

First records of six species of Lepidoptera from Kunashir Island (Russia)

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This article presents the first records of six species of moths and butterflies from Kunashir Island. We report on the first records of *Aemene obscura* (Leech, 1889) from Russia (Kunashir Island), as well as *Catocala dula* Bremer, 1861, *C. lara* Bremer, 1861, *C. dissimilis* Bremer, 1861, *Sphragifera sigillata* (Menetries, 1859), and *Argynnis sagana* Doubleday, [1847] from Kunashir Island. Additionally, we provide commentary on distribution of *Aberrasine aberrans* (Butler, 1877).

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Keywords

Biodiversity, island biogeography, Lithosiini, Kurile Islands, Russian Far East, *Catocala*, *Argynnis sagana*.

Introduction

Although the Lepidoptera fauna of Russia is well known (Sinev 2019), new records of moths are being reported in the Russian Far East sometimes (Beljaev 2003; Koshkin and Bezbzorodov 2013; Dubatolov 2021; Spitsyn and Spitsyna 2021; Koshkin and Golovizin 2022). However, a variety of new records from islands of the Russian Far East indicates that the Lepidoptera fauna of this territory is poorly understood (Rybalkin and Yakovlev 2017; Rybalkin 2020a, b; Rybalkin et al. 2018, 2019, 2022). This article presents the first records of six species of moths and butterflies from Kunashir Island. The record of lichen moths *Aemene obscura* (Leech, 1889) is more interesting. Earlier, this species was considered endemic to Japan but it was also discovered in South Korea in 2016 (Bayarsaikhan et al. 2016). This is the first record of *Aemene obscura* from Russia. Therefore, Russian fauna of the tribe Lithosiini contains 68 species (Dubatolov 2019a, this study). The new records of species of the genus *Catocala* Schrank, 1802 deserve attention as well. The genus *Catocala* is one of the most popular objects of study among scientists and it is no less popular among collectors, which makes the new records is more valuable. The Kuril Islands fauna contains four species of *Catocala*, three of which are recorded from Kunashir Island (Matov et al. 2019; Sviridov 2003). We report on the first records of three *Catocala* taxa, *Catocala dula* Bremer,

1861, *Catocala lara* Bremer, 1861 *Catocala dissimilis* Bremer, 1861, from Kunashir Island. Additionally, the record of large and beautiful butterfly *Argynnis sagana* Doubleday, [1847] deserves special attention.

Materials and methods

The moth and butterfly specimens were collected using ultraviolet lamp and entomological net. The genitalia were dissected, mounted on temporary glass slides with 70% ethanol and photographed using a research stereomicroscope (AXIO Zoom.V16, Carl Zeiss, Germany). The genitalia are kept in a micro-tube with glycerin pinned to the specimen. The images of the specimens were taken with a Canon EOS 7D camera (Canon Inc., Tokyo, Japan). Studied specimens are deposited in the Russian Museum of Biodiversity Hotspots (RMBH), N. Laverov Federal Center for Integrated Arctic Research of the Ural Branch of the Russian Academy of Sciences, Arkhangelsk, Russia.

Result

Family Erebidae Leach, 1815

Aemene obscura (Leech, 1889)

Figures 1A-B, 2

Material examined. RUSSIA: Kunashir Island, Tretyakovo village, 43°59'13"N, 145°39'12"E, 06-07.viii.2021, E. Spitsyna & V. Spitsyn leg., 1♂, 1♀.

Distribution: Japan; South Korea (Kishida 2011; Bayarsaikhan et al. 2016); and Russia: Kunashir Island.

Remarks. The first record from Russia (Kunashir Island).

Aberrasine aberrans (Butler, 1877)

Figure 1C-D

Material examined. RUSSIA: Kunashir Island, Tretyakovo village, 43°59'13"N, 145°39'12"E, 26-29.vii.2021, E. Spitsyna & V. Spitsyn leg., 8♂, 2♀.

Distribution: Korea; Japan; China; Taiwan; Russia: Amur Region, Khabarovsk Krai, Jewish Autonomous Region, Primorsky Krai (Dubatolov 2019a; Bayarsaikhan et al. 2017), Kunashir Island.

Remarks. The species is not provided for the Kuril Islands in «Catalogue of the Lepidoptera of Russia» (Dubatolov 2019a). However, Dubatolov (2019b) reported on the record of *Aberrasine aberrans* from Kunashir Island. We also confirm the presence of this species on the island. In the latter papers the species is reviewed in the genus *Barsine* Walker, 1854.

