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Further new *Stenus* LATREILLE from Taiwan (Coleoptera, Staphylinidae) 329th Contribution to the Knowledge of Steninae

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A b s t r a c t : 4 new species of the genus *Stenus* LATREILLE 1797 are described from Taiwan: *Stenus aspriformis* nov.sp., *S. aspripennis* nov.sp., *S. asprisculptus* nov.sp., *S. asprivestis* nov.sp.

K e y w o r d s : Coleoptera, Staphylinidae, Taiwan, Oriental region, taxonomy, *Stenus*, new species.

Introduction

Recently I found a sample of *Stenus* from Taiwan, which were not included in the revision of the non-spotted Taiwanese *Stenus* (PUTHZ 2012). The sample contains four new very closely related mountainous species, which are described here.

Material and methods

Most of the material referred to below, including the holotypes, is deposited in the private collection of Aleš Smetana (Ottawa).

The morphological studies were carried out using a stereoscopic microscope (Leitz) and a Carl Zeiss compound microscope. A digital camera (Nikon Coolpix 995) was used for the photographs. Measurements have been taken through the binocular (1 unit = 0.025 mm). The genitalia are embedded in Euparal (soluble in alc. abs.).

The following acronyms are used

- cP collection V. Puthz (Staatliches Museum für Tierkunde, Stuttgart)
DE average distance between eyes
EL greatest length of elytra
EW greatest width of elytra
HT holotype
HW head width
LS length of sternite

- PLpronotal length
 PMproportional measurements (1 unit = 0,025 mm)
 PT/Tparatype/s
 PWpronotal width
 SLsutural length of elytra.

Taxonomic results

Stenus aspripennis nov.sp. (Figs 1, 6, 8, 9)

Type material: Holotype (δ) and 2 δ -paratypes: TAIWAN: Nantou Hsien, Houhuanshan Kuenyang, 3050m, 27.IV.1990, A. Smetana (T 29); 2 φ -paratypes: ibidem, 28.IV.1990, ibidem (T 30). - HT and PTT in coll. A. Smetana (Ottawa), 1 PT in cP.

Description: Brachypterous, black with a slight brownish hue, moderately shiny, head and pronotum coarsely and very densely punctate, elytra very coarsely, irregularly punctate, pronotum and elytra with many impressions, abdomen moderately coarsely (anteriorly) to finely (posteriorly), moderately densely punctate; pubescence very short, nearly imperceptible. Segment 1 of maxillary palpi yellow, segment 2 yellowish brown, segment 3 brown. Antennae dark brown. Legs chestnut-brown, posterior half of tibiae and tarsi dark brown. Clypeus black, labrum dark brown, scarcely pubescent.

Length: 3.4-3.6mm (forebody: 1.8-1.9mm).

PM of the HT: HW: 34.7; DE: 19; PW: 27; PL: 28; EW: 36; EL: 31; SL: 23.

Male: Femora clubbed, tibiae simple. Metasternum broadly and shallowly impressed, moderately coarsely, sparsely punctate, interstices deeply reticulate (fig. 8). Sternite 3 with a shallow median impression, which is sparser punctate than the sides of the sternite; sternite 4 with a broad and shallow posteromedian impression, also sparser punctate medially, sternites 5 and 6 with very broad and deep median impressions, the side of which are carinated and divergent posteriad, those of sternite 6 projecting posteriorly, punctuation and pubescence of impressions very fine and extremely dense, posterior margins broadly emarginated; sternite 7 in proximal half with a broad median impression, which becomes shallower posteriad, densely punctate and pubescent. Sternite 8 with a moderately narrow notch in about posterior fifth of the sternite. Sternite 9 acute apicolaterally. Tergite 10 broadly rounded at posterior margin. Aedeagus (fig. 1), apical portion of median lobe triangularly narrowed, expulsion hooks connected medially; parameres slightly longer than median lobe, narrowed apically, with 11 long setae in apical third.

Female: Metasternum also sparsely punctate (fig. 9). Sternite 8 obtusely-angled at posterior margin. Valvifer acute apicolaterally. Tergite 10 broadly rounded at posterior margin. Spermatheca (fig. 6), infundibulum short and broad.

