The lichens of Bolshoy Tuters Island (Tytärsaari), Leningrad Region, Russia

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Abstract: The updated checklist of Tuters Island (Leningrad Region, Russia) is presented. Of 331 species of recognized biota, 314 species of lichens, 16 lichenicolous fungi and one non-lichenized saprobic fungus are reported from Tuters Island. Of them, 202 species are new to the study area. Aspicilia epiglypta, Fuscidea praeruptorum, Micarea byssacea and Sarcogyne hypophaeoides are reported for the first time for Russia, Roselliniella stereocaulorum – for European Russia, Aspicilia polychroma, Carbonea vorticosa, Cercidopora stereocaulorum, Cladonia ciliata f. flavicans, C. rangiformis, Parmelia ernstiae, Plectocarpon cf. encausticum and Roselliniella cladoniae – for North-Western European Russia; Bachmanniomycetes uncialicola, Bacidina sulphurella, Micarea botryoides, Miriquidica griseoatra and Stereocaulon nanodes are new to the Leningrad Region.

Keywords: Gulf of Finland; Aspicilia epiglypta; Fuscidea praeruptorum; Micarea byssacea; Sarcogyne hypophaeoides

INTRODUCTION

Bolshoy Tuters (Tuters, Tytärsaari) is one of the westernmost Russian islands in the Gulf of Finland (Baltic Sea), belonging to Kingisepp District, Leningrad Region. Unlike the nearby Hogland Island (Gogland, Suursaari), lichens of Tuters remained almost unstudied until recently. Early lichenological exploration of Tuters is connected with Magnus Brenner who visited the area in 1868 and collected several specimens, which were afterwards identified by William Nylander. Brenner reported several species for Tuters in his monograph on the lichen flora of Hogland (Brenner, 1886): Cetraria odontella Ach., Peltigera malacea (Ach.) Fr., Peltigera polydactyla (Neck.) Hoffm. f. collina Ach., Ramalina cuspidata (Ach.) Nyl., and Stereocaulon tomentosum Fr. (all taxa are cited according Brenner’s publication). Critical revision of Brenner’s collection in Herbarium of the Botanical Museum, University of Helsinki (H) by Nadezhda M. Alexeeva, Teuvo Ahti and Dmitry E. Himelbrant allowed to re-identify some of them: the specimen previously identified as Cetraria odontella was C. muricata, Ramalina cuspidata was understood by Brenner as a synonym of R. siliquosa (and the specimen belongs to R. siliquosa), the specimen published as Stereocaulon tomentosum appeared to be S. alpinum var. gracilentum. Several more species collected by Brenner from Tuters remained unpublished; altogether 14 species are known from Tuters from Brenner’s collection.

After Brenner’s visit, nobody studied lichens on Tuters until 1990’s when the island was open for research for the first time after the World War II. In 1992–1993 few specimens were collected by botanists – Finnish (Pertti and Terho Uotila) and Russian (Natalia B. Balashova), some records were later published (Alexeeva, 2005). The first comprehensive inventory of the lichen flora of Tuters was started by Mikhail P. Andreev in 1994. As the result of these studies, a list of lichens of Tuters island comprising 120 species was presented (Andreev, 2002). In 2015, field studies of Tuters lichens were continued by Irina S. Stepanchikova in frame of the Complex Expedition “Gogland” of the Russian Geographi-
cal Society. The present paper is the outcome of the expedition in 2015 and the revision of herbarium collections made since 1868 to 1994.

**STUDY AREA**

Bolshoy Tuters is a remote island in Gulf of Finland (Baltic Sea), 40 km distant from the nearest (Estonian) shore. Despite its small size (ca. 3 km diam., area of ca. 8.3 km$^2$), landscapes of Tuters are diverse and vary from large siliceous rocks in the western and northern parts to dunes on the eastern shore. The island is covered mostly with pine forests; spruce, small-leaved forests and bogs are also represented, black alder stands can be found along the shore, and wastelands surround the abandoned, and destroyed, only village of the island. In the northern part of the island comparatively low disturbed spruce forest is present. The flora of vascular plants of Tuters includes 513 species (Glazkova, 2001).

Tuters and the neighbouring islands were inhabited mostly by Finnish people since the Middle Ages to 1939 (ca. 500 people in 100 houses in 1939). The island belonged, in different periods, to Sweden, Russia, Finland and the Soviet Union. During the World War II Tuters was occupied by the German army, the military base having up to 3000 soldiers in 1942–1944, and cannons, bombs etc. are still abundant on the island, some of them are already covered with lichens.

After the war and up to 1990’s the island was closed for visitors. Due to its position, landscape and history, Tuters is a unique island area in the Leningrad Region with a comparatively well-preserved and rich lichen flora. Tuters Island together with other islands and the adjacent marine area are partly included in the projected Federal Nature Reserve (Zapovednik) “Ingermanlandsky”, which hopefully will be organized in 2017.

**MATERIAL AND METHODS**

The material was collected on Tuters during field trips by: M. P. Andreev (1994), and I. Stepanchikova (2015). In the list of localities (Table 1) mostly Finnish names are given for capes, bays etc., because most of these geographical objects do not have Russian names; the location of studied sites is presented on Fig. 1.

<table>
<thead>
<tr>
<th>Locality</th>
<th>Description, geographical coordinates, biotope</th>
<th>Date</th>
<th>Collector</th>
</tr>
</thead>
<tbody>
<tr>
<td>m1</td>
<td>NW shore, NE of cape Romppiniemi, rocky beach “Vanhanpiian uuni”, [59°51′42″N, 27°11′00″E], siliceous rocks and boulders</td>
<td>19.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m2</td>
<td>N part, 0.5 km SW of Severny cape (Tiukinniemi), 59°51′40″N, 27°11′30″E, young spruce forest</td>
<td>18.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m3</td>
<td>N shore, Severny cape (Tiukinniemi), [59°51′55″N, 27°11′45″E], siliceous rocks and boulders on the seashore</td>
<td>17.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m4</td>
<td>N shore, 0.5 km E of Severny cape (Tiukinniemi), near bay Paskalahti, [59°51′48″N, 27°12′14″E], seashore with forest and shrubs</td>
<td>17.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m5</td>
<td>W shore, S of Vaskiniemi, [59°51′11″N, 27°10′36″E], siliceous rocks and boulders on seashore</td>
<td>13.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m6</td>
<td>Central part, near the lighthouse (Tytärsaaren majakka), [59°51′N, 27°11′E], siliceous rocks in pine forest</td>
<td>16.08.1994, 20.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m7</td>
<td>Central part, road from the lighthouse (Tytärsaaren majakka), [59°51′N, 27°11′E], spruce forest</td>
<td>20.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m8</td>
<td>E part, N part of the dunes (Lentokiekka), [59°51′00″N, 27°13′30″E], dunes with forest, graminoid-moss-lichen communities</td>
<td>14.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m9</td>
<td>E part, N part of the dunes (Lentokiekka), close to cape Teilonniemi, [59°51′00″N, 27°13′33″E], mossy wasteland</td>
<td>14.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m10</td>
<td>SW shore, bay Umplahti, [59°50′35″N, 27°10′40″E], siliceous boulders along the forest edge</td>
<td>15.08.1994</td>
<td>MA</td>
</tr>
</tbody>
</table>

*Table 1.* List of sampling locations in Leningrad Region, Kingisepp District, Tuters Island (Bolshoy Tuters, Tytärsaari) (geographical coordinates are given in spatial reference system WGS 1984; main collectors: MA – Mikhail P. Andreev, IS – Irina S. Stepanchikova)
Table 1 (continued)

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<tr>
<td>m11</td>
<td>S shore, former village (Tytärsaaren kylä, Kolari), [59°50’10”N, 27°11’35”E], trees and shrubs on the territory of former village</td>
<td>19.08.1994</td>
<td>MA</td>
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<td>m12</td>
<td>S shore, E outskirts of former village (Tytärsaaren kylä, Kolari), [59°50’N, 27°12’E], road and outskirts of former village</td>
<td>20.08.1994</td>
<td>MA</td>
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<tr>
<td>m13</td>
<td>SE seashore, S end of the dunes near Nuottakari cape, [59°51’N, 27°13’E], pine forest on dune slope</td>
<td>16.08.1994, 20.08.1994</td>
<td>MA</td>
</tr>
<tr>
<td>m14</td>
<td>S shore, former village (Tytärsaaren kylä, Kolari), [59°50’N, 27°12’E]</td>
<td>18.06.1992</td>
<td>Pertti &amp; Terho Uotila</td>
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<tr>
<td>m15</td>
<td>E part of the dunes (Lentokiekka), [59°51’00”N, 27°13’30”E], sand field between seashore and high dunes</td>
<td>18.06.1992</td>
<td>Pertti &amp; Terho Uotila</td>
</tr>
<tr>
<td>1</td>
<td>SW shore, S of ponds Römenlammet, 59°50’09”N, 27°11’18”E, boulders of old quay</td>
<td>28.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>2</td>
<td>SW shore, N of ponds Römenlammet, 59°50’13”N, 27°11’17”E, young aspen stand on old concrete basement</td>
<td>28.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>3</td>
<td>SW shore, Ulmalta, near pond Kärmeenlampi, 59°50’26”N, 27°10’45”E, stony wasteland</td>
<td>28.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>4</td>
<td>SW shore, port area Vironsatama, 59°50’19”N, 27°10’59”E, pine forest with boulders</td>
<td>28.05.2015</td>
<td>IS</td>
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<tr>
<td>5</td>
<td>E part, N part of the dunes (Lentokiekka), 59°50’56”N, 27°13’11”E, old dunes covered with Racomitrium sp.</td>
<td>29.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>6</td>
<td>E part, N part of the dunes (Lentokiekka), 59°50’53”N, 27°13’13”E, vertical pine logs in dune (remnants of military constructions)</td>
<td>29.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>7</td>
<td>SW shore, S of cape Romppiniemi, 59°51’23”N, 27°10’41”E, sparse pine stand with mosses and lichens on granite ridge</td>
<td>30.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>8</td>
<td>SW shore, S of cape Romppiniemi, 59°51’24”N, 27°10’35”E, rocky seashore</td>
<td>30.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>9</td>
<td>E part, N part of the dunes (Lentokiekka), 59°51’01”N, 27°13’20”E, sparse pine stand with mosses</td>
<td>31.05.2015</td>
<td>IS</td>
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<tr>
<td>10</td>
<td>E part, N part of the dunes (Lentokiekka), 59°51’01”N, 27°13’02”E, sparse pine stand with Racomitrium sp.</td>
<td>31.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>11</td>
<td>E part, 0.2 km N of the dune area, 59°51’10”N, 27°13’01”E, spruce-pine forest with single aspens, with Oxalis acetosella L., Vaccinium myrtillus L., Maianthemum bifolium (L.) F. W. Schmidt and patches of Sphagnum sp.</td>
<td>31.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>12</td>
<td>E shore opposite to the N part of the dunes (Lentokiekka), 59°51’03”N, 27°13’32”E, seashore pine forest with boulders, near fishermen camp</td>
<td>31.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>13</td>
<td>N shore, cape Kuokkaniemi, 59°51’54”N, 27°11’22”E, big boulders (1–3 m diam.) on the seashore</td>
<td>01.06.2015</td>
<td>IS</td>
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<tr>
<td>14</td>
<td>N part, 0.3 km SE of Severny cape (Tiuikinniemi), 59°51’51”N, 27°11’53”E, spruce forest with single aspens, with Vaccinium myrtillus, Maianthemum bifolium and green mosses</td>
<td>01.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>15</td>
<td>N shore, bay Kuokkaniemelahti, 59°51’55”N, 27°11’35”E, black alder stand with boulders, Rubus idaeus L. and graminoids</td>
<td>01.06.2015</td>
<td>IS</td>
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<tr>
<td>16</td>
<td>E part, lowland Tuomäensuo E of the dune area, 59°50’49”N, 27°12’52”E, spruce forest with Vaccinium myrtillus and green mosses</td>
<td>02.06.2015</td>
<td>IS</td>
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<tr>
<td>17</td>
<td>E part, 0.2 km N of the dunes, 59°51’17”N, 27°13’11”E, humid pine forest with Eriophorum vaginatum L., Calluna vulgaris (L.) Hull and Sphagnum spp.</td>
<td>02.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>18</td>
<td>W part, ca. 0.4 km NE of bay Vaskilahdi, rock Luoppärkallio, 59°51’11”N, 27°10’58”E, sparse pine forest with spruce, lichens and mosses, on granite ridge</td>
<td>03.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>19</td>
<td>W part, bay Takirästelinlahti, 59°50’50”N, 27°10’35”E, aspen stand with pine and spruce on place of old house</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
</tbody>
</table>
Folia Cryptog. Estonica