Catocala dula Bremer, 1861

Figure 3A

Material examined. RUSSIA: Sakhalin Oblast, Kunashir Island, Tretyakovo village, cottages on the edge of coniferous and broad-leaved forest and seaside meadows, 43°59'13"N, 145°39'12"E, 06-07.viii.2021, E. Spitsyna & V. Spitsyn leg., 3 ex; Sakhalin Oblast, Kunashir Island, territory surrounding the airport, birch coniferous forest with Kurile bamboo (*Sasa kurilensis*), 43°58'22"N, 145°41'03"E, 07-08.viii.2021, E. Spitsyna & V. Spitsyn leg., 3 ex; Sakhalin Oblast, Kunashir Island,

territory surrounding the airport, birch coniferous forest with Kurile bamboo (*Sasa kurilensis*), 43°58'32"N, 145°42'05"E, 03-04.viii.2021, E. Spitsyna & V. Spitsyn leg., 1 ex.

Distribution: Japan; South Korea; China; Russia: Chita Oblast, Amur Oblast, Khabarovsk Krai, Primorsky Krai, Kamchatka Peninsula (?), Sakhalin Island, Shikotan Island (Dubatolov 2000; Matov et al. 2019; Sviridov 2003), Kunashir Island.

Remarks. The first record from Kunashir Island.

***Catocala lara* Bremer, 1861**

Figure 3B

Material examined. RUSSIA: Sakhalin Oblast, Kunashir Island, Tretyakovo village, cottages on the edge of coniferous and broad-leaved forest and seaside meadows, 43°59'13"N, 145°39'12"E, 06-07.viii.2021, E. Spitsyna & V. Spitsyn leg., 1 ex; Sakhalin Oblast, Kunashir Island, territory surrounding the airport, birch coniferous forest with Kurile bamboo (*Sasa kurilensis*), 43°58'22"N, 145°41'03"E, 07-08.viii.2021, E. Spitsyna & V. Spitsyn leg., 4 ex.

Distribution: Japan; South Korea; north and north-east of China; Russia: Amur Oblast, Khabarovsk Krai, Primorsky Krai, Kamchatka Peninsula (?), Sakhalin Island (Matov et al. 2019; Sviridov 2003), Kunashir Island.

Remarks. The first record from Kunashir Island and the Kuril Islands.

***Catocala dissimilis* Bremer, 1861**

Figure 3C

Material examined. RUSSIA: Sakhalin Oblast, Kunashir Island, Tretyakovo village, cottages on the edge of coniferous and broad-leaved forest and seaside meadows, 43°59'13"N, 145°39'12"E, 06-07. viii.2021, E. Spitsyna & V. Spitsyn leg., 2 ex; Sakhalin Oblast, Kunashir Island, territory surrounding the airport, birch coniferous forest with Kurile bamboo (*Sasa kurilensis*), 43°58'22"N, 145°41'03"E, 07-08.viii.2021, E. Spitsyna & V. Spitsyn leg., 6 ex.

Distribution: Japan; South Korea; China; Russia: Chita Oblast, Amur Oblast, Khabarovsk Krai, Primorsky Krai, Sakhalin Island, (Matov et al. 2019; Sviridov 2003), Kunashir Island.

Remarks. The first record from Kunashir Island and the Kuril Islands.

Family Noctuidae Latreille, 1809

***Sphragifera sigillata* (Menetries, 1859)**

Figure 3D

Material examined. RUSSIA: Sakhalin Oblast, Kunashir Island, Tretyakovo village, cottages on the edge of coniferous and broad-leaved forest and seaside meadows, 43°59'13"N, 145°39'12"E, 17-20. vii.2021, E. Spitsyna & V. Spitsyn leg., 1 ex.

Distribution: Japan; Korea; China; Russia: Amur Oblast, Khabarovsk Krai, Primorsky Krai, Sakhalin (Kononenko 2003; Vertyankin 2015), Kunashir Island.

Remarks. The first record from Kunashir Island and the Kuril Islands.

Family Nymphalidae Rafinesque, 1815

***Argynnis sagana* Doubleday, [1847]**

Figure 3E-F

Material examined. RUSSIA: Sakhalin Oblast, Kunashir Island, Tretyakovo village, broad-leaved forest, 43°59'13"N, 145°39'12"E, 04. viii.2021, E. Spitsyna & V. Spitsyn leg., 1♀.

