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Статьи

Review of Semagystia monticola species group (Lepidoptera, Cossidae: Cossinae) with description of four new species from Central Asia

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The article gives a revision of the *Semagystia monticola* (Groum-Grshimaïlo, 1890) species group (Lepidoptera, Cossidae, Cossinae). The group comprises nine valid species. Detailed data on the distribution of all the species are provided. Four new species from Central Asia are described: *S. churkini* Yakovlev & Shapoval, sp. n. (Type locality: Kyrgyzstan, Moldo-Too Range, Kichine-Kindyk River), *S. fomichevi* Yakovlev & Shapoval, sp. n. (Type locality: Tajikistan, Eastern Pamir Mts., Zulumart [Palangguzar] Mt. Rg.), *S. toropovi* Yakovlev & Shapoval, sp. n. (Type locality: Kirgizia, Tschatkal Mt., Sary-Chelek lake), and *S. uvaydo* Yakovlev & Shapoval, sp. n. (Type locality: Tajikistan, Darvaz Mts., Khozratishoh Range, Khaburobot pass). The article is illustrated with imagoes of specimens from different localities and male genitalia of all new species.

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Keywords

Biodiversity, fauna, Carpenter-Moths, Tian-Shan, Gissar, Pamir, Alai, Kyrgyzstan, Uzbekistan, Tajikistan

Introduction

In the recent years, we have started the revision of Carpenter-Moths of the tribe Endagriini Duponchel, 1844 (Yakovlev et al. 2016, 2020, 2022; Yakovlev 2022; Yakovlev & Naydenov 2022), including over a hundred taxa of the species group, most of which are hard to identify. The tribe representatives are widely distributed in Middle East and Central Asia, also in Europe, North Africa, Southern Urals and Western Siberia (Daniel 1962; Yakovlev 2011; 2015).

The genus *Semagystia* Schorl, 1990 (type species, by original designation: *Endagria agilis* Christoph, 1884) includes 19 species (Schoorl 1990; Yakovlev 2011, 2014, 2015; Yakovlev et al. 2015), most of which are distributed in Central Asia and Afghanistan, only two of them (*S. cuhensis* de Freina, 1994 and *S. enigma* Yakovlev, 2007) live on Turkey and Transcaucasia, and two species (*S. kamelini* Yakovlev, 2004 and *S. tarbagataica* Yakovlev, 2014) penetrate deeply into the north-east of the genus range and are endemics of the mountains of south (Kazakhstan) Altai and Tarbagatay in East Kazakhstan.

One of the morphologically well isolated species is the highland *S. monticola* (Groum-Grshimaïlo, 1890). *Endagria monticola* was described from “Elle a été prise sur les pentes méridionales des monts Alaï, sur le col Djirgué-talbil (10,500 à 11,000 p. [3200−3350 m]), à la mi-Juillet, la nuit, à la lueur d’une lampe, et pendant une averse” in the remarkable monograph on the Lepidoptera fauna of Pamir, published in French and providing wonderful informative illustrations (Groum-Grshimaïlo 1890: 544−445, Pl. XX: Fig. 5) (Fig. 1). Examining the specimens, externally similar to *S. monticola*, we have found four new species. Their description is given below.

Material and methods

Male genitalia were mounted in euparal on slides following Lafontaine and Mikkola (1987). The imagoes were photographed using digital camera of iPhone 7. The genitalia preparations were photographed using an Olympus DP74 camera attached to an Olympus SZX16 stereomicroscope. The morphological terminology used in the description follows Kristensen (2003). The images were processed using Corel Photo-Paint 2017 software. The distribution map was generated using SimpleMappr software (Shorthouse 2010).

The material is deposited in the Museum Witt, Munich (MWM), Zoological Institute, St. Petersburg (ZISP); Naturhistorisches Museum, Wien (MNHW), and private collection of first author, Barnaul (RYB).

Result

Description of new species

Semagystia churkini

http://zoobank.org/A24759C8-394B-446E-9D84-BDCB19790E22

Figs 2–3, 14

Material. Holotype, male, Kyrgyzstan, Moldo-Too Range, Kichine-Kindyk River, 2270 m, 41°31′N 74°39′E, 11.07.2017, leg. P. Gorbunov; slide AN 046 (ZISP).

Paratypes. 9 males, same locality and data (RYB); 5 males, Kyrgyzstan, Moldo- Too Mts., Koro-Goo Pass, 41.5206689069764 N 74.64510847287059 E, 2400 m, 25−26.07.2017, leg. S.K. Korb (RYB); 5 males, Kyrgyzstan, Moldo-Too Mt. Range, 10 km NW of Kokdzhar vill., 2060 m, 41°32′N 74°45′E,

19.07.2018, leg. P. Gorbunov (RYB); 6 males, Kirgizien, Moldatoo Gebirge, Tschon-Konduk, 1800−2000 m, 27−28.06.1995, leg. V. Lukhtanov; slide Genitalpräparat Heterocera Nr. 28.216 (MWM); 1 male, Naryn-Suusamyr Mts., Kekemeren, 1500 m, 6.7.96., Lukhtanov leg. (MWM); 1 male, Narynskaja Reg., Akshijarak Mts., Teke Ujuk, 25.06.1996, leg. Lukhtanov (MWM); 2 males, Inn. Thian-Shan, W. Kokshaal Mts., Sary-Beles Mts., Kuldzha-Bashi riv., 24-26.07.2000, leg. S. Churkin (MWM).

Description. Fore wing in length 16 mm in holotype, 11−16 mm in paratypes. Antenna about 1/3 of fore wing in length, bipectinate, setae very short, not longer than antenna stem in diameter. Fore wing light-grey, with thin white border on costal edge (with small grey dots), brown strokes throughout all wing (more expressed from base to postdiscal portion), small white spot at top of discal cell, thin oblique dark-brown band in postdiscal portion cubitally, tiny hardly noticeable brown strokes submarginally and marginally, border thin, brown, fringe mottled (dark at veins, light between veins). Hind wing light-grey without pattern, border thin, brown, fringe mottled (dark at veins, light between veins).

