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### New species and records of the Neoserica (sensu stricto) group (Coleoptera: Scarabaeidae: Sericini)

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## New species and records of the *Neoserica* (sensu stricto) group (Coleoptera: Scarabaeidae: Sericini)

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In this paper we examined newly collected specimens of the *Neoserica* Brenske, 1894 (sensu stricto) species group housed in Chinese collections. Four new species are described from China: *Neoserica* (s. str.) *mengsongensis* Liu & Ahrens, sp. nov. (Yunnan Prov.), *Neoserica* (s. str.) *pseudosangangana* Liu & Ahrens, sp. nov. (Guizhou Prov.), *Neoserica* (s. str.) *taibaiensis* Liu & Ahrens, sp. nov. (Shaanxi Prov.) and *Neoserica* (s. str.) *yongkangensis* Liu & Ahrens, sp. nov. (Zhejiang Prov.). Habitus and the male genitalia are illustrated. Additionally, we provide new distribution records, an updated distribution map and an updated key to the species of the *Neoserica* (sensu stricto) group.

<http://zoobank.org/urn:lsid:zoobank.org:pub:A3C6B300-EAC3-445E-8B14-E1DBB7BBFB7F>

**Keywords:** beetles; chafers; *Neoserica* sensu stricto; China; new species

### Introduction

The *Neoserica* (sensu stricto) group was revised by Ahrens (2003) and currently includes 24 species, all occurring in East and Southeast Asia. Although one must assume that the genus *Neoserica* Brenske, 1894 is polyphyletic (Arrow 1946; Ahrens 2003; Ahrens and Vogler 2008), based on the type species designation of Pope (1960), Ahrens (2003) defined a group of species supposedly closely related to the type species, *Neoserica ursina* (Brenske 1894; *Neoserica* sensu stricto), while all other *Neoserica* species are considered *Neoserica* sensu lato (e.g. Ahrens 2004). Ahrens (2003) hypothesised *Gastroserica* Brenske, 1897 as a sister taxon of *Neoserica* (s. str.). The monophyly of the latter is supported by one hypothetical synapomorphy (in this context), a serrate longitudinal line beside the dorsal margin of the metatibia. Since the latter feature is found in many other Sericini genera [e.g. *Amiserica* Nomura, 1974, *Lasioserica* Brenske, 1896, *Maladera* (subgenus *Eumaladera* Nomura, 1967)], the exact systematic position of *Neoserica* (s. str.) awaits confirmation from molecular evidence. Other diagnostic characters to distinguish *Neoserica* (s. str.) from *Gastroserica* are the double pilosity on the dorsal surface (fine, dense, adpressed setae and more sparse, long, erect setae), as well as fine, dense, adpressed setae on the ventral face. Additionally, both lineages lack microtrichomes on the apical margin of the elytra, have the head slightly elongated behind the eyes,

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and the setae on anterior margin of the metafemur are directed anteriorly (all of which supposedly being plesiomorphies; see Ahrens 2003).

In this paper, we survey the material held in Chinese institutional collections, and new material received from other European collections. We discovered four new species from China, which are described herein. In addition to the published data (Ahrens 2003), new distribution data, including four new records for China, are given along with an updated distribution map and a key to the species of *Neoserica* (sensu stricto).

## Material and methods

The terminology and methods used for measurements, specimen dissection and genital preparation follow Ahrens (2004). Data from specimens examined are cited in the text with original label contents given in quotation marks; multiple labels are separated by ‘/’. Descriptions are based on the holotype if not otherwise stated. The variation of paratype specimens is given separately. Male genitalia were glued to a small pointed card pinned with the specimen. Descriptions and illustrations of new taxa are based on the holotype specimen, while the variation of other specimens is given separately under ‘variation’. All descriptions and measurements were made under an Olympus SZX 12 microscope, and all genital and habitus illustrations were made with a digital camera (AxioCam HRc) attached to a stereo microscope (Zeiss Stereo Discovery V20) and Axio Version 4.8 software. The distribution map was generated using Q-GIS 2.0.1 and Adobe Photoshop CS4. Type specimens and other examined material are deposited in the following institutions:

CP	Coll. P. Pacholátko, Brno (Czech Republic);
HBUM	Museum of Hebei University, Baoding (Hebei Province; China);
IZAS	Institute of Zoology, Chinese Academy of Sciences, Beijing (China);
NMPC	National Museum Prague (Czech Republic);
NWAFU	Northwest A & F University, Yangling (Shaanxi Province; China);
ZFMK	Zoological Research Museum, A. Koenig Bonn, (Germany).

## Key to *Neoserica* (s. str.) species (♂♂)

1. Phallobase apically on right side with a short but sharply pointed lateral process. .... *N. mengsongensis* Liu & Ahrens sp. nov.
- 1 Phallobase on right side without lateral process. .... 2
2. Serrated carina of metatibia nearly continuous from base to near apex. .... 4
- 2' Serrated carina of metatibia widely interrupted or ending at middle. .... 3
3. Phallobase apically on left side produced into a dorsolateral apophysis. ....
- ..... *N. pseudosangangana* Liu & Ahrens sp. nov.
- 3' Phallobase not produced dorsally. .... *N. yongkangensis* Liu & Ahrens sp. nov.
4. Eyes large, ratio diameter/interocular distance ~0.78. .... 5
- 4' Eyes smaller, ratio diameter/interocular distance ~0.6. .... 7

