

Two new species of *Swammerdamia* from the southern Ural Mountains and southern Siberia (Lepidoptera: Yponomeutidae)

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Swammerdamia glaucella sp. n. and *S. buraetella* sp. n. are described on the basis of material collected from the southern Ural Mountains and southern Siberia. *S. glaucella* occurs in forest steppe slopes and bushy meadows in two generations from the end of May to the beginning of July and late July. The species is widely distributed in southern Russia and the adjacent regions. *S. buraetella* is only known from Buryatia where it seems to favour open steppe habitats. The species occurs in two generations from the end of April to the end of May and in July. Both new taxa differ from their known relatives both externally and on the structures of genitalia. The Russian records of *Kessleria caflischiella* (Frey, 1880) are discussed.

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1. Introduction

Since the description of the genus *Swammerdamia* Haworth, 1826, many studies have been conducted concerning this and related genera of small ermine moths in the Yponomeutinae (e.g. Friese 1960, Moriuti 1977, Huemer & Tarmann 1992). A recent historical review (Gershenson & Ulenberg 1998) outlines information concerning 231 species classified in 25 genera, including Meyrick's List of Yponomeutidae in Wagner's Lepidopterorum Catalogus (1914). Gershenson & Ulenberg (1998) recognised eight species of *Swammerdamia*, six of those belonging to Palaearctic, one to Ethiopian and one to Oriental fauna. In addition, they list eleven species of the closely related *Paraswammerdamia*, eight of which be-

long to Palaearctic, two to Ethiopian and one to Oriental fauna. In the present paper, two new species of *Swammerdamia* are described based on specimens collected in the southern Urals and widely in southern Siberia and some adjacent regions. One of the species, *Swammerdamia glaucella* sp. n., has proved to be a widespread and locally abundant species in, e.g. the southern Urals region. Therefore, it is somewhat surprising that this species was not mentioned by Eversmann (1844), which is the most thorough source of information about the Lepidoptera fauna of the southern Ural Mountains. As further discussed in the *Remarks* under *S. glaucella* below, it seems that the identity of this species has later on been confused with *Kessleria caflischiella* (Frey, 1880) occurring in the Alps.

2. Classification and species descriptions

The generic classification followed here is based on those of Friese (1960) and Moriuti (1977). The new taxa have been defined from the genus *Swammerdamia* by the following combination of characters: Adult: Maxillary palpus 1-segmented; tongue developed; forewing rather broad, 11-veined with completely fused M3 and Cu1A; hindwing 7-veined by fusion of M3 and Cu1A, M1 and M2 separate; abdominal terga spinose. The following characters in the male and female genitalia further support the placement of the new species to *Swammerdamia*: uncus forming a plate, socii with one spine at apex, tuba analis membranous, saccus large and defined, transtilla absent, saccus narrow and somewhat dilated anteriorly, aedeagus with distinct cornuti. Lamella postvaginalis with a pair of caudal processes, corpus bursae round, signum usually present. The closely related genus *Paraswammerdamia* is characterised by the rudimentary uncus, the valva with a conspicuous saccus and the stout saccus in the males, and the usually well developed caudal processes of the lamella postvaginalis in the females. Sometimes the signum is also absent (e.g. *Paraswammerdamia ruthiella* Steuer, 1993).

Swammerdamia glaucella sp. n.

Type material. Holotype: ♂ (Fig. 1): Russia, southern Urals, Cheliabinsk district, 55°01'N 60°06'E, 350 m, Miass, Ilmen reserve, 19.VI.1998 J. Junnilainen leg. In coll. J. Junnilainen. Paratypes (166 ♂♂, 30 ♀♀): same data as in holotype: 11 ♂♂, 8 ♀♀; same locality as holotype except: 13.VI.1996 1 ♂, 28.VI.1996 5 ♂♂, 28–29.VI.1996 3 ♂♂, 26–27.VI.1997 25 ♂♂ 3 ♀♀, 26.VI.1997 10 ♂♂ 2 ♀♀, 27.VI.1997 15 ♂♂ 1 ♀. K. Nupponen, J.-P. Kaitila, J. Junnilainen & M. Ahola leg.; 53°57'N 59°03'E, 650 m, near Moskovovo village, 22.VI.1996 3 ♂♂. K. Nupponen, J.-P. Kaitila, J. Junnilainen & M. Ahola leg., 26.V.1998 2 ♂♂, 18.VI.1998 1 ♂. T. & K. Nupponen leg.; Cheliabinsk district, 53°59'N 61°12'E, 250 m, Troizkii reserve near Berlin village, 30.VI.1997 1 ♂. K.

