



## Taxonomic notes on *Prothemus* Champion (Coleoptera: Cantharidae), with descriptions of two new species from China and Vietnam

HUI-QIN TONG<sup>1,5</sup>, HAO-YU LIU<sup>1,2,6</sup>, ANDREAS KOPETZ<sup>3</sup>, XING-KE YANG<sup>4</sup> & YU-XIA YANG<sup>1,2,7\*</sup>

<sup>1</sup>Key Laboratory of Zoological Systematics and Application, School of Life Sciences, Hebei University, Baoding 071002, China

<sup>2</sup>Hebei Basic Science Center for Biotic Interaction, Hebei University, Baoding 071002, China

<sup>3</sup>Im Semmichbache 14, OT Eischleben, D-99334 Amt Wachsenburg, Germany

✉ [andreas.kopetz@t-online.de](mailto:andreas.kopetz@t-online.de); <https://orcid.org/0009-0000-8180-4067>

<sup>4</sup>Key Laboratory of Zoological Systematics and Evolution, Institute of Zoology, Chinese Academy of Sciences, Beijing 100101, China

✉ [yangxk@ioz.ac.cn](mailto:yangxk@ioz.ac.cn); <https://orcid.org/0000-0003-3676-6828>

<sup>5</sup>✉ [t3129682491@163.com](mailto:t3129682491@163.com); <https://orcid.org/0009-0001-4541-1570>

<sup>6</sup>✉ [liuhy@hbu.edu.cn](mailto:liuhy@hbu.edu.cn); <https://orcid.org/0000-0003-1383-5560>

<sup>7</sup>✉ [xyyang@hbu.edu.cn](mailto:xyyang@hbu.edu.cn); <https://orcid.org/0000-0002-3118-6659>

\*Corresponding author

### Abstract

*Prothemus longiphysus* Wittmer, 1995 is considered as a junior synonym of *P. sanguinosus* (Fairmaire, 1900). Meanwhile, *P. angustioripennis* (Pic, 1927), originally described in *Cantharis*, is removed from the synonym of *P. sanguinosus* and reinstated as a valid species. Besides, two new species are discovered and described under the names of *P. biprominens* sp. nov. and *P. venustiformis* sp. nov. In addition, the macrophotographs of aedeagi and female internal genitalia are firstly provided for the following species: *P. sanguinosus*, *P. purpureipennis* (Gorham, 1889), *P. chinensis* Wittmer, 1987, *P. kiukianganus* (Gorham, 1889), *P. limbolarius* (Fairmaire, 1900) and *P. monochrous* (Fairmaire, 1900). A key to the *Prothemus* species from Nanling National Natural Reserve, China is provided.

**Key words:** soldier beetles, *Prothemus*, synonym, reinstated status, new species

### Introduction

The genus *Prothemus* Champion, 1926 is a relatively large group of soldier beetles, comprising a total of 62 known species that are widely distributed in the East Palearctic and Oriental regions (Delkeskamp 1977; Kazantsev & Brancucci 2007; Švihla 2011; Yang & Kazantsev 2011). The adults of this genus are easily recognized by their rounded pronotum, pro- and meso-outer claws each roundly appendiculate in male (while simple in female) and ovate aedeagus, with a slender and apically tapered dorsal plate on each paramere.

During our recent study, we assembled a large series of material from Nanling National Natural Reserve located in Southeast China (112°30'–113°04'N, 24°37'–24°57'E). Upon thorough examination and comparison, we have identified two new species, which will be described in the present study. Furthermore, the available material has enabled us to accurately identify *P. sanguinosus* (Fairmaire, 1900), whose type locality is Guangdong, China. Moreover, the female genitalia has been widely utilized in the taxonomy of cantharid beetles (e.g., Okushima 2005; Li *et al.* 2016a, b; Yang *et al.* 2015, 2019; Ge *et al.* 2021, 2022; Xiao *et al.* 2023), but has never been applied to *Prothemus* until now. Therefore, it is necessary for us to illustrate this structure for the previously known species occurring in this area.

## Material and methods

The studied material is preserved in the following collections:

**IZAS** Institute of Zoology, Chinese Academy of Sciences, Beijing, China;

**MHBU** Museum of Hebei University, Baoding, China;

**MNHN** Muséum national d'histoire naturelle, Paris, France;

**NHMB** Naturhistorisches Museum Basel, Switzerland;

**NHMW** Naturhistorisches Museum Wien, Austria;

**NME** Naturkundemuseum Erfurt, Germany;

**SNUC** Shanghai Normal University, Shanghai, China;

cKo private collection of A. Kopetz, Amt Wachsenburg, Germany;

cSk private collection of A. Skale, Gera, Germany;

cWe private collection of A. Weigel, Wernburg, Germany.

The specimens were first softened in the water, and then the genitalia and genital segments of both sexes were dissected. After dissection, the male genitalia were cleared in 10% NaOH solution and examined and photographed in glycerol, and finally glued on a paper card for permanent preservation. The female genitalia were dyed with hematoxylin, examined in 75% alcohol and preserved in glycerol. At least one specimen was dissected for each species, and some more would be treated if any damage occurred during dissection. If a species has multiple distributions, each distribution is compared with a female and a male dissection. Images of the adults were taken with a Canon EOS 80D digital camera and those of the genitalia by a Leica M205A stereomicroscope, which were stacked in Helicon Focus 7. The final plates were edited in Adobe Photoshop CS3.10.0.1.

The measurements were taken with Image J 1.52a (NIH, USA). Body length is measured from the anterior margin of clypeus to the apices of elytra and width is measured at the widest part of conjoint elytra. Morphological terminology used in this study mainly follows Yang and Kazantsev (2011).

Complete label data are listed for type specimens of the previously known species, using square brackets “[ ]” for our remarks and comments, [p] indicating that the following data are printed and [h] that they are handwritten. Quotation marks are used to separate data from different labels and a backslash “/” to separate data from different lines of the same label. For the additional specimens, quotation marks are used if their original labels are written in English. All the labels written in Chinese are transliterated into English.

## Taxonomy

### Class Insecta Linnaeus, 1758

### Order Coleoptera Linnaeus, 1758

### Family Cantharidae Imhoff, 1856 (1815)

### Subfamily Cantharinae Imhoff, 1856 (1815)

### Tribe Cantharini Imhoff, 1856 (1815)

### Genus *Prothemus* Champion, 1926

Chinese common name: 圓胸花萤属

*Prothemus* Champion, 1926: 195. Type species: *Prothemus neglectus* Champion, 1926, by monotypic and original designation.

**Diagnosis.** Body middle to large-sized (7.0–20.0 mm). Antennae usually filiform, rarely serrate in both sexes, often present with narrow longitudinal grooves on middle antennomeres in male, while absent in female. Pronotum rounded (e.g., Figs 1, 8, 10). Elytra yellowish or reddish brown or black, rarely metallic green, a few present with distinct longitudinal costae on disc. Pro- and meso-outer tarsal claws each with a rounded or triangular basal appendicle in male, while simple in female. Terminal abdominal ventrite of male (sternite IX) slender, while that of female (sternite VIII) wide (e.g., Fig. 3), more or less emarginate in middle of posterior margin, and more or less depressed on both sides of the middle emargination.

Aedeagus (e.g., Figs 2, 5, 6, 9, 11): ovate, conjoint parameres deeply cleft to base in ventral side, dorsal plates separated and occupied dorso-ventrally, sometimes reduced in dorsal side, bent inwards with tapered apices; ventral process of each paramere very slender and oblique, feebly narrowed apically and narrowly rounded at apex, as long as or shorter than dorsal plate; the emargination between ventral process and dorsal plate of each paramere narrow; median lobe present with a pair of more or less developed laterophyses.

Internal organ of female reproductive system (Figs 4, 7): vagina globally expanded at apical part, with median oviduct situated in ventral middle part, and diverticulum and spermathecal duct arising from ventro-apical part; diverticulum stout tube-shaped and narrowly rounded at apex, spermathecal duct longer and much thinner than diverticulum; spermatheca provided with two spiral and thin tubes, of which the one (spII) near to accessory gland shorter than the other one (spI); base of spII extended into a very short tube, where accessory gland opening; accessory gland evenly thin along the whole length and shorter than spII.

**Distribution.** China, Japan, Korea, Vietnam, Laos, Thailand, India, Nepal, Indonesia and Malaysia.

### ***Prothemus sanguinosus* (Fairmaire, 1900)**

Chinese common name: 血红圆胸花萤  
(Figs 1A–C, 2A–C, 3A, 4A)

*Telephorus sanguinosus* Fairmaire, 1900 (1899): 629.

*Cantharis sanguinosus*: Pic, 1911: 175.

*Prothemus sanguinosus*: Wittmer, 1987: 78.

*Prothemus longiphysus* Wittmer, 1995: 416, fig. 14. **syn. nov.**

**Type material examined.** LECTOTYPE of *Telephorus sanguinosus*: 1♂ (MNHN), [p] “Kouang-Toung / (de Latouche)”, [p] “MUSEUM PARIS / CHINE / H. DONCKIER 1900”, [h] “Telephorus / sanguinosus / Fairm. n. sp.” (Fairmaire’s handwriting), [h] “Prothemus / sanguinosus / (Farim.) / det. W. Wittmer”, [p] “LECTOTYPE”.

HOLOTYPE of *Prothemus longiphysus*: 1♂ (NHMB), [p] “17.-21.5.1990 TAM DAO / VIEH PHU Distr. / N VIETNAM, 900m / JAN HORÁK Leg.”, [h] “longiphysus” (Wittmer’s handwriting), [h] “REM / 94/ 1.7”, [p] “HOLOTYPIUS”.

