

## ***Stegana castanea* species group (Diptera, Drosophilidae) from the Oriental region**

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The *Stegana castanea* species group is established as a morphological group within the subgenus *Steganina*, based on two known and six new species from the Oriental region: *Stegana (Steganina) bacilla* Chen and Aotsuka, 2004; *S. castanea* Okada, 1988; *S. (S.) reni* sp. nov.; *S. (S.) tiani* sp. nov.; *S. (S.) tongi* sp. nov.; *S. (S.) wangi* sp. nov.; *S. (S.) weiquizhangii* sp. nov. and *S. (S.) xui* sp. nov. from southern China. A key to all the species of this group is provided.

**Keywords:** Steganinae; *Stegana castanea* group; new species; taxonomy; East Asia

### **Introduction**

Five species groups have been erected within the subgenus *Steganina* Wheeler, 1960 of the genus *Stegana* Meigen, 1830: *coleoptrata* group (Laštovka and Máca 1982; Chen and Chen 2008), *nigrolimbata* group (Sidorenko 2002; Cao and Chen 2008), *ornatipes* group (Cheng et al. 2009), *shirozui* group (Chen et al. 2009) and *undulata* group (Sidorenko 2002; Lu et al. in press), and they included 59 species. However, 53 species of the subgenus *Steganina* still cannot be placed into any group (Hu and Toda 1994; Chen and Aotsuka 2004; Brake and Bächli 2008; Chen and Chen 2009a,b), 10 from the Oriental region, five from the Australasian region, 29 from the Neotropical region, nine from the Afrotropical region and three from the Palaearctic region. Among the Oriental species, two species: *Stegana (Steganina) castanea* Okada, 1988 from Sri Lanka and *Stegana (Steganina) bacilla* Chen and Aotsuka, 2004 from Japan, are characteristic in bearing the distinct rod-like parameres basally fused with hypandrium (Figures 1D,E, 2D,E, 3D,E, 4D,E, 5D,E, 6C,D); they may make a morphological species group with the six new species from southern China, e.g. the *castanea* group.

### **Materials and methods**

All the type material was collected on tree trunks along streams in the forest by sweeping nets. The specimens are deposited in the Kunming Institute of Zoology, Chinese Academy of Sciences, Kunming, China (KIZ) and Department of Entomology, South China Agricultural University, Guangzhou, China (SCAU). We followed McAlpine

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(1981) for morphological terminology and Zhang and Toda (1992) and Chen and Toda (2001) for the definitions of measurements, indices and abbreviations.

*Stegana castanea* species group

*Diagnosis*

Paramere rod-shaped distinctly, basally fused to or connects with hypandrium.

*Description*

*Male and female*

Head: eyes brownish red. Ocellar triangle black, with a pair of small setae above ocellar setae. Postvertical setae slightly behind vertex ridge. Frons and face rectangular in lateral view. Frons brown to black, mostly lacking minute setulae. Proclinate orbital setae nearer to ptilinal fissure than to inner vertical setae. Pedicel yellow. First flagellomere black, with one yellow patch basally, slightly acute apically. Face black on upper three-quarters, yellow on lower margin, slightly broadened ventrally; facial carina mostly narrow and developed on upper part [as in *Stegana* (*Steganina*) *nigrifrons* de Meijere, 1991 (Okada 1971)]. Clypeus and palpus mostly yellow, with two to three longer setae distally and several shorter setae basally. Gena yellow, broad ( $ch/o \geq 0.15$ ). Vibrissa prominent; other orals small. Occiput brown. Scutum flat, dark brown to black medially, yellow to brown laterally. Postpronotal lobe brown, white before, with one long and a few small setae. Acrostichal setulae in approximately 10–12 irregular rows. Prescutellar setae one pair. Pleura with one black longitudinal stripe above (running from propleuron to base of halter). Katepisternum white. Scutellum brown to black; basal scutellar setae divergent; apical scutellars cruciate. Wing brown anteriorly, paler posteriorly, mostly not paler at tip. Basal medial-cubital crossvein present;  $C_1$  with two setae, less differentiated. Costal vein with 6–11 minute spinules on ventral surface between veins  $R_{2+3}$  and  $R_{4+5}$ . Vein  $R_{2+3}$  markedly curved to costa at tip; veins  $R_{4+5}$  and  $M_1$  nearly convergent distally. Legs yellowish white to yellow, black at fore knee, distal half of mid and hind femora and basal half of mid and hind tibiae. Fore femur with one row (four to five) of erect setae on medial part of posterior surface and one row of erect setae on distal part of ventral surface. Mid tibia with four to six suberect strong setae on basal part of dorsal surface. Apical seta present on mid tibia. Pre-apical dorsal setae present on all tibiae. Mid and hind tarsomeres with two and one row(s) of minute cuneiform setulae on ventral surface, respectively; fore and hind first tarsomeres slightly shorter than the rest combined; mid first tarsomere longer than the rest combined.

