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Description of two new species of Sericini from Zhuhai City, Guangdong, China (Coleoptera: Scarabaeidae: Sericinae)

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Abstract: Two new sericine chafers, *Tetraserica zhuhaiensis* Zhao, Huang, Huang & Ahrens, **sp. nov.** and *Neoserica* (s. l.) *danganensis* Zhao, Huang, Huang & Ahrens, **sp. nov.** are described and illustrated from Zhuhai City, southern China. Records of other Sericini species occurring in Zhuhai are also given.

Keywords: Scarabaeoidea, chafers, new taxon, taxonomy, Oriental Region

广东珠海市绢金龟族两新种记述（鞘翅目：金龟科：绢金龟亚科）

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摘要：本文描记了两个采于中国南部珠海市的绢金龟，即珠海四绢金龟 *Tetraserica zhuhaiensis* Zhao, Huang, Huang & Ahrens, **sp. nov.**和担杆暗新绢金龟 *Neoserica* (s. l.) *danganensis* Zhao, Huang, Huang & Ahrens, **sp. nov.**，提供了二者的形态图，同时对珠海的其他绢金龟族物种进行了记录。

关键词：金龟总科，金龟子，新分类单元，分类学，东洋区

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Introduction

The tribe Sericini Kirby, 1837 is one of the most species-rich lineages in the family Scarabaeidae, with particularly high species diversity recorded in China and adjacent regions (e.g., Ahrens 2005; Fabrizi *et al.* 2021; Ahrens *et al.* 2021, 2022; Ahrens & Bezděk 2024). The genera *Tetraserica* Ahrens, 2004 and *Neoserica* Brenske, 1894 represent two groups that growing rapidly in terms of known species diversity within this tribe. The known *Tetraserica* species form a monophyletic group (Eberle *et al.* 2017; Dalstein *et al.* 2018), and their species number has increased considerably through recent taxonomic efforts (Liu *et al.* 2014; Fabrizi *et al.* 2019; Ahrens 2021; Ahrens *et al.* 2023). In contrast, *Neoserica* is a polyphyletic group comprising numerous separated lineages with multilamellate antennae (Liu *et al.* 2015). Our knowledge of *Neoserica* from China and adjacent region has been greatly improved over the past 20 years (e.g., Ahrens 2003; Ahrens *et al.* 2014; Liu *et al.* 2019; Ahrens 2023).

Zhuhai is the smallest city in Guangdong Province, southeastern China, covering an area of approximately 1,736 km^2. Located at the Pearl River estuary, it is a coastal city with a population of over 2.4 million, resulting in a population density exceeding 1,400 people per square kilometer. Despite extensive urbanization over the past 40 years, many forested areas have been conserved by the government in efforts to promote environmental sustainability (Cui *et al.* 2018). These fragmented forests, together with more than 100 islands, serve as refuges for local biodiversity. Several new species have been originally discovered in Zhuhai, including a toad (Song *et al.* 2024), three crabs (Huang *et al.* 2012, 2017), two midges (Sun *et al.* 2009) and two plant taxa (He *et al.* 2022; Wang *et al.* 2025). These findings highlight that even in densely populated urban areas, native biodiversity may persist — including beetles, the most diverse group of insects. Nonetheless, the beetle fauna of Zhuhai has remained largely unexplored.

During recent field surveys in Zhuhai, two previously undescribed species of sericine chafers were collected. In this study, we describe them as new species and provide diagnostic comparisons with morphologically similar congeners. Additionally, four other Sericini species from Zhuhai were recorded.

Material and methods

The terminology and methods used for measurements, specimen dissection, and genital preparation follow Ahrens (2004). Label data of the specimens examined are cited verbatim. Type specimens of the new species are each provided with one label "HOLOTYPE [or] PARATYPE [*taxon name*] des. Zhao, Huang, Huang & Ahrens, 2025". Images for habitus and male genitalia were taken using a Canon EOS 760D camera in conjunction with a Laowa 60 mm f/2.8 2X Ultra-Macro Lens and a Laowa 25 mm f/2.8 2.5-5X Ultra Macro Lens, respectively. Zerene Stacker (version 1.04) and Helicon Focus (version 8.2.0) were used for image stacking. All images were edited and arranged into plates in Adobe Photoshop CS5.

Acronyms of the depository are as following: **SCAU** (South China Agricultural University, Guangzhou, China); **ZMPC** (Ming-Zhi Zhao personal collection, Zhuhai, China).