Male genitalia. Uncus robust, tapered, basally wide, slightly narrowing to apex, apically slightly acute, strongly sclerotized; gnathos arms thin, short; gnathos of medium thickness, roll-like; valve poorly narrowing from base to apex, distal (apical) portion of valve membranous, costal edge of valve with semicircular, strongly sclerotized crest of medium size (crest edge with small folds), apex of valve lanceolate; transtilla process thick, short, poorly curved in medium third, apically sharp; juxta tiny, saddle-like, with short lobe-like lateral processes diverged at blunt angle; saccus small, semicircular; phallus shorter than valve (about 3/4 of valve in length), slightly curved in medium third, slightly narrowing from base to apex, vesica aperture in dorso-lateral direction, about 1/2 of phallus in length, vesica without cornuti.

Female unknown.

Diagnosis. The new species differs from the close *S. monticola* in a series of characters:

• the distinct thin oblique dark-brown band in the postdiscal portion cubitally;

• the thinner gnathos;

• the relatively poorly expressed crest on the costal edge of the valve;

• the short phallus.

Distribution. Kyrgyzstan (Inner Tian-Shan).

Etymology. The new species is named after our friend and colleague Sergei Churkin (Reutov), a well-known specialist in systematics and zoogeography of Papilionoidea in the Palaearctic, who made a significant contribution into the study of the Inner Tian-Shan fauna.

Semagystia fomichevi

http://zoobank.org/939A8BBE-60C2-4E26-90E5-30AB367C2DE4

Figs 4, 15

Material. Holotype, male, Tajikistan, Eastern Pamir Mts., Zulumart [Palangguzar] Mt. Rg., 20−30.07.2015, 3900 m, leg. V. Gurko; slide AN 049 (ZISP).

Description. Length of fore wing 15 mm. Antenna about 1/3 of fore wing in length, bipectinate, setae very short, not longer than antenna stem in diameter. Fore wing light-grey, series of black

dots along costal edge, thin black transverse strokes discally and postdiscally, small light ocher portion at top of discal cell, this wavy transverse band submarginally from costal edge to middle of wing, border thin, light-brown. Hind wing light-grey without pattern, border thin, light-brown.

Male genitalia. Uncus robust, tapered, basally wide, slightly narrowing to apex, apically slightly acute, strongly sclerotized; gnathos arms thick, short; gnathos robust, roll-like; valve slightly narrowing from base to apex, distal (apical) portion of valve membranous, costal edge of valve with robust, semicircular, strongly sclerotized crest (edge of crest serrated), apex of valve lanceolate; transtilla process thick, short, strongly curved in medium third, apically acute; juxta tiny, saddle-like, with short, lobe-like lateral processes, diverged at blunt angle; saccus small, semicircular; phallus slightly shorter than valve, poorly curved in medium third, slightly narrowing from base to apex, vesica aperture in dorso-lateral direction, about 2/5 of phallus in length, vesica without cornuti.

Female unknown.

Diagnosis. The new species differs from the close *S. monticola* in a series of characters:

• the process on the costal edge of the valve is semicircular, with small teeth (in *S. monticola*, the process on the costal edge of the valve is trapezoidal),

• the transtilla processes are more curved (in *S. monticola*, the transtilla processes are less curved).

Distribution. Tajikistan (Eastern Pamir Mountains).

Etymology. The new species is named after our friend and colleague, the famous arachnologist Alexander Fomichev (Barnaul), who did a great job studying the spiders of Central Asia, including the Eastern Pamirs.

Semagystia toropovi

http://zoobank.org/F9CEAEE4-2E29-40C0-A3D4-B14A76A224B1

Figs 5, 16

Material. Holotype, male, Kirgizia, Tschatkal Mt., Sary-Chelek lake, 2400 m, 24.07.1997, leg. S. Klimenko; slide Genitalpräparat Heterocera Nr. 28.215 (MWM).

Paratypes. 2 males, Kyrgyzstan, S. Chatkal, 5 km E Aflatun vill., Karasu riv., 1350 m, 19.06.2000, S. Churkin leg. (MWM); 1 male, Kyrgyzstan, Chatkal Mt. Range, Vrabat-Sai river, near Chap-Chima pass, 1870 m, 41°33′N 70°43′ E, 9−10.07.2022, leg. P. Gorbunov (RYB).

Description. Length of fore wing 14 mm in holotype, 14−15 mm in paratypes. Antenna about 1/3 of fore wing in length, bipectinate, setae very short, not longer than antenna stem in diameter. Fore wing light-grey, wide white border with rare black strokes along costal edge, white stroke in discal cell, white spot at top of discal cell, brown strokes discally and postdiscally, in discal portion (medially) fusing into brown spots of irregular shape; narrow oblique brown band in postdiscal portion (cubitally), thin brown strokes submarginally and marginally, border thin, brown, fringe mottled (dark at veins, light between veins). Hind wing light-grey, without pattern, border thin, brown, fringe mottled (dark at veins, light between veins).

Male genitalia. Uncus robust, tapered, basally wide, slightly narrowing to apex, apically slightly acute and strongly sclerotized; gnathos arms thick, short; gnathos poorly structured, thin; valve slightly narrowing from base to apex, distal (apical) portion of valve membranous, costal edge of

valve with semicircular crest of medium size without pronounced sclerotization (edge of crest almost smooth), apex of valve semicircular; transtilla process thick, short, slightly curved in medium third, apically acute; juxta tiny, saddle-like, with very short lobe-like lateral processes, diverged at right angle; saccus small, semicircular; phallus shorter than valve (about 3/4 of valve in length), almost straight, slightly narrowing from base to apex, vesica aperture in dorso-lateral direction, about 1/3 of phallus in length, vesica without cornuti.

Female unknown.

Diagnosis. The new species differs from the close *S. monticola* in a series of characters:

• the highly contrasting pattern on the fore wing;

• the less expressed process on the costal edge of the valve;

• the very short lateral processes of the juxta, diverged at a right angle;

• the almost straight phallus.