*Male terminalia.* Epandrium pubescent, mostly with setae near posterior margin on each side (Figures 1A, 2A, 3A, 4A, 5A, 6A). Cercus separated from epandrium, pubescent and setigerous (Figures 1A, 2A, 3A, 4A, 5A, 6A). Surstylus separated from epandrium. Tenth sternite connected with surstyli basolaterally. Hypandrium antero-medially mostly expanded and connected with base of aedeagus by articulating plate on inner side (Figures 1E, 2E, 3E, 4E, 5E, 6D). Gonopods (dorsal arch in Bächli et al. 2004) coalescent, forming posteromedian lobe, slightly vaulted, basolaterally

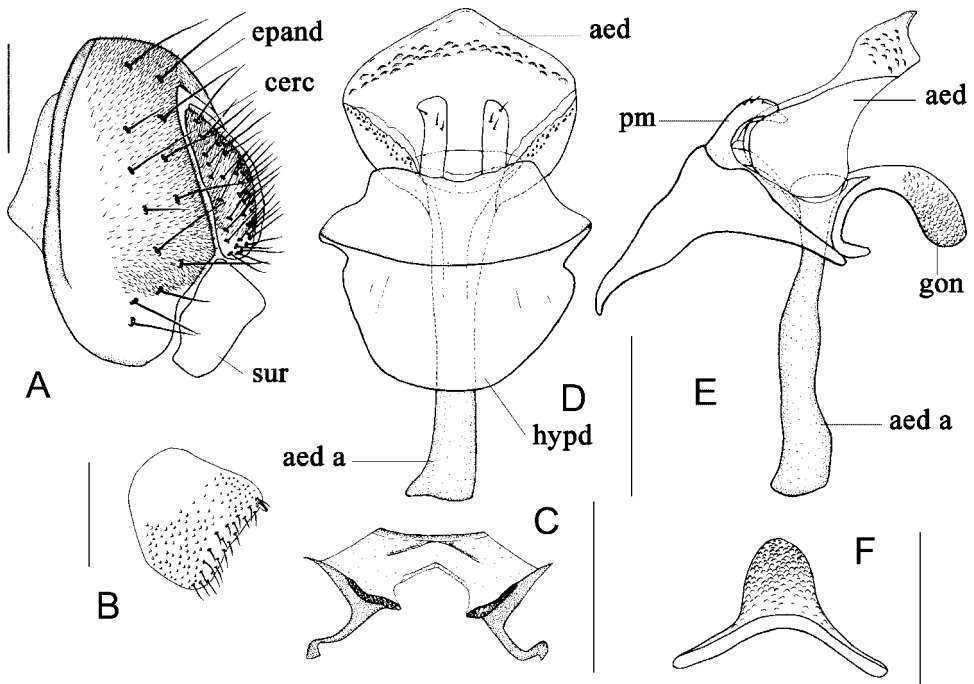


Figure 1. *Stegana (Steganina) reni* sp. nov., male genitalia. (A) Epandrium (epand), cercus (cerc) and surstylus (sur); (B) surstylus (ventral view); (C) 10th sternite (ventral view); (D) hypandrium (hypd), parameres (pm), aedeagus (aed) and aedeagal apodeme (aed a) (ventral view); (E) hypandrium, parameres, aedeagus, aedeagal apodeme and gonopods (lateral view); (F) gonopods (ventral view). Scale bars: 0.1 mm.

contiguous to posterior ends of hypandrium (Figures 1E,F, 2E,F, 3F,G, 4F,G, 5F,G, 6E,F). Aedeagus distally expanded, slightly sclerotized, basally fused with aedeagal apodeme (Figures 1D,E, 2D,E, 3D,E, 4D,E, 5D,E, 6C,D).

*Stegana (Steganina) reni* sp. nov.  
(Figure 1)

*Diagnosis*

Aedeagus nearly rhombic in ventral view, with minute warts near anterolateral margins (Figure 1D); 10th sternite mediolaterally with one small, acute projection per side (Figure 1C). This species very similar to *Stegana (Steganina) tiani* sp. nov., see under that species.

*Description*

Only important characters are given here.

*Male and female.* Frons brown, with one black band (horizontal; elided below) on lower part (above ptilinal fissure); fronto-orbital plate yellow on upper part, brown

on lower part. Scutum dark brown medially, brown laterally. Basisternum yellow. Scutellum black. Costal vein with 10 minute spinules on ventral surface between veins  $R_{2+3}$  and  $R_{4+5}$ . Halteres greyish black. Fore femur with three to four erect setae on ventral surface; apical seta absent on fore tibia. Mid tibia with four strong, suberect setae on basal part of dorsal surface. Abdominal tergites entirely dark brown in male, black in female; sternites dark brown, approximately shorter than 1.5 times the width in male, twice as wide as long in female.

*Male terminalia.* Epandrium pubescent except for anterior and ventral margins, with ca. 13 setae near dorsal to posterolateral portion on each body-side (Figure 1A). Surstylus with numerous serrate processes and one prensiseta posteroapically, lacking pubescence (Figure 1B). Tenth sternite deeply separated medioventrally, slender basally, expanded distally (Figure 2C). Hypandrium anteromedially roundly protruded (Figure 1D). Paramere curved dorsad, with three sensilla (Figure 1D,E). Aedeagus with scale-like, minute processes near posterior margin (Figure 1D,E). Gonopods distally with scale-like, minute processes, and strongly curved dorsad (Figure 1E,F).

### Measurements

BL = 2.96 mm in the holotype (range in four ♂ and three ♀ paratypes: 2.64–3.20 mm in ♂, 3.36–3.45 mm in ♀), THL = 1.6 mm (1.25–1.70 mm in ♂, 1.50–1.72 mm in ♀), WL = 2.68 mm (2.25–2.84 mm in ♂, 2.88–2.91 mm in ♀), WW = 1.32 mm (1.13–1.40 mm in ♂, 1.38–1.41 mm in ♀), arb = 1.29 (1.20–1.80), avd = 0.80 (0.75–0.80), adf = 0.63 (0.63–0.86), flw = 1.38 (1.33–1.82), FW/HW = 0.39 (0.39–0.44), ch/o = 0.25 (0.23–0.33), pror = 1.01 (0.87–1.36), rcorb = 0.67 (0.58–0.75), vb = 0.40 (0.20–0.42), dcl = 0.31 (0.28–0.42), presct1 = 0.53 (0.40–0.86), sct1 = 2.10 (1.88–2.38), sterno = 1.06 (1.00–1.42), orbito = 1.75 (1.75–2.75), dcp = 0.19 (0.19–0.24), sct1p = 1.90 (1.73–2.11), C = 1.97 (1.77–2.22), 4c = 1.32 (1.21–1.40), 4v = 2.25 (2.04–2.25), 5x = 1.82 (1.67–1.89), ac = 12.33 (12.33–19.5), M = 0.71 (0.55–0.71), C3F = 0.68 (0.68–0.74).