Distribution: China; Mongolia; North Korea; South Korea; Japan; Russia: from Altai to Primorsky Krai (Tuzov and Bozano 2017), Kunashir Island.

Remarks. The first record from Kunashir Island and the Kuril Islands.

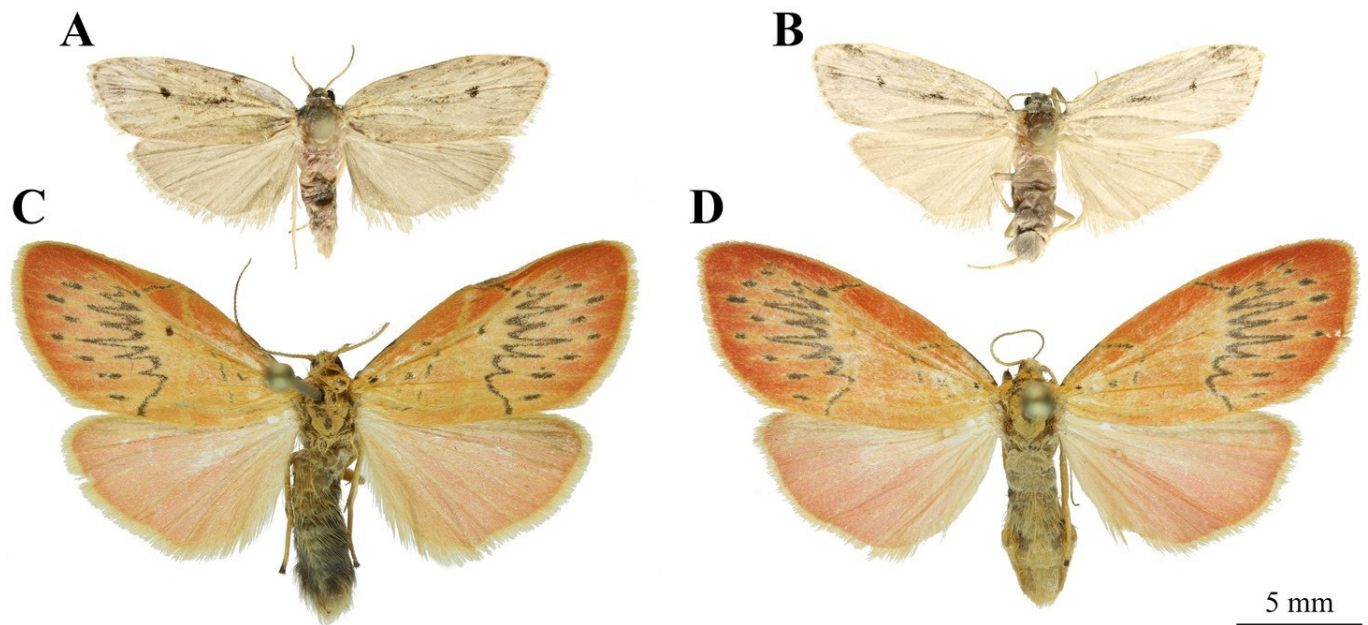


Figure 1. The specimens of Erebidae species from Kunashir Island: **A, B** - *Aemene obscura* (Leech, 1889); **C, D** - *Aberrasine aberrans* (Butler, 1877). Scale bar: 5 mm.

