A key to species of the genus Gastroserica Brenske of the China (Coleoptera, Scarabaeidae, Sericini), with the description of two new species and two new records for China

Wan-Gang Liu¹2†, Dirk Ahrens³‡, Ming Bai¹§, Xing-Ke Yang¹|

¹ Key Laboratory of Zoological Systematics and Evolution, Institute of Zoology, Chinese Academy of Sciences, Box 92, No. 1, Beichen West Road, Chaoyang District, Beijing, 100101, P.R. China
² Graduate School, Chinese Academy of Sciences, Yuquan Road, Shijingshan, Beijing, 100039, China
³ Zoologisches Forschungsmuseum A. Koenig, Adenauerallee 160, 53113 Bonn, Germany

† urn:lsid:zoobank.org:author:31DC0343-BFC2-4622-B325-7392294DAF41
‡ urn:lsid:zoobank.org:author:DEDCE5CF-AA11-4BBF-A2C6-D7C815019714
§ urn:lsid:zoobank.org:author:AF657935-9B32-4F91-B25D-46203C82EB51
| urn:lsid:zoobank.org:author:1DFA8B54-148D-4346-82B1-35DDBFA9644

Corresponding author: Xing-Ke Yang (yangxk@ioz.ac.cn)

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Abstract

Based on a revision of the material housed in Chinese collections and a key to species of Gastroserica of China is provided. Two new species are described, habitus photographs, and illustrations of the genitalia are given: Gastroserica nigrofasciata sp. n. (from China: Guangxi and Guizhou Prov.), G. yunnanensis sp. n. (from China: Yunnan Prov.). Besides, illustrations of the genitalia of species mentioned in the key are provided. Additional distribution records of the Gastroserica species including an updated distribution map are given.

Keywords

Coleoptera, Scarabaeidae, Sericini, Gastroserica, China, new species, key

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Introduction

The genus *Gastroserica* was established by Brenske (1897) based on the character of antenna (club with four antennomeres in males, but with three or four in females) and the obsolete anterior angles of pronotum. Currently, the genus is defined by the club with four antennomeres in males, but with three or four in females; mentum oblate; anterior angles of pronotum not produced; pygidium long, apically produced, not completely covered by elytra.

The species of the genus from Asiatic mainland were revised by Ahrens (2000). Since that contribution, eight additional species were described (Ahrens 2002, 2007, Ahrens and Pacholátko 2003). So far, there are 35 species described, all occurring in East and Southeast Asia. From China, so far 20 species are recorded. In this paper, we survey the material hold in Chinese institutional collections. This rich material contained two new taxa that are described herein. In addition to published data, new distribution data including two new species records from China are given, along with an updated distribution map and a key to the species of *Gastroserica* occurring in China.

Material and methods

All descriptions and measurements were made under an Olympus SZ 61 microscope, and all figures were made with a digital camera (Nikon D300S) attached to a stereomicroscope (Zeiss Discovery V12) and Helicon Focus 5.1 software. The distribution map was made with ArcGIS9.2 and Adobe Photoshop CS3. Type specimens and other material are deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZAS), College of Life Sciences, Sun Yat-sen University, Guangzhou, China (LSSYU), National Museum Prague (Natural History), Czech Republic (NMPC), Zoologisches Forschungsmuseum A. Koenig Bonn, Germany (ZFMK).

Taxonomy

Key to the genus *Gastroserica* of China

1  Labroclypeus widest at middle, lateral margins more or less distinctly narrowed towards base, or subparallel. Pronotum with or without longitudinal median impressions ................................................................. 2

   – Labroclypeus widest at base, lateral margins narrowed anteriorly. Pronotum without longitudinal median impression ................................................................. 18

2  Disc of pronotum with shallow longitudinal median impression or additionally with a transverse impression behind the middle .............................................. 3

   – Disc of pronotum without a shallow longitudinal median impression .......... 9

3  Disc of pronotum with a transverse impression behind the middle ........... 4
A key to species of the genus *Gastroserica* Brenske of the China ...

4 Disc of pronotum only with a shallow longitudinal median impression......7

Eyes strongly protruding, labroclypeus very narrow (ratio maximal width of head including eyes/ width of labroclypeus: 1.8–1.9). Pygidium strongly conical. Pronotum with distinct median transversal impression

.................................................................................. *G. impressicollis* (Fairmaire, 1891)

– Eyes weakly protruding, labroclypeus relatively wide (ratio maximal width of head including eyes/ width of labroclypeus: 1.48). Pygidium moderately convex. Median transversal impression on pronotum weak

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5 Pronotum with a distinct longitudinal median impression on the disc and a round median impression behind the disc........... *G. hubeiana* Ahrens, 2000

– Pronotum with only a longitudinal median impression on the disc........ 6

6 Frontoclypeal suture indistinctly impressed. Pronotum with several setae in the longitudinal median impression. Aedeagus with a long apophysis on the left side of the apical phallobase, and the dorsal lobe of left paramere split from basal lobe at base (Fig. 2. J–L)........ *G. kucerai* Ahrens & Pacholátko, 2003

– Frontoclypeal suture distinctly impressed. Pronotum with few setae in the longitudinal median impression. Aedeagus without a long apophysis on the left side of the apical phallobase, and the dorsal lobe of left paramere split from ‘basal’ lobe at middle of paramere’s length (Fig. 2 G–I)........... *G. sichuanana* Ahrens, 2000

7 Punctures on pronotum fine, simple and scarcely scattered; median longitudinal impression fine and superficial

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– Pronotum strongly and densely punctate, between punctures additionally with microscopic fine punctures; median longitudinal impression robust

.................................................................................. *G. sulcata* Brenske, 1897

8 Both parameres simple, the left one pointed externally (Fig.4 P)...........

.................................................................................. *G. bicolor* Nijima & Kinoshita, 1923

– Both parameres bifurcate, the left one pointed medially (Fig.3 A–C)........

