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A review of *Plateros* Bourgeois, 1879 (Coleoptera: Lycidae) from southeastern China, with descriptions of six new species from the Nanling Mountains

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Abstract

We review the species of the lycid genus *Plateros* Bourgeois, 1879 from Southeast China in this study. Six new species are described, including *P. flavihumeralis* **sp. nov.**, *P. incurvusimimus* **sp. nov.**, *P. dinghuensis* **sp. nov.**, *P. gracilis* **sp. nov.**, *P. nanlingensis* **sp. nov.**, and *P. nigripennis* **sp. nov.** *P. laocaensis* Kazantsev, 2011 is recorded to China for the first time. Five previously known species, including *P. chinensis* Waterhouse, 1879, *P. planatus planatus* Waterhouse, 1879, *P. propinquus* (Waterhouse, 1879), *P. incurvus* (Bocáková, 1997) and *P. laocaensis* are illustrated with macrophotographs of habitus and aedeagi to make comparison with new species. In addition, a distribution map and a key to species of *Plateros* from Southeast China are provided.

Key words: Net-winged beetles, *Plateros*, alpha taxonomy, new species, China

Introduction

The genus *Plateros* Bourgeois, 1879 is currently classified in the lycid Platerodini Kleine, 1928 of the beetle family Lycidae (Bocak & Bocáková 1990, 2008; Kusy *et al*. 2019). It could be easily differentiated from all other lycid beetles by combination of the following characters: pronotum transverse, without any carinae on disc, median longitudinal line channeled basally, forming a minute areola near posterior margin, posterior angles more or less produced posteriorly; each elytron present with nine costae, which are usually weakly or moderately developed; male genitalia absent with parameres, phallobase spoon-shaped and often elongate, phallus often bulb-shaped at base and varied in diverse shapes at apical part (Bocáková 2001).

Eros alatus Newman, 1838 had been considered to be the type species of *Plateros* for a long time, and it was subsequently designated by Bourgeois (1891). However, this species was not included in the original description of *Plateros* (Bourgeois 1879). Therefore, subsequent designation (Bourgeois 1891) of *Eros alatus* as the type species of *Plateros* is invalid. Consequently, Zaragoza (1999) designated *Plateros brasiliensis* (Lucas, 1857) as type species of *Plateros*, but he has not prospected its holotype.

Meanwhile, Bourgeois (1891) fixed *Melaneros acuticollis* Fairmaire, 1877 as the type species of *Melaneros* Fairmaire, 1877. But Blair (1928) overlooked this fixation, and designated another species, *M. atroviolaceus* Fairmaire, 1877 as type species. Recently, Bocak & Bocáková (1992) also neglected Bourgeois's type fixation, but they found that the latter species and *Eros alatus* Newman, 1838 belong to the same genus after examining and comparing the types. They therefore regarded *Plateros* as a junior synonym of *Melaneros*. It was not until Bocáková (2001) noted this error and conducted a cladistic analysis of the subfamily Platerodinae based on morphological data, where a dozen of generic taxa were synonymized and the validity of *Plateros* was reinstated.

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Since the redefinition of *Plateros* (Bocáková 2001), the number of the species increased considerably. In addition, a number of papers were published on the *Plateros* fauna of various regions in the recent thirty years (e.g., Bocáková 1997a, b; Zaragoza 1999, Kazantsev 1991, 2000, 2005, 2011, 2020), bringing the number of described species in this genus to over 800 (Kazantsev 2020). The species are widely distributed around the world, and most of them are from the tropical regions (Bocáková 2001).

Prior to this study, a total of 47 Chinese *Plateros* species are hitherto known (Bocak & Bocáková 2007, Kazantsev 2017). During our recent study, we assembled a large series of *Plateros* material from the Nanling Mountains located in Southeast China. Surprisingly, a very high diversity of *Plateros* species was found in this area. After our examination and identification, we discovered six new species, which will be reported in the present study. At the same time, some previously known species are illustrated in greater detail, making them better known and comparable to the new species. This study will help us to better understand the species diversity of *Plateros* in the Chinese fauna.

Materials and methods

The studied specimens are deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZAS) and Museum of Hebei University, Baoding, China (MHBU).

The specimens were first softened in water, and then the genitalia of both sexes were dissected. After dissection, the male genitalia were cleared in a 10% NaOH solution, then examined and photographed in glycerol, and finally glued onto a paper card for permanent preservation. The images of the adults were taken with a Canon EOS 80D digital camera, and those of the genitalia with a Leica M205A stereomicroscope, which were stacked in a Helicon Focus 7. The final plates were edited in Adobe Photoshop CS3.10.0.1.

The measurements were conducted using Image J 1.50i (NIH, Bethesda, MD, USA). The body length was measured from the anterior margin of the head to the elytral apex, and the width across the elytral humeri. The pronotal length was measured from the middle of the anterior margin to the middle of the posterior margin of the pronotum and the width across its maximum part. The diameter of the eye was measured at the maximum point and the interocular distance at the minimum point.

The distribution information was collected from the original publications (Bocáková 1997b; Kazantsev 2011), and the present studied material. The distribution map was prepared by the ArcMap 10.8 and edited in Adobe Photoshop CS3.10.0.1.

Taxonomy

Class Insecta Linnaeus, 1758

Order Coleoptera Linnaeus, 1758

Family Lycidae Laporte, 1836

Subfamily Lycinae Kleine, 1928

Tribe Platerodini Kleine, 1928

Genus *Plateros* Bourgeois, 1879

Chinese common name: 短沟红萤属

Plateros Bourgeois, 1879: 19; Synonymized with *Melaneros* Fairmaire, 1877 by Bocáková (1992) and reinstated by Bocáková (2001). Type species: *Eros brasiliensis* Lucas, 1857, by subsequent designation (Zaragoza 1999).

Melampyrus Waterhouse, 1879: 30. Type species: *Lycus* (gen. 19) *alternans* Waterhouse, 1878, by original designation. Synonymized by Bocáková 2001: 75.

Ditoneces Waterhouse, 1879: 31. Type species: *Lycus* (gen. 17) *punctipennis* Waterhouse, 1878, by original designation. Synonymized by Bocáková 2001: 75.

Calleros Gorham, 1881: 25. Type species: *Calleros puniceus* Gorham, 1881, by original designation. Synonymized by Bocáková 2001:75.
Planeteros Gorham, 1883: 591. Type species: *Planeteros ochropterus* Gorham, 1883, by monotypy. Synonymized by Bocáková 2001: 75.
Graciloplateros Pic, 1921: 1: Type species: *Graciloplateros guineensis* Pic, 1921, by monotypy. Synonymized by Bocáková 1997a: 181.
Libnetomorphus Pic, 1921: 2. Type species: *Libnetomorphus cephalotes* Pic, 1921, by original designation. Synonymized by Bocáková 2001: 75.
Microplateros Pic, 1921: 2. Type species: *Microplateros diversithorax* Pic, 1921, by original designation. Synonymized by Bocáková 2001: 75.
Tolianus Pic, 1921: 3. Type species: *Tolianus diversithorax* Pic, 1921, by monotypy. Synonymized by Bocáková 2001: 75.
Falsotrichalus Pic, 1921: 3. Type species: *Ditoneces malaccanus* Pic, 1921. Synonymized by Bocak 1998: 199.
Cautirodes Pic, 1921: 3. Type species: *Ditoneces* (*Cautirodea*) *malaccanus* Pic, 1921, by monotypy. Synonymized by Bocáková 2001: 75.
Calloplateros Pic, 1923: 30. Type species: *Calloplateros particularis* Pic, 1923, by monotypy. Synonymized by Bocáková 2001: 75.
Costatoplateros Pic, 1949: 5. Type species: *Plateros* (Costatoplateros) *fortecostatus* Pic, 1949, by monotypy. Synonymized by Bocáková 2001: 75.

Diagnosis. Body small to middle-sized (4.5–8.5 mm in length). Antennae filiform, serrate, pectinate or flabellate, antennomere III flattened and at least 1.3× longer than II. Pronotum transverse, without any carinae, median longitudinal line channeled basally, forming a minute areola near posterior margin. Each elytron with nine costae, usually weakly or moderately developed, sometimes primary costae well developed, reticulate cells oval, squared or irregular. Aedeagus without parameres, phallobase spoon-shaped and often elongate, phallus often bulb-shaped at base and varied in diverse shapes at apical part.

Distribution. All zoogeographical regions.

Plateros chinensis Waterhouse, 1879

Chinese common name: 中华短沟红萤
(Figs 1, 2A, B, 3A–C)

Plateros chinensis Waterhouse, 1879: 29.
Plateros sycophanta Fairmaire, 1889: 352. Synonymized by Bocáková 1997b: 177.
Plateros formosanus Pic, 1921: 7. Synonymized by Bocáková 1997b: 177.
Plateros flavomarginatus Kleine, 1936: 264. Synonymized by Bocáková 1997b: 177.
Melaneros chinensis: Bocáková 1997b: 177, Figs 15, 16, 51, 71.
Plateros chinensis: Bocáková & Bocak 2007: 219.

