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Article

The fauna of plume moths (Lepidoptera: Pterophoridae) of Kunashir Island

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Abstract
In present study, we provide a check-list of twenty Pterophoridae species of Kunashir Island, six of them are reported for the first time. The information on examined material is provided only for the first records. The taxonomic situation of *Gillmeria melanoschista* (Fletcher, 1940) is discussed.

Key words biodiversity, island biogeography, new records, Kuril Islands, Russian Far East.

Introduction

The Southern Kuril Islands consist of the islands of the Lesser Kuril Chain as well as three islands of the Greater Kuril Chain such as Kunashir, Iturup, Urup. The flora and fauna of Kunashir are noticeably richer than those of any of the Kuril Islands. Due to this reason, Kunashir is the most studied and visited island by entomologists (Rybalkin & Yakovlev 2017; Rybalkin 2020a, b; Rybalkin *et al*. 2018, 2019, 2022; Spitsyna & Spitsyn 2023a, b; Koshkin *et al*. 2023; Dubatolov *et al*. 2023; Spitsyna *et al*. 2024). Dubatolov & Ustjuzhanin (1991) provided the first check-list of the Pterophoridae of Kunashir, which was contained six species and based on the material collected by V.V. Dubatolov in 1989. Later, another eight new plume moth species were reported from the Southern Kuril Islands in two following works: "Annotated catalogue of the insects of Russian Far East" and "Catalogue of the Lepidoptera of Russia. Second Edition" (Ustjuzhanin & Kovtunovich 2016, 2019). However, one of them, *Platyptilia gonodactyla* ([Denis & Schiffermüller], 1775), was erroneously indicated. Finally, one new plume moth *Stenoptiloides taprobanes* from Kunashir was presented in Dubatolov *et al*. (2023).

In this paper, we provide an updated list of twenty Pterophoridae species, six of them are reported from Kunashir Island for the first time.

Material and methods

The study is based on the material from the private collection of Petr Ya. Ustjuzhanin (Novosibirsk, Russia).

Check-list of the Pterophoridae of Kunashir Island

Gillmeria pallidactyla (Haworth, 1811)

Alucita pallidactyla Haworth, 1811: 478. (TL: Great Britain).
Platyptilia sachalinensis Matsumura, 1911: 58. (TL: Sakhalin, Russia).
Platyptilia pallidiola Matsumura, 1931: No. 2069. (TL: Japan).

Distribution. Europe, Siberia, the Russian Far East, Turkmenistan, Uzbekistan, Kyrgyzstan, China, Korea, Japan, North America (Ustjuzhanin *et al*. 2016).

Remark. Previously, the species was recorded from Kunashir Island as "*Platyptilia sachalinensis* Matsumura, 1911" (Dubatolov & Ustjuzhanin 1991). Later, Ustjuzhanin (1996) synonymised it with *Gillmeria pallidactyla* (Haworth, 1811).

Gillmeria melanoschista (Fletcher, 1940)

Platyptilia melanoschista Fletcher, 1940: 139. (TL: Khabarovsk, Russia).
Platyptilia euridactyla Zagulajev & Filippova, 1976: 39. (TL: Vyazemsky, Khabarovsk Territory, Russia).
Platyptilia manshurica Buszko, 1977: 334. (TL: Manchuria, China).
Platyptilia alexandri Ustjuzhanin, 1996: 358. (TL: Yuzhno-Kuril'sk, Kunashir, Russia).
Platyptilia ussuriensis (Caradja, 1920): 81. (Error made in Gielis (2003), which is discussed below in Remarks)

Distribution. Southern Transbaikalia, Amur Region, Primorsky Krai, Kunashir Island, China (Manchuria).