Taxonomy

Tetraserica zhuhaiensis Zhao, G-C Huang, H-M Huang & Ahrens, sp. nov. 珠海四绢金龟

https://zoobank.org/4BC8EA66-BD5C-40DA-8A81-B0D9B27438B6

Figs 1A–B, 2A–E, 4, 5

Type material. Holotype: ♂ (SCAU) "CHINA: Guangdong Prov., Zhuhai City, Jinwan Dist. [金湾区], Sanzao Forest Park [三灶森林公园], Mt. Jiaodingshan [轿顶山], N 22°1′47.33″, E 113°22′10.8″, 153 m, 2025.VI.9, at light, legit Guo-Cong Huang et al."; **Paratypes:** 4♂♂, 7♀♀ (ZMPC), "CHINA: Guangdong Prov., Zhuhai City, Doumen Dist. [斗门区], Huangyangshan Forest Park [黄杨山森林公园], N 22°14′31.43″, E 113°13′17.85″, 206 m, 2025.VI.30, at night, on *Alchornea trewioides*, legit Guo-Cong Huang et al.".

Description of holotype. Length: 9.2 mm; length of elytra: 6.6 mm; maximum width: 5.5 mm. Body oval, dorsal surface including pygidium dark brown and glabrous, frons and pronotum with weak greenish shine, labroclypeus, ventral surface and legs reddish brown, antenna yellow.

Labroclypeus subtrapezoidal, wider than long, widest at base, lateral margins moderately convex and convergent to strongly rounded anterior angles, anterior margin weakly emarginate medially, margins moderately reflexed; surface weakly convex, moderately shiny, finely and densely punctate, glabrous; frontoclypeal suture indistinctly incised, flat and weakly curved medially; ocular canthus short and triangular, impunctate, with a single terminal seta. Smooth area anterior to eye twice as wide as long. Frons dull, with sparse, fine punctures, with two single erect setae beside each eye. Antenna yellowish, with ten antennomeres; club composed of four antennomeres in male, straight, 1.3 times as long as remaining antennomeres combined. Eyes moderately large, ratio of diameter/interocular width: 0.44. Mentum elevated and slightly flattened anteriorly.

Pronotum moderately wide and convex, widest shortly before base, lateral margins evenly convex, strongly narrowed anteriorly towards sharp and slightly produced anterior angles, posterior angles convex. Anterior margin of pronotum slightly convex, with fine, complete marginal line. Surface finely and densely punctate, except minute setae glabrous, lateral and lateral anterior margins sparsely setose. Hypomeron not carinate. Scutellum triangular, finely and densely punctate.

Elytra oblong, widest in posterior third; striae distinctly impressed, finely and moderately densely punctate; intervals flat, with fine and almost evenly dense punctures, on odd intervals moderately concentrated along striae, with very minute setae in punctures; epipleural edge robust, ending at convex external apical angle of elytra, epipleura densely setose; apical border with a narrow fringe of microtrichomes (100x magnification).

Ventral surface dull, finely and densely punctate, metasternum sparsely covered with fine, short, or very minute setae; metacoxa glabrous, with a few single setae laterally; abdominal sternites finely and densely punctuate, with a transverse row of coarse punctures, each bearing a robust seta. Mesosternum between mesocoxae as wide as mesofemur. Ratio of length of metepisternum/metacoxa: 1/1.7. Pygidium weakly convex and dull, densely punctate, without smooth midline, almost glabrous, with several longer setae along apical margin.

Legs wide; femora finely and sparsely punctate; metafemur wide and moderately shiny, anterior margin acute, posterior margin smooth ventrally and only weakly widened in apical half, posterior margin smooth dorsally, straight and glabrous. Metatibia moderately short and wide, widest at middle; ratio width/length: 1/2.6; basal group of dorsal spines of metatibia at first third, apical one at three quarters of metatibial length; ventrodistal margin strongly truncated, ventral margin one quarter of its length shorter than dorsal one, ventral terminal spine very long, as long as metatibia, and strongly curved. Tarsomeres dorsally smooth, with fine, dense setae ventrally on distal half, neither laterally nor dorsally carinate; metatarsomeres with a strongly serrated ridge ventrally and glabrous; first metatarsomere as long as following two tarsomeres combined, a quarter of its length longer than dorsal tibial spine. Protibia short, bidentate; anterior claws symmetrical, basal tooth of both claws bluntly truncate at apex.

