

New records of Lepidoptera from Kunashir Island (Russia)

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This article presents the first records of five species of moths and butterflies from Kunashir Island. We report on the first records of *Lampides boeticus* (Linnaeus, 1767), *Macroglossum saga* Butler, 1878, *Ampelophaga rubiginosa* Bremer & Grey, 1853, *Catocala electa* (Vieweg, 1790), and *C. praegnax* Walker, 1858 from Kunashir Island. Additionally, we provide commentary on the distribution of *Bombyx mandarina* (Moore, 1872), *Caligula japonica* Moore, 1862, *C. jonasii* (Butler, 1877), *Macroglossum stellatarum* (Linnaeus, 1758), *M. pyrrhosticta* Butler, 1875, *Agrius convolvuli* (Linnaeus, 1758), *Catocala dula* Bremer, 1861, *C. lara* Bremer, 1861, *C. dissimilis* Bremer, 1861, *C. deuteronympha* Staudinger, 1861, *C. nupta* (Linnaeus, 1767), *C. fraxini* (Linnaeus, 1758), *Lymantria mathura* (Moore, 1866), and *Orgyia thyellina* (Butler, 1881).

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Keywords

Biodiversity, island biogeography, Kurile Islands, Russian Far East, *Catocala*, *Lampides boeticus*, *Macroglossum saga*

Introduction

The Lepidoptera fauna of Kunashir Island was poorly understood for a long time. However, a species list of many families was significantly updated due to research carried out since 2017 (Rybalkin and Yakovlev 2017; Rybalkin 2020a, b; Rybalkin et al. 2018, 2019, 2022; Spitsyna and Spitsyn 2023; Koshkin et al. 2023; Dubatolov et al. 2023). This article is a continuation of the study of the Lepidoptera fauna of Kunashir Island and is focused on the autumn aspect of the fauna.

Materials and methods

Moth and butterfly specimens were collected using an ultraviolet lamp and entomological net. The images of the specimens were taken using an Olympus OM-D E-M10 Mark II camera with an Olympus M.ZUIKO 30mm f/3.5 ED Macro lens. The studied specimens are deposited at 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

First records of Lepidoptera from Kunashir Island

Family Lycaenidae Leach, 1815

Lampides boeticus (Linnaeus, 1767)

Figs 1A-B, 2A

Material examined. RUSSIA, Kunashir Island: territory surrounding the airport, coniferous-birch forest with Kurile bamboo (*Sasa kurilensis*), 43°58'32"N, 145°42'05"E, 04.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♀.

Distribution. The species is widespread in tropical and subtropical zones of Eurasia, Africa and Australia (Lohman et al. 2008). The migrant specimens were found in the following parts of Russia: the south of the European part, the south of Siberia, the Transbaikalian region, Primorsky Krai (Dubatolov et al. 2019; Davydov et al. 2023), Kunashir Island.

Remarks. The first record from Kunashir Island and the Kuril Islands. The species is most likely a migratory species.

Family Sphingidae Latreille, [1802]

Macroglossum saga Butler, 1878

Figs 1C, 2B

Material examined. RUSSIA, 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, 01-05.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♂; the same locality and collectors, 05-06.ix.2023, 2♂; the same locality and collectors, 10-11.ix.2023, 1♂; the same locality and collectors, 11-16.ix.2023, 1♂5♀; the same locality and collectors, 16-20.ix.2023, 9♂8♀.

Distribution. Japan; South Korea; China; Vietnam; Thailand; Myanmar; Nepal; Russia: Primorsky Krai (Kitching 2023), Kunashir Island.

Remarks. The first record from Kunashir Island and the Kuril Islands. Previously, the species was known from Russia (Primorsky Krai) based on findings of migrant specimens (Zolotuhin and Evdoshenko 2019). Our findings are the only viable population in Russia. *Macroglossum saga* is a common species on Kunashir Island. Sometimes, we observed about 15 specimens feeding on flowers during one evening in good weather.

Ampelophaga rubiginosa Bremer & Grey, 1853

Figs 1D, 2C

Material examined. RUSSIA, 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, 08-09.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂.

Distribution. Japan; North Korea; South Korea; China (including Taiwan); Russia: Primorsky Krai, Khabarovsk Krai, Amur Oblast (Zolotuhin and Evdoshenko 2019), Kunashir Island.