Head slightly broader than elytra, frons broad with deep longitudinal furrows, median portion as broad as each of the side portions, strongly elevated like a longitudinal bump and (nearly) impunctate; punctuation of the side portions coarse and very dense, diameter of punctures about as large as median cross section of antennal segment 3, interstices much smaller than half diameter of punctures. Antennae moderately slender, when

reflexed extending towards the posterior quarter of pronotum, penultimate segments 1/3 longer than broad. Pronotum slightly longer than broad, sides in anterior 2/3 strongly convex, posteriorly strongly concave; surface very uneven: a strong impunctate median impression in about anterior middle, several deep, punctate impressions on each side; punctuation coarse, dense and irregular, rarely confluent at places, diameter of punctures between largest cross section of antennal segment 3 and apical cross section of antennal segment 2, interstices mostly smaller than half diameter of punctures. Elytra trapezoid, much broader than long, shoulders moderately angled, sides distinctly widened behind, posterior margin deeply emarginated, suture gapes open posteriad; sculpture about similar to that of the pronotum, also very uneven: a long and deep sutural impression, a long humeral impression, and a transverse impression in anterior half; punctuation even coarser than on pronotum, punctures mostly as large as apical cross section of antennal segment 2, sometimes even larger. Abdomen broadly convex, paratergites slightly declining ventrad, moderately narrow, those of tergite 4 nearly as broad as antennal segment 2, with few fine scattered punctures; basal furrows of anterior tergites very deep, tergite 7 with a narrow apical membranous fringe; punctuation of tergite 3 coarse to moderately coarse, moderately dense (laterally) to moderately sparse (medially), finer on posterior tergites; on tergite 7 punctures are about as large as facets near medial eye margins, interstices as large as punctures or slightly larger, tergite 10 finely and moderately densely punctate. Legs strong, metatarsi 2/3 as long as metatibiae, segment 1 longer than segments 2 and 3 combined, slightly longer than segment 5; segment 4 deeply bilobed. The whole insect is reticulate in different depth.

C o m p a r a t i v e n o t e s : This new species and the following three are remarkable by the very uneven surface of pronotum and elytra. It is distinguished from the other non-spotted Taiwanese Stenus as indicated in the key below.

E t y m o l o g y : Because of the uneven surface of the forebody I name this new species "*aspripennis*" (Lat.= with uneven/rough elytra).

***Stenus aspriformis* nov.sp. (Figs 2, 5, 10, 11)**

T y p e m a t e r i a l : Holotype (♂) and 6♂♂, 9♀♀-paratypes: TAIWAN: Taichung Hsien, Anmashan, 2120m, 1.V.1990, A. Smetana (T 35); 1♂, 4♀♀-paratypes: Taichung Hsien, Hsiaohsueh Shan, 2650-2750m, 1.V.1990, idem (T 349).- HT and PTT in coll. A. Smetana (Ottawa), PTT also in cP, coll. Tang (Shanghai) and coll. Naomi (Kyushu).

D e s c r i p t i o n : Brachypterous, black with a slight brownish hue, moderately shiny, forebody coarsely and very densely punctate, pronotum and elytra uneven, abdomen moderately coarsely and moderately densely punctate; pubescence very short, indistinct. Segment 1 of maxillary palpi yellow, segments 2 and 3 yellowish brown. Antennae yellowish brown, club infuscate. Legs reddish brown, apical portion of femora and of tibiae narrowly infuscate, tarsi brown. Clypeus black, labrum dark brown, moderately sparsely pubescent.

Length: 3.8-4.7mm (forebody: 1.9-2.1mm).

PM of the HT: HW: 39.8; DE: 20; PW: 30.5; PL: 31; EW: 38; EL: 36.5; SL: 28.

M a l e : About as in *S. aspripennis*, but the metasternum denser punctate (fig. 10) and the impression of sternite 4 deeper. Aedeagus (fig. 2) similar to that of *S. aspripennis*, the apical portion of median lobe slightly less triangular; parameres with about 14 apical setae.

F e m a l e : Similar to that of *S. aspripennis*, but the punctuation of the metasternum denser and slightly coarser (fig. 11). Spermatheca (fig. 5), infundibulum longer.