Table 1 (continued)

<table>
<thead>
<tr>
<th>Locality</th>
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</tr>
</thead>
<tbody>
<tr>
<td>a1</td>
<td>S part, N vicinities of the former village (Tyütäsaaren kylä, Kolari), 59°50'30&quot;N, 27°11'25&quot;E, spruce forest with <em>Vaccinium myrtillus</em> and green mosses</td>
<td>28.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a2</td>
<td>E part, S end of the dunes, 0.4 km W of cape Tuomäenäniemi, 59°50'46&quot;N, 27°13'16&quot;E, lichen community on sandy soil near the dune on margin of pine forest</td>
<td>29.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a3</td>
<td>E shore, S of dunes near Nuottakari cape, 59°50'41&quot;N, 27°13'11&quot;E, pine forest with lichens</td>
<td>29.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a4</td>
<td>E shore, S of dunes near Nuottakari cape, 59°50'40&quot;N, 27°13'07&quot;E, pine forest with lichens</td>
<td>29.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a5</td>
<td>S shore, cape Ruuhainniemi, 59°50'22&quot;N, 27°12'26&quot;E, small glade in pine forest with lichens</td>
<td>29.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a6</td>
<td>S shore, E of cape Lommosniemi, 59°50'10&quot;N, 27°11'56&quot;E, old Finnish village, wasteland</td>
<td>29.05.2015</td>
<td>IS</td>
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<tr>
<td>a7</td>
<td>W part, 0.4 km NE of bay Vaskilahti, rock Luöppärkallio, 59°51'09&quot;N, 27°11'02&quot;E, small tall-moss swamp in lowland between rocks, with small rocky outcrops</td>
<td>30.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a8</td>
<td>W part, 0.3 km NE of bay Vaskilahti, rock Luöppärkallio, 59°51'14&quot;N, 27°10'53&quot;E, pine forest with lichens and green mosses on granite ridge</td>
<td>30.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a9</td>
<td>W part, SE of cape Romppiniemi, 59°51'21&quot;N, 27°10'49&quot;E, pine forest with lichens and green mosses on granite ridge</td>
<td>30.05.2015</td>
<td>IS</td>
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<tr>
<td>a10</td>
<td>W shore, S of cape Romppiniemi, 59°51'23&quot;N, 27°10'36&quot;E, driftwood</td>
<td>30.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a11</td>
<td>NW shore, S of cape Romppiniemi, 59°51'33&quot;N, 27°10'37&quot;E, seashore rocks</td>
<td>30.05.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a12</td>
<td>NW part, along rocky beach &quot;Vanhanpiian uuni&quot;, 59°51'36&quot;N, 27°10'54&quot;E, pine forest on granite ridge</td>
<td>30.05.2015</td>
<td>IS</td>
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<tr>
<td>a13</td>
<td>NW part, ca. 0.3 km SE of cape Romppiniemi, 59°51'31&quot;N, 27°10'58&quot;E, pine forest on granite ridge</td>
<td>30.05.2015</td>
<td>IS</td>
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<tr>
<td>a14</td>
<td>E shore opposite to the N part of the dune area, Teilonniemi cape, 59°50'57&quot;N, 27°13'39&quot;E, sandy seashore</td>
<td>31.05.2015</td>
<td>IS</td>
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<tr>
<td>a15</td>
<td>E shore opposite to the N part of the dune area, Teilonniemi cape, 59°50'54&quot;N, 27°13'37&quot;E, pine forest with lichens on sand</td>
<td>31.05.2015</td>
<td>IS</td>
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<tr>
<td>a16</td>
<td>E shore opposite to the N part of the dune area, N of cape Teilonniemi, 59°51'05&quot;N, 27°13'32&quot;E, pine forest with lichens on sand</td>
<td>31.05.2015</td>
<td>IS</td>
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<td>a17</td>
<td>E part, lowland Tuomäensuo E of the dune area, 59°50'54&quot;N, 27°13'01&quot;E, pine forest with green mosses near the dune</td>
<td>31.05.2015</td>
<td>IS</td>
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<td>a18</td>
<td>NW part, 0.5 km SW of Severny cape (Tiukinniemi), 59°51'40&quot;N, 27°11'24&quot;E, spruce forest with <em>Vaccinium myrtillus</em> and <em>Sphagnum</em> spp.</td>
<td>01.06.2015</td>
<td>IS</td>
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<td>a19</td>
<td>N shore, cape Kuokkaniemi 59°51'36&quot;N, 27°11'26&quot;E, driftwood and remnants of building</td>
<td>01.06.2015</td>
<td>IS</td>
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<tr>
<td>a20</td>
<td>N part, near cape Kuokkaniemi, 59°51'54&quot;N, 27°11'30&quot;E, remnants of German cannon in spruce forest</td>
<td>01.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a21</td>
<td>N shore, Severny cape (Tiukinniemi), 59°51'57&quot;N, 27°11'44&quot;E, remnants of German army machine in seashore forest</td>
<td>01.06.2015</td>
<td>IS</td>
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<tr>
<td>a22</td>
<td>NE shore, 0.5 km E to Severny cape (Tiukinniemi), near bay Paskalahti, 59°51'44&quot;N, 27°12'29&quot;E, black alder stand in a bay</td>
<td>01.06.2015</td>
<td>IS</td>
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<tr>
<td>a23</td>
<td>S part, old Finnish cemetery (Hautausmaa), 59°50'18&quot;N, 27°11'58&quot;E</td>
<td>02.06.2015</td>
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<td>a24</td>
<td>S part, ca. 0.5 km NE of the cemetery, 59°50'28&quot;N, 27°12'23&quot;E, remnants of barbed wire fence</td>
<td>02.06.2015</td>
<td>IS</td>
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<tr>
<td>a25</td>
<td>E part, Lentohiekka (N part of the dunes), 59°51'05&quot;N, 27°13'16&quot;E, top of sandy dune</td>
<td>02.06.2015</td>
<td>IS</td>
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<td>a26</td>
<td>E part, N border of the dune area, near the seashore, 59°51'12&quot;N, 27°13'19&quot;E, group of black alder in spruce forest near the dune</td>
<td>02.06.2015</td>
<td>IS</td>
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<td>a27</td>
<td>E part, 0.2 km N of the dune area, near the seashore, 59°51'17&quot;N, 27°13'17&quot;E, spruce forest with black alder near the seashore, with <em>Oxalis acetosella, Vaccinium myrtillus</em> and green mosses</td>
<td>02.06.2015</td>
<td>IS</td>
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<tr>
<td>a28</td>
<td>W part, 0.3 km NE of bay Vaskilahti, rock Luöppärkallio, 59°51'10&quot;N, 27°10'54&quot;E, shaded vertical rocky slope in spruce forest with <em>Sorbus aucuparia</em> L.</td>
<td>03.06.2015</td>
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<td>a29</td>
<td>Central part, bog Estersuo, 59°51'06&quot;N, 27°11'08&quot;E, group of trees and shrubs on a small island in transitional swamp</td>
<td>03.06.2015</td>
<td>IS</td>
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<td>a30</td>
<td>Central part, bog Estersuo, 59°51'02&quot;N, 27°11'06&quot;E, small rocky outcrops on the margin of transitional swamp</td>
<td>03.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a31</td>
<td>Central part, bog Salasuo, 59°50'58&quot;N, 27°11'18&quot;E, transitional swamp</td>
<td>03.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a32</td>
<td>Central part, 0.3 km SE of bog Salasuo, 59°50'51&quot;N, 27°11'41&quot;E, remnants of German ammunition depot in young pine forest</td>
<td>03.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a33</td>
<td>Central part, 0.2 km E of bog Salasuo, 59°50'55&quot;N, 27°11'35&quot;E, pine forest with Vaccinium myrtillus, green mosses and Calluna vulgaris</td>
<td>03.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a34</td>
<td>Central part, 0.5 km SE of bog Salasuo, ca. 0.5 km N of the former village, 59°50'47&quot;N, 27°11'50&quot;E, pine forest with Vaccinium myrtillus and green mosses, with sparse snags</td>
<td>03.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a35</td>
<td>Central part, ca. 0.9 km N of the cemetery, 59°50'43&quot;N, 27°12'02&quot;E, spruce forest with Vaccinium myrtillus and green mosses</td>
<td>03.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a36</td>
<td>S part, ca. 0.5 km NE of the cemetery, 59°50'28&quot;N, 27°12'17&quot;E, aspen forest with mixed herbs</td>
<td>03.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a37</td>
<td>W part, E of cape Levtniemi, 59°50'42&quot;N, 27°11'02&quot;E, pine forest with lichens and green mosses on granite ridge</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a38</td>
<td>W part, E of cape Levtniemi, 59°50'43&quot;N, 27°10'42&quot;E, pine forest with lichens and green mosses on granite ridge</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a39</td>
<td>W shore, between capes Levtniemi and Takirästelinniemi, 59°50'45&quot;N, 27°10'37&quot;E, spreaded boulders</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a40</td>
<td>W part, between capes Levtniemi and Takirästelinniemi, 59°50'47&quot;N, 27°10'35&quot;E, rocky outcrop</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a41</td>
<td>W shore, bay Vaskilahti, 59°51'09&quot;N, 27°10'33&quot;E, internal surface of seashore rocks</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a42</td>
<td>W shore, N of bay Vaskilahti, 59°51'14&quot;N, 27°10'34&quot;E, rocks</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a43</td>
<td>W shore, N of bay Vaskilahti, 59°51'15&quot;N, 27°10'34&quot;E, rocks and old concrete</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a44</td>
<td>W shore N of bay Vaskilahti S of cape Romppiniemi, 59°51'20&quot;N, 27°10'37&quot;E, granite ridge, soil in crevices</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a45</td>
<td>W part, 70 m of the seashore, SE of cape Romppiniemi, 59°51'22&quot;N, 27°10'40&quot;E, granite ridge, deep crevice</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a46</td>
<td>W part, 70 m of the seashore, SE of cape Romppiniemi, 59°51'24&quot;N, 27°10'39&quot;E, old spruce between rocks</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a47</td>
<td>W part, seashore S of cape Romppiniemi, 59°51'29&quot;N, 27°10'39&quot;E, granite ridge surrounded by pine forest</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a48</td>
<td>NW shore, rocky beach &quot;Vanhantipian uuni&quot;, 59°51'45&quot;N, 27°11'05&quot;E, rocks</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a49</td>
<td>NW part, SE of the rocky beach &quot;Vanhantipian uuni&quot;, 59°51'35&quot;N, 27°11'14&quot;E, spruce forest with Vaccinium myrtillus and green mosses</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a50</td>
<td>NW part, SE of the rocky beach &quot;Vanhantipian uuni&quot;, 59°51'31&quot;N, 27°11'10&quot;E, spruce forest with Vaccinium myrtillus and green mosses</td>
<td>04.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a51</td>
<td>NW part, SW from the lighthouse (Tytärsaaren majakka), 59°51'15&quot;N, 27°11'08&quot;E, old spruce on the margin of a glade</td>
<td>02.06.2015</td>
<td>IS</td>
</tr>
<tr>
<td>a52</td>
<td>S shore, port area (Satama), 50 m of the seashore, 59°50'08&quot;N, 27°11'30&quot;E, concrete constructions and oak trees</td>
<td>06.06.2015</td>
<td>IS</td>
</tr>
</tbody>
</table>

