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A new species of the genus *Anoplophora* Hope (Coleoptera: Cerambycidae: Lamiinae: Lamiini) from Nanling Priority Area for Biodiversity Conservation

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Abstract

The diversity of the genus *Anoplophora* Hope, 1839 of Nanling Priority Area for Biodiversity Conservation is surveyed, with the discovery of one new species, *A. xuei* Lin & Wen, **sp. nov.** This species is described from Guangxi and Guizhou, China. Illustrations of the habitus and male genitalia of *A. xuei* Lin & Wen, **sp. nov.** and the similar *A. leechi* (Gahan) are provided. Additional locality data for *A. leechi* is provided.

Key words: taxonomy, distribution, Oriental Region

Introduction

The genus *Anoplophora* Hope, 1839 was established based on *Anoplophora stanleyana* Hope from Assam, India, and revised by Lingafelter & Hoebeke (2002). It now includes 59 valid species and subspecies distributed in East, South and Southeast Asia (Tavakilian & Chevillotte 2023). The last taxonomic treatment on *Anoplophora* was made by Wang *et al.* (2023), who described two new species from China and mentioned all research after Lingafelter & Hoebeke (2002).

In the course of our study of material from Nanling Priority Area for Biodiversity Conservation (Guangdong, Guangxi, Hunan, Jiangxi and Guizhou Provinces), eighteen species of the genus *Anoplophora* were recorded; among them, five species will be reported from this area for the first time and will be illustrated in the faunal monograph (Lin & Hua in press). One new species is described herein.

Material and Methods

The male genitalia were prepared by soaking the whole beetle in a water bath at room temperature for 8~24h, removing the abdomen, then removing the genitalia with forceps, and clearing them in 10% KOH at room temperature for 16~24h. Genitalia were photographed submerged in ethyl alcohol and subsequently preserved in polyethylene genitalia vials filled with glycerin, and pinned under the specimens.

Photographs were taken with a Canon EOS 7D camera with Canon Macro 100 mm macro lens, except for the terminalia photographed with a Keyence VHX-1000C large depth-of-field 3D Digital Microscope.

Specimens studied were deposited in the following institutional museums and private collections; abbreviations as shown in the text:

CWD Collection of Dong Wen, Qingdao, Shandong, China

IZCAS Institute of Zoology, Chinese Academy of Sciences [= NACRC National Animal Collection Resource Center], Beijing, China

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MYNU Collection of Mianyang Normal University, Mianyang, Sichuan, China.
SYSU Sun Yat-sen University, Guangzhou, China