In many respects similar to *S. aspripennis*, but the longitudinal furrows of frons broader and less deep, the median portion distinctly but less elevated and only narrowly impunctate; punctuation in average coarser, diameter of punctures mostly nearly as large as apical cross section of antennal segment 2, interstices also distinctly narrower than half diameter of punctures. Antennae as in the compared species. Pronotum similar to that of *S. aspripennis*, sides strongly convex, less concave behind; surface also uneven, but impressions less deep; punctuation more regular, very dense. Elytra subtrapezoid, although broader than long longer than in *S. aspripennis*, suture contiguous, impressions less deep; punctuation very coarse and very dense, more regular than in the compared species. Abdomen with the paratergites distinctly bent ventrad; punctuation of tergites slightly coarser anteriorly than posteriorly, punctures on tergite 7 about as large as basal cross section of antennal segment 3, interstices as large as punctures. Legs and reticulation similar to that of *S. aspripennis*.

C o m p a r a t i v e n o t e : This new species may be distinguished from its close relatives as indicated in the key below.

E t y m o l o g y : Because of the uneven surface of the forebody I name this new species "*aspriformis*" (Lat. = with uneven/rough habitus).

Stenus asprisculptus nov.sp. (Figs 3, 7, 12, 13)

T y p e m a t e r i a l : *Holotype* (♂) and 1 ♀-paratype: TAIWAN: Kaohsiung Hsien, Peinantashan trail, 2500m, 3.V.1995, A. Smetana (T 171); 1 ♂-paratypes: ibidem 2065m, 6.V.1993, idem (T140).- HT and 1 PT in coll. A. Smetana (Ottawa), 1 PT in cP.

D e s c r i p t i o n : Brachypterous, black with a slight brownish hue, moderately shiny, head moderately coarsely and very densely punctate, pronotum and elytra uneven, coarsely and densely punctate, abdomen finely and moderately sparsely punctate; pubescence very short, indistinct. Segments 1 and 2 of maxillary palpi yellowish brown, segment 3 brownish. Antennae reddish brown, club infuscate. Legs reddish brown, tarsi infuscate. Clypeus black, labrum brown, moderately sparsely pubescent.

Length: 3.5-4.2mm (forebody: 1.8-2.0, mm).

PM of the HT: HW: 35: DE: 18; PW: 26,3; PL: 26.5; EW: 34; EL: 31; SL: 24.

M a l e : Metatibiae slightly curved dorsad in posterior third. Metasternum (fig. 12). Sternite 3 simple; sternite 4 with a broad and shallow impression posteromedially; sternite 5 with a very broad and deep posteromedian impression, the sides of which are cariniform elevated posteriorly, punctuation and pubescence extremely fine and dense, posterior margin broadly emarginated; sternite 6 similar to sternite 5, but the impression even deeper; sternite 7 with a deep and broad proximal impression which becomes shallower posteriorly, punctuation and pubescence very fine and dense, posterior margin shallowly emarginate. Sternite 8 with a triangular notch in about posterior fifth of the sternite. Sternite 9 acute apicolaterally. Tergite 10 rounded at posterior margin. Aedeagus (fig. 3), apical portion of median lobe comparatively slender; parameres distinctly longer than median lobe, apical portion comparatively long and slender, with 11-14 very long setae.

F e m a l e : Metasternum shallowly convex, moderately coarsely, moderately densely

punctate (fig. 13). Sternite 8 rounded at posterior margin, indistinctly obtuse-angled. Spermatheca (fig. 7), infundibulum long and slender.

In many respects similar to *S. aspripennis*, but the impressions of pronotum and elytra not quite as deep, the elytra comparatively longer, suture contiguous. Remarkable the abdominal punctuation which is distinctly finer throughout and in average less deep.

C o m p a r a t i v e n o t e : This new species may be distinguished from its nearest relatives as indicated in the key below.

E t y m o l o g y : Because of the uneven surface of the forebody I name this new species "*asprivestis*" (Lat.= with uneven/rough sculpture).

***Stenus asprivestis* nov.sp. (Fig. 4)**

T y p e m a t e r i a l : Holotype (♂): TAIWAN: Hualien Hsien: Taroko National Park, Nanhushi Hut, 2200m, 8.V.1990, A. Smetana (T 48): in coll. A. Smetana (Ottawa).