### Type material

*Holotype.* ♂ (SCAU, No. 120819), CHINA: Jinghong, Xishuangbanna, Yunnan, 22°20' N, 100°51' E, altitude 700 m, 14, 15 September 2002, HW Chen.

*Paratypes.* CHINA: 15♂, 24♀. (10 ♂, 20 ♀ in SCAU, Nos 120820–49; five ♂, four ♀ in KIZ), same data as holotype; one ♂, one ♀ (SCAU, Nos 120850, 51), Mengla, Xishuangbanna, Yunnan, 21°28' N, 101°38' E, altitude 600 m, 10–12 September 2002, HW Chen.

### Etymology

Patronym, in honour of Prof. S.-X. Ren (SCAU).

### Distribution

China (Yunnan).

*Stegana (Steganina) tiani* sp. nov.  
(Figure 2)

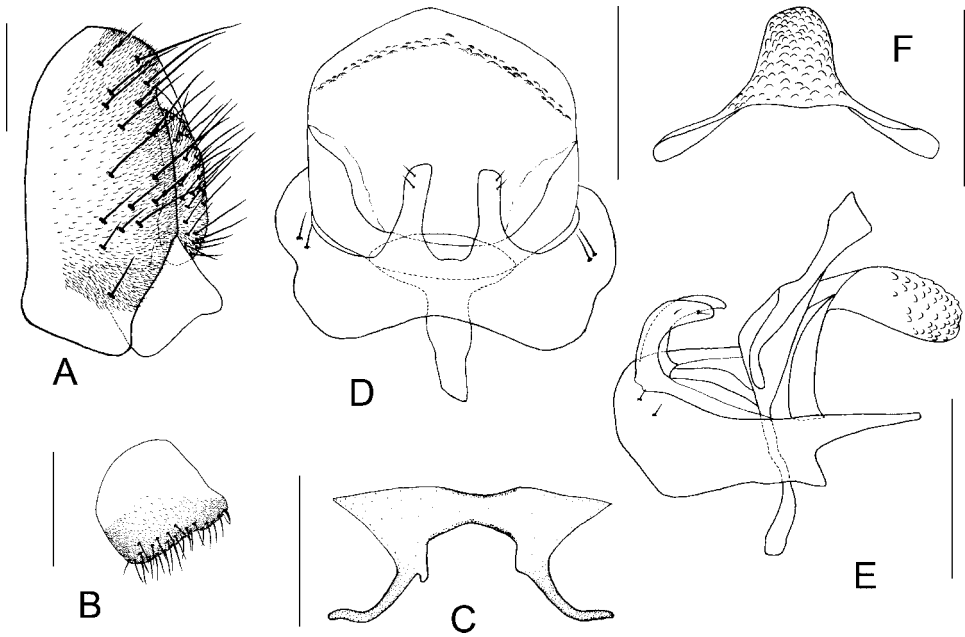


Figure 2. *Stegana (Steganina) tiani* sp. nov., male genitalia. (A) Epandrium, cercus and surstylus; (B) surstylus; (C) 10th sternite; (D) hypandrium, parameres, aedeagus and aedeagal apodeme; (E) hypandrium, parameres, aedeagus, aedeagal apodeme and gonopods; (F) gonopods. For orientation and organization see Figure 2. Scale bars: 0.1 mm.

### Diagnosis

This species very similar to *S. (S.) reni* sp. nov. in shape of paramere and gonopods, and surstylus with one prensiseta posteroapically, can be differentiated from it by having the surstylus pubescent distally, lacking serrate processes (Figure 2B) and aedeagus nearly square in ventral view, lacking minute warts (Figure 2D).

### Description

**Male.** Frons brownish, shiny, with sporadic minute setulae and one black band (horizontal; elided below) on lower part (above ptilinal fissure); fronto-orbital plate yellow on upper part, brown on lower part. Face black, with yellow band medially. Clypeus brown, black medially. Palpus dark brown in male, black in female. Scutum brown in male, black in female, laterally with two (males) or four (females) thin, yellow stripes on each side. Postpronotal lobe white on upper half, brown on lower half. Basisternum yellow. Scutellum brown in male, black in female. Wing slightly pale at tip. Costal vein with six or seven minute spinules on ventral surface between veins  $R_{2+3}$  and  $R_{4+5}$ . Halteres almost entirely greyish black. Fore femur with three to four suberect setae on distal part of ventral surface; apical seta absent on fore tibia. Mid tibia with five strong, suberect setae on basal part of dorsal surface. Abdominal tergites brown in male, black in female; sternites brown, broadened, wider than twice the length in male, black and slightly wider than length in female.

*Male terminalia.* Epandrium pubescent except for anterior and ventral margins, with ca. 17 setae near dorsal to posterolateral portion on each side of body (Figure 2A). Surstylus with pubescence distally and one strong prensiseta posteroapically, lacking serrate processes (Figure 2B). Tenth sternite deeply separated medioventrally, slender basally, much expanded distally (Figure 2C). Hypandrium slightly concave anteromedially, with two small setae posterolaterally per side (Figure 2D). Parameres strongly curved dorsad, with two sensilla (Figure 2D,E). Aedeagus with scale-like, minute processes near posterior margin (Figure 2D). Gonopods distally with scale-like, minute processes, and strongly curved dorsad (Figure 2E,F).