Aedeagus: Fig. 2A–E. Habitus: Fig. 1A–B.

Variation. Length: 8.7–10.3 mm; length of elytra: 6.4–7.3 mm; maximum width: 5.2–6.0 mm. Female: antennal club in female composed of three antennomeres, distinctly shorter than the remaining antennomeres combined.

Diagnosis. *Tetraserica zhuhaiensis* **sp. nov.** appears to be most similar to *T. thainguyensis* Fabrizi, Dalstein & Ahrens, 2019. The new species can be easily distinguished from *T. thainguyensis* by the slightly longer ventroapical apophysis of phallobase, the longer, deeply bifurcate left paramere (shorter and bearing several teeth in *T. thainguyensis*), and the longer upper lobe of right paramere with a comb of short spines (instead short and simply pointed in *T. thainguyensis*).

Etymology. The new species is named after Zhuhai City, where the type series was collected.

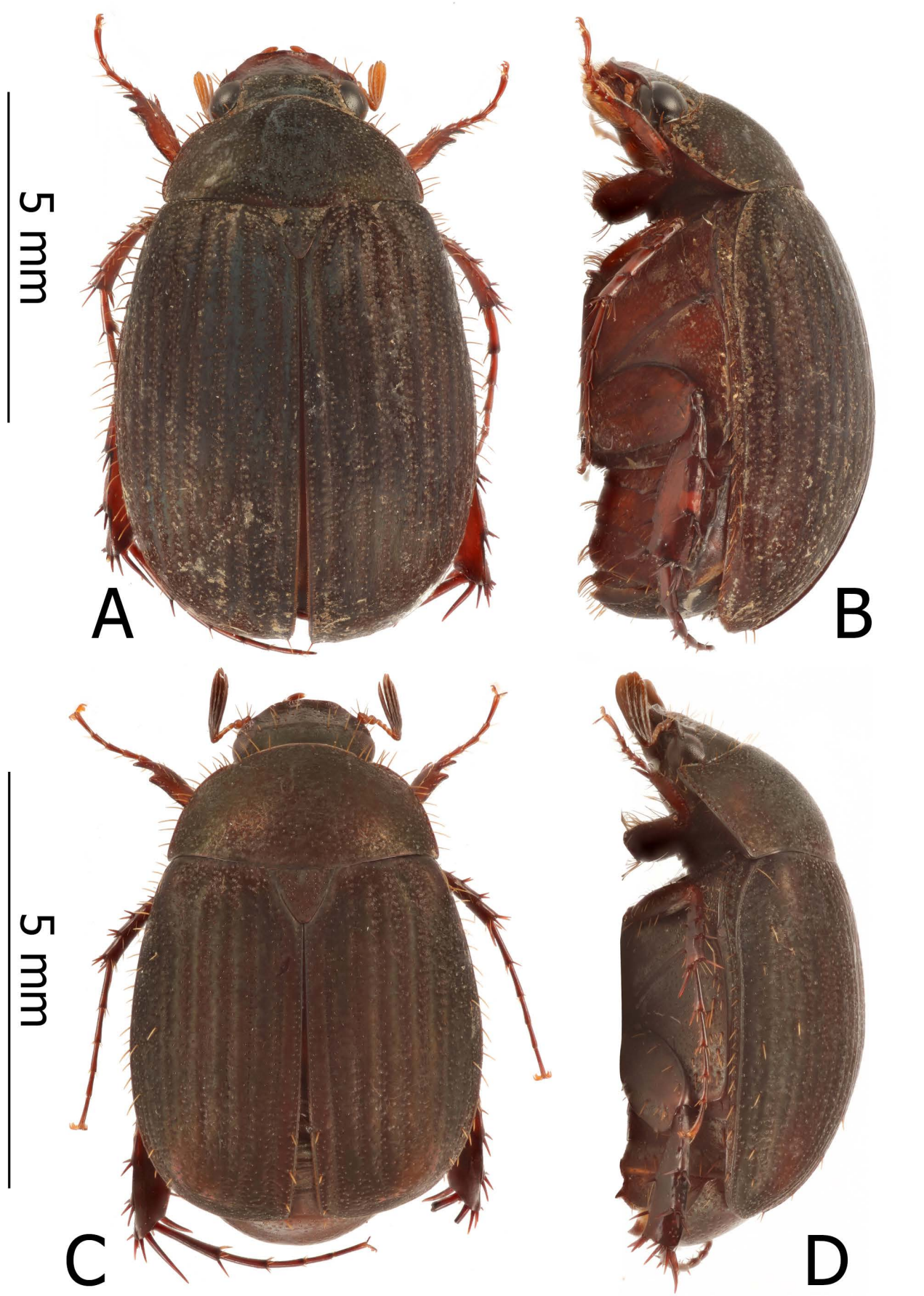

FIGURE 1. Habitus of Sericini species in dorsal and lateral view: **A–B** *Tetraserica zhuhaiensis* **sp. nov.** holotype **C–D** *Neoserica danganensis* **sp. nov.** holotype.

Neoserica (s. l.) *danganensis* Zhao, G-C Huang, H-M Huang & Ahrens, sp. nov.
担杆暗新绢金龟

https://zoobank.org/A39A1C65-3552-45A8-A008-F17CA6F5EAC8

Figs 1C–D, 2F–J, 4

Type material. Holotype: ♂ (SCAU) "CHINA: Guangdong Prov., Zhuhai City, Xiangzhou Dist. [香洲区], Wanshan Iss. [万山群岛], Dan'gan Island [担杆岛], N 22°3′9.05″, E 114°17′59.02″, 29 m, 2025.VI.20, daytime, on *Melastoma* flowers, legit Guo-Cong Huang et al."; **Paratypes:** 1♂, 1♀ (ZMPC), "CHINA: Guangdong Prov., Zhuhai City, Xiangzhou Dist., Wanshan Iss., Dan'gan Island, N 22°3′9.05″, E 114°17′59.02″, 29 m, 2025.VI.20, daytime, on *Melastoma* flowers, legit Guo-Cong Huang et al.".

Description of holotype. Body length: 6.4 mm, length of elytra: 4.3 mm, body width: 3.9 mm. Body short-oval, entirely dark brown, dorsal surface except anterior labroclypeus dull, pronotum and elytra glabrous.

Labroclypeus subtrapezoidal, distinctly wider than long, widest at base, lateral margins weakly convex, convergent anteriorly; anterior angles broadly rounded; anterior margin almost straight, margins moderately reflexed; surface weakly convex, shiny, base dull, densely and coarsely punctate, with several erect setae; frontoclypeal suture