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NEW BRYOPHILINAE SPECIES FROM CENTRAL ASIA AND VIETNAM (LEPIDOPTERA, NOCTUIDAE)

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Abstract: Three new species of the subfamily Bryophilinae (*Athaumasta alaarcha* **sp. n.**, *Bryoleuca ovchi* **sp. n.**, and *Stenoloba sapa* **sp. n.**) are described from Central Asia and Vietnam.

Key words: *Athaumasta*, *Bryoleuca*, *Stenoloba,* new species*,* Kyrgyzstan, Tajikistan

INTRODUCTION

The present paper contains the descriptions of a three new Bryophilinae species: a new *Athaumasta* Hampson, 1906, *A. alaarcha* **sp. n.**, from Kyrgyzstan, a new *Bryoleuca* Hampson, 1908, *B. ovchi* **sp. n.**, from Tajikistan, and a new *Stenoloba* Staudinger, 1892, *S. sapa* **sp. n.**, from North Vietnam. The diagnostic comparisons are made with *Athaumasta lithoplasta* (Hampson, 1908) and *Athaumasta kegena* Pekarsky, 2018; *Bryoleuca orthogramma* (Boursin, 1954) and *B. pljushtchi* Pekarsky, 2015; and with *Stenoloba albistriata* Kononenko & Ronkay, 2000, *S. solaris* Pekarsky & Saldaitis, 2013, and *S. subsolaris* Pekarsky, Dvořák & G. Ronkay, 2013.

Abbreviations: GB = Gottfried Behounek (Grafing, Germany); HNHM = Hungarian Natural History Museum Budapest (Hungary); MNHU = Museum für Naturkunde der Humboldt-Universität zu Berlin (Germany); OP = Oleg Pekarsky (Budapest, Hungary); LR = slide made by László Ronkay (Budapest, Hungary).

SYSTEMATIC PART

Genus *Athaumasta* Hampson, 1906

Athaumasta Hampson, 1906, *Catalogue of the Lepidoptera Phalaenae in the British Museum* **6**: 380, repl. name for *Thaumasta* Staudinger, 1871. Type species: *Polia expressa* Lederer, 1855; type-locality: West Kazakhstan, Altai Mts.

Synonymy: *Thaumasta* Staudinger, 1871, preoccupied by Gistl, 1848 (Crustacea).

The taxonomic knowledge of the *A. miltina* (Püngeler, 1902) species-group is continuously increasing. The first modern attempt to discuss the taxonomic position of *Polia miltina* after the note of Boursin (1940) was made by VOLYNKIN & PEKARSKY (2016). Later, the *miltina* species-group was defined within the genus *Athaumasta*, and two new species of the group were described (PEKARSKY 2017). Another new species was described a year later (PEKARSKY 2018). The new *Athaumasta* material collected in Kyrgyzstan in July 2018 contains a further species new for science which is described here. The *miltina* species-group includes actually altogether six species: *A. miltina*, *A. kyrkyza* Pekarsky, 2017, *A. melyakhi* Pekarsky, 2017, *A. lithoplasta* (Hampson, 1908), *A. kegena* Pekarsky, 2018 and *A. alaarcha* **sp. n.**

***Athaumasta alaarcha* Pekarsky sp. n.**
(Figs 1, 2, 7, 8)

Type material. Holotype: Male (Fig. 1), Kyrgyzstan, Chuy Region, Alamudun District, 5 km S of Ala-Archa Alpine Camp, N Tian-Shan Mts, 2440–2500 m, N macroslope of Alexander's range, Valley of Ala-Archa river, 2°31'39"N 74°28'47"E, 22–24.VII.2018, leg. A. Belik, slide OP4157m (coll. O. Pekarsky). **Paratype**: 1 ♂, with the same data as Holotype, slide OP4223m (coll. O. Pekarsky).

