SHILAP Revta. lepid., 50 (199) septiembre 2022: 551-559 eISSN: 2340-4078 ISSN: 0300-5267
https://doi.org/10.57065/shilap.70

New and interesting records of Lepidoptera in the Ural Mountains (Russia) (Lepidoptera: Papilionoidea, Noctuoidea)

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Abstract

We report new findings of rare and little studied Macrolepidoptera species of the Ural Mountains. The new localities of the rare species are revealed: *Euchloe ausonia* (Hübner, [1804[), *Boloria aquilonaris* (Stichel, 1908), *Oeneis jutta* (Hübner, [1806]), *Xestia lorezi* (Staudinger, 1891), *X. sincera* (Herrich-Schäffer, 1851), and *Coenophyla subrosea* (Stephens, 1829). For the first time, the following species are reported from the Urals: *Apamea schildei* (Staudinger, 1901), *Coranarta cordigera* (Thunberg, 1778), *Cardepia irrisoria* (Erschoff, 1874), *Polia vesperugo* (Eversmann, 1856), *Hadena corrupta* (Herz, 1898), and *Pseudohermonassa melancholica* (Lederer, 1853).
KEY WORDS: Lepidoptera, Papilionoidea, Noctuoidea, biodiversity, fauna, new records, Ural Mountains, Russia.

Nuevos e interesantes registros de Lepidoptera en los Montes Urales (Rusia) (Lepidoptera: Papilionoidea, Noctuoidea)

Resumen

Informamos de nuevos hallazgos de raras y poco estudiadas especies de Macrolepidoptera de los Montes Urales. Se descubren nuevas localidades de las raras especies: *Euchloe ausonia* (Hübner, [1804]), *Boloria aquilonaris* (Stichel, 1908), *Oeneis jutta* (Hübner, [1806]), *Xestia lorezi* (Staudinger, 1891), *X. sincera* (Herrich-Schäffer, 1851) y *Coenophyla subrosea* (Stephens, 1829). Por primera vez, se informa de las siguientes especies de los Urales: *Apamea schildei* (Staudinger, 1901), *Coranarta cordigera* (Thunberg, 1778), *Cardepia irrisoria* (Erschoff, 1874), *Polia vesperugo* (Eversmann, 1856), *Hadena corrupta* (Herz, 1898) y *Pseudohermonassa melancholica* (Lederer, 1853).
PALABRAS CLAVE: Lepidoptera, Papilionoidea, Noctuoidea, biodiversidad, fauna, nuevos registros, Urales, Rusia.

Introduction

Macrolepidoptera of the Ural Mountains are quite well studied. The known faunal data are summarized in the Catalogue of Lepidoptera of Russian Federation (ANIKIN *et al*., 2019). Unfortunately, our findings of Papilionoidea in the Polar and Southern Urals published previously by us (RYBALKIN, ZURILINA & YAKOVLEV, 2018), were not included into the catalog.

In 2019-2021, the first author of this message collected significant materials in the territory of the Urals (Sverdlovsk, Orenburg and Chelyabinsk Regions) (Figs 1-3), where we found rare species of Papilionoidea and Noctuoidea, new for the region.

Material and methods

The Papilionoidea were collected with a butterfly net, the Noctuoidea were attracted at light using self-ballasted (SB) mercury vapor lamps 250W.

The specimens were photographed with the digital camera Sony DSC-HX7V and Olympus Camedia 7070 digital camera, the images were processes in Adobe PhotoShop. The genital preparations were made according to the method of LAFONTAINE & MIKKOLA (1987). The photographs of micropreparations were taken using the Olympus DP70 photographic microscope, using the software DPController and DPManager. Images were adjusted and plates were prepared with the software Adobe Photoshop CS6.

Results

Euchloe ausonia (Hübner, [1804]) (Figs 4-5)

Material: Russia, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt., 1160 m, 1 ♂, 10-VII-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

Rare species in Middle Ural found in a new locality in Sverdlovsk Region.