Cited specimens are deposited in the herbaria of the Botanical Museum of University of Helsinki (H), Komarov Botanical Institute (LE), Department of Botany, St. Petersburg State University (LECB), Museum of Evolution of Uppsala University (UPS), Bergen University (BG) and Institute of Botany, Nature Research Centre in Vilnius (BILAS). Additionally we have investigated specimens of lichens and lichenicolous fungi collected earlier by Brenner (19th century) and other
researchers mentioned above (20th century). Lichen substances were analyzed by standard techniques of thin-layer chromatography with using solvent systems A, B, C and G (Orange et al., 2001) by the first and fifth authors. The nomenclature of taxa generally follows Nordin et al. (2011). For each species the substrate and locality numbers are presented; for selected taxa (either species new to Western Leningrad Region or species found in unusual habitats, or difficult for identification) diagnostic characters are added; for species new to Western Leningrad Region information about distribution in NW European Russia, Fennoscandia and Baltic countries is also given. Lichen substances are given for TLC-analyzed species. In the following list of species, lichenicolous fungi are marked with # and non-lichenized fungus with +, and the subsequent abbreviations are used: LR – Leningrad Region; SPb – St. Petersburg.

Fig. 1. The study area, Bolshoy Tuters Island (Tytärsaari), with location of collection sites.
THE SPECIES

**Abrothallus caerulescens** Kotte – on apothecia of *Xanthoparmelia stenophylla* on granite boulder; 12 (BILAS). The specimen contained only anamorphic *Vouauxiomycetes* stage. Its conidia were longer than given by Ihlen & Wedin (2008), 10.0–14.5 × 4.0–5.0 μm [5–7 × 4.0–6.0 μm according to Ihlen & Wedin (2008)], but I+ blue reaction of vegetative hyphae and the host corresponded that of the characteristics of *A. caerulescens.*

**Absconditella lignicola** Vězda & Pišút – on lignum of *Picea abies* (L.) Karst.; 10, a23 (LE).

**Acarospora fuscata** (Schrad.) Th. Fr. – on siliceous rocks; m9, m12, 12, 18 (BG, LE, UPS L-116040; Andreev, 2002).

**Acrocordia cavata** (Ach.) R. C. Harris – on bark of *Populus tremula* L.; 2, 19 (H). Specialized species of biologically valuable forests in the Southern Taiga of North-Western European Russia (Andersson et al., 2009).

**Allyxia varia** (Pers.) Ertz & Tehler – on bark of *Populus tremula*; 2, 19 (H).

**Amandinea punctata** (Hoffm.) Coppins & Scheid. – on bark of *Alnus glutinosa* (L.) Gaertn., *Pinus sylvestris* L. and *Quercus robur* L.; m11, 1, 4, 15, a6 (BG, LE, UPS L-116089; Andreev, 2002).

**Anapticha ciliaris** (L.) Körb. – on seashore siliceous rocks; a11 (LE).

**Anapticha runcinata** (With.) J. R. Laundon – on seashore siliceous rock; a11 (LE). Known in LR from Hogland, where the species was collected in 1851–1939 (H; Hakulinen, 1962).

**Anisomeridium polybori** (Ellis & Everh.) M. E. Barr – on bark of *Populus tremula* and *Sorbus aucuparia* L.; 2, 11 (H, sub *Pseudoschishmatomma rufescens*).

**Arctoparmelia centrifuga** (L.) Hale – on siliceous rocks; a12, a37 (obs.). Red Data Book of LR (Tzvelev, 2000).

**Arctoparmelia incurva** (Pers.) Hale – on siliceous rocks; a37 (obs.). Red Data Book of LR (Tzvelev, 2000).

**Arthonia punctiformis** Ach. – on bark of *Alnus glutinosa* and *Betula* sp.; 17, a22, a29, a33 (H, LECB).

**Arthonia radiata** (Pers.) Ach. – on bark of *Alnus glutinosa*; 15 (H).

**Arthonia ruana** A. Massal. – on bark of *Alnus glutinosa*; 15 (H).

**Arthonia spadicea** Leight. – on bark of *Alnus glutinosa* and *Picea abies*; 11, 15, a21, a26 (H).

Indicator species of biologically valuable forests in the Southern Taiga of North-Western European Russia (Andersson et al., 2009).

**Aspicilia cinerea** (L.) Körb. – on siliceous rocks; 12, a6, a41, a48 (H).

**Aspicilia epiglypta** (Norrl. ex Nyl.) Hue – on siliceous rocks; a48 (H). New to Russia. Distribution in Fennoscandia: Norway, Sweden, Finland (Nordin et al., 2011); not recorded in Baltic countries. Coastal crustose lichen with yellowish-grey cracked-areolate thallus and black prothallus. *Aspicilia epiglypta* contains norstictic acid as well as *A. cinerea* (L.) Körb. and *A. intermutans* (Nyl.) Arnold, but differs from both species in the size of the ascospores and conidia as well as in the number of apothecia (2–5) per areole (Fletcher et al., 2009).

**Aspicilia polychroma** Anzi – on concrete; a6 (LE). New to the North-Western European Russia. In Europe is known from Novaya Zemlya Island (Andreev et al., 1996). Distribution in Fennoscandia: Norway, Finland (LE; Nordin et al., 2011); not recorded in Baltic countries. Crustose lichen with grey or white-grey rather thin verruciform thallus with thin margin (R–). Apothecia 1–3 per areole, pruinose. Spores 13–18 × 8–10 μm. (Wirth et al., 2013). Mainly arctic-alpine, perhaps circumpolar, chemically and morphologically variable species with optimum on calciferous siliceous rocks in sites with weak eutrophication.

**Aspicilia verrucigera** Hue – on siliceous rocks; m9 (UPS L-116045). Collected from Tuters (no exact locality) by Brenner, 24.07.1868 (H 8004086: det. Adolf H. Magnusson, 1936).

**Athallia cerinella** (Nyl.) Arup et al. – on bark of *Acer platanoides* L.; m11 (LE; Andreev, 2002).

**Athallia cerinelloides** (Erichsen) Arup et al. – on iron; 3 (LE).

**Athallia holocarpa** (Hoffm.) Arup et al. – siliceous rocks; 1, 13, a6 (LE; Andreev, 2002).

**Athallia pyracea** (Ach.) Arup et al. – on bark of *Populus tremula*; 2 (LE).

**Athallia scopularis** (Nyl.) Arup et al. – on siliceous rocks; m5 (UPS L-116021).

**#Athelia arachnoidea** (Berk.) Jülich – on algae on bark of *Picea abies*; a27 (LE).

**#Bachmanniomyces uncicalicola** (Zopf) D. Hawksw. – on thallus of *Cladonia uncialis* subsp. *buncialis*; 18 (BILAS). New to LR. Distribution in North-Western European Russia outside
BACIDINA INUNDATA (Fr.) Vézda s. l. – on iron; a21 (LE).

BACIDINA SULPHURELLA (Samp.) M. Hauck & V. Wirth – on bark of Alnus glutinosa; 15 (H: det. Julia V. Gerasimova, 2016). New to LR. Recently published from St. Petersburg (Stepanchikova et al., 2015), but the specimens were re-identified (see Himelbrant et al., 2017). Distribution in North-Western European Russia outside LR and SPb: not recorded. Distribution in Baltic countries: Estonia (Randlane et al., 2016), Lithuania (Motiejūnaitė et al., 2011). Lichenicolous fungus, characterized by pycnidia immersed in convex gall-like swellings on podetia of Cladonia and abundant lens-shaped to pyriform simple conidia adhering in mucilage. Species of Epicladonia which may also form galls on Cladonia have subcylindrical to narrowly ellipsoid conidia which are not adhering in mucilage and may be simple or 1-septate (Hawksworth, 1981).

Baeomyces rufus (Huds.) Rebent. – on iron and soil; 10, a32 (H, sub Stereocaulon nanodes).

Biatora efflorescens (Hedl.) Råsånen – on bark of Salix caprea L. and on mosses; 11, 19, a35 (H).

Biatora globulosa (Flörke) Fr. – on bark of Alnus glutinosa and lignum of Populus tremula; 2, 15 (H).

Biatora helvolana Körb. ex Hellb. – on bark of Alnus glutinosa and Sorbus aucuparia; 14, 15, 19 (H).

Biatora ocelliformis (Nyl.) Arnold – on bark of Sorbus aucuparia; 14 (H, sub Pseudosagedia aenea).

Biatora sphaeroidiza (Vain.) Printzen & Holien – on bark of Picea abies; a23 (H, sub Pseudosagedia aenea). Not recorded in North-Western European Russia outside LR and SPb. The species is relatively rare also in Fennoscandia and Baltic countries, but it may be overlooked. Biatora sphaeroidiza differs from other Biatora species by having grey or greenish (C+ red) apothecia (Printzen & Otte, 2005).

Briararia sylvicola (Flot. ex Körb.) S. Ekman & M. Svensson – on iron and siliceous rocks; (18, a20, a32; H, LE).

Brodoa intestiniformis (Vill.) Gowar – on siliceous rocks; 7, a37 (LE, BILAS). Red Data Book of LR (Tzvelev, 2000).

Bryoria capillaris (Ach.) Brodo & D. Hawksw. – on twigs of Picea abies and once on granite boulder; m2, 11, 12, 14 (LE; Andreev, 2002).

Bryoria fuscescens (Gyeln.) Brodo & D. Hawksw. [incl. Bryoria subcana (Nyl. ex Stizenb.) Brodo & D. Hawksw.] – on bark of Picea abies and lignum of Pinus sylvestris; m7, m14, 6, a25 (BG, H 8004209, UPS L-116092; Andreev, 2002).

Bryoria impexa (Hoffm.) Brodo & D. Hawksw. – on siliceous rocks; 12 (H).

Bryoria simplicior (Vain.) Brodo & D. Hawksw. – on lignum of Pinus sylvestris; 6 (LE).

Buellia badia (Fr.) A. Massal. – on siliceous rocks; m9, 12 (H, UPS L-116054; Andreev, 2002).

Buellia disciformis (Fr.) Mudd – on bark of Alnus glutinosa and Betula sp.; 17, a26 (H).

Buellia griseovirens (Turner & Borrer ex Sm.) Almb. – on bark of Alnus glutinosa, Betula sp., Juniperus communis L., Picea abies, Pinus sylvestris and Sorbus aucuparia, on lignum; 2, 10, 11, 15–19, a10 (H, LE). Thalli contain atranorin, norstictic and connorstictic acids.

Calicium glauccellum Ach. – on snag of Pinus sylvestris; a34 (LE).

Calicium tigillare (Ach.) Pers. – on lignum of Pinus sylvestris; 6 (LE). Indicator species of biologically valuable forests in the Southern Taiga of North-Western European Russia (Andersson et al., 2009).

