

Two new species of Xyleninae GUENÉE, 1837 from the Altai Mountain Country

(Lepidoptera, Noctuidae)

by

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Abstract: Two new species of Noctuidae, *Parastichtis guskovae* spec. nov. (W. Mongolia) and *Xylena czernilai* spec. nov. (Russian Altai) from the subfamily Xyleninae, tribe Xylenini, are described. The adults and ♂♂ and ♀♀ genitalia of the new and related species are illustrated.

Introduction: The author of the article together with his colleagues has made an active faunistic research in the Altai Mountain Country and discovered a number of noctuids, new for science. Two of them refer to the subfamily Xyleninae GUENÉE, 1837, tribe Xylenini GUENÉE, 1837, subtribe Xylenina GUENÉE, 1837, and are described below. The present article is based on the collection of author (AVB, Barnaul, Russia). All material was examined using modern dissection standards for preparation of ♂♂ and ♀♀ genitalia of Lepidoptera. Some type specimens are handed over to the Zoological Institute RAS (ZISP, St.-Petersburg, Russia). The depositary of the types of the new species is stated in the paragraphs "Type material".

Subfamily Xyleninae GUENÉE, 1837

Tribe Xylenini GUENÉE, 1837

Subtribe Xylenina GUENÉE, 1837

Genus *Parastichtis* HÜBNER, [1821]

Parastichtis HÜBNER, [1821], Verzeichniss bekannter Schmetterlinge: 213. Type-species: *Noctua suspecta* HÜBNER, [1817], by subsequent designation by GROTE, 1900: 212.

Synonymy (cited after FIBIGER & HACKER 2007): *Parastictus* AGASSIZ, 1847; *Dyschorista* LEDERER, 1857; *Taeniosea* GROTE, 1874.

Parastichtis guskovae spec. nov. (figs. 1, 2, 5, 7; col. pl. 2: 1-4)

Holotype ♂, 11.VII.2010, W. Mongolia, Govi-Altai aimak, Dzhungarian Gobi, 15-20 km N of Alag-Nuur lake, Takhajchin-Gol river valley, 1300 m. 45°19'N, 94°28'E. YAKOVLEV R.V. & GUSKOVA E.V. leg. (coll. ZISP). Slide AV0421 VOLYNKIN.

Paratypes: 6 ♂♂, 5 ♀♀, with the same data, as the holotype (colls. ZISP, AVB). Slides AV0472 VOLYNKIN (♂), AV0447 VOLYNKIN (♀).

Note: The described taxon belongs to the holarctic genus, recently considered as monotypical (FIBIGER & HACKER, 2007). The similar situation occurs in the genus *Scoliopteryx* GERMAR, 1810. Its species *S. libatrix* (LINNAEUS, 1758) inhabits a vast holarctic area, whereas another species *S. aksuana* SHELJUZHKO, 1955 has been recorded as local from several valleys of Central Asia (MIKKOLA, 1983). The rank of the taxon given here, belongs to the genus *Parastichtis*, is rather debateable. However, despite being allopatric to the sister taxon *P. suspecta* (HÜBNER, [1817]) and absence of significant distinguishing characters in their ♂ genitalia, the taxon has considerable differences in morphology of the abdominal androconial hairbrushes, which proves its species rank, and not a subspecies one, as the morphology of the abdominal androconial hairbrushes are known to have important taxonomic character which has already been applied in systematics of the subfamilia Xyleninae (ZILLI & al., 2009; FIBIGER & al., 2010).

Diagnosis: The new species differs externally from the sister species *P. suspecta* (HBN.) (col. pl. 2: 5-8) by smaller size, more indistinct pattern and pale olive or brick-red ground colour of forewings, but the colouration of both taxa is rather variable and cannot be considered as a reliable diagnostic character. *Parastichtis guskovae* spec. nov. differs from *P. suspecta* (HBN.) by abdominal androconial hairbrushes (figs. 5, 6), which are presented with considerably longer hairs and the 'stalk'. The ♂ genitalia of *P. guskovae* spec. nov. (figs. 1, 2) differs from those of *P. suspecta* (HBN.) (figs. 3, 4) by the wider juxta, the wider and shorter cucullus, the more massive clavate ampulla [the ampulla of *P. suspecta* (HBN.) is apically rounded in some specimens, but not widened apically], the larger (in comparison with the size of the genitalia capsule) aedeagus, and the presence of three additional thorns on the large subbasal cornutus basis [*Parastichtis guskovae* spec. nov. (HBN.) bears only one additional thorn in some specimens]. The ♀ genitalia of *P. guskovae* spec. nov. (fig. 7) have a shorter membrane between 9-10th and 8th abdominal segments and shorter 8th abdominal segment than those of *P. suspecta* (HBN.) (fig. 8). Besides, apophyses anteriores are shorter, the ductus bursae is shorter and wider, the appendix bursae is laterally positioned and slightly longer [the appendix bursae in *P. suspecta* (HBN.) is shorter and ventrally overlies the ductus].