Remarks. (1) Previously, the species was recorded from Kunashir Island as "*Platyptilia alexandri*" (Ustjuzhanin 1996). **(2)** "World Catalogue of Insects. Volume 4" (Gielis 2003) contains an unfortunate error: the species *ussuriensis* (Caradja, 1920) was mentioned twice in the genera *Platyptilia* and *Alucita*. In fact, A. Caradja described the species *ussuriensis* in the genus *Alucita* from the vicinity of Kazakevichevo village [Khabarovsk Krai], and now, according to modern taxonomy, it belongs to the genus *Tabulaephorus*. *Platyptilia ussuriensis* (Caradja, 1920) erroneously indicated in the catalog (Gielis 2003) was transferred into the genus *Gillmeria* closely related to the genus *Platyptilia* (Ustjuzhanin & Kovtunovich 2016, 2019). Subsequently, it turned out that this taxon is imaginary and does not exist, and the specimens previously misidentified belong to *Gillmeria melanoschista* (Fletcher, 1940).

Platyptilia ainonis Matsumura, 1931
Fig. 1C

Platyptilia ainonis Matsumura, 1931: No. 2069. (TL: Japan).

Distribution. Southern Transbaikalia, Amur Region, Primorsky Krai, the Kuril Islands (Kunashir, Urup, Zelenyi, Paramushir), Sakhalin, Kamchatka (Ustjuzhanin & Kovtunovich 2019), Japan, China (Shanxi) (Li *et al*. 2003).

***Platyptilia nemoralis* Zeller, 1841**
Fig. 1B

Platyptilia nemoralis Zeller, 1841: 778. (TL: Poland).
Platyptilia sinuosa Yano, 1960: 137. (TL: Japan).

Distribution. Europe, Siberia, the Russian Far East (Primorsky Krai, the Kuril Islands), Japan (Ustjuzhanin 1996), China (Xinjiang) (Li *et al*. 2002).

Remark. The species was recorded from Kunashir Island by Dubatolov & Ustjuzhanin (1991).

***Platyptilia* sp**.
Fig. 1A

Material examined. RUSSIA, Kunashir Island: 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., 3♂; the same locality and collectors, 26–30.ix.2024, 1♂.

Remarks. (1) The first record from Kunashir Island and the Kuril Islands. **(2)** Unusual, small specimens, light-colored, without a clearly defined costal triangle on the forewing. Unfortunately, the genital structures of the species of the genus *Platyptilia* display no clear differences, and the male genitalia of our specimens are almost identical to those of *Platyptilia gonodactyla* and *Platyptilia ainonis*. Perhaps this problem will be solved in the future using the DNA research.

***Stenoptilia nolckeni* (Tengström, 1869)**

Pterophorus nolckeni Tengstrom, 1870: 366. (TL: Finland).
Pterophorus caesius Snellen, 1884: 189. (TL: Irkutsk, Russia).
Stenoptilia altaica Arenberger, 2002: 137. (TL: Altai, Russia).

Distribution. North Europe, Kazakhstan, Middle Asia, Siberia, southern regions of the Russian Far East (Amur Region, Primorsky Krai, Kunashir Island), Korea (Ustjuzhanin *et al*. 2017).

Remark. Previously, the species was recorded from Kunashir Island as "*Stenoptilia caesia* Snellen, 1884" (Ustjuzhanin 1996).

***Cnaemidophorus rhododactylus* ([Denis & Schiffermüller], 1775)**

Alucita rhododactyla Denis & Schiffermuller, 1775: 146. (TL: Austria).
Platyptilia koreana Matsumura, 1931: No. 2068. (TL: Japan & Korea).

Distribution. Europe, North Africa, Asia Minor, the Caucasus, Kazakhstan, Middle Asia, Siberia, south of the Russian Far East, Korea, Japan, India, North America (Ustjuzhanin & Kovtunovich 2011, 2019).

Remark. The species was recorded from Kunashir Island by Dubatolov & Ustjuzhanin (1991).

***Stenoptilodes taprobanes* (Felder & Rogenhofer, 1875)**

Amblyptilia taprobanes Felder & Rogenhofer, 1875: pl. 140, fig. 54. (TL: Ceylon).