Material examined. CHINA: **Guangxi:** 1♂ (MHBU), Guiling, Longshen, Huaping, 9.VII.2015, G.L. Xie leg. **Guangdong**: 2♂ (MHBU), Guangzhou, Baiyun Mountains, 113°30'E, 23°19'N, 20.–23.VI.2021, J.B. Tong leg. **Hubei**: 1♂, 2♀ (MHBU), Luotian Country, 1.–3.VII. 2014, Y.B. Ba & S.Y. Tang leg.

Redescription. Body length 4.8–6.0 mm (both sexes), width at humeri 1.3–1.7 mm (both sexes).

Male (Fig. 2A). Body black, pronotum black with yellow lateral margins, elytra black. Surface covered with short yellow-brown pubescence.

Head dorsally flat, eyes large, interocular distance 0.9–1.0× maximum eye diameter. Antennae serrate, reaching half elytral length when inclined, antennomeres III–X triangular, length 1.0–2.4× width, III 1.7× longer than II and 1.2× shorter than IV.

Pronotum nearly trapezoidal, length1.6× width, anterior margin strongly arched, lateral margins nearly straight and diverging posteriorly, posterior margin bisinuate, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly square, slightly emarginate posteriorly.

Elytra widened posteriorly, length 2.3× width, 5.2× longer than pronotum along the midlength. Primary and secondary elytral costae moderately developed.

Aedeagus: phallobase slightly narrowed apically and acute at latero-basal portions (Fig. 3A, B); phallus 3.5× as long as phallobase, bent at the midlength in dorsal and ventral views (Fig. 3A, B), with apical part at an angle of ca. 45˚ with basal part. Apical part of phallus bullet-shaped with a pair of long and conical projections ventrally, basal

part with strongly constricted base. Phallus slightly sinuate in the lateral view (Fig. 3C), with apical part tapered apically and base moderately protruding ventrally.

Female (Fig. 2B). Similar to male, but eyes slightly smaller, antennae shorter and reaching to basal 1/3 elytral length when inclined, antennomeres VI–X subparallel-sided, posterior angles of pronotum less produced.

Distribution (Fig. 1). China (Guangxi, Guangdong, Yunnan, Hubei, Taiwan), Vietnam, Thailand.

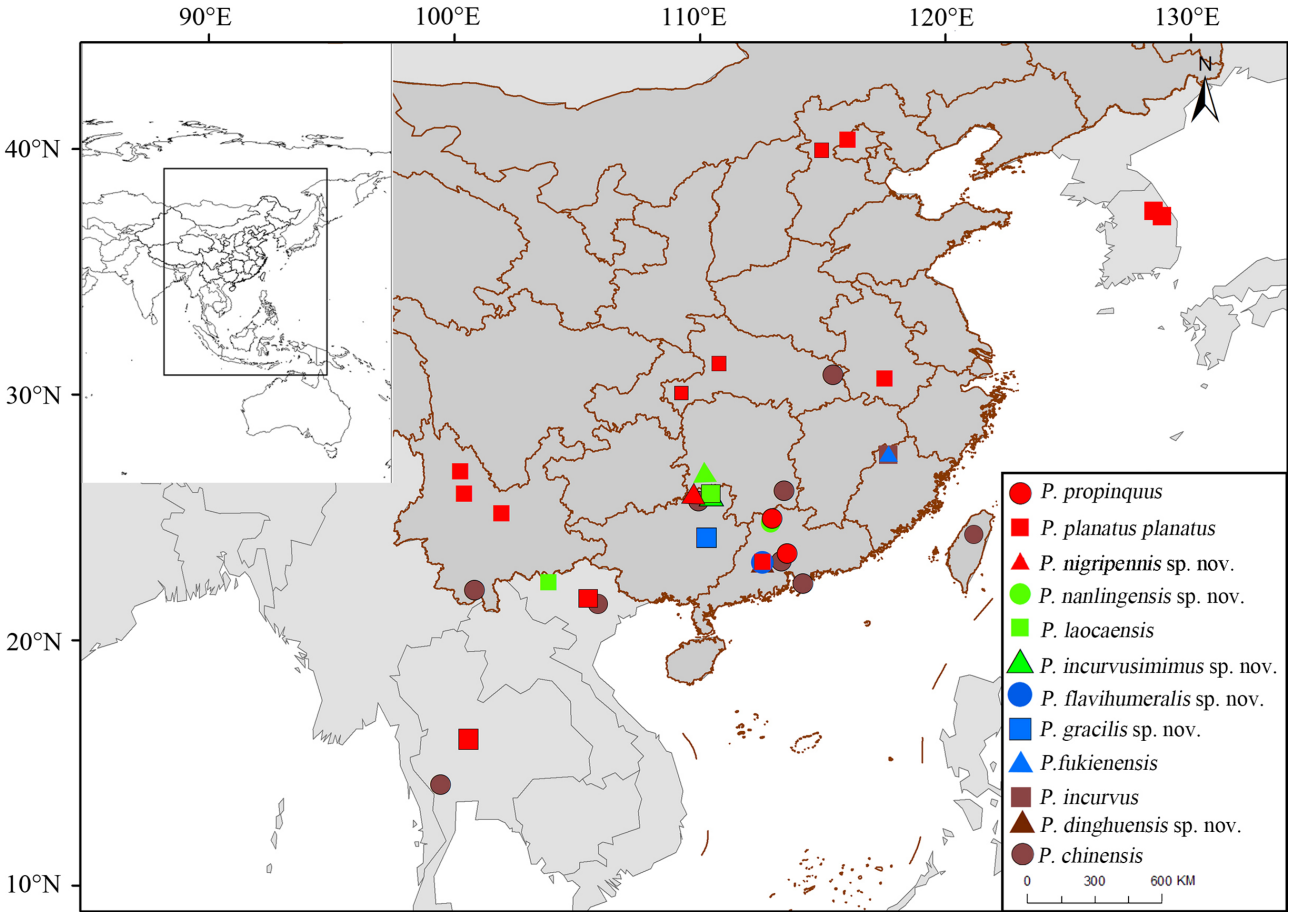

FIGURE 1. Distribution map of *Plateros* species from southeastern China

Plateros laocaensis Kazantsev, 2011

Chinese common name: 老街短沟红萤

(Figs 1, 2C, D, 3D–F)

Plateros laocaensis Kazantsev, 2011: 172, Figs 81–83.

Material examined. CHINA: **Guangxi**: 3♂, 3♀ (MHBU), Xing'an County, Maoershan, 20.VII.2015, L.M. Li leg. (MHBU).

Redescription. Body length 5.0–6.0 mm (both sexes), width at humeri 1.3–1.6 mm (both sexes).

Male (Fig. 2C). Body black, pronotum and elytra black. Surface covered with very short brown pubescence.

Head dorsally flat, eyes large, interocular distance 0.9–1.0× maximum eye diameter. Antennae serrate, reaching apical 1/5 elytral length when inclined, antennomeres III–X long triangular, length 1.5–2.5× width, III 2.5× longer than II and 1.3× shorter than IV.

Pronotum nearly trapezoidal, length 1.7× width, anterior margin strongly arched, lateral margins obliquely diverging posteriorly, posterior margin slightly bisinuate, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly square, slightly emarginate posteriorly.

Elytra widened posteriorly, length 2.3× width, 5.4× longer than pronotum along the midlength. Primary and secondary elytral costae moderately developed.

FIGURE 2. General appearance, dorsal view: **A–B** *Plateros chinensis* Waterhouse,1879; **C–D** *P. laocaensis* Kazantsev, 2011. **A, C.** male; **B, D.** female. Scale bars: 2.0 mm.

Aedeagus: phallobase small and slightly sclerotized at latero-basal portions (Fig. 3D, E); phallus 4.0× as long as phallobase, slightly sinuate in dorsal and ventral views (Fig. 3D, E). Apical part of phallus progressively narrowed and rounded at apex, where membranous and transparent in middle portion, middle part slightly protuberant laterally, basal part slightly constricted near base. Phallus slightly sinuate in the lateral view (Fig. 3F), apical part tapered apically and base slightly protruding ventrally.

Female (Fig. 2D). Similar to males, but body larger, eyes smaller, antennae subfiliform and antennomeres III–X subparallel-sided, posterior angles of pronotum less produced.

Distribution (Fig. 1). China (new record: Guangxi), Vietnam.