Description of the imago (col. pl. 2: 1-4): Wingspan 24-25 mm. Labial palps large, directed forward. ♂ antennae unilaterally ciliate; ♀ antennae simple. The colouration of the head, the thorax and the abdomen are variable, depending on the colouration of forewings. The forewing is relatively wide, triangular, acute apically. Ground colour of forewings varies from pale olive to pale red and brick-red. The pattern is poorly defined. Orbicular and reniform stigmata show the colour of the ground plan, white-bordered. Crosslines are slender, blackish, dentate, obscure. The marginal line is slender, blackish, interrupted. Cilia of the colour of the ground plan. The hindwing is brownish gray. The discal spot is dark, slender, crescent-shaped. Cilia are brownish gray, slightly paler than the wing colouration.

♂ **genitalia** (figs. 1-2): Uncus very long, narrow, apically pointed. Tegumen short; penicular lobes wide, trapezoid, dorsally pointed outwards. Vinculum short; saccus rounded more off, than at *P. suspecta* (HBN.), almost U-like. Juxta small, narrow, almost rectangular, it is slightly narrowed from top to bottom. Valva long and narrow. Costa strongly sclerotized; digitus narrow, ventrally directed, its pointed tip almost at ventral margin of valva. Cucullus large, with a long corona. Clasper with rounded tip. Ampulla massive, clavate, positioned oblique to the valva margins. Aedeagus almost straight, subapically curved ventrad. Vesica curved ventrad; subbasally on ventral side of vesica one short, broad-based cornutus with the three very small thorns on the same basis.

♀ **genitalia** (fig. 7): Ovipositor small. Membrane between the 9-10th and 8th abdominal segments, and the 8th segment itself very long. Apophyses posteriores narrow, very long. Apophyses anteriores long, narrow. Ostium bursae ventrally strongly sclerotized. Ductus bursae relatively short, moderately sclerotized. Corpus bursae pear-shaped, membranous; appendix bursae relatively short, laterally positioned.

Distribution: The species is known from the valley of the Takhajchin-Gol River in the eastern part of Dzungarian Gobi only.

Derivatio nominis: The species is named after the coleopterologist, the specialist on Chrysomelidae ELENA GUSKOVA (Chelyabinsk, Russia), one of the type series collectors.

Genus *Xylena* OCHSENHEIMER, 1816

Xylena OCHSENHEIMER, 1816, Die Schmetterlinge von Europa 4: 85. Type-species: *Phalaena Noctua exsoleta* LINNAEUS, 1758.

Synonymy (cited after KONONENKO & al., 1998 and RONKAY & al., 2001): *Xylites* REICHENBACH, 1817; *Xylaena* HÜBNER, 1822, missp.; *Xylina* TREITSCHKE, 1826, emend.; *Calocampa* STEPHENS, 1829; *Xsylvina* FRIVALDSZKY, 1835, missp.; *Hylina* FREYER, 1840, missp.; *Callicampa* AGASSIZ, [1847], emend.; *Colocampa* STICHEL, 1908, missp.; *Monoxylena* BECK, 1996.

Xylena czernilai spec. nov. (fig. 9; col. pl. 3: 1)

Holotype ♂, 18.-21.IX.2010, Russia, Altai Republic, Ongudai district, Belyi Bom village environs, bottom of slope with *Betula-Picea* forest, h=955 m. 50°22'N, 87°01'E. On wine-trap. ČERNILA M. & VOLYNKIN A. V. leg. (coll. ZISP). Slide AV0434 VOLYNKIN.

Diagnosis: The new species habitually resembles *X. exsoleta* (LINNAEUS, 1758) (fig. 11; col. pl. 2: 2), however its ♂ genitalia morphology is strongly different and the closest to *X. vetusta* (HÜBNER, [1813]) (col. pl. 3: 3-5). Externally *X. czernilai* spec. nov. differs from *X. exsoleta* (L.) by slightly wider forewings, a paler yellowish-gray colouration of the forewing and a better defined dark area near to the dorsum. Wider forewings and the pattern (the larger reniform stigma, the clearly defined elongate orbicular one, the larger dark spot outwards from the reniform stigma, the smaller shadowed area near to the dorsum) of the new species makes it to look quite different from *X. vetusta* (HBN.). ♂ genitalia of *X. czernilai* spec. nov. (fig. 9) are distinguished from those of *X. vetusta* (HBN.) (fig. 10) by the shorter and strongly widened apically spatulate uncus, the longer and less curved harpe, the acute triangular valve apically and the morphology of the vesica, which is characterized by the absence of the medial diverticulum with the cornutus, the larger non-sclerotized medial diverticulum laterally, the absence of the broad lateral diverticulum apically with the area of spinules on it, the presence of the long transverse clavate area of spinules. *Xylena czernilai* spec. nov. is different from the fourth inhabiting Altai congener *X. (Lithomoia) solidaginis* (HÜBNER, [1803]) (the genus *Lithomoia* was transferred to the genus *Xylena* as a subgenus by FIBIGER & al., 2010) (fig. 12; col. pl. 3: 6) in both, externally and genitalia morphology as well.

