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A review of the Palaearctic species of the genus *Stilbus* Seidlitz, 1872 (Coleoptera: Phalacridae) with the description of two new species

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Abstract. *Stilbus lineatopunctatus* sp. nov. from Iran and *S. orientalis* sp. nov. from Far East, Ussuri region, are described and distinguished from similar species. A key to the identification of all the known Palaearctic species of *Stilbus* Seidlitz, 1872 is provided. A new combination is proposed for *Stilbus yezoensis* Hisamatsu, 1985 as *Olibrus yezoensis* (Hisamatsu. 1985). *S. sharpi* (Guillebeau, 1896) is recorded from Iran and *S. testaceus* (Panzer, 1797) from Jordan for the first time.

INTRODUCTION

The previous review (Švec 1992) of the Palaearctic *Stilbus* Seidlitz, 1872 enumerated 19 species divided into four informal groups. Later Švec (1999) specified the diagnoses of similar genera and seven of the species originally attributed to *Stilbus* were transferred to the genus *Astenulus* Guillebeau, 1896. The genus *Astenulus* was subsequently (Švec 2002) synonymized with the genus *Tinodemus* Guillebeau, 1894. Later Gimmel (2013) revised and specified phalacrid genera more precisely, and beside others, synonymized *Tinodemus* with the genus *Acylomus* Sharp, 1888.

Currently, 15 species of *Stilbus* have been described or recorded from the Palaearctic realm. Two additional species new to science are described below. A key to the identification to all the known 17 Palaearctic *Stilbus* species is provided below.

MATERIAL AND METHODS

This paper is based partly on the material collected in Iran during the expeditions organized by the National Museum in Prague, the Czech Republic (NMPC) in the years 1973 and 1977 and further on the phalacrid material collected by my entomological colleague David Boukal in the Far East of Russia, in the Ussuri region during the year 1990.

Abbreviations of collections:

NMPC National Museum, Praha, Czech Republic;
ZSPC Zdeněk Švec private collection, Praha, Czech Republic.

The abbreviations of country names used in the distribution data presented below were taken from the Catalogue of the Palaearctic Coleoptera (Löbl & Löbl 2015). If abbreviations are missing in the cited catalogue, simplified names of the respective countries are used - i. e. Mosambique instead of Republic of Mosambique etc.

The examined material has been compared with the type and other phalacrid material deposited in ZSPC and in NMPC.

Collecting data cited in quotation marks are taken from the locality labels accompanying the specimens of the type series; the individual lines of the original locality labels are separated by a slash; the individual labels are separated by double slash in this work. Each holotype or paratype is indicated by a red label bearing the status of the specimen (holotypus or paratypus respectively) name of the species, the name of the author and the year of the designation of the types (2025). The red label is attached to the same pin as the relevant specimen. The holotype labels are initialled by the author.

The specimens had been relaxed in 4% acetic acid first, then rinsed in water and dissected in a drop of water. The male genitalia were mounted in polyvinylpyrrolidin on a transparent label added to the same pin as the dissected specimen or directly on the label near the relevant specimen. The female genitalia (spermatheca) were not been dissected and described in this paper due to their uniformity in the genus lacking useful diagnostic characters.

The descriptions are based on the holotypes. Variability is mentioned in the paragraph "Variation" if necessary and includes features exhibited by the paratypes. Important characters of sexual dimorphism are included in the paragraph "Female."

The measurements of the total body length were taken from all the specimens examined. Specific measurements of the individual body parts were taken from the holotypes only. The measurements of morphologic body parts were measured to the first decimal place of millimetre, the measurements of the genitalia were measured to the second decimal place of millimetre.

The types have been deposited in NMPC and ZSPC.

Terminology used in the present paper

Aedeagus = sclerotized part of the male genitalia composed of tegmen .. and penis:

tegmen = fused parameres connate to phallobase without any suture between phallobase and apical part of tegmen (in *Stilbus*);

penis = median lobe of aedeagus - a piece of male genitalia partly inserted into the tegmen (in Phalacridae);

endophallus = sclerite or sclerites or other hard structures inside adjacent to ventral plate of penis detectable in transmitted light;

parallelogram = micro-sculpture represented by cells with parallel long transversally or obliquely oriented strigosites connecting each other by short conjunctions;

elytral stria or punctate stria = longitudinally seriate punctures on elytra = longitudinal elytral row of punctures in deepened or not deepened stria;

shagreen = microreticulation = micro-sculpture consisting of regular isodiametric cells;

sutural stria = deepened stria closest to elytral suture, lacking punctures in its caudal part, usually equipped with punctures or even becoming a row or rows of punctures anteriorly;