5. Antennal club twice as long as the remaining antennomeres combined. ....  
 ..... *N. flexiclava* Ahrens, 2003, *N. vicina* Ahrens, 2003
- 5' Antennal club 1.5 times as long as the remaining antennomeres combined. .... 6
6. Anterior margin of labroclypeus straight, not sinuate. Metatibia on external face smooth along the middle. .... *N. semipubescentis* Ahrens, 2003
- 6' Anterior margin of labroclypeus slightly sinuate medially. Metatibia on external face densely punctate also along the middle. .... *N. phuruaensis* Ahrens, 2003
7. Epipleural edge of elytra ends immediately behind the humerus; only odd elytral intervals with robust setae. .... 8
- 7' Epipleural edge of elytra ends at the external apical rounding of the elytra; all elytral intervals with robust setae. .... 10
8. Metatibia shorter, ratio metatibial width/length: 1/2.95–3.1. .... 9
- 8' Metatibia longer, ratio metatibial width/length: 1/3.78. ....  
 ..... *N. grossepunctata* Ahrens, 2003
9. Body wider. Metacoxa very long (ratio length of metepisternum/metacoxa: 1/2.43). .... *N. lucidifrons* Ahrens, 2003
- 9' Body narrower. Metacoxa shorter (ratio length of metepisternum/metacoxa: 1/1.82). .... *N. phuphanensis* Ahrens, 2003
10. Serrated line on dorsolateral margin of metatibia shortly interrupted by a group of spines. .... 11
- 10' Serrated line on dorsolateral margin of metatibia complete, not interrupted. . 14
11. Dorsal face black, long setae on elytra and pronotum robust. Metatibia short, ratio metatibial width/length: 1/3.0–3.1. .... *N. nigrosetosa* Moser, 1908, *N. fanjingshanica* Ahrens, 2003, *N. tamdaoensis* Ahrens, 2003
- 11' Dorsal face brown, long setae on elytra and pronotum fine. .... 12
12. Left paramere simple. .... 13
- 12' Left paramere bifid. .... *N. taibaiensis* Liu & Ahrens sp. nov.
13. Labroclypeus distinctly wider than long. .... *N. unicolor* (Frey, 1972)
- 13' Labroclypeus little wider than long, anterior angles strongly rounded. ....  
 ..... *N. fukiensis* (Frey, 1972)
14. Dorsal face entirely black or reddish brown. .... 15
- 14' Dorsal face always simply brown. .... 18
15. First antennomere of antennal club only half as long as club. Dorsal surface black or reddish-brown. .... 16
- 15' All antennomeres of antennal club subequal in length. Dorsal surface always black. .... 17
16. Anterior angles of pronotum strongly rounded. .... *N. kalliesi* Ahrens, 2003
- 16' Anterior angles of pronotum blunt. .... *N. sangangana* Ahrens, 2003
17. Lateral margins of pronotum concavely sinuate in basal half. Metatibia shorter, ratio metatibial width/length: 1/3.0–3.1. .... *N. jingangshanica* Ahrens, 2003

- 17<sup>o</sup> Lateral margins of pronotum subparallel and straight in basal half. Metatibia longer, ratio metatibial width/length: 1/3.44. .... *N. shibingensis* Ahrens, 2003
18. Metatibia relatively short, medially strongly extended (ratio metatibial width/length: 1/3.0–3.2). ..... 19
- 18<sup>o</sup> Metatibia relatively long, medially almost not extended (ratio metatibial width/length: > 1/3.3). ..... 20
19. Antennal club slightly longer than remaining antennomeres combined. Eyes small, ratio diameter/interocular width: 0.6. .... *N. strbai* Ahrens, 2003
- 19<sup>o</sup> Antennal club 1.5 times as long as remaining antennomeres combined. Eyes large, ratio diameter/interocular width: 0.79. .... *N. bannapensis* Ahrens
20. Body slightly more flattened, elongate. Right paramere ventroapically with a blunt tooth. .... *N. parursina* Ahrens, 2003, *N. kuaichangensis* Ahrens, 2003, *N. ursina* (Brenske 1894)
- 20<sup>o</sup> Body high and oval. .... 21
21. Larger species, elytral length along suture ~6.6 mm. ....  
..... *N. vulpina* Moser, 1908, *N. pseudovulpina* Ahrens, 2003
- 21<sup>o</sup> Smaller species, elytral length along suture < 5.6 mm. *N. hirokazui* Ahrens, 2003

## New species

*Neoserica* (s. str.) *mengsongensis* Liu & Ahrens, sp. nov.  
(Figure 1A–D)

### *Type material examined*

Holotype ♂ ‘Mengsong, Xishuangbanna, Yunnan, 28.IV.1958, 1600 m, leg. Wang Shuyong’ (IZAS).

### *Description*

Length: 6.5 mm; length of elytra: 4.2 mm; width: 3.2 mm. Body oval, surface reddish brown, frons and disc of pronotum darker, antenna and legs yellowish-brown, dorsal surface with dense and fine, white adpressed setae and moderately dense, long erect setae on head and pronotum directed anteriad.

Labroclypeus subelliptical, widest at middle, lateral margins convex, convergent towards base and to broadly rounded anterior angles, lateral border and ocular canthus producing a distinct obtuse angle, anterior margin nearly straight, margins moderately reflexed, surface weakly convex medially and moderately shiny, very coarsely and densely punctate, with several long erect setae; frontoclypeal suture slightly impressed and moderately curved, smooth area anterior to eye twice as wide as long; ocular canthus moderately long and narrow, finely and densely punctate, without terminal seta. Frons finely and densely punctate, with

