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The Pterophoridae fauna of Khakassia Republic and south of Krasnoyarsk region (Russia) (Insecta: Lepidoptera)

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Abstract

The article gives a faunal list of Pterophoridae species of Khakassia Republic and the south of Krasnoyarsk region. We have examined 41 localities, as a result of which, 24 species are reported for this region for the first time. In total, 40 Pterophoridae species are currently known for the Republic of Khakassia and for the south of Krasnoyarsk region.
Keywords: Insecta, Lepidoptera, Pterophoridae, biodiversity, fauna, new data, south of the Krasnoyarsk region, Khakassia, Russia.

La fauna de Pterophoridae de la República de Jakasia y el sur de la región de Krasnoyarsk (Rusia) (Insecta: Lepidoptera)

Resumen

El artículo ofrece una lista faunística de las especies de Pterophoridae de la República de Jakasia y el sur de la región de Krasnoyarsk. Hemos examinado 41 localidades, como resultado de lo cual, 24 especies se registran para esta región por primera vez. En total, se conocen actualmente 40 especies de Pterophoridae para la República de Jakasia y para el sur de la región de Krasnoyarsk.
Palabras clave: Insecta, Lepidoptera, Pterophoridae, biodiversidad, fauna, nuevos datos, sur de la región de Krasnoyarsk, Jakasia, Rusia.

Introduction

Khakassia and the south of Krasnoyarsk region are limited from the west by the mountain ranges of the Kuznetsky Alatau and the Abakan Ridge. In the south, the main ridge of the West Sayans is the border line with the Republic of Tuva, and in the north, the East Sayan foothills enter the region from the southeast to the northwest. The height of these mountain ranges reaches 2500-3000 a.s.l. in some parts. The mountain territories of the region are mainly represented by forests, taiga, and high-mountain tundra. The Minusinsk lowland territory is represented by steppe and forest-steppe landscapes. Such a diverse combination of natural zones within the study area allowed us to count on interesting findings of Pterophoridae that met our expectations.

The first data on the Pterophoridae fauna of the Republic of Khakassia were published in 2018 (Ustjuzhanin & Kovtunovich, 2018). Then this list included only 17 species, which was due to the lack of specimens and absence of special studies on the territory of Khakassia. In recent years, the study of species composition of Heterocera in the Khakassia and the south of the Krasnoyarsk region has received a new impetus (Maksimov et al. 2019; Lostchev & Maksimov, 2021; Maksimov et al. 2022).

Due to more extensive and systematic research conducted in the region, the entomological material collected over several years made it possible to identify more than 200 species of Heterocera previously not noted in this region. The current study has significantly enlarged the species composition of Khakassian Pterophoridae due to the special research and collection of Pterophoridae specimens by Roman Maksimov, the second author of this article. Besides that, the research area has been expanded in accordance with its allocation in Catalogue of the Lepidoptera of Russia (Sinev, 2019) (Figures 1, 2). As a result, during the last five years 32 species have been revealed, 24 of which proved to be new for Khakassia and the south of the Krasnoyarsk region. In general, considering the known data (Ustjuzhanin & Kovtunovich, 2018), at present the Pterophoridae fauna of Khakassia counts for 40 species.

Figure 1. The location of Khakassia and South of Krasnoyarsk region in Russian Federation.

Material and methods

All the specimens used in our work were taken from private collections during the period from 2015 to 2022. All the current collection specimens were gathered by us on the territory of Khakassia and south of Krasnoyarsk region in 41 localities with different habitat characteristics, from the steppe zone to the alpine area of the West Sayan, and the Kuznetsky Alatau. Several specimens were caught in the daylight by standard methods, with butterfly net. Most of them were caught at nighttime on the light screen. All the specimens are preserved and stored in private collections of Roman. E. Maksimov in Abakan and Petr Ya. Ustjuzhanin in Novosibirsk.

Collecting localities in Khakassia and South of Krasnoyarsk region

1. Abakan - Russia, Khakassia, Abakan town, 53º43’23”N, 91º26’18”E, a.s.l. 248 m.
2. Ayan -Khakassia, Askyz district, West Sayans, Abakansky ridge, Ayan mount pass, mount taiga, subalpine meadow. 53º21’16”N, 89º36’54”E, a.s.l. 948 m.
3. Bograd - Russia, Khakassia, Bograd district, near Bograd settlement, meadow and forest hills. 54º13’12”N, 90º53’18”E, a.s.l. 493 m.