.................................................................................. *G. herzi* (Heyden, 1887)

9 Aphophysis of phallobasis short and wide, apically lobiform and rounded (Fig. 3 J–L) ................................................................. *G. haucki* Ahrens, 2000

– Aphophysis of phallobasis long and sharply pointed ...................... 10

10 Lateral margins of labroclypeus strongly reflexed

.................................................................................. *G. angustula* Brenske, 1897

– Lateral margins of labroclypeus weakly reflexed ......................... 1

11 Disc of pronotum with punctures of equal size bearing minute setae. Apex of elytra sclerotized, without a rim of minute microtrichomes. Apical apophysis of phallobasis apically without a sharp hook

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– Disc of pronotum with large punctures bearing each a robust seta and being twice as large as smaller ones. Apex of elytra with a membranous rim composed of minute microtrichomes. Apical apophysis of phallobasis apically with a sharp hook

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12 Ocular canthus short, ratio length of ocular canthus/ ocular diameter: < 0.33 ...

– Ocular canthus long, ratio length of ocular canthus/ ocular diameter: > 0.42 ....
13 Apophysis of phallobasis long, exceeding the parameres in length (Fig. 3 M–O).............................. *G. fanjingensis* Ahrens, 2000
– Apophysis of phallobasis very short, distinctly shorter than the parameres (Fig. 4 D–F).............................. *G. nikodymi* Ahrens, 2000

14 Metatibia externally along the middle very densely and coarsely punctate. Metatasomere 1 slightly shorter than the two following tarsomeres combined. Colour of pronotum and elytra yellowish brown, sometimes with dark spots ............................................................... *G. asuleata* Ahrens, 2000
– Metatibia externally along the middle with moderately to feebly punctate. Metatasomere 1 distinctly longer than the two following tarsomeres combined. Colour of pronotum and elytra dark brown................................. 15

15 Pronotum with two black spots on the disc. Dorsal part of left paramere strongly bent (Fig. 4 J–L)................... *G. guangdongensis* Ahrens, 2000
– Pronotum without spots on the disc. Dorsal part of left paramere slightly bent or straight ............................................................................................................. 16

16 Frontoclypeal suture indistinctly impressed. Phallobase with a wider right paramere (Fig. 4 M–O)...................... *G. guizhouana* Ahrens, 2000
– Frontoclypeal suture distinctly impressed. Phallobase with a more slender right paramere (Fig. 3 P–O).... *G. shaanxiana* Ahrens & Pacholátko, 2003

17 Even intervals of elytra black, but behind the middle, all the intervals black, with two brown spots at the apex of elytra. Interior apical angle of elytra with a strong seta (Fig. 1 J). Apex of right paramere sharp (Fig. 1 A–C) ....................
................................................................................................................. *G. yunnanensis* sp. n.
– Only the intervals next to the edge of elytra brown to black, without spots at the apex of elytra. Interior apical angle of elytra without strong setae. Apex of right paramere blunt (Fig. 4 G–I) ......................... *G. bilyi* Ahrens, 2000

18 Left and right parameres fused ventrally (Fig. 2 M–O)........................................................................... *G. marginalis* (Brenske, 1897)
– Left and right parameres separated........................................................................ 19

19 Dorsal lobe of left paramere strongly curved ventrally. Apex of phallobasis with a short pointed apophysis at right side (Fig. 1 D–F)............................... *G. nigrofasciata* sp. n.
– Dorsal lobe of left paramere short and straight, strongly curved ventrally. Apex of phallobasis without a short apophysis at right side (Fig. 3 D–F)....... *G. yingi* Ahrens & Pacholátko, 2007

**Gastroserica yunnanensis** Liu, Ahrens, Bai & Yang sp. n.
urn:lsid:zoobank.org:act:7385F187-5998-41D6-98BE-2331467C7D02
http://species-id.net/wiki/Gastroserica_yunnanensis

**Type material.** Holotype: 1♂“Caiyang River Nature Preserve, Pu’er, Yunnan, 28–29.8.2007, Shi Lei leg.” (LSSYU). Paratypes (1♂+1 ♀): 1♂”Caiyang River Nature Pre-
A key to species of the genus Gastroserica Brenske of the China ... serve, Pu’er, Yunnan, 28–29.8.2007, Shi Lei leg.” (LSSYU); 1 ♀ ”Caiyang River Nature Preserve, Yunnan, 28–29.8.2007, Li Jiahui leg.” (LSSYU).