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

Family Erebidae Leach, 1815

Catocala electa (Vieweg, 1790)

Figs 1E, 2D

Material examined. RUSSIA, Kunashir Island: Ozerny cordon, small broadleaved forest with Kurile bamboo (*Sasa kurilensis*), 43°52'26"N, 145°28'56"E, 16- 17.viii.2023, 2♂ (visual observation by E. Spitsyna & V. Spitsyn); Kal'dernyy cordon, Kurile bamboo (*Sasa kurilensis*) with sparse broad-leaved forest, 43°51'30"N, 145°30'48"E, 17-18.viii.2023, 1♂ (visual observation by E. Spitsyna & V. Spitsyn); territory surrounding the airport, birch-coniferous forest with Kurile bamboo (*Sasa kurilensis*), 43°58'22"N, 145°41'03"E, 19-20.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♀; Tretyakovo village, cottages on the edge of coniferous and broad-leaved forest and seaside meadows, 43°59'13"N, 145°39'12"E, 20-24.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂; territory surrounding the airport, birch-alder forest with Kurile bamboo (*Sasa kurilensis*), 43°56'40"N, 145°40'38"E, 22-23.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂.

Distribution. From Europe to China and Japan (Sviridov 2003), Kunashir Island.

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

Catocala praeagnax Walker, 1858

Figs 1F, 2E

Material examined. RUSSIA, Kunashir Island: oak forest with Kurile bamboo (*Sasa kurilensis*), 43°47'25"N, 145°31'40"E, 27-28.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂1♀.

Distribution. Japan; South Korea; China (including Taiwan); Russia: Khabarovsk Krai, Primorsky Krai (Sviridov 2003), Kunashir Island.

