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RESEARCH ARTICLE

Water mites (Acariformes, Hydrachnidia) of the Sob River basin (Polar Urals)

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Abstract

Water mites were investigated in water bodies of the Sob River basin, which flows in the central part of the Polar Urals, in the region of the Arctic Circle. The upper and middle courses of the River Sob, its tributaries in the mountainous and plain regions, as well as lakes and floodplain ponds were studied. In total, 35 species from 8 families were identified from 12 waterbodies, 24 species were found in rivers and 12 species in lakes. It was found that the fauna of water mites in the rivers was very rich and diverse. Lebertiidae, Sperchontidae and Hygrobatidae dominated in terms of species number and abundance. The fauna of the mountain rivers was poorer than that of the plain rivers. *Feltria minuta* and *Sperchon glandulosus* dominated in different sites of the upper course of the Sob River and its mountain tributaries. The highest number of mites and the greatest diversity of species were found in the middle reaches of the Sob River and its tributaries in the plain area. Species of the genera *Atractides* and *Lebertia* dominated in these rivers. The number of mites was low in lakes and they were represented by a small number of species. In stagnant waters, *Lebertia litoralis* and species of the genus *Piona* predominated in abundance and occurrence. The fauna of water mites in the River Sob basin is similar to other parts of the Urals, especially in the Nether-Polar Ural water bodies. In comparison with the southern regions of the Urals, the species composition of water mites in the Polar Urals is poorer. Some genera and families that are numerous in the Central and Northern Urals are absent. In the same time species of northern and eastern origin such as *Sperchonopsis minutiporus* and *Sperchon laurenticus* are present.

Keywords

Ural Mountains, Rivers, Lakes, distribution, fauna, ecology

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Introduction

Water mites of the Urals were poorly studied. There are only a few works devoted to the fauna of water mites of the Central, Northern and Nether-Polar Urals (Shubina and Tsember 2014, 2017; Stolbov et al. 2024).

The fauna of water mites of the Polar Urals, the northernmost part of the Ural Mountains, has not yet been studied. In numerous hydrobiological works devoted to water bodies of the Polar Urals (Bogdanov et al. 2002, 2004, 2005; Stepanov 2005; Loskutova et al. 2018; Koveshnikov et al. 2019; etc.), water mites are given as a common component of the water fauna of this region. But these papers researchers described only groups or identified only up to the genus and few species. No specific studies on the fauna and ecology of water mites in the region have been conducted to date.

The Sob River is one of the largest rivers of the Polar Urals, flowing along the latitude of the Arctic Circle. The valley of the Sob River divides the Polar Urals into two parts with different geological structure. From a hydrobiological point of view, the River Sob is quite well studied. There are 28 species of fish in the river (Kizhevatov and Kizhevatova 2011), and over 100 species of hydrobionts recorded in the plankton and benthos (Bogdanov et al. 2002). Water mites have not yet been studied in the River Sob. The above paper includes only one species, *Hygrobates* sp. At the same time, in order to assess the condition of water bodies, it is important to study all components of the aquatic biocenosis, including water mites, which are known to be potential indicators of the condition of the aquatic environment (Goldschmidt 2016). The Sob River flows through sparsely populated areas of the Polar Urals, but is under significant anthropogenic pressures. The Sob River is a popular destination for water tourism, and a large chromium deposit is being developed in the upper reaches of the river (Reutina 2008). Despite the fact that at present the waters of the upper reaches of the Sob River are assessed as clean and their ecological condition is satisfactory (Krasnenko and Levykh 2023), the above factors can have a significant negative impact on the ecosystem of water bodies in the region. Therefore, it is highly relevant to study all components of the Polar Urals biota, especially those with important bioindication value, including water mites.

Materials and methods

The material was collected in August 2022 and 2024 in the Sob River basin, in the central part of the Polar Urals, on the territory of the Priuralsky and Shuryshkarsky districts of the Yamal-Nenets Autonomous Okrug. The upper and middle courses of the Sob River and its first and second order tributaries were investigated.

The Sob River belongs to the Ob-Irtysh Basin, it has its sources on the eastern slope of the Polar Urals and flows into the Ob River near the Katravozh village. The length of the river is 190 km, the area of its basin is 6320 km^2. Most of the upper

courses of the river are located beyond the Arctic Circle. The water in the Sob River is very weakly mineralized (Bogdanov et al. 2002). In the upper and middle courses, the Sob River has a typical mountain character, and only in the lower reaches it acquires the character of a lowland river.