4. Bolshoe Dikoye - Russia, Khakassia, Bograd district, near Tumannoe station, Bolshoe Dikoye lake. Forest meadow. 54º06'35"N, 90º21'03"E, a.s.l. 828 m.
5. Byrikchul cave - Russia, Khakassia, Askiz district, West Sayans, foothills of Abakansky ridge, forest-steppe hills, near Byrikchul, below the cave. 53º18'41"N, 89º54'58"E, a.s.l. 567m.
6. Efremkino (Ancestor Trail) - Russia, Khakassia, Kuznetsky Alatau mountains, Shira district, near Efremkino village, beginning of "Ancestor Trail", mountain meadows, SW-exposition slope. 54º27'10"N, 89º27'22"E, a.s.l. 531 m.
7. Efremkino (marmoreal career) - Khakassia, Shira district, Kuznetsky Alatau mountains, near Efremkino village, marmoreal career over, forest-steppe meadow. 54º26'21"N, 89º26'07"E, a.s.l. 671 m.
8. Efremkino (Pandora's Box trail) - Khakassia, Shira district, Kuznetsky Alatau mountains, near Efremkino village, the path to the Pandora's Box cave, taiga mountain meadow, rocky slopes, 54º25'51"N, 89º27'34"E, a.s.l. 524 m.
9. Efremkino (Tomichka) - Russia, Khakassia, Kuznetsky Alatau mountains, Shira district, near Efremkino village, meadow on the "Tomichka" camp. 54º27'24"N, 89º26'56"E, a.s.l. 493 m.
10. Ergaky (Gornaya Oya) - South of the Krasnoyarsk region, Ermakovskoe district, West Sayans, Ergaky ridge, "Gornaya Oya" camp, high mountain taiga, subalpine meadow 52º48'11"N, 93º14'54"E, a.s.l. 1418 m.
11. Ergaky (Gornaya Oya) 2 - Russia, South of the Krasnoyarsk region, West Sayans, Ergaky ridge, naer "Gornaya Oya" camp, subalpic meadow. 52º47'51"N, 93º14'01"E, a.s.l. 1539 m.
12. Gladenkaya - Khakassia, Beya district, West Sayans, Gladenkaya mountain, mountain taiga and tundra, kurumniky, (N-exposition slope). 52º56'11"N, 91º22'34"E, a.s.l. 1231 m.
13. Grjady - South of the Krasnoyarsk region, Minusinsk district, near Bystraya village, Funtikov's mountain, steppe hills (S-exposition slope), 53º44'21"N, 91º33'38"E, a.s.l. 358 m. Note: Following W. Kozhantshikov's instructions, we can only approximately guess which point the author called "Grjady" (Koshantshikov, 1923). From several possible and very similar points, we have chosen this one, guided mainly by the least influence of the anthropogenic factor on it.
14. Ivanovskaya mountain - Khakassia, Ordzenikidze district, Kuznetsky Alatau mountains, near Prijiskovoye, Ivanovskaya mountain, alpine meadow, and high mountain tundra, 54º37'32"N, 88º36'01"E, a.s.l. 1315 m.
15. Karasuk - Russia, Khakassia, Bograd district, near Karasuk village, forrest-steppe stone hills. 54º19'37"N, 90º36'51"E, a.s.l. 514 m.
16. Khan-Kul - Russia, Khakassia, Askyz district, near Khan-Kul Lake, steppe rocky hill. 53º22'04"N, 90º52'11"E, a.s.l. 338 m.
17. Lugavskoye - Russia, South of the Krasnoyarsk region, near Lugavskoye lake, forest-steppe tall grass hill meadow. 53º30'18"N, 91º53'27"E, a.s.l. 410 m.
18. Maliy Kyzykul - Russia, South of the Krasnoyarsk region, near Maliy Kyzykul lake, meadow and forest. 53º45'26"N, 92º12'53"E, a.s.l. 342 m.
19. Manysh and Bolshoy On - Russia, Khakassia, West Sayans, Tashtyp district, near Bolshoy on and Manysh rivers merger, high-mountain taiga, meadow, 51052'36"N, 89º48'8"E, a.s.l. 1122 m.
20. Minusinsk pine forest - Russia, South of the Krasnoyarsk region, Minusinsk pine forest, meadov, 53º39'15"N, 91º35'15"E, a.s.l. 308 m.
21. Oglahty - Russia, Khakassia, Bograd district, Khakassky state National Reserve, "Oglahty" area, motley grass steppe, rocky hills. 53º58'59"N, 91º29'43"E, a.s.l. 258 m.
22. Oglahty 2 - Russia, Khakassia, Bograd district, Khakassky state National Reserve, "Oglahty" area, motley grass steppe, rocky hills. 53º59'22"N, 91º30'00"E, a.s.l. 317 m. (Figure 3).
23. Oglahty 3 - Russia, Khakassia, Bograd district, Khakassky state National Reserve, "Oglahty" area, motley grass steppe, rocky hills. 53º59'06.81"N, 91º28'44.47"E, a.s.l. 282 m.
24. Pazykol lake - Russia, Khakassia, Bograd district, 5th km Tumannoe-Sorsk road., Pazykol lake, steppe hill. 54º03'57"N, 90º17'43"E, a.s.l. 754 m.