Description of the imago (col. pl. 3: 1): Wingspan 51 mm. Labial palps obliquely upturned. ♂ antennae fasciculate. The head, patagia and the abdomen are ochreous yellow. The thorax is dark, grayish brown. The forewing is narrow, elongate, with the yellowish gray ground colour. The medial cell and the submarginal area outwards from the cell are pale yellow. The costa has a deep dark suffusion. Orbicular and reniform stigmata are well-defined, elongate, dark-centered. The medial area is darkened intensely between the reniform stigma and the outer band. The submarginal area bears a long blackish spenoid streak, a pale yellowish strongly dentate submarginal line and several grayish brown dashes along its length opposite the reniform stigma. Outer and inner bands are unsmooth, blackish. The marginal line is slender, wavy, blackish. The outer margin of the forewing is wavy. Cilia are gray. The hindwing is yellowish brown, lightened and yellowish basally. Cilia are brownish yellow.

♂ **genitalia:** Uncus short, apically strongly dilated, spatulate. Tegumen short, broad, peniclar lobes wide. Vinculum short, V-like. Juxta wide, elongated, hexagonal. Valve elongated, distally tapering, costa heavily sclerotized. Cucullus trigonal, strongly setose, its apical and ventral angles pointed. Corona absent. Sacculus strong, sclerotized. Clavus large, elongate-lobate, scobinate and setose. Harpe long, slender, apically pointed, rather S-shaped. Aedeagus short, thick, carina less well developed. Vesica spacious, inflated, its basal part very broad, globular; medial part broad, curved dorsally, with globular ventral apical diverticulum, lateral (on the left side) short diverticulum and long, narrow, club-like field of spinules; distal part narrow, tubular. ♀ **genitalia:** Unknown.

Distribution: The species is known from its type-locality in the central part of the Russian Altai.

Derivatio nominis: The new species is named after the lepidopterologist, and the author's friend Mr. MATJAZ ČERNILA (Kamnik, Slovenia), who collected the type specimens together with the author.