indistinctly incised, weakly curved medially; smooth area in front of eye convex, nearly as long as wide; ocular canthus short and triangular (1/3 of ocular diameter), sparsely punctate, with one or more terminal setae. Frons with fine and moderately dense punctures, with a few long erect setae beside eyes and behind frontoclypeal suture. Eyes small, ratio diameter/ interocular width: 0.4. Antenna with ten antennomeres, club with four antennomeres and straight, 1.5 times as long as remaining antennomeres combined. Mentum convexly elevated and flattened anteriorly.

Pronotum transverse, widest at base, lateral margins evenly convex and moderately convergent anteriorly; anterior angles distinctly produced and sharp, posterior angles blunt and weakly rounded at tip; anterior margin straight, with a fine complete marginal line; surface densely and finely punctate, glabrous, with minute setae in punctures (100x magnification); lateral border densely setose; hypomeron distinctly carinate basally, not produced ventrally. Scutellum triangular, with fine, dense punctures, glabrous.

Elytra short-oval, widest shortly behind middle; striae finely impressed, finely and densely punctate; intervals weakly convex, with sparse, fine punctures concentrated along striae, each puncture with a minute seta; lateral portion of elytra with several erect setae; epipleural edge robust, ending at nearly blunt external apical angle of elytra, epipleura densely setose; apical border without a fine fringe of microtrichomes (visible at 100x magnification).

Ventral surface dull, finely and densely punctate; metasternum nearly glabrous except a few long robust setae on disc, punctures with minute setae (100x magnification); metacoxa glabrous, with a few single setae laterally; abdominal sternites finely and densely punctate, with a transverse row of coarse punctures, each bearing a short robust seta, last sternite half as long as penultimate one. Mesosternum between mesocoxae as wide as the mesofemur, with a semi-circular ridge bearing long setae. Ratio of length of metepisternum/ metacoxa: 1/ 2.7. Pygidium dull, moderately convex, finely and moderately densely punctate, without smooth midline, with a few long setae along apical margin and near basal angles.