**Additional material examined.** CHINA • **Guangdong**: 1♂ (MHB), Shaoguan, Ruyuan, Nanling, Jiuchongshan, 9.IV–28.V.2021, J.B. Tong leg.; 1♂ (MHB), same data as the preceding, 24.IV.2021; 2♂♂ (MHB), same data as the preceding, 26.IV.2021. **Guangxi**: 1♂ (MHB), Liuzhou, Rongshui, Jiuwanshan, Yangmeiao, 10.V.2023, H.Q. Lin leg.; 1♂ (MHB), same data as the preceding, 11.V.2023; 1♂ (MHB), same data as the preceding, 10.V.2023; 3♂♂ (MHB), Hechi, Huanjiang, Maonan, 10.V.2023, H.Q. Lin leg.; 1♂1♀ (MHB), Longsheng, Sanmen, Huaping, 3.V.2022, Z.L. Chen leg.; 5♂♂ (MHB), Longsheng, Huaping, Anjiangping, 2.VI.2023, H.Q. Lin leg.; 3♀♀ (MHB), Huanjiang, Jiuwanshan, Yangmeiao, 24.VII–27.VII.2022, Z.L. Chen leg.; 1♂ (IZAS), Napo, Defu, 1400m, 3.–5.IV.1998, M. Wu leg.; 1♀ (IZAS), same locality as the preceding, 4.IV.1998, leg. C.S. Wu; 1♀ (IZAS), Tianlin, Linao Shan, 1300–1400m, 28.V.2002, J.W. Liu leg. **Zhejiang**: 2♂♂ (IZAS), Xitianmushan, Chanyuansi, 29.V.1998, H. Wu leg. **Fujian**: 1♀ (IZAS), Jianyang, Huangkeng, Dazhulan, 900–1100m, 2.V.1960, leg. S.Q. Jiang; 1♂ (IZAS), Jianyang, Huangkeng, Dazhulan-Xianfengding, 900–1170m, 2.V.1960, Y. Zuo leg. **Chongqing**: 2♂♂1♀ (IZAS), Wanxian [= Wanzhou], Wangerbao, 1200m, 28.V.1994, Y.W. Zhang leg.; 1♀ (IZAS), same data as the preceding, 27.V.1994. **Jiangxi**: 1♂ (cKo), “Wuyi Shan, Xipaihe vil., 27°54'N, 117°20'E, May 2004, H=1500m, leg. V. Sinaev”.

**Redescription.** Body length 13.0–20.0mm (both sexes); width: 3.5–6.0mm (both sexes).

**Male** (Fig. 1A–C). Body black, pronotum yellowish brown around all margins, elytra red, legs bicolored and mixed black with yellowish brown.

Head rounded, eyes strongly protruding, head width across eyes narrower than pronotum; antennae filiform, extending to apical fifth length of elytra when inclined, antennomere II 1.5 times as long as wide at apex, III–XI slightly flattened and subparallel-sided, IV–XI each with a narrow longitudinal or oval groove along outer margin.

Pronotum about 1.1–1.2 times wider than long, widest near middle, with all margins and angles rounded, disc distinctly convex on postero-lateral parts.

Elytra parallel-sided, about 3.2 times longer than wide at humeri, 4.9–5.0 times longer than pronotum, densely and finely punctate on disc.





**FIGURE 1.** Habitus, dorsal view: of **A** *Prothemus sanguinosus* (Fairmaire, 1899) (lectotype); **B** *P. longiphysus* Wittmer, 1995 **syn. nov.** (holotype) = *P. sanguinosus*; **C** *P. sanguinosus* (a non-type specimen located in CHINA, Guangdong Province: Shaoguan, Ruyuan, Nanling, Jiuchongshan); **D** *P. angustioripennis* (Pic, 1927) **stat. rev.** (originally in *Cantharis*, holotype). Scale bar: 2.0 mm.



Aedeagus feebly constricted apically in dorsal and ventral views (Fig. 2A, B), abruptly narrowly at apical part in lateral view (Fig. 2C); dorsal plate of each paramere strongly curved inwards and intersected with each other in ventral and dorsal views (Fig. 2A, B) and curved dorsally in lateral view (Fig. 2C), strongly narrowed laterally, with a subquadrate protuberance at basal portion of lateral part on dorsal side (Fig. 2B), middle part rounded at inner apical angle; ventral process of each paramere oblique and nearly as long as dorsal plate (Fig. 2A); median lobe present with a pair of well-developed laterophyses (Fig. 2B), which located on both sides of median lobe, slender and feebly hooked at apices, bent dorso-laterally, long and obviously extruding over dorsal plate.

**Female.** Similar to males, but eyes smaller, antennae thinner and shorter, antennomeres without any grooves, pronotum wider. Abdominal sternite VIII (Fig. 3A) feebly narrowed posteriorly, with latero-apical angles acute, posterior margin deeply and roundly emarginate in middle and on both sides, middle emargination deeper than lateral ones and the portions between them acute at apices, behind the middle emargination with a rounded membrane which feebly sclerotized and moderately fissured in middle.

Internal organ of reproductive system (Fig. 4A): spermathecal duct about 3.2 times as long as diverticulum; spI and spII separated from each other, spI about twice longer than spII; accessory gland about half shorter than spII.

**Distribution.** China (Guangdong, Guangxi, Guizhou, Zhejiang, Fujian, Chongqing, Jiangxi), N. Vietnam.

**Remarks.** The lectotype of *Telephorus sanguinosus* was located in China (Guangdong), and a large series of additional material from southeastern China was available for us. However, we found that the aedeagus of all our material did not match the illustration by Wittmer (1987: fig. 11), which was illustrated on basis of the material of *Cantharis angustioripennis* located from Vietnam (Chapa, Tonkin). Instead, our material corresponds with the other species very well, *P. longiphysus* located in Vietnam (Vien Phu, Tam Dao), including their appearance (Fig. 1A vs. 1B) and aedeagi (Fig. 2B vs. Wittmer, 1995: fig. 14). Therefore, we suggest synonymizing *P. longiphysus* with *P. sanguinosus*, while reinstate *Cantharis angustioripennis* as noted below.

### ***Prothemus angustioripennis* (Pic, 1927) stat. rev.**

Chinese common name: 宽翅圆胸花萤  
(Fig. 1D)

*Cantharis angustioripennis* Pic, 1927: 132.

*Prothemus sanguinosus*: Wittmer, 1987: 78, fig. 11 [misidentification].

**Type material examined.** HOLOTYPE: 1♂ (MNHN), [p-h] “Tonkin / Chapa / 9.V. 1918 / JEANVOINE”, [h] “angustioripennis / n. sp.” (Pic’s handwriting), [h] “Prothemus / sanguinosus / (Fairm.) / det. W. Wittmer”, [p] “HOLOTYPUS”.

**Additional material examined.** 6♂♂ (cKo, cWe), “CHINA, Yunnan/Honghe, Dajianshan, 2130m, 4F1, 22°54'30.79"N, 103°41'50.17"E. 08.V.2019, leg. LZ. Meng”; 1♂ (cKo), “CHINA, Yunnan/Honghe Hekou, Laoqingshan, 22°50'50.31"N, 103°45'28.60"E. 1894m, 07.V.2019, leg. L.Z. Meng, 1F1”.

**Distribution.** China (new record: Yunnan); N. Vietnam.

**Remarks.** As noted above, based on the examination and comparison of the types, we should remove this species from the synonym of *P. sanguinosus* and reinstate it as a valid species herein. In addition to the distinct differences in the shapes of their aedeagi (Fig. 2A–C vs. Wittmer, 1987: fig. 11), there are also noticeable variations in their appearances (Fig. 1A–C vs. 1D). Furthermore, additional material found in Yunnan has been identified as this species, marking its first recorded occurrence in China.

### ***Prothemus purpureipennis* (Gorham, 1889)**

Chinese common name: 紫翅圆胸花萤  
(Figs 2D–F, 3B, 4B)

*Telephorus purpureipennis* Gorham, 1889: 107.

*Prothemus purpureipennis*: Wittmer, 1954a: 110.

