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NOTES ON THE GENUS *SPHEDANOLESTES* STÅL (HETEROPTERA: REDUVIIDAE: HARPACTORINAE) FROM CHINA, WITH THE DESCRIPTION OF THREE NEW SPECIES

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ABSTRACT. – Fifteen species of assassin bugs of genus *Sphedanolestes* from China was recognized, keyed. Three new species, i.e., *Sphedanolestes rubripes*, *S. quadrinotatus* and *S. xiongi*, from Yunnan Province are described and illustrated with 28 figures.

KEY WORDS. – *Sphedanolestes*, China, Yunnan, new species, Reduviidae, Harpactorinae, key.

INTRODUCTION

The genus *Sphedanolestes* was established by the late heteropterist Carl Stål in 1866 with *Reduvius impressicollis* Stål, as the type species. The genus is the third largest genus in the family Reduviidae with 173 known species up to date (Putshkov & Putshkov, 1985; Maldonado-Capriles, 1990; Cai & Yang, 2002). They are distributed in Ethiopian (82 species), Oriental (80 species) and Palaearctic (15 species) regions. Twelve species of the genus have been recorded in China previously (see Wu, 1935; China, 1940; Hoffmann, 1944; Hsiao, 1979; Hsiao & Ren, 1981; Ren, 1981; Li, 1981; Hua, 2000; Cai & Yang, 2002).

The members of this genus can be easily recognized by their oblong body, pronotum with the anterior and posterior lobes conjointly longitudinally impressed, posterior lobe about twice as long as anterior, femora near apices obsoletely subnodulose, and anterior femora not or slightly incrassated.

Recent examination of the collection of Reduviidae at Kunming Zoological Institute and China Agricultural University revealed three new species of *Sphedanolestes*, which is herein described.

MATERIAL AND METHODS

All drawings were prepared with the aid of a camera lucida. Body length measurements represent the distance between the apex of head and hemelytron tip in resting condition. Maximum width of pronotum was measured between humeral angles. All the measurements are in millimeters.

The type specimens of the new species will be preserved in Kunming Zoological Institute, Academy of Sciences (KZI), China Agricultural University (CAU), and Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity, National University of Singapore.

TAXONOMY

FAMILY REDUVIIDAE

SUBFAMILY HARPACTORINAE

Sphedanolestes Stål, 1866

Key to the species of the genus *Sphedanolestes* Stål from China

1. Pronotum black or blackish brown or only posterior lobe with yellowish marking 2
– Pronotum paler or just with sculpture of anterior or/and marking on posterior lobe black 9
2. Connexivum unicolorous, at least margin of connexivum unicolorous 3
– Connexivum bicoloured 4
3. Body length over 15 mm, robust ..... *S. pubinotus* Reuter
– Body length less than 14 mm, elongate ..... *S. gularis* Hsiao
4. Femora with annuli, body robust ..... *S. impressicollis* (Stål)
– Femora without annuli, body elongate 5

5. Pronotum distinctly with granulates or mini processes 6
– Pronotum without granulates or mini processes 7
6. Body length lees than 13 mm, pronotum distinctly with granulates, femora not distinctly nodulous ..... *S. granulipes* Hsiao & Ren
– Body length over 13 mm, pronotum distinctly with processes, femora distinctly nodulous ..... *S. nodipes* Li
7. Head beneath black, abdominal beneath with transverse black markings ..... *S. subtilis* (Jakovlev)
– Head beneath yellow, abdominal sterna with few transverse spots or markings 8
8. Third to sixth abdominal sterna each with a few transverse spots, body black ..... *S. pilosus* Hsiao
– Lateral sides of abdominal beneath with longitudinal markings, pronotum tinged with metallic blue ..... *S. sinicus* Cai & Yang
9. Femora unicolorous, reddish .. *S. rubripes*, new species (Fig. 1)
– At least one pairs of legs with femora bicoloured 10
10. Femora pale with darker markings 11
– Femora blackish brown, at least one pairs of legs with paler markings on femora 12
11. Body yellow, femur with 2 to 3 annuli, most portion of tibiae yellow, posterior pronotal lobe with 4 black spots ..... *S. quadrinotatus*, new species (Fig. 11)
– Body reddish yellow, femur with 1 annulus, most portion of tibiae blackish, posterior pronotal lobe without black spots ..... *S. xiongi*, new species (Fig. 21)
12. Corium red or reddish brown 13
– Corium blackish brown 14
13. Base of femur red, first antennal segment about twice as long as second antennal segment, first rostral segment subequal to the second rostral segment ..... *S. trichrous* Stål
– Middle part of femur with a yellowish annulus, first antennal segment nearly 3 times as long as second antennal segment, first rostral segment distinctly shorter than the second rostral segment ..... *S. anellus* Hsiao
14. Third antennal segment about twice as long as the second, mid and hind legs without annuli ..... *S. bicoloroides* Putshkov
– Third antennal segment slightly longer than the second, mid and hind legs with annuli ..... *S. annulipes* Distant

Sphedanolestes rubripes, new species
(Figs. 1-10)

***Material examined.* –** Holotype – female, Jinghong, Yunnan, coll. Xiong Jiang, 22 Aug.1973 (KZI).

Paratype – 1 male, Jinghong, Yunnan, coll. Yang Pingzhi, 2 May.1981(KZI).