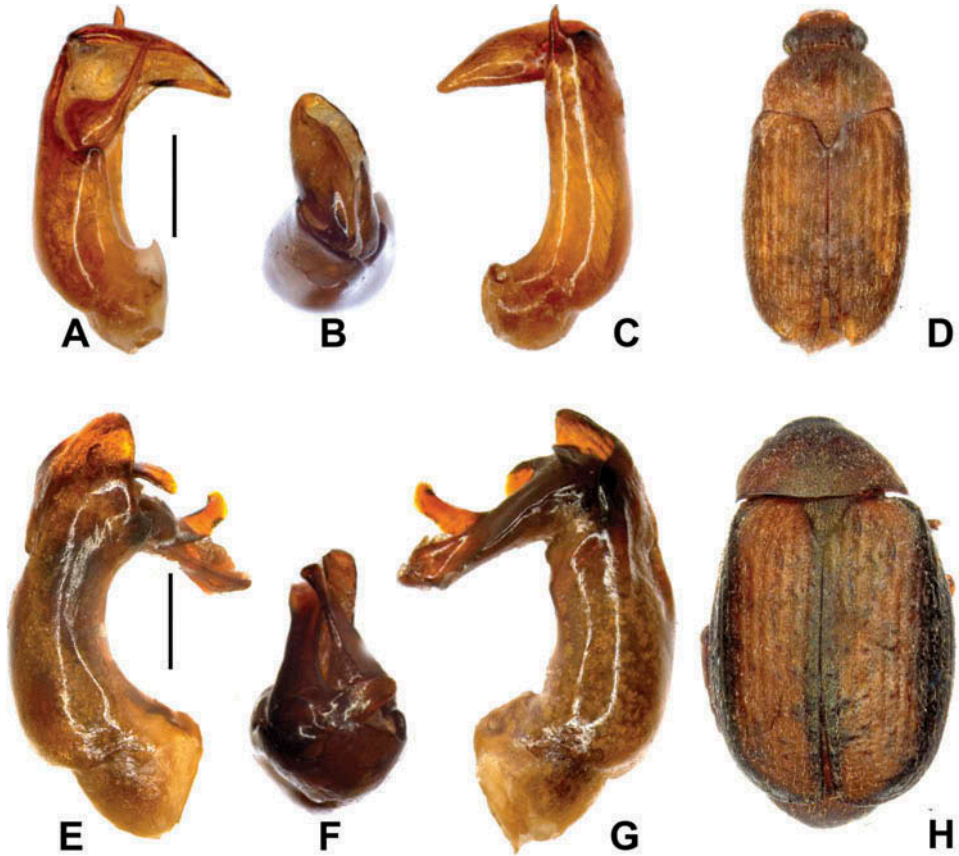


Figure 1. (A-D) *Neoserica* (s. str.) *mengsongensis* Liu & Ahrens sp. nov. (holotype); (E-H) *Neoserica* (s. str.) *pseudosangangana* Liu & Ahrens sp. nov. (holotype). (A, H) Aedeagus, left side lateral view; (C, G) aedeagus, right side lateral view; (B, F) parameres, dorsal view; (D, H) habitus. Scale: 0.5 mm.

dense, fine, white adpressed setae and a few long erect ones. Eyes moderately large, ratio of diameter/interocular width: 0.64. Antenna partly destroyed in holotype, with seven remaining antennomeres; club with one remaining antennomere (the other, likely three, club joints are missing on both sides), club distinctly longer than remaining antennomeres combined. Mentum elevated and flattened anteriorly.

Pronotum moderately wide, widest at middle, lateral margins in basal half sub-parallel, moderately sinuate before posterior angles, strongly curved and convergent in anterior half, anterior angles not produced and strongly rounded, nearly obsolete, posterior angles acute, anterior margin straight, with distinct and fine marginal line, base without marginal line; surface with fine and dense punctures each bearing a fine white adpressed seta, interspersed with moderately dense and coarse punctures each bearing a long erect seta (many of them abraded in the holotype), anterior and lateral borders sparsely setose; hypomeron carinate, basal margin of hypomeron moderately

produced ventrally. Scutellum subtriangular, apex moderately rounded, with fine, dense punctures and fine white setae.

Elytra oblong, widest at middle, striae moderately impressed, with fine and dense punctures, intervals moderately convex, with fine and dense punctures, punctures with fine white adpressed setae, each interval with large, single punctures each bearing a long erect seta (most discal setae lost in the holotype); epipleural edge moderately strong, ending at strongly rounded external apical angle of elytra, setae of epipleura nearly absent in holotype, apical border chitinous, without short microtrichomes.

Ventral surface dull, with large, dense punctures and dense, short adpressed setae, metacoxa with similar punctation and pilosity and with some robust and long setae laterally. Abdominal sternites finely and densely punctate, with fine, dense, adpressed setae, each sternite with a transverse row of coarse punctures each bearing a short, robust seta. Ratio of length of metepisternum/metacoxa: 1/1.79. Pygidium weakly convex, with fine and dense punctures each bearing a fine, adpressed seta interspersed with a few coarse punctures each bearing a robust and longer seta, without smooth midline.

Legs moderately slender and moderately shiny, femora with fine and dense punctures, densely setose; anterior edge of metafemur acute lacking an adjacent serrated line, posterior margin weakly convex, with a few fine setae medially, weakly widened in apical half ventrally but not serrate, serrate dorsally. Mesofemora and -tibiae as well as metatibia and subsequent parts are missing in the holotype.

#### *Aedeagus*

Figure 1A–C.

#### *Diagnosis*

The new species differs from all other known species of the *Neoserica* (s. str.) group in having the dorsolateral apex of the phallobase on the right side produced into a sharply pointed process; the insertion of the parameres is strongly asymmetrical (Figure 1A–C).

#### *Etymology*

The new species is named after the type locality, Mengsong.

*Neoserica* (s. str.) *pseudosangangana* Liu & Ahrens, sp. nov.  
(Figure 1E–H)

#### *Type material examined*

Holotype: ♂ [China] ‘Libo, V.1998’ (IZAS). Paratypes: 2 ♀♀ [China] ‘Libo, V.1998’ (IZAS).



*Description*

Length: 8.1 mm; length of elytra: 6.2 mm; width: 4.8 mm. Body oval, dorsal surface reddish brown, frons, anterior pronotum, ventral surface and legs dark brown with greenish shine, sutural and lateral elytral intervals black, dorsal surface with dense, fine, yellowish, adpressed setae, erect setae except on head almost entirely abraded in holotype.