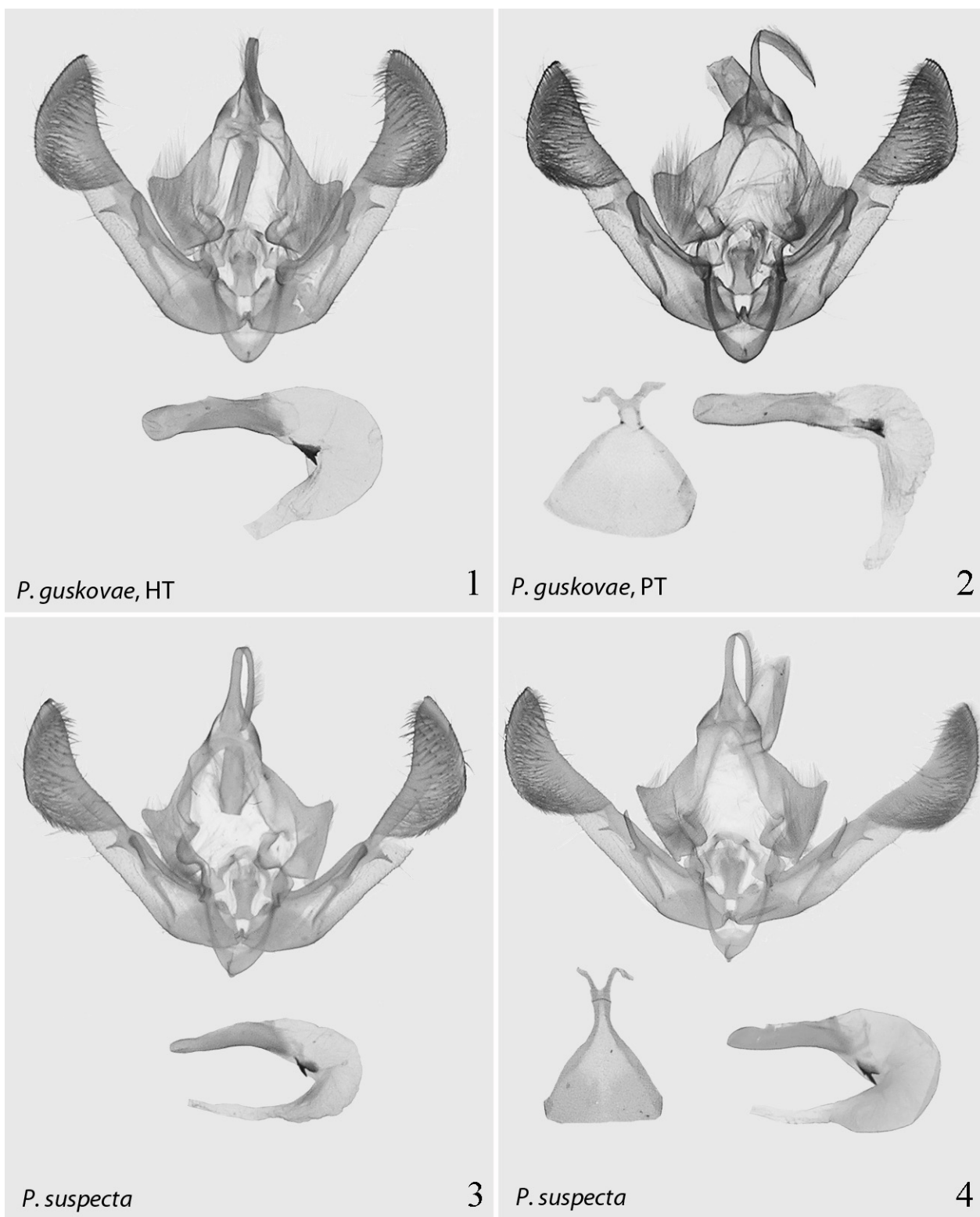
Acknowledgments: The author thanks Dr. VLADIMIR S. KONONENKO (Institute of Biology and Soil Science Far Eastern Branch of RAS, Vladivostok, Russia) for pictures of the ♂ genitalia of *X. exsoleta* (L.), and also for valuable suggestions; Dr. ALEXEY YU. MATOV (Zoological Institute RAS, Saint-Petersburg, Russia) for valuable suggestions; Dr. ROMAN V. YAKOVLEV (South Siberian Botanical garden, Barnaul, Russia) for valuable materials.

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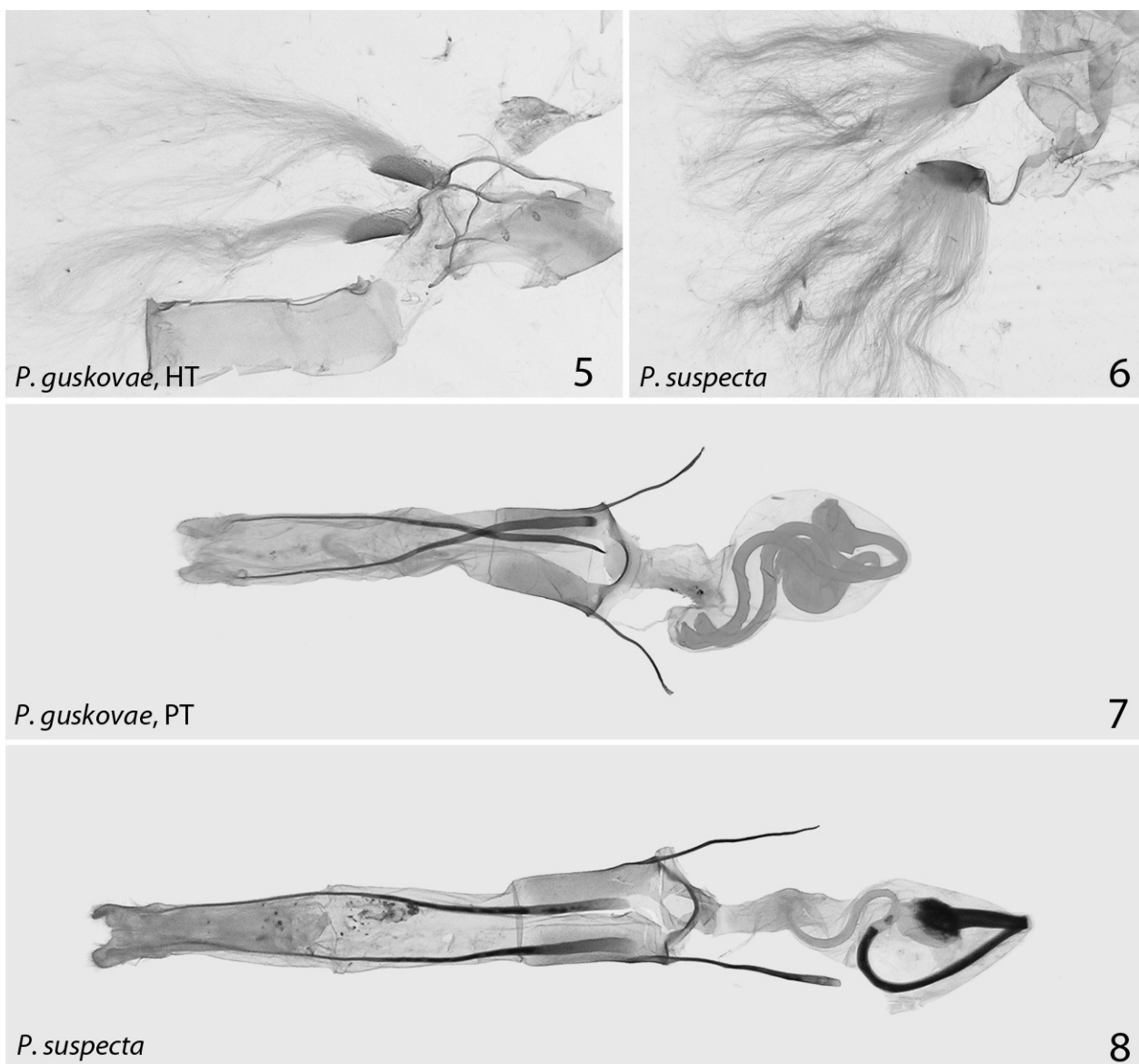
Figs. 1-4: *Parastichthis* spp., genitalia and tergite 8 of ♂.

