One new species in the leaf-beetle genus *Sphenoraia* Clark (Coleoptera: Chrysomelidae: Galerucinae) from the Haizhu Wetland of Guangzhou, China

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Abstract: In this study, one new species of the leaf-beetle genus *Sphenoraia* Clark, 1836 (Coleoptera:Chrysomelidae: Galerucinae) is described from the Haizhu Wetland, Guangzhou, China: *Sphenoraia* (*Sphenoraioides*) *haizhuensis* Yang **sp. nov.** A key to the 12 Chinese species of *Sphenoraia* as well as photographs of the habitus and aedeagus of the new species and its related species are given.
Keywords: *Chrysomeloidea*; leaf beetle; taxonomy

广州海珠斯萤叶甲属一新种（鞘翅目：叶甲科：萤叶甲亚科）

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摘要：本研究记述了来自中国广州海珠湿地的萤叶甲亚科斯萤叶甲属的 1 新种，并提供了斯萤叶甲属 12 个中国种类的检索表、新种及其近似种的整体图和雄性外生殖器图。
关键词：叶甲总科；叶甲；分类学

Introduction

The genus *Sphenoraia* with 24 species belongs to the tribe Hylaspini in the subfamily Galerucinae (Coleoptera, Chrysomelidae). It is mainly distributed in the Oriental Region and Palaearctic Region (Yang *et al.* 2015; Nie *et al*. 2017). The genus was described by Clark

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(1865). In China, there are 12 species including this current new species (Jiang & Chen 1992; Wang *et al*. 2000). We have monitored the insect biodiversity of the Haizhu Wetland, Guangzhou, China since 2020. During sorting of specimens, one new species was found and is described here. In addition, we provide a key to the Chinese species of this genus as well as photographs of the habitus and aedeagus of this new species and its related species.

Material and methods

The morphological characters were examined with an Olympus SZ61 microscope.

Dissections. The genitalia of males from each species were dissected using the following procedure: for dried or ethanol preserved specimens, the abdomen was taken from the specimens, then transferred to a vial containing 10% NaOH solution which was heated in a boiling water bath for 10–15 minutes. The abdomen with aedeagus was washed in distilled water 3 or 4 times, transferred into a cavity slide using fine forceps and the aedeagus was separated by hooked minute-pin dissecting needles.

Photographs. Habitus images were taken using a Canon 5DSR/Nikon SM225 digital camera. Aedeagus images were taken using a Nikon D610 digital camera, linking a Zeiss V/A1 microscope (with 5× objective lens). A cable shutter release was used to prevent the camera from shaking. To get the full depth of focus, all images were stacked with HELICON FOCUS 6 (http://www.heliconsoft.com/-heliconsoft-products/helicon-focus/) and the resulting output was edited with Adobe Photoshop CC (https://www photoshop.com/).

The label data of types is translated into English from the original Chinese. Type specimens of the new species are deposited in the Institute of Zoology, Guangdong Academy of Sciences (GDAS).

Taxonomy

Keys to Chinese species of *Sphenoraia*

1. Body shape elliptical; antennae short, 2nd as long as 3rd in male, from 4th becoming gradually broad [*Sphenoraia* (*Spheroraioides*)] …… 2
-. Body shape nearly parallel; antennae filiform, 2nd shorter than 3rd in male, several segments of apex slightly thicker [*Sphenoraia* (*Sphenaraia*)]; pronotum black; elytron brown with eight black spots …… *S.* (*S.*) *nigra* Wang, Li & Yang
2. Head and pronotum yellow or blackish brown …… 3
-. Head and pronotum black or bluish black …… 5
3. Pronotum and elytron without black spots …… *S.* (*S.*) *cupreata* Jacoby
-. Pronotum and elytron with black spots …… 4
4. Head and scutellum with distinct punctures …… *S.* (*S.*) *haizhuensis* Yang **sp. nov.**
-. Head and scutellum without distinct punctures …… *S.* (*S.*) *nebulosa* (Gyllenhal)
5. Elytra without any stripe …… 6
-. Elytra with black stripes …… 8
6. Elytra blackish brown……..*S.* (*S.*) *duvivievi* (Laboissière)
-. Elytra not blackish brown …… 7
7. Elytra bluish green or bluish black; the surface of elytra with fine punctures; elytral epipleuron bluish

green……*S.* (*S.*) *micans* (Fairmaire)