Distribution. Kyrgyzstan (Western Tian-Shan).

Etymology. The new species is named after the well known entomologist and naturalist, Mr. Sergey Toropov (Bishkek), an excellent expert on the entomofauna of the Tian Shan.

Semagystia uvaydo

http://zoobank.org/AF0BAA1D-485B-48BC-906F-26C6792A1A10

Figs 6, 17, 19

Material. Holotype, male, Tajikistan, Darvaz Mts., Khozratishoh Range, Khaburobot pass, 3350 m, 38°37′13″ N 70°43′8″ E, 26−27.07.2023, leg. Roman Yakovlev (slide: Prozorov 2023/0560) (ZISP).

Description. Length of fore wing 12 mm. Antenna about 1/3 of fore wing in length, bipectinate, setae very short, not longer than antenna stem in diameter. Fore wing dark-grey, ocher border with rare black strokes along costal edge, ocher spot at top of discal cell, ocher rounded portions postdiscally and submarginally, oblique row of big black spots in postdiscal area (cubitally), thin black strokes submarginally and marginally, border thin, brown, fringe mottled (dark at veins, light between veins). Hind wing grey, without pattern, border thin, brown, fringe mottled (dark at veins, light between veins).

Male genitalia. Uncus very robust, tapered, basally wide, slightly narrowing to apex, apically slightly acute, strongly sclerotized; gnathos arms thick, short; gnathos robust, roll-like; valve slightly narrowing from base to apex, distal (apical) portion of valve membranous, costal edge of valve with robust semicircular strongly sclerotized crest (small bumps along edge of crest), apex of valve semicircular; transtilla process thin, hook-like, apically acute; juxta tiny, saddle-like, with long spindle-like lateral processes, diverged at blunt angle; saccus robust, semicircular; phallus lightly shorter than valve, slightly curved in medium third, slightly narrowing from base to apex, vesica aperture in dosro-lateral direction, about 2/5 of phallus in length, vesica without cornuti.

Female unknown.

Diagnosis. The new species differs from the close *S. monticola* in a series of characters:

1. more mottled, fine-spotted coloring of the fore wing,

2. the thin processes of the transtilla (in *S. monticola*, the transtilla processes are thicker),
3. the shorter aperture of the vesica, 2/5 of the phallus in length (in *S. monticola*, the vesica aperture is 3/5 of phallus in length).

Distribution. Tajikistan (Darvaz Mountains).

Etymology. The new species is named after the first author's friend, our guide in the Pamirs, Mr. Uvaydo Kudratbekov (Pershinev, Tajikistan), without his help our research into the mountains of Badakhshan would have been impossible.

Catalogue of *Semagystia monticola* species group

***Semagystia churkini* sp. n.**

Type locality: Kyrgyzstan, Moldo-Too Range, Kichine-Kindyk River.

Type material (Holotype, male) in ZISP, examined.

Distribution: Kyrgyzstan, Inner Tian-Shan.

Biology and habitat. Adult specimens fly from end of June to end of July on altitude 1500−2400 m.

***Semagystia fomichevi* sp. n.**

Type locality: Tajikistan, Eastern Pamir Mts., Zulumart [Palangguzar] Mt. Rg.

Type material (Holotype, male) in ZISP, examined.

Distribution: Tajikistan, Eastern Pamir.

Biology and habitat. Adult specimens fly from end of July on altitude 3900 m.

***Semagystia kamelini* Yakovlev, 2004**

Fig. 7

Yakovlev, 2004: 156.

Type locality: Kazakhstan E., S. Altai Mts., Narymsky Mts.

Type material (Holotype, male) in MWM, examined.

Material examined. 3 males (Holotype and paratypes), Eastern Kazakhstan, Southern Altai Mts., Narymsky Mts., 2100 m, 21.06.2000., leg. Klimenko (MWM); 1 male, Eastern Kazakhstan, Taldy-Kurgan Mts., Ili fluss, Boroshudzhir, 1500 m, 7.06.1996, Lukhtanov leg. (MWM).

Distribution: Eastern Kazakhstan (Southern Altai and Dzungarian Ala-Tau Mts.).

Biology and habitat. Adult specimens fly in June on altitude 1500−2100 m.

***Semagystia lukhtanovi* Yakovlev, 2007**

Figs 8−9

Yakovlev, 2007: 10−11.

Type locality: Tadjikistan, the Ghissarskii Mountain Range, Lake Iskanderkul’.

Type material (Holotype, male) in MWM, examined.

Material examined. **Kyrgyzstan**: 2 males, Kyrgyzstan, Turkestanskyi Mt. Range, 11 km SE of Katran vill., Buldzhuma river, 1800 m, 39°44′N 70°05′E, 4.07.2019, leg. P. Gorbunov (RYB); **Tajikistan**: 1 male (Holotype), Tadzhikistan, the Ghissarskii Mountain Range, Lake Iskanderkul’, 2200, 20.07.1994, leg. V. Lukhtanov (MWM); 1 male (paratype), Tajikistan, Turkestanskij Mts., Shakhristan pass, 3200 m, 27.07.1994, leg. Lukhtanov (MWM); 1 male, Tajikistan, Turkestanskij Mts., Obburdon pass, 55 km S Ura-Tjube, 3000 m, 14-19.07.1994, leg. Lukhtanov (MWM); 1 male, Pendzhikent Reg., Seravshan, Magien, 1800 m, 10.07.1994, leg. Lukhtanov (MWM); 2 males, Karategin Mts., Sangikar, 1700 m, 15.08.1969, leg. Stchetkin (MWM); 1 male, Obikhingou Valley, Tavildara, 1850 m, 14.07.1970, leg. Stchetkin (MWM); 1 male, Varzob Valley, Maikhury, 24.07.1967, leg. Stchetkin (MWM); 1 male, 40 km S Pedzhikent, Farob, 1700 m, 5-7.07.1994, leg. Lukhtanov (MWM); 1 male, Tadzhikistan, Gissar Mts., Anzob, 2250 m, 9.08.1999, leg. Yu. Stchetkin (RYB); 1 male, Tadzhikistan, Gissar, Schlucht, Majchura, 2000 m, 7.08.1999, leg. Yu. Stchetkin leg. (RYB). **Uzbekistan**: 1 male, Zerawshan, Artuch, 26.06.1986, leg. Nekrasov (MWM); 5 males, Aman-Kutan, 5-10.07.1996, leg. Baidak (MWM); 1 male, Amankutan, Tahtakaracha pass, 1500 m, 20-26.06.1996, leg. Baidak (MWM); 1 male, Amankutan, 14.06.1994, leg. Lukhtanov (MWM); 1 male, Zaaminsky Reserve, 1.07.1995 (MWM); 1 male, Uzbekistan, Turkestan Mts., Supa Plateau, 2300 m, 26.07.2003, leg. O. Legezin (RYB); 1 male, Uzbekistan, Zeravshan Mts., Kitabskyi Reserve, 1500 m, 12−18.06.2000, S. Nikiforov leg. (RYB).