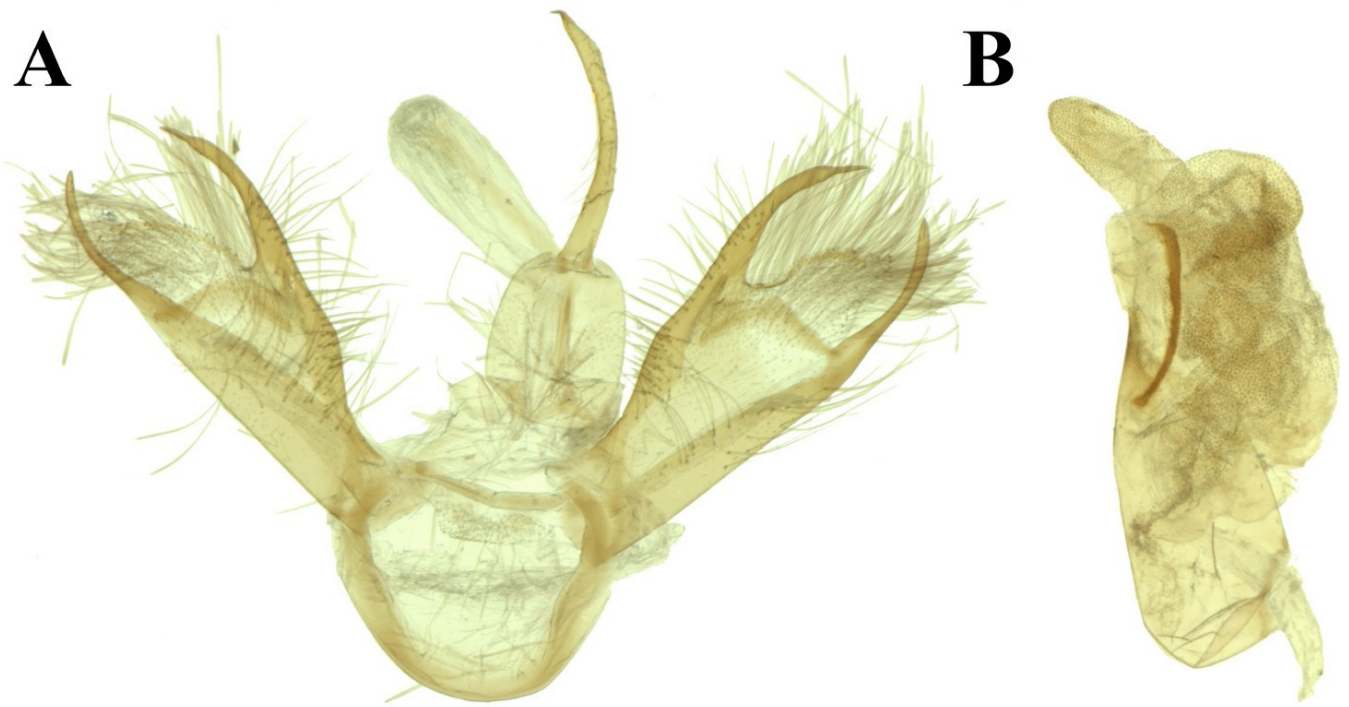


Figure 2. Male genitalia and aedeagus of *Aemene obscura* (Leech, 1889): **A** - Male genitalia; **B** - Aedeagus.