Plateros planatus planatus Waterhouse, 1879

Chinese common name: 平短沟红萤指名亚种

(Figs 1, 4A, B, 3G–I)

Plateros planatus planatus Waterhouse, 1879: 27.
Ditoneces incisicollis Pic, 1921: 5. Synonymized by Bocáková 1997b: 178.
Plateros tuberculatus Pic, 1921: 6. Synonymized by Bocáková 1997b: 178.
Ditoneces sulcatithorax Pic, 1925: 18. Synonymized by Bocáková 1997b: 178.
Plateros purus Kleine, 1926: 99. Synonymized by Kazantsev 2004b: 243.
Plateros fulgens Kleine, 1933: 20. Synonymized by Bocáková 1997b: 178.
Plateros koreanus Kleine, 1936: 263. Synonymized by Kazantsev & P. Yang 1999: 243.
Melaneros planatus planatus: Bocáková 1997b: 178, Figs 1, 2, 37, 55.
Plateros planatus planatus: Bocáková & Bocak 2007: 220.

Material examined. CHINA• **Beijing**: 1♀ (MHBU), Chanping, Shisanlin, 25.VII.1956, Y.F. Yang leg. **Hebei**: 1♀(MHBU), Xiaowutai Mountains, 14–25.VII.2001, D.K. Zhou leg. **Anhui**: 1♂1♀(MHBU), Chizhou, Qi Mountain, 27.IV.2022, Y. Bao leg.; 1♂(MHBU), Yaoluoping Natural Reserve, Shilihualang, Y.B. Ba & J.T. Lang leg. **Hubei**:1♂, 2♀ (MHBU), Yichan, Dalaoling Forest Farm, 1.VIII.2014, L.B. Xiang leg. **Guangdong**: 1♂ (MHBU), Baiyun Mountains, 113°30'E, 23°19'N, 20.–23.VI.2021, J.B. Tong leg. **Guangxi**: 1♂ (MHBU), Guiling, Longshen, Huaping, 9.VII.2015, G.L. Xie leg. 3♂, 3♀ (MHBU), Zhaoqing, Dinghu Mountains, 10.–13.V.2021, J.B. Tong leg. **Yunnan**: 2♂3♀ (MHBU), Dali, Jizu mountain, 25.VI.2023, J.B. Tong & C. Fang leg.

Redescription. Body length 5.0–7.5 mm (both sexes), width at humeri 1.3–1.8 mm (both sexes).

Male (Fig. 4A). Body black, prothorax and elytra yellow, pronotum slightly darkened at postero-lateral parts, sometimes legs yellow at coxae, trochanters and bases of femora. Surface covered with short yellow brown pubescence.

Head dorsally flat, eyes large, interocular distance 0.9–1.0× maximum eye diameter. Antennae serrate, reaching half elytral length when inclined, antennomeres III–X long triangular, with outer apical angles slightly protruding latero-apically and obtuse at apices, length 1.2–2.0× width, III 2.7× longer than II and 1.2× shorter than IV.

Pronotum nearly trapezoidal, length 1.2–1.3× width, anterior margin strongly arched, lateral margins slightly sinuate and diverging posteriorly, posterior margin slightly bisinuate, anterior angles widely rounded, posterior acutely projected. Scutellum nearly square, slightly emarginate posteriorly.

Elytra parallel-sided, length 2.5× width, 4.2× longer than pronotum along the midlength. Primary and secondary elytral costae weakly developed.

Aedeagus: phallobase small and slightly sclerotized at latero-basal portions (Fig. 3G, H); phallus 4.0× as long as phallobase, slightly sinuate in dorsal and ventral views (Fig. 3G, H), with apical part an angle of ca. 45˚ with basal part. Apical part of phallus bud-shaped and narrowly rounded at apex, basal part slightly constricted near base. Phallus slightly sinuate in the lateral view (Fig. 3I), with apical part extending dorsally and base slightly protruding ventrally.

Female (Fig. 4B). Similar to male, but body larger, eyes smaller, middle antennomeres less widened and never protruding latero-apically, pronotum with anterior margin less arched and posterior angles less produced.

Distribution (Fig. 1). China (Beijing, Hebei, Anhui, Hubei, Guangdong, Guangxi, Yunnan), Vietnam, Thailand.

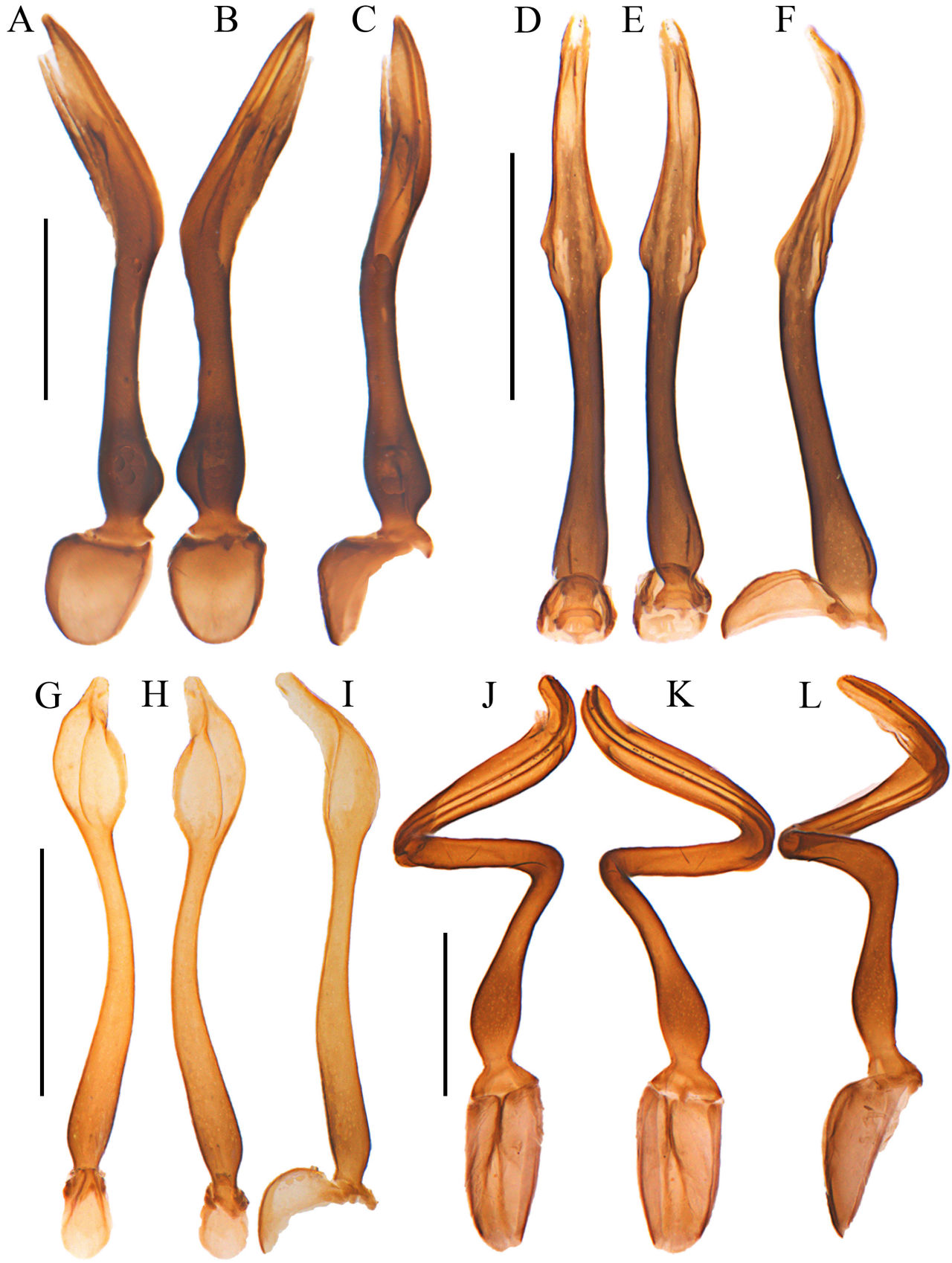

FIGURE 3. Aedeagi of **A–C** *Plateros chinensis* Waterhouse, 1879; **D–F** *P. laocaensis* Kazantsev, 2011; **G–I** *P. planatus planatus* Waterhouse, 1879; **J–L** *P. propinquus* (Waterhouse, 1879). **A, D, G, J** ventral view; **B, E, H, K** dorsal view; **C, F, I, L** lateral view. Scale bars: 0.5 mm.

***Plateros propinquus* (Waterhouse, 1879)**
Chinese common name: 邻短沟红萤
(Figs 1, 4C, 3J–L)

Ditoneces propinquus Waterhouse, 1879: 32; Bocáková 1997b: 188.
Plateros propinquus: Bocáková & Bocak 2007: 220.

Material examined. CHINA: **Guangdong**: 1♂ (MHBU), Shaoguan, Nanling National Nature Reserve, 16.VIII.2010, H.Y. Liu leg. **Hunan**: 2♂ (MHBU), Mangshan, 14.VIII.2010, H.Y. Liu leg.

