

The lichens and allied fungi of the Gladyshevskiy Protected Area (Saint Petersburg)

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Abstract. Gladyshevskiy regional protected area has been investigated at the limits of Saint Petersburg (Russia; biogeographical province *Isthmus karelicus*). This territory is valuable for Roschinka River ecosystems and natural forest landscapes. The current study is based on lichen data collected by authors within 2005–2013 and on historical herbarium of A. O. Kihlman (collected in 1893, includes 53 species). Altogether 310 species of lichen-forming, lichenicolous and non-lichenized fungi are reported from the protected area, among them historical collections of 20 species that were not found within the area nowadays. *Caloplaca albolutescens* (Nyl.) H. Olivier is published for the first time for European Russia (excluding Caucasus) and 25 species are new to St. Petersburg. The data on localities, habitat use and substratum use of *Arthonia subfuscicola* (Linds.) Triebel, *Chaenotheca subroscida* (Eitner) Zahlbr., *Chaenothecopsis viridialba* (Kremp.) Alb. Schmidt and *Schismatomma pericleum* (Ach.) Branth et Rostr. are for the first time provided for St. Petersburg. Altogether 14 indicator species and habitat specialists of biologically valuable forests are known from the area, but seven of them — *Chaenotheca subroscida*, *Chaenothecopsis viridialba*, *Microcalicium disseminatum* (Ach.) Vain., *Nephroma parile* (Ach.) Ach., *N. resupinatum* (L.) Ach., *Ramalina thrausta* (Ach.) Nyl. and *Schismatomma pericleum* — are known from historical data only and can be considered extinct from St. Petersburg. Also 14 species included in the Red Data Book of St. Petersburg (Prilozhenie..., 2014) are reported from Gladyshevskiy protected area, seven of them still present there: *Anaptychia ciliaris* (L.) Körb., *Bacidia rubella* (Hoffm.) A. Massal., *Cladonia norvegica* Tønsberg et Holien, *C. stellaris* (Opiz) Pouzar et Vězda, *Leptogium teretiusculum* (Wallr.) Arnold, *Montanella soreidiata* (Ach.) Divakar et al. and *Umbilicaria polyphylla* (L.) Baumg.

Keywords: lichens, new records, red listed species, *Caloplaca albolutescens*, Saint Petersburg, *Isthmus karelicus*, the Gladyshevskiy protected area.

Лихенофлора заказника «Гладышевский» (Санкт-Петербург)

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Резюме. Региональный комплексный заказник «Гладышевский» обследован в административных границах Санкт-Петербурга (Россия, Карельский перешеек, биогеографическая провинция *Isthmus karelicus*). Заказник организован для сохранения экосистем реки Рошинка и прилегающих естественных лесных ландшафтов. Настоящее исследование основано на коллекциях, собранных авторами в 2005–2013 гг., а также на гербарных материалах А. О. Kihlman (собраны в 1893 г., включают 53 вида). Представленный список лишайников, лишенофильных и близких к ним грибов государственного природного заказника «Гладышевский» включает 310 видов, 20 из них известны только по исторической коллекции и в ходе современных исследований не обнаружены. *Caloplaca albolutescens* (Nyl.) H. Olivier — новый вид для Европейской России (не включая Кавказ), еще 25 видов являются новыми для Санкт-Петербурга. Впервые приведены точные данные о местонахождениях, ценотической и субстратной приуроченности *Arthonia subfuscicola* (Linds.) Triebel, *Chaenotheca subroscida* (Eitner) Zahlbr., *Chaenothecopsis viridialba* (Kremp.) Alb. Schmidt и *Schismatomma pericleum* (Ach.) Branth et Rostr. в пределах города. Всего для заказника известно 14 индикаторных и специализированных видов биологически ценных лесов, однако семь из них — *Chaenotheca subroscida*, *Chaenothecopsis viridialba*, *Microcalicium disseminatum* (Ach.) Vain., *Nephroma parile* (Ach.) Ach., *N. resupinatum* (L.) Ach., *Ramalina thrausta* (Ach.) Nyl. и *Schismatomma pericleum* — известны только по историческим материалам и могут считаться исчезнувшими с территории Санкт-Петербурга. Приведены данные о 14 видах, занесенных в Красную книгу Санкт-Петербурга (Priloženie..., 2014), только для семи из них — *Anaptychia ciliaris* (L.) Körb., *Bacidia rubella* (Hoffm.) A. Massal., *Cladonia norvegica* Tønsberg et Holien, *C. stellaris* (Opiz) Pouzar et Vězda, *Leptogium teretiusculum* (Wallr.) Arnold, *Montanelia soredata* (Ach.) Divakar et al. и *Umbilicaria polyphylla* (L.) Baumg. — известны современные местонахождения в пределах заказника.