25. Podlunnaya - Russia, Khakassia, Shira district, Kuznetsky Alatau mountains, close Kommunar mine, Podlunnaya mount top, subalpine meadow, mountain taiga. 54º19’12”N, 89º13’36”E, a.s.l. 1303 m.
26. Podlunnaya 2 - Khakassia, Shira district, Kuznetsky Alatau mountains, close Kommunar mine, Podlunnaya mountain top, subalpine meadow, mount tundra 54º18’47”N, 89º13’32”E, a.s.l. 1344 m.
27. Podlunnaya 3 - Russia, Khakassia, Kuznetsky Alatau mountains, Shira district, close Kommunar mine, Podlunnaya mount top, high-mountain tayga and subalpine meadow, 54º18’36”N, 89º13’39”E, a.s.l. 1322 m.
28. Podlunnaya 4 - Russia, Khakassia, Shira district, Kuznetsky Alatau mountains, close Kommunar mine, Podlunnaya mount top, high-mountain taiga and subalpine meadow, 54º18’35”N, 89º13’41”E, a.s.l. 1316 m.
29. Podlunnaya 5 - Russia, Khakassia, Shira district, Kuznetsky Alatau mountains, close Kommunar mine, Podlunnaya mount top, subalpine meadow, mountain taiga. 54º19’12”N, 89º13’36”E, a.s.l. 1303 m.
30. Podsineye - Russia, Khakassia, Altay district, near Podsineye village, meadow on river the Enissey river. 53º40’21”N, 91º34’02”E, a.s.l. 246 m.
31. Prijiskovoye - Khakassia, Ordzenikidze district, Kuznetsky Alatau mountains, near Prijiskovoye, subalpine meadow and high mountain taiga, 54º39’56”N, 88º40’54”E, a.s.l. 980 m.
32. Saylig-Khem-Taiga - Khakassia, Tashtyp district, West Sayans, Saylig-Khem-Taiga ridge, highmountain tundra, 51º42’55”N, 89º53’09”E, a.s.l. 2140 m. (Figure 4).
33. Snow Leopard - Khakassia, Tashtyp district, West Sayans, near “Snow Leopard” camp, highmountain taiga and high-mountain tundra, 51º49’59”N, 89º46’41”E, a.s.l. 1385 m.
34. Silver Pine forest - Russia, South of the Krasnoyarsk region, Krasnoturansk district, “Silver Pine forest” camp, forest-steppe, 54º15’58”N, 91º31’49”E, a.s.l. 245 m.
35. Sugesh - Russia, Khakassia, Tashtyp district, West Sayans, “Sugesh” camp, mountain taiga. 52º43’03”N, 89º55’19”E, a.s.l. 575 m.
36. Tumannoe - Russia, Khakassia, Bograd district, near Tumannoe station, forest meadow. 54º05’25”N, 90º19’43”E, a.s.l. 801 m.
37. Tyoia - Russia, Khakassia, Askiz district, West Sayans, Abakansky ridge, near Vershina Tyoia, mountain taiga, subalpine meadow. 53º17’29”N, 89º33’50”E, a.s.l. 1024 m.
38. Tyoia 2 - Russia, Khakassia, Askiz district, West Sayans, Abakansky ridge, near Vershina Tyoia, mountain taiga, subalpic meadow. 53º15’29.91”N, 89º33’00.05”E, a.s.l. 963 m.
39. Uytag - Russia, Khakassia, Askiz district, near Uytak station, Sarj hills, the foot of mountain Uytag, steppe rocky hills. W-exposition slope. 53º18’47”N, 90º47’11”E, a.s.l. 350 m.
40. Verh-Bidja - Russia, Khakassia, Ust-Abakan district, near Verh-Bidja village, forest-steppe hills, motley grass meadow, pine forest. 53º58’34”N, 90º44’39”E, a.s.l. 673 m. (Figure 5).
41. Verh-Bidja 2 - Russia, Khakassia, Ust-Abakan district, near Verh-Bidja village, forest-steppe hills. 54º00’36”N, 90º58’38”E, a.s.l. 642 m.