KEY, DESCRIPTIONS AND FAUNISTIC RECORDS

Key to the determination of the Palaearctic *Stilbus* Seidlitz, 1872

1 Last antennomere oblong oval. 2
- Last antennomere turbinate. Black, apex of elytra lighter. Pronotum distinctly strongly punctate. 1.8-2.0 mm. Distribution: A- JA. (See remark below). ..... (*Olibrus yezoensis* (Hisamatsu, 1985))

2(1) Posterior margin of prosternal process with sharp edge in oblique lateral view. 3
- Posterior margin of prosternal process round in oblique lateral view. Elytra and part of pronotum with micro-strigosity. 1.4-1.7 mm. Distribution: Asia- JA. ..... *S. coxalis* Švec, 1992

3(2) Median part of pronotal base not bordered. 4
- Median part of pronotal base bordered. 7

4(3) Both branches of coxal lines developed. 5
- Only lateral branch of coxal lines developed, reaching basal margin of metaventrite. Tegmen stout, broadly rounded apically lacking any nipple or process. Penis terminating in acutely rounded apex. 1.8-2.0 mm. Distribution: North Africa - EG; Afrotropics - Mozambique, Tanzania, Namibia, Botswana, Republic South Africa, Madagascar; Asia - OM IN IQ SY. ..... *S. sharpi* (Guillebeau, 1892)

5(4) Dorsum reddish-brown to brown, unicoloured, elytra at most with lighter apex..... 6
- Dorsum dark brown, elytra with light longitudinal band. Body short oval. Punctate striae developed on elytral disc. Lateral branch of coxal lines protracted, reaching basal margin of metaventrite. Tegmen broad, roundly tapered toward apex terminating in small nipple. Penis with broadly rounded apex. 1.5-2.0 mm. Distribution: Asia - NE. ..... *S. orbicularis* Lyubarsky, 2003

6(5) Body larger. Lateral branch of coxal lines protracted, not reaching basal margin of metaventrite. Tegmen slim, subparallel, terminating in very long, slim, parallel-sided process in dorsal view. Apex of penis very acute. 2.1-2.4 mm. Distribution: Asia - NE. ..... *S. olearis* Lyubarsky, 2003
- Body smaller. Coxal lines long, lateral branch of coxal lines not protracted meeting median branch behind mid-length of metaventrite. Tegmen moderately thick, terminating in stout short process approximately as long as wide. Apex of penis rounded. 1.6-1.7 mm. Distribution: Asia - CH JA. ..... *S. avunculus* Flach, 1889

7(3) Dorsum covered predominantly by more or less distinct micro-strigosity or parallelograms. 8
- Dorsum covered by shagreen. At most first median punctate stria on elytra well developed. Yellow-brown to light chestnut. Oblong oval. Apex of tegmen with shortly rounded top. 1.7-2.1 mm. Distribution: Europe - AU CR CZ DE EN FI FR GB GE GR HU IT NL NT PL SK SP SVSZ UK; North Africa - EG; Asia - AF KZ TR SY IS UZ. ..... *S. oblongus* Erichson, 1845

8(7) Dorsum unicoloured lacking any light spot on elytra. 9
- Reddish brown, each elytron with large yellow-red spot on its posterior half. Only elytra and pronotum near posterior angles micro-sculptured. Male unknown. 2.1 mm. Distribution: Asia - JA. ..... *S. bipustulatus* Champion, 1925

9(8) Posterior angles of pronotum rectangular or acute in lateral view. 10
- Posterior angles of pronotum obtuse in lateral view. 13

10(9) Dorsum, mainly elytra, covered predominantly by parallelograms. 11
- Dorsum covered by very dense and very fine predominantly transversal strigosity. Feebly expressed parallelograms present only at pronotal and elytral base in some specimens. Tegmen broad, almost parallel-sided terminating with small nipple; penis broadly rounded apically (Figs. 1, 2). 1,8-2.3 mm. Distribution: Europe - AB AL AU AZ BH BY CR CZ DE EN FI FR GE GB GR HU IT LA MA MR NL NR PL PT RO SK SP SV SZ UK; North Africa - AG AZ CI LB MO MR TU; Asia - AF CY IN IS KI TM SY TR UZ; Afrotropics - Sudan. ..... *S. testaceus* (Panzer, 1797)