Calicium viride Pers. – on bark of Picea abies; a46, a51.

Caloplaca chlorina (Flot.) H. Olivier – on brick; a6 (LE).

Caloplaca diphyodes (Nyl.) Jatta – on siliceous rocks; m5 (UPS L-116021, L-116029; Andreev, 2002).

Caloplaca saxicola (Hoffm.) Nordin – on limestone in former village; m12 (BG, LE, UPS L-116093; Andreev, 2002).

Candelariella aurella (Hoffm.) Zahlbr. – on bones, brick, concrete, iron; m12, 3, a6, a14 (H, LE; Andreev, 2002).
Candelariella coralliza (Nyl.) H. Magn. – on siliceous rocks; 12 (H, sub Protoparmelia badia).

Candelariella efflorescens R. C. Harris & W. R. Buck – on bark of Populus tremula; 2 (H).

Candelariella lutella (Vain.) Räsänen – on bark of Populus tremula; 2 (H).

Candelariella reflexa (Nyl.) Lettau – on bark of Quercus robur; 1 (LE).

Candelariella vitellina (Hoffm.) Müll. Arg. – on iron and granite boulders; m3, m9, m10, 1, 2, 4, a6 (H, UPS L-116046; Andreev, 2002).

#Carbonea supersparsa (Nyl.) Hertel – on thallus of Lecanora polytropa on siliceous stone; 12 (H, sub Protoparmelia badia).

Carbonea vorticosa (Flörke) Hertel – on brick; a6 (LE). New to the North-Western European Russia. In European Russia is known from Murmansk Region (Urbanavichus et al., 2008). Distribution in Fennoscandia: Norway, Sweden, Finland (Nordin et al., 2011); not recorded in Baltic countries. Lichenized species of the genus Carbonea, characterized by thin olivaceous-brown thallus in irregular patches, numerous black apothecia with concave (crater-like) disc; asci 8-spored, Lecanora-type, spores simple, ellipsoid (Chambers et al., 2009).

Catillaria chalybea (Borrer) A. Massal. – on siliceous rocks; 2, 13 (H).

Catillaria nigroclava (Nyl.) Schuler – on bark of Quercus robur; 1 (LE).

#Cercidospora stereocaulorum (Arnold) Hafellner – on thallus of Stereocaulon incrustatum on sandy soil; 9 (BILAS). New to the North-Western European Russia. In European Russia is known from Murmansk and Nenets regions (Zhurbenko, 2010). Distribution in Fennoscandia: Sweden, Norway (Nordin et al., 2011); not recorded in Baltic countries. The fungus differs from Cercidospora alpina Ihlen & Wedin (also growing on Stereocaulon) by (2-)4(-8)-spored ascii (4-spored in our specimen), (1-)3(-6)-septate spores (2-3-septate in our specimens) lacking perispore (Zhurbenko, 2010).

Cetraria aculeata (Schreb.) Fr. – on sandy soil; 5, 6, 9, 12, a5, a16 (H, LE).

Cetraria islandica (L.) Ach. subsp. islandica – on soil; m8, m13, 12, a3, a4, a16, a25, a37 (Andreev, 2002).

Cetraria muricata (Ach.) Eckfeldt – on soil; a40 (H). Collected from Tuters (no exact locality) by Brenner, 24.07.1868 (H 8004371: det. I. Kärnefelt, 1982).

Cetraria sepincola (Ehrh.) Ach. – on bark of Betula sp. and Pinus sylvestris; 6, a29.

Cetraria commixta (Nyl.) A. Thell & Kärnefelt – on siliceous rocks; 7 (LE). Red Data Book of LR (Tzvelev, 2000).

Chaeotheca chrysocephala (Turner ex Ach.) Th. Fr. – on bark of Picea abies and Pinus sylvestris, on lignum of Pinus sylvestris; 10, 14, a27, a31, a35, a46, a50.

Chaeotheca ferruginea (Turner ex Sm.) Mig. – on bark of Picea abies and Pinus sylvestris, on lignum; m6, 11, 14, 16, 17, a31, a35, a50 (Andreev, 2002).

Chaeotheca furfuracea (L.) Tibell – on siliceous rocks and upturned roots; a1, a28 (LE).

Chaeotheca stemonea (Ach.) Müll. Arg. – on bark of Picea abies; 11, a50 (LE). Indicator species of biologically valuable forests in the Southern Taiga of North-Western European Russia (Andersson et al., 2009).

Chaeotheca trichialis (Ach.) Th. Fr. – on bark of Picea abies and snag of Pinus sylvestris; 11, a34 (LE).

Chaeothecopsis subparoica (Nyl.) Tibell – on thallus of Haematomma ochroleucum on siliceous rock; a28 (LE).

Circinaria caesiochinea (Nyl. ex Malbr.) A. Nordin, S. Savi & Tibell – on siliceous rocks; m1 (UPS L-116080; Andreev, 2002).

Circinaria contorta (Hoffm.) A. Nordin, S. Savi & Tibell – on soil; a6 (LE).

Circinaria gibbosa (Ach.) A. Nordin, S. Savi & Tibell – on siliceous rocks; 12 (H, sub Acraspora fuscata).

Cladonia amarucracea (Flörke) Schaer. – on soil and lignum; m6, 7, 18, a2 (UPS L-116066; Andreev, 2002).

Cladonia arbuscula (Wallr.) Flot. subsp. arbuscula – on soil – m6, m13, 14, 7, 9, 18, a2, a6 (H 8004420; Andreev, 2002); subsp. mitis (Sandst.) Ruoss– on soil; m8, 5, 10, 12, 18 (H; Andreev, 2002).

Cladonia bellidiflora (Ach.) Schaer. – on soil and lignum; m8, 7, 18 (BG, H, LE; Andreev, 2002).

Cladonia borealis S. Stenroos – on soil; 7, 10, 18, a38 (H).

Cladonia botrytes (K. G. Hagen) Willd. – on soil; m8, 9 (LE; Andreev, 2002).

Cladonia carneola (Fr.) Fr. – on sand; 5 (LE).
**Cladonia cenoidea** (Ach.) Schä rer. – on bark and lignum of *Pinus sylvestris*, on sandy soil; m6, 16, a15, a31 (H; Andreev, 2002).

**Cladonia chlorophaea** (Flörke ex Sommerf.) Spreng. – on soil; 4, 6, a6 (LE; Andreev, 2002). Thalli contain fumarprotocetraric acid.

**Cladonia ciliata** Stirt. f. *flavicans* (Flörke) Ahti & DePriest – on soil; 10 (H). New to North-Western European Russia. In European Russia is known from Kaliningrad Region (Dedkov et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2016), Latvia (Motiejūnaitė & Piterāns, 1998), Lithuania (Motiejūnaitė, 1999). The species of *Cladina* section with slender regularly branched yellowish podetia, brown towards the apices, P+ red; pycnidia contain red slime (Ahti & Stenroos, 2013). It is an oceanic species widespread on coasts of Poland, Lithuania, Latvia, Estonia and SW Finland (and westwards); Tuters Island is the easternmost locality of this species in Europe.

**Cladonia coccifera** (L.) Willd. – on primary soil on rocks; m6, a40 (LE; Andreev, 2002).

**Cladonia coniocreae** (Flörke) Spreng. – on bark of *Picea abies* and *Pinus sylvestris*, on lignum; m8, 11, 14, 17–19 (Andreev, 2002).

**Cladonia cornuta** (L.) Hoffm. subsp. *cornuta* – on bark of *Pinus sylvestris*, on lignum, soil and sand; m6, m8, m9, 5, 9, 10, 17, a2, a3, a6 (UPS L-116058; Andreev, 2002).

**Cladonia crispata** (Ach.) Flot. var. *crispata* – on lignum and soil; m8, 9, 10, 17, a2 (H, BG, H, UPS L-116033; Andreev, 2002); var. *ce-trariaiformis* (Delise) Vain. – on sandy soil; m6 (UPS L-116057).

**Cladonia cyanipes** (Sommerf.) Nyl. – on soil; 9 (LE).

**Cladonia deformis** (L.) Hoffm. – on bark of *Pinus sylvestris*, on lignum and soil; m8, m15, 9, 10, 17 (H, BG, H, UPS L-116031; Andreev, 2002).

**Cladonia digitata** (L.) Hoffm. – on bark of *Pinus sylvestris* and on lignum; 11, 16, 17, 19.

**Cladonia fimbriata** (Fr.) Hoffm. – on bark of *Picea abies* and *Pinus sylvestris*, on lignum and soil; m8, 9, 11, 12, 14, 16, 17, a6 (Andreev, 2002).

**Cladonia floerkeana** (Fr.) Flörke – on lignum and soil; m8, 7 (H; Andreev, 2002).

**Cladonia furcata** (Huds.) Schrad. – on soil; m6, m8, 10, 12, 18, a3, a6 (BG, H, LE, UPS L-116057; Andreev, 2002).

**Cladonia gracilis** (L.) Willd. subsp. *gracilis* – on soil; m6, 7, 10, 18, a18 (H, UPS L-116055; Andreev, 2002); subsp. *turbinata* (Ach.) Ahti – on soil and lignum; m6, m8, m15, 9, 10, 18, a2 (H, BG, LE UPS L-116032; Andreev, 2002).

**Cladonia grayi** (G. Merr. ex Sandst.) – on soil; m15 (H). Thallus UV+ blue.

**Cladonia macilenta** Hoffm. – on lignum and soil; m6, 7, 9, 10, 12 (UPS L-116034, L-116072; Andreev, 2002).

**Cladonia macrophylla** (Schaer.) Stenh. – on soil; 7 (H). Red Data Book of LR (Tzvelev, 2000).

**Cladonia merochlorophaeica** Asahina – on soil; 9, 12 (LE). Thalli contain merochlorophaeic and 4′-O-methylchlorophaeic acids.

**Cladonia ochrochloroida** Flörke – on lignum; 11 (H).

**Cladonia phyllophora** Hoffm. – on soil; m6, m8, 5, 7, 10, 12, a5 (BG, H, LE, UPS L-116059; Andreev, 2002).

**Cladonia pleurota** (Flörke) Schaer. – on soil and lignum; m6, m15, 9, 10, 18, a2 (H; Andreev, 2002).

**Cladonia pyxidata** (L.) Hoffm. – on soil; 7, 10, 12, 18, a6, a8, a37. Collected from Tuters (no exact locality) by Balashova, 1993 (LECB; Alexeeva, 2005).

**Cladonia rangiformis** Hoffm. – on soil; a5, a6 (H, LE). New to North-Western European Russia. The nearest locality in European Russia is in Kaliningrad Region (Dedkov et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2016), Latvia (Piterāns, 2001), Lithuania (Motiejūnaitė, 1999). Podetia are irregularly dichotomously branched, form dense cushions, brownish toward the tops. Close to *C. furcata*, but distinguished by pale greyish colour and usually by the P- reaction (Ahti & Stenroos, 2013). Distributed mostly along the coasts of the Atlantic.

**Cladonia rei** Schaer. – on soil, on bark and lignum of *Pinus sylvestris*; 5–7, 9, 12, 17, a2 (LECB).

**Cladonia scabriuscula** (Delise) Nyl. – on soil; m14, 12, a4, a6, a16 (H). Collected from Tuters (no exact locality) by Balashova, 1993 (Alexeeva, 2005).
**Cladonia squamosa** Hoffm. – on lignum and soil; m6, 7, 10, 18, 19 (H; Andreev, 2002).