Fig. 1: *Parastichthis guskovae* **spec. nov.**, holotype, W. Mongolia, Slide AV0421 VOLYNKIN.

Fig. 2: *Parastichthis guskovae* **spec. nov.**, paratype, W. Mongolia, Slide AV0472 VOLYNKIN.

Fig. 3: *Parastichthis suspecta* (HÜBNER, [1817]), W. Altai Mts., Slide AV0446 VOLYNKIN.

Fig. 4: *Parastichthis suspecta* (HÜBNER, [1817]), W. Siberia, Slide AV0422 VOLYNKIN.



Figs. 5-8: *Parastichtis* spp., abdominal brushes of ♂ and ♀ genitalia.

Fig. 5: *Parastichtis guskovae* **spec. nov.**, abdominal brushes of the holotype, W. Mongolia, Slide AV0421 VOLYNKIN.

Fig. 6: *Parastichtis suspecta* (HÜBNER, [1817]), abdominal brushes, W. Altai Mts., Slide AV0446 VOLYNKIN.

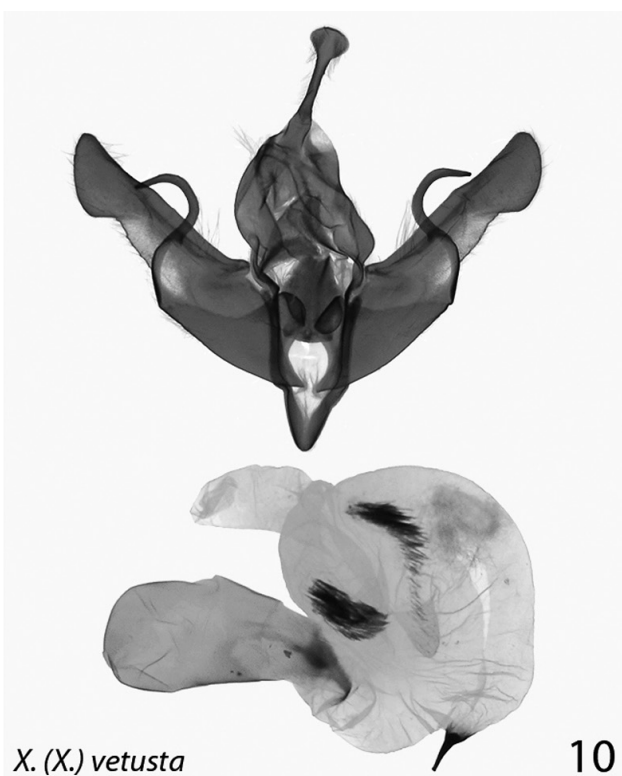
Fig. 7: *Parastichtis guskovae* **spec. nov.**, ♀ genitalia, paratype, W. Mongolia, Slide AV0447 VOLYNKIN.

Fig. 8: *Parastichtis suspecta* (HÜBNER, [1817]), ♀ genitalia, Central Altai Mts., Slide AV0469 VOLYNKIN.