Boloria aquilonaris (Stichel, 1908) (Figs 6-8)

Material: Russia, Chelyabinsk Region, near Snezhinsk, sphagnum swamp, 10 ♂♂, 10 ♀♀, 5-23-VII-2019, 15-VI-10-VII-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

Rare species in the Southern Urals; endangered in a number of Russian regions; listed in the Red Books of Chelyabinsk, Ivanovo, Kaluga, Moscow, Nizhniy Novgorod, Novosibirsk, Tver', Tula, Vologda, Yaroslavl' Regions and Moscow city (TIKHOMIROV, 2007; BARSUKOVA & VOROB'EVA, 2010; MIMONOV & VOLKOVA, 2011; BOL'SHAKOV, 2013; MUKHANOV, 2014; VLASOV, 2015; SAMKOV, 2016a; GORBUNOV & LAGUNOV, 2017; SHMYTOVA, 2017; DUBATOLOV & KORSHUNOV, 2018a; SVIRIDOV, 2018). Found in large numbers near the town of Snezhinsk in a sphagnum bog. This is another finding of marsh species in the Southern Urals; previously, for the environs of upper Ufaley (Chelyabinsk Region) we had reported the marsh species *Erebia embla* (Thunberg, 1791) (RYBALKIN *et al*., 2018). The population from the Southern Urals belongs to the nominative subspecies.

Oeneis jutta (Hübner, [1806]) (Figs 9-12)

Material: Russia, Chelyabinsk Region, near Snezhinsk, sphagnum swamp, 10 ♂♂, 10 ♀♀, 12-30-VI-2019; 31-V-20-VI-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

Rare species in the Southern Urals; endangered in a number of Russian regions; listed in the Red Books of Chelyabinsk, Leningrad, Moscow, Nizhniy Novgorod, Novosibirsk, Sverdlovsk, Tomsk, and Tver' Regions (KOMAROV, 2013; KOSAREV & MUKHANOV, 2014; SAMKOV, 2016b; GORBUNOV, 2017, 2018; DUBATOLOV & KORSHUNOV, 2018b; LVOVSKY, 2018; NIKOLAEVA & SVIRIDOV, 2018). Found in large numbers near the town of Snezhinsk. The population from the Southern Urals belongs to the subspecies *O. jutta gigantea* Austaut, 1911 (type locality: l'Oural central, aux environs de Sojmonowsk [Karabash, Chelyabinsk reg., Russia]).

Apamea schildei (Staudinger, 1901) (Figs 13, 24-25)

Material: Russia, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt., 1160 m, 3 ♂♂, 2 ♀♀, 10-14-VII-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk); Sverdlovsk Region, Karpinsk distr., 14 km N Kytlym, Konzhakovskyi Kamen' Mt., 59º37'N / 59º10'33"E, 1200 m, 1 ♂, 1 ♀, 16-VII-2020, leg. P. Gorbunov (coll. P. Gorbunov, Yekaterinburg).

New species for Asia and Middle Ural Region. Distributed in Northern Europe (Fennoscandia, Kola Peninsula, Karelia and Arkhangelsk Regions) (ZILLI *et al*., 2009).

Coranarta cordigera (Thunberg, 1778) (Figs 14-15)

Material: Russia, Chelyabinsk Region, near Snezhinsk, sphagnum swamp, 5 ♂♂, 3 ♀♀, 1-6-VI-2019, 27-V-10-VI-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

New species for Ural. Distributed in Northern and Central Europe and Western Siberia (ANIKIN *et al*., 2019; MALKIEWICZ & WIŚNIEWSKI, 2019).

Cardepia irrisoria (Erschoff, 1874) (Fig. 16)

Material: Russia, Chelyabinsk Region, near Snezhinsk, Ulybka gardens, 2 ♂♂, 08-V-2019, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk); Orenburg Region, 12 km S Kuvandyk, 2 ♂♂, 13-15-V-2016, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

New species for the Urals. Distributed in the Ukraine, South of the European part of Russia, Crimea, Western Siberia (Omsk Region), Tuva, Transbaikalia, Kazakhstan, Mongolia (KNYAZEV *et al*., 2016; ANIKIN *et al*., 2019).

Polia vesperugo (Eversmann, 1856) (Figs 17, 26-27)

Material: Russia, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt., 1160 m, 3 ♂♂, 2 ♀♀, 10-14-VII-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

New species for Ural. Distributed in Fennoscandia and Siberia (ANIKIN *et al*., 2019; SAARENMAA, 2020).