Diagnosis. The wing pattern of the new species is similar to those of *A. lithoplasta* and *A. kegena* but *A. alaarcha* is easily separated externally from its close relatives by its significantly larger size (wingspan 38 mm vs 29-32 mm, respectively), and somewhat more elongated forewings with more acute apices. The male genitalia of *A. alaarcha* differ from those of the related species by the globular shape of vesica with plate-like cornutus located laterally. The male genitalia of *A. lithoplasta* (Figs 11, 12) are characterized by the semiglobular shape of vesica with practically straight sides and the thorn-like cornutus located on dorsal side of the main chamber, whereas *A. kegena* (Figs 9, 10) has larger, nearly quadrangular main chamber of vesica bearing nail-like, elongated cornutus located on its dorsal side.

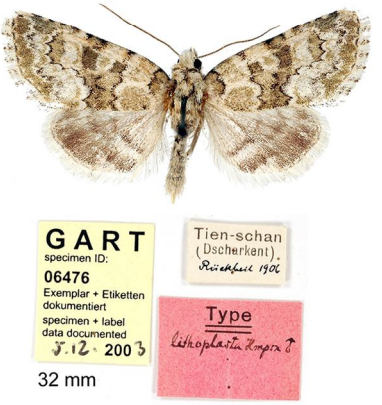
Description (Figs 1, 2). Wingspan 38 mm. Male antennae minutely dentate with short fasciculate cilia. Head, collar and tegulae creamy white with light brown and grey scales. Thorax dark grey, abdomen greyish with creamy white scales. Forewing elongated, apex acute; outer margin oblique. Ground colour greyish; wing pattern well developed; medial area as ground colour; subbasal and basal areas, costal section of median area and both parts of marginal field