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

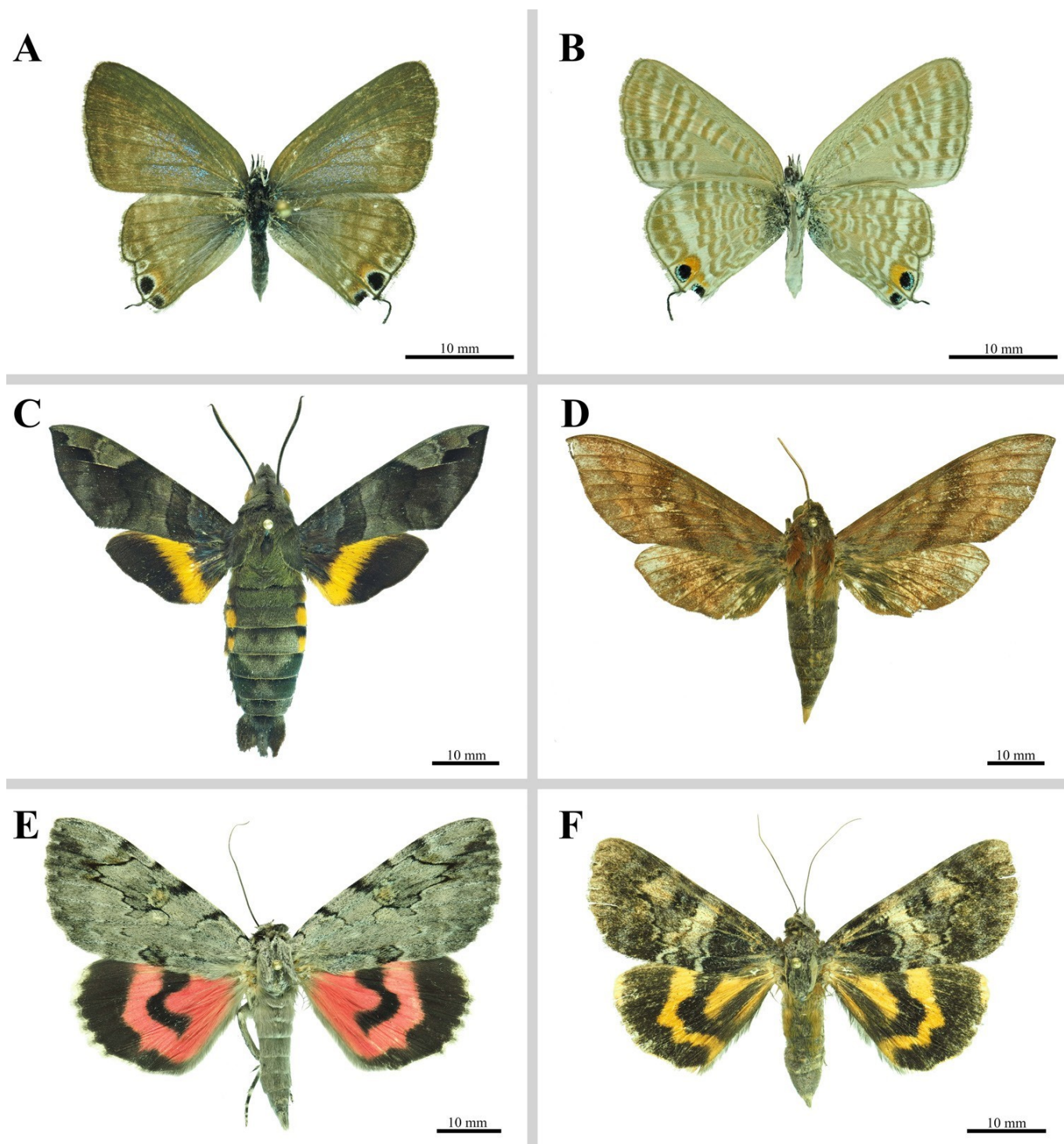


Figure 1. The specimens of Lycaenidae, Sphingidae, and Erebidae species from Kunashir Island: **A, B** - *Lampides boeticus* (Linnaeus, 1767); **C** - *Macroglossum saga* Butler, 1878; **D** - *Ampelophaga rubiginosa* Bremer & Grey, 1853; **E** - *Catocala electa* (Vieweg, 1790); **F** - *Catocala praeagnax* Walker, 1858.

Comments on the status and distribution of some species of moths on Kunashir Island

Family Bombycidae Latreille, 1802

Bombyx mandarina (Moore, 1872)

Fig. 2F

Remarks. The species was known based on a series of 14 male specimens from the Tretyakovo village (Rybalkin 2020a). We repeatedly observed the species from 5 September to 20 September 2023 in the Tretyakovo village. In total, eight male specimens were observed. Two male specimens were also recorded: one in the valley of the Asin stream (43°58'53"N, 145°37'43"E) on 9 September 2023 and one near the Mendelev airport (43°58'22"N, 145°41'03"E) on 6 September 2023. The species is common in the Tretyakovo village, although it does not reach a large number.

Family Saturniidae Boisduval, 1837

Caligula japonica Moore, 1862

Fig. 3A

Material examined. RUSSIA, 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, 18-19.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂; the same locality and collectors, 26-30.viii.2023, 2♂; the same locality and collectors, 01-05.ix.2023, 4♂; the same locality and collectors, 11-16.ix.2023, 1♂; the same locality and collectors, 16-20.ix.2023, 2♂1♀; territory surrounding the airport, birch-coniferous forest with Kurile bamboo (*Sasa kurilensis*), 43°58'22"N, 145°41'03"E, 19-20.viii.2023, E. Spitsyna & V. Spitsyn leg., 5♂; the same locality and collectors, 06-07.ix.2023, 1♀; territory surrounding the airport, birch-alder forest with Kurile bamboo (*Sasa kurilensis*), 43°56'40"N, 145°40'38"E, 22-23.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂; Tretyakovo village, coniferous and broad-leaved forest, 43°58'52"N, 145°39'12"E, 24-25.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂; oak forest with Kurile bamboo (*Sasa kurilensis*), 43°47'25"N, 145°31'40"E, 27-28.viii.2023, E. Spitsyna & V. Spitsyn leg., 9♂; the same locality and collectors, 16-17.ix.2023, 1♂; Asin stream, meadows near coniferous and broad-leaved forest, 43°58'53"N, 145°37'43"E, 09-10.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♂.

Remarks. Previously, the species was known based on a single male specimen collected in the Danilovsky cordon (43°57'16"N, 145°35'33"E) and a series of photos of three specimens from Yuzhno-Kurilsk (Dubatolov et al. 2023). Our observations show that the species is common and widespread in the central and southern parts of the island.

Caligula jonasii (Butler, 1877)

Fig. 3B

Material examined. RUSSIA, 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, 26-30.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂; the same locality and collectors, 05-06.ix.2023, 2♀; the same locality and collectors, 10-11.ix.2023, 1♂; the same locality and collectors, 11-16.ix.2023, 4♂6♀; the same locality and collectors, 16-20.ix.2023, 5♂15♀; territory surrounding the airport, birch-coniferous forest with Kurile bamboo (*Sasa kurilensis*), 43°58'22"N, 145°41'03"E, 02-03.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♀; the same locality and collectors, 06-07.ix.2023, 2♀; Asin stream, meadows near coniferous and broad-leaved forest, 43°58'53"N, 145°37'43"E, 09-10.ix.2023, E. Spitsyna & V. Spitsyn leg., 7♂; oak forest with Kurile bamboo (*Sasa kurilensis*), 43°47'25"N, 145°31'40"E, 16-17.ix.2023, E. Spitsyna & V. Spitsyn leg., 22♂3♀.

Remarks. The species was known based on a series of 12 male and 3 female specimens from the Tretyakovo village (Rybalkin 2020a). We repeatedly observed the species from 29 August to 20 September 2023 in many localities in the central and southern parts of the island. In total, more than 80 specimens were observed. The species is common, but it is abundant in some localities.