Redescription. Body length 8.0–8.5 mm (male), width at humeri 1.3–1.8 mm (male).

Male (Fig. 4C). Body black, pronotum, scutellum and elytra reddish brown. Surface covered with short red pubescence.

Head dorsally flat, eyes large, interocular distance 0.8–0.9× maximum eye diameter. Antennae pectinate, reaching apical 1/5 elytral length when inclined, antennomeres III–X triangular, with outer apical angles distinctly protruding latero-apically and sharp at apices, length 1.0–2.0× width, III 2.6× longer than II and 1.2× shorter than IV.

Pronotum nearly trapezoidal, length 1.4× width, anterior margin moderately arched, lateral margins obliquely diverging posteriorly, posterior margin bisinuate, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly square, slightly emarginate posteriorly.

Elytra widened posteriorly, length 2.5×width, 5.0× longer than pronotum along the midlength. Primary and secondary elytral costae moderately developed.

Aedeagus: phallobase shovel-shaped, narrowed apically (Fig. 3J, K); phallus 4.0× as long as phallobase, slender and spiral-shaped. Apical part of phallus with a pair of longitudinal and parallel ridges along the midlength, subapical part slightly widened in dorsal and ventral views (Fig. 3J, K), basal part slightly constricted near base. Phallus hardly protruding ventrally at base in the lateral view (Fig. 3L).

Distribution (Fig. 1). China (Hunan, Guangdong).

Remarks. The holotype locality of this species has been unclear within China, and is clarified here to occur at least in Hunan and Guangdong provinces.

***Plateros nanlingensis* sp. nov.**
Chinese common name: 南岭短沟红萤
(Figs 1, 4D, 5A–C)

Type material. HOLOTYPE: CHINA: ♂ (MHBU), Guangdong, Nanling National Nature Reserve, 113°04'E, 24°91'N, 63m, 24.V.–9.VI.2021, J.B. Tong leg.

Diagnosis. It is similar to *P. propinquus* in the general appearance, but can be distinguished from the latter by the following characters: antennae serrate, middle antennomeres with outer apical angles slightly protruding latero-apically and obtuse at apices (Fig. 4D), whereas antennae pectinate, middle antennomeres with outer apical angles strongly protruding latero-apically and sharp at apices in *P. propinquus* (Fig. 4C); pronotum with posterior angles strongly projected posteriorly in male (Fig. 4D), whereas slightly projected in *P. propinquus* (Fig. 4C); elytra with primary costae well developed and much stouter than secondary ones (Fig. 4D), whereas both moderately developed in *P. propinquus* (Fig. 4C); phallus cylindrical and slightly sinuate (Fig. 5A–C), whereas spiral-shaped in *P. propinquus* (Fig. 3J–L).

Description. Body length 7.1 mm (holotype), width 1.8 mm (holotype).

Male (Fig. 4D). Body black, pronotum, scutellum and elytra red. Surface covered with short red pubescence.

Head dorsally flat, eyes large, interocular distance 0.9× maximum eye diameter. Antennae serrate, reaching to apical 2/5 elytral length when inclined, antennomeres III–X triangular, with outer apical angles moderately protruding latero-apically and obtuse at apices, length 1.2–2.3× width, III 3.3× longer than II and 1.4× shorter than IV.

Pronotum nearly trapezoidal, length 1.6× width, anterior margin strongly arched, lateral margins sinuate and slightly diverging posteriorly, posterior margin slightly bisinuate, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly square, slightly emarginate posteriorly.

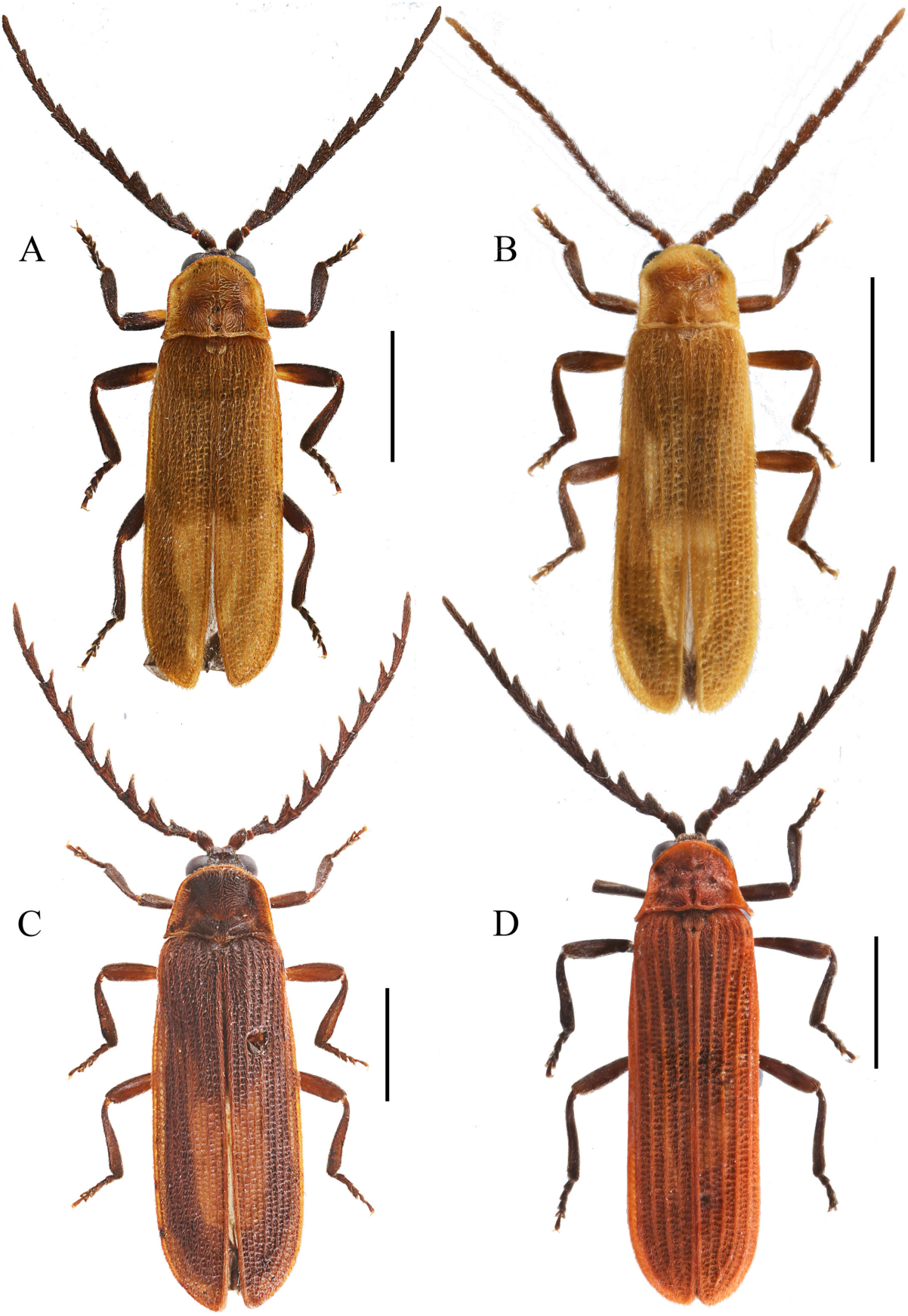

FIGURE 4. General appearance, dorsal view: **A–B** *Plateros planatus planatus* Waterhouse, 1879; **C** *P. propinquus* (Waterhouse, 1879); **D** *P. nanlingensis* **sp. nov**. **A, C, D** male; **B** female. Scale bars: 2.0 mm.

