ABS ACTA BIOLOGICA SIBIRICA
A journal on the biodiversity of Siberia and the adjacent lands

Acta Biologica Sibirica 9: 105–112 (2023)
doi: 10.5281/zenodo.7725416
http://journal.asu.ru

RESEARCH ARTICLE

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

Elizaveta A. Spitsyna[1], Vitaly M. Spitsyn[1]

**1** *N. Laverov Federal Center for Integrated Arctic Research of the Ural Branch of the Russian Academy of Sciences, 20 Nikolsky ave, Arkhangelsk, 163020, Russia*

Corresponding author: Elizaveta A. Spitsyna (elis.spitsyna@gmail.com)

Academic editor: R. Yakovlev | Received 10 February 2023 | Accepted 23 February 2023 | Published 14 March 2023

*http://zoobank.org/A0853E75-7211-4247-9E54-6206C9B38150*

**Citation:** Spitsyna EA, Spitsyn VM (2023) First records of six species of Lepidoptera from Kunashir Island (Russia). Acta Biologica Sibirica 9: 105–112. https://doi.org/10.5281/zenodo.7725416

**Abstract**

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).

**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 Bezborodov 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).

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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.

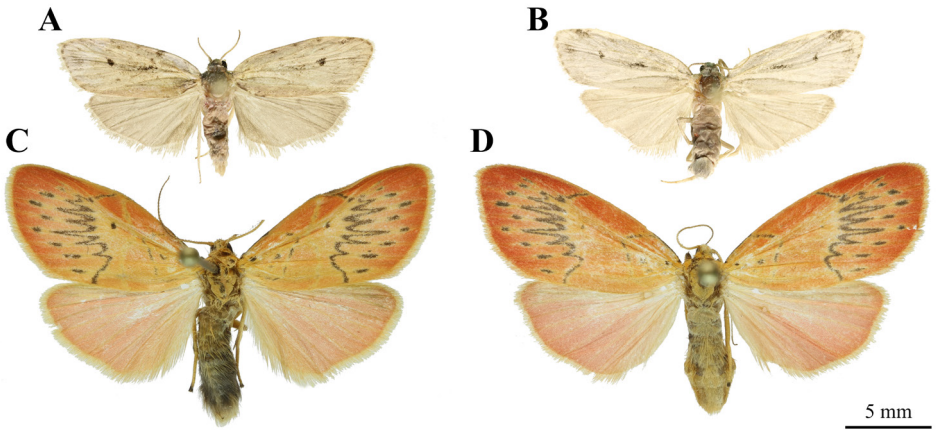


**Figure 1.** The specimens of Erebidae species from Kunashir Island: **A, B** – *Aemene obscura* (Leech, 1889); **C, D** – *Aberrasine aberrans* (Butler, 1877). Scale bar: 5 mm.

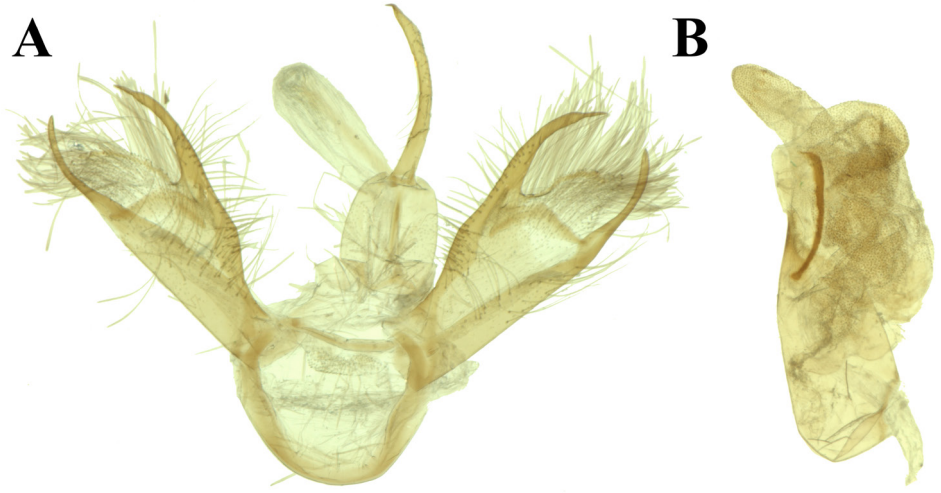


**Figure 2.** Male genitalia and aedeagus of *Aemene obscura* (Leech, 1889): **A** – Male genitalia; **B** – Aedeagus.

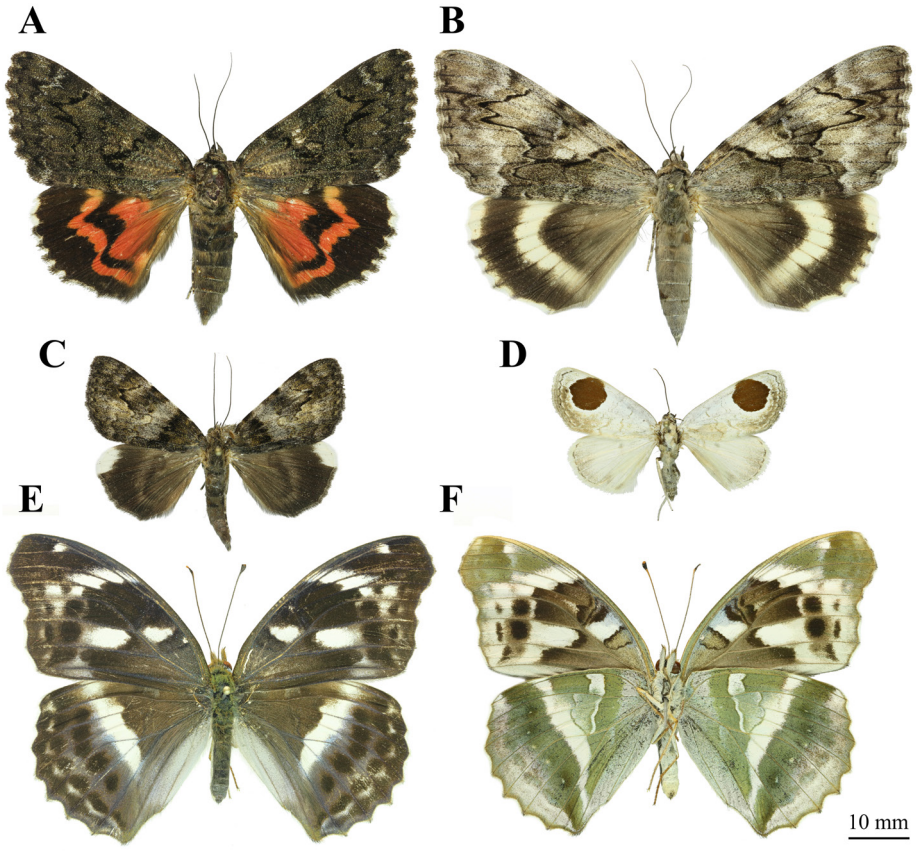


**Figure 3.** The specimens of Erebidae, Noctuidae and Nymphalidae species from Kunashir Island: **A** – *Catocala dula* Bremer, 1861; **B** – *Catocala lara* Bremer, 1861; **C** – *Catocala dissimilis* Bremer, 1861; **D** – *Sphragifera sigillata* (Menetries, 1859); **E, F** – *Argynnis sagana* Doubleday,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

## Acknowledgements

This study was partly supported by the Russian Ministry of Science and Higher Education (project No. FUUW-2022-0039). We are grateful to the staff of the Kurilsky Nature Reserve for their help during this study.

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