**Description.** Length: 6.0–7.0 mm, length of elytra: 4.5–5 mm, width: 3.5–4.0 mm. Body oval, elytra brown, dorsal surface pale yellow to pale brown, densely covered with short, fine, adpressed setae and with moderately dense, long, erect setae interspersed, abdominal sternites dark brown to black. (Fig. 1 G)

Labroclypeus subrectangular and short, widest before apex, lateral margins straight, nearly parallel to each other and weakly convergent toward base, anterior angles broadly rounded, lateral border and ocular canthus produced into a distinct obtuse angle, anterior margin weakly reflexed, straight, surface weakly convex medially and moderately shiny, very coarsely and sparsely punctate, with several long, erect setae; frontoclypeal suture distinctly impressed and moderately curved, smooth area
Figure 2. A–C Gastroserica asulcata Ahrens, 2000 D–F G. hubeiana Ahrens, 2000 G–I G. sichuanana Ahrens, 2000 J–L G. kuceraei Ahrens & Pacholátko, 2003 M–O G. marginalis (Brenske, 1897) P–R G. impressicollis (Fairmaire, 1891). A, D, G, J, M, P aedeagus, left side lateral view B, E, H, K, N, Q paramere, dorsal view C, F, I, L, O, R – aedeagus, right side lateral view. Scale bar=1mm.
Figure 3. A–C Gastroserica herzi (Heyden, 1887) D–F G. yingi Ahrens & Pacholátko, 2007 G–I G. sulcata Brenske, 1897 J–L G. haucki Ahrens, 2000 M–O G. fanjingensis Ahrens, 2000 P–R G. shaanxiana Ahrens & Pacholátko, 2003. A, D, G, J, M, P aedeagus, left side lateral view B, E, H, K, N, Q paramere, dorsal view C, F, I, L, O, R aedeagus, right side lateral view. Scale bar=1mm. (P–R from Ahrens and Pacholátko 2003)
in front of eye slightly wider than long (1.5/1); ocular canthus moderately short and slender, finely and densely punctate. Frons completely black or only the part near the posterior portion brown, other parts of frons black, with coarse, dense punctures, with fine punctures irregularly interspersed, densely erectly setose. Eyes moderately large, ratio of diameter/ interocular width: 0.6. Antenna yellow, club yellow to brown, with ten antennomeres club with four antennomeres equal in length, the length of club a little longer than the remaining antennomeres combined. Mentum strongly elevated and flattened anteriorly.
Pronotum subrectangular, widest at anterior third, lateral margins strongly convergent anteriorly, before posterior angles weakly sinuate, anterior angles not produced and strongly rounded, almost obsolete, posterior angles moderately blunt and moderately produced outward, anterior margin almost straight, with a distinct and fine marginal line, basal margin moderately curved without marginal line, but two weak impressions at a quarter to the lateral margins; surface with moderately dense and fine punctures, with numerous minute setae, which are bent backwards, with a longitudinal, straight, brown line in the middle and two black spots at sides of the disc; anterior and lateral borders setaceous; basal margin of hypomeron strongly produced ventrally, before base distinctly transversely sulcate. Scutellum nearly triangular, apex weakly rounded, with fine and dense punctures, medially smooth and weakly elevated, minute setae present in the punctures.

Elytra oblong, widest at middle, striae distinctly impressed and finely densely punctate, intervals weakly convex, with fine and sparse punctures that are almost concentrated along the striae, minutely setose in the punctures, odd intervals with single coarse punctures bearing each a strong erect seta, near the anterior margin, even intervals black, but behind the middle, all intervals black, with two brown spots at the apex of elytra; epipleural edge moderately strong, ending at the strongly convex external apical angle of elytra, epipleura densely setaceous, apical border chitinous, without short microtrichomes.

Ventral surface dull, with large and dense punctures, with dense, short setae, setae adpressed, metacoxa partly glabrous, laterally with fine adpressed setae, each abdominal sternite with an indistinct transversal row of coarse punctures bearing a short, strong seta between fine and dense punctation, all sternites with fine, short setae. Mesosternum between mesocoxae almost as wide as mesofemur, with numerous strong setae. Ratio of length of metepisternum/ metacoxa: 1/1.82. Pygidium long, apically produced and strongly convex, with fine and dense punctures bearing fine setae and a few robust punctures bearing robust setae, without smooth midline.

Legs pale yellow to brown, moderately slender and shiny; femora finely densely punctate and setose, with two longitudinal rows of setae; anterior edge of metafemur acute, lacking an adjacent serrated line, posterior margin weakly convex, with a few fine setae medially, ventrally weakly widened in apical half but not serrate, dorsally serrate, with short setae. Metatibia moderately broad, at middle convexly widened, ratio width/ length: 1/3.4, dorsally sharply carinate, with two groups of spines, the basal group at one third, apical one at two third of metatibia length, basally with a few single spines in punctures; lateral face longitudinally convex, with dense and moderately coarse punctures, some of them longitudinally impressed, ventral edge serrated, medial face not punctate and smooth, apex interiorly near tarsal articulation sharply truncate. Tarsomeres dorsally glabrous and finely punctate, ventrally with sparse, short setae, metatarsomeres dorsally with strong longitudinal impressions, ventrally with a strongly serrated ridge, laterally with a strong longitudinal carina, first metatarsomere as long as the following two tarsomeres combined and twice as long as the upper tibia spur. Protibia short, bidentate, protarsal claws symmetrical.
Aedeagus. Fig. 1 A–C.

Variation. Smooth area in front of eye wider than long (the rate from 1.5/1 to 1.7/1). Ratio of eye diameter / interocular width: (0.60–0.62). There are no brown spots at the end of elytra in some specimens, and after the middle, the odd intervals are still brown. Ratio of length of metepisternum/ metacoxa: (0.43–0.55).