#### Measurements

BL = 2.47 mm in holotype (2.44 mm in one ♀ paratype), ThL = 1.46 mm (1.18 mm), WL = 2.95 mm (2.20 mm), WW = 1.14 mm (1.12 mm), arb = 8/5 (9/5), avd = 0.60 (0.88), adf = 0.71 (0.77), flw = 1.71 (1.57), FW/HW = 0.46 (0.45), ch/o = 0.22 (0.21), prorb = 1.15 (1.18), rcorb = 0.69 (0.64), vb = 0.46 (0.50), dcl = 0.55 (0.54), presctl = 0.61 (0.83), sctl = 2.15 (2.00), sterno = 1.00 (1.08), orbito = 2.25 (2.00), dcp = 0.19 (0.23), sctlp = 2.71 (2.50), C = 2.00 (1.87), 4c = 1.24 (1.03), 4v = 2.12 (2.09), 5x = 1.70 (1.56), ac = 31.00 (27.00), M = 0.68 (0.79), C3F = 0.70 (0.62).

#### Type material

*Holotype.* ♂(SCAU, No. 120852), CHINA: Nonggang, Chongzuo, Guangxi, 22°33' N, 106°92' E, altitude 230 m, 23 August 2004, HW Chen.

*Paratype.* CHINA: one ♀ (SCAU, No. 120853), same data as holotype.

#### Etymology

Patronym, in honour of Prof. M.-Y. Tian (SCAU).

#### Distribution

China (Guangxi).

### *Stegana (Steganina) tongi* sp. nov. (Figure 3)

#### Diagnosis

Aedeagus apically nearly flat posterior margin in ventral view (Figure 3D); tenth sternite basolaterally with one slender, sclerotized projection per side (Figure 3C). This species somewhat similar to *S. (S.) xui* sp. nov., see under that species.

#### Description

Only important characters are given here.

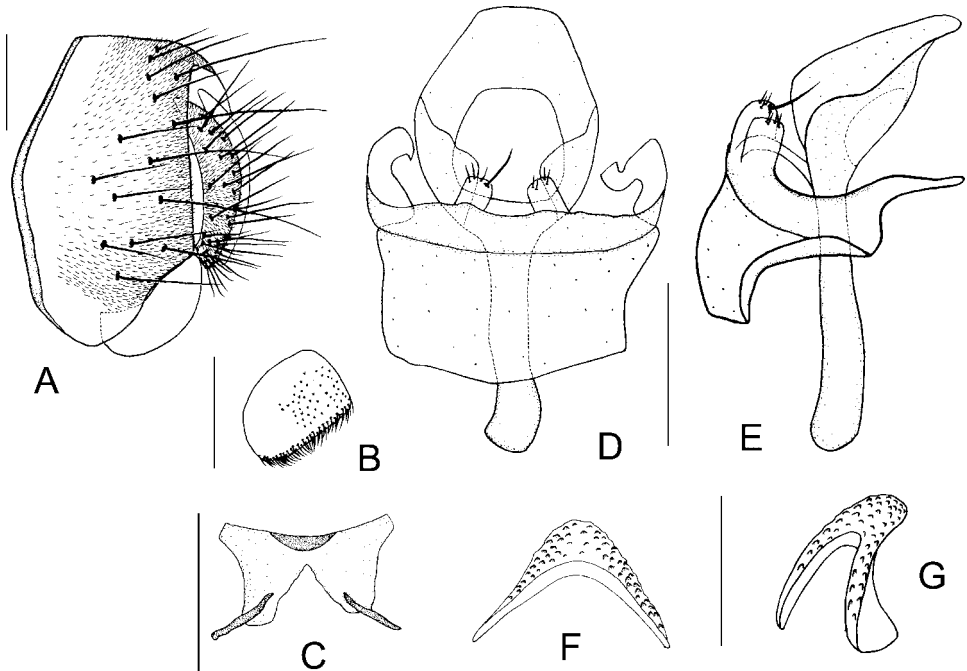


Figure 3. *Stegana (Steganina) tongi* sp. nov., male genitalia. (A) Epandrium, cercus and surstylus; (B) surstylus; (C) 10th sternite; (D,E) hypandrium, parameres, aedeagus and aedeagal apodeme; (F,G) gonopods. For orientation and organization see Figure 1. Scale bars: 0.1 mm.

**Male and female.** Frons entirely black. Scutum brown, laterally with three yellow stripes on each side. Basisternum yellow. Scutellum brown, yellow at tip. Costal vein with seven to nine minute spinules on ventral surface between  $R_{2+3}$  and  $R_{4+5}$ . Halteres almost grey. Fore femur with four to five suberect setae on distal part of ventral surface; apical seta absent on fore tibia. Mid tibia with three to five strong, suberect setae on basal part of dorsal surface. Abdominal tergites nearly entirely brownish black in male, brown in female; sternites brown in male, yellow in female, much broadened, wider than length.

**Male terminalia.** Epandrium pubescent except for anterior and ventral margins, with ca. 15 setae on dorsal to posterolateral portion per side (Figure 3A). Surstylus with numerous serrate processes, lacking pubescence and preniseta (Figure 3B). Tenth sternite furcated medioventrally (Figure 3C). Hypandrium oblong anteromedially in ventral view (Figure 3D). Paramere with four sensilla (Figure 3D,E). Gonopods round apically, slightly protruded dorsad in lateral view, with scale-like, minute processes distally (Figure 3F,G).