1 *A. alaarcha* sp. n., HT

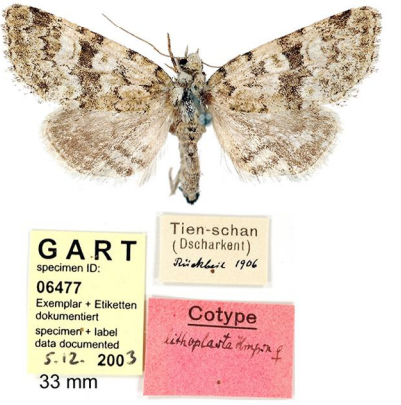
2 *A. alaarcha* sp. n., PT

3 *A. kegena*, HT

4 *A. kegena*, PT, LR6160f

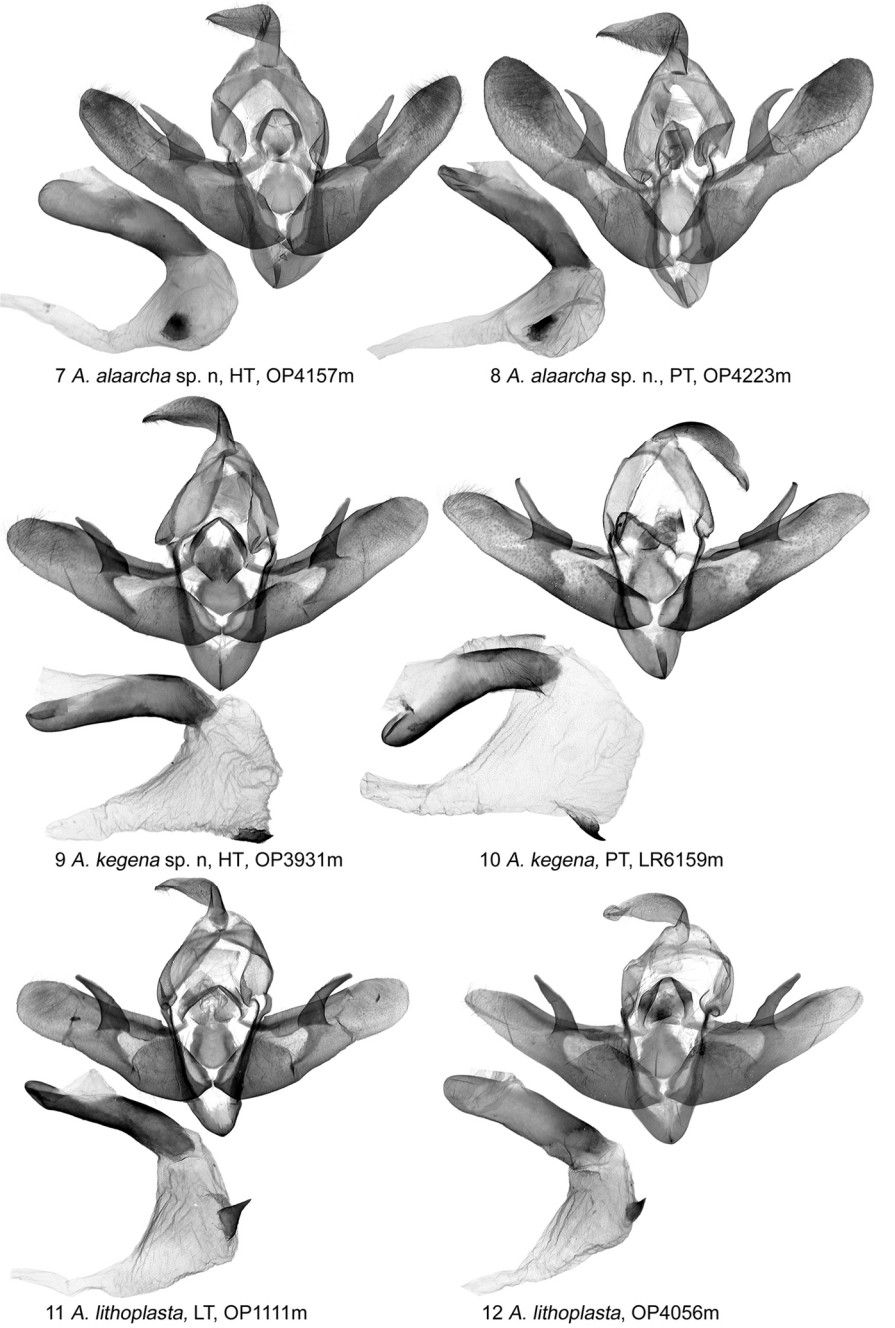


5 *A. lithoplasta*, LT, OP1111m



6 *A. lithoplasta*, PLT, OP4057f

Figures 1–6. *Athaumasta* spp, adults. 1, *A. alaarcha* **sp. n.**, male, Holotype, Kyrgyzstan, Chuy reg. (OP); 2, *A. alaarcha* **sp. n.**, male, Paratype, Kyrgyzstan, Chuy reg. (OP); 3, *A. kegena*, male, HT, Kazakhstan, Almaty reg. (OP); 4, *A. kegena*, female, PT, Kazakhstan, Almaty reg. (Gy. Fábián); 5, *A. lithoplasta*, male, Lectotype, Kazakhstan, Panfilov (MNHU); 6, *A. lithoplasta*, female, Paralectotype, Kazakhstan, Panfilov (MNHU).



Figures 7–12. *Athaumasta* spp, male genitalia. 7, *A. alaarcha* sp. n., Holotype, Kyrgyzstan, Chuy reg. (OP); 8, *A. alaarcha* sp. n., Paratype, Kyrgyzstan, Chuy reg. (OP); 9, *A. kegena*, HT, Kazakhstan (OP); 10, *A. kegena*, PT, Kazakhstan (Gy. Fábián); 11, *A. lithoplasta*, Lectotype, Kazakhstan (MNHU); 12, *A. lithoplasta*, Kyrgyzstan, Issyk-kul (MNHU).

cream white. Crosslines sharply defined, subbasal line dentate, antemedial and medial lines nearly straight, dentate, postmedial line curved, dentate, subterminal line sinuous, serrate; terminal line consists of a row of black streaks. Reniform stigma filled with cream white, orbicular stigma also whitish, with brownish patch and dark dot in its centre. Cilia as ground colour. Hindwing light grey, discal spot present only on underside, two parallel, sinuous transverse lines sharply marked; cilia creamy white.