***Diagnosis.* –** *Sphedanolestes rubripes* is similar to *S. trichrous* and *S. xiongi* in general coloration and body plan. But the new can be easily distinguished from the later two species by the legs uniformly reddish.

***Description.* –** Colour. Bright red to dark red, shining. Eye reddish brown scattered with irregular blackish brown markings; second to fourth antennal segments, apices of tibiae dark brown to blackish brown; legs reddish brown to dark brown; venter of female blackish brown.

Structure. Medium sized, somewhat robust. Rostrum, head above and beneath, pronotum scattered with yellowish brown setae. Thoracic pleura and sterna densely covered with pale yellow fine short setae, hemelytron densely with short bent setae. Head somewhat thick; eyes big, prominently laterally protruded; rostrum short and thick, first segment subequal to second (Fig. 2); first antennal segment longer than second and third segments together, second segment slightly longer than third, third segment shortest. Collar process less developed, short corn-shaped, apex with a somewhat long seta; posterior lobe of pronotum developed, median longitudinal depression deep, posterior angle not distinct, posterior margin nearly straight; stridulatory furrow consisting of 170 transverse ridges; legs somewhat thick, femora distinctly nodulose, distal portion of right fore leg and left hind leg showing in Fig. 3 and Fig. 4 respectively. Abdomen wide and short, not laterally dilated (Fig. 5); abdominal tip of female showing in Figs. 5-7. Pygophore process short and wide (Figs. 8, 9); clasper distinctly bent (Fig. 10).

Measurements. Body length 11.1(male), 11.2 (female); maximum width of abdomen 2.9(male), 3.1 (female). Head length 1.4 (male), 1.6(female); length of anteocular part 0.5 (male), 0.5(female); length of postocular part 0.5(male), 0.6 (female); length of synthlipsis 0.4(male), 0.5(female); distance between ocelli 0.2 (male), 0.3 (female); length of antennal segments I:II:III:IV=3.0 (male), 2.9 (female): 1.4 (male), 1.4 (female): 1.2 (male), 1.2 (female): ? (male), 3.0 (female); length of rostral segments I:II:III=1.0 (male), 0.9 (female): 1.1(male), 1.0 (female): 0.2 (male), 0.2 (female). Length of anterior lobe of pronotum 0.7 (male), 0.8 (female); length of posterior lobe of pronotum 2.0(male), 1.8 (female); maximum width of thorax 2.3 (male), 3.2 (female); length of scutellum 1.1 (male), 1.1 (female); length of hemelytron 9.0 (male), 7.8 (female).

***Distribution*. –** China (Yunnan).

***Etymology*. –** The new species is named for its total reddish femur.

Sphedanolestes quadrinotatus, new species
(Figs. 11-20)

***Material examined.* –** Holotype – male, Yongping, Yunnan, coll. Long Yongcheng, 27 May.1983 (KZI).

Paratypes – 1 female, Yongping, Yunnan, coll. Dong Dazhi, 28 May.1983 (ZRC); 1 female, Dabaiqinggangtang, Suiyang, Guizhou, alt. 750 m, coll. Zhang Jinguo, 19 May.1979 (CAU).

***Diagnosis.* –** The general body plan of this species is somewhat similar to those in the genus *Rhynocoris* Hahn, but its posterior lobe of pronotum is typically the *Sphedanolestes* ones. It can be easily distinguished from its congeners by its light colouration.

***Description.* –** Colour. Pale yellow, shining. Dark markings on head above and beneath, eyes, tip of rostrum, base of first antennal segment, collar processes, sculpture on anterior lobe of pronotum, scutellum (except margins), markings on