Ключевые слова: лишайники, новые находки, охраняемые виды, *Caloplaca albolutescens*, Санкт-Петербург, биогеографическая провинция *Isthmus karelicus*, заказник «Гладышевский».

The Gladyshevskiy regional protected area (*zakaznik* in Russ.) [GPA] is placed in the western seashore part of Karelian Isthmus. It refers to the *Isthmus karelicus* (Ik) — the biogeographical province of Eastern Fennoscandia. GPA was organized in 1996 to protect river ecosystems and natural forest landscapes. It consists of two separate parts, one of them is situated in Vyborg District of Leningrad Region, the other one — within the limits of Kurortny District at the NW border of Saint Petersburg. The present paper considers only the area of GPA in limits of St. Petersburg. The study area occupies 7.65 km² and is situated on the banks of the rivers Gladyshevka (Vammeljoki) and its inflow Roschinka (Raivolanjoki). Downstream of the confluence Gladyshevka is also called Chyornaya. Most part of the territory is covered by middle-aged coniferous and deciduous forests considerably disturbed by Second World War and forest management secondary. The Gladyshevka River and inflowing

brooks have moderately to deeply dissected forested valleys. The vegetation is represented mostly by Scotch pine (*Pinus sylvestris* L.), Norway spruce [*Picea abies* (L.) Karst.], pine-spruce and mixed forests with pine, spruce, common aspen (*Populus tremula* L.) and birch (*Betula* spp.). On the slopes along the rivers and brooks and on the former agricultural territories birch, grey alder [*Alnus incana* (L.) Moench], aspen and spruce stands present with admixture of willow (*Salix* spp.) and bird-cherry (*Padus avium* Mill.). Close to the Baltic shore black alder [*Alnus glutinosa* (L.) Gaertn.] and pine forests present (Atlas..., 2013).

The lichens of the GPA were very poorly investigated before 2005. The small and mainly unpublished collection of Finnish botanist and mycologist Alfred Oswald Kihlman (Kairamo) comprises ca. 50 specimens from vicinities of Serovo (former Finnish settlement Vammelsuu) collected in 1893. The specimens are kept mainly in the Herbarium of the Botanical Museum of University of Helsinki (H) and additionally (2 specimens) in the Herbarium of University of Turku (TUR-V). Separate specimens from this collection were published by E. Vainio (1922, 1927, 1934), S. Ahlner (1948) and cited by R. Alava (1988). The records of four species — *Monodictys epilepraria*, *Ochrolechia microstictoides*, *Piccolia ochrophora* and *Tremella lichenicola* — were published recently from the area (Stepanchikova et al., 2010; Kukwa, 2011, Himelbrant et al., 2013), as well as brief information (without indication of exact locality) about *Arthonia helvola*, *A. subfuscicola*, *Chaenotheca subroscida*, *Chaenothecopsis viridialba*, *Leptogium teretiusculum*, *Nephroma resupinatum*, *Schismatomma pericleum* (Stepanchikova et al., 2008) and the most common fruticose and foliose species (Stepanchikova et al., 2006; Atlas..., 2013). The aim of this paper is to present the lichen list of GPA and improve knowledge on lichen flora of Saint Petersburg.

Field studies were carried on in 2005, 2006, 2008, 2012 and 2013. Lichen diversity was investigated on 40 sample plots (mainly 20 × 20 m or within natural limits of plant community) in the typical phytocoenoses, and seven additional samples were taken in different biotopes (additional collecting points). Representative specimens are mainly deposited in the lichen herbarium of the Department of Botany of the Saint Petersburg State University (LECB); some specimens are placed in the herbaria of the Botanical Museum of University of Helsinki (H), Institute of Botany, Vilnius (BILAS) and University of Graz (GZU). Lichen substances were analyzed by standard techniques of thin-layer chromatography (TLC and HPTLC) using the solvent systems A, B and C (Orange et al., 2001). WGS 84 system was used for geographical (GPS) coordinates. The lichen nomenclature generally follows A. Nordin et al. (2011).

Abbreviations and symbols: DH — Dmitry E. Himelbrant, EK — Ekaterina S. Kuznetsova, IS — Irina S. Stepanchikova, JM — Jurga Motiejūnaitė, JP — Juha Pykälä, LK — Ludmila A. Konoreva, LKz — Lilia V. Kuzmina, MK — Martin Kukwa; * — new for St. Petersburg, # — lichenicolous fungus, (#) — facultatively lichenicolous fungus, + — non-lichenized saprobic fungus, ^s — habitat specialist and ⁱ — indicator species (see: Vyyavlenie..., 2009); fn — field number(s).