Distribution: Kyrgyzstan, Tadzhikistan and Uzbekistan (Gissar Mts.).

Biology and habitat. Adult specimens fly from middle of June to August on altitude 1500−3000 m.

Semagystia monticola **(Groum-Grshimaïlo, 1890)**

Figs 10−11, 18

Endagria monticola Groum-Grshimaïlo, 1890: 544−545.

Type locality: Alaï, sur le col Djirgué-tal-bil [Kyrgyzstan, Alai Mts.].

Type material (Holotype, male) in ZISP. Probably lost.

Material examined: 4 males, Kyrgyzstan, Alai Mts., Dugoba, 3200 m, 16.07.1985 m, leg. Murzin (MWM); 1 male, Kyrgyzstan, Alai, Osh area, 2000 m, 10-30.08.2005 (MWM); 11 males, Kyrgyzstan, Alai, 10 km N Daraut-Kurgan, Tengizbaj pass, 3000 m, 11.07.1995, leg. V. Lukhtanov (MWM); 1 male, Kyrgyzstan, Osh area, Uzghen distr., 10.08.2005, 1600 m (MWM); 2 males, Kyrgyzstan, Oshe Reg., Alai Valley, Kyzyl-Eshme vill., 2600−2700 m, 39°33′N 72°15′E, 23.07.2019, leg. S.K. Korb (RYB); 2 males, Kyrgyzstan, Alai Mts., 7 km N of Kyzyl-Eshme vill., road to Tengizbai pass, 3330 m, 39°38′03′′N 72°15′25′′E, 9.07.2023, leg. P. Gorbunov (RYB); 1 male, Kyrgyzstan, Alai Mt. Range, 10 km N of Gulcha, Gulcha river Valley, 1420 m, 40°24′N 73°22′E, 23.06.2019, leg. P. Gorbunov (RYB); 1 male, Kyrgyzstan, Alai Mts., 9 km N Taldy-Suu, Dzhiptik-Suu river, 3330 m, 39°45N 72°55′E, 14−15.07.2023, leg. P. Gorbunov; slide Prozorov 2023/0574 (RYB); 2 males, E. Transalai Mts, Nura, 3100 m, 30.07.1996 (MWM); 2 males, Kyrgyzstan, Transalai Mts., Aram-Kungei, 3400 m, 21−28.07.1995, leg. S. Nikiforov (RYB).

Distribution: Kyrgyzstan (Alai and Transalai Mts.) (Daniel, 1964, 1971).

Biology and habitat. Adult specimens fly from end of June to August on altitude of 1420−3400 m.

Semagystia toropovi **sp. n.**

Type locality: Kirgizia, Tschatkal Mt., Sary-Chelek lake.

Type material (Holotype, male) in MWM, examined. Distribution: Kyrgyzstan, Western Tian-Shan.

Biology and habitat. Adult specimens fly from middle June to end July on altitude 1350−2400 m.

Semagystia uvaydo **sp. n.**

Type locality: Tajikistan, Darvaz Mts., Khozratishoh Range, Khaburobot pass.

Type material (Holotype, male) in ZISP, examined. Distribution: Tajikistan, Darvaz Mts.

Biology and habitat. Adult specimens fly from end of July on altitude 3350 m.

Semagystia wernerithomasi **Yakovlev, 2007**

Fig. 12

Yakovlev, 2007: 8−9.

Type locality: Afghanistan, Bandesmir [Bandeamir]. Type material (Holotype, male) in MWM, examined.

Material examined: 1 male (holotype), Afghanistan, Bandeamir, 2200 m, 9−12.07.1975, W. Thomas leg. (MWM); 2 males, Afghanistan, Bamian, Band-e-Amir, 3100 m, 13.07.2013, leg. I. Pljustch, Yu. Skrylnik & O. Pak (RYB).

Distribution: Afghanistan.

Biology and habitat. Adult specimens fly in middle of July on altitude 2200−3100m.

Semagystia witti **Yakovlev, 2007**

Fig. 13

Yakovlev, 2007: 9−10.