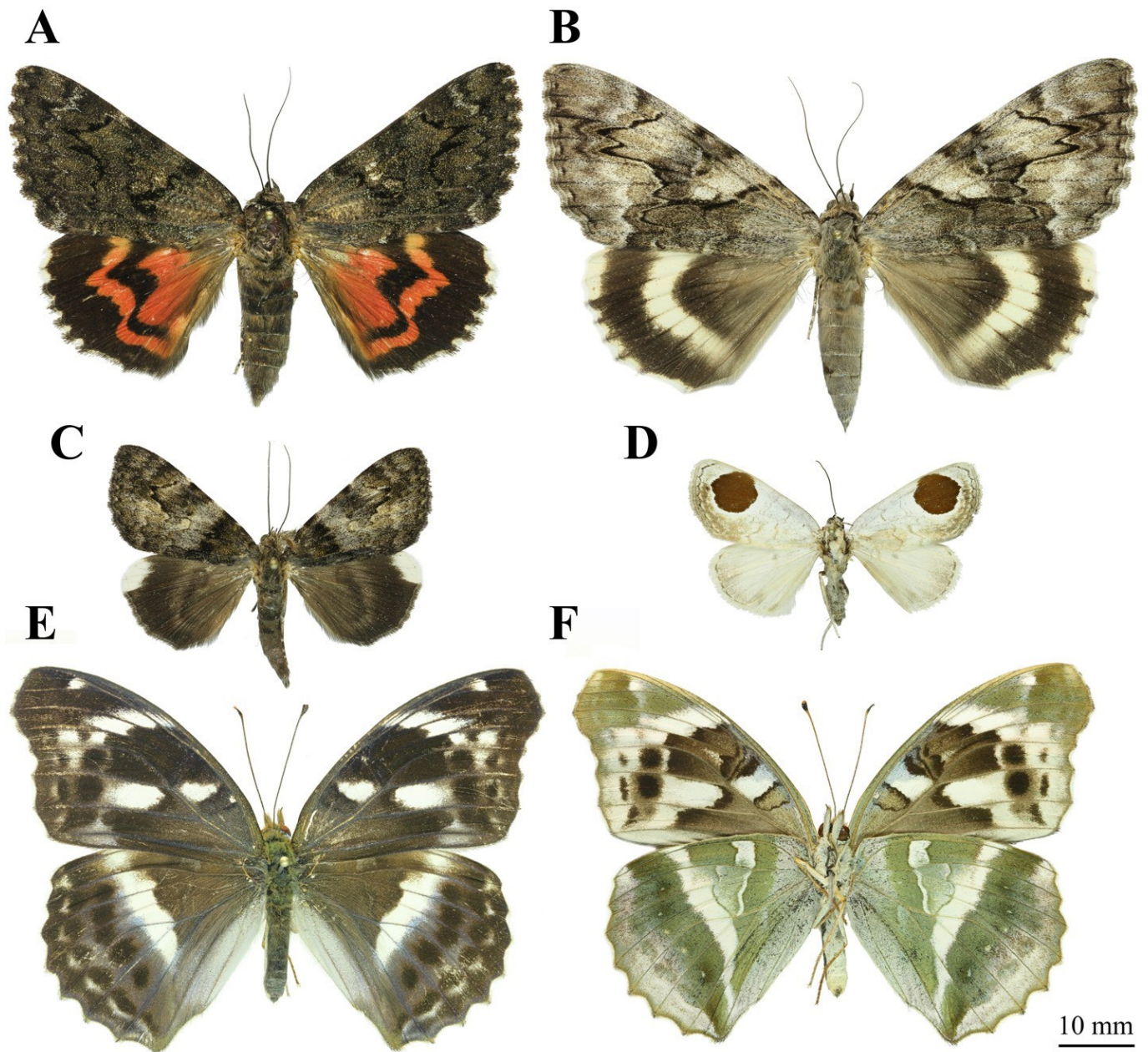


Figure 3. The specimens of Erebidae, Noctuidae and Nymphalidae species from Kunashir Island: **A** - *Catocala dula* Bremer, 1861; **B** - *Catocala lara* Bremer, 1861; **C** - *Catocala dissimilis* Bremer, 1861; **D** - *Sphragifera sigillata* (Menetries, 1859); **E**, **F** - *Argynnis sagana* Doubleday, [1847]. Scale bar: 10 mm.

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References

Bayarsaikhan U, Ju Y-D, Park B-S, Na S-M, Kim J-W, Lee D-J, Ko J-H, Bae Y-S (2016) Genus of *Siccia* (Lepidoptera: Erebidae: Arctiinae: Lithosiini) in Korea, with a new record. *Journal of Asia-Pacific Biodiversity* 9(3): 389-391. <https://doi.org/10.1016/j.japb.2016.06.006>

Bayarsaikhan U, Ju Y-D, Park B-S, Na S-M, Kim J-W, Lee D-J, Ko J-H, Bae Y-S (2017) Review of the subfamily Arctiinae (Lepidoptera: Erebidae) in South Korea, with a newly recorded genus. *Journal of Asia-Pacific Biodiversity* 10(2): 137-153. <https://doi.org/10.1016/j.japb.2017.01.002>

Beljaev EA (2003) *Acosmeryx naga* Moore (Lepidoptera, Sphingidae) – new species of hawkmoths for the fauna of Russia. *Far Eastern Entomologist* 131: 6-8.

Dubatulov VV (2000) *Catocala dula* Bremer, 1861. In: Vozmilov AM, Yashnov VI, Bolotov VV, Goroshko OA, Dubatulov VV, Kirilyuk VE, Korsun OV, Lyamkin VF, Malkov EE, Mikheev IE, Semin VP, Stenina NP, Tkachenko EE (Eds) Red data book of Chita region and Agin-Buryat autonomous district (Animals). Poisk, Chita, 201-202. [in Russian]

Dubatulov VV (2019a) Family Arctiidae. In: Sinev SYu (Ed) Catalogue of the Lepidoptera of Russia. Edition 2. Zoological Institute RAS, Saint Petersburg, 297-304. [in Russian, with English summary]

Dubatulov VV (2019b) Additions for Lepidoptera fauna of Kunashir Is. (Insecta, Lepidoptera) in 2019. *Amurian zoological journal* 11(3): 254-262. <https://doi.org/10.33910/2686-9519-2019-11-3-254-262>

Dubatulov VV (2021) First record of noctuid moth *Callopietria aethiops* Butler, 1878 (Lepidoptera: Noctuidae) from Southern Primorye as an example of the East Asian species penetrating in Russian fauna. *Far Eastern Entomologist* 429: 8-11. <https://doi.org/10.25221/fee.429.2>

Kishida Y (2011) Arctiidae. In: Kishida Y (Ed) The Standard of Moths in Japan II: Notodontidae, Lymantriidae, Arctiidae, Aganaiidae, Micronoctuidae, Nolidae, Noctuidae. Gakken Education Publishing, Tokyo, Japan, 148-167.