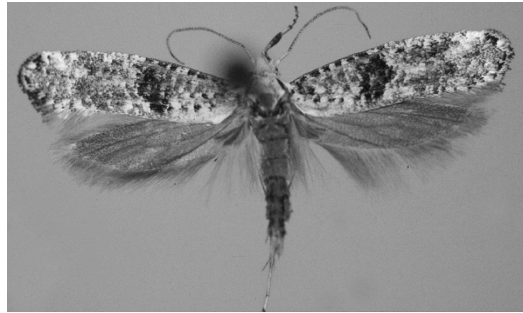


Fig. 1. *Swammerdamia glaucella* sp. n. ♂ holotype.

Nupponen, J.-P. Kaitila, J. Junnilainen & M. Ahola leg., 53°02'N 62°06'E, 200 m, Ajat river near Nikolaevka village, Sokolovskaja gora, 5.VII.1997 1 ♂. K. Nupponen, J.-P. Kaitila, J. Junnilainen & M. Ahola leg., 52°39'N 59°34'E, 350 m, Arkaim reserve, near Amurskii village, 14.VI.1996 3 ♂♂, 15.VI.1996 1 ♂, 17.VI.1996 1 ♂, 14–19.VI.1996 4 ♂♂, K. Nupponen, J.-P. Kaitila, J. Junnilainen & M. Ahola leg., 15.VI.1999 1 ♂. T. & K. Nupponen leg.; Orenburg district, 51°13'N 57°37'E, 350 m, Mednogorsk 20 km S near Kidriasovo village, 28–29.V.1998 4 ♂♂, 1 ♀. J. Junnilainen leg., 28.V.1998 6 ♂♂, 29.V.1998 6 ♂♂ 1 ♀, 16.VI.1999 1 ♂. T. & K. Nupponen leg.; 51°23'N 56°49'E, 130–340 m, Donskoje village 6 km W, Mount Verbljushka 30.V.–5.VI.1998 2 ♂♂, 10–12.VI.1998 3 ♂♂, J. Junnilainen leg., 30.V.1998 2 ♂♂, 10.VI.1998 3 ♂♂, 12.VI.1998 1 ♂, 15.VII.1998 1 ♂ 1 ♀, 13.V.1999 1 ♂, 17.VI.1999 1 ♂ 1 ♀, 18.VI.1999 2 ♂♂, 27.VII.2000 1 ♂, T. & K. Nupponen leg., 50°40–45'N 54°26–28'E, 170–230 m, Pokrovka village 20 km S, Chalk hills, 3–7.VI.1998 1 ♂. J. Junnilainen leg., 5.VI.1998 1 ♂, 6.VI.1998 1 ♂, 7.VI.1998 2 ♂♂, 22.VI.1999 2 ♂, T. & K. Nupponen leg.; 51°26'N 57°26'E, 250 m, Kuvandyk 12 km SE, 15.VI.1998 1 ♂, 16.VI.1998 1 ♂ 1 ♀. T. & K. Nupponen leg.; Bashkiria 51°54'N 57°43'E, 450 m, Sakmara river near Jantyshevo village, 20.VI.1996 6 ♂♂, 21.VI.1996 12 ♂♂ 1 ♀, K. Nupponen, J.-P. Kaitila, J. Junnilainen & M. Ahola leg.; Bashkiria 51°48'N 57°05'E, 500 m, Kasmarka river near Bishtiryak village, 13.VII.1998, 1 ♂, K. Nupponen leg.; Bashkiria 53°12'N 56°00'E, 400 m, nr. Zirgan



Fig. 2. *Swammerdamia glaucella* sp. n., ♂ genitalia (paratype, Russia S.-Ural, Cheliabinsk distr. Prep. no. 98041001/Junnilainen).