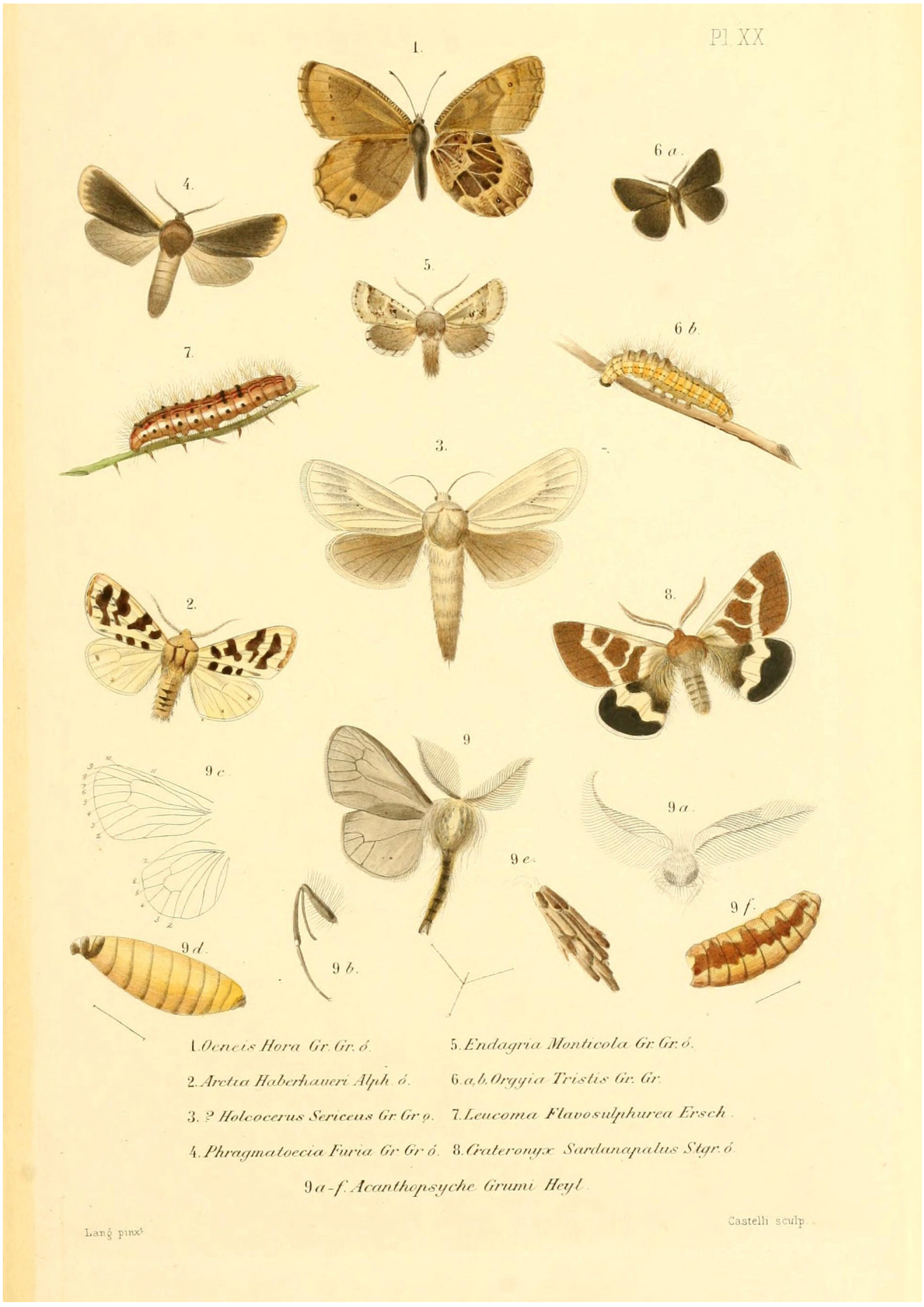
Type locality: Afghanistan, Logar Tal.

Type material (Holotype, male) in MWM, examined.

Material examined. 3 males (holotype and paratypes), Afghanistan, Logar Tal, 2700 m, 28.05.1973, coll. Dr. Liedgens (MWM); 1 female, O. Afghanistan, Sarobi, 1100 m, 24.04.1961, Ebert (MWM); 5 males, 2 females, Afghanistan, 10 km NW Kabul, 19.05.1965, leg. Kasy & Vartian (MWM, MNHW).

Distribution: Afghanistan.

Biology and habitat. Adult specimens fly from end of April to end of May on altitude approximately 1100−2700 m.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9 c.
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1. Oeneis Hora Gr. Gr. ♂.
2. Arctia Haberhaueri Alph ♂.
3. ♀ Holocerus Sericeus Gr. Gr ♀.
4. Phragmatoecia Furia Gr. Gr ♂.
5. Endagria Monticola Gr. Gr. ♂.
6. a, b. Orygia Tristis Gr. Gr.
7. Leucoma Flavosulphurea Ersch.
8. Grateronyx Sardanapalus Stgr. ♂.
9 a-f. Acanthopsyche Grumi Heyl.
Lang pinx.
Castelli sculp.

Figure 1. *Plate with Holotype of Endagria monticola (from Groum-Grshimaïlo, 1890) (https://archive.org/details/mmoiressurlesl04niko/page/544/mode/1up?view=theater).*