#### Measurements

BL = 2.27 mm in holotype (range in five ♂ and five ♀ paratypes: 2.28–2.50 mm in ♂, 2.50–2.66 mm in ♀), ThL = 1.10 mm (1.08–1.30 mm in ♂, 1.24–1.38 mm in ♀), WL = 2.08 mm (2.16–2.53 mm in ♂, 2.38–2.59 mm in ♀), WW = 0.90 mm (0.92–1.04 mm in ♂, 1.04–1.10 mm in ♀), arb = 9/6 (8–11/6–7), avd = 0.55 (0.60–0.64), adf = 1.00



(1.00–1.17), flw = 1.83 (1.71–1.83), FW/HW = 0.46 (0.47–0.49), ch/o = 0.21 (0.18–0.23), prorb = 1.22 (1.08–1.25), rcorb = 0.88 (0.80–0.92), vb = 0.46 (0.36–0.47), dcl = 0.46 (0.46–0.57), presctl = 0.62 (0.60–0.79), sctl = 1.87 (1.77–2.09), sterno = 1.08 (1.09–1.36), orbito = 1.75 (1.60–1.80), dcp = 0.19 (0.18–0.22), sctlp = 1.71 (1.71–2.00), C = 1.81 (1.61–1.97), 4c = 1.23 (1.11–1.38), 4v = 1.86 (1.67–1.96), 5x = 1.50 (1.30–1.50), ac = 13.50 (13.50–16.50), M = 0.55 (0.48–0.58), C3F = 0.72 (0.67–0.79).

### *Type material*

*Holotype*. ♂ (SCAU, No. 120854), CHINA: Conghua, Guangzhou, Guangdong, 23°40' N, 113°34' E, altitude 300 m, 3 November 2003, HW Chen.

*Paratypes*. CHINA: four ♂, three ♀ (two ♂, two ♀ in SCAU, Nos. 120855–58; two ♂, one ♀ in KIZ), same data as holotype; two ♂ (SCAU, Nos. 120859, 60), Mount Maoer, Guilin, Guangxi, 25°51' N, 110°27' E, altitude 700 m, 23 October 2004, MF Xu, XL Zhang; three ♂, four ♀ (two ♂, two ♀ in SCAU, Nos. 120861–64; one ♂, two ♀ in KIZ), Mount Diaoluo, Lingshui, Hainan, 18°10' N, 108°52' E, altitude 1000 m, 3 December 2003, HW Chen.

### *Etymology*

Patronym, in honour of Prof. X.-L. Tong (SCAU).

### *Distribution*

China (Guangdong, Guangxi, Hainan).

## *Stegana (Steganina) wangi* sp. nov. (Figure 4)

### *Diagnosis*

Tenth sternite much broadened, 2.5 times as high as wide, sub-basally with sclerotized apophysis per side (Figure 4C); paramere expanded distally (Figure 4D,E). This species very similar to *S. (S.) weiqiuzhang* sp. nov., see under that species.

### *Description*

Only important characters are given here.

*Male and female*. Frons and fronto-orbital plate brown, with one black band (horizontal; elided below) on lower part (above ptilinal fissure). Scutum dark brown medially, brownish laterally in male, brown medially, yellow laterally in female. Basisternum brownish. Scutellum brown in male, brownish in female. Costal vein with eight minute spinules on ventral surface between  $R_{2+3}$  and  $R_{4+5}$ . Halteres almost grey. Fore femur with four suberect setae on distal part of ventral surface; apical seta distinctly thick on fore tibia, longer than the tibia width. Mid tibia with five to six strong, suberect setae



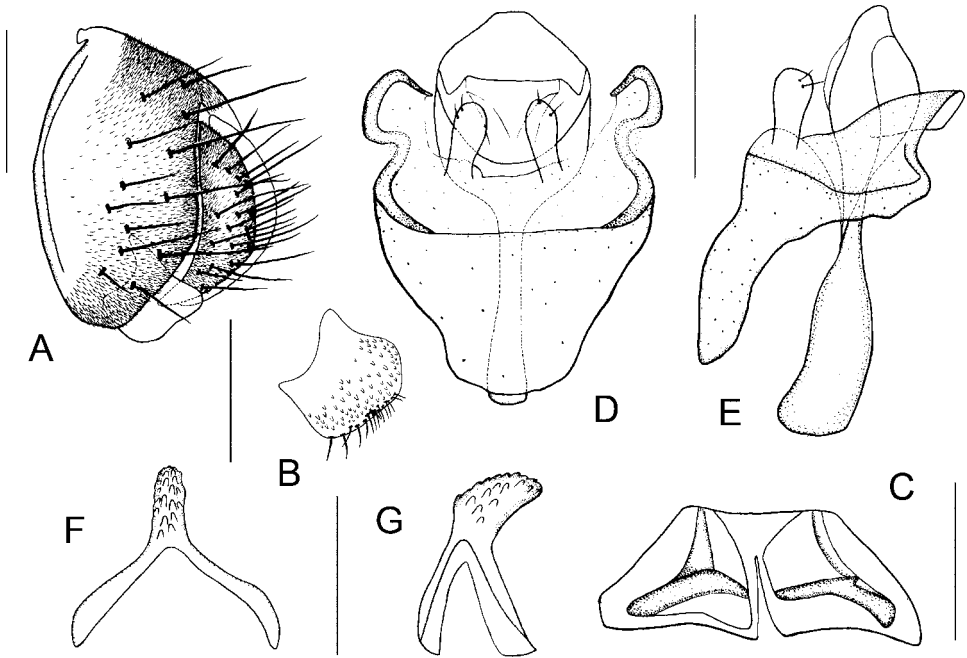


Figure 4. *Stegana (Steganina) wangi* sp. nov., male genitalia. (A) Epandrium, cercus and surstylus; (B) surstylus; (C) 10th sternite; (D,E) hypandrium, parameres, aedeagus and aedeagal apodeme; (F,G) gonopods. For orientation and organization see Figure 1. Scale bars: 0.1 mm.

on basal part of dorsal surface. Abdominal tergites nearly entirely brownish black in male, brown in female; sternites brown, wider than length in male, yellow in female, much broadened, wider than length.