Hadena corrupta (Herz, 1898) (Figs 18, 28)

Material: Russia, Chelyabinsk Region, Kyshtym distr., Egoza Mt., 1 ♂, 2 ♀♀, 30-VI-1-VII-2021, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk); Bashkortostan Republic, Uchaly distr., Nurali Mt. Range, 550 m, 54º48'N / 59º40'E, 2 ♀♀, 11-VII-2020, leg. P. Gorbunov (coll. P. Gorbunov, Yekaterinburg).

New species for the Urals. Siberia, Far East, Hokkaido, Korea, China, Mongolia, Central Asia (ANIKIN *et al*., 2016, 2019).

Xestia lorezi (Staudinger, 1891) (Fig. 19)

Material: Russia, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt., 1160 m, 5 ♂♂, 10-14-VII-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

New species for the Urals. Distributed in Fennoscandia, Alps, Siberia, Far East, Northern Mongolia Yukon (ANIKIN *et al*., 2016, 2019). Reported for Northern Ural (ANIKIN *et al*., 2016) without information about localities.

Xestia sincera (Herrich-Schäffer, 1851) (Fig. 20)

Material: Russia, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt., 1160 m, 5 ♂♂, 10-14-VII-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

Rare species in Middle Ural found in the new locality in Sverdlovsk Region. Distributed in Northern and Central Europe, Northern Ural, Siberia, Far East, Northern Mongolia, Korea, Japan (ANIKIN *et al*., 2016).

Pseudohermonassa melancholica (Lederer, 1853) (Fig. 20)

Material: Russia, Chelyabinsk Region, near Snezhinsk, Ulybka gardens, 18 ♂♂, 22-23-VII-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

New record for Ural. East-Palearctic species, distributed in Siberia, Far East, China, Japan (ANIKIN *et al*., 2016, 2019).

Coenophyla subrosea (Stephens, 1829) (Figs 21-22)

Material: Russia, Chelyabinsk Region, near Snezhinsk, sphagnum swamp, 16 ♂♂, 11 ♀♀, 4-5-VIII-2020, leg. S. Rybalkin (coll. S. Rybalkin, Snezhinsk).

New species for the Southern Urals. Distributed in Europe, Central Ural, Siberia, Far East, Japan, Korea, China (ANIKIN *et al*., 2016, 2019).