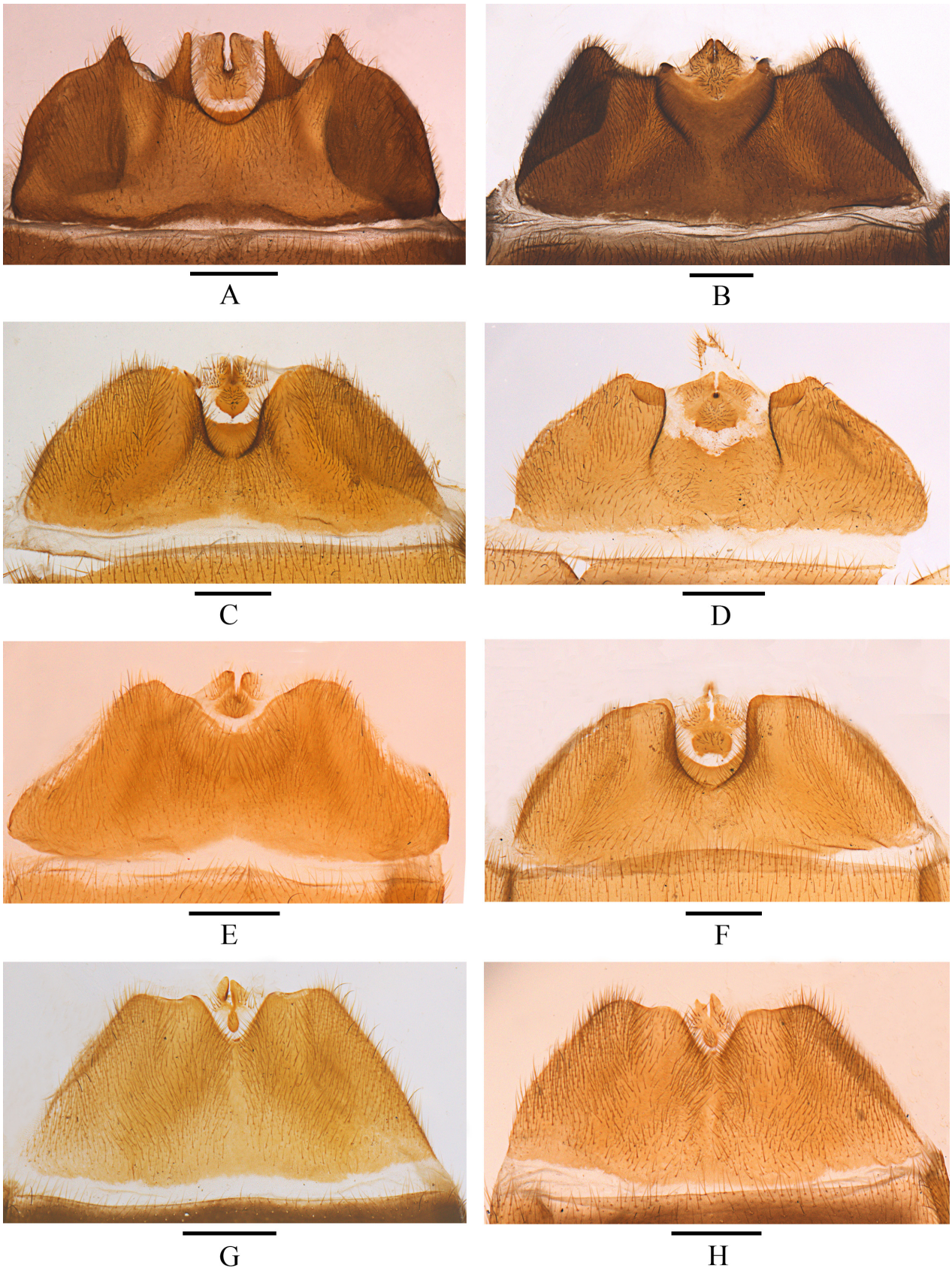
**Type material examined.** LECTOTYPE: 1♀ (MNHN), [p] “Kiukiang / June 1887 / A.E. Pratt”, [h] “Telephorus / purpureipennis / Gorham”, [h] “Type”, [p] “LECTOTYPUS”.



**FIGURE 2.** Aedeagi of **A–C** *Prothemus sanguinosus* (Fairmaire, 1899); **D–F** *P. purpureipennis* (Gorham, 1889). **A, D** ventral view; **B, E** dorsal view; **C, F** lateral view. Scale bars: 0.5 mm.

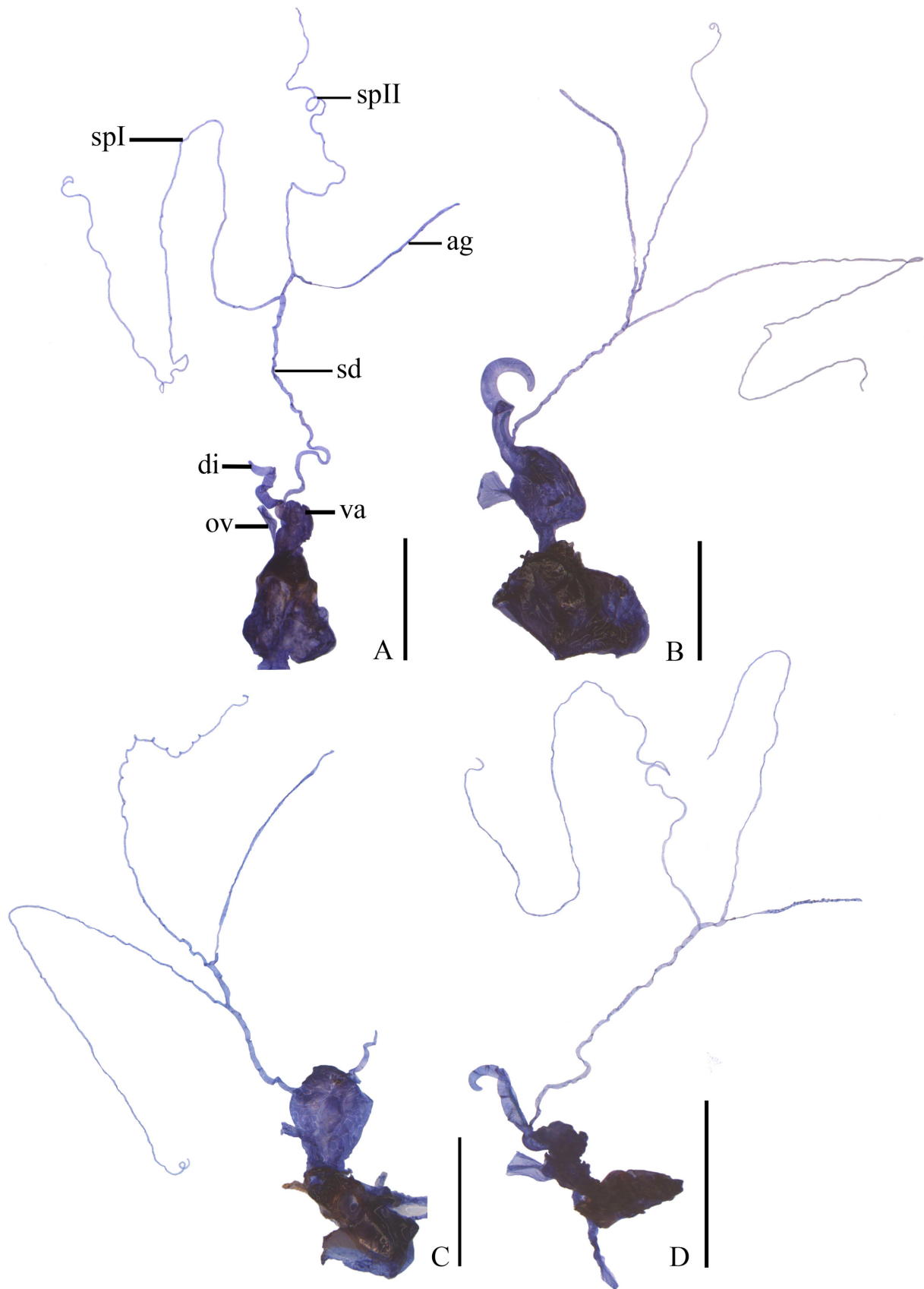
**Additional material examined.** CHINA • **Guangxi:** 1♂ (MHB), Liuzhou, Rongshui, Jiuwanshan, Yangmeiao, 10.V.2023, H.Q. Lin leg. **Zhejiang:** 1♂1♀ (MHB), Qingliangfeng, Shunxiwu, 15.V–18.V.2012, J.S. Xu leg.; 1♂ (IZAS), Anji, Longwangshan, 450m, 11.V.1996, H. Wu leg.; 1♀ (IZAS), same data as the preceding, 12.V.1996. **Jiangxi:** 1♂1♀ (IZAS), Lushan, 10.V.1977, Y.W. Zhang leg. **Fujian:** 1♂ (IZAS), Jianyang, Huangkeng, Aotou, 900–950m, 27.IV.1960, F.J. Pu leg.; 1♀ (IZAS), Chongan, Xingcun, Sangang, 740m, 12.V.1960, C.L. Ma leg.





**FIGURE 3.** Abdominal sternite VIII of female, ventral view: **A** *Prothemus sanguinosus* (Fairmaire, 1900); **B** *P. purpureipennis* (Gorham, 1889); **C** *P. chinensis* Wittmer, 1987; **D** *P. kiukianganus* (Gorham, 1889); **E** *P. limbolarius* (Fairmaire, 1900); **F** *P. monochrous* (Fairmaire, 1900); **G** *P. venustiformis* sp. nov. (black elytra); **H** *P. venustiformis* sp. nov. (yellow elytra). Scale bars: 0.5 mm.





**FIGURE 4.** Internal organ of female reproductive system, lateral view: **A** *Prothemus sanguinosus* (Fairmaire, 1900); **B** *P. purpureipennis* (Gorham, 1889); **C** *P. chinensis* Wittmer, 1987; **D** *P. kiukianganus* (Gorham, 1889). Scale bars: 2.0 mm. Abbreviations: va—vagina; ov—median oviduct; di—diverticulum; sd—spermathecal duct; ag—accessory gland; spI—spermatheca I; spII—spermatheca II.

**Descriptive notes.** Aedeagus feebly constricted apically in dorsal and ventral views (Fig. 2D, E), abruptly narrowly near middle in lateral view (Fig. 2F); dorsal plate of each paramere strongly narrowed laterally, without lateral part visible on dorsal side (Fig. 2E), middle part widely and roundly emarginate in middle of apical margin, of which arcuate at inner apical angle; ventral process of each paramere oblique, truncate at apex and shorter than dorsal plate (Fig. 2D); median lobe present with a pair of well-developed laterophyses (Fig. 2E), which located on both sides of median lobe, wide and tapered at apex, bent dorsally, long and extruding over dorsal plate.

**Female.** Abdominal sternite VIII (Fig. 3B) moderately narrowed posteriorly, with latero-apical angles rounded, posterior margin arcuately emarginate on both sides and triangularly emarginate in middle, middle emargination deeper than lateral ones and the portions between them obtuse at apices, behind the middle emargination with a triangular membrane which feebly sclerotized and moderately fissured in middle, before middle emargination arcuately ridged on both sides.

Internal organ of reproductive system (Fig. 4B): spermathecal duct about 1.2 times as long as diverticulum; spI and spII separated from each other, spI about 2.5 times longer than spII; accessory gland feebly shorter than spII.

**Distribution.** China (Guangxi, Jiangxi, Beijing, Shaanxi, Shanghai, Zhejiang, Hubei, Fujian, Sichuan).

### ***Prothemus chinensis* Wittmer, 1987**

Chinese common name: 中华圆胸花萤  
(Figs 3C, 4C, 5A–C)

*Prothemus chinensis* Wittmer, 1987: 75.