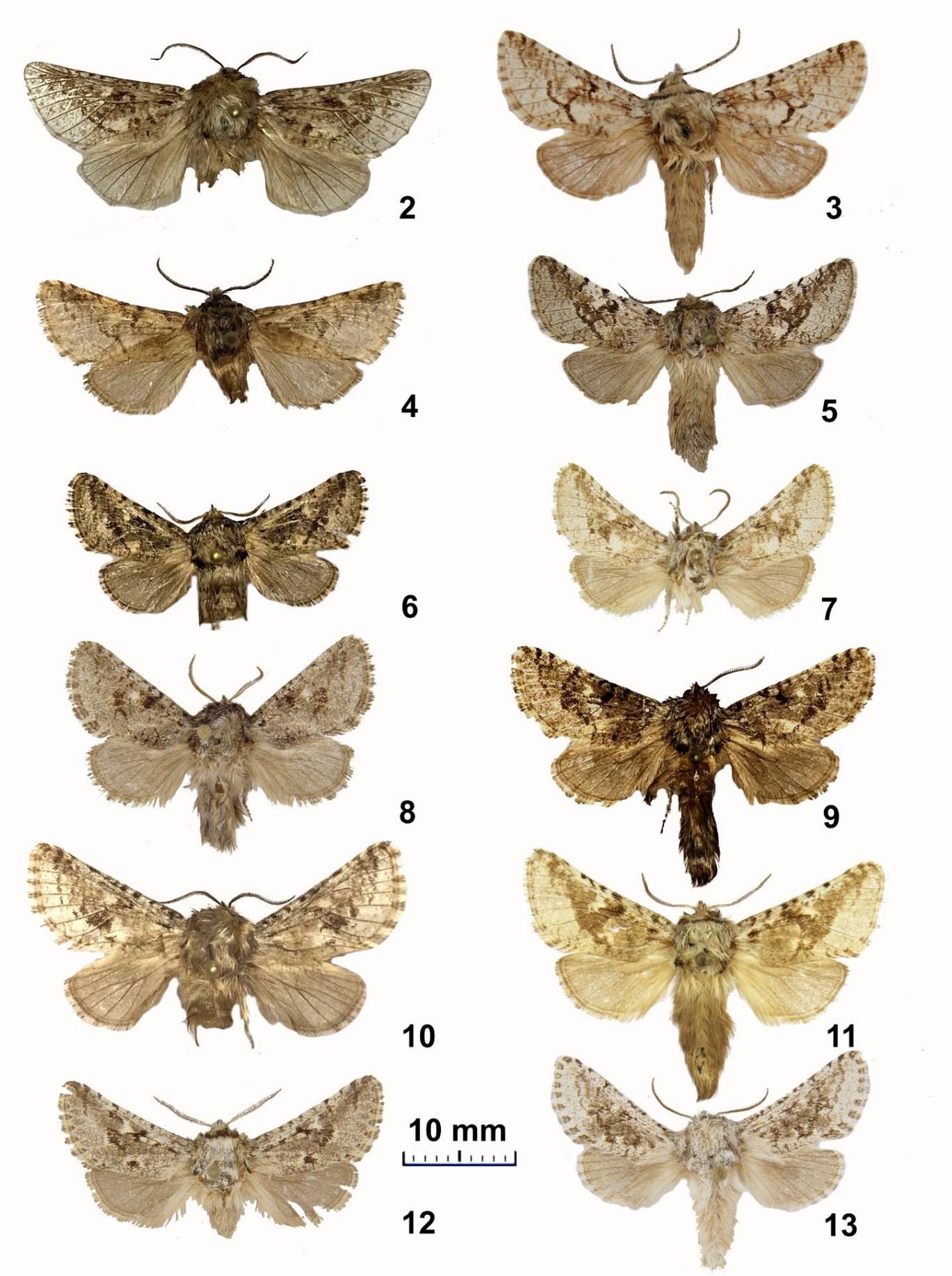
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Figure 2. ***Figures 2–13.*** *Adult males of Semagystia:* ***2.*** *S. churkini, Holotype (ZISP);* ***3.*** *S. churkini, Paratype, Kirgizien, Moldatoo Gebirge, Tschon-Konduk, 1800−2000 m, 27−28.06.1995, leg. V. Lukhtanov (MWM);* ***4.*** *S. fomichevi, Holotype (ZISP);* ***5.*** *S. toropovi, Holotype (MWM);* ***6.*** *S. uvaydo, Holotype (ZISP);* ***7.*** *S. kamelini, Holotype (MWM);* ***8.*** *S. lukhtanovi, Holotype (MWM);* ***9.*** *S. lukhtanovi, Uzbekistan, Turkestan Mts., Supa Plateau, 2300 m, 26.07.2003, leg. O. Legezin (RYB);* ***10.*** *S. monticola, Kyrgyzstan, Alai Mts., 9 km N Taldy-Suu, Dzhiptik-Suu river, 3330 m, 39°45N 72°55′E, 14−15.07.2023, leg. P. Gorbunov (RYB);* ***11.*** *S. monticola, Kyrgyzstan, Alai, Osh area, 2000 m, 10-30.08.2005 (MWM);* ***12.*** *S. wernerithomasi, Holotype (MWM);* ***13.*** *S. witti, Holotype (MWM).*