Labroclypeus subrectangular, widest at base, lateral margins weakly convex and moderately convergent to broadly rounded anterior angles, lateral border and ocular canthus producing a distinct obtuse angle, anterior margin straight, strongly reflexed; surface moderately convex medially and moderately shiny, coarsely and sparsely punctate, with several long erect setae; frontoclypeal suture slightly impressed and moderately curved, smooth area anterior to eye nearly 1.5 times as wide as long; ocular canthus moderately short and robust, finely and densely punctate, with a single terminal seta. Frons finely and densely punctate, with moderately dense, adpressed, short setae, interspersed with coarse punctures (setae abraded in holotype). Eyes small, ratio of diameter/interocular width: 0.53. Antenna with 10 antennomeres; club with four antennomeres, as long as remaining antennomeres combined, first joint of club subequal in length to club. Mentum elevated and flattened anteriorly.

Pronotum moderately wide, widest at base, lateral margins in basal half subparallel, moderately sinuate before posterior angles, weakly curved and convergent in anterior half, anterior angles not produced and strongly rounded, nearly obsolete, posterior angles slightly acute, anterior margin straight, with distinct and fine marginal line, base without marginal line; surface with fine and dense punctures each bearing a yellowish, adpressed seta and with coarser punctures interspersed; anterior and lateral borders moderately setose; hypomerion carinate, basal margin of hypomerion moderately produced ventrally. Scutellum subtriangular, apex moderately rounded, with fine and dense punctures and moderate adpressed setae.

Elytra oblong, widest at middle, striae moderately impressed, with fine and dense punctures, intervals weakly convex, with fine, dense punctures and fine, adpressed setae, each interval with numerous larger single punctures each bearing an erect long seta (partly abraded in the holotype); epipleural edge moderately strong, ending at strongly rounded external apical angle of elytra, epipleura densely setose, apical border chitinous, without short microtrichomes.

Ventral surface dull, with large, dense punctures and dense, short adpressed setae, metacoxa with similar punctuation and pilosity and with some robust setae laterally, abdominal sternites finely and densely punctate and setose, each sternite with an indistinct transverse row of coarse punctures each bearing a short, robust seta. Mesosternum between mesocoxae slightly wider than mesofemur, with numerous strong setae on an indistinct semicircular carina. Ratio of length of metepisternum/metacoxa: 1/2. Pygidium weakly convex, with fine, dense punctures and fine setae, with a few robust setae in coarse punctures, without smooth midline.

Legs moderately slender, femora with fine and dense punctures, densely setose; anterior edge of metafemur acute lacking an adjacent serrated line, posterior margin weakly convex, with a few fine setae medially, weakly widened in apical half ventrally but not serrate, serrate dorsally. Metatibia moderately long, convexly widened at middle, ratio width/length: 1/3, dorsally sharply carinate, with two groups of spines, basal group at middle, apical one at three quarters of metatibial length, with a few

single spines in punctures basally, beside dorsal margin with a blunt, indistinctly serrate carina from base to middle; lateral face longitudinally convex, finely and densely punctate and setose, ventral edge serrate, with three equidistant strong spines; medial face very sparsely punctate and with a few fine setae, apex interiorly near tarsal articulation deeply and sharply truncate. Tarsomeres glabrous and impunctate dorsally, with sparse, short setae ventrally; metatarsomeres with strong longitudinal impressions dorsally, with a strongly serrated ridge ventrally, with a strong longitudinal carina laterally, first metatarsomere distinctly longer than dorsal tibial spur, metatarsomeres 3–5 lacking in holotype, as well as the protibia.

### *Aedeagus*

Figure 1E–G.

### *Diagnosis*

The new species is rather similar externally to *N. sangangana* Ahrens, 2003. As in *N. mengsongensis* Liu & Ahrens, sp. nov., the phallobase is produced dorsolaterally at the apex, however, in this new species the left side rather than the right side is produced and the process is wider and much less spikelike (Figure 1E–G).

### *Etymology*

The new species is named *N. pseudosanganagana* in reference to its resemblance to *N. sangangana* in external morphology.

### *Variation*

Length: 7.0–8.1 mm, length of elytra: 5.6–6.2 mm, width: 4.6–4.8 mm. Female: antennal club with three antennomeres; club as long as remaining antennomeres combined. Protibia short, bidentate, anterior claws symmetrical, with a sharply pointed basal tooth.

*Neoserica* (s. str.) *taibaiensis* Liu & Ahrens, sp. nov.  
(Figure 2A–D)

### *Type material examined*

Holotype: ♂ ‘Haopingsi Temple, Taibaishan, Shaanxi, 10.V.1983, 1200 m, leg. Mt. Taibaishan Insect Collecting group’ (NWAFU). Paratype: 1 ♂ ‘Haoping Temple, Mts. Taibaishan, Shaanxi, 18.V.1982’ (ZFMK).

### *Description*

Length: 6.3 mm; length of elytra: 4.9 mm; width: 3.5 mm. Body oval, dark brown, antenna yellowish brown, elytra with irregular reddish spots, legs and pronotal base

