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New and rare lichen records from the Central Siberian Biosphere Reserve (Krasnoyarsk Krai, Russia). II

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Abstract: Twenty species of lichens and allied fungi are recorded from the Central Siberian Biosphere Reserve (Middle Yenisey River, Krasnoyarsk Krai, Russia). *Porpidia striata* and *Pyrenopsis impolita* are new to Russia and Asia; *Lempholemma dispansum* – to Asia; *Fuscidea arboricola* and *Verrucaria macrostoma* – to the Asian Part of Russia; *Pertusaria aspergilla* and *Thelidium incavatum* – to Siberia; *Acarospora schorica*, *Eopyrenula leucoplaca*, *Opegrapha gyrocarpa*, *Rinodina colobina* and *Verrucaria dolosa* – to Eastern Siberia.

Kokkuvõte: Uute ja haruldaste samblike leiud Kesk-Siberi biosfääri kaitsealalt (Krasnojarski krai, Venemaa). II

Esitatakse andmeid 20 lihheniseerunud ja neile lähedase seene leidudest Kesk-Siberi biosfääri kaitsealalt (Jenissei jõe keskjooks, Krasnojarski krai, Venemaa). *Porpidia striata* ja *Pyrenopsis impolita* on esmakordsed leiud Venemaal ja Aasias; *Lempholemma dispansum* on uus Aasiale; *Fuscidea arboricola* ja *Verrucaria macrostoma* – Venemaa Aasia-osale; *Pertusaria aspergilla* ja *Thelidium incavatum* – Siberile; *Acarospora schorica*, *Eopyrenula leucoplaca*, *Opegrapha gyrocarpa*, *Rinodina colobina* ja *Verrucaria dolosa* – Ida-Siberile.

INTRODUCTION

This is a second paper about new and interesting lichens and allied fungi found in the Central Siberian Biosphere Reserve situated in the Krasnoyarsk Krai, Russia. For more detailed information about the study area location and vegetation see Zhdanov (2010a).

MATERIAL AND METHODS

The material was collected by the author in different parts of the Central Siberian Biosphere Reserve in 2008, 2009 and 2011. Selected specimens of *Lepraria* were identified by standard method of thin layer chromatography. Examined specimens are preserved in LE and private herbarium of the author.

RESULTS

So far about 350 species of lichens and allied fungi have been collected, identified and partly published by the author (Zhdanov, 2010a, 2010b, 2012) from the Central Siberian Biosphere Reserve. The further data on 20 species are presented here. Among them some are recorded as new to the Eastern Siberia, to the whole Siberia, to the Asian Part of Russia, to Asia and to Russia and Asia. Four species (*Catillochroma pulverea, Gyalidea lecideopsis, Lempholemma dispansum,* and *Trapeliopsis subconcolor*) are presented as second records for Russia.

List of species

Species new to Russia and Asia are marked with *****, to Asia – with ****, to the Asian Part of Russia – with ***, to Siberia – with **, and to Eastern Siberia – with *. Lichenicolous fungus is marked with # and non-lichenized fungus – with +.

*Acarospora schorica Vodop. – The Lower Birobchana River, Krutenkiy Brook, 62°26'31.6"N, 91°36'50.4"E, SW-exposed steep rocks in deep canyon near the brook, on carbonaceous rocks, 22 Aug 2011 (LE). This species was described from the Kemerovo Region, Gornaya Shoriya (Vodopjanova, 1971). Recently it was found in the Tula Region of Russia (Gudovicheva, 2005) and Donetsk Region of Ukraine (Averchuk, 2009). This is a very distinctive species which differs from other species of the genus by light yellow-greenish, more or less round, scattered areoles, round and large spores (7–10 µm in diam.) and relatively few-spored asci (50–100 spores per ascus). Apothecia are mostly single, rarely 2–3 per areole, deeply immersed, somewhat perithecia-

like, with more or less punctiform disc and a wide dark-brown to black margin, often covered the most part of areole. The species grows on carbonaceous stones. In Kemerovo Region it is known from locus classicus only; in Tula Region it was found repeatedly on S-exposed slopes within relatively small territory (valley of the Krasivaya Mecha River) (Vodopjanova, 1971; Gudovicheva, 2005). It may be an arid relict with strongly disjunctive distribution area confined to limestone outcrops.

Catillochroma pulverea (Borrer) Kalb – The Lower Stolbovaya River, 62°08'37.6"N, 91°25'57.2"E, mixed forest with dense regrowth, on dead branches of *Abies sibirica*, 16 July 2009. In Russia formerly known from the Republic of Buryatia only (Urbanavichus & Urbanavichene, 2004).