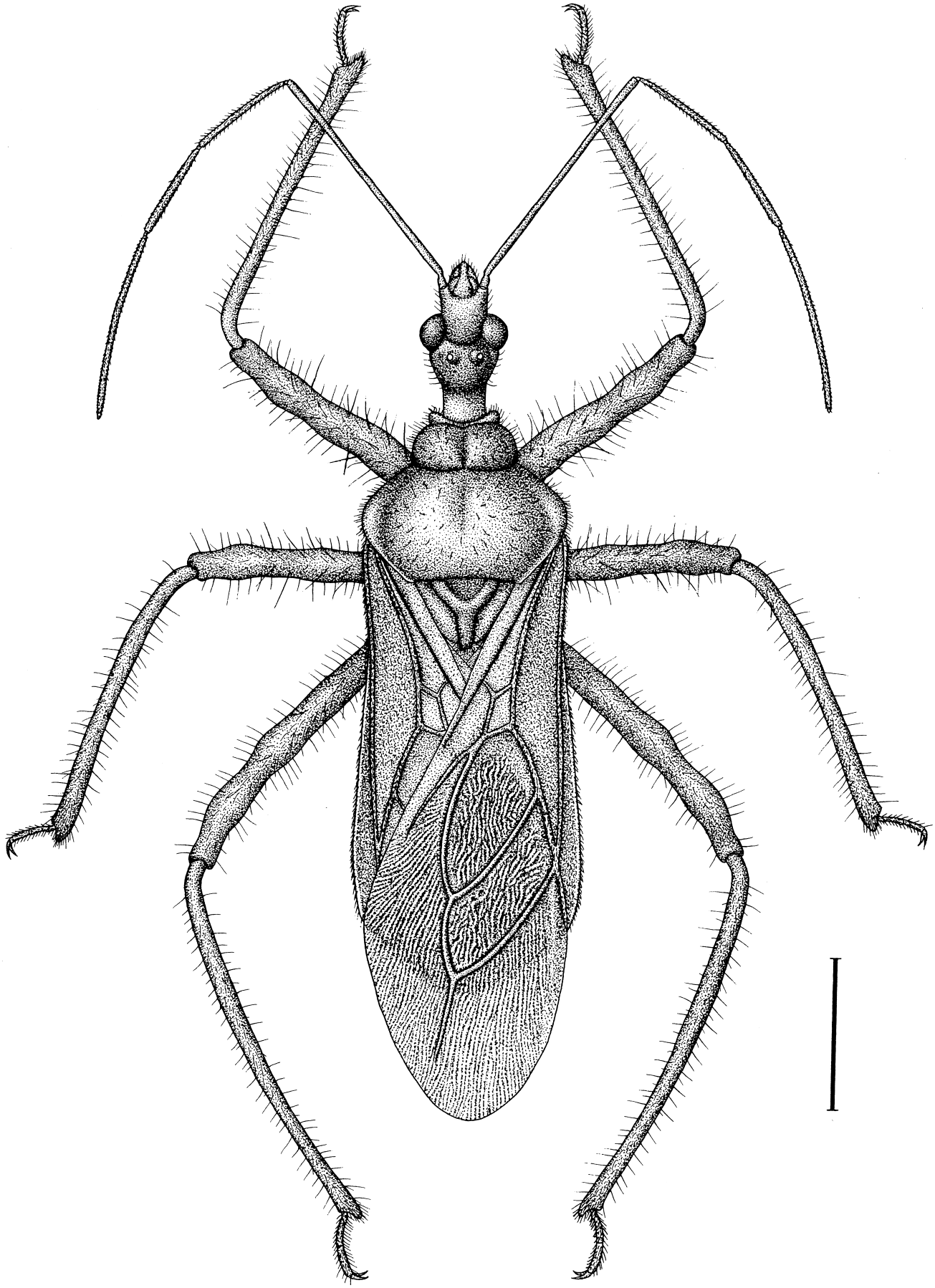
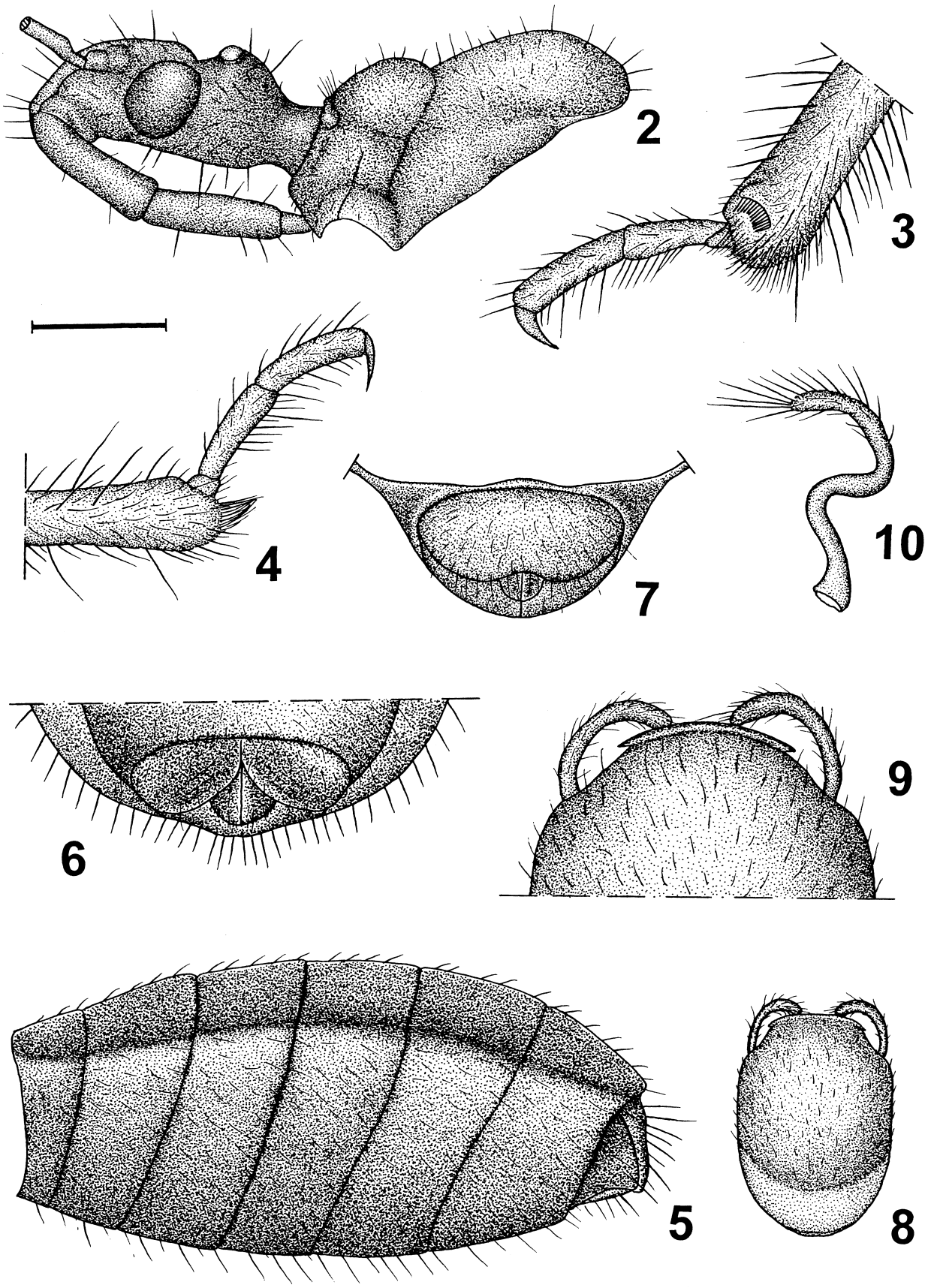