Samples were collected in the upper course near the 141 km station (Fig. 1, point 1) and in the vicinity of Kharp settlement (Fig. 1, point 2), as well as in the middle course near the mouth of the Haramatolou River (Fig. 1, point 3) and before the confluence of the Lupajyogan River (Fig. 1, point 4).

In its upper course, the Sob River has the characteristics of a typical mountain river, with rocky bottoms, high flow velocity, very low mineralization, and clean and transparent water (Fig. 2a). Macrophytes were absent in most of the study sites, with the exception of rapids in the area of the Kharp settlement, where the water moss *Fontinalis antipiretica* Hedw. grew in masses on large stones. Samples were collected both in riffles and in calm stream pools.

In the middle course, the Sob River has a calmer flow, rocky, pebbly and sandy bottoms (Fig. 2b). Macrophytes are represented by single plants of *Fontinalis antipiretica*, and single specimens of *Persicaria amphibia* (L.) and *Potamogeton* sp. were also noted in the backwater near the mouth of the River Luppajyogan.

The studied tributaries of the Sob River can be divided into two groups (Getsen 2007). The first group includes typical mountain streams and rivers with high currents, rapids and riffles, rocky bottoms, clean and transparent water. From this group, Engayu, Kerdomanshor and Haramatolou rivers, and two unnamed streams were studied. In the small rivers Engayu and Kerdomanshor, samples were collected in the upper courses on the Rai-Iz mountain range, at an altitude of 250 m above sea level (Fig. 1, points 5, 6). The depth of the rivers in this site was insignificant, the organic matter and the higher aquatic vegetation were absent. In the Engayu River there were single fouling of the moss *Fontinalis antipiretica* on large stones. Also, in the Engayu River, samples were taken in the mouth (Fig. 1, point 7). The nature of the river in the mouth did not differ from the previous point, but the water content was higher. The Haramatolou River has a greater length (54 km), depth, and rapid flow compared to the other studied tributaries. In the Haramatolou River, samples were collected in the lower course, in several sites in pools, riffles and rapids (Fig. 1, points 8,9). Higher aquatic vegetation was present only in the rapids of the River Haramatolou, where the moss *Fontinalis antipiretica* was found on large stones. Two streams flowing into the Sob River in the area of station 141 km (Fig. 1, point 10) had a small depth, low flow velocity and low organic content. In one of the streams, *F. antipiretica* fouling was present in places on the stones.

The second group includes the tributaries of the Sob River below the mouth of the Haramatolou River, which collect the runoff from the raised bogs of the mountain tundra. The flow in these rivers is low, the water has brown color and saturated with humic acids (Kizhevatov and Kizhevatova 2011). These are the Luppajyogan River (Fig. 2c) and its tributary the Putyryogan River. Samples from the Luppajyogan and Putyryogan Rivers were collected in the foothill plain, in the lower reaches

near the mouth (Fig. 1, points 11, 12). These rivers were characterized by low flow, brown water, rocky and sandy-pebbly bottoms, abundant higher aquatic vegetation represented by *Fontinalis antipiretica*, and less common *Sparganium* sp. and *Petasites* sp.