Taxonomy

***Anoplophora xuei* Lin & Wen, sp. nov.**
Chinese common name: 薛氏星天牛
(Figs 1–3, 8–10)

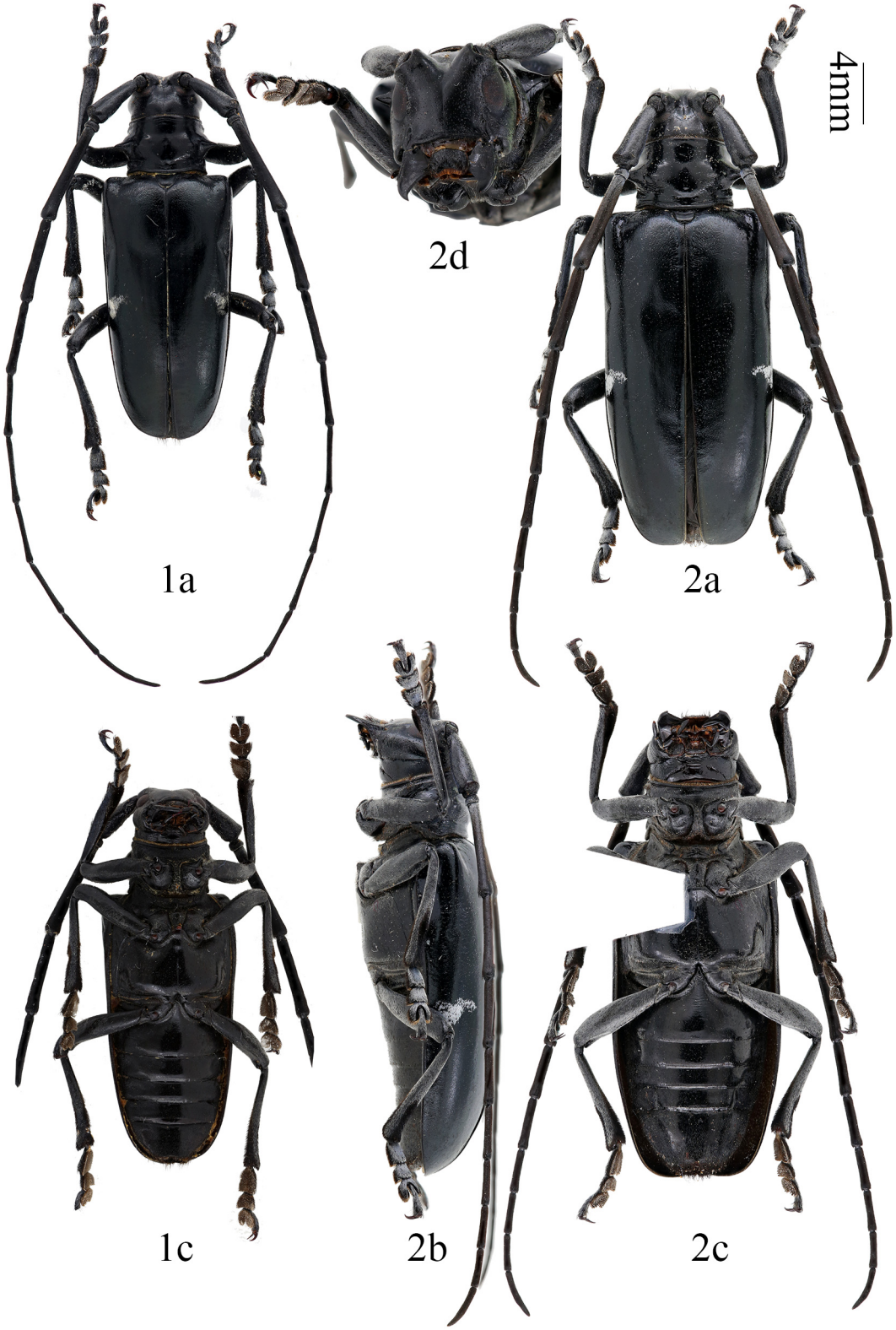
Type material. HOLOTYPE: CHINA: male, **Guizhou**, Tongren, Jiangkou Conty, Fanjingshan, road to Xin-Jinding (贵州铜仁江口县梵净山，去新金顶路上), 2016.VIII.7, leg. Guo-Xi Xue (MYNU). **PARATYPE: CHINA:** one female, **Guangxi**, Ziyuan County, Maoershan, Jinzibishushanzhuang (广西资源县猫儿山金紫避暑山庄), ca. 1500 m, 2021.VIII.13, leg. You Xiao (CWD, 20210002).