List on the Pterophoridae fauna of the Republic of Khakassia and the South of Krasnoyarsk region (Russia)

Agdistis adactyla (Hübner, [1823])

Material: Grjady, 1 ♀, 11-VIII-2020; Silver Pine Forest, 1 ex., 13-VII-2019.

Distribution: Temperate zone of the Palearctic.

Paraplatyptilia metzneri (Zeller, 1841)

Material: Verh-Bidja, 1 ♀, 17-VI-2020.

Distribution: Europe, Iran, Asia Minor, Armenia, Azerbaijan, Kyrgyzstan, Uzbekistan, Kazakhstan, Tajikistan, NW China, South Siberia, Mongolia (Ustjuzhanin & Kovtunovich, 2018).

Paraplatyptilia sibirica (Zagulajev, 1983)

Material: Saylig-Khem-Taiga, 1 ♂, 08-VII-2020.

Distribution: Subpolar regions of the European part of Russia, Siberia and the Far East, mountains of southern Siberia (Sinev 2019). **New species for the Republic of Khakassia**.

Paraplatyptilia terminalis (Erschoff, 1877)

Material: Efremkino (marmoreal career), 1 ♂, 1 ♀, 16-VI-2018; Ergaky (Gornaya Oya) 2, 1 ♂, 20-VII-2019.

Distribution: Siberia, NE China, Russian Far East (Kamchatka) (Ustjuzhanin, 1996). **New species for the Republic of Khakassia**.

Platyptilia calodactyla ([Denis & Schiffermüller], 1775)

Material: Podlunnaya 2, 1 ♂, 13-VII-2018; Ergaky (Gornaya Oya), 1 ♂, 19-VII-2019; Oglahty, 1 ♀, 28-VIII-2019; Podlunnaya 2, 6 ex, 27-VII-2019; Verh-Bidja, 1 ♂, 17-VI-2020; Snow Leopard, 1 ♂, 10-VII-2020; Efremkino (Ancestor Trail), 3 ex., 07-VIII-2020; Podlunnaya, 5 ex., 04-VII-2020; Podlunnaya 3, 4 ex., 22-VII-2022; Ivanovskaya mountain, 1 ♀, 10-VII-2022; Uytag, 2 ex., 25-VI-2022; Podlunnaya 4, 2 ♂♂, 01-VII-2022.

Distribution: Europe, Kazakhstan, Siberia, Russian Far East, Mongolia, China (Ustjuzhanin 1996). **New species for the Republic of Khakassia**.

Platyptilia farfarella Zeller, 1867

Material: Pazykol lake, 17 ex., 29-30-VII-2022.

Distribution: Europe, Africa, Western Asia, Caucasus, Siberia, Russian Far East, Japan, Taiwan, Mongolia, Kazakhstan (Ustjuzhanin, 1996). **New species for the Republic of Khakassia**.

Platyptilia nemoralis Zeller, 1841

Material: Tyoia 1 ♂, 30-VI-2018; Maliy Kyzykul, 1 ♂, 1 ♀, 21-VII-2018; 1 ♂, 1 ♀, 27-VI-2020.

Distribution: Europe, Siberia, Russian Far East (Primorye, the Kuril Islands), Japan (Ustjuzhanin, 1996), China (Xinjiang) (Li et al. 2002). **New species for the Republic of Khakassia**.