+ Chaenothecopsis savonica (Räsänen) Tibell – Near the mouth of the Malaya Dulkuma River, 62°15'21.7"N, 91°23'38.2"E, spruce forest, on bark of *Picea sibirica*, 20 Aug 2008; near the mouth of the Stolbovaya River, 62°07'20.7"N, 91°30'34.1"E, mixed forest on steep SE-exposed slope, on wood of dead-standing tree, 18 Aug 2011 (LE). In Siberia formerly known from the Irkutsk Region (Voronyuk & Makryi, 2002).

Dactylospora saxatilis (Schaer.) Hafellner – Near the mouth of the Stolbovaya River, 62°07'30.7"N, 91°28'03.4"E, N-exposed steep rocks on the right bank of the Stolbovaya River, on thallus of *Pertusaria flavicans* Lamy, 21 Aug 2008. In Russia formerly known from European Arctic, Leningrad Region, Northern and Nether-Polar Urals and Taimyr Peninsula (Zhurbenko, 2007; Sedelnikova, 2010; Urbanavichus, 2010).

*Eopyrenula leucoplaca (Wallr.) R.C. Harris – Near the mouth of the Kulinna River, 62°10'26.7"N, 91°25'38.1"E, young deciduous forest on the steep slope of western exposition, on bark of young *Populus tremula*, 28 Aug 2011 (LE). In Siberia formerly known from the Khanty-Mansiysk Autonomous Okrug (Kataeva et al., 2005).

***Fuscidea arboricola Coppins & Tønsberg – Near the mouth of the Stolbovaya River, 62°06'53.9"N, 91°30'03.8"E, birch large-grassy forest, on bark of *Duschekia fruticosa*, 13 Aug 2008. In Russia formerly known from the Republics of Karelia and Tatarstan, Vladimir and Ryazan Regions, Northern and Central Urals (Mikhailova & Scheidegger, 2001; Urbanavichus & Urbanavichene, 2004; Hermansson et al., 2006; Fadeeva et al., 2007; Zhdanov & Volosnova, in press). The species is usually sterile, but can be easily recognized by grayish-green thallus with greenish or partly brownish, usually discrete soralia, distinct brown prothallus and presence of fumarprotocetraric acid (Pd+ yellow, then fast red).

Gyalidea lecideopsis (A. Massal.) Lettau – The Lower Dulkuma River, 62°25'55.3"N, 91°23'27.1"E, crowded large boulders on the river bank, on carbonaceous stones, 20 Aug 2008 (LE). In Russia formerly known from the Zabaikalsky Krai only (Makryi, 2002).

****Lempholemma dispansum H. Magn. – The Lower Talimakit River, 62°28'23.6"N, 91°29'40.3"E, W-exposed rocks on the river bank near the riverbed in wet conditions, on carbonaceous rocks, 19 Aug 2008 (LE). In Russia formerly known from the Republic of Karelia only (Fadeeva et al., 2007). Also known from Sweden, southern Norway, northern Germany and Austria (Hafellner & Türk, 2001; Jørgensen, 2007).

Lepraria vouauxii (Hue) R.C. Harris – The Lower Talimakit River, 62°27'35.3"N, 91°30'33.5"E, N-exposed steep calcareous carbonaceous wet rocks on the bank of this river, on mosses over rocks, 19 Aug 2008 (LE); near the mouth of the Stolbovaya River, 62°07'30.7"N, 91°28'03.4"E, N-exposed steep rocks on the right bank of the Stolbovaya River, on primary soil and dead mosses over rocks, 21 Aug 2008; the Lower Kulinna River, 62°09'27.3"N, 91°12'40.3"E, steep carbonaceous rocks on the river bank, on primary soil over rocks, 13 July 2009; the banks of the Kulinna River upper than mouth of the Ussas River, 62°11'00.1"N, 91°07'07.5"E, N-exposed steep rocks among sparse forest, on carbonaceous rocks, 13 July 2009. All specimens were determined by Adam Flakus; they all contain pannaric acid-6-methylester and 4-oxypannaric acid-6-methylester. In Siberia formerly known from Severnaya Zemlya and Taimyr Peninsula (Kristinsson et al., 2010).

Micarea adnata Coppins – The Lower Dulkuma River, 62°25'55.3"N, 91°23'30.2"E, mixed forest on the NW-exposed steep slope, on bark of *Duschekia fruticosa*, 20 Aug 2011. In Russia for-

merly known from the Republics of Karelia, Komi and Buryatia (Pystina, 2003; Urbanavichus & Urbanavichene, 2004; Fadeeva et al., 2007). Even when sterile it may be easily recognized by apothecia-like, convex, whitish sporodochia to 0.25 mm in diam. containing one-celled macroconidia.