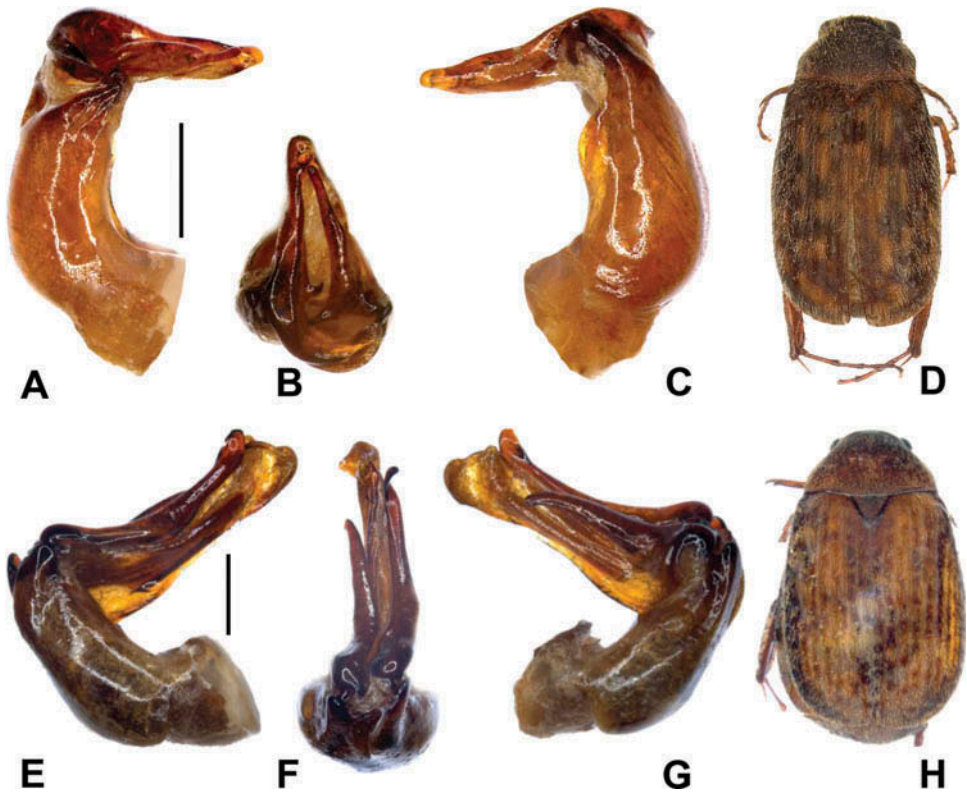


Figure 2. (A-D) *Neoserica* (s. str.) *taibaiensis* Liu & Ahrens sp. nov. (holotype); (E-H) *Neoserica* (s. str.) *yongkangensis* Liu & Ahrens sp. nov. (holotype). (A, E) Aedeagus, left side lateral view; (C, G) aedeagus, right side lateral view; (B, F) parameres, dorsal view; (D, H) habitus. Scale: 0.5 mm.

reddish brown, dorsal surface with dense, short, yellow setae which incline posteriorly, head and pronotum with long erect setae inclined anteriorly.

Labroclypeus subrectangular, widest at middle, lateral margins straight and subparallel, anterior angles broadly rounded, lateral border and ocular canthus producing a distinct obtuse angle, anterior margin weakly sinuate medially and weakly reflexed, surface moderately convex weakly and moderately shiny, coarsely and very densely punctate, with several long erect setae; frontoclypeal suture slightly impressed and moderately curved, smooth area anterior to eye twice as wide as long; ocular canthus moderately long and narrow, finely and densely punctate, with three terminal setae. Frons densely punctate, with mixed small and large punctures, finely and densely setose, with moderately dense, long erect setae in the larger punctures. Eyes large, ratio of diameter/interocular width: 0.61. Antenna with 10 antennomeres; club with four antennomeres, slightly longer than remaining antennomeres combined, first joint of club subequal to club length. Mentum elevated and flattened anteriorly.

Pronotum moderately wide, widest just before middle, lateral margins in basal half subparallel and slightly concave, strongly curved and convergent in anterior third, anterior angles not produced and strongly rounded, nearly obsolete, posterior

angles blunt, anterior margin nearly straight, with distinct and fine marginal line, base without marginal line; surface with dense and moderately coarse punctures each bearing a short fine seta, interspersed with coarse punctures each bearing a long erect seta slightly inclined anteriorly; anterior and lateral borders sparsely setose; hypomeron carinate, basal margin of hypomeron moderately produced ventrally. Scutellum subtriangular, apex moderately rounded, with fine, dense punctures and fine setae.

Elytra oblong, widest at middle, striae moderately impressed, with fine and dense punctures, intervals weakly convex, with fine, dense punctures and fine setae, some darker spots glabrous and smooth, with only single coarse punctures bearing a long erect seta (partly abraded in the holotype); epipleural edge very fine, ending widely before strongly rounded external apical angle of elytra, epipleura densely setose, apical border chitinous, without short microtrichomes.

Ventral surface dull, with large, dense punctures and dense, short adpressed setae, metacoxa with similar punctation and pilosity and with a few robust setae laterally. Abdominal sternites finely and densely punctate, with fine, adpressed setae in punctures, each sternite with transverse row of coarse punctures each bearing a long, robust seta. Mesosternum between mesocoxae as wide as mesofemur, with a few longer setae. Ratio of length of metepisternum/metacoxa: 1/1.41. Pygidium weakly convex, with fine and dense punctures and fine short setae, with a few longer setae on apical half, without smooth midline.

Legs moderately slender and slightly shiny, femora with fine and dense punctures, densely setose; anterior edge of metafemur acute lacking an adjacent serrated line, posterior margin weakly convex, with a few fine setae medially, weakly widened ventrally in apical half but not serrate, serrate dorsally. Metatibia moderately wide, weakly convexly widened at middle, ratio width/length: 1/3.9, dorsally sharply carinate, beside dorsal margin with a sharp, serrated carina being convergent with the dorsal margin from base to apex, groups of spines reduced to single spine along the carina; lateral face longitudinally convex, with dense, coarse punctures and short, dense setae, ventral edge serrate, with five nearly equidistant spines; medial face impunctate and smooth, apex sharply truncate interiorly near tarsal articulation. Tarsomeres glabrous and finely punctate dorsally, with sparse, short setae ventrally; metatarsomeres with strong longitudinal impressions dorsally and a strongly serrated ridge ventrally, with a distinct longitudinal carina laterally, first metatarsomere as long as following two tarsomeres combined and almost twice as long as dorsal tibial spur. Protibia short, bidentate, protarsal claws symmetrical.

### *Aedeagus*

Figure 2A–C.

