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ADDITIONS TO THE LICHEN BIOTA OF SE SIBERIA: RECORDS FROM THE STANOVOYE NAGOR'E HIGHLANDS (TRANS-BAIKAL REGION, RUSSIA)

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Abstract. This paper reports 120 species of lichens and one lichenicolous fungus from the Stanovoye Nagor'e Highlands in southeastern Siberia, including 64 species new for the area. Some of the newly recorded species are extremely rare in Russia [e.g., *Bryonora curvescens* (Mudd) Poelt, *Gyalideopsis alnicola* Noble & Vězda and *Pilophorus strumaticus* Nyl. *ex* Cromb.]. The distribution and habitat preferences of several rare species are briefly discussed.

Key words: Asia, biodiversity, distribution, lichenized Ascomycota, mountain tundra, rare species, taiga

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Introduction

The Stanovoye Nagor'e Highlands are situated in southeastern Siberia, NE of Lake Baikal (Fig. 1). The area is a complex of mountain systems separated by narrow intermountain depressions. The Kodar Ridge is the highest part of the Stanovoye Nagor'e Highlands, with summits higher than 2700 m a.s.l. (the highest summit is 3071 m a.s.l.) (Kulakov *et al.* 2002). This region is an area of contact between several types of biota (Makryi 1999). The vegetation of the area is highly diverse, with taiga forest, subalpine thin forest, and mountain tundra. Among the vegetation zones, mountain tundra is the most important for lichen biodiversity.

Southeastern Siberia, which includes the Stanovoye Nagor'e Highlands, are considered the richest part of Russia in terms of number of lichen species (Makryi 1999), but the lichens of the Stanovoye Nagor'e Highlands are poorly investigated. Currently 569 lichen species are known from the area (Makryi 1999, 2002, 2005, 2012, 2013, 2014; Anonymous 2008; Bardunov *et al.* 2005; Konoreva 2013; Konoreva & Andreev 2013a, b; Lishtva *et al.* 2013; Gerasimova *et al.* 2014). For comparison, 1054 lichen species are known from the Sayany Mountains, and 571 from Altaisky Krai (Sedel'nikova 2001; Davydov 2014). The lichen biota of the Stanovoye Nagor'e Highlands was studied by V. Burkova in 1963–1969 but her materials were not published. More recently, her collection was studied by T. Makryi, who reported many new and rare species for Asia and Russia (Makryi 1999, 2002, 2005, 2012, 2013, 2014). The Vitimsky Nature Reserve, located in the Kodar range of the Stanovoye Nagor'e Highlands, were the subject of a detailed lichenological survey by Bardunov *et al.* (2005).

The present paper is based on lichenological materials collected during several expeditions to the Stanovoye Nagor'e Highlands in 2011–2014. The main purpose of the study was to contribute to the knowledge of the lichen diversity of the area. Some preliminary results were published by Konoreva (2013), Konoreva and Andreev (2013a, b) and Gerasimova *et al.* (2014). Here we list all the lichens recognized in the area, and briefly discuss the habitat preferences and distribution of several rare species.

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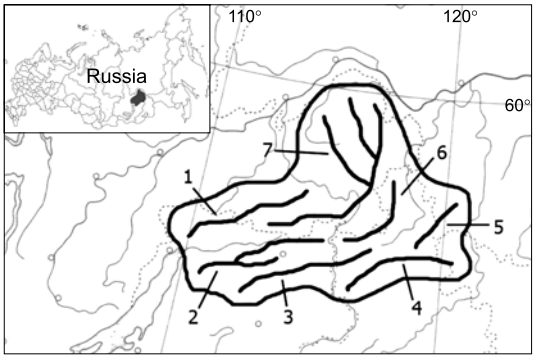

Fig. 1. The mountain systems of the Stanovoye Nagor'e Highlands: 1 – Verkhneangarsky Ridge, 2 – Severo-Muyskiy Ridge, 3 – Yuzhno-Muyskiy Ridge, 4 – Kalar Ridge, 5 – Udokan Ridge, 6 – Kodar Ridge, 7 – Delyun-Uransky Ridge.

Material and methods

We collected the material in the eastern part of the Stanovoye Nagor'e Highlands, from sites at 800–2400 m a.s.l. in the following ecosystems: mountain tundra, subalpine light forest, taiga forest, and nival community near snowfields and glacier.

List of collecting sites (WGS 84 system was used for geographical GPS coordinates):

1 – Kodar Ridge, area near Leprindinskie lakes, 56°39′26.8″N, 117°25′33.6″E, 1698 m a.s.l., stony placers with large boulders, 14 Aug. 2012.

2 – Kodar Ridge, area near Leprindinskie lakes, 56°39′35.5″N, 117°25′20.0″E, 1721 m a.s.l., near creek, 14 Aug. 2012.

3 – Kodar Ridge, area near Leprindinskie lakes, 56°39′41.0″N, 117°25′12.3″E, 1784 m a.s.l., stony placers with large boulders, 14 Aug. 2012.

4 – Kodar Ridge, Leprindinskoe plateau, southern slope, 56°39′36″N, 117°25′17″E, 1716 m a.s.l., creek, granite boulders, thicket with *Salix* sp. and *Pinus pumila* (Pall.) Regel., 14 Aug. 2012.

5 – Kodar Ridge, Leprindinskoe plateau, 56°39′40″N, 117°25′14″E, 1748 m a.s.l., turfing rocky slope of southern exposure, funnel of creek watershed, 14 Aug. 2012.

6 – Kodar Ridge, Leprindinskoe plateau, southern slope, 56°39′19″N, 117°25′33″E, 1660 m a.s.l., disintegrated granite boulders, shrub-lichen tundra, 14 Aug. 2012.

7 – Kodar Ridge, ascent to Leprendinskoe plateau, 56°40′05.3″N, 117°24′50.0″E, 2142 m a.s.l., mountain tundra, 15 Aug. 2012.

8 – Kodar Ridge, ascent to Leprendinskoe plateau, 56°40′0.9″N, 117°24′52.4″E, 2042 m a.s.l., near snowfield, 15 Aug. 2012.