Male genitalia (Figs 7, 8). Uncus strong, curved, laterally flattened, significantly widened medially, its tip finely pointed; tegumen broad and relatively short; vinculum V-shaped; valva elongated, moderately broad, costal margin slightly curved, valval apex rounded; harpe tapering, elongated, curved, with fine tip; juxta rhomboidal. Aedeagus cylindrical, short, curved dorso-ventrally; vesica membranous, its main chamber small, nearly globular, armed with irregular-shaped, plate-like cornutus. Female unknown.

Distribution. Kyrgyzstan, Chuy Region.

Etymology. The species name refers to the type-locality of the taxon.

Genus *Bryoleuca* Hampson, 1908

Bryoleuca Hampson, 1908, *Catalogue of the Lepidoptera Phalaenae in the British Museum* **7**: 686. Type-species: *Miana trilinea* Bethune-Baker, 1894; type-species: [Egypt] Alexandria.

Bryoleuca ovchi Pekarsky sp. n.

(Figs 13, 14, 17, 19)

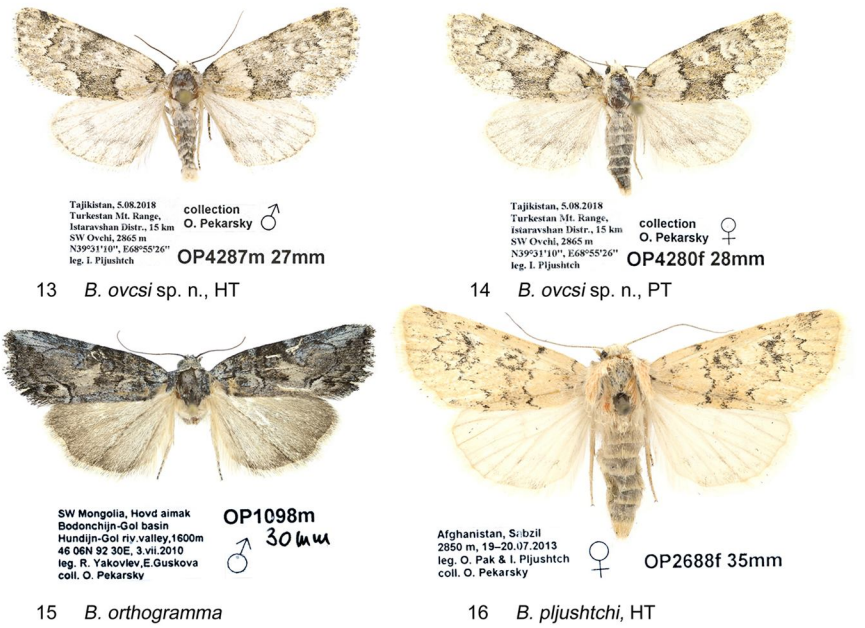
Type material. Holotype: Male (Fig. 13), Tajikistan, Turkestan Mt. Range, Istaravshan Distr., 15 km SW Ovchi, 2865 m, N39°31'10'', E68°55'26'', 5.08.2018, leg. I. Pljushtch, slide OP4287m (coll. O. Pekarsky). **Paratypes**: 1♂, 3 ♀♀, with the same data as the Holotype, slide OP4280f (coll. O. Pekarsky).

Diagnosis. The new species can be distinguished from the externally somewhat similar *B. pljushtchi* by its smaller size (wingspan 27-29 mm), light brown suffused creamy white ground colour, darkened subbasal, medial and outer marginal areas and much darker and more contrasting wing pattern. The wingspan of the holotype of *B. pljushtchi* is 35 mm, and the ground colour is uniformly pale clay-yellow.

In the male genitalia, *B. ovchi* is most similar to *B. orthogramma* but differs from it by the wider medial part of valva and clasper, the rhomboidal juxta, the sac-shaped subbasal part of vesica. In comparison, the male genitalia of *B. orthogramma* are characterized by the very narrow medial part of valva, the shield-like juxta, and the dorso-ventrally curved main chamber of vesica.

