia with phallobase (Fig. 5G) elongated and ring-shaped; pair of long and broad parameres (Fig. 5G) articulated at base, slightly curved, bearing dense short setae on apical area, lateral margins with several short setae near base; penis (Fig. 5A) with apex papillate, tegminal strut slender, inner sac complicated with long flagellum.

Female. Similar to male in body shape and coloration (Fig. 1C), with slightly shorter antenna, ratio of each antennomere about 5.7 : 1.0 : 2.1 : 2.0 : 2.1 : 2.2 : 2.2 : 2.2 : 2.1 : 1.9 : 2.2, terminal abdominal ventrite with much narrowly arcuate apical margin.

Distribution. China (Xizang, Yunnan); Thailand. (New national record for China)

***Megahyliota cryptolucidus* Yoshida & Hirowatari, 2016**

(Figs 2, 4C, D, 5B, E, H)

Megahyliota cryptolucidus Yoshida & Hirowatari, 2016: 259.

Material examined. CHINA: 1♂ 1♀, Yunnan, Dali, Jianchuan County, Madeng Town, 26.385455N, 99.564018E, 15.vii.2024, collected by locals (IZGAS); 1♀, Yunnan, Dali, Jianchuan County, Xiangtu Town, 26.264860°N 99.524897°E, 2409 m, vii.2024, collected by locals (MHBUS).

Diagnosis. Apart from the characters mentioned in the diagnosis of *M. feae*, this species can be easily separated from the other two species by lateral margins of elytra with densely dentate (Figs 2A–2C). Male genital structure of *M. cryptolucidus* is most similar to *M. angustus* sp. nov., but with parameres (Fig. 5H) slightly curved, and covered with denser setae on apex; penis constricted apically, with apex more acute (Fig. 5B). Other diagnostic characters including: length 7.6–8.1 mm, scape about 6.7 times as long as pedicel, pronotum about 0.6 times as long as wide (Fig. 2D), elytra 1.8–1.9 times as long as wide; lateral margins of head with slightly arcuate, elevated areas (Fig. 2C); procoxal cavities separated by about 1.7 times the procoxal width at middle, mesocoxal cavities separated by about 1.1 times the mesocoxal width; ratios of abdominal ventrite length about 1.0 : 1.2 : 1.3 : 1.3 : 1.5; posterior extensions of sternites VIII sub-triangular, constricted around middle, posterior margin of spiculum gastrale emarginate (Fig. 5E).

Distribution. China (Yunnan, Taiwan); Japan. (New record for Yunnan)