### *Diagnosis*

The new species differs from the externally similar *Neoserica ursina* (Brenske 1894) and *N. fukiensis* (Frey, 1972) in having the left paramere bifid. From other taxa with bifid left parameres, it differs distinctly in the strongly developed basal lobe of right paramere (Figure 2B) and, in part, the narrow and smaller body.

*Etymology*

The new species is named after the type locality, Taibai.

*Neoserica* (s. str.) *yongkangensis* Liu & Ahrens, sp. nov.  
(Figure 2 E–H)

*Type material examined*

Holotype ♂ ‘Yongkang, 29.V.1998, leg. Zhi Junrui’ (IZAS). Paratype: 1 ♂ ‘Yongkang, 29.V.1998, leg. Zhi Junrui’ (ZFMK).

*Description*

Length: 7.3 mm; length of elytra: 5.7 mm; width: 4.3 mm. Body oval, dorsal surface dull and reddish-brown, frons, scutellum and elytral margins slightly darker and with some greenish shine, ventral surface and legs dark brown, antenna yellowish brown, entire body with dense with dense and short, nearly adpressed setae, on dorsal surface with numerous robust and long, dark, erect setae.

Labroclypeus subrectangular, widest at middle, lateral margins straight and subparallel, anterior angles broadly rounded, lateral border and ocular canthus producing a distinct obtuse angle, anterior margin weakly sinuate medially and moderately reflexed, surface moderately convex medially and moderately shiny, coarsely and densely punctate, with numerous long erect setae; frontoclypeal suture weakly incised and moderately angled medially, smooth area anterior to eye about 1.5 times as wide as long; ocular canthus moderately short and robust, finely and sparsely punctate, with three terminal setae. Frons finely and densely punctate, punctures with fine, white, adpressed setae interspersed with moderately dense, large punctures each bearing a robust erect seta. Eyes small, ratio of diameter/interocular width: 0.48. Antenna with 10 antennomeres; club with four antennomeres, as long as remaining antennomeres combined, first joint of club shorter than other three. Mentum elevated and flattened anteriorly.

Pronotum moderately wide, widest at base, lateral margins in basal half nearly straight and subparallel, in anterior half weakly curved and convergent anteriorly, anterior angles not produced and strongly rounded, nearly obsolete, posterior angles obtuse, anterior margin straight, with distinct and fine marginal line, base without marginal line; surface with fine, dense punctures each bearing a fine, white, adpressed seta and interspersed with coarse punctures each bearing a robust, long, erect seta which is slightly directed anteriorly; anterior and lateral borders moderately and densely setose; hypomeron carinate, basal margin of hypomeron distinctly produced ventrally. Scutellum subtriangular, apex moderately rounded, with fine and dense punctures and short, adpressed setae, punctures less dense on basal midline.

Elytra oblong, widest at middle, striae moderately impressed, with fine and dense punctures, intervals weakly convex, with fine, dense punctures and fine setae, some spots glabrous and smooth, with only single coarse punctures each bearing a long erect seta (partly abraded in holotype); epipleural edge very fine, ending well before strongly rounded external apical angle of elytra, epipleura densely setose, apical border chitinous, without short microtrichomes.

Ventral surface dull, with large, dense punctures and dense, short adpressed setae, metacoxa with similar punctation and pilosity and with a few robust setae laterally. Abdominal sternites finely and densely punctate, with fine, adpressed setae in punctures, each sternite with transverse row of coarse punctures each bearing a long, robust seta. Mesosternum between mesocoxae as wide as mesofemur, with a few longer setae. Ratio of length of metepisternum/metacoxa: 1/1.55. Pygidium weakly convex, with fine, dense punctures and fine, short and moderately long setae, with a few robust and very long setae beside apical margin, without smooth midline.

Legs moderately slender and shiny, femora with fine and dense punctures, densely setose; anterior edge of metafemur acute and lacking an adjacent serrated line, posterior margin weakly convex, with a few fine setae medially, weakly widened in apical half ventrally but not serrate, serrate dorsally. Metatibia moderately wide, convexly widened at middle, ratio width/length: 1/3.5, dorsally sharply carinate, with two groups of spines, basal group at middle, apical one at three quarters of metatibial length, with a few single spines basally, with a blunt, indistinctly serrate carina from base to middle beside dorsal margin; lateral face longitudinally convex, finely and densely punctate and setose, ventral edge serrate, with three equidistant strong spines; medial face impunctate and smooth, apex sharply truncate interiorly near tarsal articulation. Metatarsomeres glabrous and impunctate dorsally, with sparse, short setae ventrally and strong longitudinal impressions dorsally, with a strongly serrated ridge ventrally and with a distinct longitudinal carina laterally, first metatarsomere almost twice as long as dorsal tibial spur, subsequent metatarsomeres missing in holotype. Protibia short, bidentate.

### *Aedeagus*

Figure 2 E–G.

### *Diagnosis*

The new species differs from all other known *Neoserica* (s. str.) species in the very long parameres, which equal or exceed the length of the phallobase (Figure 2E–G).

### *Etymology*

The new species is named after the type locality, Yongkang (Figure 3).