9 – Kodar Ridge, Leprindinskoe plateau, southern slope, 56°40′04″N, 117°24′49″E, 2128 m a.s.l., rocks and broken stones in streambed, 15 Aug. 2012.

10 – Kodar Ridge, Leprindinskoye plateau, 56°40′15.6″N, 117°25′17.6″E, 2311 m a.s.l., mountain tundra, 15 Aug. 2012.

11 – Kodar Ridge, Leprindinskoe plateau, southern slope, 56°40′00″N, 117°24′52″E, 2041 m a.s.l., *Carex* sp.–*Salix* sp.–*Dryas octopetala* tundra with stones, 15 Aug. 2012.

12 – Kodar Ridge, Leprindinskoye plateau, 56°40′15.5″N, 117°24′49.1″E, 2299 m a.s.l., *Salix* sp.–lichen tundra with cereals, 15 Aug. 2012.

13 – Kodar Ridge, area near Leprindinskie lakes, left side of valley, 56°39′26.6″N, 117°26′0.8″E, 1818 m a.s.l., top ridge of rocks, 16 Aug. 2012.

14 – Kodar Ridge, area near Leprindinskie lakes, 56°39′28.3″N, 117°25′49.4″E, 1720 m a.s.l., left side of valley, rocky outcrops, 16 Aug. 2012.

15 – Kodar Ridge, Leprindinskoe plateau, 56°39′26″N, 117°26′00″E, 1804 m a.s.l., left bank of stream, slope after fire, granite outcrops, 16 Aug. 2012.

16 – Kodar Ridge, Leprindinskoe plateau, 56°39′26″N, 117°25′57″E, 1760 m a.s.l., left bank of stream, slope after fire, rocky lichen community with *Ledum palustre* L. and *Betula nana* L., 16 Aug. 2012.

17 – Kodar Ridge, Leprindinskoe plateau, western slope, 56°39′28″N, 117°25′48″E, 1678 m a.s.l., overgrown rocks, moss–*Carex* sp. communities, 16 Aug. 2012.

18 – Kodar Ridge, Leprindo Lake, north shore, 56°38′12″N, 117°23′51″E, 1150 m a.s.l., deep shady cleft in granite rock, stream and waterfall, wet mossy rocks, 17 Aug. 2012.

19 – Kodar Ridge, Leprindo Lake, 56°38′15″N, 117°23′49″E, 1171 m a.s.l., north shore with stream and waterfall, deep shady valley surrounded by steep wet granite rocks, depression under waterfall, southern exposure, 17 Aug. 2012.

20 – Kodar Ridge, Leprindo Lake, 56°38′13″N, 117°23′52″E, 1177 m a.s.l., north shore with stream and waterfall, deep shady valley surrounded by steep wet granite rocks, steep slopes overgrown with moss, 17 Aug. 2012.

21 – Kodar Ridge, near Maloe Leprindo lake, 56°38′12.0″N, 117°23′48.4″E, 1136 m a.s.l., waterfall, moss-covered boulders in canyon, 17 Aug. 2012.

22 – Udokan Ridge, off spur of Mednaya Moun-

tain, 56°41′27.7″N, 118°18′48.6″E, 1216 m a.s.l., stone placer, 19 Aug. 2012.

23 – Udokan Ridge, off spur of Mednaya Mountain, 56°41′36.9″N, 118°19′08.2″E, 1120 m a.s.l., thicket of *Pinus pumila*, stone placer, 19 Aug. 2012.

24 – Yuzhno-Muyskiy Ridge, rocks on bank of Vitim river, 56°12′29.9″N, 115°44′57.3″E, 496 m a.s.l., *Pinus sylvestris* forest passing into *Alnus* sp. forest with *Betula* sp., 23 Aug. 2012.

25 – Kodar Ridge, confluence of Medvezhy and Surprizniy creeks, 56°54′55.6″N, 117°37′40.7″E, 1667 m a.s.l., forest tundra, 1 July 2013.

26 – Kodar Ridge, confluence of Medvezhy and Surpriznii creeks, 56°54′54.0″N, 117°37′40.8″E, 1678 m a.s.l., rock on northern slopes, 1 July 2013.

27 – Kodar Ridge, Medvezhy brook valley, 56°54′40.3″N, 117°37′04.2″E, 1764 m a.s.l., site of tundra with *Betula nana*, 1 July 2013.

28 – Kodar Ridge, Medvezhy brook valley, 56°54′11.2″N, 117°34′55.5″E, 1990 m a.s.l., nival tundra, 1 July 2013.

29 – Kodar Ridge, Medvezhy brook valley, 56°54′35.8″N, 117°36′42.1″E, 1796 m a.s.l., stone rubble, 1 July 2013.

30 – Kodar Ridge, Pionerskiy creek, 56°54′29.3″N, 117°36′00.0″E, 1805 m a.s.l., 1 July 2013.

31 – Kodar Ridge, Baltiyskoe gorge, 56°54′19.9″N, 117°39′20.9″E, 1875 m a.s.l., creek and large boulders, 2 July 2013.

32 – Kodar Ridge, Baltiyskoe gorge, 56°53′46.5″N, 117°39′12.4″E, 1964 m a.s.l., stony placers, 2 July 2013.

33 – Kodar Ridge, Baltiyskoe gorge, 56°54′18.6″N, 117°39′18.9″E, 1918 m a.s.l., stone rubble, 2 July 2013.

34 – Kodar Ridge, Baltiyskoe gorge, 56°55′13.8″N, 117°39′19.8″E, 1727 m a.s.l., slope with *Pinus pumila*, 2 July 2013.

35 – Kodar Ridge, Mramorny settlement, camp point "Gora", 56°54′18.7″N, 117°42′31.5″E, 1877 m a.s.l., stone rubble, 3 July 2013.

36 – Kodar Ridge, Mramornoe gorge, Mramorny settlement, 56°54′37.6″N, 117°42′29.4″E, 1806 m a.s.l., 3 July 2013.

37 – Kodar Ridge, Mramornoe gorge, 56°54′17.4″N, 117°42′33.5″E, 1885 m a.s.l., near creek, 3 July 2013.