**Type material examined.** HOLOTYPE: 1♂ (NHMB), [p] “Pilu-Shenmu, 2000–/2200m, Hualien / Pref., TAIWAN /16-VI-1982 / T. Shimomura leg.”, [p] “Naturhist. / Museum Basel / Coll. W. Wittmer”. [p] “CANTHARIDAE / CANTH00002485”, [h] “P. / chinensis / Wittm. / det. W. Wittmer”, [p] “HOLOTYPUS”.

**Additional material examined.** CHINA • **Guangxi:** 1♂ (MHBU), Hechi, Huanjiang, Maonan, 10.V.2023, H.Q. Lin leg.; 2♂♂1♀ (MHBU), Liuzhou, Rongshui, Jiuwanshan, Yangmeiao, 10.V.2023, H.Q. Lin leg.; 1♀ (MHBU), Longsheng, Huaping, [25°6298'N, 109°9105'E] 30.IX.2022; Z.L. Chen leg. **Hunan:** 2♂♂ (SNUC), Yanling, 25.V.2014, Peng, Shen, Yu & Yan leg. **Zhejiang:** 1♀ (IZAS), “Tienmushan, 16.VI.1936, O. Piel coll.”; 1♂ (IZAS), Lin-an, Qingliangfeng Station, 920m, 30°67' N, 118°54'E, 18.VI.2004, H. B. Liang leg.; 1♂ (IZAS), Anji, Longwang Shan, 490m, 11.VI.1996, W.Z. Li leg.; 1♀ (IZAS), same data as the preceding, 490m. **Guizhou:** 1♂ (cKo), “Leigongshan, Xijiang, 29 May–2 Jun 1997, 1200–1900m, Bolm lgt.”.

**Descriptive notes.** Aedeagus moderately constricted apically in ventral and dorsal views (Fig. 5A, B), abruptly narrowed apically in lateral view (Fig. 5C); dorsal plate of each paramere approaching to each other in ventral and dorsal views (Fig. 5A, B), strongly narrowed laterally, with narrow lateral part visible along whole length (Fig. 5B), of which a figure-like protuberance at basal portion of inner margin on dorsal side, middle part rounded at inner apical angle (Fig. 5B); ventral process of each paramere oblique and shorter than dorsal plate (Fig. 5A); median lobe present with a pair of moderately developed laterophyses (Fig. 5B), which located on dorsal side of median lobe, tapered apically and directing dorso-laterally, short but extruding over dorsal plate.

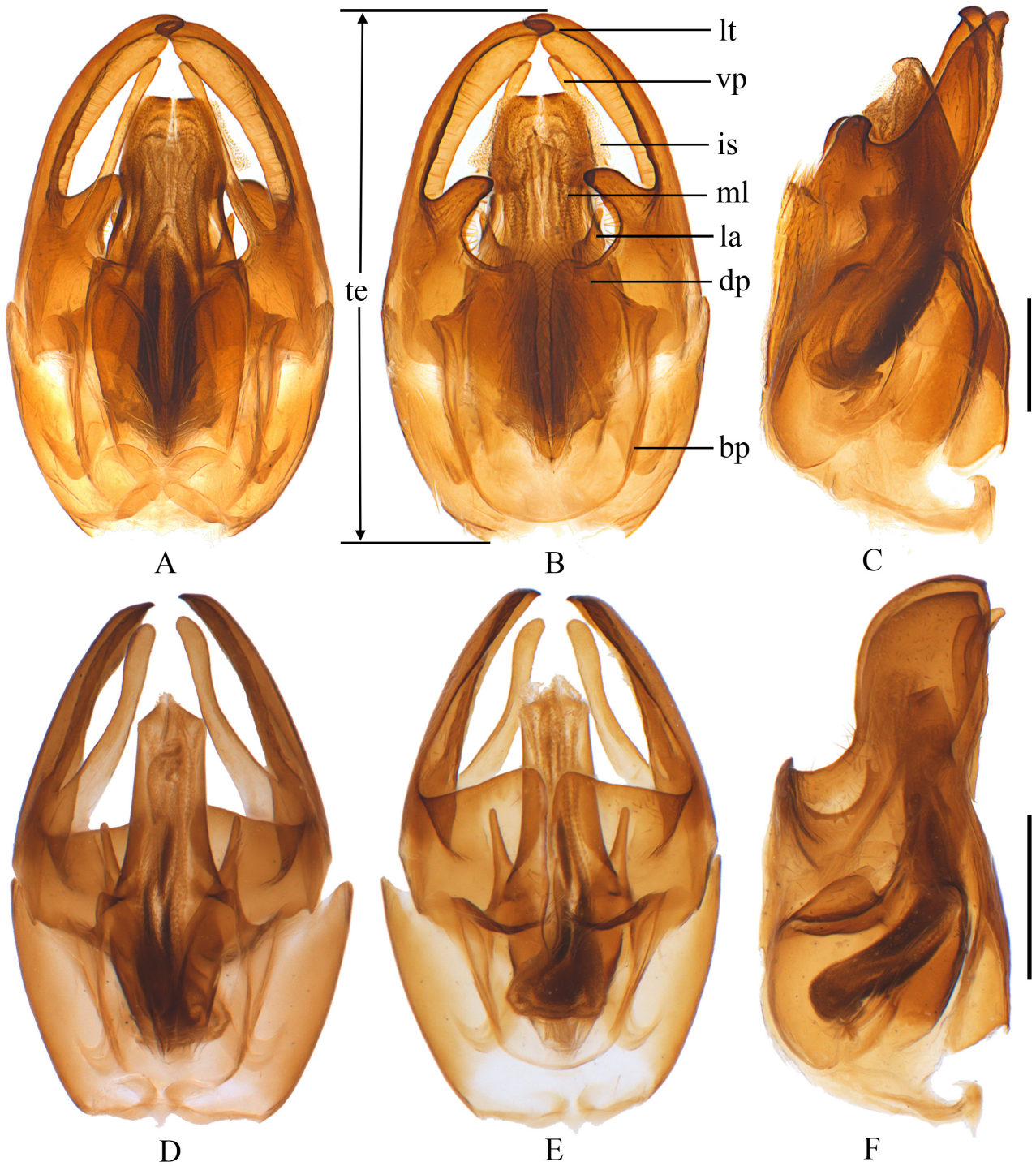
**Female.** Abdominal sternite VIII (Fig. 3C) strongly narrowed posteriorly, with latero-apical angles widely rounded, posterior margin deeply and roundly emarginate in middle, behind the middle emargination with a membrane which bearing a rhombic sclerite in center and feebly fissured in middle, before the middle emargination ridged around its bottom and lateral margins.

Internal organ of reproductive system (Fig. 4C): spermathecal duct about 1.2 times as long as diverticulum; spI and spII separated from each other, spI about 1.5 times longer than spII; accessory gland about 1/3 shorter than spII.

**Distribution.** China (Guangxi, Hunan, Henan, Shaanxi, Zhejiang, Hubei, Fujian, Taiwan, Sichuan, Guizhou).

### ***Prothemus kiukianganus* (Gorham, 1889)**

Chinese common name: 九江圆胸花萤  
(Figs 3D, 4D, 5D–F)



**FIGURE 5.** Aedeagi of **A–C** *Prothemus chinensis* Wittmer, 1987; **D–F** *P. kiukianganus* (Gorham, 1889). **A, D** ventral view; **B, E** dorsal view; **C, F** lateral view. Scale bars: 0.5 mm. Abbreviations: bp—basal piece; te—tegmen; dp—dorsal plate of each paramere; vp—ventral process of each paramere; ml—median lobe; is—internal sac of median lobe; la—laterophyse.

*Telephorus kiukianganus* Gorham, 1889: 107.

*Prothemus kiukianganus*: Wittmer, 1954a: 110.

**Type material examined.** LECTOTYPE: 1♀ (MNHN), [p] “Kiukiang / June 1887 /A. E. Pratt”, [h] “Telephorus / kiukianganus /Gorham”, [h] “Type”, [p] “LECTOTYPUS”.



**Additional material examined.** CHINA• **Guangdong:** 2♂♂2♀♀ (MHB), Shaoguan, Ruyuan, Nanling, 9.IV–28.V.2021, J.B. Tong leg.; 1♂2♀♀ (MHB), same data as the preceding, 28.V–12.VI.2021; 1♂ (MHB), same data as the preceding, 23.V–7.VI.2021; 1♀ (MHB), same data as the preceding, 26.VI–28.IX.2021; 2♂♂ (MHB), Shaoguan, Ruyuan, Nanling, Xiaohuangshan, 26.IV.2021, J.B. Tong leg.; 1♂ (MHB), Shaoguan, Ruyuan, Nanling, Qinshuigu, 23.IV.2021, J.B. Tong leg.; 3♂♂1♀ (MHB), Shaoguan, Ruyuan, Nanling, Shijiukeng, 25.IV.2021, J.B. Tong leg.; 2♂♂ (MHB), Shaoguan, Ruyuan, Nanling, Jiuchongshan, 24.IV.2021, J.B. Tong leg.; 1♂ (MHB), same data as the preceding, 26.IV.2021. **Guangxi:** 1♂ (MHB), Hechi, Huanjiang, Jiuwanshan, Yangmeiao, 24.VII–27. VII.2022, Z.L. Chen leg.; 1♂ (MHB), Liuzhou, Rongshui, Jiuwanshan, Yangmeiao, 10.V.2023, H.Q. Lin leg.; 1♂ (MHB), same data as the preceding, 11.V.2023. **Jiangxi:** 1♂ (MHB), Ganzhou, Longnan, Jiulianshan, 27.VII.2021, Z.L. Liang leg. **Fujian:** 1♂ (IZAS), Jianyang, Huangkeng, Guilin, 270–590m, 14.IV.1960, leg. C.L. Ma; 1♀ (IZAS), Jianyang, Huangkeng, Dazhulan-Xianfengding, 950–1170m, 2.V.1960, C.L. Ma leg. **Zhejiang:** 2♂♂1♀ (cKo), “Gutianshan Nature Reserve, 24.IV.–07.V.2012, leg. Markus Wall”; 1♀ (NME), “Gutianshan Nat. N. Res. 29°8′18″–29°17′29″N, 118°2′14″–118°11′12″E; 1♀ (cKo), “Gutianshan NNR, Plot CSP08 NE 1, 410m, 118,11°E, 29,24°N, EKL, 2010, secondary forest, loc. collectors”; 1♂ (NME), “CHINA (Zhejiang) Tianmu Shan, pass 25km NNW Linan, 620–820m 30°25′40″N/ 119°35′30″E (creek valley, bamboo, mixed forest, beaten from vegetation) 16.VI.2007 D.W. Wrase (37A).