### **New records**

*Neoserica* (s. str.) *fanjingshanica* Ahrens, 2003

### *Material examined*

1 ♂ ‘Mt. Pinglongshan, Fulong, Guangxi, 21.IV.1998, 650 m, leg. Qiao Gexia’ (IZAS), 1 ♂, 2 ♀♀ ‘China, Guizhou prov., ~650 m, Jiangkou (ca 50 km SW), 27° 32.83’ N, 108°36.83’ E, Shidu vill. env., 29.vi.–6.vii.2001, C.Holzschuh leg.’ (CP), 2 ♂♂, 2 ♀♀ ‘China, Guizhou prov., Leishan (NE), Leigong Shan, (E slope),

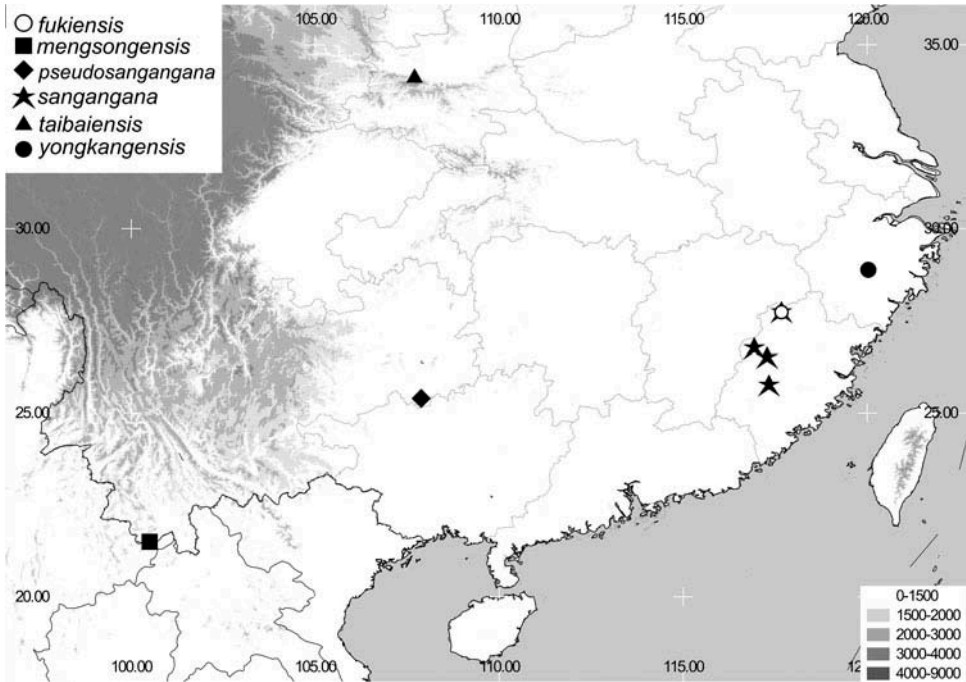


Figure 3. Distribution of *Neoserica* (s. str.) *fukiensis*, *N.* (s. str.) *mengsongensis*, *N.* (s. str.) *pseudosangangana*, *N.* (s. str.) *sangangana*, *N.* (s. str.) *taibaiensis* and *N.* (s. str.) *yongkangensis*.

Fangxiang, 13.–24.vi.2001, 26°26.59' N, 108°16.53' E, ~900 m, C. Holzschuh leg.' (CP).

#### Remarks

The species was known only from Ghuizhou province; it is for the first time recorded for Guangxi (Figure 4).

*Neoserica* (s. str.) *fukiensis* (Frey, 1972)

#### Material examined

1 ex. 'Kuatun (2300 m) 27,40 n. Br. 117,40 ö.L. J. Klapperich 8.5. 1938 (Fukien)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 3 ex. 'Kuatun (2300 m) 27,40 n. Br. 117,40 ö.L. J. Klapperich 31.5. 1938 (Fukien)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 1 ex. 'Kuatun (2300 m) 27,40 n. Br. 117,40 ö.L. J. Klapperich 30.5. 1938 (Fukien)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 1 ex. 'Kuatun (2300 m) 27,40 n. Br. 117,40 ö.L. J. Klapperich 2.6. 1938 (Fukien)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 2 ex.

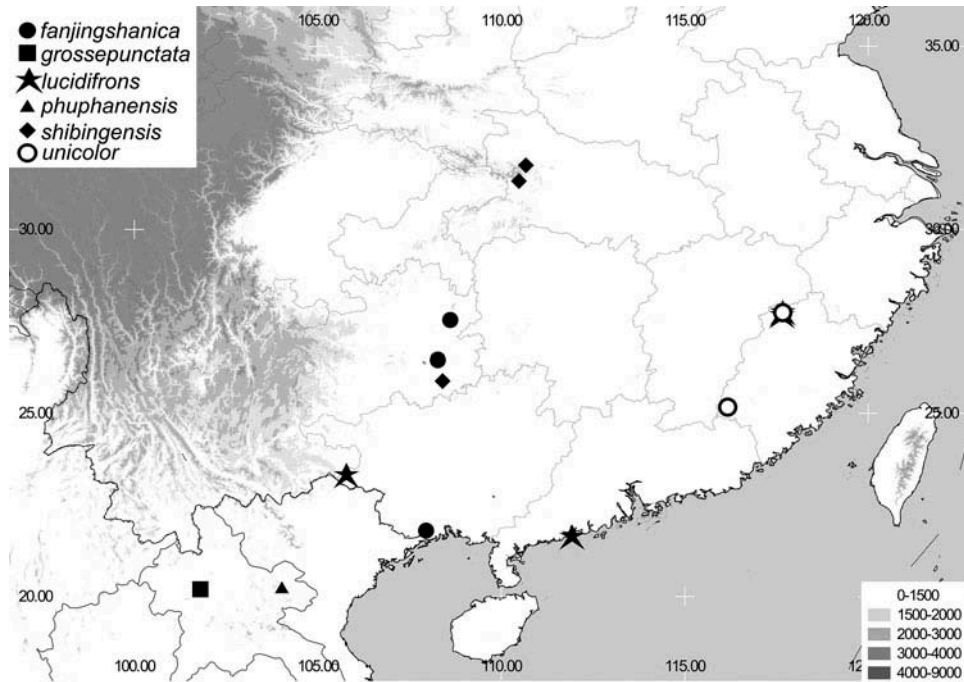


Figure 4. Distribution of *Neoserica* (s. str.) *fanjingshanica*, *N.* (s. str.) *grossepunctata*, *N.* (s. str.) *lucidifrons*, *N.* (s. str.) *phuphanensis*, *N.* (s. str.) *shibingensis* and *N.* (s. str.) *unicolor*.