Diagnosis. *Gastroserica yunnanensis* sp. n. is very similar to *G. bilyi* Ahrens, 2000, in shape of male genitalia and habitus. It maybe differentiated from *G. bilyi* by two brown spots at the end of elytra and sharp apex of right paramere.

Derivatio nominis. Named according to its provenience from Yunnan.

Distribution. Fig. 5.

### *Gastroserica nigrofasciata* Liu, Ahrens, Bai & Yang sp. n.

urn:lsid:zoobank.org:act:2957A427-53AC-49A4-87E3-9FF333BF5D03
http://species-id.net/wiki/Gastroserica_nigrofasciata

Type material. Holotype: 1♂”Mt. Tianping Shan, Longsheng, Guangxi, 740 m, 9.6.1963, Wang Shuyong leg.” (IZAS). Paratypes (1♂+5♀): 1♂”Hongmaochong, Longsheng, Guangxi, 900 m, 10.6.1963, Shi Yongshan leg.” (ZFMK); 1♀” Hongmaochong, Longsheng, Guangxi, 900 m, 10.6.1963, Shi Yongshan leg.” (ZFMK); 1♀” Hongmaochong, Longsheng, Guangxi, 900 m, 10.6.1963, Wang Shuyong leg.” (IZAS); 1♀”Mt. Tianping Shan, Longsheng, Guangxi, 740 m, 4.6.1963, Wang Shuyong leg.” (IZAS); 1♀”Neicu River, Longsheng, Guangxi, 840 m, 7.6.1963, Wang Shuyong leg.” (IZAS); 1♀”Mt. Fanjing Shan, Jiangkou, Guizhou, 530 m, 12.7.1988, Wang Shuyong leg.” (IZAS).

Description. Length: 5.6–8.0 mm, length of elytra: 4.1–5.1 mm, width: 3.2–4.1 mm. Body oval, elytra and dorsal surface both yellow, densely covered with short, fine adpressed setae and with moderately dense, long, erect setae interspersed (Fig. 1 H).

Labroclypeus subrectangular and short, widest at base, lateral margins straight and moderately divergent from anterior angles to base, anterior angles broadly rounded, lateral border and ocular canthus produced into a distinct obtuse angle, anterior margin weakly reflexed, straight, surface weakly convex medially and moderately shiny, very coarsely and sparsely punctate, with several long, erect setae; frontoclypeal suture distinctly impressed and strongly curved, smooth area in front of eye distinctly wider than long (1.8/1); ocular canthus moderately short and strong, finely and densely punctate. Frons with coarse, dense punctures, with fine punctures irregularly interspersed, densely erectedly setose. Eyes moderately large, ratio of diameter/ interocular width: 0.63. Antenna brown, with ten antennomeres, club in male with four antennomeres, first joint of club slight shorter than the others, club slightly longer than the remaining antennomeres combined. Mentum elevated and flated anteriorly.

Pronotum rectangular, widest at half of length, lateral margins strongly convergent anteriorly, before posterior angles weakly sinuate, anterior angles not produced and
strongly rounded, almost obsolete, posterior angles moderately blunt and weakly produced outward, anterior margin almost straight, with a distinct and fine marginal line, basal margin moderately curved without marginal line, and two weak impressions at quarter of width to the lateral margins; surface with moderately dense and fine punctures, with numerous minute setae, which are bent backwards and two black spots at the middle, along the middle weakly medially impressed, with a weakly elevated transverse carina behind the middle; anterior and lateral borders setaceous; basal margin of hypomeron strongly produced ventrally, before base distinctly transversely sulcate.

Figure 5. The distribution records of *Gastroserica yunnanensis*, *G. nigrofasciata*, *G. bilyi*, *G. haucki*, *G. sichuanana* and *G. fanjingensis* from China.
Scutellum nearly triangular, apex weakly rounded, with fine and dense punctures, medially smooth, minute setae present in the punctures.

Elytra oblong, widest at middle, striae distinctly impressed and finely densely punctate, intervals weakly convex, with fine and sparse punctures that are almost concentrated along the striae, minutely setose in the punctures, odd intervals with single coarse punctures bearing each a strong erect seta, even intervals brown to black; epipleural edge moderately strong, ending at the strongly convex external apical angle of elytra, epipleura densely setaceous, apical border chitinous, without short microtrichomes.

Ventral surface dull, with large and dense punctures and dense short setae, setae adpressed, metacoxa partly glabrous, laterally with fine adpressed setae, each abdominal sternite with indistinct transversal row of coarse punctures bearing each a short strong seta between fine and dense punctation, all sternites with fine, short setae. Mesosternum between mesocoxae almost as wide as mesofemur, with numerous strong setae. Ratio of length of metepisternum/ metacoxa: 1/ 2.0. Pygidium long, apically produced and strongly convex, with fine and dense punctures bearing fine setae and a few robust punctures bearing each a robust seta, without smooth midline.