Description. Body length: 22–28 mm. **Head**: black with moderately long genae, weakly divergent at mandibular articulation so front of head has quadrate appearance. Head glabrous except transverse postclypeus with few long, dark hairs, without such hairs below antennal tubercles. Antennae of males exceed apex of elytra by 4.5 antennomeres; in females by about 3.5 antennomeres. All antennomeres black, without annulations, covered with inconspicuous, fine, and translucent hairs. Under sides of scape, pedicel, and extreme base of antennomere 3 with blue-grey pubescence. Scape with moderate sized, punctate cicatrix. Eye emarginate, lower lobe slightly higher than gena (Fig. 2d). Labium with palpi 3-segmented; apical palpomere weakly inflated at middle. Small sensillum patch present only on apex of terminal labial palpomere. Sensilla present only on apex of apical maxillary palpomere. Labrum trapezoidal and wider at apex than at base, apex densely fringed and with broad, shallow depression at middle. Densely fringed at apex. No calli present at anterior margin. Many small punctures present over outer surface. Anteclypeus membranous, without setae or obvious punctation. Mandible (Fig. 2d) moderate sized, triangular, with inconspicuous patch of white pubescence in shallow triangular outer basal region. Articulation cutting edge sharp, non-serrate and crescent-shaped. Pronotum black without distinct callus or constriction. **Thorax**: prothorax glabrous except for fringe of short hairs at anterior margin of pronotum oriented anteriorly along margin of occiput of head and a few long, erect hairs scattered on posterior side of lateral spines and elsewhere on pronotum. Lateral pronotal spine stout, thickened at base, with apex short and sharp, directed laterally. Prosternal intercoxal process expanded posteriorly, closing procoxal cavity. Venter (Figs. 1c, 2c) all black with inconspicuous, very fine translucent hairs scattered over surface of most sclerites. Scutellum (Figs. 1a, 2a) glabrous, with broadly rounded posterior apex. Mesoventral intercoxal process with pubescent, developed ventral and anterior projection. Metepisternum without modification. Metaventral notch deep with narrowly transverse apex. Elytron black, completely glabrous except for subtriangular white pubescent spot just behind middle near lateral margin, with leathery surface, and without iridescence. Base of elytra smooth, without granules or punctures. Moderate to strong humeral protuberance forming sinuate elytral base. Legs black with coating of inconspicuous blue-gray pubescence on tibiae and femora. Tarsi with more conspicuous and denser blue-gray iridescent pubescence. Distinct fringed antennal cleaners present on apical half of meso- and metatibia and apical third of protibia. Femora cylindrical, moderate in length; metafemur extending to posterior margin of third abdominal ventrite (Figs. 1c, 2c). **Abdomen:** black, apex of female terminal ventrite truncate without middle notch, with dense fringe of hairs at margin, interrupted at middle. Apex of male terminal ventrite transverse and just slightly depressed at middle of apex and with moderate fringe (Fig. lc).

Male genitalia (Figs. 8–10): Tegmen rhombic in ventral view (Fig. 9a), slightly curved in lateral view (Fig. 9b), parameres (= lateral lobes in Lin *et al*. 2009) converging and touching at apices (Fig. 8a), slender (length/width more than 3). Apical setae at least half as long as parameres. Region between base of parameres without central projection. Median lobe plus median struts slightly curved (Fig. 10b) in lateral view, median struts distinctly shorter than half length of entire median lobe. Ventral apex of median lobe rounded (Fig. 10d). Internal sac (= endophallus in Bi & Ohbayashi 2015) as in Figs. 10a & 10c, with 2 pieces of basal armature, 2 rod-like sclerites and 2 areas with minute microspinules. Tergite VIII (Fig. 8c) transverse, apex truncated, almost not emarginated, setae shorter and sparser in middle area than in two lateral areas.

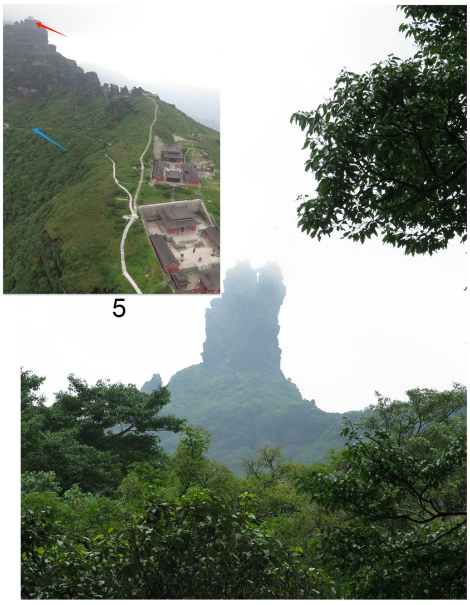
Diagnosis. *Anoplophora xuei* **sp. nov.** is morphologically close to *A. leechi* (Gahan) in the opaque black color, not very shiny and leathery appearance, black antennae without pubescent annulations, and elytra smooth without raised granules at the base. These characters can differentiate the two species from all other *Anoplophora* species.

However, *A. xuei* **sp. nov.** can be easily distinguished from *A. leechi* (Gahan) by the single white pubescent macula on each elytron, the pronotal lateral tubercles shorter and not curved backwards, the pronotum without a distinct callus or constriction, as well as the much smaller size (22–28 mm vs. 30–42 mm). The male genitalia of the new species differ in the tergite VIII with apex truncate instead of emarginated, and the median struts obviously shorter than half length of entire median lobe (Fig. 10c), while in *A. leechi* they are subequal to half length of entire median lobe (Fig. 13c).