village, 24.VI.1999 1 ♂ 1 ♀ T. & K. Nupponen leg.; Altai Mts., 51°35'N 85°55'E, 700 m, Katun valley, Ust-Sema village 10 km SE, 23.VI.2000 2 ♀♀ T. & K. Nupponen leg., SW-Altai, Katun valley, 10 km W Katanda, 1200 m, 22.VI–8.VII.1983 9 ♂♂ 1 ♀, exp. Mikkola, Hippa & Jalava leg.; Novosibirsk oblast, Akademogorodok, 10–20.VI.1983 1 ♂, exp. Mikkola, Hippa & Jalava leg.; Tuva rep., 52°04'N 94°22'E, 670 m, Ust-Ujuk, steppe hills, 3.–5.VI.1995 1 ♂ Jalava & Kullberg leg.; Buryatia, 54°21'N 110°12'E, Barguzin valley, Upper Kurumkan river, 700 m, mixed forest, 1.VII.1996 3 ♂♂ Jalava & Kullberg leg.; Mongolia: Tov Aimak, 48°22'N 106°18'E, 1100 m, 18–23.VI.1997 1 ♂ Yu.M. Marusik leg. Kazakhstan: 43°24'N 75°2'E, Dzhambul'skaya oblast, 70 km NNE Frunze [Bishkek], 950 m,

rocky slope, 18–19.VII.1990 6 ♀♀ ad luc. L. Kaila & K. Mikkola, leg. Genitalia slides: J. Junnilainen prep. no. 98041001, 98041301, 98041302, 98042301, 99031202, 99031203; J. Kullberg prep. no. 2/7.12.1999; J. Kyrki Slide 07.11.1983 prep. no. A 284 / J. K.; 4 further genitalia preparations preserved in glycerol. The paratypes are preserved in private collections of J. Junnilainen, J.-P. Kaitila, T. & K. Nupponen as well as in the Zoological Museum, University of Helsinki, Finland.

Etymology. Latin, *glaucus* = bluish-grey. The species name alludes to the forewing scattered with fuscous scales, giving an impression of a bluish grey colour in fresh specimens.

Diagnosis. Externally *S. glaucella* sp. n. most resembles *S. caesiella* (Hübner, 1796) and *S. compunctella* (Herrich-Schäffer, 1851), but differs from those by the following details. Unlike other species of *Swammerdamia* and *Paraswammerdamia*, *S. glaucella* has bluish grey colour in the forewing with purplish brown colour in the forewing fascia. In the male genitalia the pointed apex in the valva, and the length of the aedeagus being twice the length of the valva separate *S. glaucella* from all other species of *Swammerdamia* and *Paraswammerdamia*. Although the similar shape of valva with a pointed apex is characteristic for the species of the genus *Kessleria*, the members of this genus always have 12-veined forewing and never completely fused M3 and Cu1A. In the female genitalia the shape of caudal margin of lamella postvaginalis most resembles that of *S. sedella* Moriuti, 1977, but the ductus bursae is shorter and broader, and the corpus bursae lacks the signum in *S. sedella*.

Description. Wingspan 13–17 mm. Head and thorax pure white. Antenna grey, annulated with brown, scape pure white. Labial palpus whitish, basally with fuscous scales. Fore and mid legs dark fuscous, hind leg light greyish white. Abdomen grey, paler beneath. Forewing ground colour white, largely overlaid with blue shining fuscous scales; antepical costal spot white, distinct antemedial fascia purplish brown; cilia fuscous, cilia line dark brown, cut by two white spots; in female forewing slightly shorter and broader, basally more whitish. Hindwing and cilia dark grey, hyaline patch absent.

Male genitalia (Figs. 2 and 3). Socii slender, nearly parallel, one minute spine at apex. Uncus