Legs pale yellow to yellow brown, moderately slender and shiny, femora finely densely punctate and setose, with two longitudinal rows of setae; anterior edge of metafemur acute, lacking an adjacent serrated line, posterior margin weakly convex, with a few fine setae medially, ventrally weakly widened in apical half but not serrate, dorsally serrate, with short setae. Metatibia moderately broad, at middle convexly widened, ratio width/ length: 1/ 3.2, dorsally sharply carinate, with two groups of spines, the basal group at one third, apical one at two third of metatibial length, basally with a few single spines in punctures; lateral face longitudinally convex, with dense and moderately coarse punctures, some of them longitudinally impressed, ventral edge serrated; medial face not punctate and smooth, apex interiorly near tarsal articulation sharply truncate. Tarsomeres dorsally glabrous and finely punctate, ventrally with sparse, short setae, metatarsomeres dorsally with strong longitudinal impressions, ventrally with a strongly serrated ridge, laterally with a strong longitudinal carina, first metatarsomere as long as the following two tarsomeres combined and twice as long as the upper tibia spur. Protibia short, bidentate, protarsal claws symmetrical.

**Aedeagus.** Fig.1 D–F.

**Variation.** Smooth area in front of eye wider than long (the rate from 1.8/1 to 2.0/1). Eyes weakly large, ratio of diameter/ interocular width: (0.60–0.67). Club a little shorter than the remaining antennomeres combined in female. Elytra from yellow to brown, with greenish metallic shine. Three intervals next to the lateral margins of elytra sometimes black. Ratio of length of metepisternum/ metacoxa: (1/ 1.82–2.).

**Diagnosis.** *Gastroserica nigrofasciata* sp. n. is in habitus very similar to *G. marginalis* (Brenske, 1897). It maybe differentiated from *G. marginalis* by the colour of elytra and dorsal surface, the presence of two long lateral apophyses at the apex of phallobasis, and the shape of parameres.
Derivatio nominis. From the Latin words “nigro-” and “fasciata” meaning black stripes.

Distribution. Fig.5.

New locality records

**Gastroserica bilyi** Ahrens, 2000
http://species-id.net/wiki/Gastroserica_bilyi

_Gastroserica bilyi_ Ahrens, 2000: 113.

Material examined. 1♂”Meng’a, Xishuangbanna, Yunnan, 1050 m, 20.5.1958, Pu Fuji leg.” (IZAS).

Notes. This is a new record for China, the species was so far known only from Thailand and Laos.

Distribution. Fig.5.

**Gastroserica haucki** Ahrens, 2000
http://species-id.net/wiki/Gastroserica_haucki

_Gastroserica haucki_ Ahrens, 2000: 110.

Material examined. 2♂♂”Menghun, Xishuangbanna, Yunnan, 1200–1400 m, 22.5.1958, Zhang Yiran leg.”(IZAS); 2♀” Menghun, Xishuangbanna, Yunnan, 1200–1400 m, 22.5.1958, Zhang Yiran leg.”(IZAS); 1♀”Menghun, Xishuangbanna, Yunnan, 1200–1400 m, 21.5.1958, Meng Xuwu leg.”(IZAS).

Notes. This is a new record for China, the species was so far known only from Thailand and Laos.

Distribution. Fig.5.

**Gastroserica herzi** (Heyden, 1887)
http://species-id.net/wiki/Gastroserica_herzi

_Serica herzi_ Heyden, 1887: 264.
Microserica hertzi: Reitter 1896: 186.
_Gastroserica herzi:_ Brenske 1897: 414; Ahrens 2000: 99.