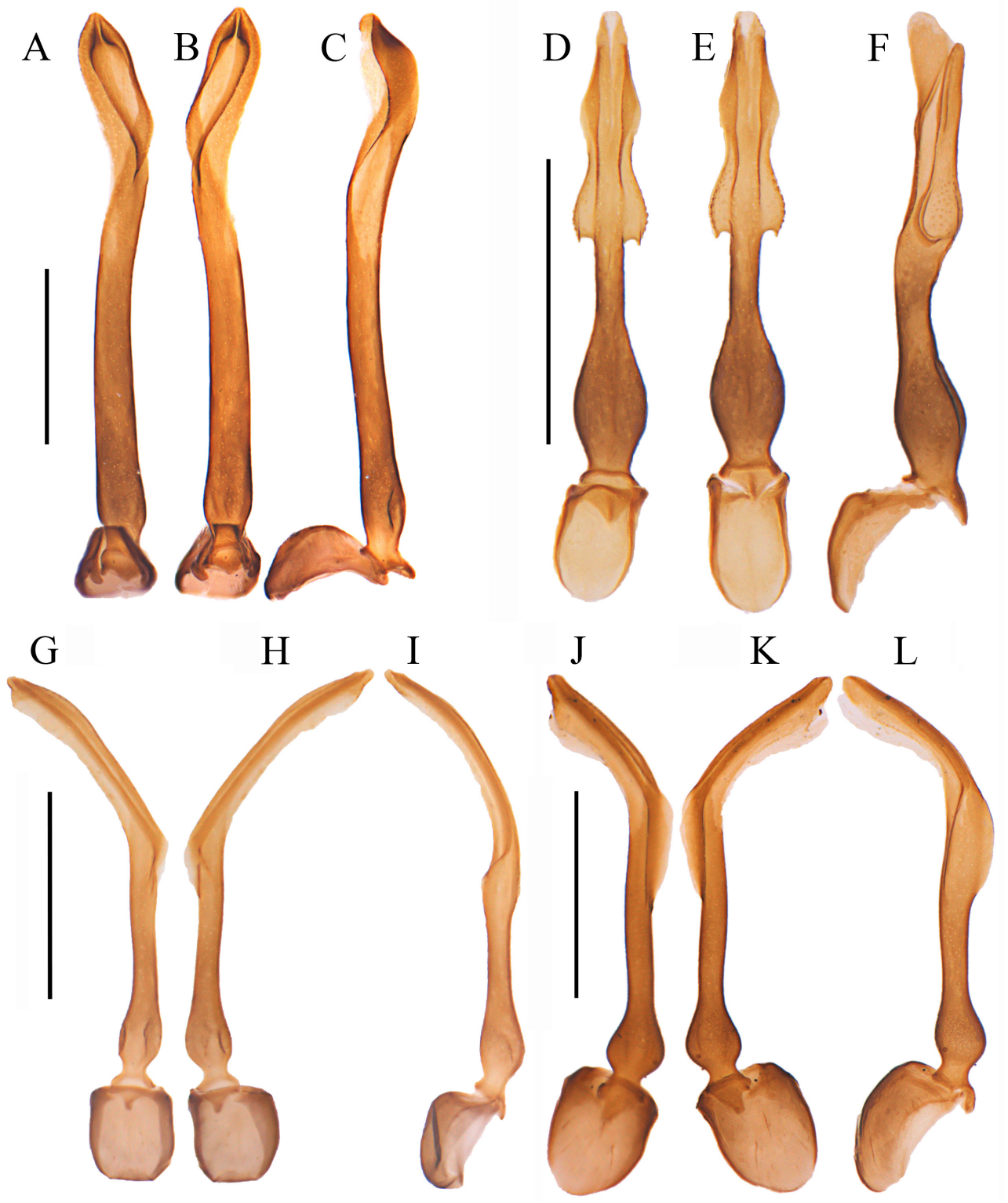

FIGURE 5. Aedeagi of **A–C** *Plateros nanlingensis* sp. nov.; **D–F** *P. flavihumeralis* sp. nov.; **G–I** *P. incurvus* (Bocáková, 1997); **J–L** *P. incurvusimimus* sp. nov. **A, D, G, J** ventral view; **B, E, H, K** dorsal view; **C, F, I, L** lateral view. Scale bars: 0.5 mm.

Elytra parallel-sided, length 3.0× width, 5.6× longer than pronotum along the midlength. Primary elytral costae well developed and much stouter than secondary elytral costae.

Aedeagus: phallobase widened apically (Fig. 5A, B); phallus 3.0× longer than phallobase, cylindrical, slightly bent at apical part in dorsal and ventral views (Fig. 5A, B), with apical part at an angle of ca. 30˚ with basal part.

Apical part narrowly rounded at apex, basal part slightly constricted near base. Phallus spoon-shaped and ridged around margins of apical 1/3 part in the lateral view (Fig. 5C), slightly protruding ventrally at base.

Female. Unknown.

Etymology. The specific name refers to the type locality (Nanling National Nature Reserve), in the Guangdong Province, China.

Distribution (Fig. 1). China (Guangdong).

***Plateros flavihumeralis* sp. nov.**
Chinese common name: 黄肩短沟红萤
(Figs 1, 5D–F, 6A)

Type material. HOLOTYPE: CHINA: ♂ (MHBU), Guangdong, Dinghu Mountains, 112°54'E, 23°15'N, 63 m, 13.–16.V.2021, J.B. Tong leg.

Diagnosis. This species could be easily distinguished from all others from SE China by its elytra coloration, which is dark brown, yellow at humeri and around all margins (Fig. 6A), whereas uniformly black or yellow or red in others. Also its aedeagus is characteristic, which is nearly symmetric in dorsal and ventral views, globular at basal part, and gourd-shaped at apical part (Figs 5D–F).

Description. Body length 4.9 mm (holotype), width at humeri 1.3 mm (holotype).

Male (Fig. 6A). Body black, pronotum and elytra dark-brown, pronotum yellow around all margins, elytra yellow at humeri and around all margins, scutellum yellow, legs yellow at coxae, trochanters and basal parts of femora. Surface covered with short yellow-brown pubescence.

Head dorsally flat, eyes large, interocular distance 0.9× maximum eye diameter. Antennae serrate, reaching elytral apex when inclined, antennomeres III–X triangular, with outer apical angels moderately protruding latero-apically and acute at apices, length 1.8–3.7× width, III 3.0× longer than II and 1.3× shorter than IV.

Pronotum nearly trapezoidal, length 1.6× width, anterior margin strongly arched, lateral margins sinuate and diverging posteriorly, posterior margin slightly bisinuate, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly squared.

Elytra widened posteriorly, length 2.4× width, 5.2× longer than pronotum along the midlength. Primary and secondary elytral costae weakly developed.

Aedeagus: phallobase shovel-shaped, projecting and acute at latero-basal portions (Fig. 5D, E); phallus 2.5× longer than phallobase, nearly symmetric in dorsal and ventral views (Fig. 5D, E). Apical part of phallus gourd-shaped rounded at apex, where membranous and transparent in middle portion, basal part globular and slightly constricted near base. Phallus slightly arched in the lateral view (Fig 5F), strongly protruding ventrally at base.

Female. Unknown.

Etymology. The specific name is derived from the Latin "*flavus*" (golden-yellow) + "*humerus*" (shoulder), referring to its yellow elytral humeri.

Distribution (Fig. 1). China (Guangdong).

***Plateros incurvus* (Bocáková, 1997)**
Chinese common name:弯茎短沟红萤
(Figs 1, 5G–I, 6B)

Melaneros incurvus Bocáková, 1997b:178, Figs 17, 18, 44, 70.
Plateros incurvus: Bocáková & Bocak 2007: 220.

Material examined. CHINA• **Fujian**: 1♂ (MHBU), Wuyi Mountains, Guadun, 5.–12.VII.2003, M. Bai & G.D. Ren leg; 1♂(MHBU), Wuyi Mountains, Tongmuxiang, Guadun, 29.V.2018, Y.Y. Lu & Y.D. Chen leg.

Re-description. Body length 6.5–6.8 mm (male), width at humeri 1.5–1.8 mm (male).

Male (Fig. 6B). Body black. Pronotum, scutellum and elytra black, surface covered with very short brown pubescence.