11(10) Hind angles of pronotum slightly rounded in lateral view. Tegmen with rounded tip. 12
- Hind angle of pronotum acute in lateral view. Tegmen terminates with broad process truncate and feebly emarginate apically. 2.0-2.3 mm. Distribution: North Africa - MO. ..... *S. truncatus* Švec, 1992

12(11) Coxal lines long, extending beyond mid-length of metaventral length. Apex of tegmen without any process. 1.3-1.7 mm. Distribution: Asia - JA. ..... *S. japonicus* Švec, 1992
Coxal lines shorter, extending to mid-length of metaventral length. Apex of tegmen with stout, long process. 1.7-1.9 mm. Distribution: Europe - AB. ..... *S. ferrugineus* Švec, 1992

13(9) Outline of tegmen roundly narrowed toward apex in dorsal view. Dorsum predominantly with parallelograms; shagreen (if present) detectable in some smaller areas only. 14

- Outline of tegmen angled before apex. Dorsum with micro-strigosity. 1.9-2.4 mm. Distribution: Europe - E: AU BU CZ FR GE GR HU IT MC PL SK SP SZ UK; Asia - AF IN KZ TR. ..... *S. pannonicus* Franz, 1968

14(13) Apex of tegmen with parallel-sided or conical short nipple. 15

- Apex of tegmen finger-shaped with process three times as long as wide (Fig. 3). Penis in Fig. 4. At least 3 median punctate striae on elytra developed. 1.5-2.0 mm. Distribution: Asia- IN. ..... *S. lineatopunctatus* sp. nov.

15(14) Apex of tegmen with small parallel-sided nipple. 16

- Apex of tegmen with conical nipple. 1.8 mm. Distribution: Asia - FE. ..... *S. merkli* Švec, 1992

16(15) Outline of tegmen evenly roundly tapered toward apical nipple (Fig. 8) in dorsal view. Penis with very long acute process at least four times as long as wide (Fig. 9). 1.8-2.2 mm. Distribution: Europe - AU BH CZ DE EN FI FR GE GB GR (Crete) HU IT NL NT PL SK SP SV SZ UK; North Africa - AG MO; Asia - FE (?) IS JA TR SY; North America (?). ..... *S. atomarius* (Linnaeus, 1767)

- Outline of tegmen similar to that in *S. testaceus*, subparallel, shortly before apex roundly tapered toward terminal nipple in dorsal view (Fig. 6). Penis with apical process as long as wide at its base (Fig. 7). 1.8-2.2 mm. Distribution: Asia - FE. ..... *S. orientalis* sp. nov.

Remark. *Stilbus yezoensis* Hisamatsu, 1985 probably does not belong to the genus *Stilbus* Seidlitz, 1872.
I propose to transfer the species in the genus *Olibrus* Erichson, 1845 as follows.