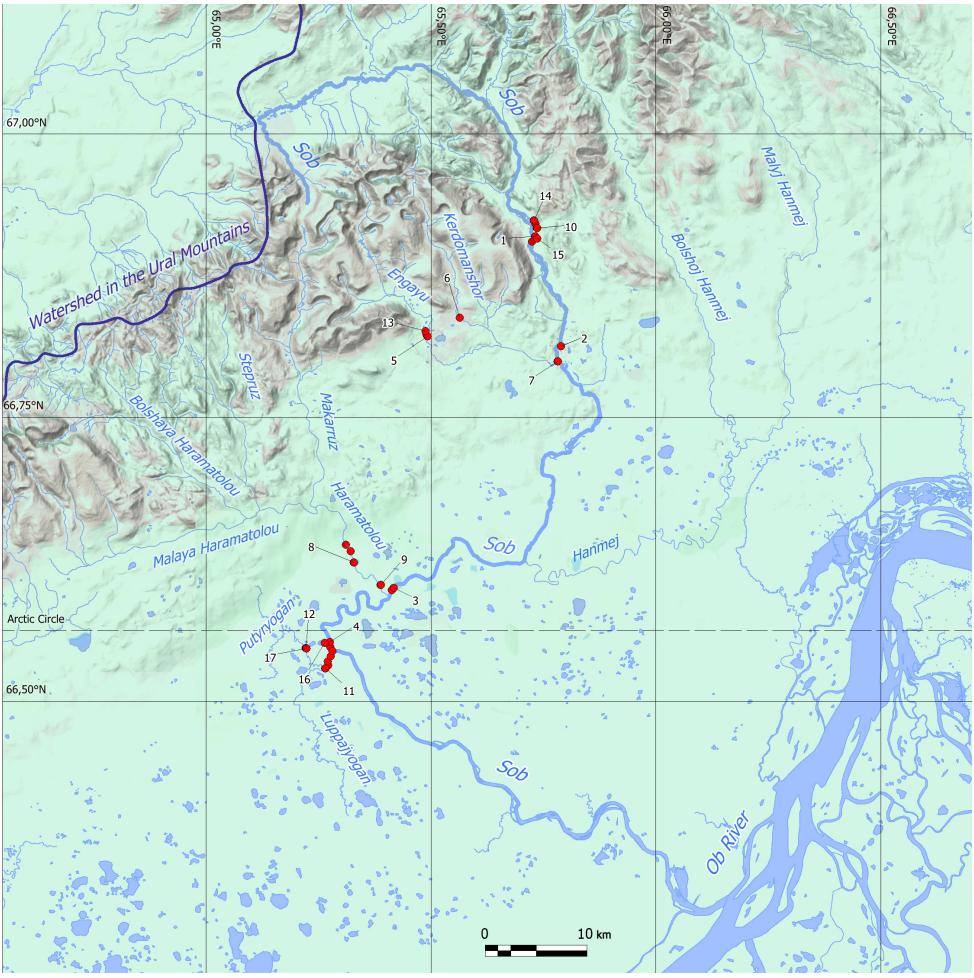

Figure 1. Map of the sample collection sites in the Sob River basin.

In addition to the rivers, two unnamed lakes (Lake 1 and Lake 2) in the mountainous part of the Polar Urals on the Rai-Iz mountain range near Mount Chernaya were studied (Fig. 1, point 13). These glacial lakes are typical for this region, located in the mountain tundra at an altitude of 250 m above sea level (Fig. 2d). These lakes are characterized by very low mineralization and low organic matter content (Bogdanov et al. 2004; Getsen 2007). Lake 3 at the foot of Mount Yar-Keu was also studied (Fig. 1, point 14). This lake is located at an altitude of 100 m above sea level in the middle of a forest, is fed by a stream, and contained a large amount of

detritus and filamentous algae. The size of the investigated lakes was small and did not exceed 0.1 km^2. They characterized by rocky bottoms and the absence of higher aquatic vegetation.

Three oxbow lakes of the Sob and Putyryogan Rivers were also studied. These are typical floodplain ponds with water rich in humic acids and small depth. The oxbow 1 of the Sob River is located in the mountainous part near the station 141 km (Fig. 1, point 15). This lake was drying up and swampy, had shallow depths, silty bottom and brown water. Riparian vegetation is represented by *Equisetum* sp. and *Alopecurus* sp. The submerged vegetation was represented by single specimens of *Potamogeton* sp., *Hippuris* sp., *Callitriche* sp. The oxbow 2 of the Sob River is located in the lowland area (Fig. 1, point 16) and is quite large (area 0.3 km^2), has sandy-silty bottom with individual stones, and there is no submerged vegetation. The oxbow of the Putyryogan River (Fig. 1, point 16) was small, silty-sandy bottom, higher aquatic vegetation is represented by single specimens of *Sparganium* sp., *Hippuris* sp. and *Callitriche* sp.

Samples were collected from an approximately identical area of 1 square meter using a hydrobiological net. Biofouling was scraped from large rocks and macrophytes were removed from the water and washed out in the net. In each river, samples were taken in several replicates in different biotopes – on riffles and pools.

Figure 2. The investigated water bodies: **A** – the Sob River, upper course near the Kharp settlement; **B** – the Sob River, middle course; **C** – the Luppajyogan River; **D** – Mountain Lake 1 and the Engayu River.

The mites were fixed in 70% ethanol and mounted on slides in Hoyer's medium. A modern identification keys were used to identify the water mites (Davids et al. 2007; Di Sabatino et al. 2010; Gerecke et al. 2016). In total, 1,773 water mite specimens were extracted from the samples and examined.