Distribution. Southern regions of the Russian Far East (Primorsky Krai, Kunashir Island), Europe, Turkey, India, Sri Lanka, Thailand, Cambodia, Indonesia, Japan, New Guinea, Australia, Chad, Sao Tome, Cote d'lvoire, Nigeria, Tanzania, Kenya, Madagascar, Seychelles, North and South America.

Remark. The species is actively expanding its range. In 2022, three specimens of this species were recorded from Kunashir for the first time (Dubatolov *et al.* 2023). From August to September 2023, this species predominated among the plume moths in the vicinity of Tretyakovo village. The moths are

on the wing from June to November and probably have several generations. V.V. Dubatolov collected *S. taprobanes* using beer bait on 6 November 2023.

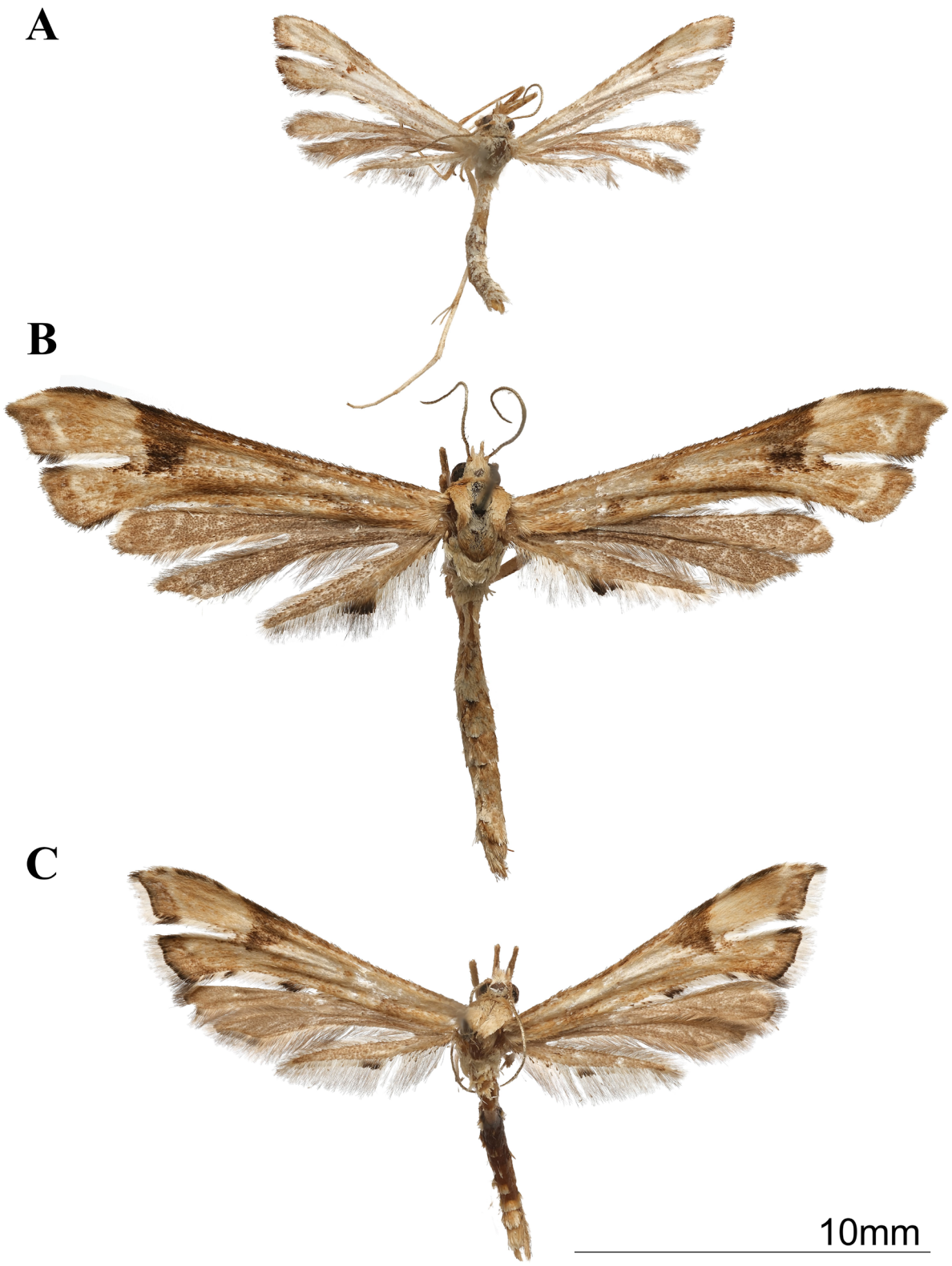

Figure 1. *Platyptilia* ssp. from Kunashir Island: **A)** *Platyptilia* sp.; **B)** *P. nemoralis* Zeller, 1841; **C)** *P. ainonis* Matsumura, 1931.

***Amblyptilia punctidactyla* (Haworth, 1811)**

Alucita punctidactyla Haworth, 1811: 479. (TL: Great Britain).
Platyptilia moerens Snellen, 1883: 182. (TL: "Amoer", Russia).
Platyptilia jezoensis Matsumura, 1931: No. 2067. (TL: Japan).
Platyptilia bella Yano, 1963: 124. (TL: Japan).

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, 29.viii.2023, E. Spitsyna & V. Spitsyn leg., 3 spec.

Distribution. Europe, Siberia, Yakutia, Kamchatka, Amur Region, Primorsky Krai (Ustjuzhanin & Kovtunovich 2011, 2019), Japan, China (Jiangsu) (Li *et al.* 2003), Kunashir Island.

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

***Buckleria paludum* (Zeller, 1839)**

Pterophorus paludum Zeller, 1839: 277. (TL: Germany).
Pterophorus dolichos Matsumura, 1931): No. 2071. (TL: Japan).