X. (X.) czernilai, HT

9



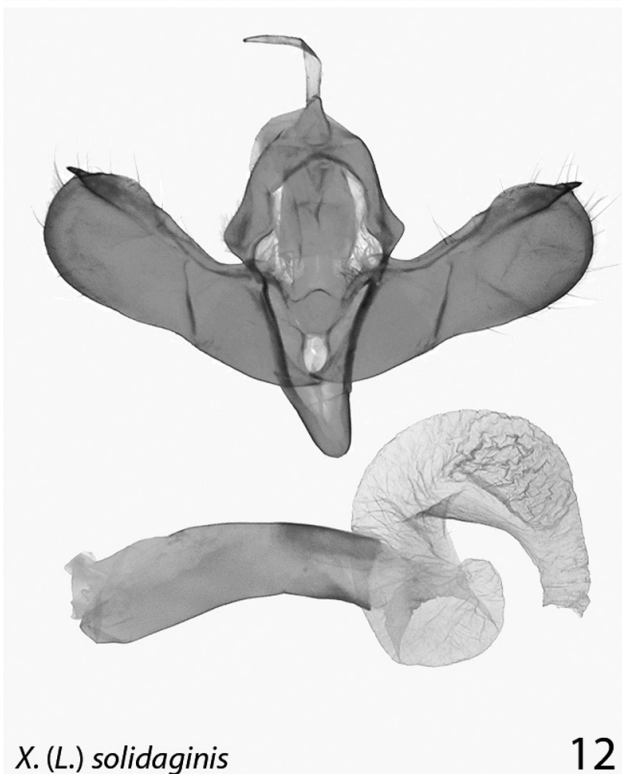
X. (X.) vetusta

10



X. (X.) exsoleta

11



X. (L.) solidaginis

12

Figs. 9-12: *Xylena* spp., ♂ genitalia.

Fig. 9: *Xylena (Xylena) czernilai spec. nov.*, holotype, Central Altai Mts., Slide AV0434 VOLYNKIN.

Fig. 10: *Xylena (Xylena) vetusta* (HÜBNER, [1813]), W. Siberia, Slide AV0465 VOLYNKIN.

Fig. 11: *Xylena (Xylena) exsoleta* (LINNAEUS, 1758), Europe, photo by L. RONKAY & G. RONKAY (published by RONKAY & al., 2001).

Fig. 12: *Xylena (Lithomoia) solidaginis* (HÜBNER, [1803]), N. Altai Mts., Slide AV0478 VOLYNKIN.