**Cladonia stellaris** (Opiz) Pouzar & Vězda – on soil; m6, m13, 18, a3, a37 (Andreev, 2002).

**Cladonia stygia** (Fr.) Ruoss – on soil; 18, a2 (LE).

**Cladonia subulata** (L.) F. H. Wigg. – on sandy soil; m8, m9, m15, 5, 7, 10, 12 (BG, H, LE; UPS L-116056; Andreev, 2002).

**Cladonia sulphurina** (Michx.) Fr. – on lignum; 18.

**Cladonia turgida** Hoffm. – on soil; m2, m6, 18, a2, a8, a17, a37 (BG, LE, UPS L-116067, L-116076; Andreev, 2002).

**Cladonia uncialis** (L.) F. H. Wigg. subsp. **biuncialis** (Hoffm.) M. Choisy – on soil; 7, 18, a2, a13, a37; subsp. **uncialis** – on soil; m6, a3 (Andreev, 2002).

**Cladonia verticillata** (Hoffm.) Schær. – on soil; m8, 12, 18, a2 (H; Andreev, 2002).

**Cladonia griffithii** (Sm.) Coppins – on bark of **Alnus glutinosa** and **Picea abies**; 15, a21, a46 (H).

**Cladonia mesomorpha** Nyl. – on bark of **Picea abies**; a16.

**Evernia prunastri** (L.) Ach. – on bark of **Picea abies** and **Pinus sylvestris**; 4, 11.

**Felipes leucopellaeus** (Ach.) Frisch & G. Thor – on bark of **Picea abies**; 14, a35, a49 (LE). Specialized species of biologically valuable forests in the Southern Taiga of North-Western European Russia (Andersson et al., 2009).

**Fellhanera subtilis** (Vězda) Diederich & Sérus. – on bark of **Vaccinium myrtillus**; 18, a18 (H).

**Flavoplaca marina** (Wedd.) Arup et al. – on siliceous rocks; m3, 1, 8, 13 (H, LE; Andreev, 2002).

**Flavoplaca microthallina** (Wedd.) Arup et al. – on siliceous rocks; m1 (LE; Andreev, 2002).

**Fuscidea arboricola** Coppins & Tønsberg – on bark of **Alnus glutinosa**; 15 (fertile), 19 (H; LE). Thalli contain fumarprotocetraric acid.

**Fuscidea caythoides** (Ach.) V. Wirth & Vězda – on siliceous rocks; a43, a48 (H).

**Fuscidea praeruptorum** (Du Rietz & H. Magn.) V. Wirth & Vězda – on siliceous rocks; 13, a28 (H, LE). New to Russia. Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2016), Lithuania (Motiejunaite et al., 2015). The species has pale to brown areolate thalli with black prothallus and ochre- to cream-coloured punctiform soralia which react Pd+ yellow, KC+ red, UV+ faintly yellowish; apothecia are very rare (Gilbert et al., 2009). Thalli contain alectorialic acid.

**Fuscidea pusilla** Tønsberg – on bark of **Betula sp.**, **Juniperus communis**, **Picea abies**, **Pinus sylvestris** and **Salix sp.**, on lignum of **Picea abies**; 10, 11, 14, 16–19, a23, a27, a29 (H, LE). Thalli contain divaricate acid.

**Graphis scripta** (L.) Ach. s. l. – on bark of **Alnus glutinosa**; 15, a21 (H).

**Gyalolechia flavorubescens** (Huds.) Sochting et al. – on bark of **Populus tremula**; 2, a36 (H).

**Haematomma ochroleucum** (Neck.) J. R. Laundon var. **ochroleucum** – on siliceous rocks; a44, a48 (LE). Thalli contain usnic acid, zeorin, atranorin and porphyrilic acid; var. **porphyrium** (Pers.) J. R. Laundon – on siliceous rocks; a28 (LE). Thallus contains zeorin, atranorin, porphyrilic acid and unidentified fatty acid.

**Homostegia piggotii** (Berk. & Broome) P. Karst. – on thalli of **Parmelia omphalodes** on siliceous rock; a45 (H).

**Hydropunctaria maura** (Wahlenb.) Keller, Guedan & Thüs – on siliceous rocks (m1, m5, 1, 3, 8, 13 (BG, LE, UPS L-116078, L-116023, L-116071; Andreev, 2002). The thalli of the investigated specimens are rather thick and contain brown pigment in the pseudocortex. In contrast, the similar species **H. aractina** (Wahlenb.) Orange has thinner thallus and a green to green-brown pigment (Orange 2012).

**Hypocenomyce scalaris** (Ach.) M. Choisy – on bark and lignum of **Pinus sylvestris**; 6 (H).

**Clypeococcus hypocenomyicis** D. Hawksw. – on thalli of **Hypocenomyce scalaris** on lignum of **Pinus sylvestris**; 6 (H).

**Coenogonium pineti** (Ach.) Lücking & Lumbsch – on bark of **Alnus glutinosa**, **Picea abies**, **Pinus sylvestris** and **Salix caprea**; 11, 14–16, 18, a21, a26, a27 (H).

**Enterotheca zonata** (Körb.) Källsten ex Torrente & Egea – on siliceous rock; a28 (LE). Thallus contains confluentic, 2'-0-methylmicrophyllicin and 2'-0-methylperlatolic acids.

**Evernia mesomorpha** Nyl. – on bark of **Picea abies**; a16.

**Gyalolechia flavorubescens** (Huds.) Sochting et al. – on bark of **Populus tremula**; 2, a36 (H).

**Hydropunctaria maura** (Wahlenb.) Keller, Guedan & Thüs – on siliceous rocks (m1, m5, 1, 3, 8, 13 (BG, LE, UPS L-116078, L-116023, L-116071; Andreev, 2002). The thalli of the investigated specimens are rather thick and contain brown pigment in the pseudocortex. In contrast, the similar species **H. aractina** (Wahlenb.) Orange has thinner thallus and a green to green-brown pigment (Orange 2012).

**Hypocenomyce scalaris** (Ach.) M. Choisy – on bark and lignum of **Pinus sylvestris**; 6 (H).

**Hydropunctaria maura** (Wahlenb.) Keller, Guedan & Thüs – on siliceous rocks (m1, m5, 1, 3, 8, 13 (BG, LE, UPS L-116078, L-116023, L-116071; Andreev, 2002). The thalli of the investigated specimens are rather thick and contain brown pigment in the pseudocortex. In contrast, the similar species **H. aractina** (Wahlenb.) Orange has thinner thallus and a green to green-brown pigment (Orange 2012).
LECANORA CIRCUMBOREALIS Brodo & Vitik. – on bark of *Salix* sp. and lignum of *Pinus sylvestris*; 6, a29 (LE).

LECANORA COMPALLENS van Herk et Aptroot – on bark of *Alnus glutinosa* and *Pinus sylvestris*; 4, 15 (LE). Thalli contain usnic acid and zeorin.

LECANORA HELICOPSIS (Wahlenb.) Ach. – on seashore granite boulders; m1, 1, 3, 13 (H; Andreev, 2002).

LECANORA HYPOPTELLA (Nyl.) Grummann – on bark of *Pinus sylvestris*; 16, 17 (LE).

LECANORA INTRICATA (Ach.) Ach. – on siliceous rocks and on lignum; m9, a10, a41 (H, UPS L-116040, sub *Acarospora fuscata*).

LECANORA MARGINATA (Schaer.) Hertel & Rambold – on siliceous rocks; m9 (LE, UPS L-116053; Andreev, 2002).

LECANORA POLYTROPA (Ehrh. ex Hoffm.) Rabenh. – on siliceous rocks, iron and rubber; m9, m12, 8, 12, 18, a6, a21, a39, a41 (BG, H, UPS L-116039; Andreev, 2002).

LECANORA PULICARIS (Pers.) Ach. – on bark of *Alnus glutinosa*, *Betula* sp., *Picea abies*, *Pinus sylvestris*, *Salix* sp. and *Sorbus aucuparia*, on lignum; m4, 6, 10, 11, 14, 16–19, a10, a26, a29 (H; Andreev, 2002).

LECANORA RIMICOLA H. Magn. – on siliceous rocks; m10, 3, 13 (H; Andreev, 2002).

LECANORA RUPICOLA (L.) Zahlbr. – on siliceous rocks; m9, 12 (BG, H, UPS L-116038; Andreev, 2002).

LECANORA SUBINTRICATA (Nyl.) Th. Fr. – on bark and lignum of *Pinus sylvestris*; 6, 18 (H).

LECANORA SYMMICTA (Ach.) Ach. – on bark of *Alnus glutinosa*, *Betula* sp., *Picea abies*, *Pinus sylvestris*, *Salix* sp., lignum of *Pinus sylvestris* and *Populus tremula*; m4, m11, 2, 6, 12, 15, 17, a29, a46 (Andreev, 2002).

LECANORA UMBRINA (Ach.) A. Massal. – on bark of *Quercus robur*; m11 (UPS L-116089, sub *Amandinea punctata*).

LECANORA VARIA (Hoffm.) Ach. – on bark of *Betula* sp. and lignum; m8, 6, a29 (H; Andreev, 2002).

LECIDEA FUSCOATRA (L.) Ach. – on siliceous rocks; m9 (BG, LE, UPS L-116041; Andreev, 2002).

LECIDEA LAPICIDA (Ach.) Ach. var. LAPICIDA – on siliceous rock; a41 (LE); var. PANTHERINA Ach. – on siliceous rocks; m3, m9, m10, m12, 12 (BG, H, LE, UPS L-116043, L-116044; Andreev, 2002).
Lecidea lithophila (Ach.) Ach. – on siliceous rocks; 7, a41 (LE).

**Lecidea nylanderi** (Anzi) Th. Fr. – on bark of Betula sp., Juniperus communis, Picea abies and Pinus sylvestris, on lignum of P. sylvestris; 7, 11, 16–18, a31, a46 (H).

Lecidea turridula Fr. – on bark and lignum of Pinus sylvestris; 16, 18, a31 (H).

**Lecidella carpatica** Körb. – on siliceous rocks; m6 (LE; Andreev, 2002).

**Lecidella elaeochroma** (Ach.) M. Choisy [incl. L. achristotera (Nyl.) Hertel & Leuckert] – on bark of Acer platanoides, Alnus glutinosa, Betula sp., Fraxinus excelsior, Padus avium, Populus tremula, Quercus robur and Sorbus aucuparia; m11, 1, 2, 15, 19, a36 (H, LE, UPS L-116083, L-116086; Andreev, 2002).

**Lecidella flavosorediata** (Vėzda) Hertel et Leuckert – on bark of Alnus glutinosa; 15, a21 (LE). Thalli contain arthothelin.

**Lecidella stigmataea** (Ach.) Hertel & Leuckert – on concrete and siliceous rock; a6, a41 (LE).

**Lepraria borealis** Loht. et Tønsberg – on siliceous rocks; 7, a39 (LE). Thalli contain atranorin and roccellic/angardhianic acid.

**Lepraria elobata** Tønsberg – on bark of Alnus glutinosa, Picea abies, Pinus sylvestris and Sorbus aucuparia, on lignum of Salix caprea; 11, 14, 15, 17–19, a26, a49 (H, LE). Thalli contain atranorin, zeorin and stictic acid complex.

**Lepraria incana** (L.) Ach. – on bark of Picea abies and Pinus sylvestris, on lignum of Salix caprea and on upturned roots; 11, 14, a27, a48 (H, LE). Thalli contain atranorin, zeorin and divaricatic acid.

**Lepraria jackii** Tønsberg – on bark of Picea abies, Pinus sylvestris and Juniperus communis, on upturned roots; m2, 11, 16, 17, 19, a34, a49 (LE). Thalli contain atranorin, roccellic/angardhianic, jackinic/rangiformic and norjackinic/norrangiformic acids.