Material examined. China: 3♂♂”Huangkeng’aotou, Jianyang, Fujian, 800–950m, 5.5.1960, Pu Fuji leg.” (IZAS); 1♂”San’gang, Chong’anxingcun, Fujian, 750m, 26.5.1960, Jiang Shengqiao leg.” (IZAS); 1♂, 1♀ ”Kuatun, Fukien China, 14.5.1946,
leg. Tschung-Sen/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 1♂, 1♀ “Kuatun, Fukien China, 15.5.1946, leg. Tschung-Sen/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 1♂ “Kuatun, Fukien China, 16.5.1946, leg. Tschung-Sen/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 2♂♀ “Kuatun (2300m) 27,40n. Br. 117,40o.L. J. Klapperich 8.5.1938, (Fukien)/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 1♀ “Kuatun (2300m) 27,40n. Br. 117,40o.L. J. Klapperich 10.5.1938, (Fukien)/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 1♀ “Kuatun (2300m) 27,40n. Br. 117,40o.L. J. Klapperich 12.5.1938, (Fukien)/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 1♂ “Kuatun (2300m) 27,40n. Br. 117,40o.L. J. Klapperich 13.5.1938, (Fukien)/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 1♂ “Kuatun (2300m) 27,40n. Br. 117,40o.L. J. Klapperich 25.5.1938, (Fukien)/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 1♀ “Kuatun (2300m) 27,40n. Br. 117,40o.L. J. Klapperich 26.5.1938, (Fukien)/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 1♀ “Kuatun (2300m) 27,40n. Br. 117,40o.L. J. Klapperich 1.6.1938, (Fukien)/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 1♂ “Kuatun (2300m) 27,40n. Br. 117,40o.L. J. Klapperich 8.6.1938, (Fukien)/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 2♂♀ “Kuatun, (2300 m) 27,40 n. Br. 117,40 o.L. J. Klapperich 11.4.1938, (Fukien)/ ex coll. V. Balthasar National Museum Prague, Czech Republic” (NMPC), 2♂♀ “Mt. Tianmu Shan, Zhejiang, 190m, 12.6.1936, O. Piel leg.” (IZAS); 2♂♂ “E Mt. Tianmu Shan, Zhejiang, 190m, 12.6.1936, collector unknown.” (IZAS); 1♂ “Lingtian, Lingchuan, Guangxi, 200m, 6.6.1984, Li Yuehua leg.” (IZAS); 1♂ “Jinzhong Roud, Jinxu, Guangxi, 1100m, 10.5.1999, Xiao Hui leg.” (IZAS); 1♂ “Shiping, Fengdu, Sichuan, 610m, 3.6.1994, Yao Jian leg.” (IZAS); 1♂ “Cangyuan, Yunnan, 990m, 16.5.1980, Shang Jiwon leg.” (IZAS); 1♂ “Jianfengling, Hainan, 610m, 21.4.1983, Gu Maobin leg.” (IZAS); 1♀ “Shiping, Fengdu, Sichuan, 610m, 2.6.1994, Li Wenzhu leg.” (IZAS); 1♀ “Lingtian, Lingchuan, Guangxi, 200m, 6.6.1984, Li Wenzhu leg.” (IZAS); 1♀ “Lingtian, Lingchuan, Guangxi, 200m, 6.6.1984, Wang Jizhen leg.” (IZAS); 1♀ “Lingtian, Lingchuan, Guangxi, 200m, 6.6.1984, Luo Guifen? leg.” (IZAS); 2♀ “Mt. Tianmu Shan, Zhejiang, 190m, 12.6.1936, O. Piel leg.” (IZAS); 2♀ “Mt. Leigong Shan, Leishan, Guangxi, 200m, 6.6.1984, Li Wenzhu leg.” (IZAS); 1♀ “Lingtian, Lingchuan, Guangxi, 200m, 6.6.1984, Li Wenzhu leg.” (IZAS); 1♀ “Mt. Tianmu Shan, Zhejiang, 190m, 12.6.1936, O. Piel leg.” (IZAS); 2♀ “Mt. Leigong Shan, Leishan, Guizhou, 1550m, 30.6.1988, Wang Shuyong leg.” (IZAS); 1♀ “Mt. Tianping Shan, Longsheng, Guangxi, 740m, 4.6.1963, Wang Shuyong leg.” (IZAS); 1♀ “Neicu Jiang River, Longsheng, Guangxi, 840m, 7.6.1963, Wang Shuyong leg.” (IZAS); 1♀ “Mt. Fanjing Shan, Jiangkou, Guizhou, 530m, 12.7.1988, Wang Shuyong leg.” (IZAS). S. Korea: 1♂ “6.7.2010 Mudeungsan, Gwangju (Südkorea) leg. T. Kölkebeck” (ZFMK), 1♂ “8.7.2010 Mudeungsan, Gwangju (Südkorea) leg. T. Kölkebeck” (ZFMK), 3♂♀ “27.6.2010 Beomeosa, Busan (Südkorea) leg. T. Kölkebeck” (ZFMK), 2♂♀ “24.6.2010 Gwanggyosan, Suwon (Südkorea) leg. T. Kölkebeck” (ZFMK), 1♂ “23.6.2010 Suri-san, Gunpo-si, Geonggi-do (Südkorea) leg. T. Kölkebeck” (ZFMK), 1♀ “1.7.2010 Suri-san/ Ansan, Seoul (Südkorea) leg. T. Kölkebeck” (ZFMK), 1♂ “10.7.2010 Suri-san/ Ansan, Seoul (Südkorea) leg. T. Kölkebeck” (ZFMK).

Distribution. Fig. 7.
Gastroserica sichuana Ahrens, 2000
http://species-id.net/wiki/Gastroserica_sichuana

Gastroserica sichuana Ahrens, 2000: 95.

**Material examined.** 1♂”Baoguosi, Mt. Emei Shan, Sichuan, 550–750m, 2.5.1957, Wang Zongyuan leg.” (IZAS); 1♂”Shiping, Fengdu, Sichuan, 610m, 3.6.1994, Li Wenzhu leg.” (IZAS); 2♀♂”Shiping, Fengdu, Sichuan, 610m, 2–3.6.1994, Zhang Youwei leg.” (IZAS); 1♀”Nammuyuan, Changshou, Sichuan, 450m, 9.6.1994, Zhang Youwei leg.” (IZAS); 3♀♂”Mt. Emei Shan, Sichuan, 800–1000m, 9–10.5.1957, Wang Zongyuan leg.” (IZAS); 1♀”Qiaoting, Wanxian, Sichuan, 1300m, 27.6.1974, Han Yinheng leg.” (IZAS).

**Distribution.** Fig.5.

Gastroserica fanjingensis Ahrens, 2000
http://species-id.net/wiki/Gastroserica_fanjingensis

Gastroserica fanjingensis Ahrens, 2000: 104.

**Material examined.** 2♂♂”Huawangshanzhuang, Jinxiu, Guangxi, 600m, 20.5.1999, Li Wenzhu leg.” (IZAS); 1♂”Huawangshanzhuang, Jinxiu, Guangxi, 600m, 20.5.1999, Xiao Hui leg.” (IZAS); 1♂”Huawangshanzhuang, Jinxiu, Guangxi, 600m, 20.5.1999, Yang Xingke leg.” (IZAS); 2♂♂”Mt. Tianping Shan, Longsheng, Guangxi, 740m, 4.6.1963, Wang Chunguang leg.” (IZAS); 1♂+1♀”Taiyuan, Pengshui, Sichuan, 800m, 12.7.1989, Yang Longlong leg.” (IZAS); 1♂”Mt. Fanjing Shan, Jiangkou, Guizhou, 530m, 12.7.1988, Wang Shuyong leg.” (IZAS); 2♀♂”Huawangshanzhuang, Jinxiu, Guangxi, 600m, 20.5.1999, Xiao Hui leg.” (IZAS); 1♀”Huawangshanzhuang, Jinxiu, Guangxi, 600m, 20.5.1999, Yang Xingke leg.” (IZAS).