Olibrus yezoensis **(Hisamatsu, 1985) comb. nov.**

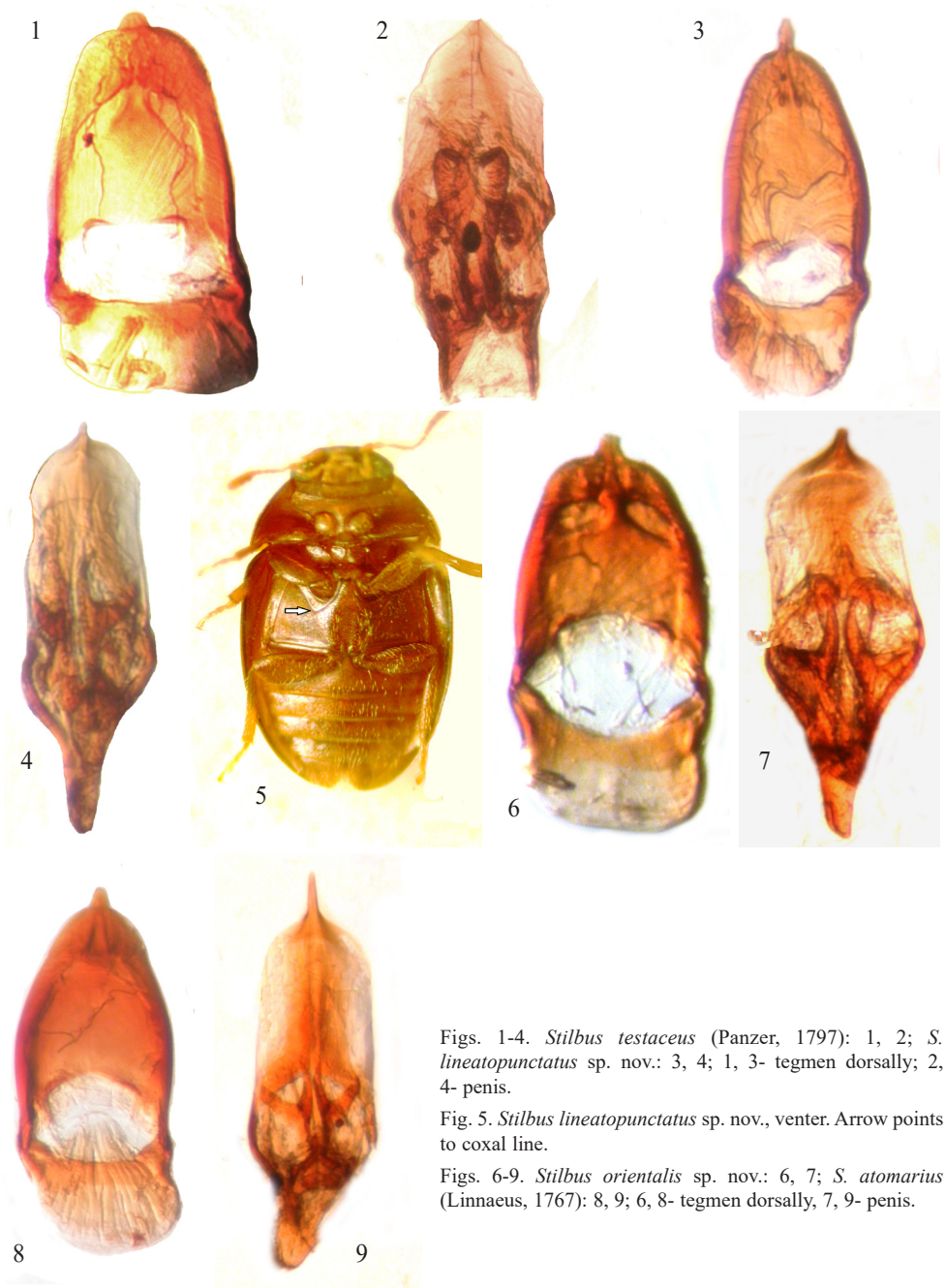
Stilbus yezoensis Hisamatsu, 1985: 274, pl. 45, fig. 21.

Remarks. The transfer of the species is proposed because the turbinate shape of the posterior antennomere in the holotype (Yoshitomi & Hisamatsu 2023) is the morphological character typical for *Tolyphus* Erichson, 1845 and *Olibrus* Erichson, 1845. Taking into account also the general appearance of the holotype, its belonging to the genus *Olibrus* is obvious.

Stilbus sharpi **(Guillebeau, 1892)**

Examined material: 1 ♂, 1 ♀, 1 spec. sex indet., S Iran, Derpenhas, 12 km E. of Senderk, 11.-12.v. 1977, loc. no. 326, Expedition Nat. Mus. Praha, (NMPC); 2 ♂♂, 2 ♀♀, 14 spec. sex indet, SE Iran, 13 km SSE Nikshahr riv,, 8.9.4.1973, loc. no. 152, Exp. Nat. Mus. Praha, (NMPC, ZSPC); 2 spec. sex indet., S. Iran, Isin, 28,4,-8.5. 1977, loc. no. 320, Expedition Nat. Mus. Praha, (NMPC); 1 spec. sex indet.,S, Iran, 400-600 m, Kuh e Geno Mts., 1.- 4.5. 1977, loc. no. 321, Expedition Nat. Mus. Praha, (NMPC); 1 ♀, 6 spec. sex indet., 1 ♂, S. Iran, 220 m, Senderk 12.-13.5. 1977, loc. no. 220, Expedition Nat. Mus. Praha, (NMPC).

Distribution. North Africa - EG; Afrotropics - Mozambique, Tanzania, Namibia, Botswana, Rep. South Africa, Madagascar; Asia - IN SY OM. New to Iran.



Figs. 1-4. *Stilbus testaceus* (Panzer, 1797): 1, 2; *S. lineatopunctatus* sp. nov.: 3, 4; 1, 3- tegmen dorsally; 2, 4- penis.