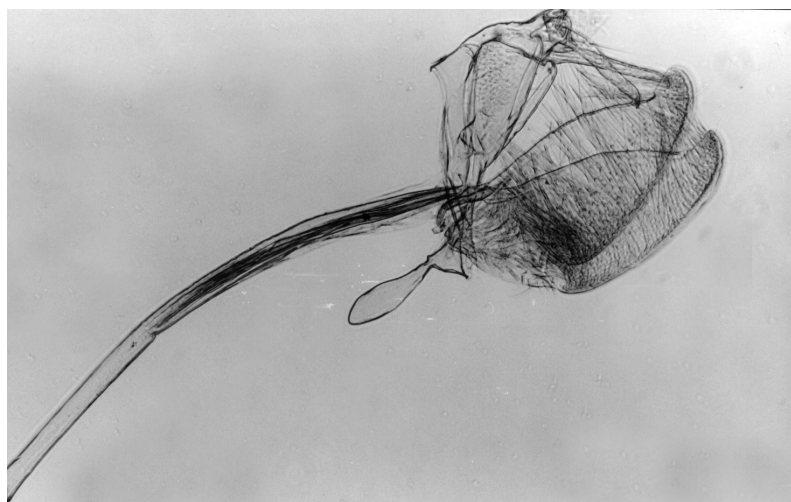


Fig. 3. *Swammerdamia glaucella* sp. n., ♂ genitalia (paratype, Russia S.-Ural, Cheliabinsk distr. Prep. no. 98041302/Junnilainen), in lateral view.

shallow, broad, well sclerotised. Ventral plate of gnathos angulate. Valva about twice as long as wide; costal margin bend; dorsal margin almost straight; sacculus well defined, almost separate plate; cucullus rounded with pointed apex. Saccus rather short, slightly dilated anteriorly, bowl-shaped from lateral view. Aedeagus long and slender with distinct basal scape, about twice the length of valva, apex pointed with two long and narrow cornuti being more than half the length of aedeagus.

Female genitalia (Figs. 4 and 5). Caudal margin of lamella postvaginalis rather wide, concave. Antrum cup-shaped. Ductus bursae very long, narrow, membranous. Corpus bursae round with prominent, dentate signum.

Biology. *Swammerdamia glaucella* occurs in two generations from the end of May to the beginning of July and again late July. The species occurs in different kinds of xerothermic sites, like mixed forest, forest steppe with bush meadows, but also open steppe and rocky slopes. Dominant shrubs in such habitats are *Spirea crenata*, *Spirea hypericifolia*, *Caragana frutex*, *Cotoneaster melanocarpus*, and *Lonicera ssp.* The type material is mainly collected by artificial light, up to the altitude of 1200 m. Immature stages remain unknown. However, *S. glaucella* could well be associated with *Spirea* or *Cotoneaster* since these plants are often abundant in the collecting sites of *S. glaucella*.

Distribution. Widely distributed in central part of Palearctic region. Known from Russia (south-

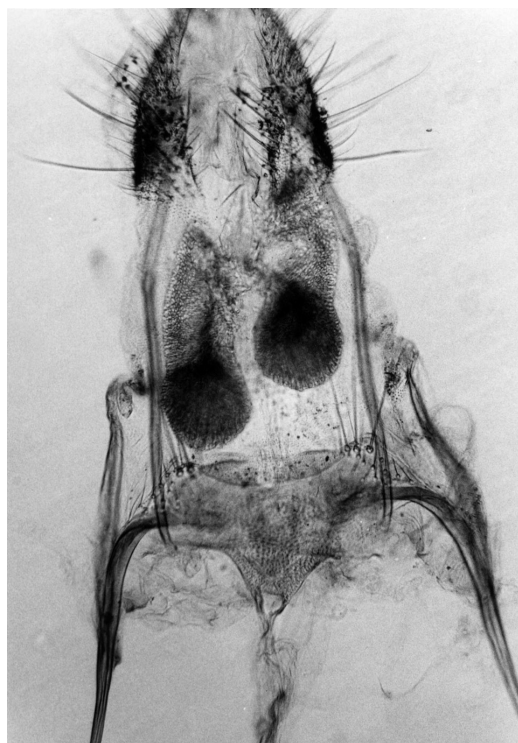


Fig. 4. *Swammerdamia glaucella* sp. n., ♀ genitalia (paratype, Russia S.-Ural, Cheliabinsk distr. Prep. no. 99031203/Junnilainen), papillae anales and ostium bursae.

ern Ural Mountains, Tuva republic, Buryatia), SE Kazakhstan and Mongolia.