**Lepraria lobificans** Nyl. – on bark of Picea abies; 11, 14, a50 (LE).

**Lepraria membranacea** (Dicks.) Vain. – on siliceous rocks; 7, a28, a37 (LE). Thalli contain pannaric acid and fatty acids.

**Lepraria neglecta** (Nyl.) Lettau – on siliceous rocks and saxicolous mosses; 7, 18 (H, LE). Thalli contain alectorialecular and roccellic/angardhianic acids.

**Leptorhaphis atomaria** (Ach.) Szatala – on bark of Populus tremula; a36 (LE).

**Leptorhaphis epidermidis** (Ach.) Th. Fr. – on bark of Betula sp.; a29, a33 (LE).

**Lichenoniium erodens** M. S. Christ. & D. Hawksw. – on thalli of Parmelia aphalodes subsp. discordans, Hypogymnia physodes and Imshaugia aleurites; 5, a37, a46 (BILAS).

**Lichenodiopsis lecanorae** (Vouaux) Dyko & D. Hawksw. – on apothecia and thallus of Athalia holocarpa; 1, 13 (H).

**Lichenosphagia umbellifera** (L.: Fr.) Redhead et al. – on lignum, soil; 18, a44 (H).

**Melanelia hepaticina** (Ach.) A. Thell – on siliceous rocks; m9, 12 (LE; Andreev, 2002). Red Data Book of LR (Tzvelev, 2000).

**Melanelia stygia** (L.) Essl. – on siliceous rocks; m9, 7, 12, a9 (LE; Andreev, 2002). Red Data Book of LR (Tzvelev, 2000).

**Melanelia fuliginosa** (Fr. ex Duby) O. Blanco et al. – on siliceous rocks; 3, 7, 8, 15, a43, a47 (H).

**Melanelia glabrata** (Lamy) Sandler & Arup – on bark of Alnus glutinosa and Picea abies; 15, a46 (H).

**Melanelia subaurifera** (Nyl.) O. Blanco et al. – on bark of Quercus robur; 1 (LE).

**Melanohelea exasperata** (Nyl.) O. Blanco et al. – on bark of Alnus sp., Salix sp. and Pinus sylvestris; m4, 5, 6, 10, 12, a29 (UPS L-116075; Andreev, 2002).

**Melanohelea olivacea** (L.) O. Blanco et al. – on bark of Pinus sylvestris and Sorbus aucuparia; m4, 12 (BG, LE; Andreev, 2002).

**Micarea botryoides** (Nyl.) Coppins – on bark of Pinus sylvestris; 11 (LE). New to LR. Distribution in North-Western European Russia outside LR and SPb: Republic of Karelia (Fadeeva et al., 2007). In Russia also known from Kaliningrad region (Czarnota, 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Lithuania (Motiejūnaitė, 1999). Differs from other species by black stalked pycnidia with walls dull greenish to olive-brown in squash preparation, K- or K+ green intensifying (Coppins, 1983; Czarnota, 2007).

**Micarea byssacea** (Th. Fr.) Czarnota et al. – on bark of Picea abies and Pinus sylvestris, on lignum of Picea abies; 11, 16, a23 (LE). New to Russia. Distribution in Fennoscandia and Baltic countries: Sweden, Finland (Nordin et al., 2011), Estonia, Lithuania (Czarnota,
Guzow-Krzemińska, 2010). Thalli contain methoxymicareic acid. Differs from *Micarea micrococca* by darker apothecia containing “sediformia grey” pigment (K+ violet) in ephymenum and thallus formed by gonictsysts. Sometimes *M. byssacea* develops pale apothecia, but unlike *M. micrococca* they are usually adnate (Czarnota, Guzow-Krzemińska, 2010).

**Micarea denigrata** (Fr.) Hedl. – on lignum; a10 (H).

**Micarea melaeina** (Nyl.) Hedl. – on bark of *Pinus sylvestris*; 11.

**Micarea micrococca** (Körb.) Gams ex Coppins – on bark of *Picea abies* and *Pinus sylvestris*, on lignum; 11, 14, 16, 18, 19, a18 (H, LE).

**Micarea nitschkeana** (J. Lahm ex Rabenh.) Harm. – on bark of *Betula* sp.; a29 (H).

**Micarea peliocarpa** (Anzi) Coppins & R. Sant. – on soil; a44 (H).

**Miriquidica deusta** (Stenh.) Hertl & Rambold – on siliceous rocks; 7 (LE).

**Miriquidica griseoatra** (Flot.) Hertl & Rambold – on siliceous rocks; a41 (LE). New to LR.

Distribution in North-Western European Russia outside LR and SPb: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia: Norway, Sweden, Finland (Nordin et al., 2011); not recorded in Baltic countries. Thallus consists of grey-brown to dark bluish grey, rounded convex areoles; apothecia black, sessile, 9–13(–14) × (4–)5–7 μm. Similar to *Miriquidica leucopephae* (Flörke ex Rabenh.) Hertl & Rambold, from which differs in the darker coloured matt and more frequently lobate areoles (Gjersoe et al., 2009).

**Montanellia disjuncta** (Erichsen) Divakar et al. – on siliceous rocks; m5, m10, 8, 12, a41 (H, LE; Andreev, 2002).

**Myriolecis dispersa** (Pers.) Śliwa et al. – on brick, calcareous stone and concrete; m12, a6 (LE; Andreev, 2002).

**Myriolecis hagenii** (Ach.) Śliwa et al. – on bark of on bark of *Alnus* sp., *Populus tremula*, *Quercus robur* and *Sorbus aucuparia*, on bones; m4, 1, 2, 19, a14 (H, LE).

**Myriolecis salina** (H. Magn.) Śliwa et al. – on siliceous rocks; m3, m5, m10 (UPS L-116028; Andreev, 2002).

**Myriolecis semipallida** (H. Magn.) Śliwa et al. – on bones and concrete; a6, a14 (H).

**Myriospora smaragdula** (Wahlenb. ex Ach.) Nägeli ex Ulloth – on siliceous rocks; 4 (H).

**Naetrocymbe punctiformis** (Pers.) R. C. Harris – on bark of *Alnus glutinosa*, *Betula* sp., *Populus tremula* and *Sorbus aucuparia*; m4, m11, 2, 15, 19, a22 (H; Andreev, 2002). Collected from Tuters (no exact locality) by Brenner, 25.07.1868 (H 8005168).

**Ochrolechia androgyna** (Hoffm.) Arnold – on bark of *Picea abies* and on dead mosses over rock; 14, a45 (LE). Thalli contain lecanoric acid, gyrophoric acid and “androgyna B-unknowns” 1, 2, 3 (see Kukwa, 2011).

**Ochrolechia arborea** (Kreyer) Almb. – on bark of *Pinus sylvestris*; 17 (LE). Thallus contains lecanoric, gyrophoric acids and lichexanthone.

**Ochrolechia microstictoides** Räsänen – on bark of *Betula* sp., *Picea abies* and *Pinus sylvestris*, on lignum of *Pinus sylvestris*; 6, 11, 17, 18 (H, LE). Thalli contain variolaric acid, lichesterinic acid and “microstictoides-unknowns” (see Kukwa, 2011).

**Opegrapha vulgaris** (Ach.) Ach. – on bark of *Picea abies*; 11, 14 (H).

**Pachyphiale fagicola** (Hepp) Zwackh – on bark of *Acer platanoides*, *Populus tremula*, *Quercus robur* and *Sorbus aucuparia*; m11, 1, 19, a36 (H; Andreev, 2002).

**Palicella filamentosa** (Stirt.) Rodr. Flakus & Printzen – on lignum; 6, a10 (H).

**Parnelia ernstiae** Feuerer & A. Thell – on bark of *Alnus glutinosa* and *Quercus robur*, 1, 15 (H, LE). New to the North-Western European Russia. In European Russia is known from Caucasus (Urbanavichus & Urbanavichene, 2008). Distribution in Fennoscandia and Baltic countries: Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2016), Lithuania (Motiejūnaitė et al., 2008). Corticolous species close to *P. saxatilis* and *P. serrana*, from which differs by partly pruinose lobes and pruinose isidia typically spread over the surface in the central parts of a thallus (Thell et al., 2011).

**Parnelia omphalodes** (L.) Ach. subsp. discordans (Nyl.) Skult – on siliceous rocks; m12, 7, a37, a41, a43, a45 (H; Andreev, 2002). Collected from Tuters (no exact locality) by Brenner, 28.07.1868, det. H. Skult, 1983 (H 8000439, 8000440).

**Parnelia saxatilis** (L.) Ach. – siliceous rocks, also on bark and lignum of *Picea abies* and
Pinus sylvestris along the seashore; m4–6, m9, m12, 2, 4, 7, 8, 11, 12, 15, 18, a10, a11, a41, a45 (BG, H, LE, UPS L-116049, L-116074; Andreev, 2002).

Parneliosis amara (Ach.) Nyl. – on bark of Alnus glutinosa, Picea abies, Pinus sylvestris, Quercus robur, Salix sp. and Sorbus aucuparia, on lignum of Populus tremula and on siliceous rocks; m4, m11, 1, 2, 10–12, 14, 15, 17, a29, a46 (H; Andreev, 2002).

Parneliosis ambigua (Wulfen) Nyl. – on bark of Alnus glutinosa, Betula sp., Picea abies and Pinus sylvestris, on lignum; m6, 6, 7, 11, 15–18, a10 (Andreev, 2002).

Parneliosis hyperopta (Ach.) Arnold – on bark of Pinus sylvestris; 16–18.

Peltigera canina (L.) Willd. – on mosses and soil; m11, m14, a6, a23 (BG, H, LE; Andreev, 2002).


Peltigera extenuata (Nyl. ex Vain.) Lojka – on soil; a6 (LE).

Peltigera malacea (Ach.) Funck – on soil and mosses; a6. Collected from Tuters (no exact locality) by Brenner, 24.07.1868 (H 8000595; Brenner, 1886) and Balashova, 1993 (LECB; Alexeeva, 2005).

Peltigera polydactylon (Neck.) Hoffm. – on soil and mosses over rock; a47 (LE). Reported from Tuters (no exact locality) by Brenner (1886), as P. polydactyla (Neck.) Hoffm. f. collina Ach. This combination could be a synonym of P. collina (Ach.) Schrad., but this species is extremely rare in the Leningrad Region, and any material from Tuters is absent in herbaria. At the same time, the only specimen collected by Brenner from the Baltic islands and determined as P. polydactyla f. collina (H-NYL 33132, Hogland) refer to P. polydactylon – and we suppose Brenner’s record from Tuters to be similar.

Peltigera praetextata (Flörke ex Sommerf.) Zopf – on soil; m2 (BG, LE; Andreev, 2002).

Peltigera rufescens (Weiss) Humb. – on soil; a6. Collected from Tuters (no exact locality) by Balashova, 1993 (LECB; Alexeeva, 2005).

Pertusaria amara (Ach.) Nyl. – on bark of Alnus glutinosa; a26 (H).

Pertusaria pertusa (Weigel) Tuck. – on bark of Alnus glutinosa; a26 (H). Specialized spe-

cies of biologically valuable forests in the Southern Taiga of North-Western European Russia (Andersson et al., 2009).

Pertusaria pupillaris (Nyl.) Th. Fr. – on bark of Alnus glutinosa and Sorbus aucuparia; 14, 15, 19 (H, LE). Thalli contain fumarproteoc- tic acid.

Phaeophyscia orbicularis (Neck.) Moberg – on bark of Populus tremula; 2.