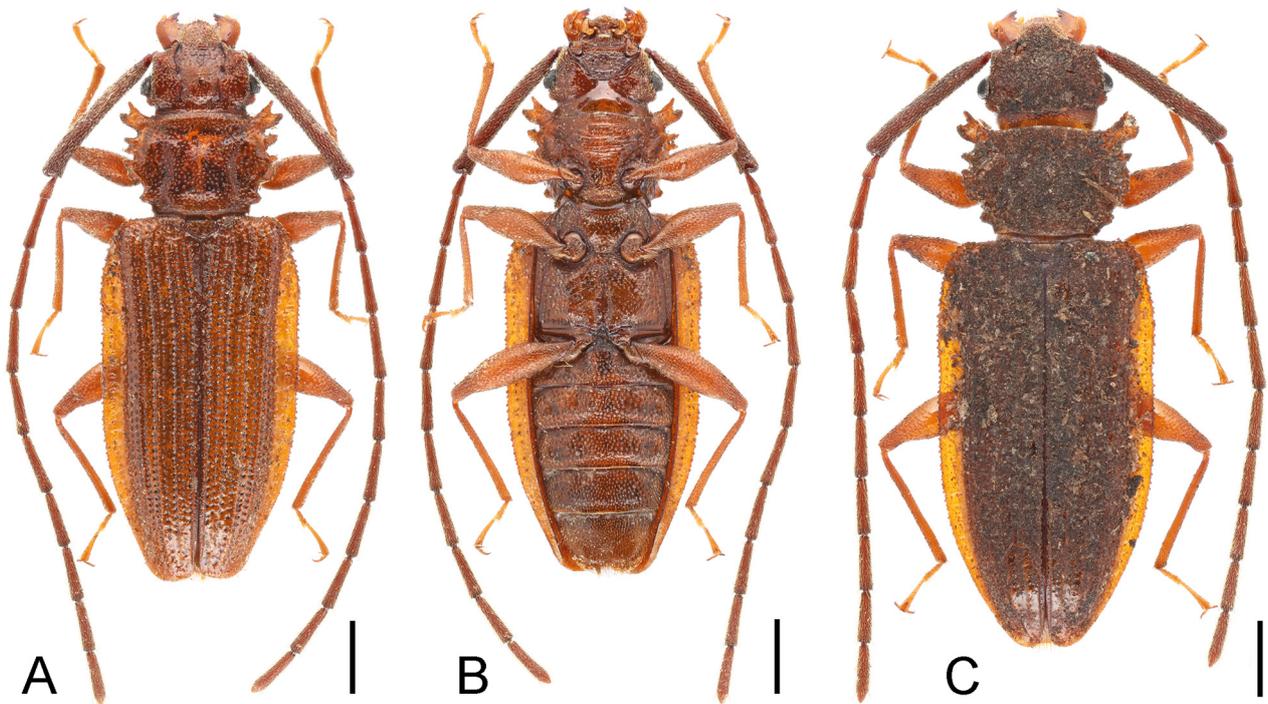


FIGURE 2. Habitus of *Megahyliota cryptolucidus* Yoshida & Hirowatari, 2016. A. Male, cleaned, dorsal view. B. Male, cleaned, ventral view. C. Female, with incrustation, dorsal view. Scale bars: 1 mm.

***Megahyliota angustus* sp. nov.**

(Figs 3, 4E, F, 5C, F, I)

Type material. HOLOTYPE: CHINA: ♂, Xizang, Nyingchi, Mêdog County road 62k, La'moco Hotel, 29.69705N, 95.55580E, 2678 m, 25.vii.2019, Xu & Zhou leg., IOZ(E)2446186 (NACRC); PARATYPE: CHINA: 1♀, Xizang, Nyingchi, Mêdog County, Chame Road 76k, 29.6815N, 95.5006E, 2206 m, Liang leg., IOZ(E)1429944 (NACRC).

Etymology. The specific name “*angustus*” means narrow in Latin, referring to the narrow lateral edges of elytra, this epithet is masculine in gender.

Diagnosis. This species can be easily distinguished from the other two congeners by lateral edges of elytra narrowly expanded (Fig. 3A, C), and costa between striae 4 and 5 extending well beyond other elytral costae (Fig. 3A), almost to apical margin. Male genital structure of *M. angustus* is similar to *M. cryptolucidus*, but it could be recognized by the slender and straight parameres (Fig. 5I), penis gradually narrowed to apex with lateral margins arcuate (Fig. 5C).

Description. Body length about 6.8 mm, width about 2.1 mm. Body dorso-ventrally flattened, almost uniformly rufous.