The female genitalia (Fig. 19) of the new species are smaller in size than that of *B. orthogramma*, the ventral plate of antrum is narrower, the ductus bursae is thinner, the posterior part of corpus bursae is wide while the anterior part is narrow, and the elongated sclerotized plate of ductus bursae is curved at junction to corpus bursae. The female genitalia of *B. orthogramma* have, in comparison, wider sclerotized ventral plate of antrum, thicker ductus bursae, more elongated corpus bursae, and the posterior edge of the elongated sclerotized plate of ductus bursae is nearly straight and strongly wrinkled at junction to corpus bursae. The female genitalia of *B. pljushtchi* (Fig. 21) are significantly larger in size than those of the former two species, the ventral plate of the antrum is conspicuously larger and stronger sclerotized, the sclerotized plate of ductus bursae is broader than in the two relatives and there is a cup-like sclerotization of appendix bursae which is missing from *B. ovchi* and *B. orthogramma*.

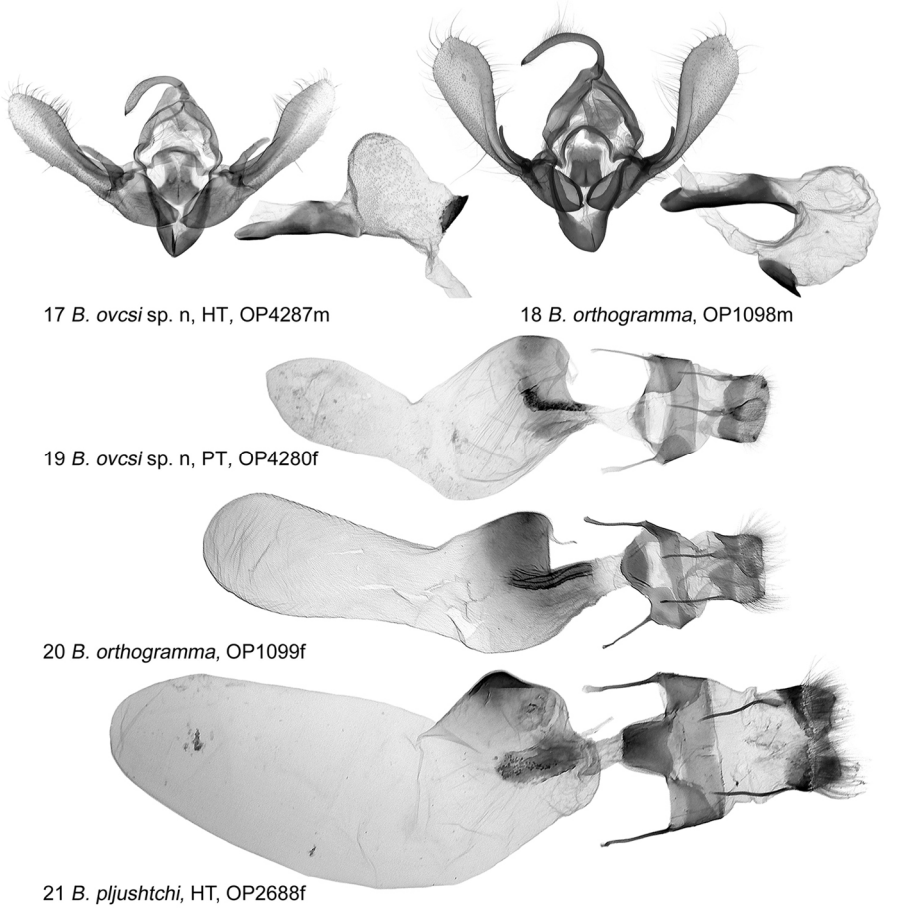
Description (Figs 13, 14). Wingspan 27–29 mm. Male antennae pectinate. Head, collar, thorax, tegulae, and abdomen greyish cream-white. Forewing short, narrow, apex rounded; outer margin oblique. Ground colour cream white in subbasal and postmedial areas, subbasal, medial and outer marginal areas suffused with light greyish-brown; wing pattern well developed. Crosslines