Colour plate 2

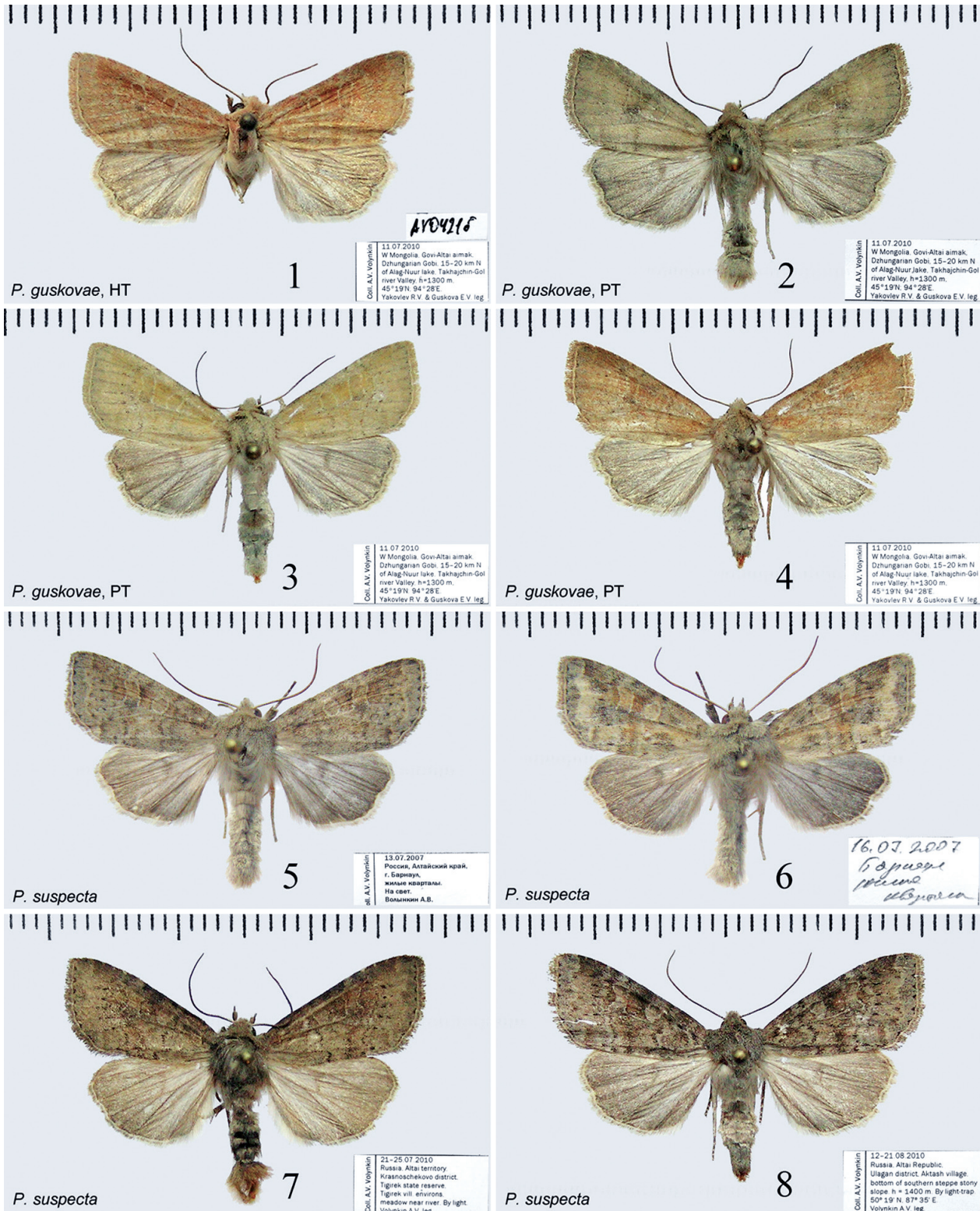


Fig. 1: *Parastichtis guskovae* spec. nov., holotype ♂, 11.VII.2010, W. Mongolia, Govi-Altai aimak, Dzhungarian Gobi, 15-20 km N of Alag-Nuur lake, Takhajchin-Gol river valley, 1300 m. 45°19'N, 94°28' E. YAKOVLEV R.V. & GUSKOVA E. V. leg." (coll. ZISP).

Fig. 2: *Parastichtis guskovae* spec. nov., paratype ♂, same locality (coll. AVB).

Fig. 3: *Parastichtis guskovae* spec. nov., paratype ♀, same locality (coll. AVB).

Fig. 4: *Parastichtis guskovae* spec. nov., paratype ♀, same locality (coll. ZISP).

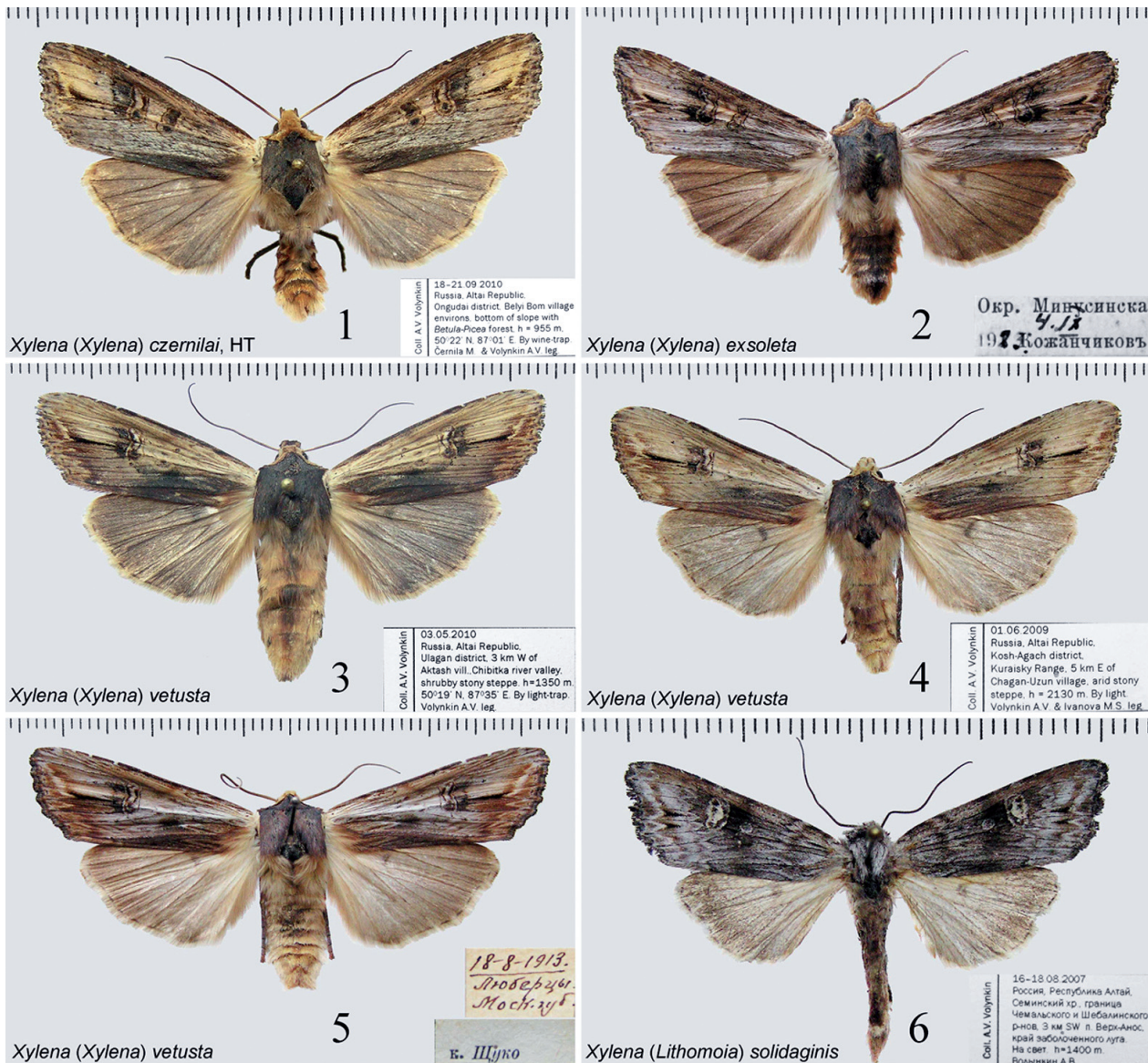
Fig. 5: *Parastichtis suspecta* (HÜBNER, [1817]), ♂, 13.VII.2007, Russia, W. Siberia, Altai terr., Barnaul. VOLYNKIN A. V. leg. (coll. AVB).