Localities. Historical: V — probably old-growth spruce forests, vicinity of Sero-vo (fin. Vammelsuu) settlement, [60°12'30" N, 29°33'00" E], 10.1893, A. O. Kihlman (H, TUR-V). **Sample plots:** **1** — sandy roadside, NW part GPA, W of Srednevyborgskoe road, 60°12'43" N, 29°30'09" E, 16.09.2005, DH, LK and IS; **2** — birch-aspens forest with grasses, central part of GPA, right bank of Chyornaya (fin. Vammeljoki) River, 60°12'04" N, 29°32'49" E, 21.09.2005, DH, LK and IS; **3** — birch-pine forest with *Calluna vulgaris* (L.) Hull, *Vaccinium myrtillus* L. and green mosses, central part of GPA, W of Chyornaya River, 60°12'09.5" N, 29°32'27" E, 21.09.2005, DH, LK and IS; **4** — old military constructions, central part of GPA, W of Chyornaya River, 60°12'12" N, 29°32'23" E, 21.09.2005, DH, LK and IS; **5** — aspens along pathway, central part of GPA, right bank of Chyornaya River, 60°12'25.2" N, 29°32'30" E, 21.09.2005, DH, LK and IS; **6** — birch forest, central part of GPA, right bank of Chyornaya River, 60°12'36" N, 29°32'20" E, 21.09.2005, DH, LK and IS; **7** — old *Salix* sp. trees on grassy glade, central part of GPA, W of Chyornaya River, 60°12'32" N, 29°31'48" E, 21.09.2005, DH, LK and IS; **8** — wayside trees, S part of GPA, E of Chyornaya River, near Primorskoe road, 60°11'54" N, 29°33'12" E, 25.09.2005, DH, LK and IS; **9** — wayside trees, S part of GPA, path along seashore E of Chyornaya River mouth, 60°11'40" N, 29°33'29" E, 25.09.2005, DH, LK and IS; **10** — wooden post, S part of GPA, path along seashore E of Chyornaya River mouth, 60°11'42" N, 29°33'08" E, 25.09.2005, DH, LK and IS; **11** — black alder forest, S part of GPA, seashore E of Chyornaya River mouth, 60°11'39" N, 29°32'46" E, 25.09.2005, DH, LK and IS; **12** — old concrete constructions, S part of GPA, left bank of Chyornaya River, 60°11'43" N, 29°32'52" E, 25.09.2005, DH, LK and IS; **13** — dead pine tree near pathway, S part of GPA, left bank of Chyornaya River, 60°11'52" N, 29°33'04" E, 25.09.2005, DH, LK and IS; **14** — wayside broad-leaved trees, S part of GPA, right bank of Chyornaya River, 60°11'48" N, 29°32'29.5" E, 25.09.2005, DH, LK and IS; **15** — old wooden boats, S part of GPA, right bank of Chyornaya River, 60°11'46" N, 29°32'47" E, 16.10.2005, DH, LK and IS; **16** — pine forest with old birches and *Rosa* sp. bushes on sandy slope, S part of GPA, right bank of Chyornaya River, 60°11'49" N, 29°32'43" E, 16.10.2005, DH, LK and IS; **17** — old concrete basement and granite blocks, S part of GPA, right bank of Chyornaya River, 60°11'40" N, 29°32'23" E, 16.10.2005, DH, LK and IS; **18** — concrete post and old wooden fence on meadow, NE part of GPA, N of Ushkovo-Privetninskoe railway, 60°12'53" N, 29°32'55" E, 01.05.2006, DH, LK and IS; **19** — middle-aged spruce forest with windfall, NE part of GPA, E of Chyornaya River, 60°13'05" N, 29°32'37" E, 01.05.2006, DH, LK and IS; **20** — old granite military constructions, N part of GPA, left bank of Roschinka (fin. Raivolanjoki) River, 60°13'27" N, 29°31'18" E, 01.05.2006, DH, LK and IS;