**Descriptive notes.** Aedeagus strongly constricted apically in ventral and dorsal views (Fig. 5D, E), abruptly narrowed near middle in lateral view (Fig. 5F); dorsal plate of each paramere approaching to each other in ventral and dorsal views (Fig. 5D, E), strongly narrowed laterally, with narrow lateral part visible along whole length (Fig. 5E), of which no protuberance at inner margin on dorsal side, middle part rectangular at inner apical angle, which feebly protruding apically (Fig. 5E); ventral process of each paramere sinuate and shorter than dorsal plate (Fig. 5D, E); median lobe present with a pair of moderately developed laterophyses (Fig. 5E), which located on both sides of median lobe, very slender and pointed at apices, nearly straight and directing laterally, moderately long but never extruding over dorsal plate.

**Female.** Abdominal sternite VIII (Fig. 3D) strongly narrowed posteriorly, with latero-apical angles widely triangular, posterior margin deeply and trapezoidally emarginate in middle, the middle emargination ridged along lateral margins, behind the middle emargination with a triangular membrane which feebly sclerotized at apical part and feebly fissured in middle.

Internal organ of reproductive system (Fig. 4D): spermathecal duct about 2.5 times as long as than diverticulum; spI and spII separated from each other, spI about twice longer than spII; accessory gland about 2/3 shorter than spII.

**Distribution.** China (Guangdong, Guangxi, Jiangxi, Fujian, Zhejiang).

### ***Prothemus limbolarius* (Fairmaire, 1900)**

Chinese common name: 淡缘圆胸花萤  
(Figs 3E, 6A–C, 7A)

*Telephorus limbolarius* Fairmaire, 1900 (1899): 628.

*Cantharis limbolarius* var. *fainanensis* Pic, 1916: 4.

*Prothemus limbolarius*: Wittmer. 1954b: 280.

**Type material examined.** HOLOTYPE of *Telephorus limbolarius* 1♂ (MNHN), [h] “Chine”, [h] “Kuatain”, [h] “limbolarius / Frm. type”, [h] “Prothemus / limbolarius / (Fairm.) / det. W. Wittmer”, [p] “HOLOTYPE”.

LECTOTYPE of *Cantharis limbolarius* var. *fainanensis*: 1♂ (MNHN), [h] “Fainan / Formosa IV”, [h] “v. fainanensis / Pic”, [h] “Pic coll / type?”.

**Additional material examined.** CHINA•**Zhejiang:** 2♂♂ (MHB), Linan, Qingliangfeng, Longtangshan, 18.V–21.V.2012, J.S. Xu leg.; 1♂2♀♀ (MHB), same localities as the preceding, 16.V–22.V.2012, G.L. Xie leg. **Fujian:** 1♂ (IZAS), Jianyang, Huangkeng, Changjian, 340m, 18.IV.1960, Y. Zuo leg.; 1♀ (IZAS), same locality as the preceding, 8.IV.1960, S.Q. Jiang leg.; 1♀ (IZAS), Jianyang, Huangkeng, Aotou, 320m, 30.III.1960, S.Q. Jiang leg.; 1♂ (IZAS), Chong’an, Tongmuguan, Guanping, 900m, 22.V.1960, F. J. Pu leg.

**Descriptive notes.** Aedeagus moderately constricted apically in dorsal and ventral views (Fig. 6A, B), progressively narrowed apically in lateral view (Fig. 6C); dorsal plate of each paramere strongly bent to each other

in ventral and dorsal views (Fig. 6A, B), feebly narrowed laterally, with wide lateral part visible (Fig. 6B), of which a large triangular protuberant at apical part of inner margin on dorsal side, middle part widely rounded at inner apical angle (Fig. 6B); ventral process of each paramere oblique and shorter dorsal plate (Fig. 6A); median lobe present with a pair of well-developed laterophyses (Fig. 6A, B), which located on both sides of median lobe, slender and rounded at apices, directing dorso-laterally, long but never extruding over dorsal plate.



**FIGURE 6.** Aedeagi of A–C *Prothemus limbolarius* (Fairmaire, 1900); D–F *P. monochrous* (Fairmaire, 1900). A, D ventral view; B, E dorsal view; C, F lateral view. Scale bars: 0.5 mm.



**Female.** Abdominal sternite VIII (Fig. 3E) strongly narrowed posteriorly, with latero-apical angles rounded, posterior margin widely and triangularly emarginate in middle, behind the middle emargination with a triangular membrane which feebly sclerotized at apical part and moderately fissured in middle.

Internal organ of reproductive system (Fig. 7A): spermathecal duct about 1.4 times as long as diverticulum; spI and spII next to each other, spI about twice longer than spII; accessory gland about half shorter than spII.

**Distribution.** China (Guangdong, Fujian, Taiwan).

### ***Prothemus monochrous* (Fairmaire, 1900)**

Chinese common name: 单色圆胸花萤

(Figs 3F, 6D–F, 7B)

*Telephorus monochrous* Fairmaire, 1900 (1899) : 627.

*Prothemus monochrous*: Wittmer, 1972: 106.

**Type material examined.** HOLOTYPE: 1♂ (MNHN), [p] “MUSEUM PARIS / CHINE / H. DONCKIER 1900”, [h] “Kouang Toung / (de Latouche)”, [h] “Telephorus / monochrous / Fairm. n. sp.”, [h] “Fairmaire det. / cf. Qnn. Fr. 1899”, [h] “Prothemus / monochrous / (Fairm.) / det. W.Wittmer”, [p] “HOLOTYPUS”.

**Additional material examined.** CHINA • **Guangxi:** 2♂♂ (MHB), Hechi, Huanjiang, Jiuren, 13.V.2023, H.Q. Lin leg.; 1♂ (MHB), same data as the preceding, 21.V.2023; 7♂♂11♀♀ (MHB), Guilin, Xingan, Miao'er shan, Huilongsi, 21.V.2023, H.Q. Lin leg.; 2♂♂ (MHB), Longsheng, Huaping, Anjiangping, 2.VI.2023; H.Q. Lin leg.; 4♂♂ (MHB), same data as the preceding, 4.VI.2023. **Hunan:** 1♂ (MHB), Dongan County, Shunhuangshan, 1.V.2022, X.L. Bai leg. **Fujian:** 1♂ (IZAS), Chong'an, Xingcun, Qiliqiao, 840m, 25.V.1960, F.J. Pu leg.; 1♀ (IZAS), Chong'an, Xingcun, Sangang, 740m, 25.V.1960, Y.R. Zhang leg.; 1♂ (IZAS), Jiangle, Longqishan, 11.V.1991, H. Liu leg.; 1♀ (IZAS), same locality as the preceding, 25.V.1991, C.M. Huang leg.

**Descriptive notes.** Aedeagus moderately constricted apically in dorsal and ventral views (Fig. 6D, E), abruptly narrowly apically in lateral view (Fig. 6F); dorsal plate of each paramere approaching to each other in ventral and dorsal views (Fig. 6D, E), strongly narrowed laterally, with narrow lateral part visible (Fig. 6E), of which an indistinct and arcuate protuberance at basal part of inner margin on dorsal side, middle part rounded at inner apical angle (Fig. 6E); ventral process of each paramere oblique and shorter than dorsal plate (Fig. 6D); median lobe present with a pair of well-developed laterophyses (Fig. 6E), which located on both sides of median lobe, wide and tapered apically, bent dorsally and obviously extruding over dorsal plate.

**Female.** Abdominal sternite VIII (Fig. 3F) moderately narrowed posteriorly, with latero-apical angles confluent with lateral margins, posterior margin deeply and roundly emarginate in middle, the middle emargination ridged along lateral margins and bottom, behind the middle emargination with a membrane which feebly sclerotized at apical part and moderately fissured in middle.

Internal organ of reproductive system (Fig. 7B): spermathecal duct about 3.0 times as long as diverticulum; spI and spII separated from each other, spI about 1.5 times longer than spII; accessory gland nearly as long as spII.