For the analysis of the obtained material, the absolute and mean number of mites (N), the frequency of occurrence (O) and the dominance index (D) (Engelmann 1978) were estimated. In order to evaluate the faunistic similarity of the mites in the studied water bodies, the Bray-Curtis index (Ricotta and Podani 2017) was used. It was calculated using hierarchical clustering (grouping by the algorithm of the single linkage method), with the Biodiversity Pro v. 2 software (McAleece et al. 1997).

Results

In the studied waterbodies of the Sob River basin, a total of 35 species of water mites belonging to 8 families were identified (Table 1).

Table 1. Species composition, frequency of occurrence (O, %) and dominance index (D, %) of water mites in the water bodies of the Sob River basin

	The Sob River, upper course		The Sob River, middle course		Tributaries in mountainous area		Tributaries in the plain area		Mountain lakes		Floodplain ponds	
	O	D	O	D	O	D	O	D	O	D	O	D
Family Eylaidae												
Eylais setosa Koenike, 1897	-	-	25	0.6	-	-	-	-	-	-	-	-
Eylais koenikei Halbert, 1903	-	-	-	-	-	-	-	-	-	-	33	7.7
Family Lebertiidae												
Lebertia (*Lebertia*) *fimbriata* Thor, 1899	-	-	25	2.6	10	0.2	100	15.7	-	-	-	-
Lebertia (*Mixolebertia*) *oudemansi* Koenike, 1898	-	-	-	-	-	-	-	-	33	1.3	-	-
Lebertia (*Pilolebertia*) *inaequalis* (Koch, 1837)	-	-	25	1	-	-	100	21.1	-	-	-	-
Lebertia (*Pilolebertia*) *insignis* Neuman, 1880	-	-	-	-	-	-	50	0.4	-	-	-	-
Lebertia (*Pilolebertia*) *litoralis* Zawal & Szenejko, 2024	-	-	-	-	-	-	-	-	67	14.3	33	30.8
Lebertia (*Pilolebertia*) *obscura* Thor, 1900	-	-	-	-	-	-	-	-	67	50.6	-	-
Lebertia (*Pilolebertia*) *porosa* Thor, 1900	25	0.5	25	3.7	60	3.2	83	10	-	-	-	-

	The Sob River, upper course		The Sob River, middle course		Tributaries in mountainous area		Tributaries in the plain area		Mountain lakes		Floodplain ponds	
	O	D	O	D	O	D	O	D	O	D	O	D
Family Limnesiidae												
Limnesia (*Limnesia*) *koenikei* Piersig, 1894	-	-	-	-	-	-	-	-	33	2.6	33	7.7
Family Sperchontidae												
Sperchon (*Sperchon*) *glandulosus* Koenike, 1886	100	5	25	0.6	50	6.7	50	0.4	-	-	-	-
Sperchon (*Sperchon*) *laurenticus* Wainstein, 1981	-	-	-	-	10	0.2	-	-	-	-	-	-
Sperchon (*Sperchon*) *squamosus* Kramer, 1879	-	-	-	-	10	0.5	-	-	-	-	-	-
Sperchonopsis (*Sperchonopsella*) *minutiporus* Tuzovskij, 1990	-	-	-	-	20	0.5	83	10	-	-	-	-
Sperchonopsis (*Sperchonopsis*) *verrucosa* (Protz, 1896)	-	-	50	2.1	20	1	-	-	-	-	-	-
Family Aturidae												
Aturus scaber Kramer, 1875	25	0.5	-	-	20	1	-	-	-	-	-	-
Aturus sp.	-	-	75	2.1	30	15.8	-	-	-	-	-	-
Family Feltriidae												
Feltria (*Feltria*) *minuta* Koenike, 1892	75	86	50	3.7	60	62.6	-	-	-	-	-	-
Family Hygrobatidae												
Atractides (*Atractides*) *nodipalpis* (Thor, 1899)	50	7.2	50	26.8	30	3.4	83	23.7	-	-	-	-
Atractides (*Atractides*) *robustus* (Sokolow, 1940)	-	-	75	44.7	30	3.7	67	8	-	-	-	-
Atractides (*Atractides*) *tener* Thor, 1899	25	0.8	-	-	10	0.2	67	0.8	-	-	-	-
Hygrobates (*Hygrobates*) *fluviatilis* (Ström, 1768)	-	-	50	1.6	-	-	83	2.9	-	-	-	-
Hygrobates (*Hygrobates*) *foreli* (Lebert, 1874)	-	-	25	4.7	20	1	17	3.3	-	-	-	-
Hygrobates (*Hygrobates*) *longiporus* Thor, 1898	-	-	-	-	-	-	17	0.2	-	-	-	-
Hygrobates (*Hygrobates*) *setosus* Besseling, 1942	-	-	25	1	-	-	17	0.1	-	-	-	-
Mesobates forcipatus Thor, 1901	-	-	50	3.2	-	-	100	3	-	-	-	-
Mixobates processifer (Thor, 1905)	-	-	-	-	-	-	33	0.4	-	-	-	-
Family Pionidae												
Forelia liliacea (Müller, 1776)	-	-	-	-	-	-	-	-	33	1.3	-	-