**Male terminalia.** Epandrium pubescent except for anterior margin, with ca. 13 setae on dorsal to posterior portion per side (Figure 4A). Surstylus expanded on posterior margin, with numerous serrate processes, lacking pubescence and preniseta (Figure 4B). Hypandrium slightly round anteromedially in ventral view (Figure 4D). Paramere with two sensilla (Figure 4D,E). Gonopods distally with scale-like, minute processes, and curved dorsad (Figure 4F,G).

#### Measurements

BL = 2.86 mm in holotype (range in three ♂ and three ♀ paratypes: 2.75–2.92 mm in ♂, 3.06–3.10 mm in ♀), ThL = 1.30 mm (1.18–1.52 mm in ♂, 1.50–1.64 mm in ♀), WL = 2.45 mm (2.00–2.80 mm in ♂, 2.85–2.87 mm in ♀), WW = 1.02 mm (0.88–1.12 mm in ♂, 1.36–1.41 mm in ♀), arb = 9/6 (8–10/5–6), avd = 0.71 (0.71–0.78), adf = 1.00 (1.00–1.28), flw = 1.71 (1.67–1.71), FW/HW = 0.48 (0.44–0.47), ch/o = 0.21 (0.17–0.20), prorb = 1.17 (1.15–1.20), rcorb = 0.75 (0.70–0.77), vb = 0.47 (0.43–0.50), dcl = 0.50 (0.47–0.58), presctl = 0.63 (0.59–0.75), sctl = 1.69 (1.70–2.10), sterno = 1.07

(1.00–1.07), orbito = 1.60 (1.50–1.80), dcp = 0.23 (0.18–0.23), scrlp = 2.43 (2.14–2.43), C = 1.93 (1.74–2.00), 4c = 1.16 (1.08–1.28), 4v = 1.84 (1.24–1.90), 5x = 1.50 (1.33–1.60), ac = 14.50 (12.50–18.50), M = 0.60 (0.48–0.66), C3F = 0.70 (0.62–0.69).

### *Type material*

*Holotype*. ♂ (SCAU, No. 120865), CHINA: Mengla, Xishuangbanna, Yunnan, 10–12 September 2002, HW Chen.

*Paratypes*. CHINA: four ♂, two ♀. 18♂, eight ♀ (SCAU, Nos. 120965–90), Menglun, Xishuangbannan, Yunnan, 21°28'N, 101°58' E, altitude 600 m, 16–19 April 2007, HW Chen, JJ Gao, F Zhao; one ♂, one ♀ (SCAU, Nos. 120963, 64), Mount Wuzhi, Hainan, 18°48' N, 109°19' E, altitude 440 m, 20 May 2007, HZ Cao, T Li; (two ♂, two ♀ in SCAU, Nos. 120866–69; two ♂ in KIZ), same data as holotype; two ♂ (SCAU, Nos. 120870, 71), Mount Jianfengling, Ledong, Hainan, 18°41' N, 108°52' E, altitude 700 m, 16 May 2005, MF Xu.

### *Etymology*

Patronym, in honour of Prof. M. Wang (SCAU).

### *Distribution*

China (Hainan, Yunnan).

## *Stegana (Steganina) weiquizhangii* sp. nov.

(Figure 5)

### *Diagnosis*

This species is very similar to *S. (S.) wangi* sp. nov. in the surstylus, aedeagus and gonopods, but can be differentiated from it by having the tenth sternite basally with strong processes per side (Figure 5C), the aedeagus opening nearly round in ventral view (Figure 5D), the gonopods apically with several scale-like processes (Figure 5F,G).

### *Description*

Only important characters are given here.

*Male*. Frons entirely brown; fronto-orbital plate brownish. Scutum brown, laterally brownish yellow. Basisternum black. Scutellum brown. Costal vein with 10 minute spinules on ventral surface between  $R_{2+3}$  and  $R_{4+5}$ . Halteres white on basally, mostly black distally. Fore femur with three to four slender, suberect setae on distal part of ventral surface; apical seta distinctly thick on fore tibia, longer than the tibia width. Mid tibia with four to six strong, suberect setae on basal part of dorsal surface. Abdominal tergites and sternites nearly entirely dark brown; sternites slightly broadened, wider than length.