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 (Fig. 2B), 02–03.ix.2021, E. Spitsyna & V. Spitsyn leg., 10 spec.; the same locality and collectors, 17–18.vii.2025, 6 spec.; oak forest with Kurile bamboo (*Sasa kurilensis*), 43°47'25"N, 145°31'40"E (Fig. 2A), 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, 18.viii.2023, E. Spitsyna & V. Spitsyn leg., 1♂; the same locality and collectors, 25–27.vi.2025, 1♂; the same locality and collectors, 07–08.vii.2025, 1♂; the same locality and collectors, 20–31.vii.2025, 5 spec.

Distribution. Europe, Iran, south of Western Siberia, the Russian Far East (Amur Region, Primorsky Krai, Kunashir Island), Japan, India, Sri Lanka, Thailand, Cambodia, North America (Ustjuzhanin & Kovtunovich 2016).

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

***Capperia trichodactyla* ([Denis et Schiffermüller], 1775)**

Alucita trichodactyla Denis et Schiffermüller, 1775: 145. (TL: Austria).
Capperia ircutica Arenberger, 1989: 55. (TL: Irkutsk 40 km N, Russia).

Distribution. Europe, Siberia, the Russian Far East, Japan, China (Ustjuzhanin *et al.* 2017).

Remarks. (1) The species was recorded from Kunashir Island by Ustjuzhanin (1996). **(2)** A closely related species, *Capperia jozana* (Matsumura, 1931) described from Japan is very similar to *C. trichodactyla,* its distinctive features in the genital structure are not stable, variable. We examined many dozens of specimens of this species-group from various territories of Europe, Siberia, and the Russian Far East, and did not find clear differences between them neither in external morphology nor in genital morphology of both sexes. Perhaps this taxonomic problem will be solved in the future using the DNA research.

***Fuscoptilia emarginata* (Snellen, 1884)**

Pterophorus emarginata Snellen, 1884: 193. (TL: "Amoer", Russia).
Stenoptilia nakanensis Matsumura, 1931: No. 2083. (TL: Japan).
Stenoptilia sapporensis Matsumura, 1931: No. 2085. (TL: Japan).