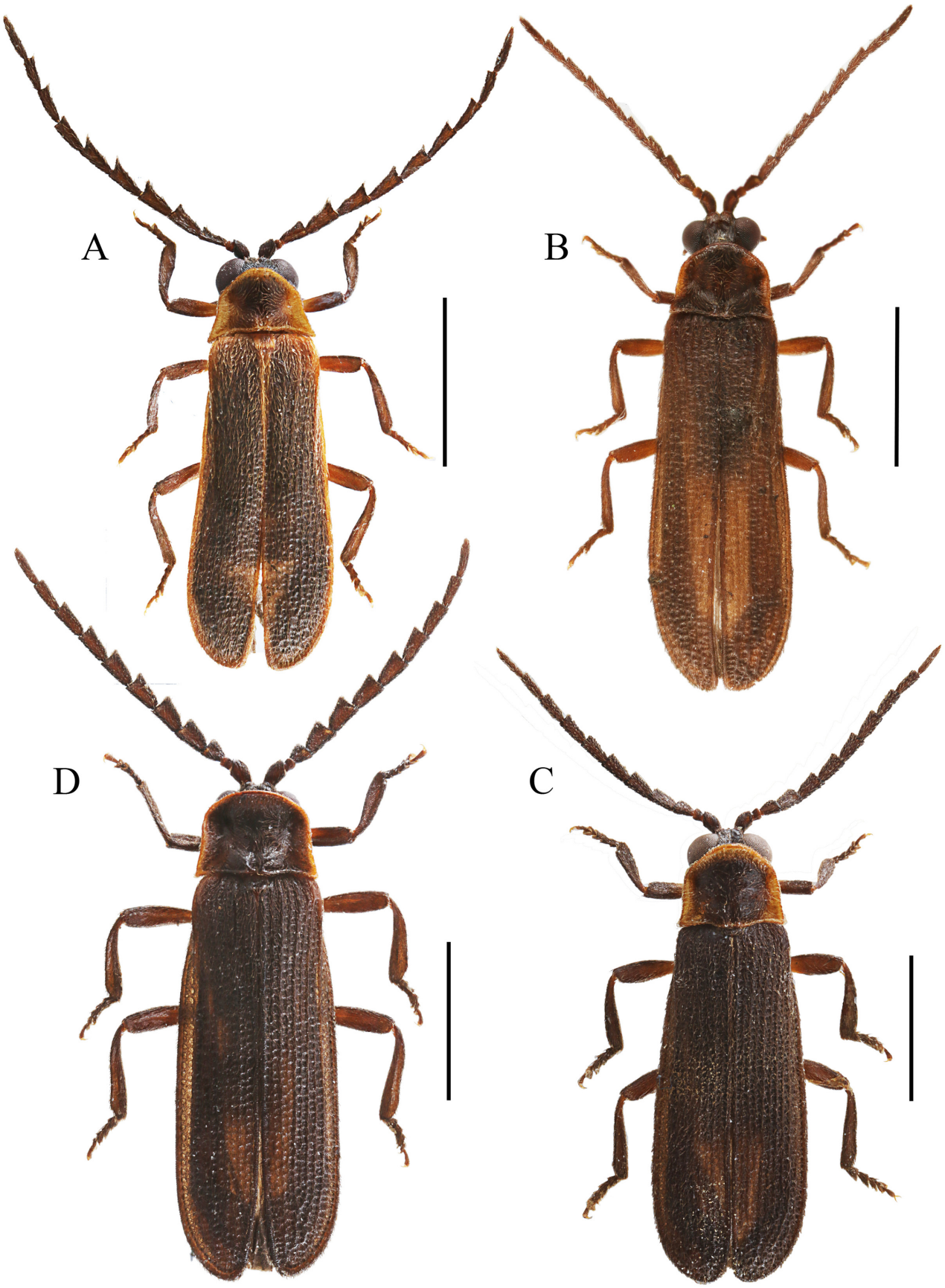

FIGURE 6. General appearance, dorsal view: **A** *Plateros flavihumeralis* sp. nov.; **B** *P. incurvus* (Bocáková, 1997); **C** *P. incurvusimimus* sp. nov.; **D** *P. dinghuensis* sp. nov. **A–D** male. Scale bars: 2.0 mm.

Head dorsally flat, eyes large, interocular distance 1.0× maximum eye diameter. Antennae serrate, reaching half elytral length when inclined, antennomeres III–X long triangular, length 1.4–2.5× width, antennomere III 1.4× longer than II and 1.2× shorter than IV.

Pronotum nearly trapezoidal, length 1.3× width, anterior margin strongly arched, lateral margins nearly straight and diverging posteriorly, posterior margin slightly bisinuate, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly square, slightly emarginate posteriorly.

Elytra widened posteriorly, length 2.6× width, 5.0× longer than pronotum along the midlength. Primary and secondary elytral costae weakly developed.

Aedeagus: phallobase slightly narrowed apically, with a pair of hardly visible protuberances at latero-basal portions (Fig. 5G, H); phallus 5.0× as long as phallobase, bent at the midlength in ventral and dorsal views (Fig. 5G, H), with apical part at an angle of 45˚ with basal part. Apical part of phallus abruptly narrowed near apex and rounded at apex, basal part strongly constricted near base. Phallus slightly projecting ventrally at base in the lateral view (Fig. 5I).

Distribution (Fig. 1). China (Fujian).

***Plateros incurvusimimus* sp. nov.**

Chinese common name: 拟弯茎短沟红萤

(Figs 1, 5J–L, 6C)

Type material. HOLOTYPE: CHINA: ♂ (MHBU), Guangxi, Xing'an County, Maoershan, 4.VI.2011, H.Y. Liu leg. PARATYPES: 2♂ (MHBU), Guizhou, Maolan County, Jinshidong, 23.V. 2024, C. Fang & J.L. Miao leg.

Diagnosis. This species resembles *P. incurvus* (Bocáková, 1997) (type locality: Fujian, China) in the shape of phallus, but differs in the following characters: pronotum with yellowish brown margins (Fig. 6C), whereas uniformly black in *P. incurvus* (Fig. 6B); phallus 3.0× longer than phallobase, bent at apical 1/3 part and strongly globularly expanded near base in dorsal, ventral and lateral views (Fig. 5J–L), whereas phallus more slender and 4.0× longer than phallobase, bent near middle in dorsal and ventral views, and arcuate in lateral view, moderately globularly expanded near base in *P. incurvus* (Fig. 5G–I).

Description. Body length 6.0 mm (holotype), width at humeri 1.5 mm (holotype).

Male (Fig. 6C). Body black, pronotum with yellowish brown margins. Surface covered short brown pubescence.

Head dorsally flat, eyes large, interocular distance 1.0× maximum eye diameter. Antennae serrate, reaching to half elytral length when inclined, antennomeres III–X long triangular, length 1.4–2.6× width, III 2.0× longer than II and 1.2× shorter than IV.

Pronotum nearly trapezoidal, length 1.3× width, anterior margin strongly arched, lateral margins slightly sinuate and diverging posteriorly, posterior margin slightly bisinuate, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly square.

Elytra widened posteriorly, length 2.3× width, 4.5× longer than pronotum along the midlength. Primary and secondary elytral costae weakly developed.

Aedeagus: phallobase slightly narrowed apically, present with a pair of hardly visible protuberances at latero-basal portions (Fig. 5 J, K); phallus 3.0× as long as phallobase, bent in ventral and dorsal views (Fig. 5 J, K). Apical part of phallus abruptly narrowed near apex and rounded at apex, basal part strongly constricted near base. Phallus bent in the lateral view (Fig. 5L), with apical part at an angle of 45˚ with basal part, slightly projecting ventrally at base.

Female. Unknown.

Etymology. The name of the species is derived from the Latin "*mimus*" (imitator), referring to its similarity to *P. incurvus* (Bocáková, 1997).

Distribution (Fig. 1). China (Guangxi, Guizhou).

***Plateros dinghuensis* sp. nov.**
Chinese common name: 鼎湖短沟红萤
(Figs 1, 7A–C, 6D)

Type material. HOLOTYPE: CHINA: ♂ (MHBU), Guangdong, Zhaoqing, Dinghu Mountains, 10.–13.V.2021, J.B. Tong leg.

Diagnosis. It is similar to *P. laocaensis* in the general appearance, but can be easily distinguished from the latter by the following characters: pronotum with narrow yellowish brown margins (Fig. 6D), whereas uniformly black in *P. laocaensis* (Fig. 2C, D); pronotum with anterior margin slightly arched and lateral margins sinuate (Fig. 6D), whereas anterior margin strongly arched and lateral margins nearly straight in *P. laocaensis* (Fig. 2C, D); phallus pointed at apex, present with a sharp thorn at subapical part (Fig. 7A, B), whereas rounded at apex, without any thorn in *P. laocaensis* (Fig. 3D, E).

Description. Body length 6.3 mm (holotype), width at humeri 1.7 mm (holotype).

Male (Fig. 6D). Body black, pronotum with narrow yellow-brown margins. Surface covered with short brown pubescence.

Head dorsally flat, eyes small, interocular distance 0.5× maximum eye diameter. Antennae serrate, reaching half elytral length when inclined, antennomeres III–X triangular, with outer apical angles hardly protruding latero-apically and obtuse at apices, length 1.0–3.0× width, III 1.9× longer than II and 1.4× shorter than IV.

Pronotum nearly trapezoidal, length 1.7× width, anterior margin slightly arched, lateral margins slightly sinuate and diverging posteriorly, posterior margin slightly bisinuate, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly square.

Elytra widened posteriorly, length 2.5× width, 5.0× longer than pronotum along the midlength. Primary and secondary elytral costae moderately developed.

Aedeagus: phallobase slightly narrowed apically, present with a pair of small triangular protuberances at latero-basal margins (Fig. 7A, B); phallus 2.5× longer than phallobase, slightly arched in dorsal and ventral views (Fig. 7A, B). Apical part of phallus clearly ridged laterally and pointed at apex, latero-subapical part present with a sharp thorn, basal part g strongly constricted near base. Phallus slightly sinuate in lateral view (Fig. 7C), hat-shaped at apical part and slightly projecting ventrally at base.

Female. Unknown.

Etymology. The specific name is derived from the type locality, Dinghu Mountains, Guangdong Province, China.

Distribution (Fig. 1). China (Guangdong).