Gillmeria pallidactyla (Haworth, 1811)

Material: Podlunnaya 2, 2 ♂♂, 1 ♀, 13-VII-2018; Verh-Bidja, 2 ♂♂, 17-VI-2020; Ayan, 1 ♂, 1 ♀, 24-VI-2020 Maliy Kyzykul, 1 ♂, 27-VI-2020; Ivanovskaya mountain, 1 ♀, 10-VII-2022; Prijiskovoye, 2 ♂, 11-VII-2022; Tumannoe, 1 ♂, 29-VII-2022.

Distribution: Temperate zone of the Palearctic; North America (Ustjuzhanin et al. 2017).

Gillmeria stenoptiloides (Filipjev, 1927)

Material: Efremkino (Pandora's Box trail), 1 ♂, 14-VII-2018; Uytag, 1 ♂, 25-VI-2022; Pazykol lake, 1 ♂, 1 ♀, 29-30-VII-2022; Byrikchul cave, 1 ♂, 06-VIII-2022.

Distribution: Siberia, Russian Far East, Mongolia, China, Japan (Honshu) (Ustjuzhanin et al. 2017).

Amblyptilia punctidactyla (Haworth, 1811)

Material: Manysh and Bolshoy On, 1 ♀, 29-VI-2019; Maliy Kyzykul, 1 ♂, 12-X-2019; Tyoia 2, 1 ♂, 22-VI-2019; Sugesh, 1 ♂, 16-VIII-2020; 1 ♀, 05-VI-2022; Abakan, 1 ♂, 19-VI-2022; Verh-Bidja 2, 1 ♂, 20-VII-2022.

Distribution: Temperate zone of the Palearctic (Ustjuzhanin et al. 2017). **New species for the Republic of Khakassia**.

Stenoptilia bipunctidactyla (Scopoli, 1763)

Material: Gladenkaya, 1 ♂, 10-VII-2018; Grjady, 1 ♂, 11-VIII-2020.

Distribution: Europe, North Africa, Western Asia, Iran, Polar Ural, southern Siberia, Mongolia, Russian Far East (southern Primorye) (Ustjuzhanin et al. 2017). **New species for the Republic of Khakassia**.

Stenoptilia graphodactyla (Treitschke, 1833)

Material: Lugavskoye, 1 ♂, 07-VII-2019, Karasuk, 1 ♂, 31-VII-2020.

Distribution: Europe, Siberia, China (Shanxi, Xinjiang) (Ustjuzhanin et al. 2017). **New species for the Republic of Khakassia**.

Stenoptilia latistriga Rebel, 1916

Material: Saylig-Khem-Taiga, 1 ♂, 29-VI-2019; 5 ex., 08-VIII-2020.

Distribution: Altai, Tuva, Buryatia, Irkutsk Region (Ustjuzhanin et al. 2017); Khakassia. **New species for the Republic of Khakassia**.

Stenoptilia lasani Ustjuzhanin, Rekelj & Kovtunovich, 2017

Material: Lugavskoye, 1 ♂, 19-VI-2018; Oglahty, 1 ♀, 28-VIII-2019; Pazykol lake, 1 ♂, 30-VII-2022.

Distribution: Tuva, Khakassia. **New species for the Republic of Khakassia**.

Note: Rare local species described from Tuva (Ustjuzhanin et al. 2017)

Stenoptilia nolckeni (Tengstrom, 1869)

Material: Verh-Bidja 2, 1 ♂, 20-VII-2022; Bograd, 6 ex., 27-VII-2022.

Distribution: North Europe, Kazakhstan, Middle Asia, Siberia, Russian Far East, Korea (Ustjuzhanin et al. 2017). **New species for the Republic of Khakassia**.

Stenoptilia pterodactyla (Linnaeus, 1761)

Material: Ergaky (Gornaya Oya), 1 ♀, 19-VII-2019; Grjady, 1 ♀, 19-VI-2020.

Distribution: Europe, Asia Minor, Transcaucasia, Kazakhstan, Kyrgyzstan, southern Siberia, Primorye, North America (Ustjuzhanin, 1996). **New species for the Republic of Khakassia**.

Stenoptilia stigmatodactyla (Zeller, 1852)

Material: Grjady, 1 ♂, 11-VIII-2020.

Distribution: Europe, Transcaucasia, Iran, Kazakhstan, South Siberia, Yakutia, Magadan region (Ustjuzhanin et al. 2017). **New species for the Republic of Khakassia**.