21 — granite basement, N part of GPA, left bank of Rosschinka River, 60°13'24" N, 29°31'25" E, 01.05.2006, DH, LK and IS; **22** — birch-pine forest, N part of GPA, left bank of Chyornaya River, 60°13'11" N, 29°31'18" E, 01.05.2006, DH, LK and IS; **23** — spruce forest with pines, *Vaccinium myrtillus* and mosses, NE part of GPA, E of Chyornaya River, 60°13'12" N, 29°33'11.5" E, 07.05.2006, DH, LK and IS; **24** — small pine peatbog with sparse birches, NE part of GPA, E of Chyornaya River, 60°13'30" N, 29°33'20" E, 07.05.2006, DH, LK and IS; **25** — pine-birch secondary forest with herbs, N part of GPA, E of Chyornaya River, 60°12'49" N, 29°32'12" E, 07.05.2006, DH, LK and IS; **26** — spruce forest with green mosses and herbs, NW part of GPA, W of Srednevyborgskoe road, 60°13'0.5" N, 29°28'24" E, 16.09.2006, DH, LK and IS; **27** — young pine forest with green mosses and lichens, NW part of GPA, W of Srednevyborgskoe road, 60°12'49.6" N, 29°29'27.8" E, 16.09.2006, DH, LK and IS; **28** — pine forest with green mosses, *Vaccinium vitis-idaea* L. and *Calamagrostis* sp., NW part of GPA, W of Srednevyborgskoe road, 60°13'01" N, 29°28'46.5" E, 16.09.2006, DH, LK and IS; **29** — rowan-grey alder forest, NW part of GPA, W of Sosnovaya Polyana (fin. Vanhasaha) settlement, right bank of Gladyshevka (fin. Vammeljoki) River, 60°13'17" N, 29°29'47" E, 16.09.2006, DH, LK and IS; **30** — aspen-birch forest with *Padus avium*, herbs and horsetails, central part of GPA, W of Chyornaya River, 60°12'29" N, 29°31'35" E, 17.09.2006, DH, LK and IS; **31** — peatbog with *Eriophorum vaginatum* L. and dwarf pines, NW part of GPA, E of Srednevyborgskoe road, 60°12'45" N, 29°30'56.4" E, 17.09.2006, DH, LK and IS; **32** — young pine stand in a big sandpit, NW part of GPA, E of Srednevyborgskoe road, 60°12'57" N, 29°30'29" E, 17.09.2006, DH, LK and IS; **33** — old *Salix* sp. trees on herb rich meadow, NW part of GPA, Sosnovaya Polyana settlement, right bank of Gladyshevka River, 60°13'20.5" N, 29°30'39" E, 17.09.2006, DH, LK and IS; **34** — spruce forest with windfall, NE part of GPA, E of Chyornaya River, 60°13'09" N, 29°32'45" E, 15.09.2011, DH; 24.05.2013, DH and IS; **35** — mixed forest, central part of GPA, left bank of Chyornaya River, 60°12'40.5" N, 29°32'32" E, 19.10.2008 and 13.10.2012, DH and IS; **36** — mixed forest on former agricultural land, N part of GPA, E of Chyornaya River, 60°13'09" N, 29°32'14" E, 26.10.2008, DH and EK; 25.07.2012, DH and LKz; **37** — spruce forest with birches and pines, N part of GPA, E of Roschinka River, 60°13'16" N, 29°31'51" E, 26.10.2008, DH and EK; 25.07.2012, DH and LKz; **38** — spruce forest with windfall, NE part of GPA, E of Roschinka River, 60°13'04" N, 29°32'47" E, 19.10.2008, DH and IS; 11.08.2012, IS; **39** — grey alder forest with *Calamagrostis* sp., central part of GPA, right bank of Chyornaya River, 60°12'41.5" N, 29°32'21" E, 09.11.2009, IS; 12.05.2012, DH and IS; **40** — pine forest with green mosses and *Vaccinium myrtillus*, central part of GPA, W of Chyornaya River, 60°12'11" N, 29°32'19" E, 09.11.2009, IS; 12.05.2012, DH and IS. **Additional collection points:** **a1** — sandy wayside, NW part of GPA, W of Srednevyborgskoe road, 60°12'39" N, 29°29'43" E, 16.09.2005, DH, LK and IS; **a2** — spruce forest on a slope, NW part of GPA, E of Srednevyborgskoe road, [60°13'00" N, 29°30'20" E], 16.09.2005, DH, LK and IS; **a3** — near pathway, NW part of GPA, right bank of Gladyshevka River, [60°13' N, 29°31' E], 16.09.2005, DH, LK and IS; **a4** — mixed forest near pathway, NW part of GPA, right bank of Gladyshevka River, [60°13' N, 29°31' E], 16.09.2005, DH, LK and IS; **a5** — granite boulders (ruins of old military constructions), N part of GPA, left bank of Chyornaya River, 60°13'07" N,

29°31'22" E, 01.05.2006, DH, LK and IS; **a6** — birch-grey alder-aspens forest with pines and young spruces, N part of GPA, left bank of Chyornaya River, 60°12'56" N, 29°31'51" E, 01.05.2006, DH, LK and IS; **a7** — birches on open place near former village, NE part of GPA, near Ushkovo-Privetninskoe railway, 60°12'47" N, 29°33'11" E, 07.05.2006, DH, LK and IS.