38 – Kodar Ridge, Surpriznoe lake, 56°54′20.5″N, 117°38′20.3″E, 2011 m a.s.l., mountain tundra, 5 July 2013.

39 – Kodar Ridge, Zolotoy brookvalley, 56°55′53.8″N, 117°36′37.8″E, 1957 m a.s.l., 6 July 2013.

40 – Kodar Ridge, Zolotoy brook valley, 56°55′56.8″N, 117°36′50.7″E, 1900 m a.s.l., tundra with *Salix* sp. and *Rhododendron aureum* Georgi, 6 July 2013.

41 – Kodar Ridge, Zolotoy brook valley, 56°55′57.4″N, 117°36′51.5″E, 1857 m a.s.l., rocks, 6 July 2013.

42 – Kodar Ridge, Zolotoy brook valley, 56°56′09.1″N, 117°37′18.0″E, 1619 m a.s.l., northwestern slope, 6 July 2013.

43 – Kodar Ridge, left bank of Sredniy Sakukan, opposite Exa gorge, 56°55′00.9″N, 117°48′57.8″E, 1175 m a.s.l., forest with large boulders, 7 July 2013.

44 – Kodar Ridge, Anarga river, left bank, 56°55′10.6″N, 118°01′45.1″E, 941 m a.s.l., rocks, 9 July 2013.

45 – Kodar Ridge, Anarga river, left bank, 56°55′19.4″N, 118°01′50.0″E, 1071 m a.s.l., rocks, 9 July 2013.

46 – Kodar Ridge, first canyon of creek west of Anarga river, 56°55′09.9″N, 118°00′04.3″E, 1592 m a.s.l., rocks, 10 July 2013.

47 – Kodar Ridge, first canyon of creek west of Anarga river, 56°54′38.9″N, 118°00′49.4″E, 1016 m a.s.l., rocks, 10 July 2013.

48 – Kodar Ridge, left bank of Sredniy Sakukan, 56°54′47.9″N, 117°50′29.5″E, 1049 m a.s.l., *Populus suaveolens–Betula platyphylla–Larix gmelinii* forest, 4 June 2014.

49 – Kodar Ridge, Shan'go valley, left bank, 56°57′22.3″N, 117°48′23.2″E, 1708 m a.s.l., thickets of *Salix* sp. and *Pinus pumila* near rock, 6 June 2014.

50 – Kodar Ridge, bank of Shan'go lake, 56°58′41.4″N, 117°47′50.3″E, 1908 m a.s.l., lichen tundra, 7 June 2014.

51 – Kodar Ridge, end of Shan'go valley, hill opposite '60 let USSR' pass, 56°58′24.9″N, 117°49′01.8″E, 1863 m a.s.l., south slope, mountain tundra, 8 June 2014.

52 – Kodar Ridge, end of Shan'go valley, hill opposite '60 let USSR' pass, 56°58′35.6″N, 117°49′11.9″E, 1994 m a.s.l., lichen tundra, 8 June 2014.

53 – Kodar Ridge, end of Shan'go valley, hill opposite '60 let USSR' pass, 56°58′29.6″N, 117°49′11.8″E, 1928 m a.s.l., south slope, *Cassiope* sp. tundra, 8 June 2014.

54 – Kodar Ridge, end of Shan'go valley, 56°58′39.3″N, 117°49′10.9″E, 2187 m a.s.l., hill opposite '60 let USSR' pass, western slope, 8 June 2014.

55 – Kodar Ridge, end of Shan'go valley, 56°58′37.2″N, 117°49′12.8″E, 2037 m a.s.l., hill opposite '60 let USSR' pass, mountain tundra with large boulders, 8 June 2014.

56 – Kodar Ridge, Shan'go valley, right bank, 56°57′31.4″N, 117°48′13.3″E, 1715 m a.s.l., light forest with *Larix gmelinii* (Rupr.) Kuzen. on border with tundra, 9 June 2014.

57 – Kodar Ridge, Shan'go valley, left bank, 56°57′30.4″N, 117°48′19.7″E, 1720 m a.s.l., stones in creek, moss-covered bank of stream, 9 June 2014.

58 – Kodar Ridge, Shan'go valley, left bank, 56°57′15.7″N, 117°48′21.4″E, 1763 m a.s.l., *Larix gmelinii*–moss–lichen forest, 9 June 2014.

59 – Kodar Ridge, Shan'go valley, left bank, 56°56′21.6″N, 117°48′33.7″E, 1679 m a.s.l., *Betula* sp.–*Larix gmelinii* forest with *Salix* sp. and *Pinus pumila* near creek, 10 June 2014.

60 – Kodar Ridge, Shan'go valley, left bank, 56°56′21.4″N, 117°48′38.6″E, 1726 m a.s.l., rocky outcrops on slopes, large boulders, 10 June 2014.

61 – Kodar Ridge, Shan'go valley, left bank, 56°56′38.0″N, 117°48′17.0″E, 1634 m a.s.l., *Larix gmelinii*–green moss forest, 10 June 2014.

62 – Kodar Ridge, Azarova glacier, 56°53′58.1″N, 117°34′59.2″E, 1947 m a.s.l., moraine, 13 June 2014.

63 – Kodar Ridge, Medvezhy brook valley, right bank, 56°54′51.7″N, 117°37′45.9″E, 1792 m a.s.l., Surprizniy creek, thickets of *Pinus pumila*, 14 June 2014.

64 – Kodar Ridge, Medvezhy brook valley, left bank, 56°54′47.0″N, 117°37′01.7″E, 1779 m a.s.l., stones among thickets of *Pinus pumila*, 14 June 2014.

65 – Kodar Ridge, Medvezhy brook valley, bank, 56°54′46.1″N, 117°37′04.5″E, 1752 m a.s.l., moss–lichen tundra with *Pinus pumila*; 14 June 2014.

66 – Kodar Ridge, confluence of Uglovoy creek and Sredniy Sakukan, 56°56′33.0″N, 117°36′50.7″E, 1670 m a.s.l., rocky outcrops, 15 June 2014.

67 – Kodar Ridge, source of Sredniy Sakukan river, 56°57′58.9″N, 117°37′59.6″E, 1925 m a.s.l., mountain tundra with large boulders, 16 June 2014.