Family Sphingidae Latreille, [1802]

Macroglossum stellatarum (Linnaeus, 1758)

Fig. 3C

Material examined. RUSSIA, 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, 20-24.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♀; the same locality and collectors, 24-25.viii.2023, 2♂; the same locality and collectors, 26-30.viii.2023, 2♂; the same locality and collectors, 30-31.viii.2023, 2♂; the same locality and collectors, 11-16.ix.2023, 1♂; the same locality and collectors, 16-20.ix.2023, 1♂; territory surrounding the airport, coniferous-birch forest with Kurile bamboo (*Sasa kurilensis*), 43°58'32"N, 145°42'05"E, 04.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♂.

Remarks. In 2022, the single specimen was first recorded by Dubatolov V.V. (Dubatolov et al. 2023) in the Andreevsky cordon (43°53'15"N, 145°37'28"E). The new records confirm the existence of a viable population on the island. The species is common in suitable habitats.

Macroglossum pyrrhosticta Butler, 1875

Fig. 3D

Material examined. RUSSIA, 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, 26-30.viii.2023, E. Spitsyna & V. Spitsyn leg., 2♀; the same locality and collectors, 30-31.viii.2023, 1♀; the same locality and collectors, 01-05.ix.2023, 1♂1♀; the same locality and collectors, 11-16.ix.2023, 1♂1♀; the same locality and collectors, 16-20.ix.2023, 1♂5♀.

Remarks. Earlier researchers (Zolotuhin and Evdoshenko 2019) assumed that there were only migrant specimens of *Macroglossum pyrrhosticta* in Russia (Primorsky Krai and Kunashir Island). However, our observations show that this species has a viable population on Kunashir Island. Sometimes, we observed about five specimens feeding on flowers during one evening in good weather.

Agrius convolvuli (Linnaeus, 1758)

Fig. 3E

Material examined. RUSSIA, Kunashir Island: oak forest with Kurile bamboo (*Sasa kurilensis*), 43°47'25"N, 145°31'40"E, 27-28.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♀; Tretyakovo village, cottages on the edge of coniferous and broad-leaved forest and seaside meadows, 43°59'13"N, 145°39'12"E, 01-05.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♂1♀; the same locality and collectors, 16-20.ix.2023, 1♀.

Remarks. The species was known based on a series of two male and three female specimens from the Tretyakovo village (Rybalkin 2020b). We collected a male and two female specimens in the Tretyakovo village and one female specimen in the surroundings of Dubovoe village.

Family Erebidae Leach, 1815*Catocala dula* Bremer, 1861

Fig. 3F

Remarks. The species was first recorded in 2021 (Spitsyna and Spitsyn 2023; Koshkin et al. 2023), then it was found in 2022 (Koshkin et al. 2023) and 2023 (this study). Sometimes, up to 20 specimens attracted to the light were observed per night (this study). The species is common and

widespread in the central and southern parts of the island. It was observed in the following localities: (1-2) the Tretyakovo village (43°59'13"N, 145°39'12"E; 43°58'52"N, 145°39'12"E), (3-5) the territory surrounding the airport (43°58'32"N, 145°42'05"E; 43°58'22"N, 145°41'03"E; 43°56'40"N, 145°40'38"E), (6) the Andreevsky cordon (43°53'15"N, 145°37'28"E), (7) the surroundings of Dubovoe village (43°47'25"N, 145°31'40"E), (8) the Kal'dernyy cordon (43°51'30"N, 145°30'48"E), and (9) the Ozerny cordon (43°52'26"N, 145°28'56"E).

Catocala lara Bremer, 1861

Fig. 4A

Remarks. The species was first recorded in 2021 (Spitsyna and Spitsyn 2023; Koshkin et al. 2023). It is characterized by extreme fluctuations in number. In 2021 and 2022, the species was common or abundant (in some localities) (Spitsyna and Spitsyn 2023; Koshkin et al. 2023), but there was an extreme decline in number in 2023, when we recorded only one specimen attracted to the light near the Mendelev airport (43°58'22"N, 145°41'03"E) on 19 August 2023.