	The Sob River, upper course		The Sob River, middle course		Tributaries in mountainous area		Tributaries in the plain area		Mountain lakes		Floodplain ponds	
	O	D	O	D	O	D	O	D	O	D	O	D
Hydrochoreutes Nymph	-	-	25	1	-	-	-	-	33	1.3	-	-
Piona alpicola (Neuman, 1880)	-	-	-	-	-	-	-	-	33	5.2	33	7.7
Piona carnea (Koch, 1836)	-	-	-	-	-	-	-	-	-	-	67	15.3
Piona coccinoides (Thor, 1898)	-	-	-	-	-	-	-	-	-	-	33	30.8
Piona disparilis (Koenike, 1895)	-	-	-	-	-	-	-	-	33	22.1	-	-
Piona pusilla (Neuman, 1875)	-	-	25	0.6	-	-	-	-	-	-	-	-
Family Arrenuridae												
Arrenurus (*Megaluracarus*) *stjoerdalensis* Thor, 1899	-	-	-	-	-	-	-	-	33	1.3	-	-
Number of species	6		16		14		15		9		6	
Total number	236		190		406		851		77		13	

The water mite fauna of the investigated rivers and lakes was clearly differentiated, there were no common species for watercourses and lakes. In both rivers and lakes only *Hydrochoreutes* sp. were found, represented by nymphal stages. The species composition, abundance and dominant species of mites differed greatly in the different rivers.

In the Sob River, the species composition and quantitative characteristics of water mites varied significantly in different sections of the river. The number of species was lowest (6 species) in the upper course. In stream pools and small riffles, where there was no higher aquatic vegetation and little organic matter, mites were found singly, the number did not exceed 5 specimens per 1 sq m. *Sperchon glandulosus* was predominant and often was the only species present. The highest number of species (5) was recorded near the Kharp settlement on the rapids among thickets of *F. antipiretica*. Here also very high indicators of the number of water mites were noted. The eudominant species in this biotope was *Feltria minuta*.

On the contrary, the highest number of mite species (16) was recorded in the middle course. In this section of the Sob River, which flows along the foothill plains, has a calmer character, a lower flow rate and more organic material. The number of Hydrachnidia in the middle course was low, but the mites were distributed more evenly in the different sections of the river than in the upper course. At the same time the dominance index was lower. None of the species in the middle reaches showed a 100% occurrence. The species of the genus *Atractides* were numerically dominant. In this section of the river, both typical rhithrobionts, which were abundant in the upper course, and species that prefer quieter sections of the river were found. In addition, in a backwater of the Sob River, among solitary growing macrophytes, several eurybiontic species of mites – *Eylais setosa*, *Piona pusilla* and nymphs of *Hydrochoreutes* sp. were found.

In the mountain tributaries, the species composition and distribution of mites were similar to those in the upper course of the Sob River, but the species richness was higher, and the faunal composition and numbers differed in different tributaries.

In the relatively large, full-flowing Haramatolou River, the species composition and distribution of mites were very similar to those in the upper course of the Sob River (Fig. 3). In stream pools, where there were no macrophytes or organic matter, mites were found singly. They were represented by *S. glandulosus* and single species of the genera *Atractides* and *Lebertia*. A rich fauna was found only in rapids and riffles with *F. antipiretica* on stones, where 10 species of mites were found and high abundances were recorded (average 175 individuals per 1 square meter). *Feltria minuta* was the eudominant. In the Haramatolou River a total of 12 species of water mites were recorded.