68 – Kodar Ridge, Uglovoy creek, left bank, 56°56′38.6″N, 117°36′43.7″E, 1742 m a.s.l., slope with *Rhododendron aureum* and *Betula nana*, 16 June 2014.

69 – Kodar Ridge, Uglovoe lake, 56°56′51.8″N, 117°34′58.1″E, 1916 m a.s.l., rocks, 17 June 2014.

70 – Kodar Ridge, Carskiy Tron peak, shaded gorge, 56°56′55.7″N, 117°38′02.0″E, 1993 m a.s.l., nival habitat, 18 June 2014.

71 – Kodar Ridge, Sredniy Sakukan valley, right bank, 56°56′28.2″N, 117°36′55.3″E, 1686 m a.s.l., *Salix* sp.–herb–green moss community with creek, 18 June 2014.

72 – Kodar Ridge, Sredniy Sakukan valley, left bank, 56°53′54.7″N, 117°57′48.1″E, 884 m a.s.l., *Larix gmelinii* forest, 20 June 2014.

The material was identified by standard methods. For identification of lichen species we used different keys, monographs and other studies (Ahti & Stenroos 2013; Andreev *et al.* 2003, 2008; Brodo *et al.* 2001; Dombrovskaya 1996; Foucard 2001; Lücking *et al.* 2006; Øvstedal *et al.* 2009; Spribille *et al.* 2014; Smith *et al.* 2009).

The samples are kept in the Herbarium of the Komarov Botanical Institute (LE) and the Polar-Alpine Botanical Garden and Institute (KPABG).

Lichen species new for the Stanovoye Nagor'e Highlands are indicated with '!'. One lichenicolous fungus is asterisked.

Results and discussion

In this study we recorded 120 lichen species and one lichenicolous fungus from the Stanovoye Nagor'e Highlands. Most of the species are lignicolous, corticolous or muscicolous; the saxicolous group was least represented. Sixty-four of the recorded species are new for the area. They include a number of taxa very rare in the country, including *Bryonora curvescens*, *Gyalideopsis alnicola*, *Gyalolechia lenae*, *Pilophorus strumaticus*, *Phaeophyscia dissecta*, *Ph. endococcinodes, Ph. hirtella*, *Psora vallesiaca*, *Rhizocarpon cinereonigrum*, *Squamarina cartilaginea*, *Stereocaulon wrightii* and *Xylographa trunciseda*; the world distribution and habitat preferences of these species are discussed briefly below. The study also yielded further regional records of lichens new for particular ridges in the Stanovoye Nagor'e Highlands, such as the Kodar Ridge (103 species), Yuzhno-Muyskiy Ridge (13 species) and Udokan Ridge (11 species).

*!***Abrothallus parmeliarum** (Sommerf.) Arnold

Collecting site: 44, 45 – on thalli of *Parmelia sulcata* Tayl. and *Melanohalea olivacea* (L.) O. Blanco *et al*.

Absconditella lignicola Vězda & Pišut

Collecting site: 44 – on bark of *Betula* sp.

Notes. Species new for Kodar Ridge. Previously reported from Kalar Ridge by Konoreva and Andreev (2013b).

Amandinea punctata (Hoffm.) Coppins & Scheid.

Collecting site: 44, 45, 65 – on bark of *Betula* sp., *Sorbus sibirica* Hedl., *Pinus pumila* (Pall.) Regel and rotten wood.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005) and Makryi (2002) as *Buellia stigmatea* (Schaer.) Körb.

Amygdalaria panaeola (Ach.) Hertel & Brodo

Collecting site: 7, 22, 38 – on stone.

Notes. Species new for Udokan Ridge. Previously reported from Delyun-Uransky and Kodar Ridges by Bardunov *et al.* (2005) and Makryi (2002) respectively.

Arctoparmelia centrifuga (L.) Hale

Collecting site: 1, 10, 22, 31, 38, 41 – on stone and soil on stone.

Notes. Species new for Udokan Ridge. Previously reported from Delyun-Uransky and Kodar Ridges by Bardunov *et al.* (2005) and Makryi (2002) respectively.

Arthonia radiata (Pers.) Ach.

Collecting site: 44 – on bark of *Sorbus sibirica*.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Athallia cerinelloides (Erichsen) Arup *et al*.

Collecting site: 45, 46 – on bark *Populus tremula* L. and lignum.

Notes. Species new for Kodar Ridge. Previously reported from Udokan Ridge by Konoreva and Andreev (2013b) as *Caloplaca cerinelloides* (Erichsen) Poelt.

Athallia holocarpa (Hoffm.) Arup *et al*.

Collecting site: 44, 46 – on stone.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge as *Caloplaca holocarpa* (Hoffm. *ex*. Ach.) A. E. Wade (Bardunov *et al.* 2005).

!***Bacidia subincompta*** (Nyl.) Arnold

Collecting site: 44 – on bark of *Betula* sp.

!***Biatorella conspurcans*** Norman

Collecting site: 44 – on lignum.

!***Bilimbia* cf. *microcarpa*** (Th. Fr.) Th. Fr.

Collecting site: 32 – on mosses on stone.

!***Blastenia ammiospila*** (Wahlenb.) Arup *et al*.

Collecting site: 36, 42, 62, 71 – on plant debris, mosses and the bark and wood of *Salix* sp.

!***Bryonora curvescens*** (Mudd) Poelt

Collecting site: 32, 41 – on mosses.

Notes. This is the second record of this species in Russia. Previously it was reported from Taimyr (Siberian Arctic) (Øvstedal *et al.* 2009; Kristinsson *et al.* 2010; Urbanavichus 2010). It is an arctic-alpine species, occurring in Europe, Greenland, Iceland, Macaronesia, North and South America (Smith *et al.* 2009).

!***Buellia epigaea*** (Pers.) Tuck.

Collecting site: 41, 49 – on soil and plant debris.

Calicium glaucellum Ach.

Collecting site: 43, 48 – on bark of *Salix* sp. and rotten wood.

Notes. Species new for Kodar Ridge. Previously reported from Udokan Ridge by Konoreva and Andreev (2013b).