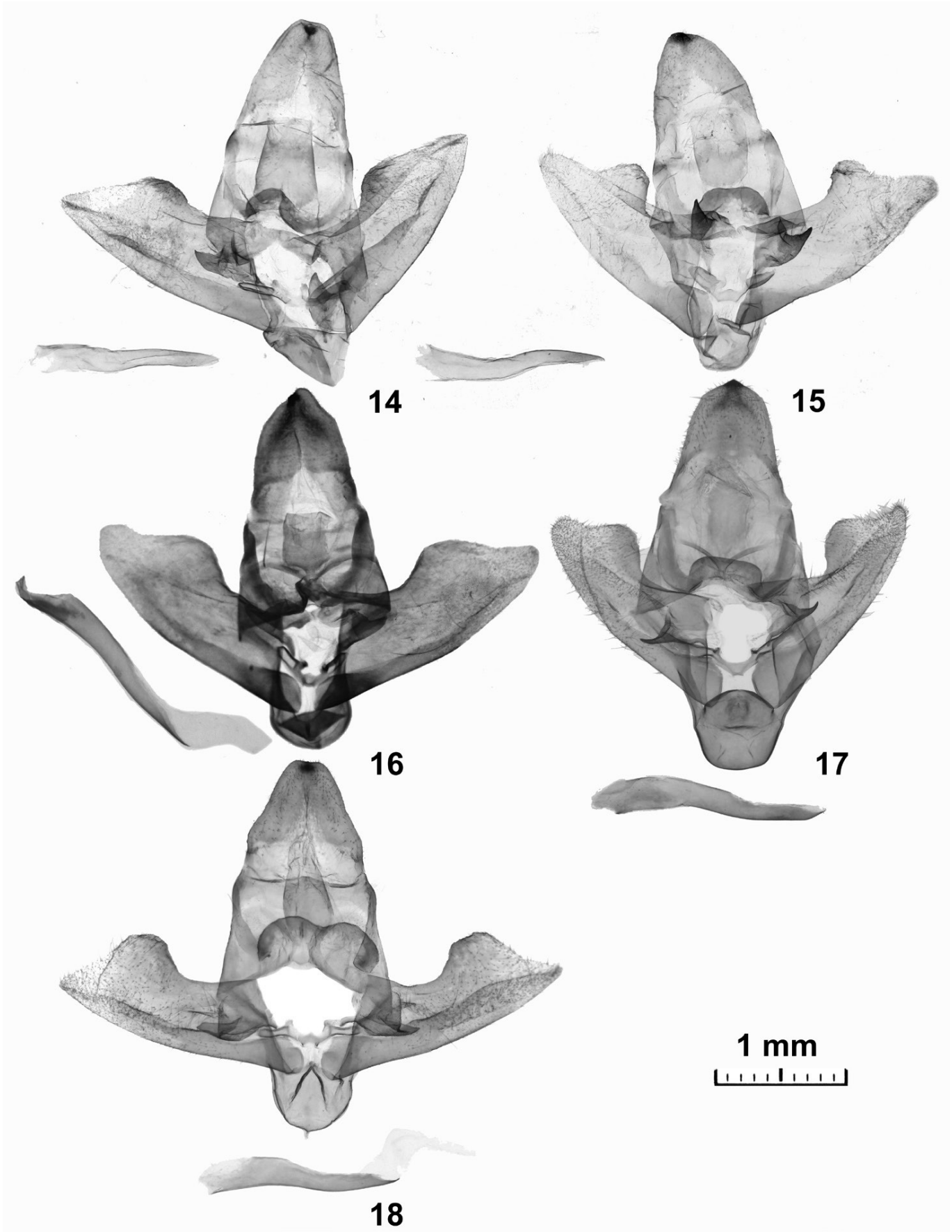

Figure 3. ***Figures 14–18.*** *Male genitalia of Semagystia:* ***14.*** *S. churkini, Holotype, slide AN 046 (ZISP);* ***15.*** *S. fomichevi,*

Holotype, slide AN 049 (ZISP); ***16.*** *S. toropovi, Holotype, slide Genitalpräparat Heterocera Nr. 28.215 (MWM);* ***17.*** *S. uvaydo, Holotype, slide Prozorov 2023/0560 (ZISP);* ***18.*** *S. monticola, Kyrgyzstan, Alai Mts., 9 km N Taldy-Suu, Dzhiptik-Suu river, 3330 m, 39°45N 72°55'E, 14−15.07.2023, leg. P. Gorbunov, slide Prozorov 2023/0574 (RYB).*

Figure 4. ***Figure 19.*** *Habitat of S. uvaydo (photo by R. Yakovlev).*

Discussion

Thus, *Semagystia monticola* (Groum-Grshimaïlo, 1890) species group includes 9 species, widespread in mountainous areas from Altai to Paropamiz (Fig. 20). The most north-eastern location is the Narym Range in the Kazakh part of the Altai Mountains (*S. kamelini*), and the south-western one is Logar Valley in the Central Afghanistan (*S. witti*). The species discussed here are endemic to certain mountain systems of Central Asia. If we consider the distribution of the group from north to south, then the endemic of Altai and Dzungarian Alatau is *S. kamelini*; of the Inner Tian-Shan – *S. churkini*; Western Tian-Shan − *S. toropovi*; Alai and Transalai – *S. monticola*; Gissar – *S. lukhtanovi*; Darvaz – *S. uvaydo*; Eastern Pamir – *S. fomichevi*; Paropamiz – *S. wernerithomasi* and *S. witti*. The specimens of this species group are among the highest altitude representatives of the Cossidae family in Eurasia . In Altai, they are reported from the altitudes up to 2100 m, in Tian-Shan − up to 2400 m, on Alai and Transalai Mts. − up to 3400 m, on the Gissar and Darvaz Mts. − up to 3350 m, on the Eastern Pamir − 3900 m, on the Paropamiz − 3000 m. The flight of adults occurs in the middle of the summer, with the exception of Afghanistan (in April−May), where the phenological summer begins much earlier than in more northern regions. Further molecular genetic research of this group representatives is of great interest; the DNA sequences have already been obtained for most taxa, which will be analyzed in our subsequent

works.