In two other mountain rivers, flowing at a steep slope and having small depth and water content – Yengayu and Kerdomanshor Rivers, mites were rarely found. In them, only 5 species was noted. *F. minuta* was also predominated. Single specimens of 2 species were found in one of the two very small streams flowing into the Sob River in the area of station 141 km.

The highest species richness, abundance and occurrence of water mites were found in the Luppajyogan and Putyryogan Rivers. The highest number of species (13) among all the tributaries of the Sob River was revealed in the Luppajyogan River. The highest abundance and number of species were recorded on rocky riffles covered by *F. antipiretica*. In the pools of the Luppajyogan River, only 5 species with low numbers were noted, among which species of the subgenus *Pilolebertia* predominated. The species composition of the acarofauna of the Putyryogan and Luppajyogan Rivers was very similar (Fig. 3). *Atractides nodipalpis*, *Lebertia fimbriata* and *L. inaequalis* dominated in terms of abundance and occurrence. Besides these two species of the genus *Lebertia*, only *Mesobates forcipatus* had a 100% occurrence, although its abundance was low.

In contrast to the rivers, the fauna of the investigated lakes was characterized by a poor species composition and a low number of mites. Both in the floodplain ponds and in the mountain glacial lakes, the number and species composition were low. The highest quantitative indicators were recorded only in lake 3 near station 141 km, where 7 species of mites were found. Species of the genera *Lebertia* and *Piona* were predominant in this lake.

Only two species of the genus *Lebertia* were recorded in lakes 1 and 2, located in the mountain tundra, and *Forelia liliacea* was encountered once. The number of mites in these lakes ranged from 5 to 45 specimens per square meter.

The floodplain ponds, both in the mountains and in the foothill plain, had the lowest species composition and the lowest number of species. This was despite the fact that these lakes are located in the middle of forests, and macrophytes were found in them. In all three oxbow lakes examined, mites were found singly (from 1 to 8 specimens per sample). The representatives of the genus *Piona* were predominant in the number of species and number.

Few species were the same in the different lakes. The most abundant was *Lebertia litoralis*, which was found in three of the six water bodies, both in lakes and oxbows.

According to the indicators of faunistic similarity, the investigated water bodies were clearly divided into two clusters: stagnant water bodies and rivers (Fig. 3). At the same time, the upper course of the Sob River and the Haramatolou River were characterized by a very high similarity. These rivers had similar features of the hydrological regime and similar conditions for water mites were formed in them. Other mountain tributaries, the Engayu and Kerdomanshor Rivers, on the other hand, had a high similarity with each other, but a very low similarity with other investigated rivers. The mite fauna of the Luppajyogan and Putyryogan Rivers had a high similarity with the middle course of the Sob River. Among the running waters, the fauna of mites was most distinct in a stream.

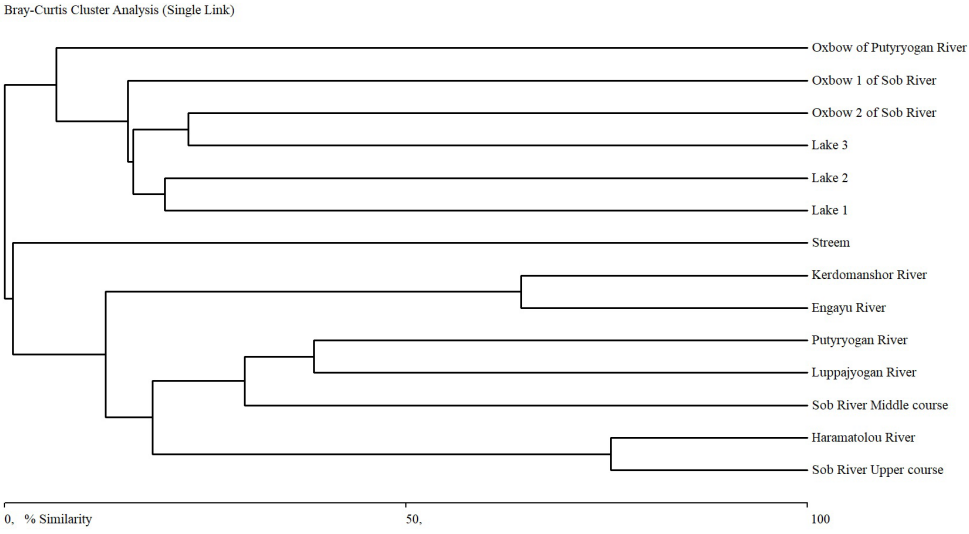

Figure 3. Indicators of faunistic similarity of water mites in the investigated water bodies of the Sob River basin.