***Plateros gracilis* sp. nov.**
Chinese common name: 细茎短沟红萤
(Figs 1, 7D–F, 8A)

Type material. HOLOTYPE: CHINA: ♂ (MHBU), Guangxi, Jinxiu, Yinshang Park, H.Q. Lin & S.L. Yuan leg.

Diagnosis. It looks like *P. dinghuensis* **sp. nov.** in the general appearance, but can be distinguished from the latter by the following characters: pronotum with posterior margin nearly straight and posterior angles strongly produced posteriorly (Fig. 8A), whereas pronotum with posterior margin slightly bisinuate and posterior angles slightly produced posteriorly in *P. dinghuensis* sp. nov. (Fig. 8A); phallus nearly straight and very slender, without any thorn present in dorsal and ventral views (Fig. 7D, E), whereas slightly arched and stouter, present with a sharp thorn at latero-subapical part in dorsal and ventral views in *P. dinghuensis* sp. nov. (Fig. 7A, B).

Description. Body length 4.5 mm (holotype), width at humeri 1.2 mm (holotype).

Male (Fig. 8A). Body black, pronotum with narrow yellow-brown margin. Surface covered with brown short pubescence.

Head dorsally flat, eyes small, interocular distance 0.5× maximum eye diameter. Antennae serrate, reaching apical 2/5 elytral length when inclined, antennomeres III–X triangular, length 1.4–2.6× width, III 2.6× longer than II and 1.2× shorter than IV.

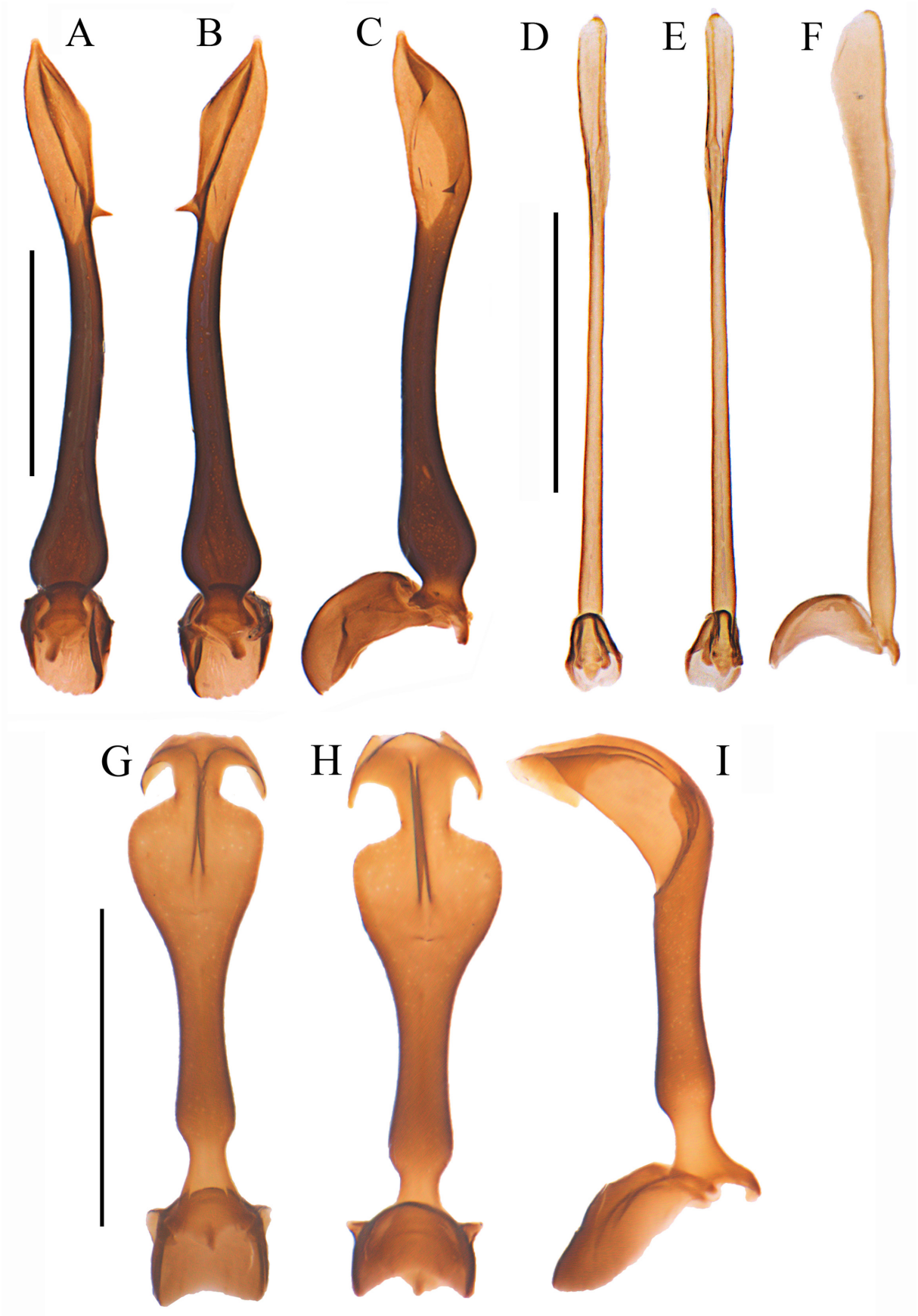

FIGURE 7. Aedeagi of **A–C** *Plateros dinghuensis* sp. nov.; **D–F** *P. gracilis* sp. nov.; **G–I** *P. nigripennis* sp. nov. **A, D, G** ventral view; **B, E, H** dorsal view; **C, F, I** lateral view. Scale bars: 0.5 mm.

Pronotum widened posteriorly, length 1.4× width, anterior margin strongly arched, lateral margins strongly sinuate and diverging posteriorly, posterior margin nearly straight, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly square.

Elytra slightly widened posteriorly, length 2.6×width, 5.2× longer than pronotum. Primary and secondary elytral costae moderately developed.

Aedeagus: phallobase small and widened apically (Fig. 7D, E); phallus slender and 4.0× as long as phallobase, rod-like and nearly straight in dorsal and ventral views (Fig. 7D, E). Apical part of phallus widened and nearly long-triangular in the lateral view, basal part slightly constricted near base, and base slightly projecting ventrally (Fig. 7F).

Female. Unknown.

Etymology. The name is derived from Latin "*gracilis*" (slender), referring to its slender phallus.

Distribution (Fig. 1). China (Guangxi).

***Plateros nigripennis* sp. nov.**

Chinese common name: 黑翅短沟红萤

(Figs 1, 7G–I, 8B, C)

Type material. HOLOTYPE: CHINA: ♂ (MHBU), Guangxi, Longshen County, Huaping, 11.VII.2015, T.F. Qiu leg. **PARATYPE: CHINA:** 1 ♀ (MHBU) same data as the holotype.

Diagnosis. It looks similar to *P. gracilis* **sp. nov.** in body coloration, but differs in the following characters: male antennae covered with long hairs, antennomeres III–X with outer apical angles slightly protruding latero-apically and sharp at apices (Fig. 8B), whereas male antennae without any long hairs, middle antennomeres with outer apical angles never protruding in *P. gracilis* **sp. nov.** (Fig. 8A); anterior margin of pronotum strongly arched (Fig. 8B), whereas slightly in *P. gracilis* **sp. nov.** (Fig. 8A); phallus vase-shaped in dorsal and ventral views (Fig. 7G, H), whereas rod-like in *P. gracilis* **sp. nov.** (Fig. 7D, E).

Description. Length 5.0–5.3 mm (both sexes, 5.0 mm in holotype), width at humeri 1.3–1.4 mm (both sexes, 1.3mm in holotype).

Male (Fig. 8B). Body black, pronotum with narrow yellow margins. Surface covered with short yellowish-brown pubescence.

Head dorsally flat, eyes large, interocular distance 0.6× maximum eye diameter. Antennae serrate, reaching apical 1/5 elytral length when inclined, surface covered with long hairs, antennomeres III–X triangular, with outer apical angles slightly protruding latero-apically and sharp at apices, length 1.8–2.8× width, III 2.1× longer than II and 1.3× shorter than IV.

Pronotum nearly trapezoidal, length 1.6× width, anterior margin strongly arched, lateral margins slightly sinuate and diverging posteriorly, posterior margin nearly straight, anterior angles widely rounded, posterior angles acutely projected. Scutellum nearly square, slightly emarginate posteriorly.

Elytra widened posteriorly, length 3.0× width, 5.4× longer than pronotum along the midlength. Primary and secondary elytral costae moderately developed.

Aedeagus: phallobase large, present with a pair of triangular protuberances at latero-basal portions (Fig. 7G, H); phallus 2.0× longer than phallobase, nearly symmetric and vase-shaped in dorsal and ventral views (Fig. 7G, H). Apical part of phallus with a pair of longitudinal ridges along midlength of dorsal surface and around margins of apex, subapical part abruptly and strongly widened, basal part slightly constricted near base. Phallus strongly bent in the lateral view, with apical part at an angle of 90˚ with basal part (Fig. 7I), strongly projecting ventrally and hooked at base.