Cnaemidophorus rhododactylus ([Denis & Schiffermüller], 1775)

Material: Pazykol Lake, 1 ♂, 30-VII-2022.

Distribution: Holarctic (Ustjuzhanin et al. 2017).

Procapperia kuldschaensis (Rebel, 1914)

Material: Byrikchul cave, 1 ♂, 1 ♀, 06-VIII-2022.

Distribution: Kazakhstan, Middle Asia, South Siberia (Altai, Kemerovo Region, Tuva, Khakassia), Mongolia, China (Xinjang) (Ustjuzhanin et al. 2017). **New species for the Republic of Khakassia**.

Crombrugghia tristis (Zeller, 1839)

Material: Grjady, 1 ♂, 11-VIII-2020.

Distribution: Europe, Turkey, Syria, Caucasus, Iran, Central Asia, southern Siberia (Ustjuzhanin, 1996), China (Shaanxi) (Li et al. 2002). **New species for the Republic of Khakassia**.

Gypsochares kyraensis (Ustjuzhanin, 1996)

Material: Verh-Bidja 2, 1 ♂, 20-VII-2022

Distribution: Southern Transbaikalia, Khakassia. **New species for the Republic of Khakassia**.

Note: Unique finding! Rare local species described from southern Transbaikalia (Ustjuzhanin, 1996). The habitat of this species has extended more than at two thousand kilometres to West.

Oidaematophorus constanti (Ragonot, 1875)

Material: Verh-Bidja, 1 ♀, 17-VI-2020.

Distribution: Europe, southern Ural, southern Siberia: Altai, Khakassia. **New species for the Republic of Khakassia**.

Note: Rare, local species, found in Russia only recently, first in Altai (Huemer et al. 2016; Ustjuzhanin et al. 2019), then in southern Urals (Nupponen, 2022), now in Khakassia. This finding is the most eastern in its area of habitat.

Oidaematophorus lithodactylus (Treitschke, 1833)

Material: Maliy Kyzykul, 1 ♂, 10-VIII-2019; Sugesh, 1 ♀, 03-VIII-2019.

Distribution: Europe, Asia Minor, Caucasus, Iran, Central Asia, Southern Ural, Siberia, south of Russian Far East, Japan (Ustjuzhanin et al. 2017), China (Xinjiang) (Li et al. 2002). **New species for the Republic of Khakassia**.

Merrifieldia leucodactyla ([Denis & Schiffermüller], 1775)

Material: Karasuk, 4 ex., 31-VII-2020; Bograd, 12 ex., 27-VII-2022; Byrikchul, 3 ex., 06-VIII-2022.

Distribution: North Africa, Europe, Armenia, Kazakhstan, Middle Asia, Siberia, Russian Far East, China (Shanxi), Mongolia (Ustjuzhanin et al. 2017). **New species for the Republic of Khakassia**.

Emmelina monodactyla (Linnaeus, 1758)

Material: Minusinsk pine forest, 2 ex., 10-X-2018; Oglahty 2, 1 ♂, 05-V-2019; Oglahty 3, 2 ex., 28-IV-2019; 2 ex., Maliy Kyzykul, 12-X-2019; Podsineye, 1 ♀, 08-IV-2020; Khan-Kul, 1 ♂, 03-V-2022.

Distribution: North Africa, Europe, the Caucasus, Central Asia, Kazakhstan, southern Siberia east to Tuva, Mongolia, China, India, Philippines, North and South America (Ustjuzhanin et al. 2017).

Hellinsia chrysocomae (Ragonot, 1875)

Material: Verh-Bidja 2, 1 ♂, 20-VII-2022; Bograd, 1 ♂, 27-VII-2022,

Distribution: Europe, Kazakhstan, Middle Asia, China, Mongolia, Siberia, Russian Far East (Ustjuzhanin & Kovtunovich, 2007a). **New species for the Republic of Khakassia**.

Hellinsia didactylites (Strom, 1783)

Material: Podlunnaya, 1 ♂, 04-VII-2020; Oglahty, 1 ♀, 09-VII-2022.

Distribution: Europe, Caucasus, Kazakhstan, Middle Asia, Siberia, Far East of Russia, China (Shaanxi, Jilin) (Ustjuzhanin & Kovtunovich, 2007a). **New species for the Republic of Khakassia**.