'Kuatun Fukien China 11.5.46 (Tschung Sen./ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 1 ex. 'Kuatun Fukien China 14.5.46 leg. Tschung-Sen/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 1 ex. 'Kuatun Fukien China 15.7.46 leg. Tschung-Sen/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC).

*Neoserica* (s. str.) *grossepunctata* Ahrens, 2003

*Material examined*

2 ex. 'Laos (west): Oudomxao province, Beng, 20.20° N, 101.80° E May 1–14.2010 local collectors of Li Jingke' (ZFMK).

*Neoserica* (s. str.) *lucidifrons* Ahrens, 2003

*Material examined*

1 ♂ 'Guilin, Huangkeng, Jianyang, Fujian, 17.IV.1960, 290–310 m, leg. Pu Fuji' (IZAS), 1 ♀ 'Guilin, Huangkeng, Jianyang, Fujian, 11.IV.1960, 270 m, leg. Ma Chenglin' (IZAS), 1 ♀ 'Dazhulan-Xianfengling, Huangkeng, Jianyang, Fujian, 2.V.1960, 950–1170 m, leg. Ma Chenglin' (IZAS), 1 ♂, 2 ♀♀ 'Defu, Napo, Guangxi,



18.VI.2000, 1350 m, leg. Li Wenzhu' (IZAS), 1 ♂ 'Defu, Napo, Guangxi, 18.VI.2000, leg. Zhu Chaodong' (IZAS), 1 ♂ 'San'gang, Mt. Wuyishan, Fujian, 16–28.V.2004, leg. Yuan Caixia, Li Jing' (HBUM), 8 ex. 'China-Guangdong, Daqiao env., 1000–1200 m, 24°54' N–113°01' E, 1.–3.v.2002, Dr. R. Fencel lgt.' (CP).

#### Remarks

This species was known only from its type locality in northern Vietnam; it is recorded here for the first time from China.

#### *Neoserica* (s. str.) *phuphanensis* Ahrens, 2003

##### Material examined

13 ex. 'NE-Laos: Hua Phan prov., Ban Saleui, Phou Pan (Mt.) – 20°12' N, 104°01' E; 14.iv.–15.v.2012; 1300–1900 m; leg. C. Holzschuh Ankauf ZFMK Bonn 2012/13' (ZFMK), 10 ex. 'Laos-NE, Houa Phan prov., 20°13'09–19" N, 103°59'54"–104°00'03" E, 1480–1510 m Phou Pane Mt., 22.IV.–14.V.2008 Vit Kuban leg. (NMPC, ZFMK), 1 ex. 'Laos-NE Hua Phan prov., 20°12' N, 104°01' E, Phu Phan Mt., 1500–1900 m, 17.5.–3.6.2007, leg. Vit Kuban' (ZFMK), 6 ex. 'NE-Laos: Hua Phan prov., Ban Saleui, Phou Pan (Mt.) – 20°12' N, 104°01' E; 11.iv.–15.v.2012; 1300–1900 m; leg. C. Holzschuh Ankauf ZFMK Bonn 2012' (ZFMK).

#### *Neoserica* (s. str.) *sangangana* Ahrens, 2003

##### Material examined

1 ♂ 'San'gang, Xingcun, Chong'an, Fujian, 25.VI.1960, 740 m, leg. Zhang Yiran' (IZAS), 1 ♂, 1 ♀ 'Mt. Longqishan, Jiangle, Fujian, 20,30.V.1991, leg. Yao Jian, Liu Hong' (IZAS), 2 ex. (♀) 'Kuatun (2300 m) 27,40 n. Br. 117,40 ö.L. J. Klapperich 20.6. 1938 (Fukien)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 1 ex. (♀) 'Kuatun (2300 m) 27,40 n. Br. 117,40 ö.L. J. Klapperich 21.6.1938 (Fukien)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 1 ex. (♀) 'Kuatun Fukien China 23.6.46 (Tschung Sen.)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 1 ex. 'China, Fujian c., 700–1100 m Ziyungdongshan, NW slopes 25° 46' N, 117°20' E, 31.VI. Jaroslav Turna leg., 2008' (ZFMK), 7 ex. 'China, Fujian, 2.VI. Baishi Feng, 500–700 m 26°47' N, 116°57' E, Jaroslav Turna leg., 2008' (ZFMK).

#### *Neoserica* (s. str.) *shibingensis* Ahrens, 2003

##### Material examined

1 ♂ 'Longmenhe, Xingshan, Hubei, 9.VI.1995, 1200 m, leg. Wang Shuyong' (IZAS), 1 ♂ 'Mt. Mianxuling, Mts. Fanjingshan, Guizhou, 29.VII.2001, 1700 m, leg. Dong Kangzhen' (IZAS), 1 ♂, 7 ♀♀ 'China, W Hubei, 8.+15.–17.vi.2002, Muyuping S env., ~ 1100 m, 31°45' N, 110°40', E, Jaroslav Turna leg.' (CP).

*Neoserica* (s. str.) *unicolor* (Frey, 1972)*Material examined*

2 ex. 'Kuatun (2300 m) 27,40 n. Br. 117,40 ö.L. J. Klapperich 26.5. 1938 (Fukien)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 1 ex. 'Kuatun (2300 m) 27,40 n. Br. 117,40 ö.L. J. Klapperich 1.6.1938 (Fukien)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 1 ex. (♀) 'Kuatun (2300 m) 27,40 n. Br. 117,40 ö.L. J. Klapperich 13.5.1938 (Fukien)/ex. Coll. V. Balthasar National Museum Prague, Czech Republic' (NMPC), 8 ex. 'China: Fujian Province; Mt. Liang-shan-ding, Wuping County, 2–13 July 2009, local collectors Ankauf via Li Jingke 2010' (ZFMK).

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