Phaeophyscia sciastra (Ach.) Moberg – on concrete and on granite boulders; m1, m12, 1, a52 (Andreev, 2002).

Phlyctis argena (Spreng.) Flot. – on bark of Alnus glutinosa, Picea abies, Populus tremula, Salix caprea and Sorbus aucuparia; m4, 2, 11, 15, 19, a21, a26 (BG, LE; Andreev, 2002).

Physcia adscendens (Fr.) H. Olivier – on bark of Populus tremula and on siliceous rocks; 2. Collected from Tuters (no exact locality) by Balashova, 1993 (LECB; Alexeeva, 2005).

Physcia aipolia (Ehrh. ex Humb.) Führnr. – on bark of Pinus sylvestris and Populus tremula; 2, 12.

Physcia caesia (Hoffm.) Führnr. – on concrete and on siliceous rocks; 1, 3, 8, a52 (LE).

Physcia dubia (Hoffm.) Lettau – on bark of Pinus sylvestris and Quercus robur, on siliceous rocks; m3, m5, m9, m11, 2–4, 13 (BG, LE; UPS L-116052; Andreev, 2002).

Physcia stellaris (L.) Nyl. – on bark of Fraxinus excelsior and Quercus robur; m4, m11 (UPS L-116085; Andreev, 2002).

Physcia tenella (Scop.) DC. – on bark of Alnus glutinosa, Populus tremula and Quercus robur, on siliceous rocks; m5, m11, 1, 2, 4, 8, 15 (BG, LE; UPS L-116088, L-116027; Andreev, 2002).

Physconia enteroxantha (Nyl.) Poelt – on bark of Populus tremula; a36.

Placynthiella dasaea (Stirt.) Tønsberg – on lignum, plant debris and soil; 6, 7, 16, 18, a7, a23 (LE).

Placynthiella icmalea (Ach.) Coppins & P. James – on bark and lignum of Pinus sylvestris, on plant debris, soil and upturned roots; 6, 7, 10, 11, 16–18, a7, a37 (H).

Placynthiella oligotropha (J. R. Laundon) Coppins & P. James – on plant debris, soil and upturned roots; 5–7, 10, 12, a16, a25 (H, LE).

Placynthiella uliginosa (Schrad.) Coppins & P. James – on plant debris, soil and upturned roots; 7, 11, 12 (H).

Platismatia glauca (L.) W. L. Culb. & C. F. Culb. – on bark and lignum of Picea abies and
Pinus sylvestris; m2, m7, m8, 6, 7, 11, 14 (BG, LE; Andreev, 2002).

Pleoctocarpus cf. Encausticum (Nyl.) R. Sant. – on thallus of Brodoa intestiniformis on siliceous rock; a37 (BILAS). New to the North-Western European Russia. In Russia the species is known from Ural (Ertz et al., 2005). Distribution in Fennoscandia: Norway, Sweden (Nordin et al., 2011); not recorded in Baltic countries. This would be first record of the species for North-Western European Russia, however the specimen was not fully developed so we present it here with some doubt. The fungus induced basally constricted galls (to 0.8 mm diam.) with thalline pseudo-margin. Stromatic tissue brown, K+ olivaceous, N+ reddish, no K+ bright orange reaction noted, as described by Ertz et al. (2005). Fertile loculi few, spores not developed, conidia not seen.

Polycaulina Candelaria (L.) Frödén et al. – on lignon of Pinus sylvestris and on siliceous rocks; m9, 1, 6, a11 (H; Andreev, 2002).

Polycaulina Polycarpa (Hoffm.) Frödén et al. – on bark of Alnus glutinosa, Alnus sp., Betula sp., Pinus sylvestris, Quercus robur and Salix sp., on lignon (m4, m8, m11, 4–6, 12, 15, a29 (UPS L-116036; Andreev, 2002).

Polycoccum pulvinatum (Eitner) R. Sant. – on thallus of Physcia caesia on granite boulder; 1 (H).

Porpidia cinereoatra (Ach.) Hertel & Knoph – on siliceous rocks and brick; 18, a6, 39 (LE).

Porpidia crustulata (Ach.) Hertel & Knoph – on concrete and siliceous rocks; m9, a6, a30, a39 (UPS L-116042; Andreev, 2002).

Porpidia Flavicunda (Ach.) Gowán – on siliceous rocks; m2 (Andreev, 2002).

Porpidia soredizodes (Lamy ex Nyl.) J. R. Laundon – on siliceous rocks; 4 (H).

Porpidia Tuberculosa (Sm.) Hertel & Knoph – on siliceous rocks; 15 (H).

Protoparmelia Badia (Hoffm.) Hajfíllner – on siliceous rocks; m9, 12 (H, UPS L-116040; Andreev, 2002).

Protothemenella Spininctroideella (Nyl.) H. Mayrhofer & Poelt – on dead mosses and cyanobacterial films; a38 (H).

Pseudovernia Furfuracea (L.) Zopf – on bark of Picea abies, Pinus sylvestris and Salix sp., on lignon and siliceous rocks; m6–9, 5–8, 10–12, 14, 17, 18, a29, a46 (BG, LE, UPS L-116035; Andreev, 2002).

Pseudosagedia Aenea (Wallr.) Hafíllner & Kalb – on bark of Picea abies, Salix caprea, Sorbus aucuparia; 11, 14, a23 (H).

Pseudosagedia Chlorotica (Ach.) Hafíllner & Kalb – on siliceous rocks; 4, a23 (H).

Pseudoschismatoma Rufescens (Pers.) Ertz & Tehler – on bark of Alnus glutinosa, Populus tremula; 2, 19, a26 (H).

Psilocheia Lucida (Ach.) M. Choisy – on siliceous rocks; a37 (LE).

Pycnora Praestabilis (Nyl.) Hafíllner – on lignum of Pinus sylvestris; a31 (H).

Pycnora Sorophora (Vain.) Hafíllner – on bark of Juniperus communis, Picea abies and Pinus sylvestris, on lignon of Pinus sylvestris; 6, 7, 11, 17, 18, a31, a46 (H, LE). Thalli contain alectorialic acid.

Ramalina Farinacea (L.) Ach. – on bark of Alnus glutinosa, Populus tremula and Quercus robur; m4, 1, 2, 15 (H; Andreev, 2002).

Ramalina Fraxinea (L.) Ach. – on bark of Quercus robur; m11 (LE, sub Ramalina pollinaria – det. O. A. Kataeva).

Ramalina Pollinaria (Westr.) Ach. – on bark of Alnus glutinosa and Quercus robur; m4, m11 (BG, LE; Andreev, 2002).

Ramalina Siliquosa (Huds.) A. L. Sm. – not found in 1994–2015. Collected from Tuters (siliceous rocks, no exact locality) by Brenner, 24.07.1968 [H 8003430, 8003431; Brenner 1886, as Ramalina cuspidata (Ach.) Nyl., R. scopulorum auct. p. p.].

Ramalina Subfarinacea (Nyl. ex Cromb.) Nyl. – on siliceous rocks; 8, a41, a42, a48 (H).

Rhizocarpus Cinereovirens (Müll. Arg.) Vain. – on siliceous rocks; a48 (H).

Rhizocarpus Distinctum Th. Fr. – on siliceous rocks; m12 (UPS L-116095; Andreev, 2002).

Rhizocarpus Eupetraeum (Nyl.) Arnold – on siliceous rocks; a12 (BILAS, sub Arctoparmelia centrifuga).

Rhizocarpus Geographicum (L.) DC. – on siliceous rocks; m3, m6, 7, 12, a41, a43 (BG, H, LE, UPS L-116070; Andreev, 2002).

Rhizocarpus Hochstetteri (Körb.) Vain. – on siliceous rocks; a30 (H).

Rhizocarpus Lecanorinum Anders – on siliceous rocks; m6, m9, m11, 7, a9, a12, a41 (BG, LE, UPS L-116068; Andreev, 2002).

Rhizocarpus Petraeum (Wulfen) A. Massal. – on brick; a6 (LE).

Rhizocarpus Polycarpum (Hepp) Th. Fr. – on brick; a6 (LE).
Rhizocarpus reductum Th. Fr. – on siliceous rocks; a39 (LE).
Rhizocarpus richardii (Lamy ex Nyl.) Zahlbr. – on siliceous rocks; m1, m5, m10, 3, 8, 13, a48 (BG, H, LE, UPS L-116024, L-116063; Andreev, 2002).
Rimularia furrvella (Nyl. ex Mudd) Hertel & Rambold – on siliceous rocks and saxicolous lichens; 12 (H).
Rinodina gennarii Bagl. – on brick, concrete and siliceous rocks, once on lignum of *Pinus sylvestris*; m12, 3, 6, 13, a6 (H, UPS L-116094; Andreev, 2002).
Rinodina pyrina (Ach.) Arnold – on bark of *Quercus robur* and on iron; m11, 3 (LE; Andreev, 2002).
Rinodina sophodes (Ach.) A. Massal. – on bark of *Sorbus aucuparia*; m4 (LE; Andreev, 2002).
Ropalospora viridis (Tønsberg) Tønsberg – on bark of *Alnus glutinosa* and *Sorbus aucuparia*; 11, 15, 19, a26 (H).
#Roselliniella cladoniae (Anzi) Matzer & Hafellner – on thallus of *Cladonia arbuscula* subsp. *mitis* on soil; 18 (BILAS). New to North-Western European Russia. The nearest locality in European Russia is in Murmansk region (Zhurbenko & Alstrup, 2004). Distribution in Fennoscandia and Baltic countries: Sweden (Nordin et al., 2011), Estonia (Randlane et al., 2016), Lithuania (Motiejūnaitė et al., 2003). Of all peritheciod fungi occurring on *Cladonia*, Roselliniella cladoniae is distinguished by dark brown (at maturity) simple to 1–4-septate (0–1-septate in our specimens) ascospores of varying shape, 2–8-spored asci and immersed to sessile ovoid perithecia with rough wall and free hyphae when mature (Zhurbenko & Alstrup, 2004).
#Roselliniella stereocaulorum Zhurb., Kukwa & Oset – on thallus of *Stereocaulon cf. glareosum* on soil; 5. New to European Russia. The species is known in Europe from Poland, in Russia from Baikal Siberia and Yakutia (Oset, 2014; Zhurbenko, 2010), but is not recorded in Fennoscandia and Baltic countries. The fungus is characterised by consistently 4-spored asci (when mature), simple ascospores with distinct apical nodules and the host choice – genus Stereocaulon (Zhurbenko et al., 2009; Zhurbenko, 2010).
Sarcogyne hypophaeoides Vain. ex H. Magn. – on siliceous rocks; 7 (H). New to Russia. Distribution in Fennoscandia: Norway, Sweden, Finland (Westberg et al., 2015); not recorded in Baltic countries. Crustose saxicolous lichen with immersed thallus, apothecia 0.5–1.2 mm wide, with reddish-brown to black disc, sometimes carbonized in central part. Can be distinguished from similar species – *S. clavus* (DC.) Kremp. and *S. hypophaeoides* (Nyl.) Arnold – by dark, brownish black to black hypothecium. *S. hypophaeoides* grows exclusively on siliceous rocks (Westberg et al., 2015).
+ Sarea resinæ (Fr.: Fr.) Kuntze – on resin of *Picea abies*; 14 (H).
Schaereria fuscocinerea (Nyl.) Clauzade & Cl. Roux – on siliceous rocks; m5, m6, m10, 7, a48 (BG, H, LE, UPS L-116022, L-116065; Andreev, 2002).
Scolicosporum chlorococcum (Graewe ex Stenh.) Vèzda – on bark of *Alnus glutinosa*, *Betula* sp., *Picea abies*, *Pinus sylvestris*, *Populus tremula* and *Quercus robur*, on lignon of *Pinus sylvestris*; m4, 1, 2, 4–7, 11, 12, 15, 12a9 (H; Andreev, 2002).
Scolicosporum sarothamni (Vain.) Vèzda – on bark of *Betula* sp., *Juniperus communis*, *Picea abies*, *Pinus sylvestris*, *Quercus robur*, *Salix* sp. and *Sorbus aucuparia*, on lignon of *Pinus sylvestris*; 1, 5–7, 10–12, 17, 18, a29 (LE).
Scolicosporum umbrinum (Ach.) Arnold – on iron and siliceous rocks; m3, m5, m10, 4, 13, 18 (BG, H, LE, UPS L-116046, L-116064; Andreev, 2002).
#Sphaerellothecium propinquellum (Nyl.) Cl. Roux & Triebel – on apothecia of *Lecanora carpinea* on bark of *Populus tremula*; 1, 2 (BILAS).
Sphaerophorus fragilis (L.) Pers. – on soil; 10 (LE).
Stereocaulon alpinum Laurer – on soil; m15, 5, 9, 12, a3 (H). Collected from Tuters (no exact locality) by Brenner, 25.07.1868 (H s. n., as *S. alpinum* Laurer var. *gracilentum* Th. Fr.; H 8003531).
Stereocaulon glareosum (L. I. Savicz) H. Magn. – on sand; 5, 6, 10, 12, a16 (H).
Stereocaulon incrustatum Flörke – on sand; m8, 5, 9 (H, UPS L-116060; Andreev, 2002).
STEREOCAULON NANODES Tuck. – on iron; a32 (H).
New to LR. Distribution in North-Western European Russia outside LR and SPb: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia: Norway, Sweden, Finland (Nordin et al., 2011); not recorded in Baltic countries. Can be recognized due to the persistent, ascending to erect fan-shaped phyllocladia with soredia on lower surface. Pseudopodetia are to 1 cm tall, sparingly branched, the branches flattened, sorediate below (Oset, 2014).