Fig. 1. *Sphedanolestes rubripes*, new species, holotype, habitus. Scale: 2 mm.



Figs. 2-10. *Sphedanolestes rubripes*, new species. 2, head and pronotum, antenna partly removed; 3, apical portion of right fore leg; 4. apical portion of left hind leg; 5, abdomen of female; 6, 7, abdominal apex of female; 8, pygophore; 9, apical portion of pygophore, showing pygophore process and claspers; 10, clasper; 2-5,10, lateral view; 6, 8, 9, ventral view; 7, caudal view. Scale: for Figs. 2, 5-8, 1 mm; for Figs. 3, 4, 9, 10, 0.5 mm.

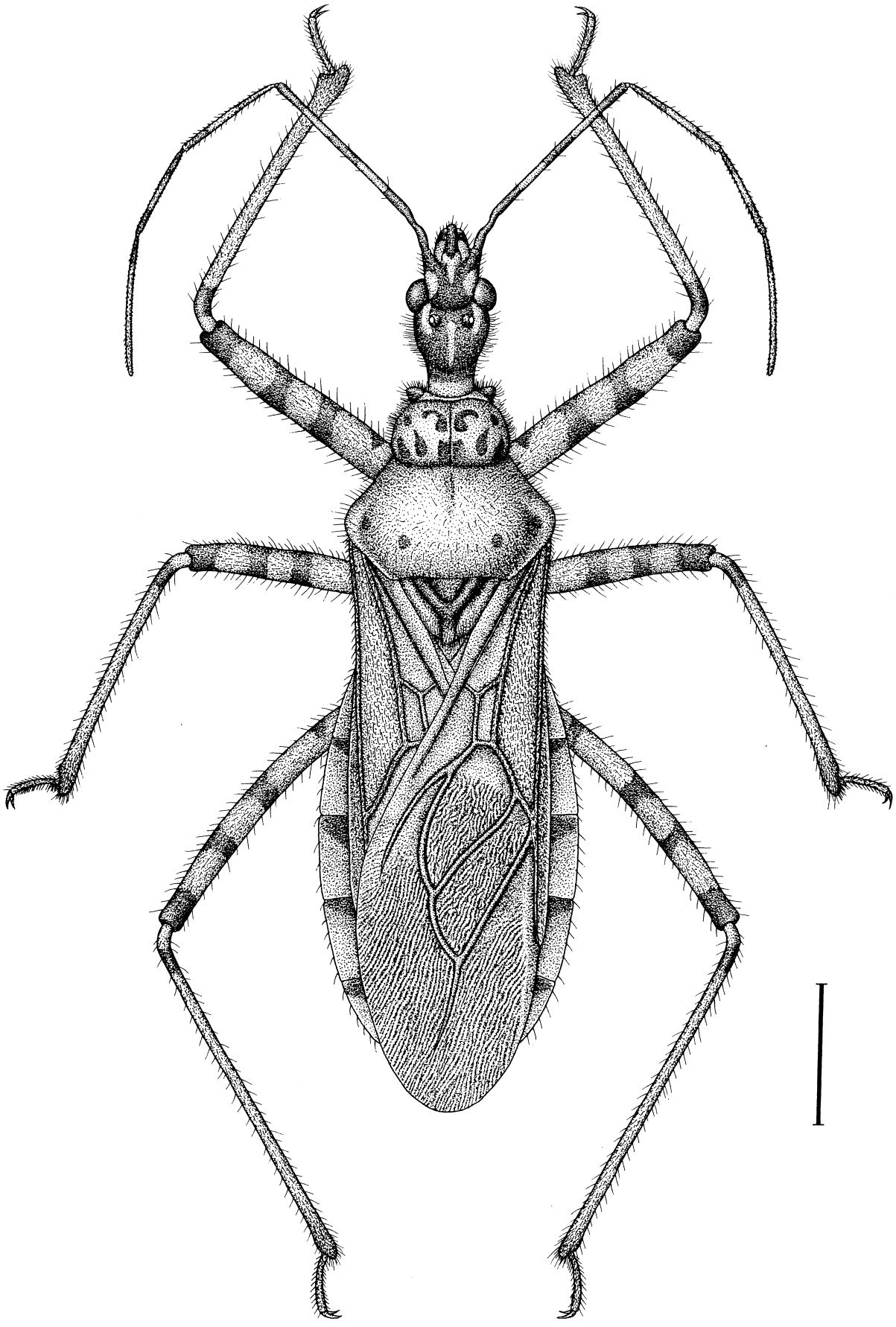
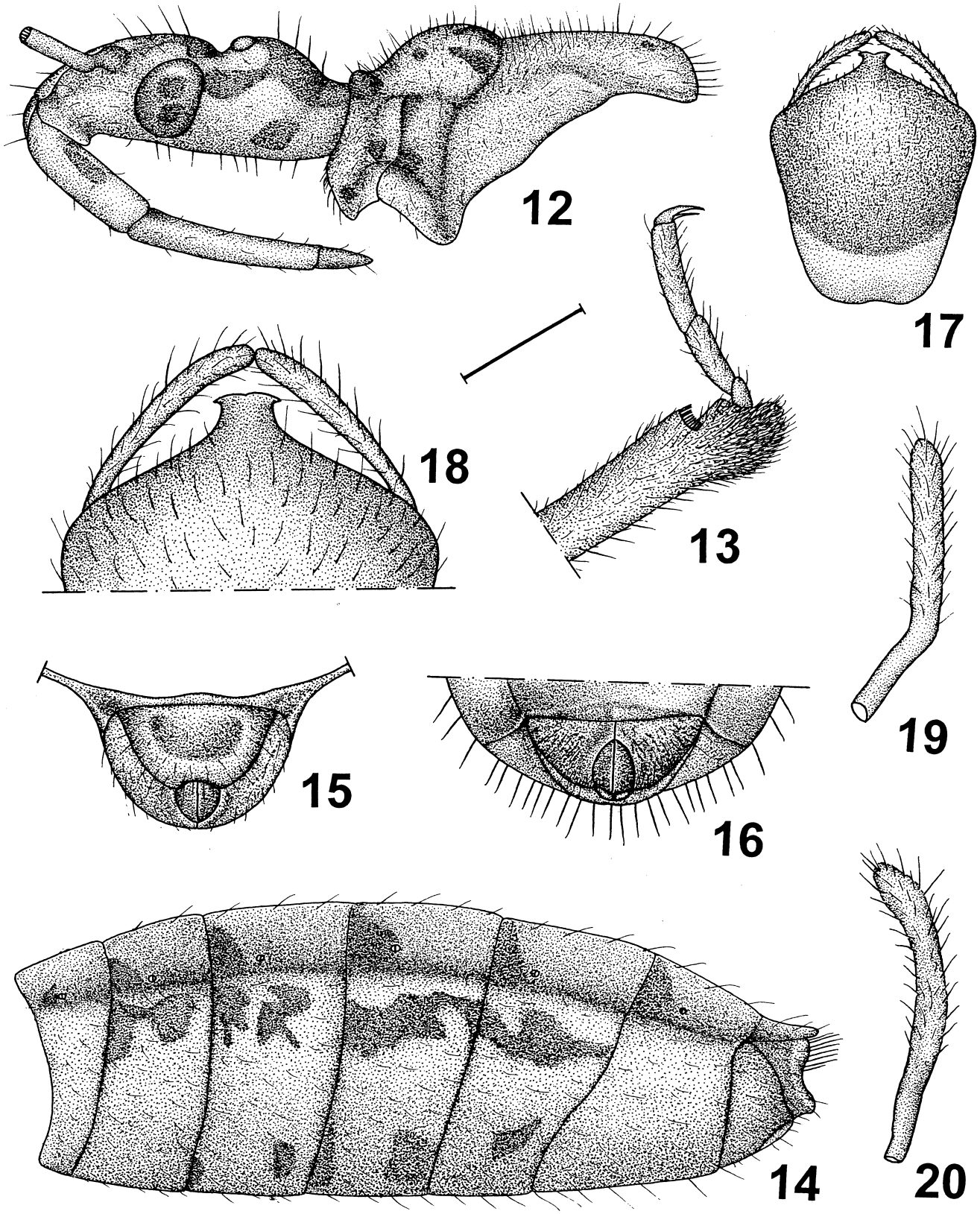


Fig. 11. *Sphedanolestes quadrinotatus*, new species, habitus. Scale : 2 mm.