Hellinsia innocens (Snellen, 1884)

Material: Verh-Bidja, 1 ♂, 17-VI-2020; Verh-Bidja 2, 1 ♂, 20-VII-2022.

Distribution: Southern Siberia, south of Russian Far East; Mongolia, China (Ustjuzhanin, 1996); Altai (Nupponen, 2022). **New species for the Republic of Khakassia**.

Hellinsia lienigiana (Zeller, 1852)

Material: Verh-Bidja, 1 ♂, 14-VII-2018; Maliy Kyzykul, 1 ♂, 27-VI-2020; Efremkino (Tomichka), 1 ♂, 23-VII-2022.

Distribution: Europe, North Africa, Armenia, Iran, India, south Siberia, south of Russian Far East,

Japan, Korea, China (Shaanxi, Zhejiang, Fujian, Jiangxi, Shandong, Hunan, Guizhou), Taiwan, North and Central America, New Guinea (Ustjuzhanin et al. 2015; Li et al. 2002).

Hellinsia osteodactyla (Zeller, 1841)

Material: Podlunnaya 2, 1 ♂, 13-VII-2018; Podlunnaya, 1 ♂, 04-VII-2020.

Distribution: Europe, Caucasus, Central Asia, Kazakhstan, Siberia, the Far East, Mongolia, Japan (Ustjuzhanin et al. 2015), China (Heilongjiang, Shandong, Shanxi, Xinjiang, Yunnan, Ningxia) (Li et al. 2002). **New species for the Republic of Khakassia**.

Calyciphora albodactyla (Fabricius, 1794)

Material: Verh-Bidja 2, 1 ♂, 20-VII-2022; Bolshoe Dikoye, 1 ♂, 29-VII-2022.

Distribution. Europe, Southern Siberia: Irkutsk, Kemerovo regions, Khakassia. **New species for the Republic of Khakassia**.

Note: The first indication for Siberia (Irkutsk) was published (Arenberger, 1995) as a synonym of *Calyciphora xerodactyla* (Zeller, 1841). Later (Ustjuzhanin, 1996) mistakenly identified as *Calyciphora nephelodactyla* (Eversmann, 1844), indicated for Taishet (Irkutsk Region). In another paper by the author (Ustjuzhanin, 2001), this species as *Calyciphora xerodactyla* is recorded for the vicinity of Kuzedeevo village, Kemerovo Region, found in a relict linden grove.

Conclusion

The southern Siberia is rich in the diversity of natural landscapes and abundance of flora and fauna. Concerning the Pterophoridae fauna, the most studied is Altai, from where 54 species are known (Ustjuzhanin & Kovtunovich, 2007; Huemer et al. 2016; Nupponen, 2022), 37 species are known from Tyva (Ustjuzhanin et al. 2017) and 45 from Buryatia (Ustjuzhanin & Kovtunovich, 2007b). The territory of Khakassia and south of Krasnoyarsk region are profitably located between the western and eastern portions of southern Siberia. From one hand, the west-Palaearctic species penetrate there: *Paraplatyptilia metzneri*, *Oidaematophorus constanti, Calyciphora albodactyla*, from the other hand - east-Palaearctic species: *Paraplatyptilia terminalis, Gillmeria stenoptiloides, Gypsochares kyraensis, Hellinsia innocens.* At the same time, in Khakasia there are its own typical central-Asian species: *Procapperia kuldschaensis, Stenoptilia lasani, Stenoptilia latistriga.* All this determines the picture of biodiversity of the Lepidoptera fauna, in particular, Pterophoridae, of Khakassia and south of Krasnoyarsk region, which allows to suggest a further increase in the plume moths species composition during the next study for at least 10 species.