Remarks. *Kessleria caflischiella* (Frey, 1880)

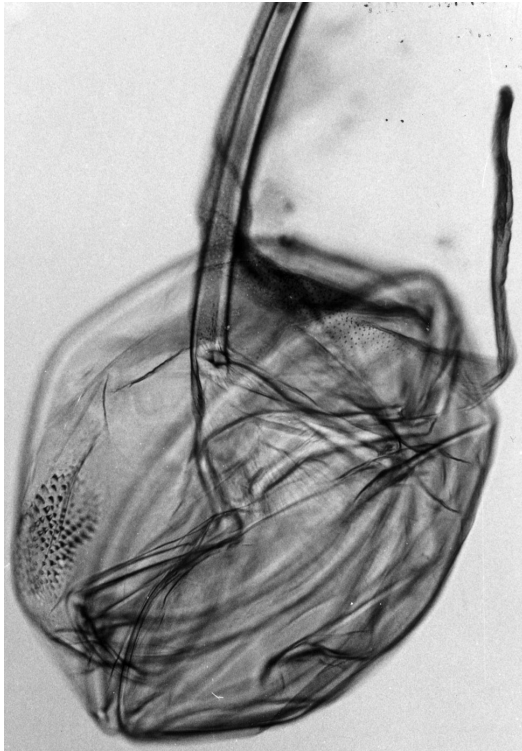


Fig. 5. *Swammerdamia glaucella* sp. n., ♀ genitalia (paratype, Russia S.-Ural, Cheliabinsk distr. Prep. no. 99031203/Junnilainen), corpus bursae.

was recorded from Russia by Gershenson, 1980). However, the drawings of the imago as well as genitalia structures of both sexes presented by Gershenson (1980), do not agree with *K. caflischiella* in several crucial details (cf. Huemer & Tarmann 1992, Parenti 2000), particularly the broader forewing and its different markings (e.g. forewing fascia of *K. caflischiella* is strongly oblique and does not contain any purplish brown colour). Moreover, *K. caflischiella* occurs in high altitudes in the Alps, while the Russian records come from lower altitudes in more xerothermic localities. The Russian records of *K. caflischiella* are obviously referable to *Swammerdamia glaucella* sp. n. whose male genitalia are superficially similar to those of *K. caflischiella*. These species can, however, be readily identified from each other by the broader forewing of *S. glaucella* with 11 veins, as compared to the narrow but 12-veined



Fig. 6. *Swammerdamia buraetella* sp. n. ♂ holotype.

forewing shape of *K. caflischiella*. These species can also be identified by the female signum which is present in *S. glaucella*, absent in *K. caflischiella*. Gershenson (1980) did not include the corpus bursae in the illustrations, but erroneously mentions in the text that the signum would be absent. Two specimens deposited in the Zoological Museum, St. Petersburg, determined as *K. caflischiella* by Gershenson have been confirmed to be *S. glaucella* (K. Nupponen pers. comm.).

Swammerdamia buraetella sp. n.

Type material: Holotype: ♂ (Fig. 6). Russia, Buryatia, 51°40'N 107°20'E, 35 km SW Ulan-Ude, Ivolginsk-Taphar 700 m, steppe-hill, 17.VII.1996 J. Jalava & J. Kullberg leg. Paratypes (41 ♂♂, 9 ♀♀): with the same data as in holotype 7 ♂♂, 5 ♀♀; same locality as holotype, 28.IV.1998 4 ♂♂, 29.IV.1998 5 ♂♂ 2 ♀♀, 7.V.1998 24 ♂♂ 2 ♀♀, 8.V.1998 1 ♂ J. Kullberg leg. Genitalia slides: J. Junnilainen prep. no. 00012701, 00012702, 00012703, 00012802, 00012803, 00012804, 00012901, 00012902, 00012903; J. Kullberg prep. no. 1/7.12.1999; 2 further genitalia preparations preserved in glycerol. Holotype and the paratypes are preserved in the Zoological Museum, University of Helsinki, Finland.

Etymology. The species name is derived from Buryatia.

Diagnosis. *S. buraetella* most resembles *S. pyrella* (Villers, 1789), but differs from that externally by the distinct fascia on the forewing. In the male genitalia *S. buraetella* is characterised by the strongly pointed apex of valva, the similar

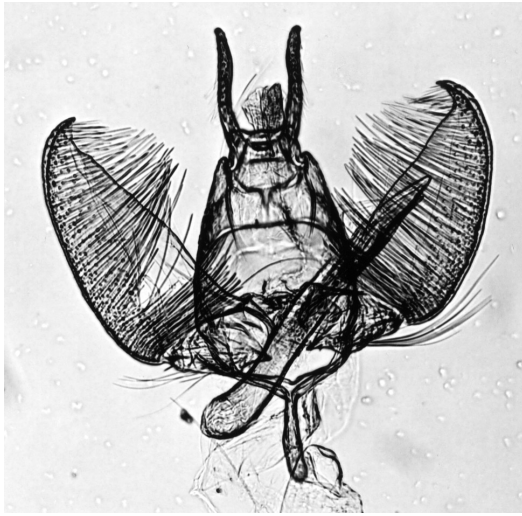


Fig. 7. *Swammerdamia bureatella* sp. n., ♂ genitalia (paratype, Russia, Buryatia pr. Ulan-Ude. Prep. no. 00012701/Junnilainen).