Male. Head (Fig. 4E) quadrate, dorsal surface with U-shaped groove at middle and pair of pits on lateral arms of groove, intermediate area convex, finely and indistinctly punctate; lateral areas distinctly elevated, with lateral margins incised around middle; temples distinct, incised around eyes, about 0.6 times as long as eye length; occiput with transverse groove behind temples; clypeus sub-trapezoidal, with apical margin nearly truncate. Antennae inserted in front of eyes, insertions invisible in dorsal view. Antenna filiform and 11-segmented, distinctly longer than body length; scape long and thickened, pedicel shortest, remaining antennomeres cylindrical; ratios of each antennomere about 4.8 : 1.0 : 1.5 : 1.9 : 2.0 : 2.0 : 2.0 : 1.9 : 1.8 : 1.7 : 1.7. Labrum transverse, anterior margin slightly curved, covered with dense golden setae; mandibles tridentate apically, lateral edges expanded; maxillary palps 4-segmented, with terminal segment cylindrical, narrower than penultimate segment; labial palps 3-segmented, with terminal segment moderately expanded apically; mentum transverse, slightly depressed. Ventral surface (Fig. 3B) with areas around eyes narrowly incised; submentum and subgenal areas densely punctured, with pair of oblique subgenal sulcus; gular areas smooth, with pair of short gular sutures.

Pronotum (Fig. 4F) about 0.6 times as long as wide, with 4 pairs of lateral teeth, usually asymmetrical; anterolateral angles with short bifid teeth; disc with pair of transverse depression near anterior and posterior margins, lateral areas longitudinally depressed, surface densely punctate. Prosternum large, laterally fused to pronotal epipleura, incised around procoxal cavities, central area indistinctly punctate; procoxal process broad, posterior margin broadly rounded, slightly expanded. Procoxal cavities externally open, separated by about 1.8 times procoxal width at middle. Scutellum pentagonal.

Elytra (Fig. 3A) about 2.0 times as long as wide, widest behind humeral areas; lateral margins smooth, narrowly flattened, gradually narrowed to apex, with posterior margin rounded and slightly upturned; surface with short scutellary striole and six discal striae, striated punctures coarse and not contiguous; costae on interval areas relatively distinct, with four elevated costae extending to subapical areas, costa between striae 4 and 5 almost extends to apex, distinctly beyond other three costae. Epipleura moderately wide, extending to posterior margin of last ventrite. Mesosternum with anterior edge transversely depressed; metasternum rugose anteriorly, with discrimen not extending

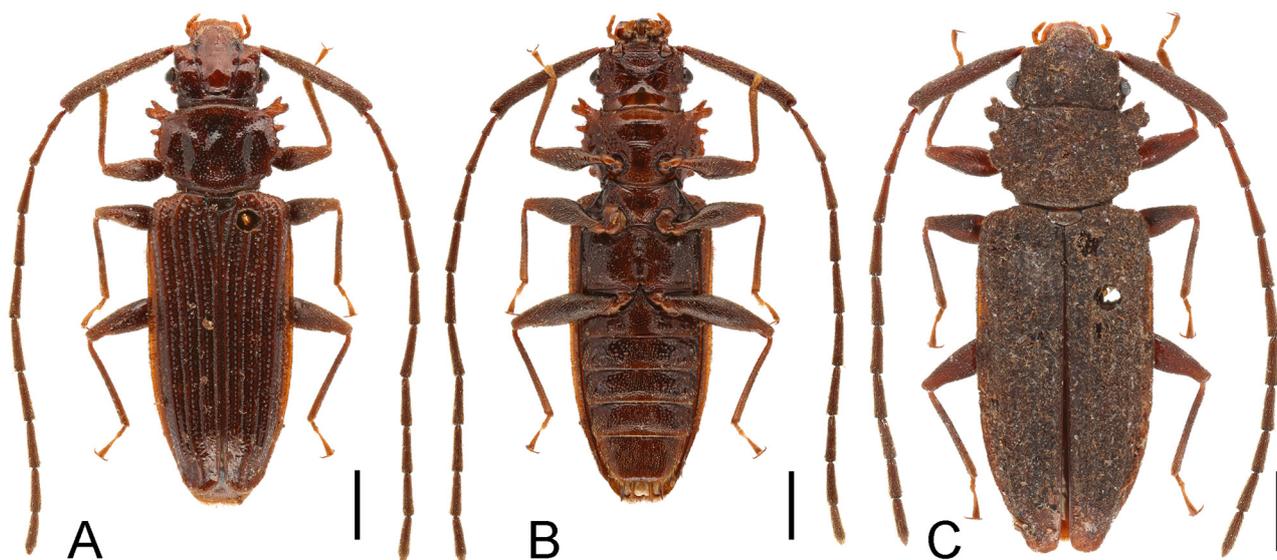


FIGURE 3. Habitus of *Megahyliota angustus* sp. nov. (A–B. Holotype; C. Paratype). A. Male, cleaned, dorsal view. B. Male, cleaned, ventral view. C. Female, with incrustation, dorsal view. Scale bars: 1 mm.