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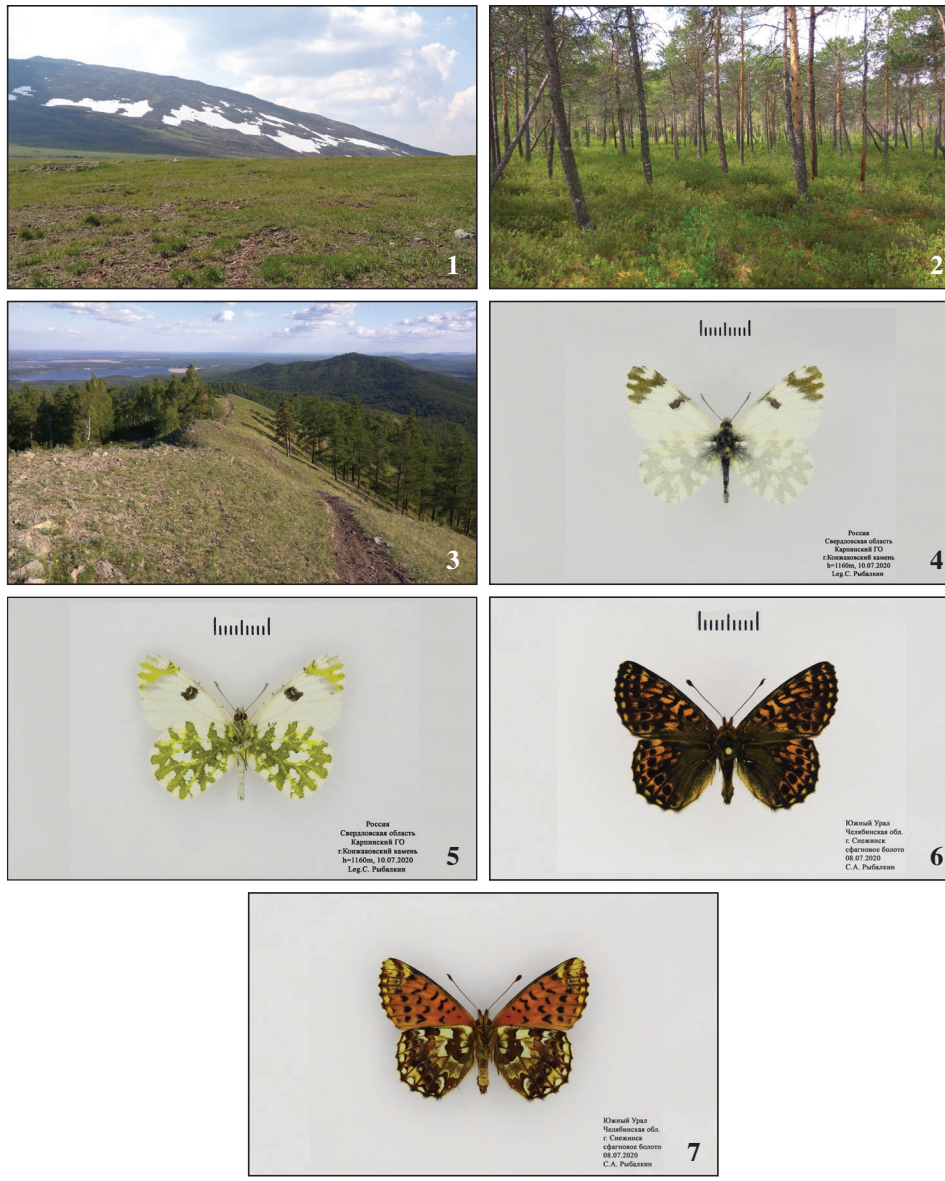
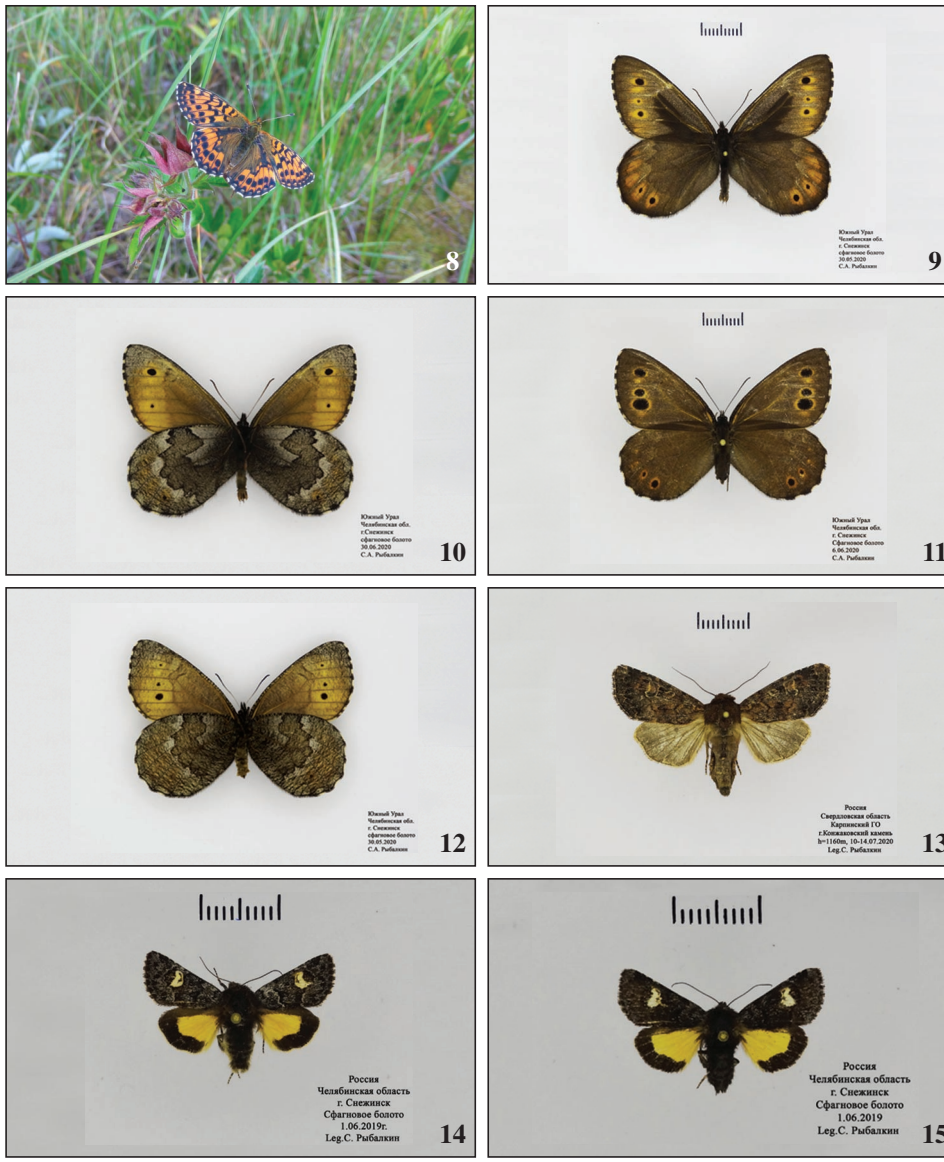
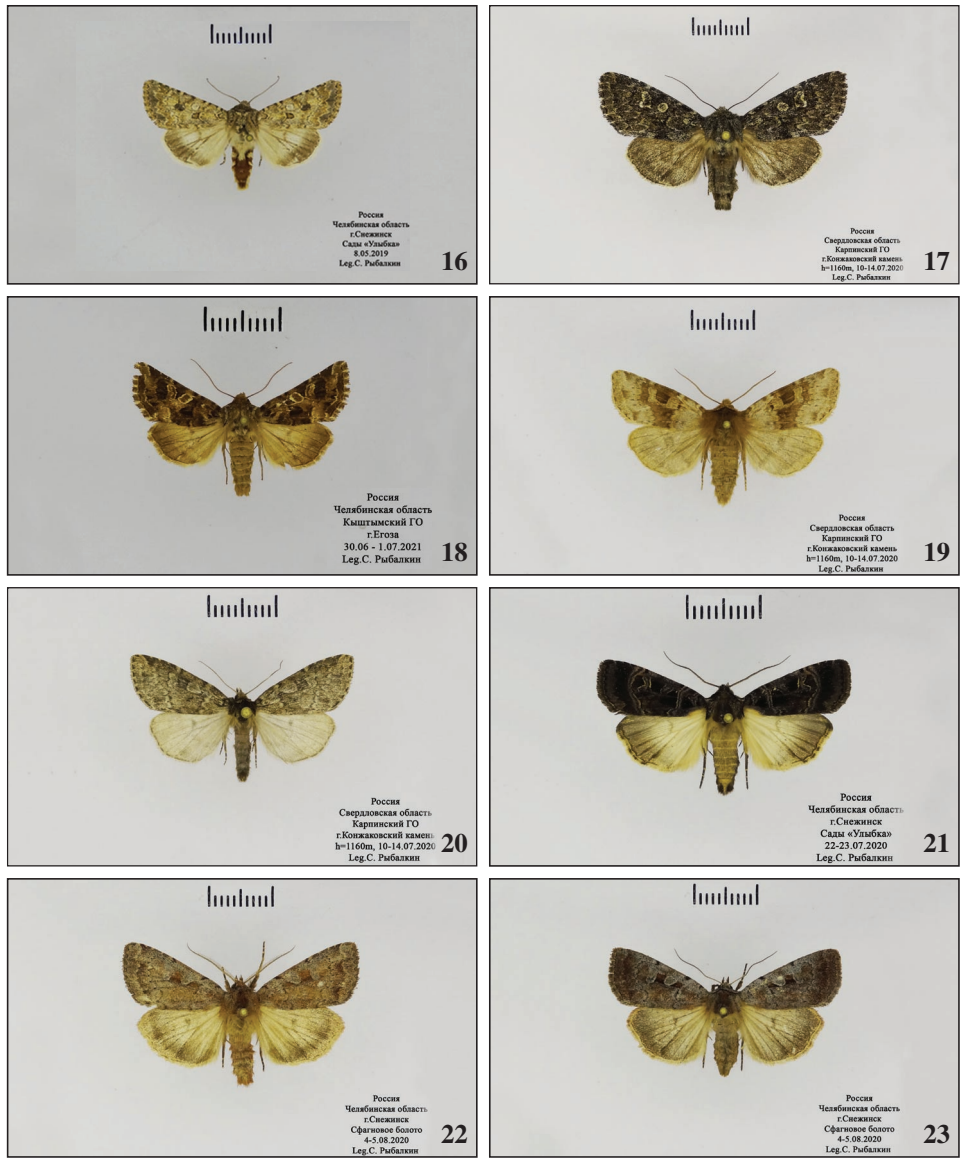
(Recibido para publicación / *Received for publication* 12-II-2022)
(Revisado y aceptado / *Revised and accepted* 25-II-2022)
(Publicado / *Published* 30-IX-2022)