Figures 13–16. *Bryoleuca* spp, adults. 13, *B. ovchi* sp. n., male, Holotype, Tajikistan, Istaravshan Distr. (OP); 14, *B. ovchi* sp. n., female, Paratype, Tajikistan, Istaravshan Distr. (OP); 15, *B. orthogramma*, male, Mongolia, Hovd (OP); 16, *B. pljushtchi*, female, HT, Afghanistan, Sabzil (OP).

sharply defined, black: basal line straight, subbasal line curved, antemedial line arched, postmedial line curved, dentate, subterminal line sinuous, hardly traceable; terminal line a row of black patches. Reniform and orbicular stigmata filled with cream-white scales. Cilia cream-white, chequered with grey scales. Hindwing light cream-white with scattered grey scales; discal spot small, present only on underside; transverse line grey, diffuse; cilia white.

Male genitalia (Fig. 17). Uncus strong, narrow, curved, its tip finely pointed; tegumen as long as vinculum; vinculum V-shaped; valva elongated, costal margin curved medially, valval apex rounded; harpe elongated, slightly curved, bent at base; juxta nearly rhomboidal, constricted medially, posterior part deeply incised. Aedeagus cylindrical, short, straight; vesica membranous, its



Figures 17–21. *Bryoleuca* spp, genitalia. 17, *B. ovchi* sp. n., male, Holotype, Tajikistan (OP); 18, *B. orthogramma*, male, Mongolia (OP); 19, *B. ovchi* sp. n., female, PT, Tajikistan (OP); 20, *B. orthogramma*, female, Mongolia (OP); 21, *B. pljushtchi*, female, HT, Afghanistan (OP).

main chamber large with sac-shaped subbasal part, armed by elongated, nail-like cornutus.

Female genitalia (Fig. 19). Ovipositor wide, covered with thin hair-like setae; anterior apophyses long, thin, posterior apophyses thin, as long as anterior apophyses. Antrum broad, ventral plate small, narrow; subgenital plate (8th abdominal segment) wide, well sclerotized with rounded edges; ductus bursae short, posterior part membranous, anterior part wider with longitudinal sclerotized plate curved at junction to corpus bursae; corpus bursae bent medially, anterior part membranous, posterior area near appendix bursae and junction of ductus bursae sclerotized; appendix bursae large, sclerotized.

Distribution. Tajikistan, Istaravshan District.

Etymology. The species name refers to the type-locality of the taxon.

Genus *Stenoloba* Staudinger, 1892

Stenoloba Staudinger, 1892, *in* Romanoff, *Mémoires sur les Lépidoptéres* **6**: 381. Type-species: *Dichagyris jankowskii* Oberthür, 1884, by monotypy. Type-locality: [Russia, Primorye terr.] Sidemi.

Synonymy: *Neothripa* Hampson, 1894 (Type-species: *Neothripa punctistigma* Hampson, 1894 [India: Punjab]); *Lepidopyga* Warren, 1914 (Type-species: *Stenoloba viridimicta* Hampson, 1910 [India: Assam]); *Conicochyta* Hampson, 1918 (Type-species: *Chytonix olivacea* Wileman, 1914 [Taiwan]).

Stenoloba sapa Pekarsky & Behounek sp. n.