D e s c r i p t i o n : Brachypterous, black with a faint brownish hue, moderately shiny, head and pronotum coarsely and very densely punctate, elytra very coarsely and very densely punctate, pronotum and elytra conspicuously uneven, punctuation of abdomen coarse and dense (anteriorly), moderately fine and dense (posteriorly); pubescence short, recumbent. Segment 1 of maxillary palpi yellowish, segment 2 reddish yellow, segment 3 brownish. Antennae reddish brown, club infuscate. Legs reddish brown, apices of femora narrowly infuscate, tarsi brown. Clypeus black, labrum dark brown, moderately sparsely pubescent.

Length: [3.8-] 4.0mm (forebody: 1.8mm).

PM of the HT: HW: 33.5; DE: 18; PW: 27; PL: 26; EW: 35; EL: 31,5; SL: 24.

M a l e : Metasternum broadly and shallowly convex, moderately coarsely and moderately densely punctate, interstices mostly smaller than diameter of punctures, very shallowly reticulate. Anterior sternites simple. Sternite 6 with a broad and shallow impression in posterior middle, which is finer and denser punctate than the sides of the sternite, posterior margin very shallowly emarginated; sternite 7 moderately broadly shallowed along middle, extremely finely and densely punctate and pubescent, posterior margin very shallowly emarginated. Sternite 8 with a moderately narrow notch in about posterior sixth to seventh of the sternite. Sternite 9 and tergite 10 as in the previous species. Aedeagus (fig. 4), apical portion of median lobe short, acute-angled; parameres longer than median lobe, with 13-16 very long preapical setae.

F e m a l e : Unknown.

In nearly all respects very similar to *S. aspripennis*, but the head less broad, the elytral suture contiguous, the paratergites slightly broader and more distinctly bent ventrad.

C o m p a r a t i v e n o t e : This new species may be distinguished from its nearest relatives as indicated in the key below.

E t y m o l o g y : Because of the uneven surface of the forebody I name this new species "*asprivestis*" (Lat.= with uneven/rough clothing).

These four new species should be inserted in my key of the non-spotted Taiwanese *Stenus* as follows:

- 55a Pronotum and elytra conspicuously uneven 55a1
 - Pronotum and elytra not conspicuously uneven 55
- 55a1 Head narrower than elytra. ♂: Aedeagus (fig. 4). ♀: Unknown. 3.8-4.0mm (FB 1.8mm). Hualien Hsien *S. asprivestis* nov.sp.
 - Head broader or as broad as elytra 55a2
- 55a2 Elytra stronger trapezoid, suture gapes open posteriad. ♂: Aedeagus (fig. 1). ♀: Spermatheca (fig. 6). 3.4-3.6mm (FB 1.8-1.9mm). Nantou Hsien *S. asripennis* nov.sp.
 - Elytra less trapezoid, suture contiguous posteriorly 55a3
- 55a3 Abdominal punctuation coarser, punctures on tergite 7 as large as basal cross section of antennal segment 3, interstices as wide as diameter of punctures. ♂: Aedeagus (fig. 2). ♀: Spermatheca (fig. 5). 3.4-3.6mm (FB 1.8-1.9mm). Taichung Hsien *S. aspriformis* nov. sp.
 - Abdominal punctuation finer, punctures on tergite 7 as large as a facet near medial eye margin, interstices wider than diameter of punctures. ♂: Aedeagus (fig. 3). ♀: Spermatheca (fig. 7). 3.5-4.2mm (FB 1.8-2.0mm). Kaohsiung Hsien *S. asprisculptus* nov. sp.