Distribution. Transbaikalia, Amur Region, Primorsky Krai, southern Kurile Islands, Mongolia, China, Korea, Japan (Hokkaido, Honshu, Kyushu, Ryu-kyu, Tsusima) (Ustjuzhanin 1996).

Remark. The species was recorded from Kunashir Island by Ustjuzhanin (1996).

Pselnophorus vilis (Butler, 1881)

Aciptilus vilis Butler, 1881: 594. (TL: Japan).
Aciptilia amurensis Christoph, 1882: 43. (TL: Wladiwostok, Russia).

Distribution. Southern regions of the Russian Far East (Primorsky Krai, Sakhalin, Kunashir Island), Japan, China (Shanghai, Jangsu, Zhejiang) (Ustjuzhanin 1996; Ustjuzhanin & Kovtunovich 2016, 2019).

Remark. The species was recorded from Kunashir Island by Ustjuzhanin (1996).

Hellinsia distincta (Herrich-Schaffer, 1855)

Pterophorus distinctus Herrich-Schaffer, 1855: 379. (TL: Germany).
Pterophorus scarodactylus sibiricus Caradja, 1920: 86. (TL: Radde, Russia).
Oidaematophorus acutus Yano, 1963: 179. (TL: Japan).

Distribution. Europe, North Africa, Middle Asia, Siberia, southern regions of the Russian Far East, Mongolia, China (Heilongjiang, Jilin), Japan (Ustjuzhanin 1996; Ustjuzhanin & Kovtunovich 2016, 2019).

Remark. Previously, the species was recorded from Kunashir Island as "*Leoptilus acutus*" (Dubatolov & Ustjuzhanin 1991).