Legs short; femora moderately shiny, with two rudimentary longitudinal rows of setae, finely and sparsely punctate, glabrous; metafemur with anterior margin acute, without serrated line behind anterior edge, posterior margin smooth ventrally, in apical half only weakly widened, posterior margin smooth dorsally. Metatibia wide and short, widest at middle, ratio of width/ length: 1/ 2.9; dorsal margin sharply carinate, with two groups of spines, basal group at one third, apical group at three quarters of metatibial length, basally with a few short single setae; lateral face weakly convex, finely and sparsely punctate, smooth along middle; ventral edge finely serrated, with three robust nearly equidistant setae; medial face smooth, apex interiorly near tarsal articulation bluntly truncate and slightly concavely sinuate. Tarsomeres ventrally with sparse, short setae, smooth, neither laterally nor dorsally

carinate; metatarsomeres with a strongly serrated ridge ventrally, glabrous; first metatarsomere as long as following two tarsomeres combined and as long as dorsal tibial spur. Protibia short, bidentate, distal tooth sharply pointed at apex; anterior claws symmetrical, basal tooth of inner claw sharply truncate at apex.

Aedeagus: Fig. 2F–J. Habitus: Fig. 1C–D.

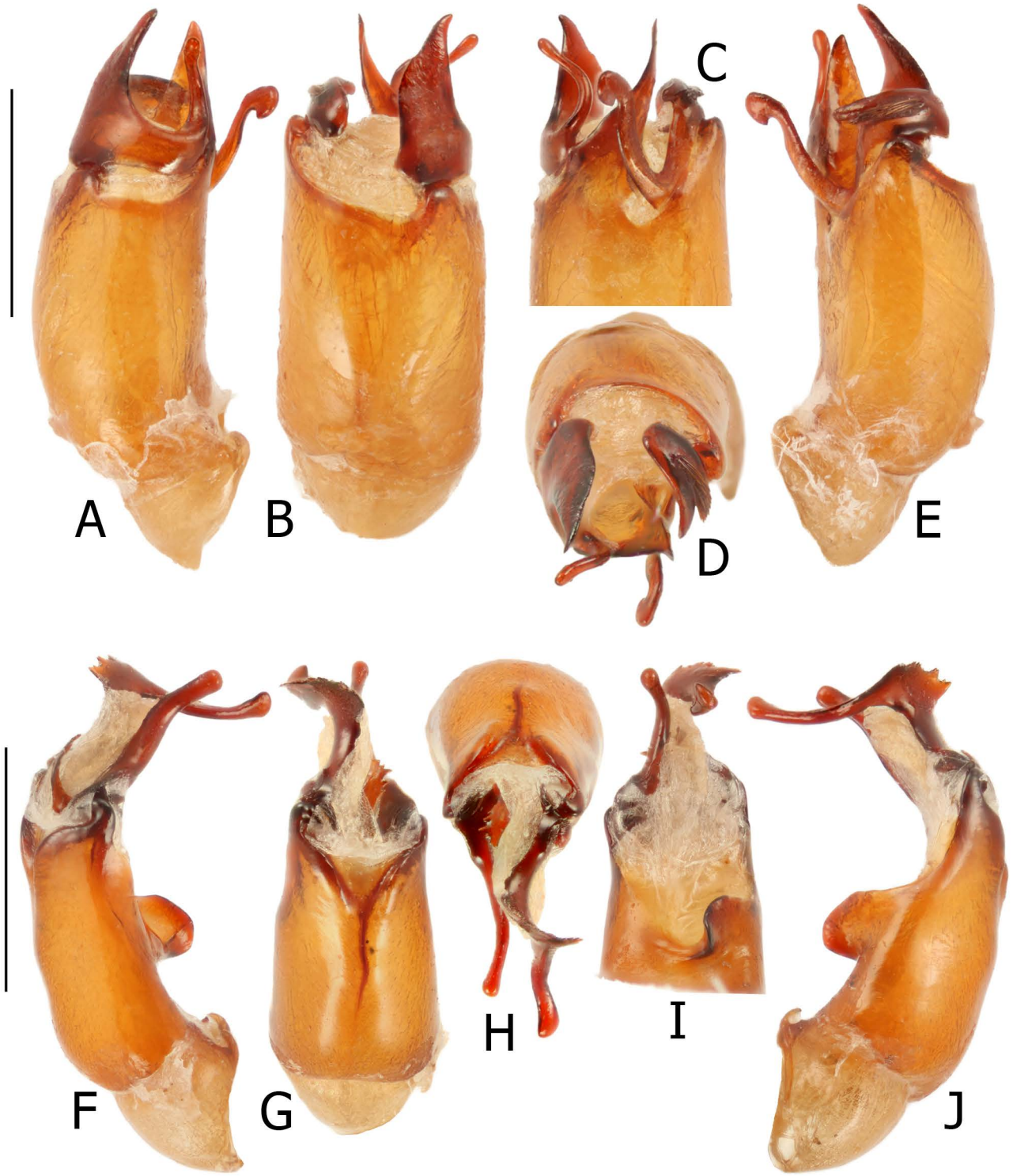

FIGURE 2. Aedeagus of Sericini species: **A–E** *Tetraserica zhuhaiensis* **sp. nov.** holotype **F–J** *Neoserica danganensis* **sp. nov.** holotype **A, F** left lateral view **B, G** dorsal view **C, I** ventral view **D, H** caudal view **E, J** right lateral view. Scale bar = 1 mm.

Variation. No considerable size variation. Female: antennal club also composed of four antennomeres, however, the club is slightly shorter than in males and the first joint of the club is slightly shorter than the club; pygidium moderately convex, at middle strongly shiny and finely punctate.

Diagnosis. The new species can be grouped into the *Neoserica obscura* species group (sensu Liu *et al.* 2016) based on its morphology. The parameres of the new species are most similar to those of *N. obscura* (Blanchard, 1850). In *N. danganensis* **sp. nov.