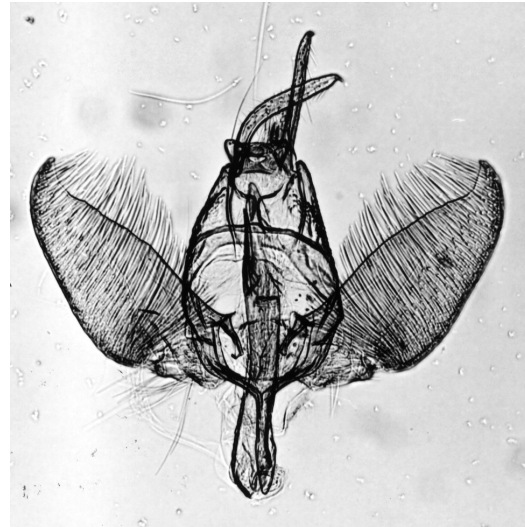


Fig. 8. *Swammerdamia bureatella* sp. n., ♂ genitalia (paratype, Russia, Buryatia pr. Ulan-Ude. Prep. no. 00012703/Junnilainen).

detail of valva being absent from all other known *Swammerdamia* and *Paraswammerdamia* species. The female genitalia of *S. bureatella* also most resembles *S. pyrella*. *S. bureatella* has a wider, but not so developed caudal margin of lamella postvaginalis, ductus bursae is shorter without any sclerotization, and corpus bursae is larger and more rounded than in *S. pyrella*.

Description. Wingspan 10–12 mm. Head roughly, grey or whitish grey. Antenna grey, annulated with dark brown; scape not very long, covered with whitish scales. Labial palpus very short about same length as diameter of eye, dark brown, ringed with whitish in the middle and the apex. Tongue long, more than 3× length of labial palp, spirale. Thorax grey sometimes whitish grey. Fore and mid legs dark fuscous, mixed with white scales, hind leg whitish, faintly mixed with grey. Abdomen light grey, paler beneath. Forewing greyish-white; fuscous scales forming a distinct antemedian fascia; a white preapical costal spot; cilia fuscous; in female forewing slightly shorter and broader. Hindwing and cilia grey, without a hyaline patch.

Male genitalia. (Figs. 7 and 8). Socii narrow rather long, parallel, with one minute spine at apex. Tuba analis membranous. Uncus shallow, broad,

well sclerotised. Arms of gnathos medially fused; gnathos not mesially differentiated. Valva slender, about 2.5× long as wide, narrowing toward apex; costal margin bend; dorsal margin almost straight; cucullus rounded with strongly pointed apex; sacculus well defined almost separate plate. Saccus rather short slightly dilated anteriorly. Aedeagus stout with basal scape, the same length as valva and 3× length of saccus; dorsally with carima formed of about seven massive horns of increasing length towards apex.

Female genitalia. (Fig. 9). Caudal margin of lamella postvaginalis wide and somewhat concave. Antrum cylindrical, sclerotized laterally. Ductus bursae relative short, membranous, gradually widening into a large corpus bursae. Corpus bursae large and rounded; signum rather large, an elliptical, concave, strongly dentate plate, horizontal dentation gradually stronger posteriorly.

Bionomy. *Swammerdamia bureatella* occurs in two generations from the end of April to the end of May and in July. The type material was collected by sweeping *Spirea* at dusk, and with artificial light at night. The habitat of the type locality is steep stony steppe slopes. Dominant shrubs are *Spirea*, *Cotoneaster*, *Ulmus* ssp.,



Fig. 9. *Swammerdamia buraetella* sp. n., ♀ genitalia (paratype, Russia, Buryatia pr. Ulan-Ude. Prep. no. 00012702/Junnilainen).

Caragana frutex and *Malus siberica*. Immature stages remain unknown.

Distribution. Russia: Buryatia.

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