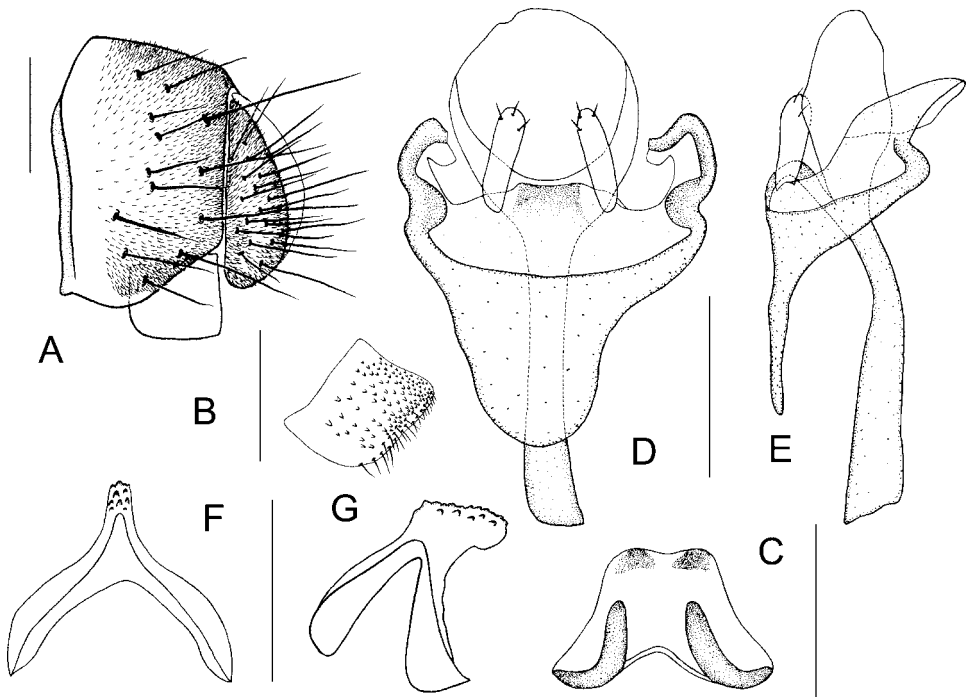


Figure 5. *Stegana (Steganina) weiquizhangii* sp. nov., male genitalia. (A) Epandrium, cercus and surstylus; (B) surstylus; (C) 10th sternite; (D, E) hypandrium, parameres, aedeagus and aedeagal apodeme; (F, G) gonopods. For orientation and organization see Figure 1. Scale bars: 0.1 mm.

**Male terminalia.** Epandrium pubescent except for anterior margin, with ca. 12 setae on dorsal to posterior portion on each body-side (Figure 5A). Surstylus nearly oblong, with numerous serrate processes, lacking pubescence and prensiseta (Figure 5B). Tenth sternite slightly broadened, approximately 1.5 times as high as wide, medioventrally concave (Figure 5C). Hypandrium slightly round anteromedially in ventral view (Figure 5D). Paramere with three sensilla (Figure 5D,E). Gonopods distally strongly curved dorsad (Figure 5G).

#### Measurements

BL = 2.74 mm in the holotype (range in two ♂ paratypes: 2.35–3.00 mm), THL = 1.27 mm (1.10–1.40 mm), WL = 1.90 mm (1.70–2.00 mm), WW = 1.00 mm (0.93–1.08 mm), arb = 2.00 (2.25–2.40), avd = 0.70 (0.70–0.75), adf = 1.14 (1.17–1.24), flw = 1.43 (1.57–1.58), FW/HW = 0.44 (0.48–0.51), ch/o = 0.16 (0.14–0.26), pror = 1.08 (1.11–1.25), rcorb = 0.83 (0.78–0.92), vb = 0.31 (0.27–0.30), dc1 = 0.46 (0.50–0.60), presct1 = 0.62 (0.60–0.80), sct1 = 2.00 (2.18–2.22), sterno = 0.90 (1.00–1.20), orbito = 2.25 (1.50–1.75), dcp = 0.24 (0.19–0.21), sct1p = 1.88 (2.13–2.17), C = 1.90 (1.65–1.88), 4c = 1.16 (1.24–1.26), 4v = 1.76 (1.59–1.95), 5x = 1.44 (1.38–1.60), ac = 14.5 (13–16.5), M = 0.52 (0.52–0.59), C3F = 0.59 (0.63–0.72).

Type material

*Holotype*. ♂ (SCAU, No. 120872), CHIAN: Nonggang, Chongzuo, Guangxi, altitude 230 m, 23, 24 August 2004, HW Chen.

*Paratypes*. CHINA: two ♂ (SCAU, Nos. 120873, 74), same data as holotype.

Etymology

Patronym, in honour of Prof. W.-Q. Zhang (SCAU).

Distribution

China (Guangxi).

*Stegana (Steganina) xui* sp. nov.  
(Figure 6)

Diagnosis

This new species differs from related species by having the aedeagus roundly expanded basally, slightly triangularly expanded distally, with two furcated, slightly sclerotized apophyses each on ventral and dorsal portions (Figure 6C,D), the hypandrium with dense pubescence posterolaterally (Figure 6C,D).

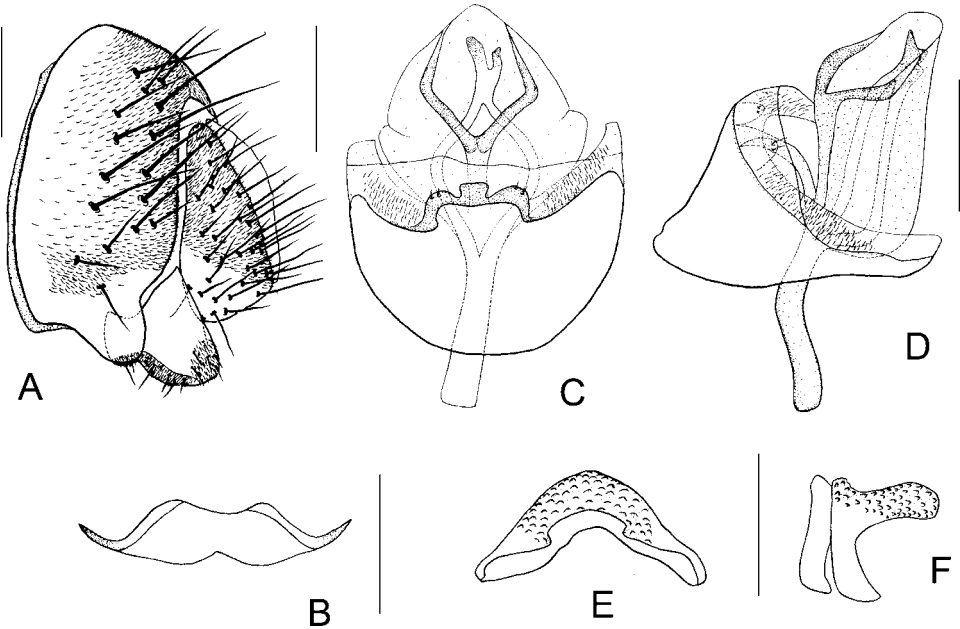


Figure 6. *Stegana (Steganina) xui* sp. nov., male genitalia. (A) Epandrium, cercus and surstylus; (B) 10th sternite; (C,D) hypandrium, parameres, aedeagus and aedeagal apodeme; (E,F) gonopods. For orientation and organization see Figure 1. Scale bars: 0.1 mm.