FIGURES 1–2. Habitus of *Anoplophora xuei* **sp. nov. 1,** male, holotype, from Guizhou, China; **2,** female, paratype, from Guangxi, China. (a, dorsal view; b, lateral view; c, ventral view; d, frontal view. Scale bar 4 mm; 2d not to scale).

3



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FIGURES 3–5. Habitat of *Anoplophora xuei* **sp. nov.** at Jiangkou County, Guizhou. **3,** Habitus of holotype, resting on rocks beside the road; **4,** habitat of collecting site at Jinding (new); **5,** map of collecting site, red arrow showing Lao-Jinding, blue arrow showing the road to Xin-Jinding. Photographed by Guo-Xi Xue.

Etymology. The new species is dedicated to Dr. Guo-Xi Xue (薛国喜), a taxonomist of Hesperiidae in China, who provided the holotype specimen and other longhorned beetles he collected to the corresponding author.

Distribution. China: Guangxi, Guizhou.

Remarks. The distribution pattern of this new species is the same as the recently described species *Lemula* (*s. str.*) *simillima* N. Ohbayashi & Chou, 2019, which was known from Maoershan of Guangxi, and Fanjingshan of Guizhou (N. Ohbayashi & Chou 2019). The holotype specimen was collected on the pass to Xin-Jinding (Fig. 5, blue arrow). The beetle was resting on a rock beside the road (Fig. 3). The surrounding environment is shown (Fig. 4).

Anoplophora leechi (Gahan, 1888)

Chinese common name: 黑星天牛
(Figs 6–7, 11–13)

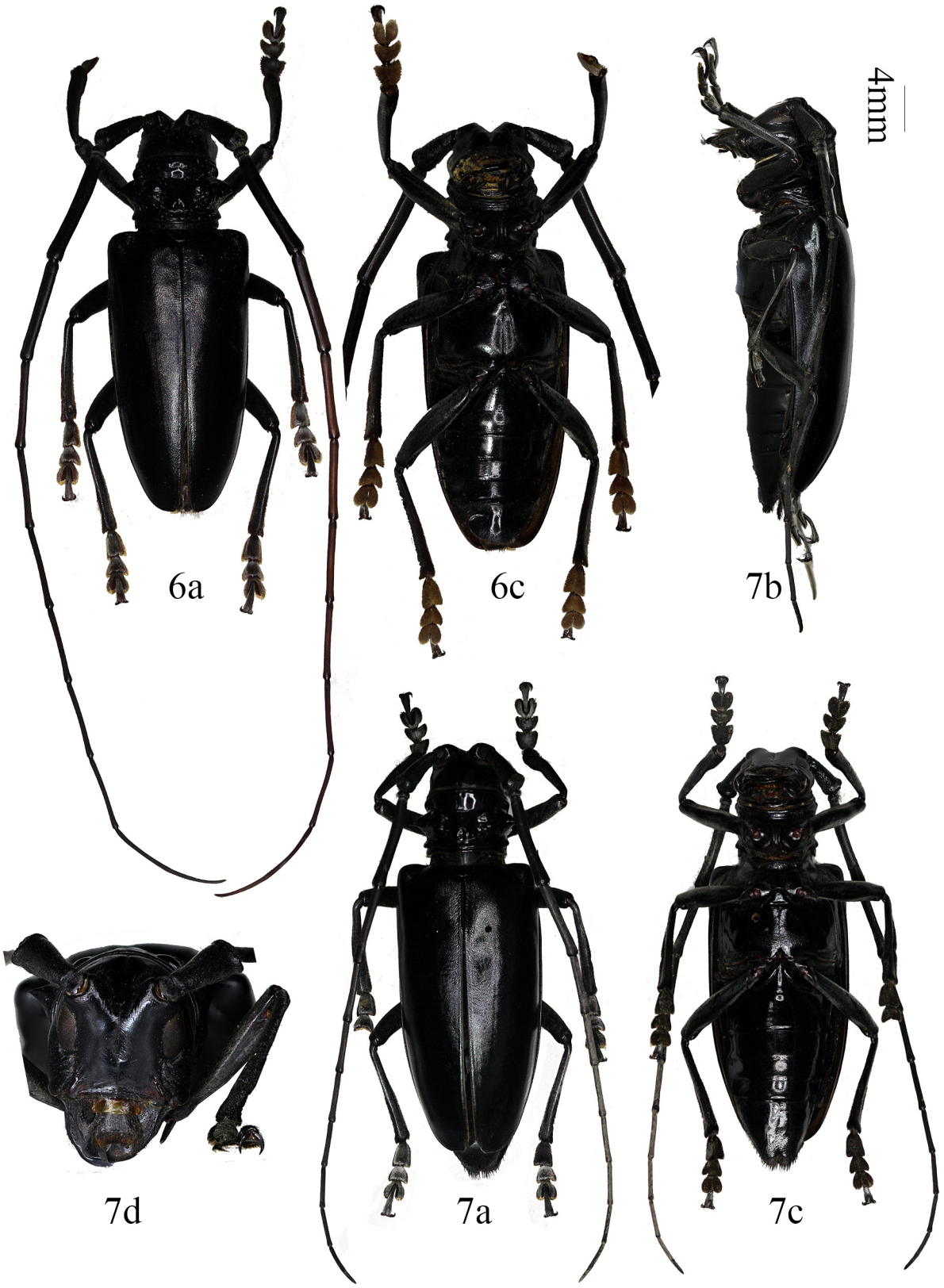
Melanauster leechi Gahan, 1888: 63.
Anoplophora (*Anoplophora*) *leechi*; Breuning, 1944: 286.