Calicium trabinellum (Ach.) Ach.

Collecting site: 20, 36, 48, 56, 58 – on bark and wood of *Larix gmelinii* and rotten wood.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

!***Caloplaca saxicola*** (Hoffm.) Nordin s.l.

Collecting site: 24, 44, 45, 47 – on stone.

Cetraria sepincola (Ehrh.) Ach.

Collecting site: 2, 36, 63, 65, 68, 71 – on branches of *Betula nana*, lignum, bark of *Pinus pumila* and bark and branches of *Salix* sp.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Cetrelia cetrarioides (Delise *ex* Duby) W. L. Culb. & C. F. Culb.

Collecting site: 43, 44 – on mossy stone and bark of *Sorbus sibirica* Hedl.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

!***Cetrelia olivetorum*** (Nyl.) W. L. Culb. & C. F. Culb.

Collecting site: 20, 21, 38, 44 – on mossy stone, bark of *Betula ermanii* Cham and *Sorbus sibirica*, and lignum.

Cladonia gracilis (L.) Willd.

Collecting site: 1, 2, 3, 7, 9, 11, 16, 24, 36, 41, 50, 51, 52, 64, 65 – on soil, mosses and lignum.

Notes. Species new for Yuzhno-Muyskiy Ridge. Previously reported from Kodar (Bardunov *et al.* 2005; Konoreva & Andreev 2013a, b), Delyun-Uransky (Bardunov *et al.* 2005) and Kalar Ridges (Konoreva & Andreev 2013b).

Cladonia pyxidata (L.) Hoffm.

Collecting site: 1, 3, 7, 9, 13, 14, 17, 24, 36, 38, 41, 44, 45, 46, 56, 66 – on soil, lignum, mosses and bark of *Larix gmelinii*.

Notes. Species new for Yuzhno-Muyskiy Ridge. Previously reported from Kodar and Delyun-Uransky Ridges (Bardunov *et al.* 2005).

Cladonia stygia (Fr.) Ruoss

Collecting site: 25, 31, 50, 51, 52, 56, 61, 65, 67, 70, 71 – on soil, mosses and soil on stone.

Notes. Species new for Kodar Ridge. Previously reported from Kalar Ridge by Konoreva and Andreev (2013b).

Cladonia verticillata (Hoffm.) Schaer.

Collecting site: 38, 53 – on soil.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005) as *Cladonia cervicornis* subsp. *verticillata* (Hoffm.) Ahti.

!***Cystocoleus ebeneus*** (Dillwyn) Thwaites

Collecting site: 44 – on stone.

Dibaeis baeomyces (L. f.) Rambold & Hertel

Collecting site: 30, 47, 52 – on soil.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

!***Diplotomma alboatrum*** (Hoffm.) Flot.

Collecting site: 44 – on stone.

!***Enchylium tenax*** (Sw.) Gray

Collecting site: 19, 24, 45 – on stone.

!***Fuscopannaria confusa*** (P. M. Jørg.) P. M. Jørg.

Collecting site: 13, 43 – on mosses and soil on stone.

Fuscopannaria praetermissa (Nyl.) P. M. Jørg.

Collecting site: 7, 19, 45, 57 – on soil and mosses.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Graphis scripta (L.) Ach.

Collecting site: 21, 44, 46 – on bark of *Betula ermanii*, *Sorbus sibirica* and rotten branches of *Betula* sp.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky and Kalar Ridges by Bardunov *et al.* (2005) and Konoreva and Andreev (2013b) respectively.

!***Gyalideopsis alnicola*** Noble & Vězda

Collecting site: 46 – on rotten wood.

Notes. This is the second record of this species in Russia. Previously it was reported from the Leningrad region (Stepanchikova *et al*. 2013). The species is rare, and reported from Europe (Norway, Italy) and North America (Canada) (Andreev *et al.* 2008). It was reported from regions with an oceanic climate, where it grows on bark of *Alnus* sp. and *Picea* sp. in rainforest. *Gyalideopsis alnicola* was considered to be a synonym of *G. piceicola* (Nyl.) Vězda & Poelt by several authors (e.g., Santesson *et al.* 2004). The most recent studies, however, indicated that they are two separate species (Lücking *et al.* 2005, 2006).

Gyalolechia flavovirescens (Wulfen) Søchting *et al*.

Collecting site: 19, 44, 45, 47 – on stone.

Notes. Species new for Kodar Ridge. Previ-

ously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005) as *Caloplaca flavovirescens* (Wulfen) Dalla Torre & Sarnth.

!***Gyalolechia lenae*** (Søchting & G. Figueras) Søchting, Frödén & Arup

Collecting site: 44, 45 – on base-rich rock.

Notes. This is a rare species in Russia. Previously reported from Jacutia and the Altai Region. Also reported from Mongolia (Søchting & Figueras 2007). It grows on limestone or base-rich rocks.

Hypocenomyce scalaris (Ach.) M. Choisy

Collecting site: 20, 43 – on rotten wood and the bark of *Larix gmelinii*.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

!***Lecania cyrtellina*** (Nyl.) Sandst.

Collecting site: 31, 41 – on plant debris.

!***Lecanora albescens*** (Hoffm.) Branth & Rostr.

Collecting site: 47 – on stone.

!***Lecanora boligera*** (Norman *ex* Th. Fr.) Hedl.

Collecting site: 41, 68 – on plant debris and the bark of *Betula nana*.

!***Lecanora cadubriae*** (A. Massal.) Hedl.

Collecting site: 38 – on plant debris.

Lecanora campestris (Schaer.) Hue

Collecting site: 24, 44, 45, 46 – on stone.

Notes. Species new for Kodar and Yuzhno-Muyskiy Ridges. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Lecanora circumborealis Brodo & Vitik.

Collecting site: 34, 36, 68 – on bark and branches of *Betula nana* and rotten wood.

Notes. Species new for Kodar Ridge. Previously reported from Udokan Ridge by Konoreva and Andreev (2013b).

!***Lecanora epibryon*** (Ach.) Ach.

Collecting site: 9, 13, 44 – on mosses and soil.