**Distribution.** Fig.5.

Gastroserica yingi Ahrens, 2007
http://species-id.net/wiki/Gastroserica_yingi

Gastroserica yingi Ahrens, 2007: 137.

**Material examined.** 1♂”Mengzhe, Xishuangbanna, Yunnan, 1200m, 15.6.1958, Wang Shuyong leg.” (IZAS); 4♂♂”Mt. Tianping Shan, Longsheng, Guangxi, 740m, 4–5.6.1963, Wang Shuyong, Shi Yongshan, Wang Chunguang leg.” (IZAS); 1♀”Mengzhe, Xishuangbanna, Yunnan, 1200m, 15.6.1958, Wang Shuyong leg.” (IZAS).

**Distribution.** Fig.6.
Figure 6. The distribution records of *Gastroserica guizhouana*, *G. nikodymi*, *G. bicolor*, *G. angustula*, *G. impressicollis* and *G. yingi* from China.

**Gastroserica sulcata** Brenske, 1897
http://species-id.net/wiki/Gastroserica_sulcata

*Gastroserica sulcata* Brenske, 1897: 414.

**Material examined.** 1♂”Mt. Tianping Shan, Longsheng, Guangxi, 740m, 4.6.1963, Wang Shuyong leg.” (IZAS); 1♂”Mt. Tianping Shan, Longsheng, Guangxi, 740m,
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**Gastroserica kucerai** Ahrens & Pacholátko, 2003
http://species-id.net/wiki/Gastroserica_kucerai

_Gastroserica kucerai_ Ahrens & Pacholátko, 2003: 2.

**Material examined.** 3♂♀"Tianshidong, Mt. Qingcheng Shan, Sichuan, 1000m, 5.6.1979, Gao Ping leg." (IZAS); 1♂"Qinghe Tree Farm, Kangxian, Gansu, 1400m, 8.7.1999, Yao Jian leg." (IZAS); 3♀♀"Shiping, Fengdu, Sichuan, 610m, 3.6.1994, Yang Xingke leg." (IZAS); 2♀♀"Shiping, Fengdu, Sichuan, 610m, 3.6.1994, Zhang Youwei leg." (IZAS); 1♀"Longmenhe River, Xingshan, Hubei, 1350m, 14.7.1999, Chen Xiaolin leg." (IZAS).

**Distribution.** Fig.7.

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**Gastroserica impressicollis** (Fairmaire, 1891)
http://species-id.net/wiki/Gastroserica_impressicollis

_Serica impressicollis_ Fairmaire, 1891: 196.
_Gastroserica impressicollis_: Brenske 1897: 412, 416; Ahrens 2000: 97.

**Material examined.** 8♂♀"Ku-ling, Jiangxi, 7–8.7.1935, O.Piel leg." (IZAS); 2♂♂"Mt. Tianmu Shan, Zhejiang, 10–17.7.1935, O.Piel leg." (IZAS); 1♂"Qingyin’ge, Mt. Emei Shan, Sichuan, 800–1000m, 11.6.1957, Lu Youcai leg." (IZAS); 1♂"Qiaoting, Wanxian, Sichuan, 1300m, 27.6.1974, Han Yinheng leg." (IZAS); 4♀♀"Baiyan, Longsheng, Guangxi, 1150m, 21.6.1963, Shi Yongshan leg." (IZAS).

**Distribution.** Fig. 6.

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**Gastroserica hubeiana** Ahrens, 2000
http://species-id.net/wiki/Gastroserica_hubeiana

_Gastroserica hubeiana_ Ahrens, 2000: 94.

**Material examined.** 2♂♀"Longmenhe River, Xingshan, Hubei, 1300m, 10.5.1994, Zhang Youwei leg." (IZAS); 1♂"Xinmaopeng, Mt. Tianmu Shan, Zhejiang, 1300m, 28.6.1957, collector unknown." (IZAS); 1♂"Qingyin’ge, Mt. Emei Shan, Sichuan, 800–1000m, 28.5. 1957, Wang Zongyuan leg." (IZAS).

**Distribution.** Fig. 8.
Figure 8. The distribution records of *Gastroserica shaanxiana*, *G. marginalis*, *G. asulcata*, *G. hubeiana* and *G. sulcata* from China.
Gastroserica guangdongensis Ahrens, 2000
http://species-id.net/wiki/Gastroserica_guangdongensis

Gastroserica guangdongensis Ahrens, 2000: 90.

Material examined. 2♂♂”Neicu Jiang River, Longsheng, Guangxi, 840m, 6.6.1963, Wang Shuyong leg.” (IZAS); 3♂♂”Mt. Tianping Shan, Longsheng, Guangxi, 740m, 4.6.1963, Shi Yongshan leg.” (IZAS); 1♂”Tongmu, Mt. Wuyi Shan, Fujian, 610m, 10.6.2001, Ge Siqin leg.” (IZAS).