Material examined. China (Beijing): 1 male, Peking (IZCAS). **China (Jiangsu)**: 1 male 2 females, Ihing, Loubou (currently Yixing City, Hufu Town湖汶镇), 1923.VII.17-20 (IZCAS); 1 female, Chemo, 1935.VIII.28 (IZCAS). **China (Jiangxi)**: 1 female, Kou-ling (currently Jiujiang City, Guling牯岭), 1919.VII.20 (IZCAS); 1 female, same data but 1919.VIII.29; 2 males, Ku-ling (currently Jiujiang City, Guling牯岭), 1934.IX.1-3, leg. O. Piel (IZCAS); 1 male, Ku-ling, 1935.V.13, leg. O. Piel (IZCAS); 1 male, same data but 1935.VII.15; 1 female, same data but 1935.VII.19; 1 male, same data but 1935.VIII.10; 1 female, Ku-ling, 1934.IX.6 (IZCAS); 1 female, Ku-ling, 1936.VII.1 (IZCAS); 1 female, same data but 1937.II.13. **China (Zhejiang):** 1 female, Qingliangfeng, Qianqingtang (清凉峰千顷塘), 1140 m, 2008.VIII.7, leg. Wan-Gang Liu (IZCAS); 1 male, Tinghai (currently Dinghai Distr.定海区), 1937.VI (IZCAS). **China (Hunan)**: 1 male, Xinning, 1981.V (IZCAS).