Kononenko VS (2003) Subfamily Amphipyryinae. In: Lehr PA (Ed) Key to the insects of Russian Far East. Vol. V. Trichoptera and Lepidoptera. Pt. 4. Dal'nauka, Vladivostok, 307-402. [in Russian, with English summary]

Koshkin ES, Bezborodov VG (2013) First records of hawkmoth *Ambulyx tobii* (Inoue, 1976) (Lepidoptera, Sphingidae) from the southern part of Primorsky Krai, Russia. *Euroasian Entomological Journal* 12(4): 415-419. [In Russian]

Koshkin ES, Golovizin VA (2022) New records of tropical and subtropical noctuid moths (Lepidoptera: Erebidae, Nolidae) from Primorsky krai, Russia. *Far Eastern Entomologist* 456: 12-16. <https://doi.org/10.25221/fee.456.3>

Matov AYu, Kononenko VS, Sviridov AV (2019) Family Erebidae. In: Sinev SYu (Ed) Catalogue of the Lepidoptera of Russia. Edition 2. Zoological Institute RAS, Saint Petersburg, 305-315. [in Russian, with English summary]

Rybalkin SA, Yakovlev RV (2017) New for the fauna of Kuril Islands Lepidoptera. *Far Eastern Entomologist* 346: 13-16. <https://doi.org/10.25221/fee.346.2>

Rybalkin SA (2020a) New data on Lepidoptera of Kuril Islands. *Far Eastern Entomologist* 401: 18-26. <https://doi.org/10.25221/fee.401.4>

Rybalkin SA (2020b) On the knowledge of Lepidoptera of Kunashir Island, Russia. *Amurian zoological journal* 12(2): 98-105. <https://doi.org/10.33910/2686-9519-2020-12-2-98-105>

Rybalkin SA, Benedek B, Dubatulov VV (2022) New for the fauna of Kunashir Island moths and butterflies (Lepidoptera: Carposinidae, Zygaenidae, Tortricidae, Geometridae, Notodontidae, Erebidae, Nolidae, Noctuidae, Lycaenidae). *Far Eastern Entomologist* 457: 13-32.

<https://doi.org/10.25221/fee.457.3>

Rybalkin SA, Yakovlev RV, Benedek B (2018) New and little known for the fauna of Kunashir and Sakhalin islands Lasiocampidae and Noctuoidea (Lepidoptera). Far Eastern Entomologist 355: 18-22. <https://doi.org/10.25221/fee.355.3>

Rybalkin SA, Yakovlev RV, Knyazev SA, Beljaev EA (2019) New and rare for the fauna of Kunashir Island species of Noctuoidea, Drepanoidea и Geometroidea (Lepidoptera). Far Eastern Entomologist 379: 33-36. <https://doi.org/10.25221/fee.379.3>

Sinev SYu (2019) Catalogue of the Lepidoptera of Russia. Edition 2. Zoological Institute RAS, Saint Petersburg, 448 pp. [in Russian, with English summary]

Spitsyn VM, Spitsyna EA (2021) First record of the hawk moths genus *Psilogamma* Rothschild et Jordan, 1903 (Lepidoptera: Sphingidae) for the fauna of Russia. Far Eastern Entomologist 426: 19-21. <https://doi.org/10.25221/fee.426.3>

Sviridov AV (2003) Subfamily Catocalinae. In: Lehr PA (Ed) Key to the insects of Russian Far East. Vol. V. Trichoptera and Lepidoptera. Pt. 4. Dal'nauka, Vladivostok, 86-187. [in Russian, with English summary]

Tuzov V, Bozano GC (2017) Guide to the Butterflies of the Palearctic Region. Nymphalidae Part I: Tribe Argynnini (partim): *Argynnis*, *Issoria*, *Brenthis*. Second edition. Omnes Artes, Milano, 86 pp.

Vertyankin AV (2015) New findings of Micromoths and Macromoths (Insecta, Lepidoptera, «Microheterocera», «Macroheterocera») on the Sakhalin Island. Amurian zoological journal 7(2): 146-150. <https://doi.org/10.33910/1999-4079-2015-7-2-146-149> [in Russian, with English summary]