Lecanora polytropa (Ehrh. *ex* Hoffm.) Rabenh.

Collecting site: 3, 5, 6, 8, 9, 10, 12, 15, 22, 27, 35, 38, 40, 45, 50, 52 – on stone.

Notes. Species new for Udokan Ridge. Previously reported from Delyun-Uransky (Bardunov *et al.* 2005) and Kodar Ridges (Makryi 2002; Bardunov *et al.* 2005; Konoreva & Andreev 2013a).

!***Lecanora saligna*** (Schrad.) Zahlbr.

Collecting site: 36, 44 – on plant debris, rotten wood and the bark of *Sorbus sibirica*.

Lecanora symmicta (Ach.) Ach.

Collecting site: 44, 45, 48, 63, 65, 71 – on bark of *Sorbus sibirica*, *Pinus pumila*, *Salix* sp. and *Betula* sp., and rotten wood.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky (Bardunov *et al.* 2005), Kalar and Yuzhno-Muyskiy Ridges (Konoreva & Andreev 2013b).

!***Lecidea alpestris*** Sommerf.

Collecting site: 8, 34, 36, 40, 41, 42, 66 – on soil and plant debris.

!***Lecidea berengeriana*** (A. Massal.) Th. Fr.

Collecting site: 7, 43 – on mosses and soil.

!***Lepraplaca*** cf. ***chrysodeta*** (Räsänen) J. R. Laundon

Collecting site: 47 – on stone.

Leptogium saturninum (Dicks.) Nyl.

Collecting site: 13, 21, 24, 44, 45, 47, 60 – on bark of *Sorbus sibirica* and *Betula* sp., rotten wood, mosses and mossy stone.

Notes. Species new for Kodar Ridge. Previously reported from Yuzhno-Muyskiy (Konoreva & Andreev 2013b).

Lichenomphalia umbellifera (L.: Fr.) Redhead *et al.*

Collecting site: 40, 46 – on soil and mosses.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky by Bardunov *et al.* (2005) as *Omphalina umbillifera* (L.: Fr.) Quélet.

!***Lobaria amplissima*** (Scop.) Forssell

Collecting site: 44 – on rotten branches.

Notes. The species forms tiny, blackish, densely shrubby cephalodia. They can become free-living and were even named a separate taxon – *Dendriscocaulon umhausense* (Auersw.) Degel. According to Jørgensen (1998) and Tonsberg and Goward (2001), '*Dendriscocaulon*' is the cyanobacterial phototype or 'cyanotype' of foliose lichens containing green algae. We found only 'cyanotypes' of *Lobaria amplissima*.

Lobaria retigera (Bory) Trevis.

Collecting site: 44, 46 – on mossy stone.

Notes. The species is red-listed in the Russian Federation (Anonymous 2008) and was reported from the Urals and in the mountains of southern Siberia and the Russian Far East. It has a large distribution area but its stations in Russia are at the northern limit of its distribution.

Lobaria scrobiculata (Scop.) DC.

Collecting site: 21, 43 – on mossy stone.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Lopadium pezizoideum (Ach.) Körb.

Collecting site: 18, 39 – on mosses.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Melanelia hepatizon (Ach.) A. Thell

Collecting site: 4, 5, 6, 8, 10, 12, 17, 22, 27, 28, 29, 31, 38, 41, 50, 52, 55, 66 – on stone and soil on stone.

Notes. Species new for Udokan Ridge. Previously reported from Delyun-Uransky (Bardunov *et al.* 2005) and Kodar Ridges (Makryi 2002; Bardunov *et al.* 2005).

Melanelia stygia (L.) Essl.

Collecting site: 1, 7, 15, 17, 22, 31, 41, 49, 50, 55 – on stone and soil on stone.

Notes. Species new for Udokan Ridge. Previously reported from Delyun-Uransky (Bardunov *et al.* 2005) and Kodar Ridges (Makryi 2002; Bardunov *et al.* 2005).

!***Melanelixia fuliginosa*** (Fr. *ex* Duby) O. Blanco *et al*.

Collecting site: 1, 44, 45 – on stone.

!***Melanelixia glabratula*** (Lamy) Sandler & Arup

Collecting site: 44 – on bark of *Betula* sp. and *Sorbus sibirica*.

Melanohalea exasperatula (Nyl.) O. Blanco *et al*.

Collecting site: 19, 21, 43, 44, 45, 49, 66 – on bark of *Sorbus sibirica*, *Pinus pumila* and *Betula* sp., rotten wood, mossy stone, stone, plant debris.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky by Bardunov *et al.* (2005) as *Melanelia exasperatula* (Nyl.) Essl.

!***Micarea misella*** (Nyl.) Hedl.

Collecting site: 46 – on rotten wood.

!***Micarea nitschkeana*** (J. Lahm *ex* Rabenh.) Harm.

Collecting site: 43 – on rotten wood.

Micarea prasina Fr.

Collecting site: 46 – on rotten wood.

Notes. Species new for Kodar Ridge. Previously reported from Yuzhno-Muyskiy and Kalar Ridges by Konoreva and Andreev (2013b).

!***Miriquidica griseoatra*** (Flot.) Hertel & Rambold

Collecting site: 33 – on stone.

!***Mycobilimbia pilularis*** (Körb.) Hafellner & Türk

Collecting site: 43, 44, 47 – on mosses, lignum, rotten branches and bark of *Pinus pumila*, and bark of *Betula* sp., 9 July 2013.

Mycoblastus sanguinarius (L.) Norman

Collecting site: 1, 21, 23, 31, 41, 49, 63 – on bark and branches of *Pinus pumila*, rotten wood, bark of *Larix gmelinii*.

Notes. Species new for Udokan Ridge. Previously reported from Delyun-Uransky (Bardunov *et al.* 2005) Kodar and Kalar Ridges (Konoreva & Andreev 2013a, b).

!***Myriospora smaragdula*** (Wahlenb. *ex* Ach.) Nägeli *ex* Uloth

Collecting site: 22 – on stone.

Nephroma bellum (Spreng.) Tuck.

Collecting site: 44 – on bark of *Betula* sp.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Nephroma isidiosum (Nyl.) Gyeln.