*Description*

Only important characters are given here.

*Male and female.* Frons black. Fronto-orbital plate yellow on upper part, black on lower part. Scutum black medially, dark brown laterally in male, brown in female. Basisternum brown. Scutellum black laterally, yellow medially in male, brown, yellow at tip in female. Costal vein with 10 minute spinules on ventral surface between  $R_{2+3}$  and  $R_{4+5}$ . Halteres white basally, greyish black distally. Fore femur with six or seven stout, erect setae on ventral surface; apical seta absent on fore tibia. Abdominal tergites almost entirely black; sternites brown, broadened, wider than length.

*Male terminalia.* Epandrium pubescent except for ventral margin, with ca. 16 setae on dorsal to posterior portion on each side of body (Figure 6A). Cercus not pubescent ventrally (Figure 6A). Surstylus with dense pubescence along apical margin, lacking serrate processes and prensiseta (Figure 6A). Tenth sternite narrow and zonal (Figure 6B). Hypandrium slightly round anteromedially in ventral view (Figure 6C). Paramere stout, with two sensilla (Figure 6C,D). Gonopods protruded anteromedially and apicoposteriorly, with numerous serrate processes (Figure 6E,F).

*Measurements*

BL = 3.45 mm in holotype (range in three ♂ and one ♀ paratypes: 3.35–3.85 mm in ♂, 3.20 mm in ♀), ThL = 1.68 mm (1.80–1.90 mm in ♂, 1.68 mm in ♀), WL = 3.05 mm (3.30–3.40 mm in ♂, 3.25 mm in ♀), WW = 1.30 mm (1.15–1.30 mm in ♂, 1.05 mm in ♀), arb = 11/8 (10–11/7–8), avd = 0.77 (0.71–0.85), adf = 1.63 (1.50–2.14), flw = 1.75 (1.75–2.14), FW/HW = 0.41 (0.40–0.44), ch/o = 0.15 (0.15–0.18), pror = 0.88 (0.89–0.94), rcorb = 0.75 (0.77–0.89), vb = 0.63 (0.59–0.73), dcl = 0.47 (0.48), sctl = 1.37, sterno = 0.95 (0.81–0.94), orbito = 2.20 (1.83–2.20), dcp = 0.21 (0.19–0.24), sctlp = 2.20 (1.91–2.30), C = 1.92 (1.88–2.20), 4c = 1.15 (0.97–2.23), 4v = 1.79 (1.63–2.00), 5x = 1.50 (1.33–1.62), ac = 9.50 (8.75–10.25), M = 0.55 (0.44–0.68), C3F = 0.70 (0.65–0.74).

*Type material*

*Holotype.* ♂ (SCAU, No. 120875), CHINA: Jinghong, Xishuangbanna, Yunnan, 14, 15 September 2002, HW Chen.

*Paratypes.* CHINA: three ♂. (SCAU, Nos. 120876–78) same data as holotype; one ♂, one ♀ (KIZ), Mengla, Xishuangbanna, Yunnan, 10–12 September 2002, HW Chen.

*Etymology*

Patronym, in honour of Prof. Z.-F. Xu (SCAU).

*Distribution*

China (Yunnan).

Key to the species of the *castanea* group (male)

- 1. Paramere rod-shaped distinctly, basally fused to or connects with hypandrium ..... *castanea* group. . . 2  
Paramere indistinguishable or entirely fused to hypandrium, can only see some sensilla ..... other *Steganina* species
- 2. Face black, with yellow band medially; facial carina absent; clypeus brown, black medially; palpus dark brown to black ..... *tiani* sp. nov.  
Face black on upper three-quarters, yellow on lower margin; facial carina narrow and developed on upper part; clypeus and palpus yellow ..... 3
- 3. Tenth sternite submediolaterally with one slender process per side (Okada 1988; fig. 2G) ..... *castanea* Okada  
Tenth sternite submediolaterally without slender processes, with one small projection at most ..... 4
- 4. Apical seta absent on fore tibia ..... 5  
Apical seta distinctly thick on fore tibia, longer than the tibia width ..... 8
- 5. Aedeagus concave apicomediaally ..... *bacilla* Chen and Aotsuka  
Aedeagus convex apicomediaally ..... 6
- 6. Scutellum yellow medially; hypandrium with dense pubescence posterolaterally; aedeagus with two furcated, slightly sclerotized apophyses each on ventral and dorsal portions ..... *xui* sp. nov.  
Scutellum yellow at tip at most; hypandrium lacking pubescence; aedeagus lacking sclerotized apophysis ..... 7
- 7. Paramere slender, curved dorsad; aedeagus with minute warts near anterolateral margins and scale-like processes near posterior margin. *reni* sp. nov.  
Paramere stout, not curved; aedeagus neither minute warts near anterolateral margins nor scale-like processes near posterior margin ..... *tongi* sp. nov.
- 8. Tenth sternite much broadened, approximately 2.5 times as high as wide, medioventrally deeply separated, subbasally with sclerotized apophysis per side; gonopods distally with several scale-like processes ..... *wangi* sp. nov.  
Tenth sternite slightly broadened, approximately 1.5 times as high as wide, medioventrally concave; basolaterally with strongly sclerotized processes per side; gonopods apically with several scale-like processes ..... *weiqiuzhang*i sp. nov.

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