Discussion

Thus, the water mite fauna in the water bodies of the Sob River basin, which flows in the Arctic Circle region, is characterized by relatively high richness and diversity.

High species richness, abundance, and occurrence rates of water mites were observed in the rivers of the Sob River basin. The families Lebertiidae, Sperchontidae, and Hygrobatidae, which are usually dominant in flowing waters of the Palaearctic, including other parts of the Ural Mountains (Stolbov et al. 2024), dominated the number of species.

The mite fauna of the upper course of the Sob River was similar to the fauna of the large tributaries in the mountainous part, while the hydrachnid fauna of the middle course of the Sob River was more similar to the tributaries of the foothills flowing into the Sob River. At the same time, the mite fauna of the upper and middle courses as well as the tributaries of these areas differed quite strongly. In the upper course of the Sob River and its mountain tributaries, typical rhithrobiontic species were found, and the eudominant was *Feltria minuta*. In the middle course of the River Sob and its tributaries, the species richness of mites was significantly higher, the composition of the dominants was different, and the eudominants were absent.

Most of the mite species from the rivers of the Sob River basin have a wide Palaearctic and Western Palaearctic distribution. At the same time, species characteristic of the northern regions of the Palaearctic were identified, such as *Mesobates forcipatus* (also known from Greece) and *Mixobates processifer* (Gerecke et al. 2016). The eastern species *Sperchonopsis minutiporus*, distributed in the Russian Far East and Siberia west to the Ural Mountains, was also recorded. All three species are widespread in the rivers of the Ural Mountains south to the Central Urals (Shubina and Tsember 2017; Stolbov et al. 2024). Finally, *Sperchon laurenticus*, known from Chukotka and the southern Far East (Wainstein 1981; Semenchenko 2010) and previously reported from the Kharbey River, which flows through the Polar Urals (Bogdanov et al. 2005; Stepanov 2006), was collected in a stream that flows into the Sob River.

The number and species diversity of mites in lakes were low, regardless of the type and location of water body. Indicators of faunistic similarity of mites were low in all studied lakes. Poor mite fauna, in terms of species composition and abundance, in stagnant water bodies was also observed in other parts of the Urals (Shubina and Tsember 2017; Stolbov et al. 2024).

Typical northern species of Hydrachnidia, such as *Lebertia oudemansi*, *Arrenurus stjoerdalensis*, and *Piona coccinoides*, were found in these lakes. These species are distributed in northern Europe, Scandinavia and northern European Russia, the last one also common in northern Siberia (Sokolov 1940; Gerecke et al. 2016; Shubina and Tsember 2017). The species of the genus *Lebertia*, i.e., *L. obscura* and *L. litoralis*, which were recently distinguished as separate species from *L. porosa* (Tyukosova et al. 2022; Zaval et al. 2024), dominated in lakes in terms of occurrence and distribution.

The water mite fauna of the Sob River basin contains many species that are identical to the subarctic acarofauna of other regions of the Western Palearctic – Scandinavia (Gerecke et al. 2022), Karelia (Jankowskaja 1965), Komi Republic (Shibina and Tsember 2017).

In terms of the composition and structure of the water mite fauna, the water bodies of the Sob River basin are very similar to the water bodies of other parts of the Urals (Shubina and Tsember 2017; Stolbov et al. 2024). At the same time, there are also a number of differences: representatives of the families Torrenticolidae, Mideopsidae, as well as the genera *Ljania* and *Ocybrachypoda* (family Aturidae),

which are numerous in the Central and Northern Urals, have not been found in the Polar Urals yet. Remarkable that representatives of these groups of mites are also absent from the Nether-Polar Urals (Shubina and Tsember 2014, 2017).

The number of known species of water mites in different parts of the Urals varies considerably. 70 and 87 species are currently known in the Central and Northern Urals (Shubina and Tsember 2017; Stolbov et al. 2024). In the Nether-Polar Urals, 33 species of water mites were recorded (Shubina and Tsember 2014, 2017), which is less than in the Polar Urals, where 35 species were identified in the Sob River basin in the present study. This is probably due to the fact that water mites in the Nether-Polar Urals have not been sufficiently studied.

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