**Distribution.** China (Guangdong, Guangxi, Hunan, Fujian).

### ***Prothemus biprominens* Y. Yang, Tong & Liu, sp. nov.**

Chinese common name: 双突圆胸花萤

(Figs 8A, 9A–C)

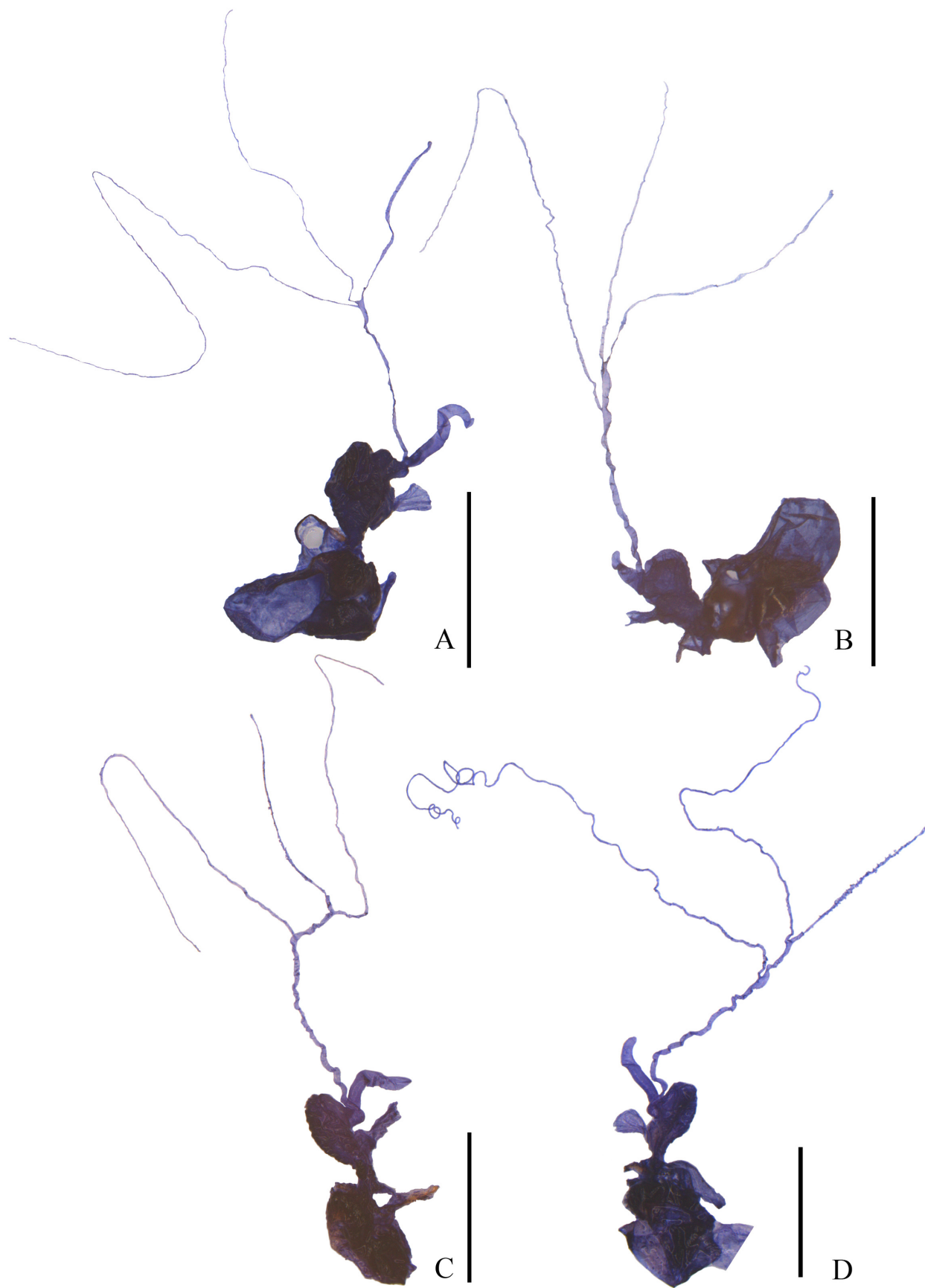
**Type material.** HOLOTYPE: CHINA • ♂ (MHB), Guangxi, Laibin, Jinxiu, Yinshan, 16.V.2023, H.Q. Lin leg.

**Differential diagnosis.** This species could be distinguished from all others of *Prothemus* species by combination of the following characters: pronotum uniformly yellowish orange, elytra uniformly black; aedeagus: dorsal plate of each paramere with a pair of triangular protuberances at basal and apical portions of inner margin respectively on dorsal side, median lobe with a pair of greatly reduced laterophyses.

**Description.** Body length: 8.4mm (holotype); width: 1.9 mm (holotype).

**Male** (Fig. 8A). Body black. Pronotum yellowish orange, legs yellowish brown at coxae, trochanters and bases of both femora and tibiae.





**FIGURE 7.** Internal organ of female reproductive system, lateral view: **A** *Prothemus limbolarius* (Fairmaire, 1900); **B** *P. monochrous* (Fairmaire, 1900); **C** *P. venustiformis* **sp. nov.** (black elytra); **D** *P. venustiformis* **sp. nov.** (yellow elytra). Scale bars: 2.0 mm.

Head rounded, eyes strongly protruding, head width across eyes nearly as wide as pronotum; antennae filiform, extending to apical fourth length of elytra when inclined, antennomere II twice as long as wide at apex, III–XI slightly flattened and subparallel-sided, IV–XI each with a narrow longitudinal or oblong groove along outer margin.

Pronotum about 1.1 times wider than long, widest near middle, with all margins and angles rounded, disc distinctly convex on postero-lateral parts.

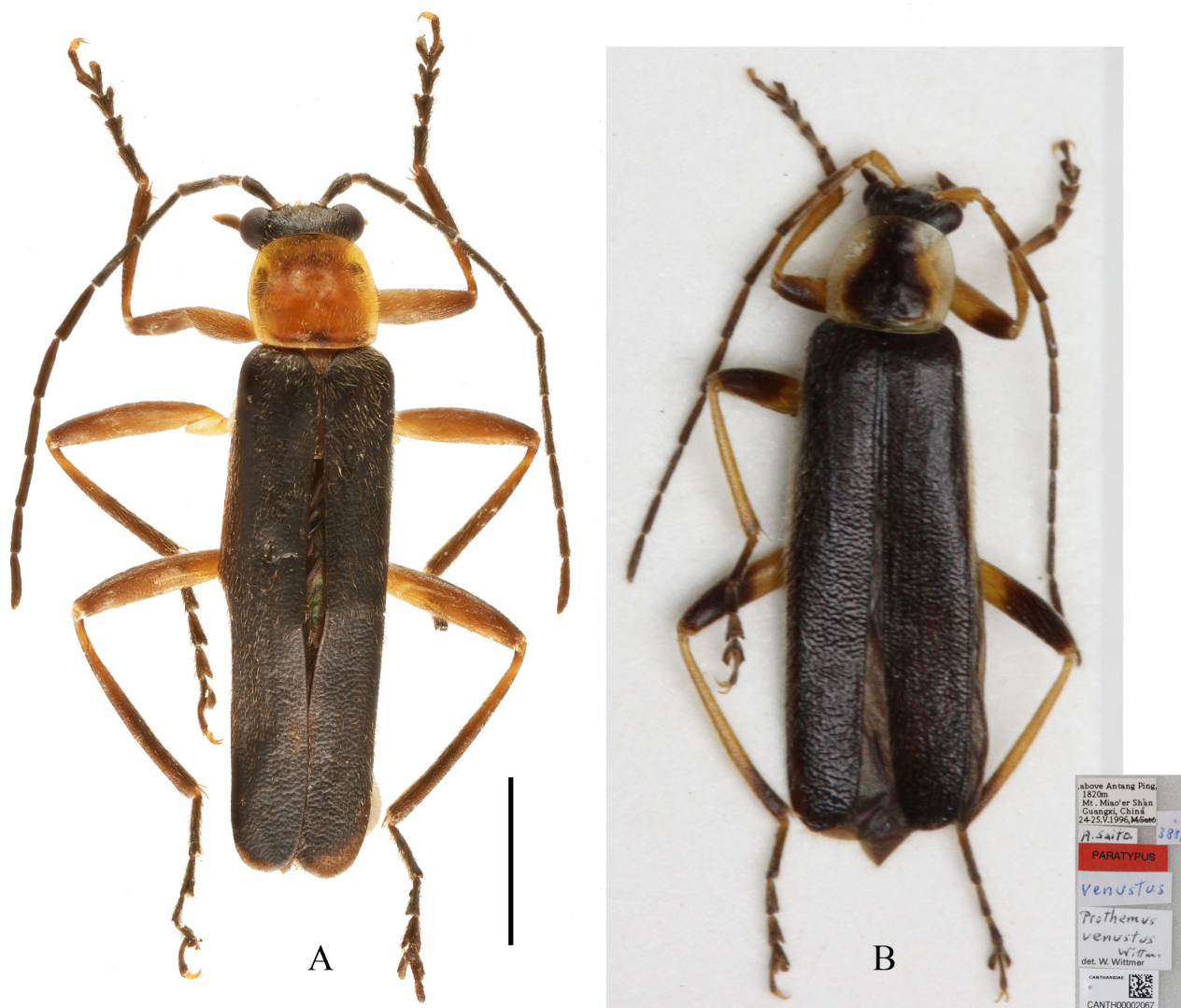
Elytra parallel-sided, about 3.4 times longer than wide at humeri, 4.5 times longer than pronotum, densely and finely punctate on disc surface.

Aedeagus strongly constricted apically in ventral and dorsal views (Fig. 9A, B), progressively narrowed apically in lateral view (Fig. 9C); dorsal plate of each paramere strongly bent to each other in ventral and dorsal views (Fig. 9A, B), moderately narrowed laterally, with wide lateral part visible, of which a pair of triangular protuberances at both basal and apical portions of inner margin respectively on dorsal side (Fig. 9B), middle part widely rounded at inner apical angle (Fig. 9B); ventral process of each paramere nearly oblique and as long as dorsal plate (Fig. 9A), median lobe present with a pair of greatly reduced laterophyses (Fig. 9B), which located on both sides of median lobe, tapered apically and much shorter than dorsal plate.