to anterior margin; meso-metaventral junction simple and slightly curved. Mesocoxal cavities separated by about 1.3 mesocoxal width, laterally open to mesepimeron. Legs slender; procoxae rounded, mesocoxae oval; femora dilated at about middle, tibiae slender; tarsal formula 5-5-5, with last segment longer than basal four combined.

Abdomen (Fig. 3B) with five freely articulated ventrites, anterior process of ventrite 1 acute apically, last ventrite sub-trapezoidal, with posterior margin almost truncate; length of each ventrite about 1.0 : 1.2 : 1.2 : 1.3 : 1.7. Sternite VIII (Fig. 5F) divided into two parts, each with sub-triangular posterior extension; spiculum gastrale broadly connected at base, anterior margin almost truncate (Fig. 5F). Genitalia with phallobase (Fig. 5I) elongated and ring-shaped; pair of slender parameres (Fig. 5I) articulated at base nearly straight, bearing several relatively long setae on apex; penis (Fig. 5C) gradually narrowed to apex, acute apically, tegminal strut long and relatively broad, inner sac complicated with long and thin flagellum.

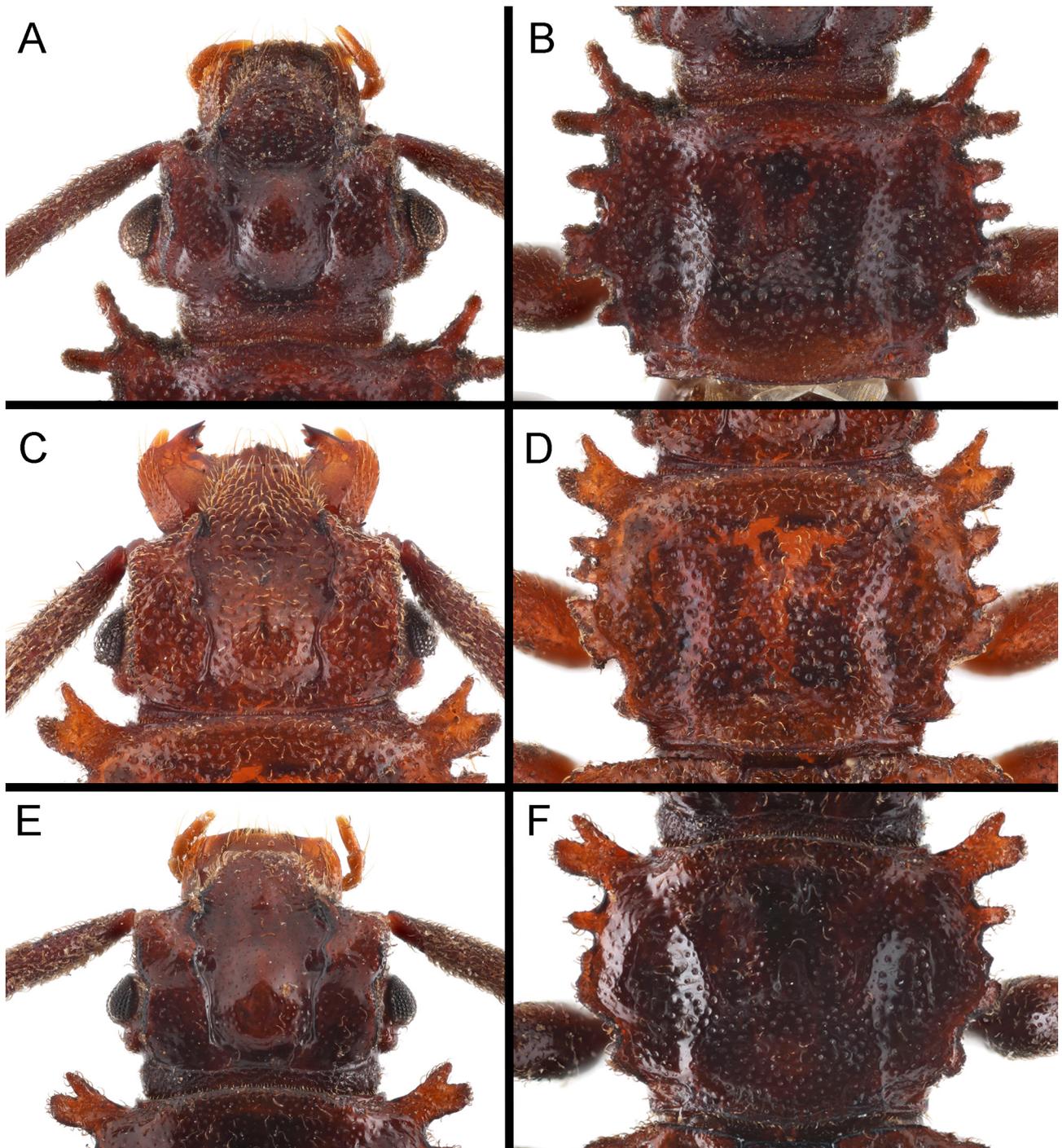


FIGURE 4. Head and pronotum of *Megahyliota* species, dorsal view. A, C, E. Head. B, D, F. Pronotum. A–B. *M. feae* (Grouvelle, 1892). C–D. *M. cryptolucidus* Yoshida & Hirowatari, 2016. E–F. *M. angustus* sp. nov.