-. Elytra black; the surface of elytra with strong punctures; elytral epipleuron yellow……. …… *S.* (*S.*) *yajiangensis* Jiang

8. Abdomen yellow with black marking in lateral sides …… *S.* (*S.*) *anjiensis* Yang & Li

-. Abdomen blackish brown or black……9

9. Each elytron with four black spots……10

-. Each elytron with seven black spots ……*S.* (*S.*) *nigromaculata* Jiang

10. Marking in middle of elytra joined in middle suture; apical and sub-apical stripes without serrated link ……*S.* (*S.*) *berberii* Jiang

-. Marking in middle of elytra not joined in middle suture; apical and sub-apical stripes with serrated link …… *S.* (*S.*) *punctipennis* Jiang

Note: *Sphenoraia* (*Sphenoraioides*) *rutilans* (Hope, 1831) is not included in this key because its Chinese distribution is uncertain.

***Sphenoraia (Sphenoraioides) haizhuensis* Yang sp. nov.** (Figs 1–4)

Length. 6.0–6.5 mm, width 4.0–4.3 mm.

General color yellow; antennae dark brown, 1st to 3rd segments, yellow; pronotum yellow with a ‘comma’ or an oval spot in each side; scutellum blackish brown or black and gradually lighter to lateral sides; each elytron with seven black spots, basal, middle and near apical area with one pair of spots, respectively; ventral surfaces and legs yellow or yellowish brown; meso- and meta-pleura blackish brown.

Vertex convex with obvious punctures; frontal tubercle developed; antennae not reaching the middle of elytra, 2nd equal to 3rd, from 4th segment becoming wide and flat, 4th equal to the sum of 2nd and 3rd, longer than 5th–11th, 5th–11th with nearly same length, the rest slightly wider and shorter.

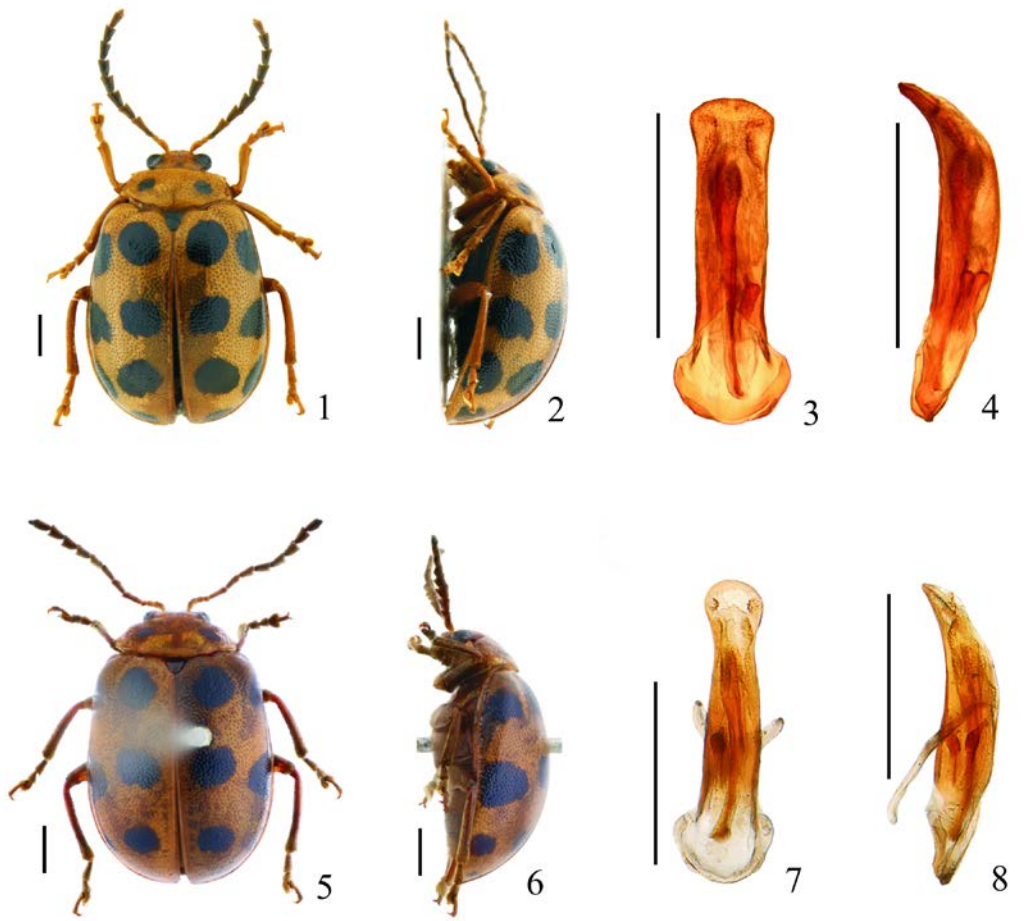
Pronotum about 2.5 times as broad as long; disc slightly flat, shallowly depressed on each side of middle area; punctures obvious and fine, sparsely irregularly distributed, space between punctures 4–5 times wider than diameter of punctures; scutellum triangular with sparsely fine punctures.