Fig. 5. *Stilbus lineatopunctatus* sp. nov., venter. Arrow points to coxal line.

Figs. 6-9. *Stilbus orientalis* sp. nov.: 6, 7; *S. atomarius* (Linnaeus, 1767): 8, 9; 6, 8- tegmen dorsally, 7, 9- penis.

Stilbus testaceus (Panzer, 1797)
(Figs. 1-2)

Examined material: 1 ♀, North Jordan, al-Thudaybah, NW ar-Ramtha, 29.5. 2008, lgt. S. Kadlec, (NMPC).

Distribution. Europe - AB AL AU AZ BH BY CR CZ DE EN FI FR GE GB GR HU IT LA MA MR NL NR PL PT RO SK SP SV SZ UK; North Africa: AG AZ CI LB MO MR TU; Asia - AF CY IN IS JO KI TM SY TR UZ. New to Jordan.

Stilbus lineatopunctatus sp. nov.
(Figs. 3-5)

Type material. Holotype (♂): "S Iran/Korsiah / 29.-30.5.1973 // Loc. No. 220 / Exp. Nat. Mus. / Praha", (NMPC). Paratypes (1 ♂, 5 ♀♀): the same data, (NMPC, ZSPC); (1 ♀): "S Iran/Borazjan / 19.4.1977 / Loc. No. 299 / Exped. Nat. Mus. / Praha", (NMPC); (1 ♀): N Iran, 160 m / Sheikh Mahalleh, 28.6-3.7. 1977 // Loc.no. 390 / Exped. Nat. Mus. / Praha", (NMPC); (1 ♀): S. Iran, Bezan, 15 km / NV Furk, 1000-1400 m / 28-29.5. 1973 // Loc. No. 218 / Exp. Nat. Mus. / Praha", (NMPC).

Description. Length 1.9 mm. Length of body parts: head 0.2 mm, pronotum 0.5 mm, elytra 1.2 mm, antenna 0.5 mm, tegmen 0.51 mm, penis 0.51 mm. Maximum width of body parts: head 0.6 mm, pronotum 1.2 mm at posterior angles, elytra 1.2 mm at humeri. Broadly oval; dorsum chestnut. Legs and antenna yellow-red. Venter chestnut with metaventrite a little darker. Entire dorsum punctate, with micro-sculpture.

Head. Dorsal surface with fine parallelograms, double punctate. Larger punctures separated by about 3-6 times their diameter, sparser micro-punctures separated by about 10 times or more their diameter. Antennomeres II-XI longer than wide. Antennomere III approximately as long as antennomere II.

Pronotum. Base almost straight, bordered at middle third. Lateral sides almost straight in lateral view, slightly rounded in dorsal view. Posterior angles obtuse with pointed tip dorsally viewed, obtuse shortly rounded in lateral view. Dorsal surface with fine but distinctly developed parallelograms a little stronger than those on head. Puncturation double, larger punctures separated by about 4-8 or more times their diameter, micro-punctures irregularly distributed, separated by about 1-10 or more times their diameter.

Elytra. Elytra seriate punctate. Each row of punctures accompanied by faint non-punctured adjacent stria. Medial rows of punctures 1-4 distinctly developed, laterally rows very feebly developed with punctures very small and rather confusedly arranged. Punctures of medial rows circular with very short central seta shorter than puncture diameter. Row punctures separated by about 2-3 times their diameter. Intervals with punctures much smaller and sparser separated by about 4-8 or more times their diameter.

Legs. Without specific characters.

Proventrite. Proventral process with acute posterior margin equipped with 5 stiff horizontally arranged setae.

Membranous wings developed.

Mesoventrite. Swollen part well developed, twice as wide as long, with several adjacent light setae.

Metaventrite. Metaventral process does not reach anterior level of meso-coxae. Metaventrite finely punctate laterally, with central oval depression extremely densely punctate. Coxal lines meet each other close to mid-length of metaventral length looking like letter V (Fig. 5).

Genitalia. Tegmen and penis in Figs. 3, 4.

Female. Oval depression lacking on metaventrite in females, only posterior median short furrow present as is usual in the females of the other known Palaearctic *Stilbus* species.

Variation. Length of body varies between 1.9-2 mm.