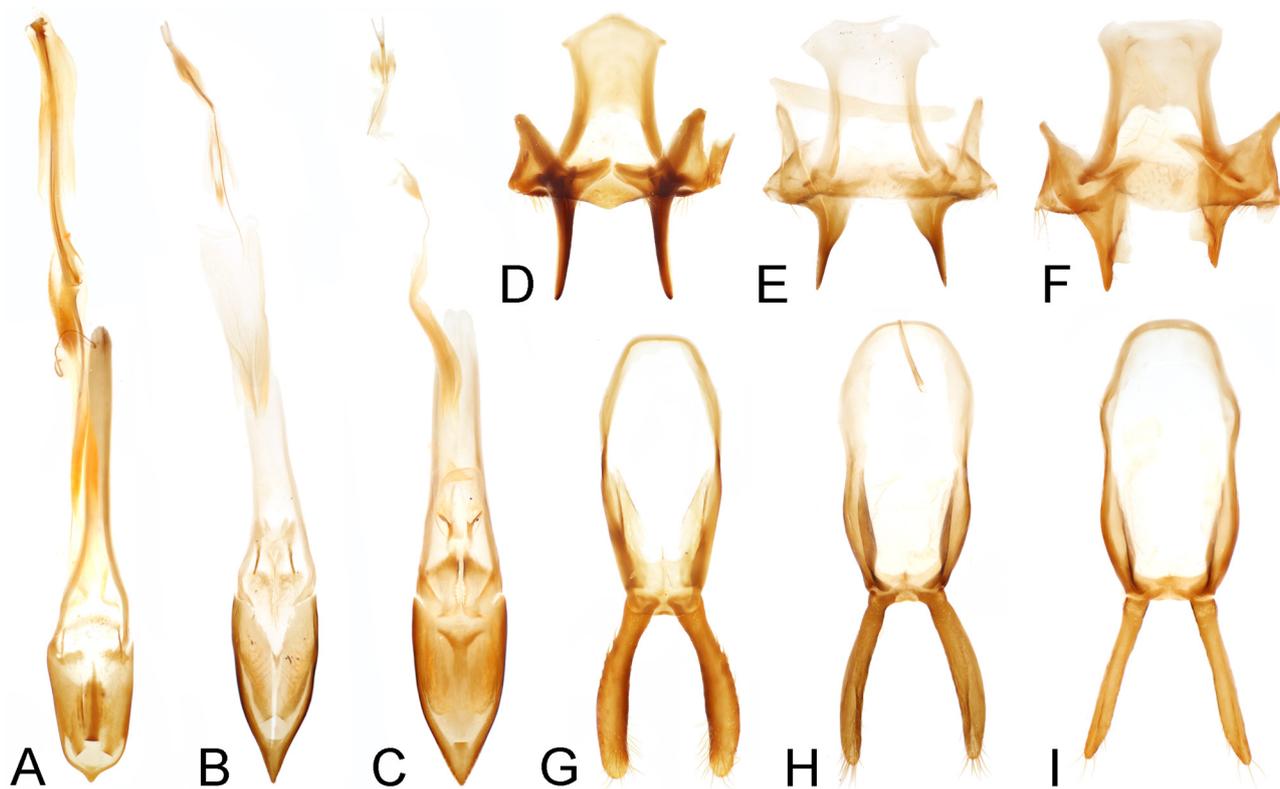


FIGURE 5. Male genitalia and terminal abdomen of *Megahyliota* species. A–C. Penis. D–F. Terminal abdomen. G–I. Tegmen. A, D, G. *M. feae* (Grouvelle, 1892). B, E, H. *M. cryptolucidus* Yoshida & Hirowatari, 2016. C, F, I. *M. angustus* sp. nov.

Female. Similar to male in body shape and coloration (Fig. 3C), with shorter antenna, ratio of each antennomere about 4.6 : 1.0 : 1.6 : 1.8 : 1.9 : 1.9 : 1.8 : 1.6 : 1.6 : 1.5 : 1.8, terminal abdominal ventrite sub-triangular, posterior margin broadly rounded.

Distribution. China (Xizang).

Key to species of the genus *Megahyliota* Thomas, 2004

- 1 Lateral edges of elytra broadly expanded, costa between striae 4 and 5 almost extends to same level of other costae, parameres of male genitalia slightly curved 2
- Lateral edges of elytra narrowly expanded, costa between striae 4 and 5 extends well beyond other costae, parameres of male genitalia straight *M. angustus* sp. nov.
- 2 Frontolateral margins of head slightly arcuate, lateral margins of elytra densely dentate, spiculum gastrale slightly emarginate apically, posterior extensions of sternites VIII sub-triangular, penis slightly constricted subapically *M. cryptolucidus*
- Frontolateral margins of head emarginate around middle, lateral margins of elytra without distinct denticle, spiculum gastrale broadly acute apically, posterior extensions of sternites VIII slender, penis with apex papillate *M. feae*

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中国长柄锯谷盗属 *Megahyliota* 回顾及一新种描述 (鞘翅目: 锯谷盗科: 长角锯谷盗亚科)

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摘要: 记录来自中国西南地区的长柄锯谷盗属 *Megahyliota* 3种, 包括西藏墨脱1新种, 即瘦长柄锯谷盗 *Megahyliota angustus* sp. nov.; 重描述费氏长柄锯谷盗 *Megahyliota feae*, 为中国新记录种; 首次在云南记录隐亮长柄锯谷盗 *Megahyliota cryptolucidus*。给出了长柄锯谷盗属3个物种的整体和鉴别特征图, 并编制该属种检索表。

关键词: 锯谷盗; 分类; 西藏; 云南; 长柄锯谷盗族; 检索表