Figs. 12-20. *Sphedanolestes quadrinotatus*, new species. 12, head and pronotum, antenna partly removed; 13, apical portion of right fore leg; 14, abdomen of female; 15, 16, abdominal apex of female; 17, pygophore; 18, apical portion of pygophore, showing pygophore process and claspers; 19, 20, clasper; 12-14, lateral view; 16-18, ventral view; 15, caudal view. Scale: for Figs. 2, 14-17, 1 mm; for Figs.13, 18-20, 0.5 mm.

thoracic pleuron and sterna, dark parts of femora, base of tibia, markings on lateral sides of abdomen, base of each segment of connexivum black; markings on bases of inner surface of first and second rostral segments, 4 spots on posterior lobe of pronotum, spots on coxae and trochanters, distal parts of tibiae dark brown to blackish brown; most portion of tibiae, second to fourth antennal segments brown; connexivum and meso- and metathoracic pleura tinged with orange.

Structure. Medium sized, robust. Head above, pronotum scattered with somewhat long yellow setae; head beneath, thoracic pleura and sterna densely covered with short setae; corium scattered with bent short setae; thoracic sterna with oblique pale setae. Head short and thick; diameter of eye slightly longer than distance between ocelli; first rostral segment short and thick, distinctly shorter than the second (Fig. 12); first antennal segment slightly longer than second and third segments together, second and third antennal segments subequal in length. Collar processes somewhat developed, apices rounded; anterior pronotal lobe developed, about 3/4 length of the posterior pronotal lobe; middle longitudinal depression shallow, middle portion of posterior margin of pronotum slightly convex; stridulatory furrow consisting of about 160 transverse ridges; femora thick, apical portion of left fore leg showing in Fig. 13; hemelytron slightly surpassing tip of abdomen. Connexivum of female laterally slightly dilated; abdominal tip of female showing in Figs. 14-16; pygophore process narrow, apex with two processes laterally (Figs. 17, 18); clasper clavate, bent (Figs. 19, 20).

Measurements. Body length 12.0 (male), 12.1-12.8(female); maximum width of abdomen 3.5(male), 3.0-3.3 (female). Head length 2.4(male), 1.8-2.6(female); length of anteocular part 0.9(male), 0.8-1.0(female); length of postocular part 0.6 (male), 0.6(female); length of synthlipsis 0.6(male), 0.6(female); distance between ocelli 0.4 (male), 0.2-0.3 (female); length of antennal segments I:II:III:IV=3.8 (male), 3.4-3.8 (female): 2.0 (male),1.4-2.0 (female):1.8 (male), 1.2-1.4 (female):? (male),2.0-2.4(female); length of rostral segments I:II:III=1.0(male), 0.9-1.0(female):1.5 (male), 1.4-1.6(female):0.3 (male), 0.2(female). Length of anterior lobe of pronotum 1.2(male), 0.9-1.1(female); length of posterior lobe of pronotum 1.7(male), 1.8-1.9(female); maximum width of thorax 3.4(male), 2.8-2.9(female); length of scutellum 0.8(male), 0.8(female); length of hemelytron 8.0(male), 8.5-8.9(female).

Distribution. **–** China (Yunnan, Guizhou).

Etymology. **–** The new species is named for its posterior lobe of pronotum with 4 dark spots.

Sphedanolestes xiongi, new species
(Figs. 21-28)

Material examined. **–** Holotype - female, Lewen, Mengyang, Mengla, Yunnan, coll. Xiong Jiang, 8 Jun.1984 (KZI). Paratype – 1 female, Jinghong, coll. Yang Darong, 8 Jun.1984 (ZRC).

Diagnosis. **–** The general colouration and size of this new species are similar to those in *S. rubripes*, new species. But the former with its femora annulated and obsoletely nodulose, and the second antennal segment distinctly shorter the third segment, whereas, *S. rubripes*, new species, with its femora unicolorous and distinctly nodulose, and the second and third antennal segments subequal in length.

Description. **–** Colour. Orange, shining. Eyes, annuli on femora, tibiae (except bases), tarsi, basal half of each segment of connexivum dark brown to black; subbasal part of first antennal segment and apical 3 antennal segments dark brown to blackish brown.