**, the upper lobe of the left paramere is a dorsally serrated plate, whereas in *N. obscura* it is a slender and simply pointed stick. The phallobase of *N. obscura* has a pair of distinct dorsal protuberances before apex which are lacking in *N. danganensis* **sp. nov.** In contrast, *N. danganensis* **sp. nov.** has a distinct ventral lamina on the phallobase, which is shared only with *N. hainana* (Brenske, 1898) and *N. tahianensis* Ahrens, Fabrizi & Liu, 2016. The lamina is situated more proximally and directed basally in *N. danganensis* **sp. nov.**, while in *N. hainana* and *N. tahianensis* it is situated more distally and directed apically.

Etymology. The name of the new species is referring to Dan'gan Island, the type locality.

Records of other Sericini species from Zhuhai City:

Maladera aureola (Murayama, 1938)

Fig. 3C–D

Material examined. 1♂, 1♀ (ZMPC) "Guangdong, Zhuhai, Mt. Paotaishan [炮台山] 2011-IV Ming-Zhi Zhao leg."; 1♀ (ZMPC) "Guangdong, Zhuhai City, Xiangzhou Dist., Xiangshan Lake Park, 2025.VI.5, at light, Ming-Zhi Zhao leg.".

Distribution. China (Chongqing, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Sichuan, Shandong, Taiwan); North Korea; South Korea.

Remarks. The distribution information reported in Ahrens & Bezděk (2024) is incomplete. We here add Chongqing and Shandong based on the material examined by Fabrizi *et al.* (2021).

Maladera fusca (Frey, 1972)

Fig. 3A–B

Material examined. 3♂♂ (ZMPC) "CHINA: Guangdong Prov., Zhuhai City, Jinwan Dist., Sanzao Forest Park, Mt. Jiaodingshan, N 22°1′47.33″, E 113°22′10.8″, 153 m, 2025.VI.9, at light, legit Guo-Cong Huang et al.".

Distribution. China (Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Taiwan); Vietnam.

Remarks. The distribution information reported in Ahrens & Bezděk (2024) is incomplete. We here add Henan, Hubei, Jiangsu and Jiangxi based on the material examined by Fabrizi *et al.* (2021).

Maladera jaintiaensis Ahrens & Fabrizi, 2016

Fig. 3E–F

Material examined. 1♂ (ZMPC) "Guangdong, Zhuhai, Ji'nan University, 2011-IV-23 Ming-Zhi Zhao".

Distribution. China (Fujian, Guangdong, Jiangxi, Yunnan); India; Laos.

Remarks. The distribution information reported in Ahrens & Bezděk (2024) is incomplete. We here add Jiangxi based on the material examined by Fabrizi *et al.* (2021).