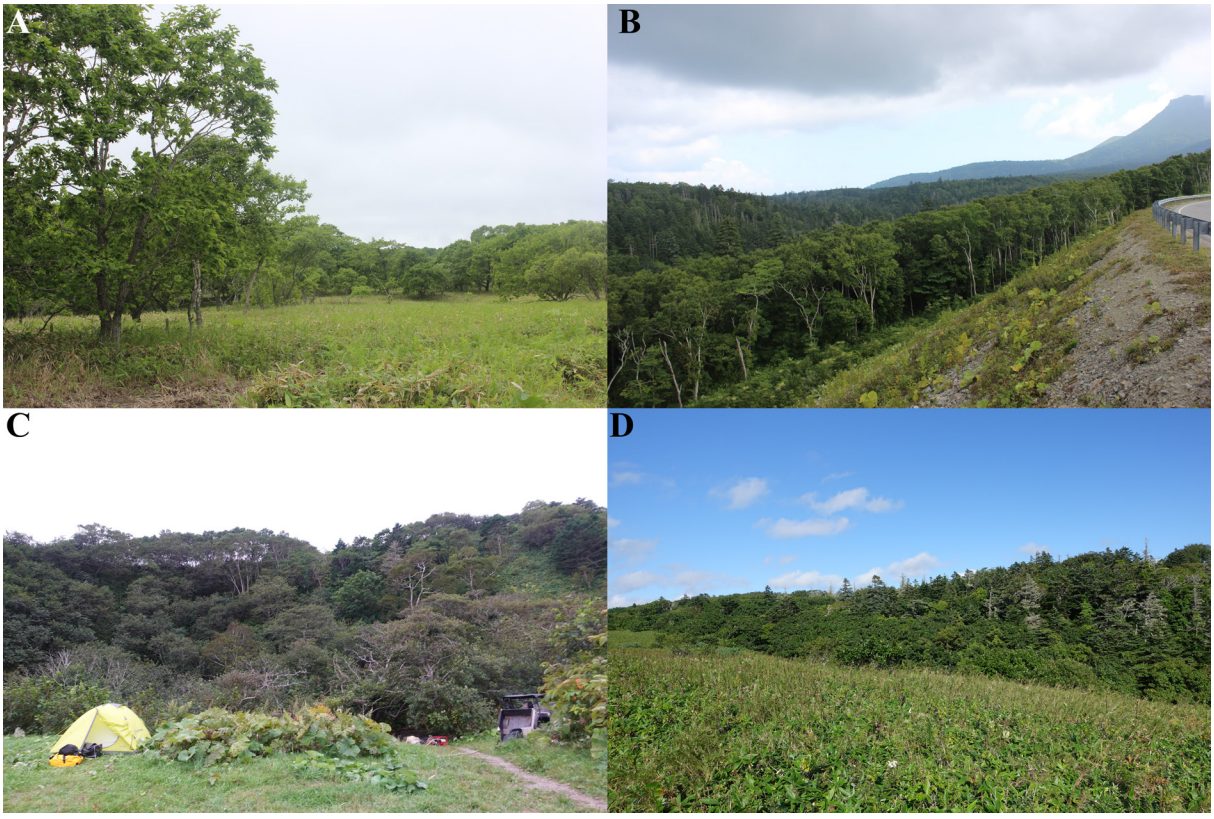

Figure 2. The collecting localities of specimens on Kunashir Island: **A)** Oak forest with Kurile bamboo (*Sasa kurilensis*) in the south of the island; **B)** Coniferous-birch forest near Mendeleyevo Airport; **C)** Andreevsky cordon; **D)** Danilovsky cordon.

Hellinsia inulae (Zeller, 1852)

Pterophorus inulae Zeller, 1852: 384. (TL: Poland).

Distribution. Europe, North Africa, Kazakhstan, Middle Asia, Siberia, southern regions of the Russian Far East, China (Shandong, Xinjiang) (Ustjuzhanin *et al*. 2017; Li *et al*. 2003).

Hellinsia ishiyamana (Matsumura, 1931)

Pterophorus ishiyamanus Matsumura, 1931: No. 2074. (TL: Japan).

Material examined. RUSSIA, Kunashir Island: Andreevsky cordon, coniferous and broad-leaved forest, 43°53'15"N, 145°37'28"E (Fig. 2C), 02–03.viii.2019, V. Dubatolov leg., 1♂; Danilovsky cordon, 43°57'16"N, 145°35'33"E (Fig. 2D), 08–13.viii.2019, V. Dubatolov leg., 1♂, 1♀; Tretyakovo village, cottages on the edge of coniferous and broad-leaved forest and seaside meadows, 43°59'13"N, 145°39'12"E, 17.07–13.viii.2021, E. Spitsyna & V. Spitsyn leg., 5 spec.; the same locality and collectors, 18.08–10.ix.2023, 14 spec.; the same locality and collectors, 26–30.ix.2024, 1♂; the same locality and collectors, 01–05.x.2024, 1♀; the same locality and collectors, 25–27.vi.2025, 1♀; the same locality and collectors, 01–08.vii.2025, 2♂, 3♀; the same locality and collectors, 10–17.vii.2025, 2♂, 1♀.

Distribution. Southern regions of the Russian Far East (Amur Region, Primorsky Krai, Kunashir Island), China (Zhejiang), Japan (Ustjuzhanin & Kovtunovich 2019; Li *et al*. 2003).

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

Hellinsia kuwayamai (Matsumura, 1931)

Pterophorus kuwayamai Matsumura, 1931: No. 2078. (TL: Japan).

Material examined. RUSSIA, Kunashir Island: Danilovsky cordon, 43°57'16"N, 145°35'33"E, 06–07.viii.2019, V. Dubatolov 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, 05.ix.2023, E. Spitsyna & V. Spitsyn leg., 1♀; territory surrounding the airport, coniferous-birch forest with Kurile bamboo (*Sasa kurilensis*), 43°58'22"N, 145°41'03"E, 17–18.vii.2025, E. Spitsyna & V. Spitsyn leg., 1♂.

Distribution. Southern regions of the Russian Far East (Amur Region, Primorsky Krai, Kunashir Island), China (Liaoning, Jilin, Taiwan), Korea, Japan (Ustjuzhanin & Kovtunovich 2019; Li *et al.* 2003).