Collecting site: 43 – on mossy stone.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

!***Ochrolechia androgyna*** (Hoffm.) Arnold

Collecting site: 41 – on plant debris.

!***Parmelina quercina*** (Willd.) Hale

Collecting site: 44 – on bark of *Sorbus sibirica*.

Peltigera collina (Ach.) Schrad.

Collecting site: 13, 21, 44, 45, 72 – on mossy stone, soil, mosses and bark of *Populus* sp.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky and Yuzhno-Muyskiy Ridges by Bardunov *et al.* (2005) and Konoreva and Andreev (2013b) respectively.

!***Peltigera neopolydactyla*** (Gyeln.) Gyeln.

Collecting site: 43, 44 – on soil and mossy stone.

!***Peltigera polidactylon*** (Neck.) Hoffm.

Collecting site: 21, 44, 61 – on mosses and soil.

Peltigera praetextata (Flörke *ex* Sommerf.) Zopf

Collecting site: 21, 42, 44, 45, 46, 47 – on mosses, soil, lignum and mossy stone.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Peltigera venosa (L.) Hoffm.

Collecting site: 44 – on mossy stone.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Pertusaria dactylina (Ach.) Nyl.

Collecting site: 37, 45 – on stone and mosses.

Notes. Species new for Kodar Ridge. Previously reported from Yuzhno-Muyskiy Ridge by Konoreva and Andreev (2013b).

Pertusaria trochiscea Norman

Collecting site: 42, 44, 45, 46 – on mosses, plant debris and mossy stone.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005) as *Pertusaria* cf. *trochiscea* Norman.

!***Phaeophyscia dissecta*** G. Urban., I. Urban. & T. Otn.

Collecting site: 24, 44 – on mossy stone.

Notes. This is a rare species in Russia. Previously reported from southern Siberia (Tuva, Buryatia, Trans-Baikal region) (Andreev *et al.* 2008; Urbanavichus 2010). It prefers coniferous and mixed coniferous-deciduous forests on warmed mountain slopes. It grows on moss-covered boulders and rocks.

!***Phaeophyscia endococcinodes*** (Poelt) Essl.

Collecting site: 44, 47 – on mossy stone.

Notes. This is a rare species in Russia. Previously reported from southern Siberia and the Russian Far East (Urbanavichus 2010). Reported from Asia, Africa, North and South America, Australia and New Zealand (Andreev *et al.* 2008). It grows on moss-covered rocks, rarely on mossy soil or old wood, in mountainous regions of southern latitudes.

!***Phaeophyscia hirtella*** Essl.

Collecting site: 46, 48 – on bark of *Populus tremula* L. and *Salix* sp.

Notes. This is a rare species in Russia. Previously reported from southern Siberia and the Russian Far East (Andreev *et al.* 2008; Urbanavichus 2010). Elsewhere, reported only from North

America (Andreev *et al.* 2008; Hodkinson & Case 2008). Usually it grows on trees with smooth bark in coniferous-deciduous, small-leaved and mixed forests.

!***Phaeophyscia orbicularis*** (Neck.) Moberg

Collecting site: 44, 72 – on mossy stone and bark of *Populus* sp.

!***Phaeophyscia pusilloides*** (Zahlbr.) Essl.

Collecting site: 44 – on bark of *Sorbus sibirica*.

!***Phaeorrhiza sareptana*** (Tomin) H. Mayrhofer & Poelt

Collecting site: 24 – on soil.

!***Physcia tenella*** (Scop.) DC.

Collecting site: 44 – on bark of *Betula* sp.

Physconia detersa (Nyl.) Poelt

Collecting site: 43, 44, 45 – on mossy stone.

!***Physconia enteroxantha*** (Nyl.) Poelt

Collecting site: 45 – on mosses.

!***Pilophorus robustus*** Th. Fr.

Collecting site: 2, 41 – on stone near creek.

Pilophorus strumaticus Nyl. *ex* Cromb.

Collecting site: 1, 13, 15, 41 – on stone.

Notes. This is the second record of this species for Russia. Previously reported from the Trans-Baikal region on Kalar Ridge (Konoreva 2013). A rare species, it was reported from Sweden, Norway and the British Isles (Ahti & Stenroos 2013; Smith *et al.* 2009). It is an arctic-alpine taxon, growing on siliceous rocks, usually in moist, shaded places.

!***Placidium lachneum*** (Ach.) B. de Lesd.

Collecting site: 24 – on stone.

!***Placopsis lambii*** Hertel & V. Wirth

Collecting site: 19, 45– on stone.

!***Protoblastenia calva*** (Dicks.) Zahlbr.

Collecting site: 44 – on stone.

!***Protoblastenia incrustans*** (DC.) J. Steiner

Collecting site: 46 – on stone.

Protoparmelia badia (Hoffm.) Hafellner

Collecting site: 10, 11, 12, 17, 22, 29 – on stone.

Notes. Species new for Udokan Ridge. Previously reported from Delyun-Uransky and Kodar Ridges by Bardunov *et al.* (2005) and Makryi (2002).

Psora globifera (Ach.) A. Massal.

Collecting site: 24, 44, 45, 54, 69 – on mosses and soil on stone.

Notes. Species new for Kodar and Yuzhno-Muyskiy Ridges. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

!***Psora vallesiaca*** (Schaer.) Timdal

Collecting site: 45 – on soil on stone.

Notes. This is a rare species in Russia. Previously reported from the Arctic, eastern and southern Siberia (Urbanavichus 2010). Reported from Europe, North Africa, western Greenland and North America (Andreev *et al.* 2008; Kristinsson *et al*. 2010). It grows on calcareous soil.

Ramalina pollinaria (Westr.) Ach.

Collecting site: 44, 45 – on stone.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky and Yuzhno-Muyskiy Ridges by Bardunov *et al.* (2005) and Konoreva and Andreev (2013b) respectively.

Ramboldia elabens (Fr.) Kantvilas & Elix

Collecting site: 20, 36, 43 – on lignum.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005) as *Pyrrhospora elabens* (Fr.) Hafellner.

!***Rhizocarpon cinereonigrum*** Vain.