Fig. 6: *Parastichtis suspecta* (HÜBNER, [1817]), ♂, 16.VII.2007, same locality [coll. AVB].

Fig. 7: *Parastichtis suspecta* (HÜBNER, [1817]), ♂, 21.-25.VII.2010, Russia, Altai terr., Krasnoshchekovo distr., Tigirek state reserve, Tigirek vill. env., meadow near river. On light, VOLYNKIN A. V. leg. (coll. AVB).

Fig. 8: *Parastichtis suspecta* (HÜBNER, [1817]), ♀, Russia, Altai Rep., Ulagan distr., Aktash vill. env., bottom of southern steppe stony slope, h=1400 m, on light-trap. 50°19' N, 87°35' E. VOLYNKIN A. V. leg. (coll. AVB).

Colour plate 3



- Fig. 1: *Xylena (Xylena) czernilai* spec. nov., holotype ♂, 18-21.IX.2010, Russia, Altai Republic, Ongudai district, Belyi Bom village environs, bottom of slope with Betula-Picea forest, 955 m. 50°19'N, 87°01'E. On wine-trap. ČERNILA M. & VOLYNKIN A. V. leg. (coll. ZISP).
- Fig. 2: *Xylena (Xylena) exsoleta* (LINNAEUS, 1758), ♂, [S. Siberia, Khakassia Rep.] Minusinsk env., 4.IX.1923, KOZHANTSCHIKOV leg. (coll. ZISP).
- Fig. 3: *Xylena (Xylena) vetusta* (HÜBNER, [1813]), ♂, Russia, Altai Rep., Ulagan distr., 3 km W. Aktash vill. Chibitka river valley, shrubby stony steppe, 1350 m, on light-trap. 50°19'N, 87°35'E, VOLYNKIN A. V. leg. (coll. AVB).
- Fig. 4: *Xylena (Xylena) vetusta* (HÜBNER, [1813]), ♂, 1.VI.2009, Russia, Altai Rep., Kosh-Agach distr., Kuraisky Range, 5 km E. of Chagan-Uzun vill., arid stony steppe, 2130 m, on light, VOLYNKIN A. V. & IVANOVA M. S. leg. (coll. AVB).
- Fig. 5: *Xylena (Xylena) vetusta* (HÜBNER, [1813]), ♂, 8-8-1913, Lyubertsy, Mosk. gub./K. STCHUKO [leg.] (coll. ZISP).
- Fig. 6: *Xylena (Lithomoia) solidaginis* (HÜBNER, [1803]), ♂, 16-18.VIII.2007, Russia, Altai Rep., Chermal distr., Seminsky Range, 3 km SW Verkh-Anos vill., meadow/swamp border, on light, 1400 m, VOLYNKIN A. V. leg. (coll. AVB).

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