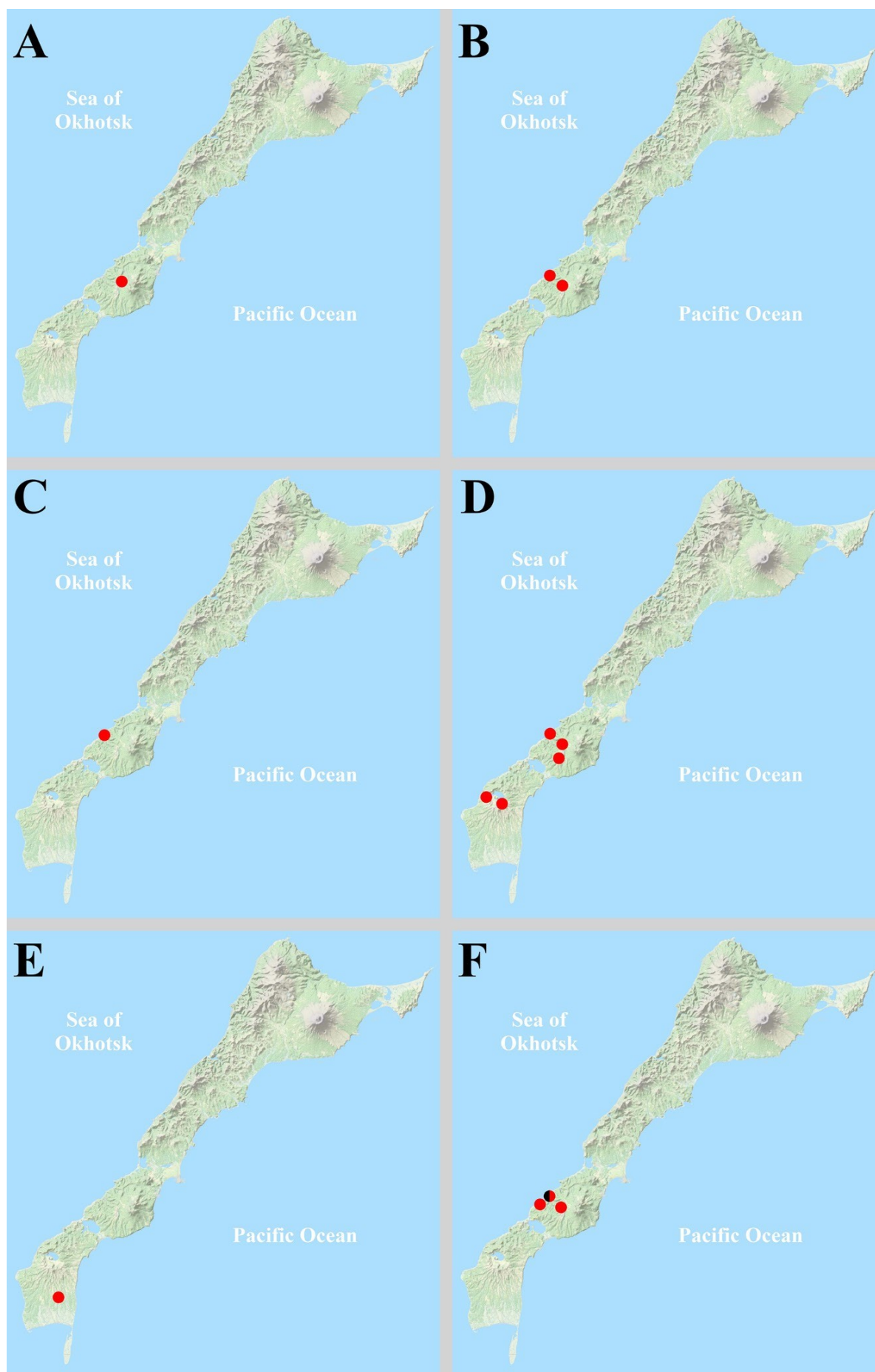


Figure 2. Species distribution map on Kunashir Island (the red circles indicate new records, the black circles indicate previously known records): **A** – *Lampides boeticus* (Linnaeus, 1767); **B** – *Macroglossum saga* Butler, 1878; **C** – *Ampelophaga rubiginosa* Bremer & Grey, 1853; **D** – *Catocala electa* (Vieweg, 1790); **E** – *C. praegnax* Walker, 1858; **F** – *Bombyx mandarina* (Moore, 1872).