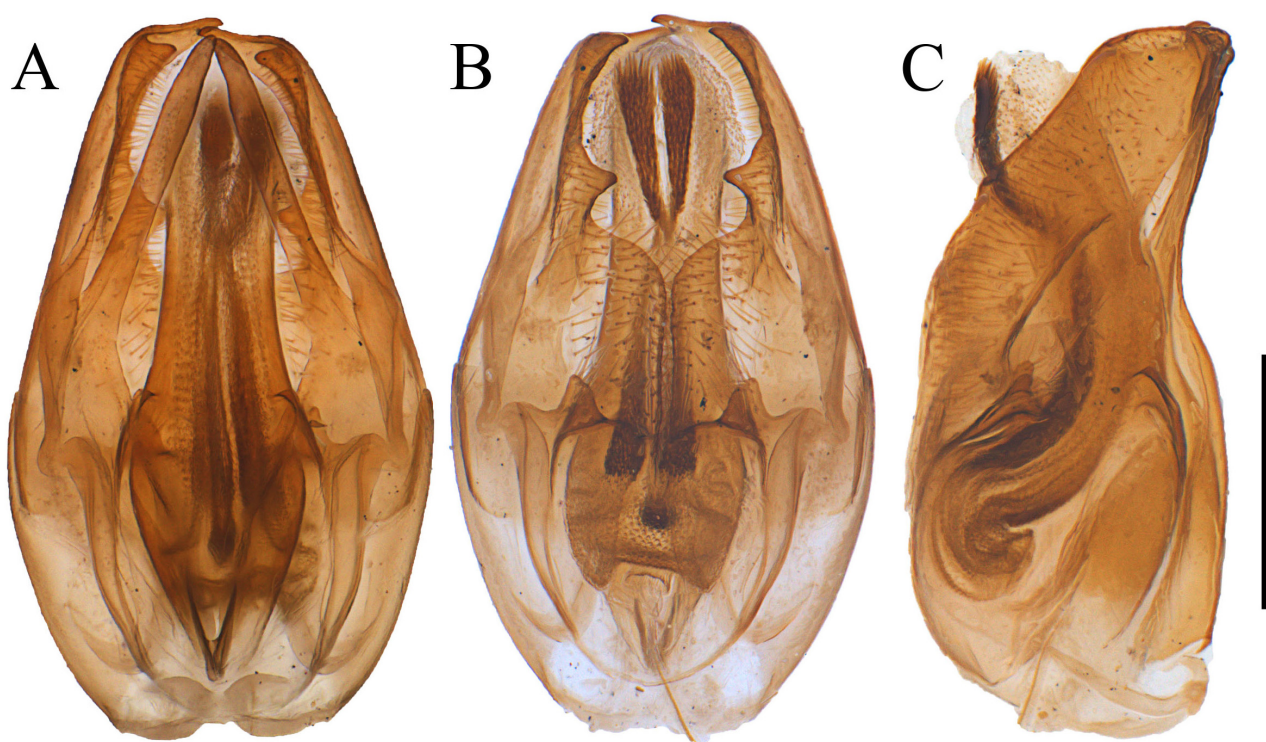
**Female.** Unknown.

**Etymology.** The name of the species is derived from the Latin prefix “*bi-*” (two) and “*prominens*” (prominent), referring to its aedeagus: dorsal plate of each paramere with a pair of protuberances at inner margin of on dorsal side.

**Distribution.** China (Guangxi).



**FIGURE 8.** Male habitus, dorsal view: **A** *Prothemus biprominens* sp. nov.; **B** *P. venustus* Wittmer, 1997 (holotype). Scale bar: 2.0 mm.



**FIGURE 9.** Aedeagus of *Prothemus biprominens* sp. nov. **A** ventral view; **B** dorsal view; **C** lateral view. Scale bars: 0.5 mm.

***Prothemus venustus* Wittmer, 1997**

Chinese common name: 丽圆胸花萤  
(Fig. 8B)

*Prothemus venustus* Wittmer, 1997: 38, fig. 14.

**Type material examined.** PARATYPE: 1♂(NHMB), [p] “above Antang Ping / 1820m / Mt. Miao’er Shan / Guangxi, China / 24-25.V.1996”, [h] “A. Saito”, [h] “388A”, [h] “venustus”, [h] “Prothemus / venustus / Wittm. / det. W. Wittmer”, [p] “PARATYPUS”, [p] “CANTHARIDAE / CANTH00002067”.

**Distribution.** China (Guangxi).

***Prothemus venustiformis* Y. Yang, Kopetz & Liu, sp. nov.**

Chinese common name: 拟丽圆胸花萤  
(Figs 3G, H, 7C–D, 10, 11)

**Type material. HOLOTYPE:** CHINA • ♂ (MHBU), Guangxi, Longsheng, Huaping, Anjiangping, 2.VI.2023, H.Q. Lin leg.

**PARATYPES:** CHINA • Guangxi: 2♂♂ (MHBU), same as the holotype; 1♂1♀ (MHBU), Hechi, Huanjiang, Maonan, Jiuren, 12.V.2023, H.Q. Lin leg.; 1♂1♀ (MHBU), Guilin, Xingan, Miao’ershan, Huilongsi, 21.V.2023, H.Q. Lin leg.; 2♂♂ (MHBU), Wuming, Damingshan, 20.V.2011, H.Y. Liu leg.; 1♂ (MHBU), same data as the preceding, 28.V.2011; 1♂2♀ (MHBU), same data as the preceding, 20.V–30.V.2011; 6♂♂ (MHBU), Laibin, Jinxiu, Yinshan, Guanhouing, 15.V.2023, H.Q. Lin leg.; 7♂♂2♀♀ (MHBU), same data as the preceding, 16.V.2023; 1♀ (MHBU), Laibin, Jinxiu, Shengtangshan, 17.V.2023, H.Q. Lin leg.; 1♂ (NHMW), “CHINA: Guizhou, Leishan Co. / SE Kaili, NE Leishan / Leigong Shan, E-slope / 1700-1800m, 14.-24.6.2001” “env. of pass between / Leishan and Fangxiang / (26°22,74’N 108°12,99’E) / leg. Schillhammer (7)”; 2♂♂ (NHMB), “CHINA, W Guizhou prov. / LEIGONGSHAN, Xijiang / 29 May – 2 Jun 1997 / 1200-1900m, Bolm lgt.”; 4♂♂1♀ (cKo), “CHINA: Yunnan/





FIGURE 10. Habitus, dorsal view: A–B *Prothemus venustiformis* sp. nov. (black elytra); C–D *P. venustiformis* sp. nov. (yellow elytra). A, C male; B, D female. Scale bars: 2.0 mm.



**FIGURE 11.** Aedeagi of **A–C** *Prothemus venustiformis* **sp. nov.** (black elytra); **D–F** *P. venustiformis* **sp. nov.** (yellow elytra). **A, D** ventral view; **B, E** dorsal view; **C, F** lateral view. Scale bars: 0.5 mm.

Honghe / Dajianshan, 2130m, 4F1 / 22°54'30.79"N, 103°41'50.17"E / 08.V.2019, leg. LZ. Meng"; 4♂♂3♀♀ (NME, cKo, cWe). "CH: Yunnan/Honghe Hekou / Laoqingshan, 22°50'55.03"N / 103°45'29.29"E, 1844m, 07. / V.2019, leg. L.Z. Meng 5F1"; 1♂ (NME), "CH: Yunnan/Honghe Hekou / Laoqingshan, 22°50'52.01"N / 103°45'28.6"E, 07.V.2019 / 1882m, leg. LZ. Meng FIT3". VIETNAM • 3♂♂4♀♀ (NME, cKo, cWe), "N- VIETNAM, Cao Bang Prov. / vic. Tinh Tuc, Son Dong Nui / Pia Oac Nature Res., 850- / 1300m, 09.-15.V.2014 / 22°37'55"N, 105°52'98"E / leg. A. Weigel by light"; 2♀♀ (NME), "N- VIETNAM, Cao Bang Pr. / vic. Tinh Tuc, Nui Pia Oac / Nature Res.



Pia Oac Top / 13.V.2014 1400 - 1380m / 22°36'50"N, 105°52'21"E / leg. A. Weigel; 1♂ (cWe), "N-VIETNAM, Cao Bang Pr. / vic. Vin Den, Nui Pia Oac / Nature Res. 6.-10.V.2013 / 22°33'53"N, 105°52'53"E / 900 - 1300m leg. A. Weigel; 1♂2♀♀ (NME, cSk), "N-VIETNAM, Cao Bang Pr. vic. / Vin Den, Nui Pia Oac Nat. Res. / 06.-10.V.2013, 22°33'53"N, 105° / 52'53"E 900 - 1300m A. Skale; 1♂ (cKo), "N-VIETNAM, Cao Bang Pr. vic. / Vin Den, Nui Pia Oac Nature Res. / 10.-15.V.2014, 22°33'53"N, / 105° 52'53"E 900 - 1300m, A. Skale; 2♀♀ (NME), "N-VIETNAM, Vinh Phuc Prov. / vic. Tam Dao Town, Tam Dao / NP, 02-5.V.2013, 21°27'N / 105° 38'E, 700 - 1000m, A. Skale; 1♀ (NME), "N-VIETNAM, Vinh Phuc Pr. / vic. Tam Dao Town, Tam / Dao NP, 02.-05.V.2013 / 21°27'N 105° 38'E, 700- / 1000m, leg. A. Weigel; 1♀ (NME), "N-VIETNAM, Vinh Phuc / Prov., Tam Dao NP, / 21°27'N, 105° 38'E, 2.- / 5.5.2013, 700-1000m / leg. R. Gerstmeier".

**Differential diagnosis.** This species is similar to *P. venustus* in the general shape of aedeagus, but can be easily distinguished from the latter by the following characters: aedeagus: dorsal plate of each paramere strongly narrowed and strongly bent to each other in dorsal or ventral view; middle emargination of dorsal plate smaller, ca. 1/5 as wide as distance between lateral margins of dorsal plates, 1/3 length of middle fissure, with inner apical angle feebly protruding apically and acute at apices. Unlike in *P. venustus*, aedeagus (Wittmer, 1997: fig.14): dorsal plate of each paramere is moderately narrowed and approaching to each other in dorsal or ventral view; middle emargination of dorsal plate is larger, ca. 1/3 as wide as distance between lateral margins of dorsal plates, 1/2 length of middle fissure, with inner apical angle never protruding apically and nearly right-angled.