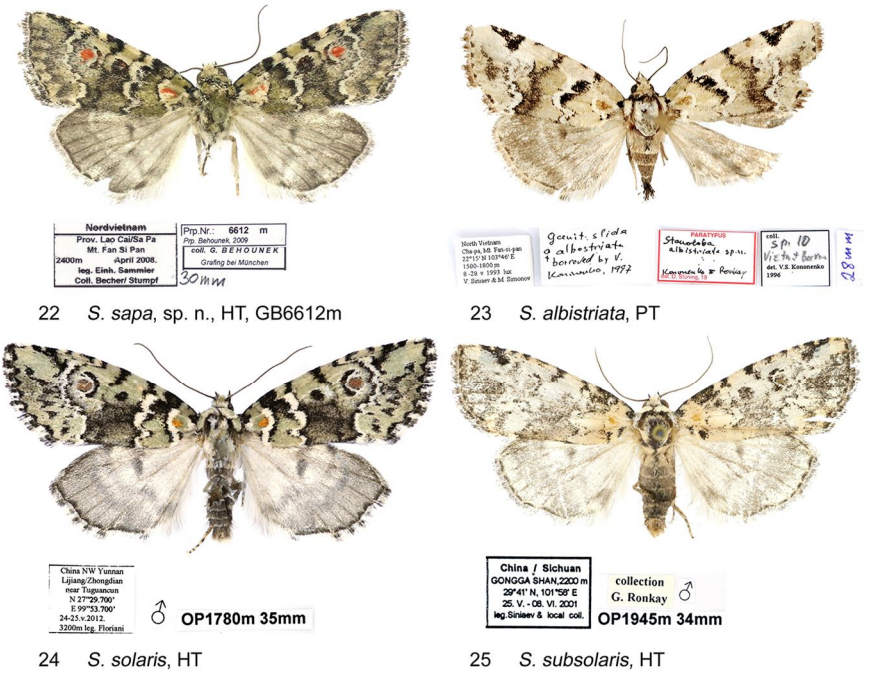
(Figs 22, 26)

Type material. Holotype: Male (Fig. 22), North Vietnam, Prov. Lao Cai, Sa Pa, Fansipan Mts, 2400 m, IV.2008, leg. local collector ("Einh. Sammler"), ex coll. Stumpf/Becher, coll. G. Behounek/ZSM, slide GB6612m (coll. Behounek/ZSM).

Diagnosis. The new species belongs to the *Stenoloba olivacea* (Wileman, 1914) species-group. It resembles externally *S. solaris, S. subsolaris* and *S. albistriata* but is clearly separable from them by both the wing pattern and the genitalia features. It differs from the above-mentioned relatives by the very intensive, bright orange colour of the circular patches on forewings, the presence of a small group of orange scales in medial area. The circular patches in *S. solaris* and *S. subsolaris* are different in colour (the subbasal patch is orange while the reniform stigma is brown); in *S. olivacea* the orange colour is present only in the subbasal area while the reniform stigmata is filled with the pale greenish ground colour.

The male genitalia of *S. sapa* differ from those of closely related species by the narrower, elongated uncus, the more evenly wide valva, and the wide clasper plate situated parallel to the valval edges; all related species have wider uncus and tapered distal part of valva, and their clasper plates placed angularly to valval edges.

Description (Fig. 22). Wingspan 30 mm. Head, thorax, tegulae and collar lettuce-green; forewing relatively wide, with costa slightly arched, apex pointed, outer margin oblique, ground colour lettuce-green with dark grey area medially; wing pattern well marked with well-developed crosslines; basal field with circular bright orange patch bordered with white fascia distally; crosslines black, basal line strongly marked; subbasal line strong, curved, bordered by white fascia proximally; antemedial line waved, oblique with wide white fascia; lower part of medial area dark grey; medial line waved; postmedial line undulate with white fascia; subterminal line diffuse, terminal line formed by narrow, oblique black arrowheads. Noctuid maculation typical and well developed; large orange reniform patch, rounded; inner edge of stigma forming prominent semilunar arch; orbicular stigma large, black, with a group of bright orange scales; claviform stigma less distinct; cilia dark green. Hindwing greenish-grey, discal spot dark grey, two crosslines dark grey. Female unknown.