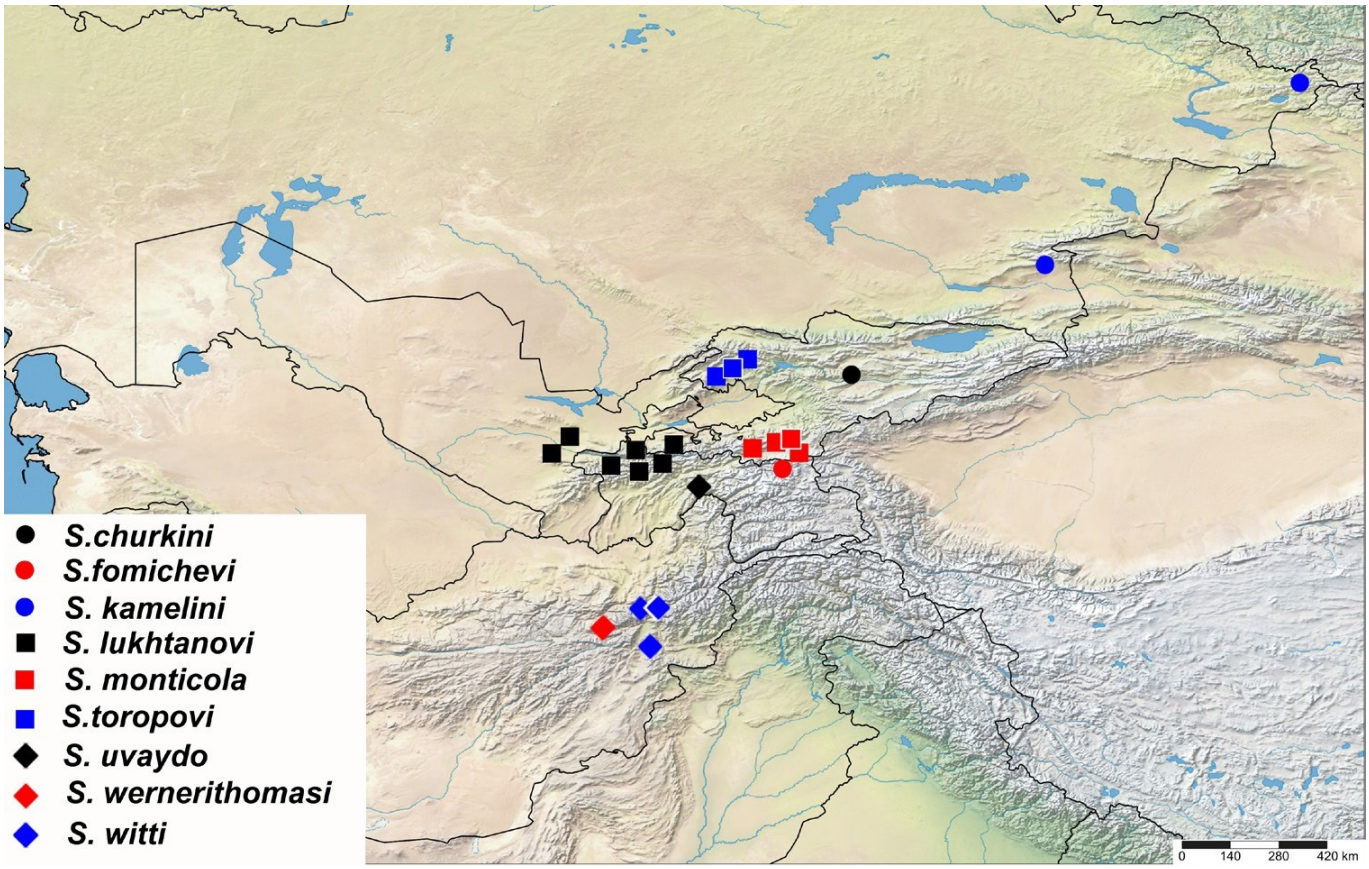

Figure 5. ***Figure 20.*** *Distribution of Semagystia monticola species group.*

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References

Daniel F (1962) Monographie der palaearktischen Cossidae. VI. Genus *Dyspessa* Hbn. Erster Teil. Mitteilungen der Münchner Entomologischen Gesellschaft 52: 1–38.

Daniel F (1964) Cossidae aus Afganistan (Lep.). Opuscula Zoologica 77: 1–8.

Daniel F (1971) Österreichische Expeditionen nach Persien und Afghanistan. Annalen des Naturhistorischen Museums in Wien 75: 651–660.

Groum-Grshimaïlo Gr (1890) Le Pamir et la faune lépidoptérologique. Mémoirs sur les lépidoptères. Red. N.M. Romanoff 4: 1–576.

Kristensen NP (2003) Lepidoptera, Moths and Butterflies. Vol. 2. Morphology, Physiology, and Development. Handbuch der Zoologie de Gruyter 4. Arthropoda: Insecta. Part 36. Walter de Gruyter, Berlin and New York, xii + 564 pp.

Lafontaine JD, Mikkola K (1987) Lock–and–key system in the inner genitalia of Noctuidae (Lepidoptera) as taxonomic character. Entomologiske Meddelelser 55: 161–167.

Shorthouse DP (2010) SimpleMappr, an online tool to produce publication-quality point maps. http://www.simplemappr.net

Yakovlev RV (2004) Carpenter-moths (Lepidoptera, Cossidae) of Siberia. Euroasian Entomological Journal 3(2): 155–163.

Yakovlev RV (2007) New species of Palaearctic Cossidae (Lepidoptera). Eversmannia 10: 3–23. [In Russian]

Yakovlev RV (2011) Catalogue of the Family Cossidae of the Old World. Neue Entomologische Nachrichten 66: 1–129.

Yakovlev RV (2014) Carpenter-Moths (Lepidoptera, Cossidae) of Altai Mountains Country. Zoologicheski Zhurnal 93(5): 651–661. https://doi.org/10.7868/S0044513414050080 [In Russian]

Yakovlev RV (2015) Patterns of Geographical Distribution of Carpenter Moths (Lepidoptera: Cossidae) in the Old World. Contemporary Problems of Ecology 8(1): 36–50. https://doi.org/10.1134/S1995425515010151

Yakovlev RV (2022) What is *Semagystia clathrata* (Christoph, 1884) (Lepidoptera, Cossidae: Cossinae)? Acta Biologica Sibirica 8: 713–719.

Yakovlev RV, Naydenov AE (2022) Two new species of the genus *Dyspessa* Hübner, [1820] 1816 (Lepidoptera, Cossidae: Cossinae) from Darvaz Mountains (Southern Tajikistan). Ecologica Montenegrina 60: 32−35. https://dx.doi.org/10.37828/em.2022.60.5

Yakovlev RV, Pljustch IG, Skrylnik Yu, Pak O, Witt Th (2015) The Cossidae (Lepidoptera) of Afghanistan with description of three new species and special notes on the fauna of Bande-Amir National Park. Zootaxa 3990(1): 41–72. http://dx.doi.org/10.11646/zootaxa.3990.1.3

Yakovlev RV, Saldaitis A, Pekarsky O (2016) A new species of *Dyspessa* Hübner, (Lepidoptera, Cossidae) from Western China, with catalogue of Chinese species of the genus. Zootaxa 4107(1): 085–088. http://doi.org/10.11646/zootaxa.4107.1.5

Yakovlev RV, Shapoval NA, Ivonin VV, Knyazev SA, Kuftina GN, Masharskiy AE (2020) A new species of Carpenter Moths (Lepidoptera, Cossidae) from Tarbagatai (NE Kazakhstan) and Altai (SW Siberia, Russia) Mountains. Zootaxa 4896(1): 085–095. https://doi.org/10.11646/zootaxa.4896.1.3

Yakovlev RV, Shapoval NA, Shapoval GN, Naydenov AE (2022) Review of the *Dyspessa salicicola* (Eversmann, 1848) species group (Lepidoptera, Cossidae: Cossinae). Acta Biologica Sibirica 8: 693–712.