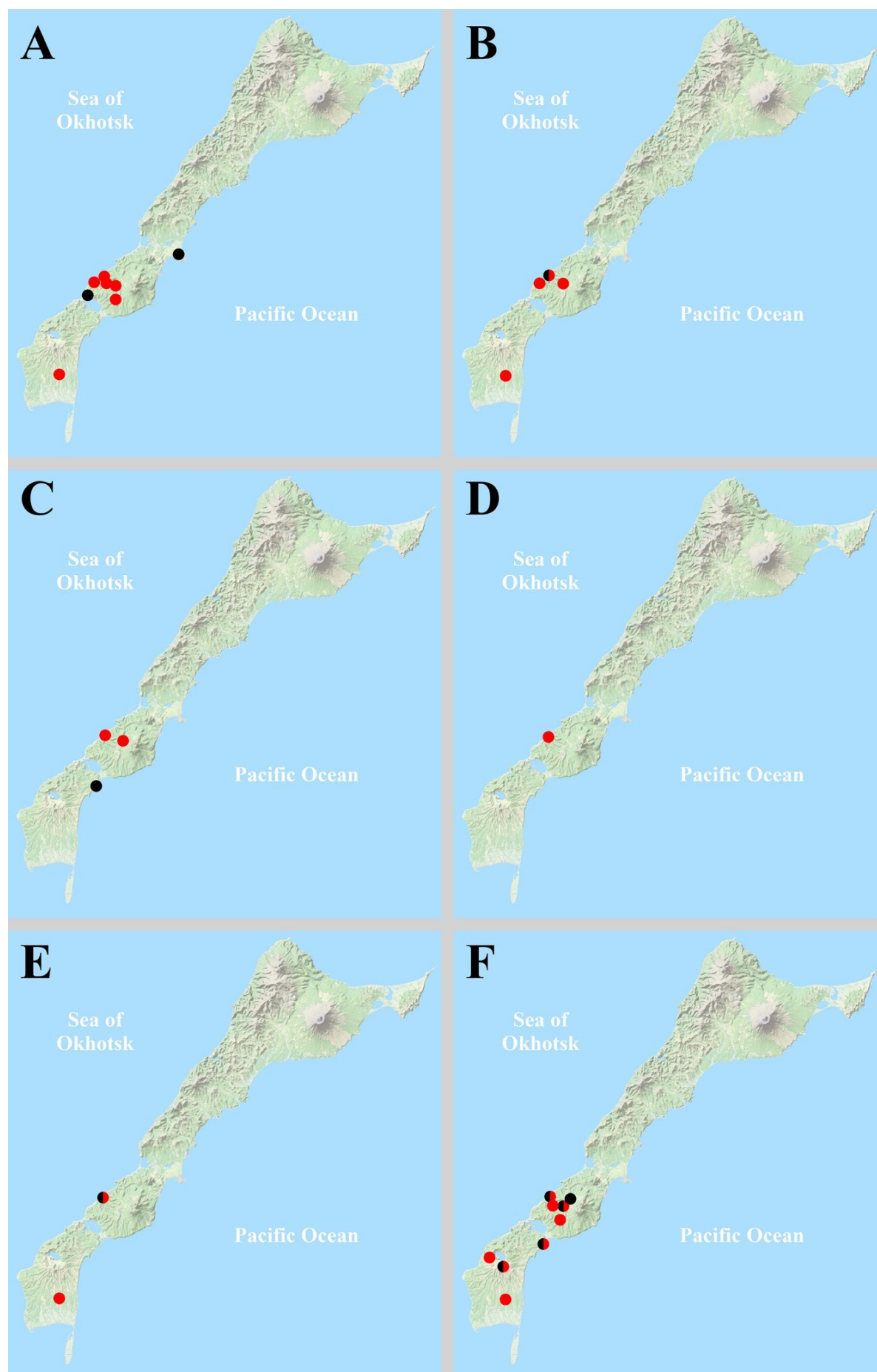


Figure 3. Species distribution map on Kunashir Island (the red circles indicate new records, the black circles indicate previously known records): **A** – *Caligula japonica* Moore, 1862; **B** – *C. jonasii* (Butler, 1877); **C** – *Macroglossum stellatarum* (Linnaeus, 1758); **D** – *M. pyrrhosticta* Butler, 1875; **E** – *Agrius convolvuli* (Linnaeus, 1758); **F** – *Catocala dissimilis* Bremer, 1861.

Catocala dissimilis Bremer, 1861

Fig. 4B

Remarks. The species was first recorded in 2021 (Spitsyna and Spitsyn 2023; Koshkin et al. 2023), then it was found in 2022 (Koshkin et al. 2023; Dubatolov et al. 2023) and 2023 (this study). Sometimes, more than 200 specimens attracted to the light were observed per night (this study). The species is abundant and widespread in the central and southern parts of the island. It was observed in the following localities: (1) the Danilovsky cordon (43°57'16"N, 145°35'33"E), (2) the Asin stream (43°58'53"N, 145°37'43"E), (3) the Tretyakovo stream (43°59'05"N, 145°38'48"E), (4-6) the Tretyakovo village (43°59'13"N, 145°39'12"E; 43°58'52"N, 145°39'12"E; 43°59'53"N, 145°39'17"E), (7-8) the territory surrounding the airport (43°58'22"N, 145°41'03"E; 43°56'40"N, 145°40'38"E), (9) the Andreevsky cordon (43°53'15"N, 145°37'28"E), (10) the surroundings of Dubovoe village (43°47'25"N, 145°31'40"E), (11) the Kal'dernyy cordon (43°51'30"N, 145°30'48"E), (12) the surroundings of Kipyashcheye Lake (43°51'52"N, 145°29'35"E), and (13) the Ozerny cordon (43°52'26"N, 145°28'56"E).