22 *S. sapa*, sp. n., HT, GB6612m

23 *S. albistriata*, PT

24 *S. solaris*, HT

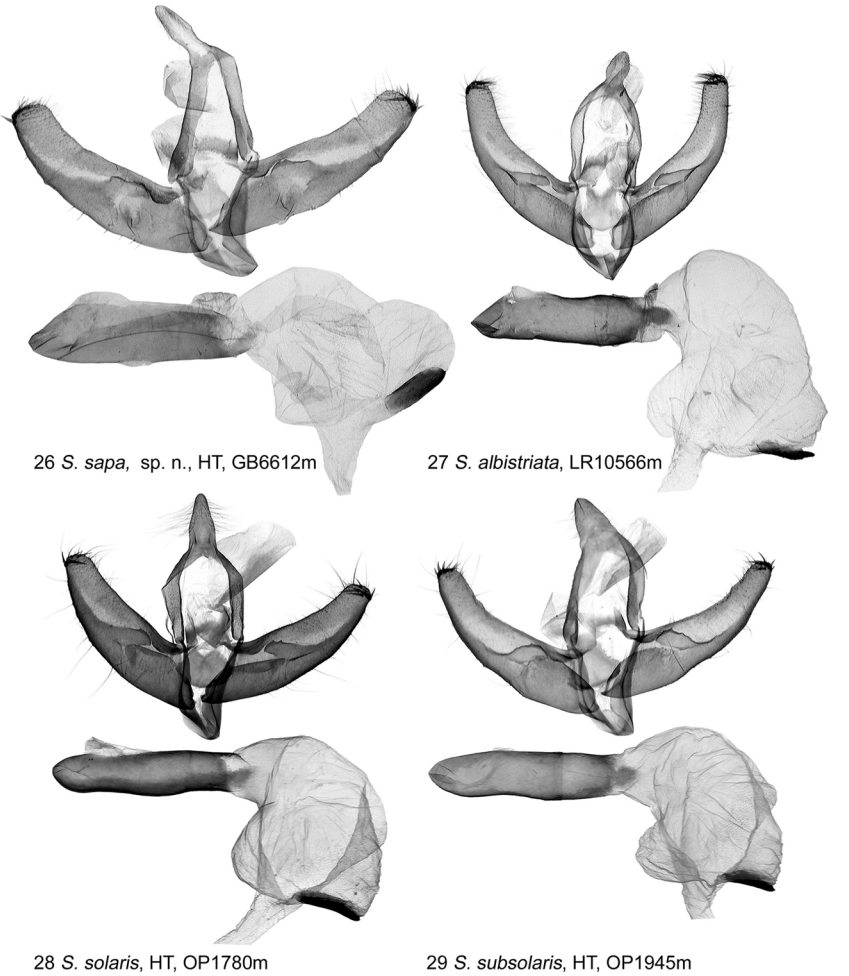
25 *S. subsolaris*, HT

Figures 22–25. *Stenoloba* spp, adults. 22, *S. sapa* sp. n., male, Holotype, North Vietnam, Lao Cai (G. Behounek/ZSM); 23, *S. albistriata*, female, PT, Vietnam (ZFMK); 24, *S. solaris*, male, HT, China, NW Yunnan (G. Behounek/ZSM); 25, *S. subsolaris*, male, HT, China, Sichuan (G. Ronkay).

Male genitalia (Fig. 26). Uncus relatively long, narrow, slightly narrowed at base; tegumen somewhat longer than vinculum; transtilla relatively wide; juxta near triangular; vinculum strong, V-shaped; valva simple, elongate, slightly curved, practically not tapering distally with apex rounded, with a few short spine-like setae at apical margin; sacculus elongate, broad; clasper forming long, wide, dorsally dentate plate, located parallel to the margins of valva. Aedeagus short and straight; vesica bulb-like, everted posteriorly, recurved ventrally; medial part of vesica with three diverticula, one with elongated, nail-like, stout cornutus. Female unknown.

Distribution. North Vietnam, Province Lao Cai.

Etymology. The species name refers to the type-locality of the taxon.



Figures 26–29. *Stenoloba* spp, male genitalia. 26, *S. sapa* sp. n., Holotype, North Vietnam, Lao Cai (G. Behounek/ZSM); 27, *S. albistriata*, Vietnam, Lao Cai Prov. (HNHM); 28, *S. solaris*, HT, China, NW Yunnan (G. Behounek/ZSM); 29, *S. subsolaris*, HT, China, Sichuan (G. Ronkay).

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