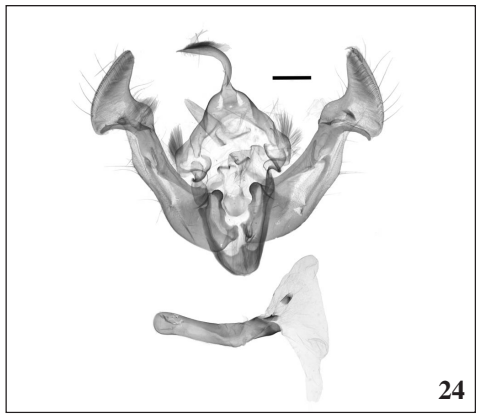
Figures 1-7.– 1. Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt. (photo by S. Rybalkin). **2.** Chelyabinsk Region, near Snezhinsk, sphagnum swamp (photo by S. Rybalkin). **3.** Bashkortostan Republic, Uchaly distr., Nurali Mt. Range (photo by S. Rybalkin). **4.** *Euchloe ausonia* (Hübner, [1804]), male, upperside, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt. **5.** *Euchloe ausonia* (Hübner, [1804]), male, underside, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt. **6.** *Boloria aquilonaris* (Stichel, 1908), female, upperside, Chelyabinsk Region, near Snezhinsk. **7.** *Boloria aquilonaris* (Stichel, 1908), female, underside, Chelyabinsk Region, near Snezhinsk.