Catocala deuteronympha Staudinger, 1861

Fig. 4C

Material examined. RUSSIA, Kunashir Island: territory surrounding the airport, birch-coniferous forest with Kurile bamboo (*Sasa kurilensis*), 43°58'22"N, 145°41'03"E, 19-20.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♀; Tretyakovo village, cottages on the edge of coniferous and broad-leaved forest and seaside meadows, 43°59'13"N, 145°39'12"E, 20-24.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♂; territory surrounding the airport, birch-alder forest with Kurile bamboo (*Sasa kurilensis*), 43°56'40"N, 145°40'38"E, 22-23.viii.2023, E. Spitsyna & V. Spitsyn leg., 2♂; Tretyakovo village, coniferous and broad-leaved forest, 43°58'52"N, 145°39'12"E, 24-25. viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂; oak forest with Kurile bamboo (*Sasa kurilensis*), 43°47'25"N, 145°31'40"E, 27-28.viii.2023, E. Spitsyna & V. Spitsyn leg., 4♂.

Remarks. Before this study, the species was known based on a single male specimen collected in the Andreevsky cordon (43°53'15"N, 145°37'28"E) (Koshkin et al. 2023).

Catocala nupta (Linnaeus, 1767)

Fig. 4D

Material examined. RUSSIA, 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, 01-05.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♀; oak forest with Kurile bamboo (*Sasa kurilensis*), 43°47'25"N, 145°31'40"E, 16-17.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♂.

Remarks. Before this study, the species was known only from the Andreevsky (43°53'15"N, 145°37'28"E) and the Danilovsky (43°57'16"N, 145°35'33"E) cordons (Dubatolov et al. 2023).