Elytron wide and short, humeral angle obvious, dorsal side convex, punctures in elytron obviously stronger than punctures in pronotum, irregularly distributed; evenly distributed, space between punctures about 3 times diameter of punctures.

Legs developed, front, middle slightly shorter, hind leg is the longest.

Aedeagus short and wide, near apex becoming obviously wide, apex rounded, apex of lateral view gradually slimmer, bending to ventral surface; dorsal side with long and thin sclerotized area, its apex oval with dense short spurs; both sides of near apex with weak sclerotized area with dense spurs shorter and stronger than in middle area; 1/3 basal area of dorsal side with two asymmetrical “ear shaped” sclerotized structures.

Holotype. ♂, **China**, Guangzhou, Haizhu Wetland, E 113°18’23.76”, N 23°4’32.36”, 20–23-V-2021, flight interception trap (FIT), Lijun ZHANG leg. **Paratype**. 1♀, **China**, Guangzhou, Haizhu Wetland, E113°21’29.40”, N23°2’58.26”, 21-IX–19-X-2020, Malaise Trap (MT), Haidong YANG leg.



Figures 1–8. 1–4. *S.* (*S.*) *haizhuensis* Yang **sp. nov.** (holotype); 5–8. *S.* (*S.*) *nebulosa* (Gyllenhal) (identified species). 1, 2, 5, 6. Habitus, dorsal and lateral views; 3, 4, 7, 8. Aedeagus, dorsal and lateral views. Scale bars = 1 mm.

Etymology. This species is named after its type locality at Haizhu Wetland.

Distribution. China (Guangzhou).

Diagnosis. This species is similar to *S.* (*S.*) *nebulosa* (Gyllenhal) (Figs 5–8) in body shape, spots on elytra. At the beginning, these two species were thought to be one species. However, after comparing the following morphological characters, we consider them different species. This new species has brighter yellow color, head and scutellum with obvious punctures, but not in *S.* (*S.*) *nebulosa*. In addition, the 4th segments of new species is 1.5 times longer than the combined length of 2nd + 3rd, but the 4th segments of *S.* (*S.*) *nebulosa* is 1.2 or 1.3 times longer than the combined length of 2nd + 3rd. The space between punctures on pronotum of new species is about 4–5 times diameter of punctures, and very sparse, while the space between punctures on pronotum of *S.* (*S.*) *nebulosa* is about 3 times diameter of punctures, same as elytra's. Lastly, the arched concavity of lateral sides of apex in dorsal view of both species is different too; the new species is long and wide with a straight inner edge while *S.* (*S.*) *nebulosa* is small with a rounded inner edge.

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