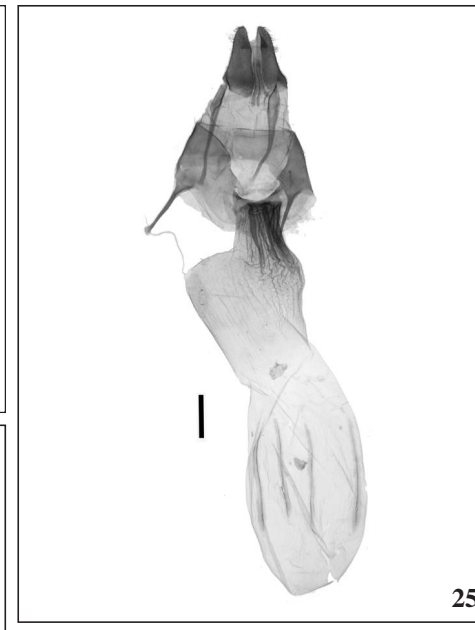


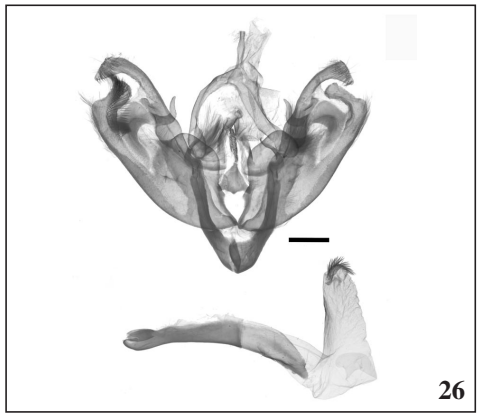
Figures 8-15.– 8. *Boloria aquilonaris* (Stichel, 1908), in nature, Chelyabinsk Region, near Snezhinsk (photo by S. Rybalkin). **9.** *Oeneis jutta gigantea* Austaut, 1911, male, upperside, Chelyabinsk Region, near Snezhinsk. **10.** *Oeneis jutta gigantea* Austaut, 1911, male, underside, Chelyabinsk Region, near Snezhinsk. **11.** *Oeneis jutta gigantea* Austaut, 1911, female, upperside, Chelyabinsk Region, near Snezhinsk. **12.** *Oeneis jutta gigantea* Austaut, 1911, female, underside, Chelyabinsk Region, near Snezhinsk. **13.** *Apamea schildei* (Staudinger, 1901), male, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt. **14**. *Coranarta cordigera* (Thunberg, 1778), male, Chelyabinsk Region, near Snezhinsk. **15**. *Coranarta cordigera* (Thunberg, 1778), female, Chelyabinsk Region, near Snezhinsk.

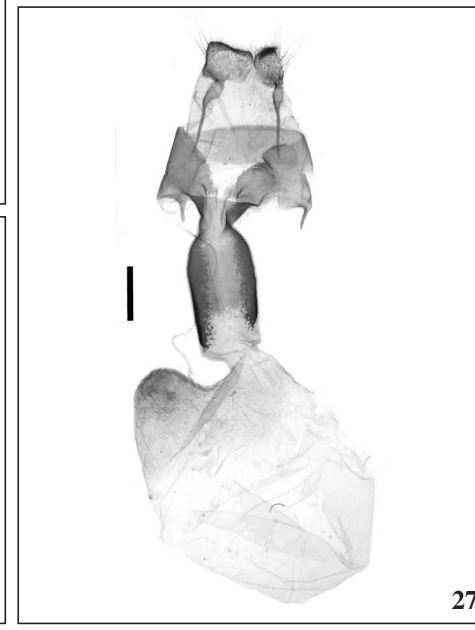


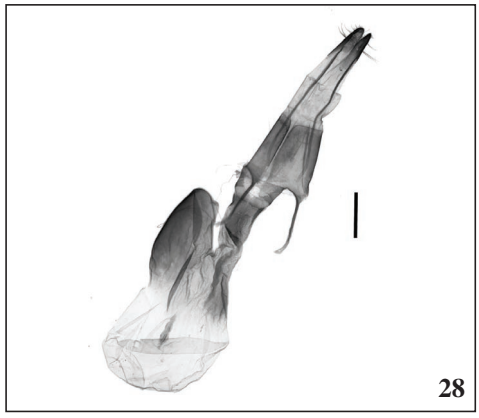
Figures 16-23.– 16. *Cardepia irrisoria* (Erschoff, 1874), male, Chelyabinsk Region, near Snezhinsk. **17.** *Polia vesperugo* (Eversmann, 1856), male, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt. **18.** *Hadena corrupta* (Herz, 1898), male, Russia, Chelyabinsk Region, Kyshtym distr., Egoza Mt. **19.** *Xestia lorezi* (Staudinger, 1891), male, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt. **20.** *Xestia sincera* (Herrich-Schäffer, 1851), male, Sverdlovsk Region, Karpinsk distr., Konzhakovskyi Kamen' Mt. **21**. *Pseudohermonassa melancholica* (Lederer, 1853), male, Chelyabinsk Region, near Snezhinsk. **22.** *Coenophyla subrosea* (Stephens, 1829), male, Chelyabinsk Region, near Snezhinsk. **23.** *Coenophyla subrosea* (Stephens, 1829), female, Chelyabinsk Region, near Snezhinsk.











Figures 24-28.– 24. *Apamea schildei* (Staudinger, 1901), male genitalia (slide: TB-2113). **25.** *Apamea schildei* (Staudinger, 1901), female genitalia (slide: TB-2114). **26.** *Polia vesperugo* (Eversmann, 1856), male genitalia (slide: TB-2115). **27.** *Polia vesperugo* (Eversmann, 1856), female genitalia (slide: TB-2116). **28.** *Hadena corrupta* (Herz, 1898), female genitalia (slide: TB-2112).