*Opegrapha gyrocarpa Flot. – The Lower Birobchana River, 62°29'21.9"N, 91°39'07.4"E, NW-exposed steep wet rocks on the bank of this river, on rocks, 23 Aug 2011 (LE). In Siberia formerly known from Altai Mountains (Sedelnikova, 2003).

**Pertusaria aspergilla (Ach.) J.R. Laundon – The Lower Kulinna River, 62°09'16.9"N, 91°12'35.9"E, W-exposed steep rocks on the right river bank, on rocks, 14 July 2009 (LE). In Russia formerly known from Northern, Central and Southern Urals, North-Western Caucasus and Chukotka Peninsula (Rjabkova, 1998; Urbanavichus & Urbanavichene, 2004; Hermansson et al., 2006; Kristinsson et al., 2010).

*****Porpidia striata Fryday – The Lower Birobchana River, near the top of the Kamennaya Mountain, 62°30'52.0"N, 91°36'57.5"E, alt. 450 m, stony placer on the N-exposed steep slope, on stones, 24 Aug 2011. This species was recently described from Great Britain, where it is widely distributed in mountain areas (Fryday, 2005). So far it has also been reported from France and Belgium (Sérusiaux et al., 2006). The species differs from the other Eurasian *Porpidia* species by persistent and clearly radially striate margin of the apothecia. It is also characterized by the black, carbonaceous outer part but pale brown to almost hyaline inner part of excipulum. This species is closely related to *P. macrocarpa* (DC.) Hertel & A.J. Schwab, which also has a thick, tumid proper margin and excipulum with a pale inner part. *P. striata* is probably distributed in cool areas in the Arctic and highlands. In Great Britain it was mostly found "on pebbles embedded in exposed, wind-swept heaths" (Fryday, 2005).

*****Pyrenopsis impolita (Th. Fr.) Forssell – The Lower Kulinna River, 62°11'05.8"N, 91°15'43.9"E, crowded large boulders, on weakly carbonaceous stones, 13 July 2009. Formerly known from Norway, Sweden, Finland, Denmark, France and Great Britain (Coppins, 2002; Jørgensen, 2007; Søchting & Alstrup, 2008; Roux, 2012).

*Rinodina colobina (Ach.) Th. Fr. – The left bank of the Yenisey River, Komsa, 61°50'27.2"N, 89°19'59.5"E, deserted village, on wood of a fence, 5 July 2009. In Russia formerly known from Komi Republic, Kursk, Belgorod, Tyumen and Novosibirsk Regions (Pystina, 2003; Urbanavichus & Urbanavichene, 2004; Svirko, 2006; Kotlov, 2008; Sedelnikova, 2010).

**Thelidium incavatum Mudd – The Lower Birobchana River, Krutenkiy Brook, 62°26'36.8"N, 91°36'34.9"E, S-exposed steep rocks in deep canyon near the brook, on carbonaceous rocks in wet conditions, 19 Aug 2008 (LE); the Lower Dulkuma River, 62°25'55.3"N, 91°23'27.1"E, crowded large boulders on the bank of this river, on carbonaceous stones, 20 Aug 2008. In Russia formerly known from Nenets Autonomous Okrug and North-Western Caucasus (Urbanavichus & Urbanavichene, 2004; Urbanavichus et al., 2009).

Trapeliopsis subconcolor (Anzi) Hertel – Near the mouth of the Kulinna River, 62°09'35.2"N, 91°22'42.9"E, N-exposed open rocks among forest, on rocks, 27 Aug 2011 (LE). In Russia formerly known from the Republic of Buryatia only (Urbanavichus & Urbanavichene, 2004).

*Verrucaria dolosa Hepp – The Lower Kulinna River, 62°09'27.3"N, 91°12'40.3"E, steep rocks on the river bank, on carbonaceous rocks, 13 July 2009. In Russia formerly known from Leningrad and Tomsk Regions, and North-Western Caucasus (Blinkova & Urbanavichus, 2005; Koneva, 2007; Kuznetsova et al., 2007).

***V. macrostoma Dufour ex DC. – The Lower Talimakit River, 62°27'30.1"N, 91°30'45.5"E, W-exposed steep rocks on the river bank, on carbonaceous rocks, 19 Aug 2008. In Russia formerly known from Belgorod Region and Northern Urals (Konoreva & Muchnik, 2005; Hermansson et al., 2006).

Vestergrenopsis isidiata (Degel.) Å.E. Dahl – Near the mouth of the Stolbovaya River, 62°08'04.0"N, 91°28'07.3"E, NE-exposed steep rocks on the river bank, on weakly carbonaceous rocks, 15 Aug 2008 (LE). In Russia formerly known from European Arctic, Murmansk Region and Repub-

lic of Buryatia (Urbanavichus & Urbanavichene, 2004; Urbanavichus et al., 2008; Urbanavichus, 2010).

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