Differential diagnosis. *Stilbus lineatopuntatus* sp. nov. is morphologically similar to *S. atomarius* (Linnaeus, 1767) and *S. orientalis* sp. nov. in the presence of elytral parallelogram micro-sculpture and in the obtuse posterior pronotal angles. The new species differs from *S. atomarius* by lighter colour of the body, from both compared species by the smaller size of body and by the shape of the male genitalia, mainly the tegmen. While the tegmen possess a small nipple at its apex in the similar species *S. orientalis* and *S. atomarius*, the tegmen terminates in a long parallel-sided process in *S. lineatopunctatus*.

Etymology. The name of the new species is derived from two Latin words - "linea" = line in English and "punctatus" = punctate. The elytra of the new species possess seriate punctures arranged in the longitudinal lines.

***Stilbus orientalis* sp. nov.**

(Figs. 6-7)

Type material. Holotype (♂): "Rossia or., Ussuri / Sergejevka by Chanka / 27.8. 1990 lgt. Boukal", (ZSPC). Paratypes (2 ♂♂, 5 ♀♀): the same data, (ZSPC).

Description. Length 2.2 mm. Length of body parts: head 0.1 mm, pronotum 0.6 mm, elytra 1.5 mm, antenna 0.7 mm, tegmen 0.50 mm, penis 0.59 mm. Maximum width of body parts: head 0.6 mm, pronotum 1.2 mm at posterior angles, elytra 1.2 mm at humeri. Oblong oval; dorsum chestnut, elytra a little lighter apically. Legs and antenna yellow-red. Venter light chestnut with metaventrite a little darker. Entire dorsum punctate with micro-sculpture.

Head. Dorsal surface with fine shagreen, simply distinctly punctate. Punctures separated by about 2-3 times their diameter. Antennomeres II-VII longer than wide, antennomeres VIII and IX as long as wide. Antennomere III approximately as long as antennomere II.

Pronotum. Base almost straight, bordered at middle third. Lateral sides slightly rounded in dorsal and lateral views. Posterior angles acute shortly rounded dorsally viewed, very obtuse with rounded tip in lateral view. Dorsal surface with shagreen a little more distinct than that on head. Puncturation similar to that on head.

Elytra. Elytra seriate punctate. Each row of punctures accompanied by faint non-punctured adjacent stria. Medial two rows of punctures distinctly developed on disc with fine small, sparse punctures separated by about 4-6 times their diameter. Row punctures

circular, become smaller, finer and sparser toward base, apex and lateral sides. Intervals with punctures of two sizes. Smaller ones separated by about 10 or more times their diameter. Larger punctures rare. Surface covered predominantly with parallelograms similarly as in *Stilbus atomarius*.

Legs. Without specific characters.

Proventrite. Proventral process with acute posterior margin equipped with five stiff horizontally arranged setae.

Membranous wings developed.

Mesoventrite. Swollen part well developed, more than twice as wide as long, with several adjacent light setae.

Metaventrite. Metaventral process does not reach anterior level of meso-coxae. Metaventrite coarsely punctate on entire surface with exception of triangular plate limited by coxal lines. Medio-posteriorly located central oval depression punctate extremely densely. Lateral and median coxal lines not fused but approaching each other reaching very close to mid-length of metaventral length.

Genitalia. Tegmen and penis in Figs. 6, 7.

Female. Oval depression lacking on metaventrite, possessing posterior median short furrow only.

Variation. Length of body varies between 1.8 and 2.2 mm. Colour of dorsum varies from chestnut to dark brown with lighter apex of elytra. Majority of the paratypes possess elytral micro-sculpture varying between parallelograms and shagreen. Two of the female paratypes possess five detectable row punctures on disc.

Differential diagnosis. *Stilbus orientalis* sp. nov. is morphologically similar to *S. lineatopunctatus* sp. nov. and *S. atomarius* (Linnaeus, 1767) sp. nov. by the presence of parallelogram elytral micro-sculpture and by the obtuse posterior pronotal angles. The new species differs from both compared species mentioned above by the shape of the male genitalia. While the tegmen possess a small nipple at its apex in *S. orientalis* (Fig. 6) and *S. atomarius* (Fig. 8), the tegmen terminates in a long parallel-sided process in *S. lineatopunctatus* (Fig. 3); while the lateral outline of the tegmen is subparallel in dorsal view in *S. orientalis*, the tegmen in *S. atomarius* is roundly narrowed from its base toward the apex. Also the shape of the penis and endophallus in *S. orientalis* (Fig. 7) differs from those in *S. atomarius* (Fig. 9) and *S. lineatopunctatus* (Fig. 4).

Etymology. The name of the new species is based on the oriental region of Asia where the new species was discovered.

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