STEREOCAULON RIVULORUM H. Magn. – on sand; m8 (UPS L-116030; Andreev, 2002).

STEREOCAULON SAXATILE H. Magn. – on iron, siliceous rocks and sand; m9, a32, a37 (BG, H, LE; Andreev, 2002).

STEREOCAULON TOMENTOSUM Fr. – on sand; m9 (UPS L-116037; Andreev, 2002). Reported from Tuters (no exact locality) by Brenner (1886).

STRANGOSPORA Moriformis (Ach.) Stein – on thallus of Physcia sp. on granite boulder; 4 (BILAS).

TEPHROMELA ATRA (Huds.) Hafellner – on siliceous rocks, brick and lignum; m1, m5, m9, m10, 8, 13, a6, a10, a43, a48 (BG, H, LE, UPS L-116062; Andreev, 2002).

TRAPELIOPSIS FLEXUOSA (Fr.) Coppins & P. James – on bark and lignum of Pinus sylvestris; 6, 7, 16–18, a31 (H).

TRAPELIOPSIS GRANULOSA (Hoffm.) Lumbsch – on soil; 7, 10.

#SYZYGOSPORA PHYSCIACEARUM Diederich – on thallus of Physcia sp. on granite boulder; 4 (BILAS).

UMBILICARIA POLYHYLLA (L.) Baumg. – on siliceous rocks; m9, 7, 12, a40, a41, a43 (H; Andreev, 2002).

UMBILICARIA POLYRRHIZA (L.) Fr. – on siliceous rocks; a38, a40 (H). Red Data Book of LR (Tzvelev, 2000).

UMBILICARIA TORREFACTA (Lightf.) Schrad. – on siliceous rocks; m9, 7, 12, a41, a43, a48 (BG, H, LE; UPS L-116051; Andreev, 2002).

USNEA HIRTA (L.) F. H. Wigg. – on lignon of Pinus sylvestris; 6 (H).

VERRUCARIA MURALIS Ach. – on concrete; a6 (LE).

VIOLELLA FUCATA (Stirt.) T. Sprib. – on bark and lignum of Pinus sylvestris; 11, 17 (LE). Thalli contain atranorin and fumarprotocetraric acid.

VULPICIDA PINASTRI (Scop.) J.-E. Mattsson & M. J. Lai – on bark of Picea abies, Pinus sylvestris and Vaccinium myrtillus; 7, 11, 18, a29.

XANTHOMENDOZA FULVA (Hoffm.) Seichting et al. – on lignon of Pinus sylvestris; 6 (LE).

XANTHOPARMELIA CONSPERSA (Ehrh. ex Ach.) Hale – on siliceous rocks, soil and sand; m9, 4, 7, 8, 12, 15, a41 (BG, H, LE; UPS L-116048; Andreev, 2002).

XANTHOPARMELIA PULLA (Ach.) O. Blanco et al. – on siliceous rocks; m3, m5, m6, m9, 3, 8, 12, 13 (H; Andreev, 2002). Red Data Book of LR (Tzvelev, 2000).

XANTHOPARMELIA STENO PHYLLA (Ach.) Ahti & D. Hawksw. – on siliceous rocks, soil and sand; m9, 12 (H, UPS L-116047; Andreev, 2002).

XANTHOPARMELIA VERRUCULIFERA (Nyl.) O. Blanco et al. – on siliceous rocks; m5 (Andreev, 2002).

XANTHORIA AUREOLA (Ach.) Erichsen – on siliceous rocks; m5 (UPS L-116020; Andreev, 2002).

XANTHORIA PARIETINA (L.) Th. Fr. – on bark of Padus avium, Populus tremula and Quercus robur, on brick, concrete, iron, siliceous rocks and once on soil; m11, 1–3, 8, 13, 19, a6, a52 (BG, LE; Andreev, 2002).

XYLOGRAPHA OPEGRAPHHELLA Nyl. ex Rothr. – on lignon; a10, a19 (H).

XYLOPSORA CARADOCENSIS (Nyl.) Bendiksys & Timdal – on lignon of Pinus sylvestris; 6, a31 (H).

XYLOPSORA FRIESII (Ach.) Bendiksys & Timdal – on bark of Pinus sylvestris; 16 (LE).

Excluded taxa

CLADONIA PORTENTOSA (Dufour) Coem. (Andreev, 2002; Alexeeva, 2005). The specimen belongs to C. arbuscula subsp. mitis.
**Cetraria odontella** (Ach.) Ach. (Brenner, 1886).

The specimen belongs to *C. muricata*.

**Lecanora persimilis** (Th. Fr.) Nyl. (Andreev, 2002; Alexeeva, 2005). The specimen belongs to *M. hagenii*.

**Lepraria caesioalba** (B. de Lesd.) J. R. Laundon (Andreev, 2002). The specimen belongs to *L. jackii*.

**Physcia leptalea** (Ach.) DC. (Andreev, 2002; Alexeeva, 2005). The specimen is too small for the convinced identification, similar to *P. stellaris*.

**DISCUSSION**

The currently known lichen biota of Tuters Island comprises altogether 331 species, including 314 lichenized, 16 lichenicolous and one non-lichenized saprobic fungi. Of them, *Aspicilia epiglypta*, *Fuscidea praeruptorum*, *Micarea byssacea* and *Sarcogyne hypophaeoides* are reported for the first time for Russia, *Roselliniella stereocaulorum* – for European Russia, *Aspicilia polychroma*, *Carborea vorticosa*, *Cercidiospora stereocaulorum*, *Cladonia ciliata f. flavicans*, *C. rangiformis*, *Parmelia ernstiae*, *Plectocarpon cf. encausticum* and *Roselliniella cladoniae* – for North-Western European Russia; *Bachmanniomyces uncialicola*, *Bacidina sulphurella*, *Micarea botryoides*, *Miriquidica griseoatra* and *Stereoaulon nanodes* are new to the Leningrad Region. Altogether 202 species are new for the Tuters Island.

Almost all the listed species are present on Tuters Island nowadays (recorded since 1992), two species were collected by Brenner only: *Ramarina siliquosa* and *Sphaerophorus globosus*. Both are known in Leningrad Region also from Hogland Island (Brenner, 1886), but all records are from 19th century. The species might have disappeared during the war: the strongest artillery batteries were situated along the shoreline, so the surface of the rocks could be damaged.

The majority of 329 species recorded nowadays on Tuters Island inhabit bark of trees and shrubs (133 species, 40% of lichen biota) and siliceous rocks (113 species, 34%); rather diverse are lichens also on lignum (74 species, 23%) and soil (71 species, 22%). Among phorophytes, the richest in species are pine (57 lichen species), spruce (47 species), black alder (41 species) and aspen (29 species). Lignicolous lichens were found both on natural wood (51 species) and on transformed substrata – timber of old war constructions (36 species) and driftwood (11 species, including some normally saxicolous lichens, such as *Parmelia saxatilis* and *Tephromela atrata*).

Most diverse are lichens in rocky landscapes: 158 species (48% of lichen biota) were recorded on rocky seashores and granite ridges in the western and northwestern parts of the island. Many species distributed along Tuters seashores are rare or not recorded in other parts of the Leningrad Region. For example, coastal foliose lichen *Anaptychia runcinata* was earlier known in LR only from Hogland Island (H, collected up to 1939); saxicolous crustose lichens *Aspicilia epiglypta*, *Fuscidea praeruptorum* and *Sarcogyne hypophaeoides* are recorded for the first time for Russia. Lichens of the dune area (eastern part of the island) are represented by 124 species (38% of lichen biota). *Cladonia ciliata f. flavicans* finding on Tuters is the easternmost locality of this species in Europe. *Calicum tigillare* was found on old timber fence on dune; this species became rare in NW European Russia and now deserves protection. Lichens in abandoned village and other anthropogenic landscapes are also diverse (105 species, 32%), as well as seashores with big boulders (105 species, 32%). Of special interest are lichens of spruce forests situated in the northern part of Tuters. Altogether 72 species (22%) of lichens and allied fungi were found in relatively old-growth spruce stands; among them, *Arthonia spadicea*, *Chaeothecea stemonea*, *Felipes leucopellaeus*, *Lecanactis abietina* are indicator or specialized species of biologically valuable forests in Southern Taiga of North-Western European Russia (Andersson et al., 2009). The lichens in other natural communities of Tuters Island (pine forests outside rocks and dunes, black alder stands, bogs etc.) are in general not so diverse and specific.

Altogether eleven species known from Tuters Island are included in the Red Data Book of Nature of the Leningrad Region (Tsvelev, 2000): *Arctoparmelia centrifuga*, *A. incurva*, *Brodoa intestiniformis*, *Cetrariella commixta*, *Cladonia macrophysilla*, *Melanelia hepaticon*, *M. stygia*, *Ramarina fraxinea*, *Umbilicaria hyperborea*, *U. polyrrhiza*, *Xanthoparmelia pulla*, most of them are saxicolous and confined to the rocky outcrops. Additionally, 9 species are recommended to be included into the new edition of the Red Data Book of Leningrad Region: *Acrocradia cavata*, *Aspicilia epiglypta*, *Fuscidea praeruptorum* and *Sarcogyne hypophaeoides*.
Arthonia spadicea, Calicium tigillare, Cladonia scabriuscula, Felipes leucopellaeus, Lasallia pus-tulata, Lecanactis abietina, Pertusaria pertusa, Sphaerophorus fragilis.

To sum up, on Tuters Island rich and diverse lichen biota is relatively well-preserved, and it is worthy to be protected.

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