Collecting site: 4, 5, 33 – on stone.

Notes. This is a rare species in Russia. Previously reported from Novaya Zemlya (Kristinsson *et al.* 2010). A rare species, it was reported from Europe, North America and Greenland (Andreev *et al.* 2003).

!***Rhizocarpon copelandii*** (Körb.) Th. Fr.

Collecting site: 47 – on stone.

Rhizocarpon eupetraeoides (Nyl.) Blomb. & Forssell

Collecting site: 1, 4, 10, 12, 17, 22, 27, 31, 38 – on stone.

Notes. Species new for Udokan Ridge. Previously reported from Delyun-Uransky Ridge and Kodar Ridge by Bardunov *et al.* (2005).

!***Rhizocarpon grande*** (Flörke) Arnold

Collecting site: 41, 50 – on stone.

Rhizoplaca melanophthalma (DC.) Leuckert & Poelt

Collecting site: 13, 26 – on stone.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Rhizoplaca subdiscrepans (Nyl.) R. Sant.

Collecting site: 6, 24 – on stone.

Notes. Species new for Kodar and Yuzhno-Muyskiy Ridges. Previously reported from Kalar Ridge by Konoreva and Andreev (2013b).

!***Rinodina conradii*** Körb.

Collecting site: 44, 46, 47 – on bark of *Sorbus sibirica* and rotten wood.

!***Rinodina mniaraea*** (Ach.) Körb.

Collecting site: 39 – on mosses.

!***Rinodina pyrina*** (Ach.) Arnold

Collecting site: 44 – on bark and rotten branches of *Betula* sp.

Rinodina septentrionalis Malme

Collecting site: 2, 44, 45, 46, 47, 48, 59, 65 – on lignum and on bark of *Betula* sp., *Populus* sp., *P. tremula*, *Sorbus sibirica*, *Salix* sp. and *Pinus pumila*.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

!***Rinodina turfacea*** var. ***cinereovirens*** (Vain.) H. Mayrhofer

Collecting site: 44 – on bark of *Betula* sp.

Rusavskia sorediata (Vain.) S. Y. Kondr. & Kärnefelt

Collecting site: 19, 21, 24, 44, 46 – on stone.

Notes. Species new for Yuzhno-Muyskiy Ridge. Previously reported from Kodar Ridge by Makryi (2002) as *Xanthoria sorediata* (Vain.) Poelt.

Scoliciosporum chlorococcum (Graewe *ex* Stenh.) Vězda

Collecting site: 44, 45, 46 – on bark of *Sorbus sibirica* and *Betula* sp., rotten wood.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

Scoliciosporum umbrinum (Ach.) Arnold

Collecting site: 1, 44, 46 – on bark of *Sorbus sibirica* and stone.

Notes. Species new for Kodar Ridge. Previously reported from Delyun-Uransky Ridge by Bardunov *et al.* (2005).

!***Solorina bispora*** Nyl.

Collecting site: 42 – on soil and mosses.

!***Solorina saccata*** (L.) Ach.

Collecting site: 44 – on mossy stone and soil.

!***Squamarina cartilaginea*** (With.) P. James

Collecting site: 45 – on soil on stone.

Notes. This is a rare species in Russia. Previously reported from the Caucasus, Siberian Arctic and southern Siberia (Urbanavichus 2010). Reported from the British Isles, Europe, Macaronesia, North America, Asia and Africa (Smith *et al.* 2009). It grows on soil, mosses and hard calcareous rocks, preferring crevices of limestone cliffs and pavements, also on calcareous dunes and serpentine.

Stereocaulon subcoralloides (Nyl.) Nyl.

Collecting site: 22 – on stone.

Notes. Species new for Udokan Ridge. Previously reported from Kodar Ridge (Makryi 2002; Bardunov *et al.* 2005; Konoreva & Andreev 2013a).

!***Stereocaulon wrightii*** Tuck.

Collecting site: 23 – on stone.

Notes. This is a rare species in Russia. Previously reported from Chukotka (Kristinsson *et al.* 2010), Kamchatka, the Magadan region, Khabarovsk and Primorsky Krai (Dombrovskaya 1996). A rare species, it was reported from Japan (Honshu Island) (Dombrovskaya 1996) and North America (Alaska) (Weber & Viereck 1967).

!***Usnea hirta*** (L.) Weber *ex* F. H. Wigg.

Collecting site: 46 – on lignum.

Vulpicida pinastri (Scop.) J.-E. Mattsson & M. J. Lai

Collecting site: 13, 21, 24, 31, 36, 43, 44, 45, 46, 49, 50, 56, 58, 59, 61, 65, 68, 71– on plant debris, lignum, bark of *Betula ermanii*, *Salix* sp., *Larix gmelinii*, *Pinus pumila*, *Betula nana*, *Rhododendron aureum*.

Notes. Species new for Yuzhno-Muyskiy Ridge. Previously reported from Kodar (Makryi 2002; Bardunov *et al.* 2005; Konoreva & Andreev 2013a) and Delyun-Uransky Ridges (Bardunov *et al.* 2005).

!***Xanthomendoza ulophyllodes*** (Räsänen) Søchting *et al*.

Collecting site: 45, 46 – on bark of *Populus tremula*.

Xanthoparmelia stenophylla (Ach.) Ahti & D. Hawksw.

Collecting site: 1, 3, 19, 24, 44, 45 – on stone and soil on stone.

Notes. Species new for Yuzhno-Muyskiy Ridge. Previously reported from Kodar (Makryi 2002; Bardunov *et al.* 2005) and Delyun-Uransky Ridges (Bardunov *et al.* 2005) as *Xanthoparmelia somloënsis* (Gyeln.) Hale.

!***Xylographa trunciseda*** (Th. Fr.) Minks *ex* Redinger

Collecting site: 46 – on rotten wood.

Notes. This is a rare species in Russia. Previously reported from the Southern Urals (Urbanavichene *et al.* 2013) and the Siberian Arctic (Urbanavichus 2010). Reported from Europe, Atlantic Maritime Canada, western North America and Asia (Smith *et al.* 2009; Spribille *et al.* 2014). It grows on slowly decaying wood in moist conditions.

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