Distribution. Fig. 7.

Gastroserica asulcata Ahrens, 2000
http://species-id.net/wiki/Gastroserica_asulcata

Gastroserica asulcata Ahrens, 2000: 79.

Material examined. 2♂♂”Sanmen, Longsheng, Guangxi, 300m, 26.6.1963, Wang Chunguang leg.” (IZAS); 1♂”Taojiang River, Leishan, Guizhou, 1000m, 7.7.1988, Huang Fusheng leg.” (IZAS); 1♂”Taojiang River, Leishan, Guizhou, 1000m, 5.7.1988, Yang Longlong leg.” (IZAS); 1♂”Tianshidong, Mt. Qingcheng Shan, Sichuan, 1000m, 2.6.1979, Gao Ping leg.” (IZAS).

Distribution. Fig. 8.

Gastroserica marginalis (Brenske, 1894)
http://species-id.net/wiki/Gastroserica_marginalis

Serica marginalis Brenske, 1894 : 10.
Gastroserica marginalis var. puncticollis Brenske, 1897: 413. Synonymized by Moser 1908: 331.
Gastroserica marginalis: Brenske 1897: 413; Ahrens 2000: 75.

Material examined. 1♂”Shiping, Fengdu, Sichuan, 610m, 2.6.1994, Zhang Youwei leg.” (IZAS); 1♂”Nanmuyuan, Changshou, Sichuan, 450m, 9.6.1994, Li Wenzhu leg.” (IZAS); 1♂”Mt. Jiulian Shan, Jiangxi, 21.6.1975, Huang Fusheng leg.” (IZAS); 1♂”Mt. Jianfengling, Hainan, 8.4.1983, Gu Maobin leg.” (IZAS); 2♂♂”Xinmaopeng, Mt. Tianmu Shan, Zhejiang, 28.6.1957, Gu Maobin leg.” (IZAS); 1♂”Taoyuandong Nature Reserve, Yanling, Hunan, 631m, 5.7.2008, Yang Ganyan leg.” (IZAS); 1♂”Luoxiang, Jinxiu, Guangxi, 450m, 30.6.2000, Li Wenzhu leg.” (IZAS); 1♂”Mt. Tianjing Shan, Ruyuan, Guangdong, 18.6.1974, Chen Guanren leg. En-045835” (LSSYU); 1♂”Mt. Chebaling Shan, Shixing, Guang-
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dong, 1000m, 26.1.1991, Wen Ruizhen leg. En-045872” (LSSYU); 2♀♂”Shiping, Fengdu, Sichuan, 610m, 2–3.6.1994, Zhang Youwei leg.” (IZAS); 1♀”Mt. Longxi Shan, Jiangle, Fujian, 26.6.1991, Yang Longlong leg.” (IZAS); 1♀”Wanfeng, Wulong, Hubei, 800m, 7.7.1989, Zhang Xiaochun leg.” (IZAS).

Distribution. Fig. 8.

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References

Ahrens D (2000) Synopsis der Gattung Gastroserica Brenske, 1897 des ostasiatischen Festlandes (Coleoptera: Melolonthidae: Sericini). Entomologische Abhandlungen des Staatlichen Museums für Tierkunde Dresden 59(3): 73–121.
Ahrens D (2002) Eine neue Art der Gattung Gastroserica Brenske, 1897 aus dem nördlichen Vietnam (Coleoptera: Melolonthidae: Sericini). Entomologische Zeitschrift 112(3): 66–67.
Ahrens D (2007) Two new species of Gastroserica Brenske, 1897 from China and Myanmar (Coleoptera: Scarabaeidae, Sericini). Entomologische Zeitschrift, 117(3): 137–139.
Ahrens D, Pacholátko P (2003) New data on distribution of the species of Gastroserica Brenske, 1897, with description of new taxa from China and Laos (Coleoptera: Scarabaeidae: Sericini). Zootaxa 342: 1–18
Brenske E (1894) Die Melolonthiden der paläarktischen und orientalischen Region im Königlichen naturhistorischen Museum zu Brüssel. Beschreibung neuer Arten und Bemerkung zu bekannten. Mémoires de la Société Entomologique de Belgique 2: 3–87.
Brenske E (1897) Die Serica-Arten der Erde. I. Berliner Entomologische Zeitschrift 42: 345–438. doi: 10.1002/mmnd.18970420310
Dalla Torre KW (1912) Fam. Scarabaeidae. Subfam. Melolonthinaceae 1. Coleopterorum Catalogus 20 (45): 1–84.
Fairmaire ML (1891) Coléoptères de l’intérieur de la Chine (7). Annales de la Société Entomologique de Belgique 35: 187–219.
Heyden LV (1887) Verzeichnis der von Otto Herz auf der chinesichen Halbinsel Korea in Tonkin gesammelten Melolonthiden. Annales de la Société Entomologique de Belgique 52: 325–343.

Moser J (1908) Verzeichnis der von H. Fruhstorfer in Tonkin gesammelten Melolonthiden. Annales de la Société Entomologique de Belgique 52: 325–343.

Nomura S (1974) On the Sericini of Taiwan. Toho-Gakuho 24: 81–115.

Reitter E (1896) Uebersicht der mir bekannten palaearktischen, mit der Coleopteren-Gattung *Serica* verwandten Coleopteren. Horae Societatis Entomologica Rossicae 21: 243–273.