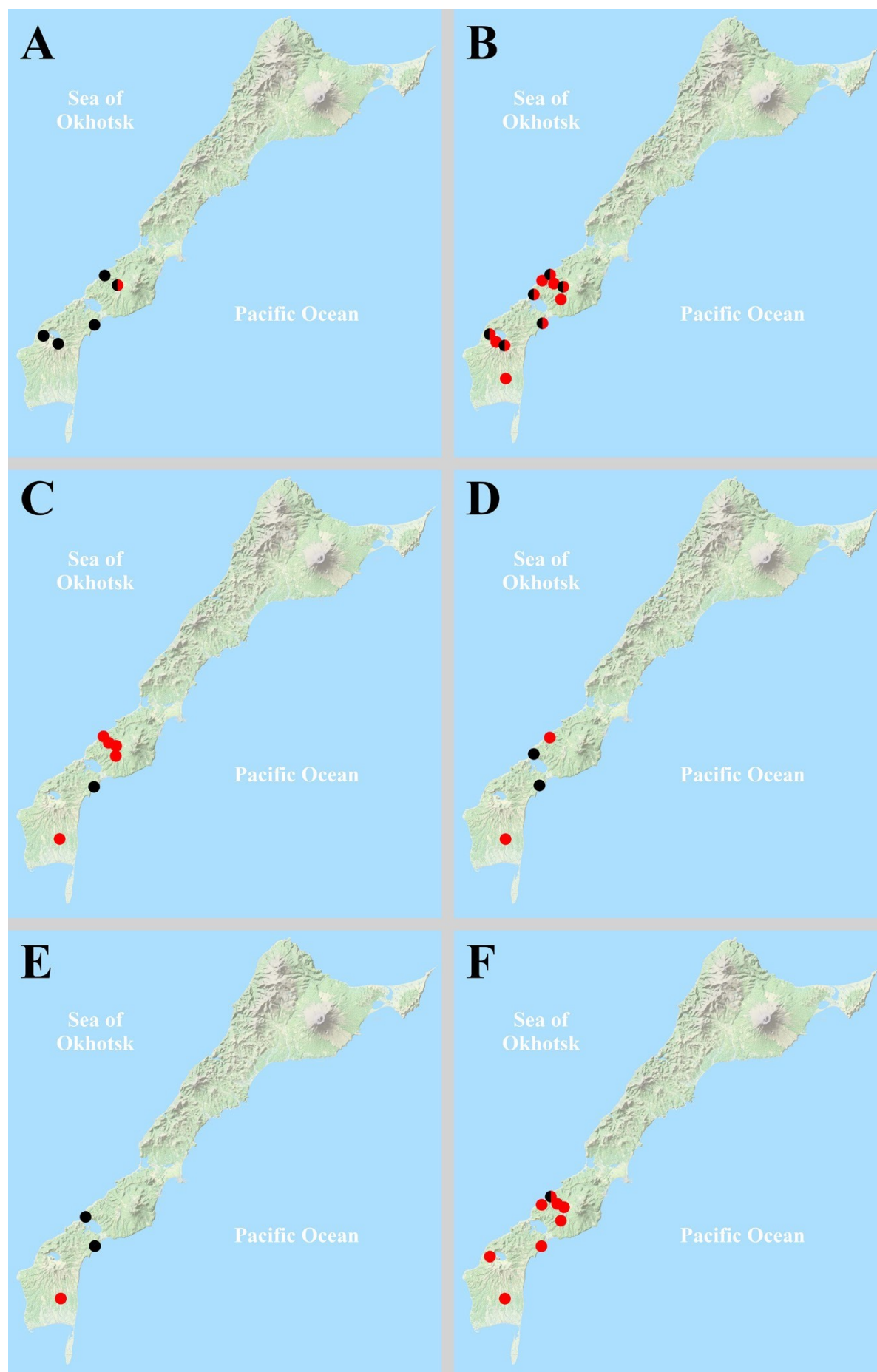


Figure 4. Species distribution map on Kunashir Island (the red circles indicate new records, the black circles indicate previously known records): **A** – *Catocala lara* Bremer, 1861; **B** – *C. dissimilis* Bremer, 1861; **C** – *C. deuteronympha* Staudinger, 1861; **D** – *C. nupta* (Linnaeus, 1767); **E** – *C. fraxini* (Linnaeus, 1758); **F** – *Lymantria mathura* (Moore, 1866).

Catocala fraxini (Linnaeus, 1758)

Fig. 4E

Material examined. RUSSIA, Kunashir Island: oak forest with Kurile bamboo (*Sasa kurilensis*), 43°47'25"N, 145°31'40"E, 27-28.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂; the same locality and collectors, 16-17.xi.2023, 5♂1♀.

Remarks. Before this study, the species was known only from the Andreevsky (43°53'15"N, 145°37'28"E) (Koshkin et al. 2023) and the Danilovsky (43°57'16"N, 145°35'33"E) cordons (Dubatolov et al. 2023). The species is probably rather rare in the central part of the island. However, it is more or less always recorded locally in the southern part of the island.

Lymantria mathura (Moore, 1866)

Fig. 4F

Material examined. RUSSIA, 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, 08-09.viii.2023, E. Spitsyna & V. Spitsyn leg., 5♂; the same locality and collectors, 13-14.viii.2023, 2♀; the same locality and collectors, 18-19.viii.2023, 1♂; the same locality and collectors, 20-24.viii.2023, 1♀; Tretyakovo stream, mixed grass meadows on the edge of coniferous and broad-leaved forest, 43°59'05"N, 145°38'48"E, 09-10.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♀; Andreevsky cordon, coniferous and broad-leaved forest, 43°53'15"N, 145°37'28"E, 10-11.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♀; Tretyakovo village, coniferous and broad-leaved forest, 43°58'52"N, 145°39'12"E, 12-13.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♀; Asin stream, meadows near coniferous and broad-leaved forest, 43°58'53"N, 145°37'43"E, 14-15.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♀.

Remarks. The species was known based on a series of 24 male and 4 female specimens from the Tretyakovo village (Rybalkin et al. 2022). We observed the species in many localities in the central and southern parts of the island: (1) the Asin stream (43°58'53"N, 145°37'43"E), (2) the Tretyakovo stream (43°59'05"N, 145°38'48"E), (3-4) the Tretyakovo village (43°59'13"N, 145°39'12"E; 43°58'52"N, 145°39'12"E), (5-6) the territory surrounding the airport (43°58'22"N, 145°41'03"E; 43°56'40"N, 145°40'38"E), (7) the Andreevsky cordon (43°53'15"N, 145°37'28"E), (8) the surroundings of Dubovoe village (43°47'25"N, 145°31'40"E), and (9) the Ozerny cordon (43°52'26"N, 145°28'56"E).

Orgyia thyellina (Butler, 1881)

Fig. 5

Material examined. RUSSIA, 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, 20-24.viii.2023, E. Spitsyna & V. Spitsyn leg., 2♂; 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., 1♀; the same locality and collectors, 02-03.ix.2023, 13♂.

Remarks. The species was known based on a series of seven specimens from the Tretyakovo village (Rybalkin 2020a) We observed the species in three localities: (1-2) the Tretyakovo village (43°59'13"N, 145°39'12"E; 43°59'53"N, 145°39'17"E), (3) the territory surrounding the airport

(43°58'22"N, 145°41'03"E). Sometimes, up to 20 specimens attracted to the light were observed per night (this study).



Figure 5. Distribution map of *Orgyia thyellina* (Butler, 1881) on Kunashir Island (the red circles indicate new records, the black circles indicate previously known records).

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