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

Hellinsia lienigiana (Zeller, 1852)

Pterophorus lienigianus Zeller, 1852: 380. (TL: Latvia).
Pterophorus lienigianus catharodactylus Caradja, 1920: 86. (TL: Kazakevichevo, Khabarovsk Region, Russia).
Pterophorus hirosakianus Matsumura, 1931: No. 2073. (TL: Japan).
Oidaematophorus mutuurai Yano, 1963: 180–182. (TL: Japan).

Distribution. North Africa, Europe, Transcaucasia (Armenia), Iran, India, South Siberia, southern regions of the Russian Far East, China (Shaanxi, Zhejiang, Fujian, Jiangxi, Shandong, Hunan, Guizhou, Taiwan), Korea, Japan, New Guinea, North and Central America (Ustjuzhanin & Maksimov 2023).

Remark. The species was recorded from Kunashir Island by Dubatolov & Ustjuzhanin (1991).

Hellinsia osteodactyla (Zeller, 1841)

Pterophorus osteodactylus Zeller, 1841: 851. (TL: Poland).
Pterophorus korbi Caradja, 1920: 86. (TL: Khabarovsk, Russia).

Pterophorus turbidellus Caradja, 1920: 86. (TL: Uralsk, Kazakhstan).
Pterophorus sophronistes Meyrick, 1937: 170. (TL: Yunnan, China).

Distribution. Europe, the Caucasus, Kazakhstan, Middle Asia, Siberia, southern regions of the Russian Far East, Mongolia, China (Heilongjiang, Shandong, Shanxi, Xinjiang, Yunnan, Ningxia), Japan (Ustjuzhanin & Maksimov 2023; Li *et al*. 2003).

Remark. The species was recorded from Kunashir Island by Dubatolov & Ustjuzhanin (1991).

***Emmelina argoteles* (Meyrick, 1922)**

Pterophorus argoteles Meyrick, 1922: 549. (TL: Shanghai, China).
Pterophorus jezonicus Matsumura, 1931: No. 2076. (TL: Sapporo, Japan).
Pterophorus komabensis Matsumura, 1931: No. 2077. (TL: Tokyo, Japan).
Pterophorus menoko Matsumura, 1931: No. 2079. (TL: Sapporo, Japan).
Pterophorus yanagawanus Matsumura, 1931: No. 2080. (TL: Yanagawa, Japan).

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.ix.2024, E. Spitsyna & V. Spitsyn leg., 1♂; the same locality and collectors, 07–08.vii.2025, 1♀.

Distribution. Southern Transbaikalia, the Russian Far East (Kamchatka, Amur Region, Primorsky Krai, Kunashir Island), India, China, Japan (Ustjuzhanin & Kovtunovich 2016).

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

Conclusion

The Pterophoridae fauna of the South Kuril Islands and Kunashir Island in particular is still insufficiently studied. In the future the data on it will certainly be updated with new records. The following species are most likely to be found on Kunashir as they are known to occur on Hokkaido the nearest Japanese island to Kunashir: *Hellinsia tephradactyla* (Hübner, 1813), *Hellinsia didactylites* (Ström, 1783), and *Oxyptilus chrysodactylus* ([Denis et Schiffermüller], 1775) (Mano 2004). These species also occur in the south of the Russian Far East (Ustjuzhanin & Kovtunovich 2016). Besides the aforementioned taxa, finding of a number of other species living in territories adjacent to the southern Kuril Islands is possible as well. We assume that the present check-list of the Pterophoridae of Kunashir Island will be supplemented with at least 10 species. In "Catalogue of the Lepidoptera of Russia. Second Edition" *Platyptilia gonodactyla* ([Denis & Schiffermüller], 1775) was noted as occurring on the Southern Kuril Islands (Ustjuzhanin & Kovtunovich 2019). However, it was likely confused with a similar species, *Platyptilia ainonis* Matsumura, 1931.

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