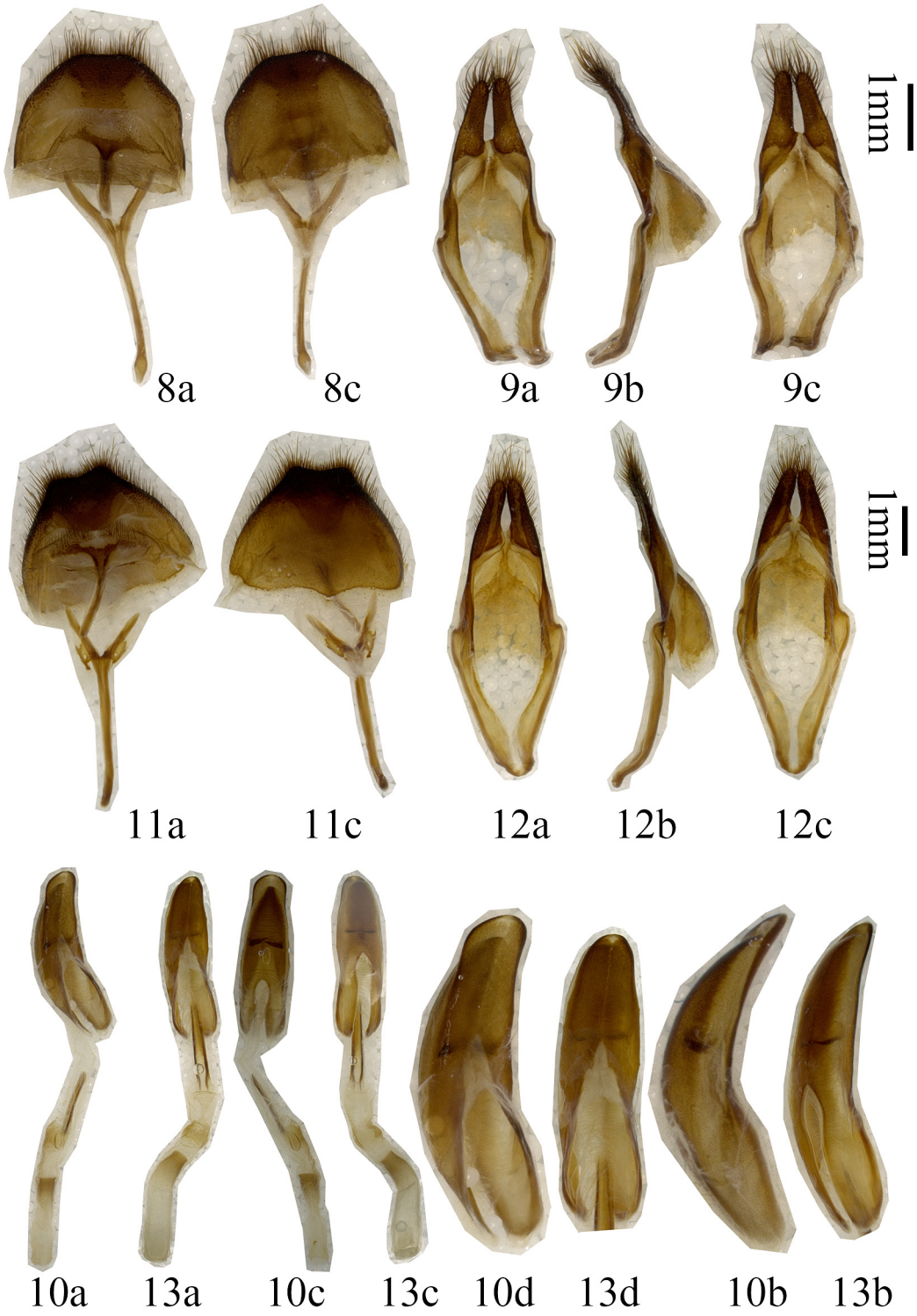
Distribution. China: Beijing, Hebei, Henan, Jiangsu, Zhejiang, Hubei, Jiangxi, Hunan, Guangxi.

Remarks. The Beijing record was first reported by Gressitt (1951), and there is one male labeled "PEKING" in IZCAS. The male genitalia was described and illustrated by Lingafelter & Hoebeke (2002) and Bi & Ohbayashi

(2015). However, tergite VIII with sternites VIII & IX (Fig. 12) of this species is shown for the first time. The strongly emarginate apex of tergite VIII is an important diagnostic feature to separate *A. leechi* from *A. xuei* **sp. nov.**



FIGURES 6–7. Habitus of *Anoplophora leechi* (Gahan, 1888). **6,** male, from Hunan, China; **7,** female, from Jiangxi, China. (a, dorsal view; b, lateral view; c, ventral view; d, frontal view. Scale bar 4 mm; 7d not to scale).



FIGURES 8–13. Male terminalia of *Anoplophora* species. **8–10,** *A. xuei* **sp. nov.**; **11–13,** *A. leechi*; 8 & 11, Tergite VIII with sternites VIII & IX; 9 & 12, tegmen; 10 & 13, median lobe with or without endophallus. (a, in ventral view; b, in lateral view; c, in dorsal view; d, median lobe without endophallus in ventral view. Scale = 1 mm; 10 & 13 not to scale).

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南岭生物多样性保护优先区星天牛属*Anoplophora*一新种（鞘翅目：天牛科：沟胫天牛亚科：沟胫天牛族）

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摘要：在调查南岭生物多样性保护优先区域星天牛属*Anoplophora*多样性时发现一新种，即分布于广西和贵州的薛氏星天牛*A. xuei* **sp. nov.**；提供了薛氏星天牛和相似的黑星天牛*A. leechi*整体图和雄外生殖器图。

关键词：分类；分布；东洋区