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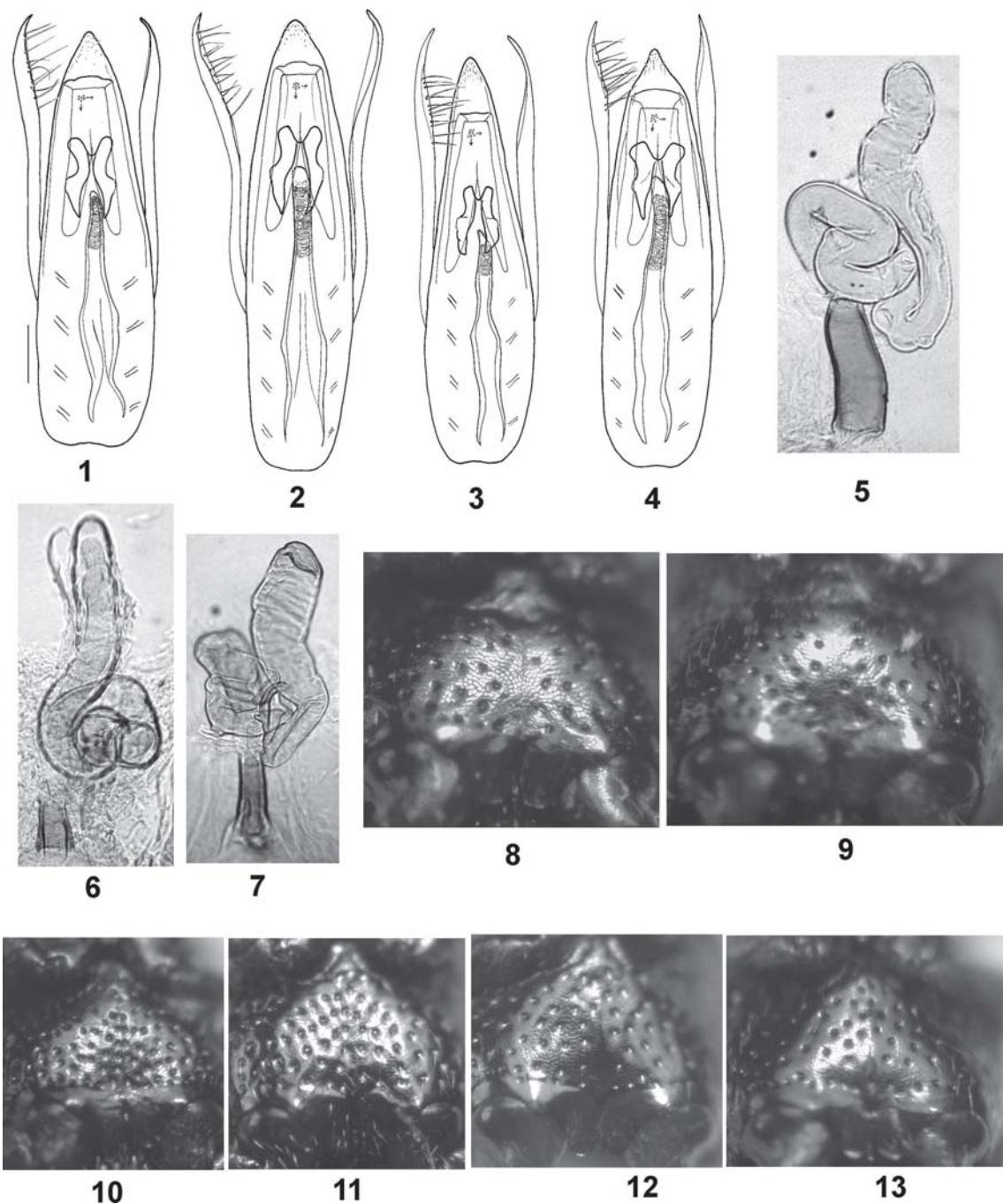
Zusammenfassung

4 neue Arten der Gattung *Stenus* LATREILLE 1797 aus Taiwan werden beschrieben: *Stenus aspriformis* nov.sp., *S. asripennis* nov.sp., *S. asprisculptus* nov.sp., *S. asprivestis* nov.sp.

References

- PUTHZ V. (2012): On the *Stenus* LATREILLE 1797 from Taiwan with non-spotted elytra (Coleoptera, Staphylinidae) (327th Contribution to the Knowledge of Steninae). — Linzer biologische Beiträge **44** (2): 1431-1475.

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Figs 1-13: Ventral aspect of aedeagus (1-4), spermatheca (5-7), metasternum (8-13) of *Stenus aspripennis* nov. sp. (1, 8, T 30; 6, 9, T 29), *S. aspriiformis* nov. sp. (2, 11, T 35; 5, 10, T 35), *S. asprisculptus* nov. sp. (3, 7, 13, T 171; 12, T 140), *S. asprivestis* nov. sp. (4, HT). - Scale bar = 0.1mm (1 = 2-4).

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