Maladera stridula (Brenske, 1897)

Fig. 3G–H

Material examined. 1♂ (ZMPC) "Ji'nan University, Zhuhai City, Guangdong Prov. 2010.VII.13 M-Z. ZHAO leg."; 1♂, 5♀♀ (ZMPC) "Zhuhai City, Xiangzhou Dist., Hongshan Road, 2022-3-31 at night, host on *Terminalia neotaliala*, Miao-Feng Xu leg."; 1♂, 4♀♀ (ZMPC) "Guangdong, Zhuhai City, Xiangzhou Dist., Xiangshanhu Park, 2025.VI.5, at light, Ming-Zhi Zhao leg.".

Distribution. China (Beijing, Guangdong, Guangxi, Hainan, Hebei, Hubei, Hongkong, Shandong, Taiwan, Yunnan, Zhejiang); Vietnam.

Remarks. The distribution information reported in Ahrens & Bezděk (2024) is incomplete. We here add Guangxi, Hebei, Hubei and Zhejiang based on the material examined by Fabrizi *et al.* (2021).

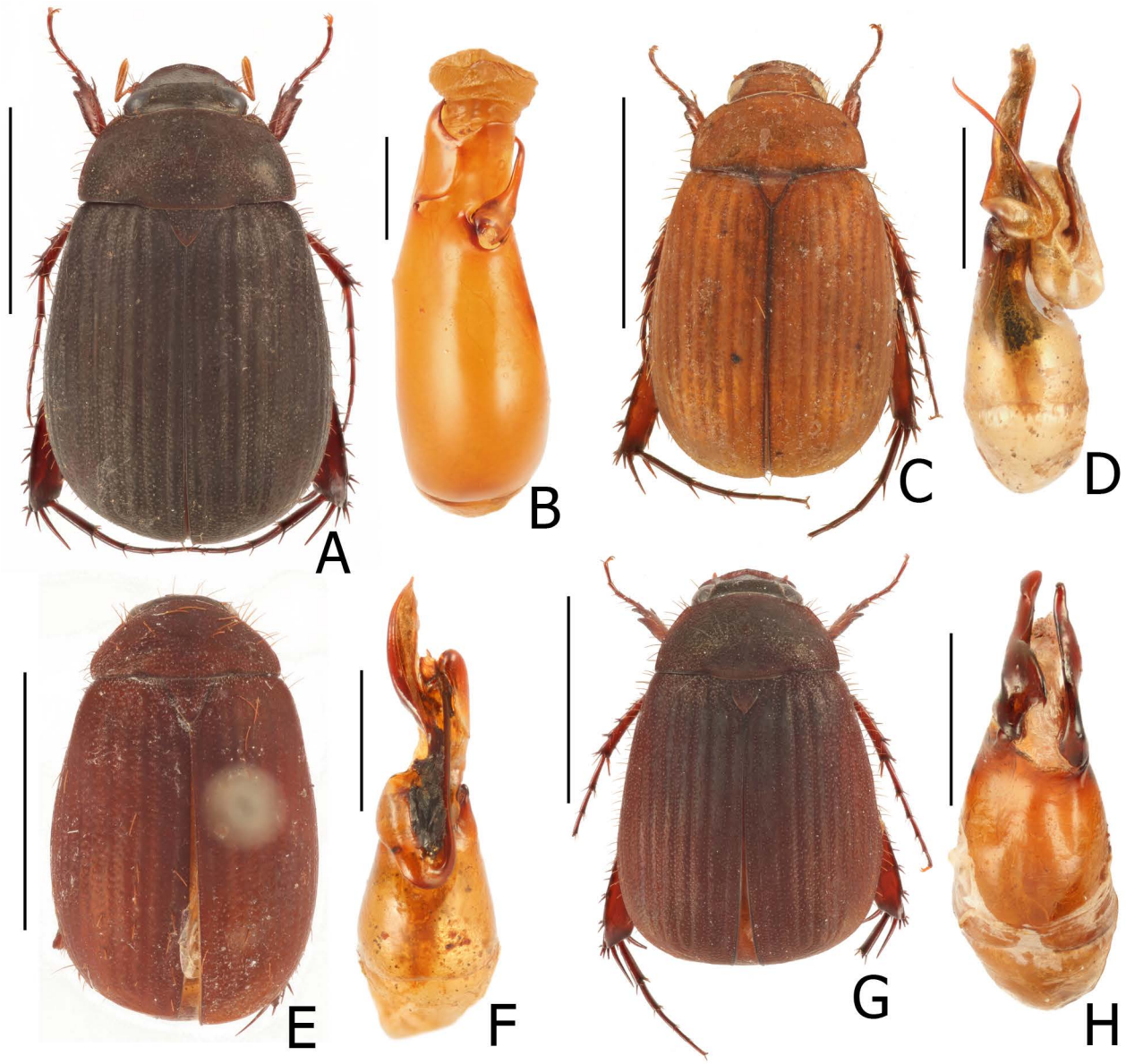

FIGURE 3. Habitus and aedeagus of *Maladera* species, in dorsal view: **A–B** *M. fusca* **C–D** *M. aureola* **E–F** *M. jaintiaensis* **G–H** *M. stridula*. Scale bar = 5 mm for habitus, = 1 mm for aedeagus.

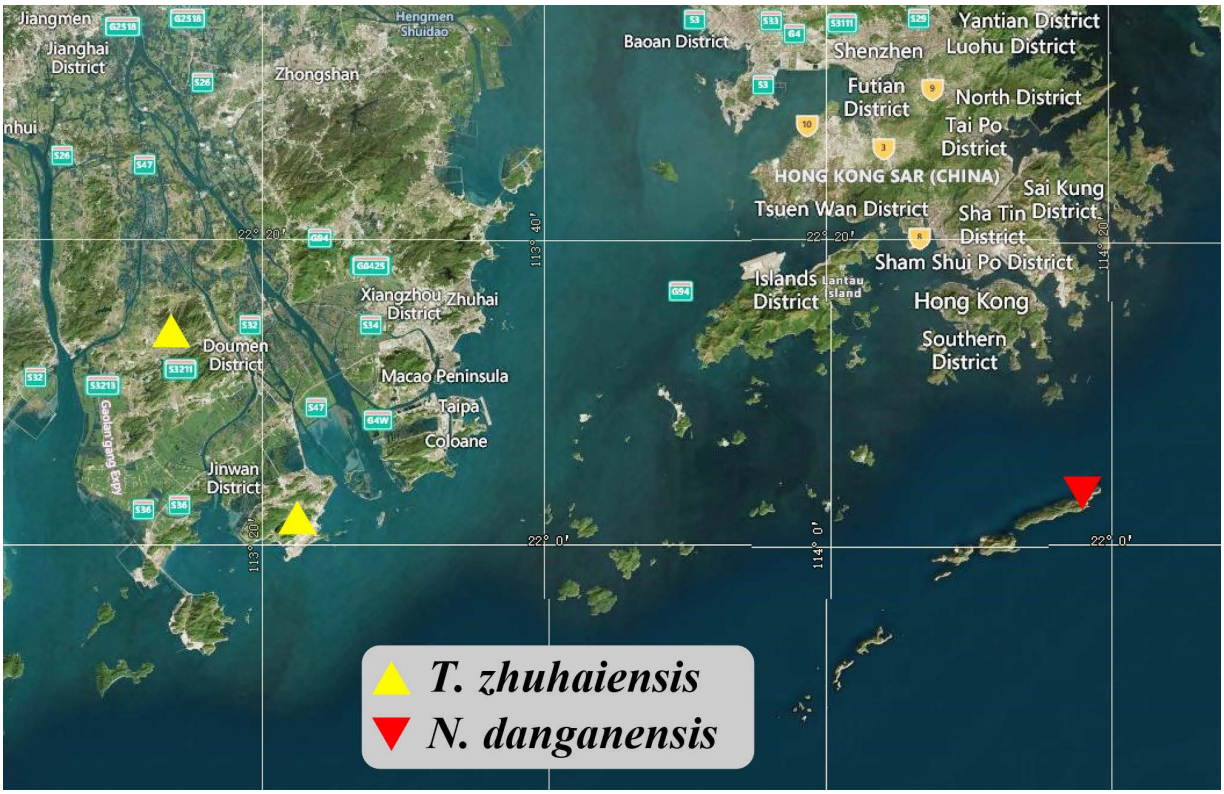

FIGURE 4. Map of Zhuhai showing known distribution of *Tetraserica zhuhaiensis* **sp. nov.** and *Neoserica danganensis* **sp. nov.**

FIGURE 5. *Tetraserica zhuhaiensis* **sp. nov.** mating on its host plant *Alchornea trewioides*.

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