**Description.** Body length (both sexes): 8.0–14.0 mm (8.5 mm in holotype); width: 2.0–3.2 mm (2.5 mm in holotype).

**Male** (Fig. 10A). Body yellowish orange, head black at vertex, antennae black except for antennomeres I yellowish orange, pronotum black with yellowish brown margins, scutellum, elytra and tarsi black, abdomen more or less darkened.

Head rounded, eyes moderately protruding, head width across eyes narrower than pronotum; antennae filiform, extending to apical fourth length of elytra, antennomere II twice as long as wide at apex, III–XI slightly flattened and subparallel-sided, IV–XI each with a narrow longitudinal or oblong groove along outer margin.

Pronotum nearly as wide as long, widest near middle, with all margins and angles rounded, disc distinctly convex on postero-lateral parts.

Elytra parallel-sided, about 3.5 times longer than wide at humeri, 4.6 times longer than pronotum, densely and finely punctate on disc.

Aedeagus feebly constricted apically in ventral and dorsal views (Fig. 11A, B), abruptly narrowed apically in lateral view (Fig. 11C); dorsal plate of each paramere strongly bent to each other in ventral and dorsal views (Fig. 11A–B), strongly narrowed laterally, with very narrow lateral part visible, of which no any protuberance at inner margin on dorsal side (Fig. 11B), middle part roundly emarginate at inner apical angle, which feebly protruding apically and acute at apex (Fig. 11B); ventral process of each paramere feebly sinuate and shorter than dorsal plate (Fig. 11A); median lobe present with a pair of moderately developed laterophyses (Fig. 11B), which located at dorsal side of median lobe, tapered apically and bent dorsally, moderately long but never extruding over dorsal plate.

**Female** (Fig. 10B). Similar to males, but eyes smaller, antennae thinner and shorter, antennomeres without any grooves, pronotum wider, with a pair of black markings at postero-lateral parts. Abdominal sternite VIII (Fig. 3G) moderately narrowed posteriorly, with latero-apical angles widely triangular, posterior margin triangularly emarginate in middle and feebly sinuate on both sides, behind the middle emargination with a membrane which bearing an oval sclerite in center and feebly fissured in middle.

Internal organ of reproductive system (Fig. 7C): spermathecal duct about twice longer than diverticulum; spI and spII separated from each other, spI obviously longer than spII; accessory gland about 1/3 shorter than spII.

**Variation in type series.** Sometimes the pronotum has a large black marking extending from anterior to posterior margin and wider in the posterior part than in the anterior part, meanwhile, tibiae are more or less darkened. Alternatively, the head, pronotum, scutellum and elytra are uniformly yellowish orange (Fig. 10C–D). Despite these variations in the external appearance, the aedeagus (Fig. 11D–F) and female abdominal sternite VIII (Fig. 8H), as well as female internal genitalia (Fig. 7D) remain identical to those specimens as described above.

**Etymology.** The specific name is derived from the Latin *-formis* (-like, shaped), referring to its similarity to *P. venustus*.

**Distribution.** China (Guangxi, Guizhou, Yunnan), Vietnam.

## Discussion

In general, the *Prothemus* species are characterized by their consistent elytra coloration. However, *P. venustiformis* **sp. nov.** is distinguished by its contrasting colors. Also, individuals of *P. venustiformis* **sp. nov.** in different colors are sympatric and found in the same locality. Apart from the difference in elytra coloration, there are no discernible differences in characters of habitus and genitalia of both sexes. Therefore, we conclude that all material belongs to a single species as *P. venustiformis* **sp. nov.** Although this phenomenon is being discovered for the first time in *Prothemus*, it is commonly observed in the genus *Lycocerus* Gorham, 1889, such as *L. orientalis* (Gorham, 1889) and *L. nigroverticalis* (Fairmaire, 1887). It is hypothesized that this variability may be a result of adaptation to different microhabitat, but further verification is required through field ecological investigation or exploration of the mechanism at the molecular level.

Nevertheless, the *Prothemus* species are easily distinguished from one another based on their body coloration, shapes of aedeagus and abdominal sternite VIII of female, as summarized in the following key.

## A key to the *Prothemus* species from Nanling National Nature Reserve, China

1. Elytra reddish brown ..... 2
- Elytra yellow, or uniformly black, or with light yellow lateral margins ..... 3
2. Legs uniformly black; aedeagus: dorsal plate of each paramere strongly bent to each other, with middle part roundly emarginate at apical margin (Fig. 2E) ..... *P. purpureipennis* (Gorham, 1889)
- Legs bicolored (Fig. 1A–C); aedeagus: dorsal plate of each paramere strongly curved inwards and intersect with each other, with middle part neatly straight at apical margin (Fig. 2B) ..... *P. sanguinosus* (Fairmaire, 1899)
3. Elytra yellow ..... 4
- Elytra uniformly black, or with light yellow lateral margins ..... 6
4. Tarsi yellow; aedeagus: dorsal plate of each paramere with a finger-like protuberance at basal part of inner margin on dorsal side (Fig. 5B) ..... *P. chinensis* Wittmer, 1987
- Tarsi black; aedeagus: dorsal plate of each paramere at most with a indistinct protuberance at inner margin on dorsal side. . . . 5
5. Abdominal sternite VIII of female with latero-apical angles widely triangular (Fig. G, H); aedeagus: dorsal plate of each paramere with middle part roundly emarginate at inner apical angle (Fig. 11B, E), which acute at apex. . . . .  
..... *P. venustiformis* **sp. nov.**
- Abdominal sternite VIII of female with latero-apical angles confluent with lateral margins (Fig. 3F); aedeagus: dorsal plate of each paramere with middle part never emarginate and rounded at inner apical angle (Fig. 6E) .....  
..... *P. monochrous* (Fairmaire, 1900)
6. Elytra black, with light yellow lateral margins; aedeagus: dorsal plate of each paramere with a large triangular protuberance at apical portion of inner margin on dorsal side (Fig. 6B) ..... *P. limbolaris* (Fairmaire, 1900)
- Elytra uniformly black; aedeagus: dorsal plate of each paramere without any protuberance, if so, present at both apical and basal portions of inner margin respectively on dorsal side ..... 7
7. Pronotum uniformly orange (Fig. 8A); aedeagus: dorsal plate of each paramere with a pair of triangular protuberances at both apical and basal part of inner margin respectively on dorsal side (Fig. 9B) ..... *P. biprominens* **sp. nov.**
- Pronotum bicolored, black and yellow around all margins, or yellow with a large black marking in middle of disc; aedeagus: dorsal plate of each paramere without any protuberance at inner margin on dorsal side. . . . . 8
8. Aedeagus: dorsal plate of each paramere with middle part rounded at inner apical angle (Fig. 5E) .....  
..... *P. kiukianganus* (Gorham, 1889)
- Aedeagus: dorsal plate of each paramere with middle part roundly emarginate at inner apical angle ..... 9
9. Femora and tibiae uniformly orange (Fig. 10); aedeagus: dorsal plate of each paramere strongly bent to each other in ventral and dorsal views (Fig. 11A–B, C–D), strongly narrowed laterally, with middle part moderately emarginate at inner apical angle . . . . .  
..... *P. venustiformis* **sp. nov.**
- Femora and tibiae bicolored (Fig. 8B); aedeagus: dorsal plate of each paramere approaching to each other in ventral and dorsal views (Wittmer, 1997: fig. 14), moderately narrowed laterally, with middle part largely emarginate at inner apical angle . . . . .  
..... *P. venustus* Wittmer, 1997

## Acknowledgments

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# 圆胸花萤属 *Prothemus* 分类订正及越南和中国两新种记述 (鞘翅目: 花萤科)

全会琴<sup>1,5</sup>, 刘浩宇<sup>1,2,6</sup>, ANDREAS KOPETZ<sup>3</sup>, 杨星科<sup>4</sup>, 杨玉霞<sup>1,2,7\*</sup>

<sup>1</sup>河北大学生命科学学院动物系统学与应用重点实验室, 中国保定071002

<sup>2</sup>河北大学河北省生物互作基础研究中心, 中国保定071002

<sup>3</sup>Im Semmichbache 14, OT Eischleben, D-99334 Amt Wachsenburg, Germany

✉ andreas.kopetz@t-online.de;  <https://orcid.org/0009-0000-8180-4067>

<sup>4</sup>中国科学院动物研究所动物系统学与进化重点实验室, 中国北京100101

✉ yangxk@ioz.ac.cn;  <https://orcid.org/0000-0003-3676-6828>

<sup>5</sup>✉ t3129682491@163.com;  <https://orcid.org/0009-0001-4541-1570>

<sup>6</sup>✉ liuhy@hbu.edu.cn;  <https://orcid.org/0000-0003-1383-5560>

<sup>7</sup>✉ yxyang@hbu.edu.cn;  <https://orcid.org/0000-0002-3118-6659>

\*通讯作者

**摘要:** 发现圆胸花萤属 *Prothemus* 一新异名, 即 *P. sanguinosus* (Farimaire, 1900) = *P. longiphysus* Wittmer, 1995 **syn. nov.**, 同时将 *P. sanguinosus* 原有异名 *P. angustioripennis* (Pic, 1927) **stat. rev.** 恢复为有效种。记述采自越南和中国两新种, 即双突圆胸花萤 *P. biprominens* **sp. nov.** 和拟丽圆胸花萤 *P. venustiformis* **sp. nov.**。此外, 首次概述圆胸花萤属雌性内生殖系统特征; 编制了南岭地区圆胸花萤属的种检索表。

**关键词:** 花萤科; 圆胸花萤属; 新异名; 恢复种名; 新种