Female (Fig. 8C). Similar to male, but body larger, pronotum with slightly wider yellow margins, antennae without long hairs and middle antennomeres with outer apical angles never protruding.

Etymology. The specific name is derived from Latin "*niger*" (black) + "*penna*" (feather), referring to its black elytra.

Distribution (Fig. 1). China (Guangxi).

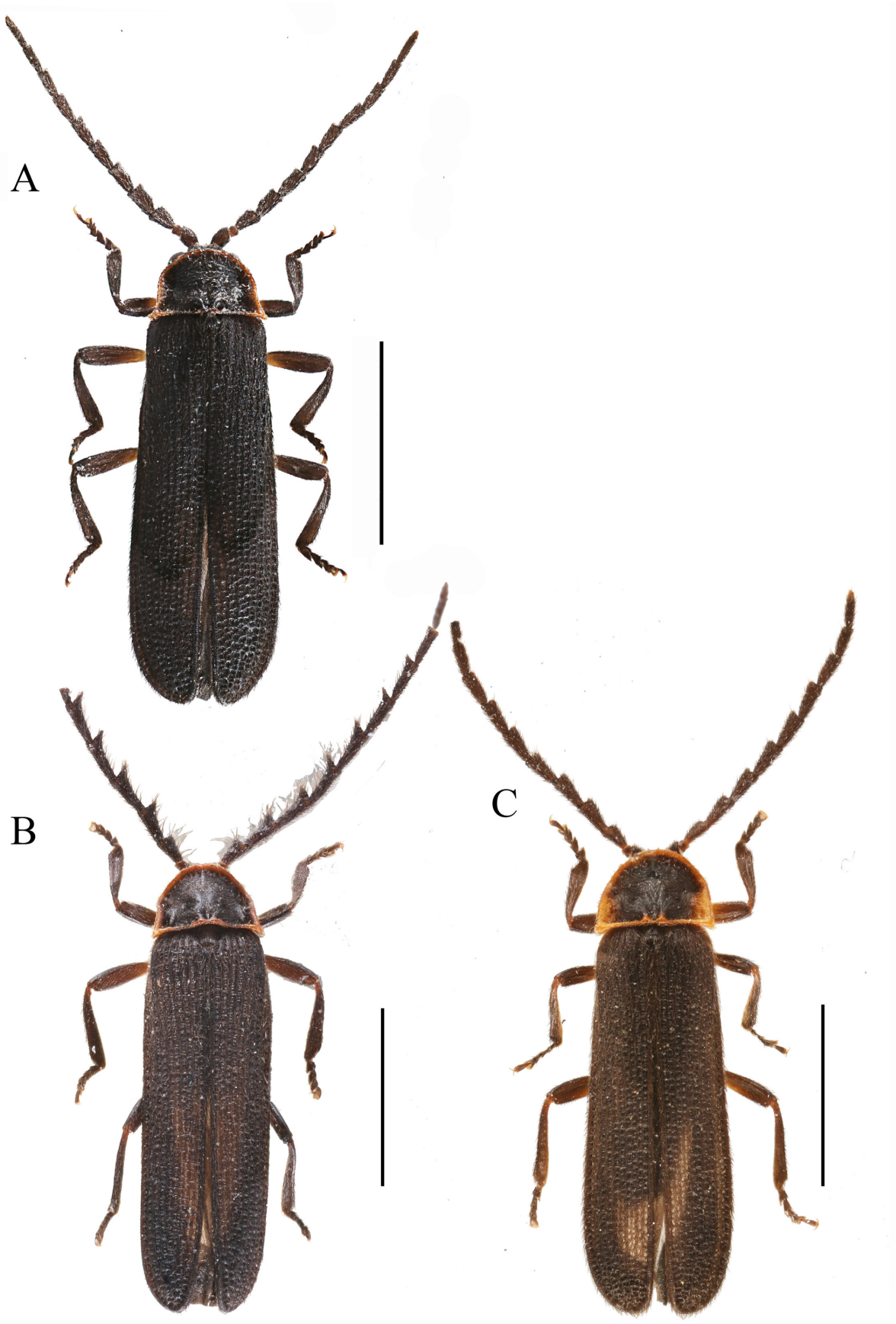

FIGURE 8. General appearance, dorsal view: **A** *Plateros gracilis* sp. nov.; **B–C** *P. nigripennis* sp. nov. **A, B** male; **C** female. Scale bars: 2.0 mm.

Key to the species of *Plateros* from southeastern China

1. Elytra uniformly black, at most yellow at humeri and margins (Fig. 2A–D) **2**
- Elytra uniformly red or yellow (Fig. 4A–D) **10**
2. Elytra and scutellum uniformly black (Figs 2A, B, 6C–D) **3**
- Elytra yellow at humeri and all margins, scutellum yellow (Fig. 6A) . . . . . ***P. flavihumeralis* sp. nov.**
3. Pronotum uniformly black (Fig. 2C, D) **4**
- Pronotum red or yellowish brown at least at lateral margins (Fig. 2A, B) **6**
4. Phallus straight in dorsal or ventral view (Fig. 3D, E) **5**
- Phallus bent near middle part in dorsal view or ventral view (Fig. 5G, H) . . . . . ***P. incurvus* (Bocáková, 1997)**
5. Phallus constricted at middle part (Bocáková 1997b: Figs 13, 14) . . . . . ***P. fukienensis* (Bocáková, 1997)**
- Phallus widened at middle part (Fig. 3D, E) . . . . . ***P. laocaensis* Kazantsev, 2011**
6. Pronotum widely yellow at lateral margins (Fig. 2A, B); aedeagus: phallus present with a pair of long and conical projections ventrally at apical part (Fig. 3B) . . . . . ***P. chinensis* (Waterhouse, 1879)**
- Pronotum narrowly yellow or red around all margins (Fig. 6C, D); aedeagus: phallus without any projections ventrally at apical part (Fig. 5D, G, J) **7**
7. Phallus present with a large and sharp thorn at latero-subapical part (Fig. 7A, B) . . . . . ***P. dinghuensis* sp. nov.**
- Phallus unlike above, without any thorns (Fig. 6D, E, G, H) **8**
8. Phallus nearly straight in dorsal and ventral views (Fig. 7 D, E, G, H) **9**
- Phallus bent at apical 1/3 part in dorsal and ventral views (Fig. 5J, K) . . . . . ***P. incurvusimimus* sp. nov.**
9. Phallus very slender and rod-like in dorsal and ventral views (Fig. 7A, B) . . . . . ***P. gracilis* sp. nov.**
- Phallus stout and vase-shaped in dorsal and ventral views (Fig. 7D, E) . . . . . ***P. nigripennis* sp. nov.**
10. Pronotum unicolored (Fig. 4C, D) **11**
- Pronotum yellow, darkened at postero-lateral parts (Fig. 4A, B) . . . . . ***P. planatus planatus* Waterhouse, 1879**
11. Elytra with primary costae well developed and much stouter than secondary ones (Fig. 5C); phallus spoon-shaped in lateral view (Fig. 5C) . . . . . ***P. nanlingensis* sp. nov.**
- Elytra with both primary and secondary costae moderately developed (Fig. 4C); phallus spiral-shaped in lateral view (Fig. 3L) . . . . . ***P. propinguus* Waterhouse, 1879**

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中国东南部短沟红萤属*Plateros*（鞘翅目：红萤科）分类研究及南岭山脉六新种记述

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摘要：对中国东南部短沟红萤属*Plateros*进行了系统分类研究，记述产自南岭山脉6新种，即黄肩短沟红萤*P. flavohumeralis* **sp. nov.**、拟弯茎短沟红萤*P. incurvusimimus* **sp. nov.**、鼎湖短沟红萤*P. dinghuensis* **sp. nov.**、细茎短沟红萤*P. gracilis* **sp. nov.**、南岭短沟红萤*P. nanlingensis* **sp. nov.**和黑翅短沟红萤*P. nigripennis* **sp. nov.**。同时，对中华短沟红萤*P. chinensis* Waterhouse, 1879、平短沟红萤*P. planatus planatus* Waterhouse, 1879、邻短沟红萤*P. propinquus* (Waterhouse, 1879)、弯茎短沟红萤*P. incurvus* (Bocáková, 1997)和老街短沟红萤*P. laocaensis* Kazantsev, 2011等5个已知种进行了重新描述，其中老街短沟红萤为中国新纪录种。提供了以上物种的成虫整体图和雄性外生殖器特征图；编制了中国东南部短沟红萤属的种检索表，并绘制了物种分布图。

关键词：红萤科；短沟红萤属；分类；新种；中国