Structure. Medium sized, somewhat robust. Head above scattered with somewhat long yellow setae; posterior half of anterior lobe of pronotum, posterior lobe of pronotum densely covered with short yellow setae; thoracic pleuron and sterna densely cover with short pubescent, abdomen beneath scattered with yellow setae in different length. Head relative long and slender; eyes big, distinctly laterally and ventrally protruded, eye diameter longer than distance between ocelli; first rostral segment distinctly shorter than the second (Fig. 22); first antennal segment subequal to second and third antennal segments together, second antennal segment distinctly shorter than third segment. Collar process not developed, tubercle-shaped; anterior pronotal lobe small, posteriorly with two tuberculated processes; posterior lobe of pronotum budged, middle longitudinal depression shallow, posterior margin relative short; stridulatory furrow consisting of about 180 transverse ridges; hind femur slightly bent, fore leg and apical portion of hind leg showing in Figs. 24, 25; hemelytron distinctly surpassing abdominal tip. Abdominal tip of female showing in Figs. 26-28.

Measurements. Body length 12.6-13.1(female); maximum width of abdomen 3.2-4.0 (female). Head length 2.2(female); length of anteocular part 1.0(female); length of postocular part 0.6-0.7(female); length of synthlipsis 0.5-0.6(female); distance between ocelli 0.3 (female); length of antennal segments I:II:III:IV=3.0-3.1 (female): 1.2-1.5 (female): 1.2-1.6 (female):2.6 (female); length of rostral segments I:II:III=1.1-1.2(female): 1.5-1.7(female): 0.2-0.3(female). Length of anterior lobe of pronotum 0.9 (female); length of posterior lobe of pronotum 1.9 (female); maximum width of thorax 3.1-3.2 (female); length of scutellum 1.2(female); length of hemelytron 8.9-9.0(female).

Distribution. **–** China (Yunnan).

Etymology. **–** The new species is named after Prof. Xiong Jiang, the collector of the holotype and formerly the head of the Kunming Zoological Institute, for his contribution to the taxonomy of Heteroptera of China.

Male. **–** Unknown.