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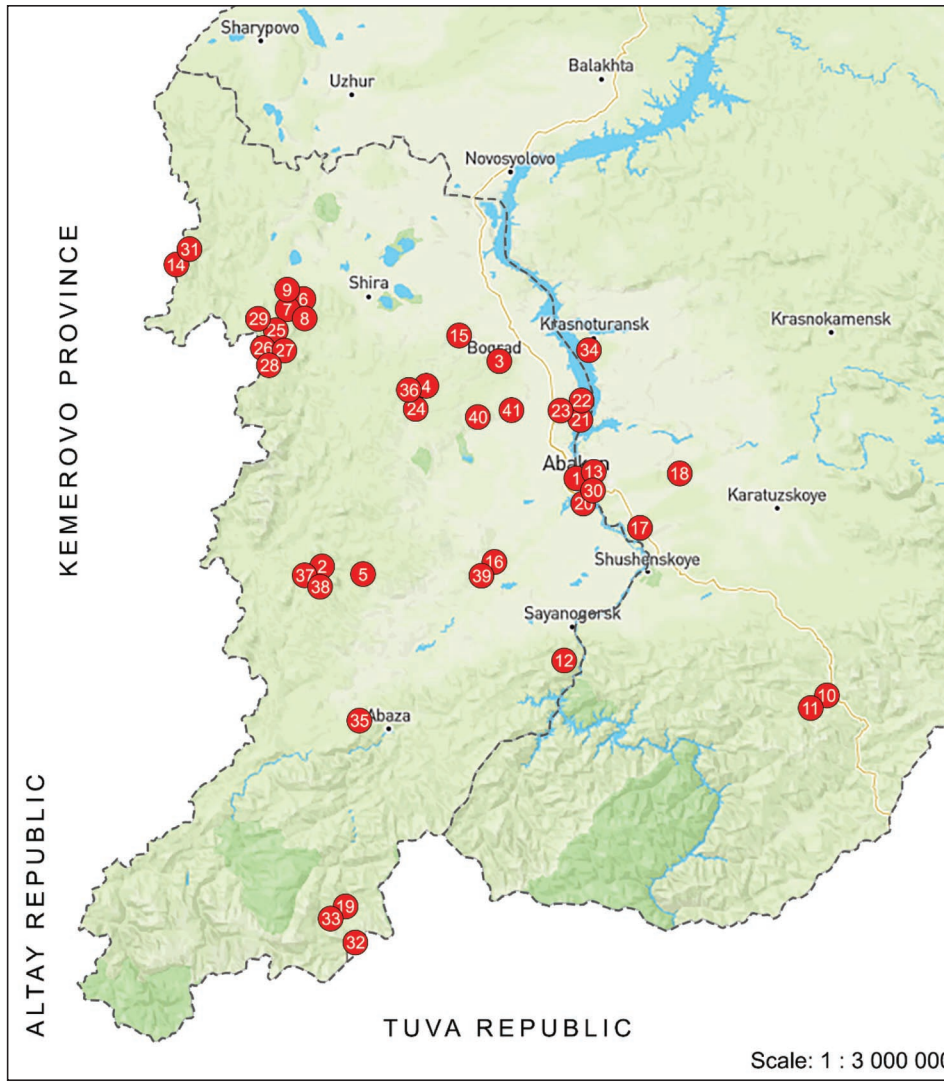
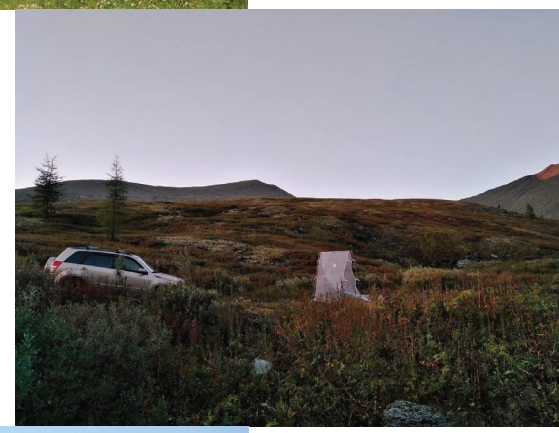


Figure 2. Collecting localities in Khakassia and South of Krasnoyarsk region. The numbers inside the red circles given in accordance with the numbers of collecting localities in the text.



Figures 3-5. Biotopes. **3**. Russia, Khakassia, Bograd district, Khakassky state National Reserve, "Oglahty" area, motley grass steppe, rocky hills, a.s.l. 317 m. **4**. Russia, Khakassia, Tashtyp district, West Sayans, Saylig-Khem-Taiga ridge, highmountain tundra, a.s.l 2140 m. **5**. Russia, Khakassia, Ust-Abakan district, near Verh-Bidja village, forest-steppe hills, motley grass meadow, pine forest, a.s.l 673 m.