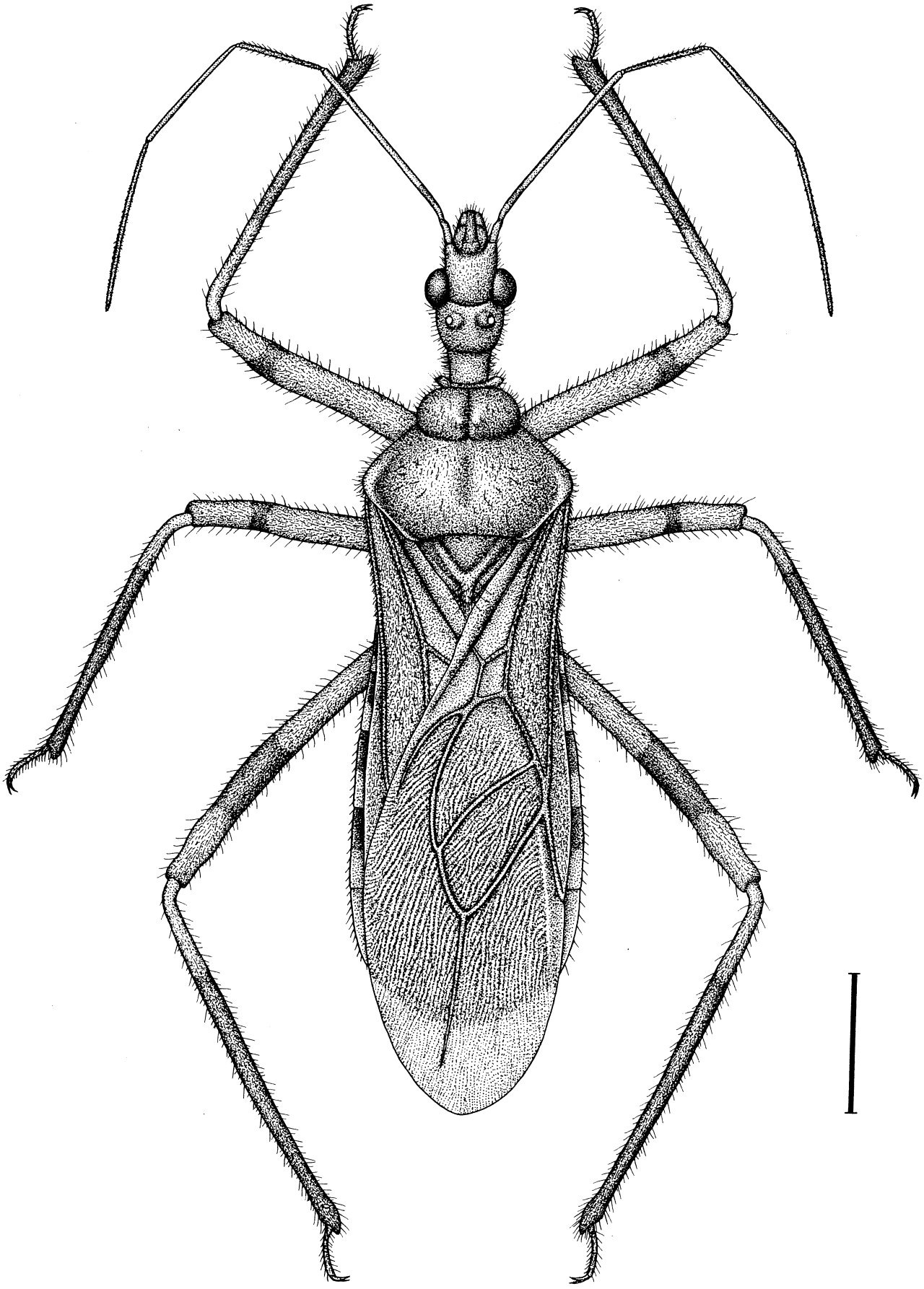
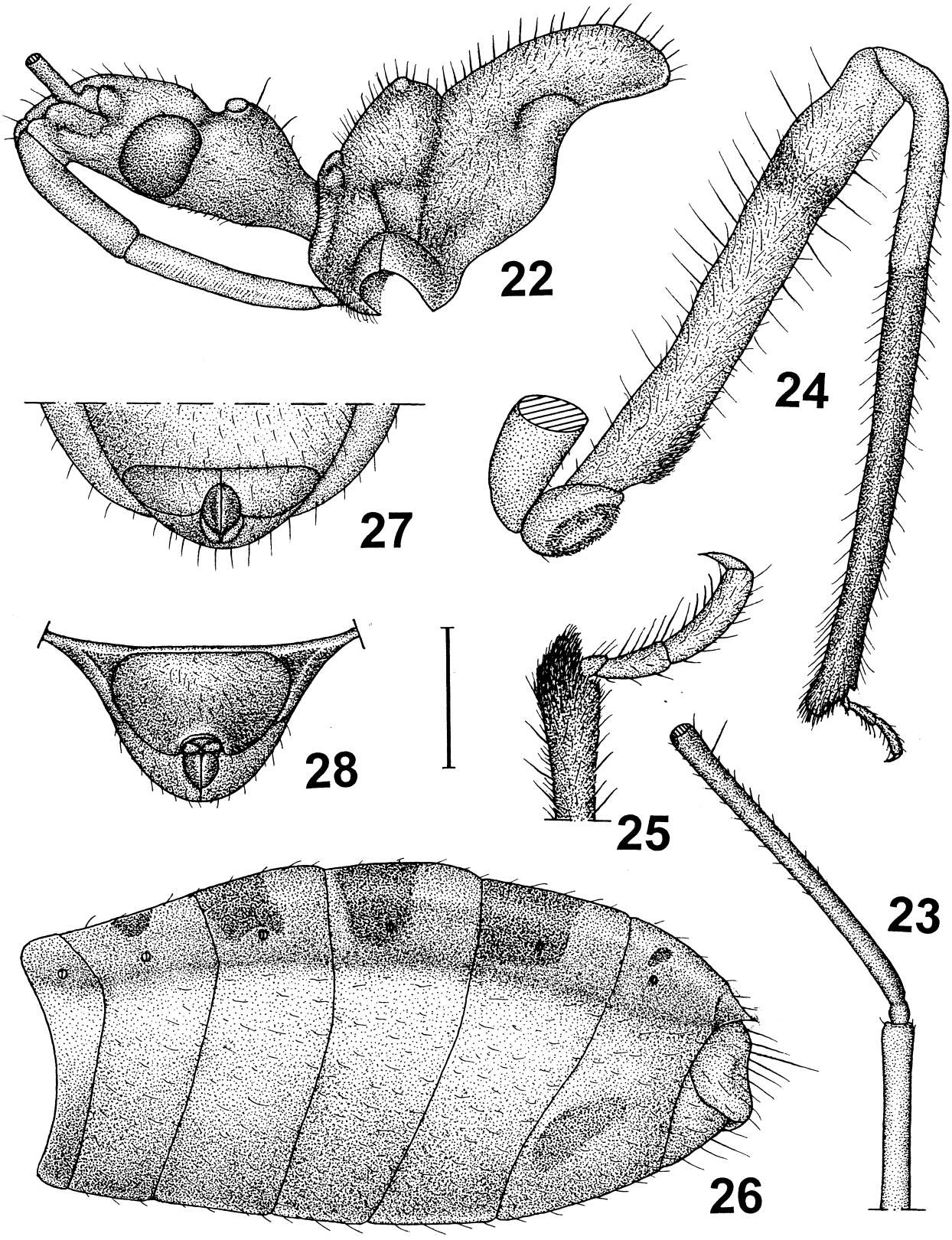


Fig. 21. *Sphedanolestes xiongi*, new species. Scale: 2 mm.



Figs. 22-28. *Sphedanolestes xiongi*, new species. 22, head and pronotum, antenna partly removed; 23, apical portion of first antennal segment and second antennal segment; 24, fore leg; 25, apical portion of left hind leg; 26, abdomen of female; 27, 28, abdominal apex of female; 22-26, lateral view; 27, ventral view; 28, caudal view. Scale: for Figs. 22, 26-28, 1 mm; for Figs.23-25, 0.5 mm.

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