Absoconditella lignicola Vězda et Pizút — 19, 34, 36: lignum of *Picea abies*.

Acarospora fuscata (Schrad.) Th. Fr. — 17, 20, 21, a5: granite.

A. glaucocarpa (Ach.) Körb. — 4, 10, 12: concrete.

A. moenium (Vain.) Räsänen — 4, 12: concrete.

Amandinea punctata (Hoffm.) Coppins et Scheid. — 9: bark of *Acer platanoides* L.

Anaptychia ciliaris (L.) Körb. — 2: bark of *Populus tremula* (Stepanchikova et al., 2006; Atlas..., 2013). Protected in Saint Petersburg (Prilozhenie..., 2014).

Anisomeridium polypori (Ellis et Everh.) M. E. Barr — 30, 36: bark of *Populus tremula*.

Arthonia apatetica (A. Massal.) Th. Fr. — 25, 29, 35, 36, 39: bark of *Sorbus aucuparia*, *Salix* sp., *Alnus incana* and *Ribes nigrum* L.

A. didyma Körb. — V: bark of *Picea abies*.

A. dispuncta Nyl. — 35: bark of *Sorbus aucuparia*.

A. fusca (A. Massal.) Hepp — 12: concrete.

A. helvola (Nyl.) Nyl. — V, 35: bark of *Picea abies*, *Salix* sp. and *Betula* sp. (Stepanchikova et al., 2008; Atlas..., 2013).

A. mediella Nyl. — 5, 25, 29, 30, 33, 35, a7: bark of *Alnus incana*, *Betula* sp., *Populus tremula*, *Salix* sp. and *Sorbus aucuparia*, lignum of *Salix* sp.

+**A. punctiformis** Ach. — 11, 35: bark of *Alnus glutinosa* and *Populus tremula*.

A. radiata (Pers.) Ach. — V, 35, 39: bark of *Alnus incana* and *Sorbus aucuparia*.

A. ruana A. Massal. — 29, 35, 38, 39: bark of *Alnus incana*, *Padus avium*, *Quercus robur* L. and *Sorbus aucuparia*.

#**A. subfuscicola** (Linds.) Triebel — V: thallus of *Lecanora carpinea* on bark of *Alnus incana* (Stepanchikova et al., 2008; H 8003863).

Arthrosporium populorum A. Massal. — 5: bark of *Populus tremula*.

Aspicilia cinerea (L.) Körb. — 10, 17, 20, 21, a5: granite.

A. verrucigera Hue — 38: granite.

***Athallia cerinella** (Nyl.) Arup, Frödén et Söchting — 8: bark of *Abies* sp. (LECB; fn GL-08).

A. cerinelloides (Erichsen) Arup, Frödén et Söchting — 8: bark of *Tilia* sp.

A. holocarpa (Hoffm.) Arup, Frödén et Söchting — 8, 10, 21: concrete.

A. pyracea (Ach.) Arup, Frödén et Söchting — 5, 8, 30, 35, 38, a7: bark of *Populus tremula*, *Betula* sp. and lignum.

#**Athelia arachnoidea** (Berk.) Jülich — 8, 10, 14, 34, 35, 39: algae and crustose lichens on bark of *Abies* sp., *Alnus incana*, *Fraxinus excelsior* L., *Salix* sp., *Sorbus aucuparia* and lignum of *Picea abies*.

***Bacidia arceutina** (Ach.) Arnold — 35: bark of *Populus tremula* (LECB; fn GZ-01).

***B. beckhausii** Körb. — 35: bark of *Populus tremula* (LECB; fn GZ-01).

- ***B. igniarii** (Nyl.) Oxner — 16: bark of *Betula* sp. (LECB; fn GL-16).
- B. laurocerasi** (Delise ex Duby) Zahlbr. [= *B. subacerina* Vain.] — V: bark of *Picea abies* (Vainio, 1922; TUR-V 20688, H 8004098). Specimens in H and TUR-V represent the syntypes of *Bacidia subacerina* Vain. (see: Alava, 1988).
- ***B. rubella** (Hoffm.) A. Massal. — 14: bark of *Ulmus* sp. Protected in Saint Petersburg (Prilozhenie..., 2014).
- B. subincompta** (Nyl.) Arnold — 14, 25, 30, 34, 35: bark of *Fraxinus excelsior*, *Populus tremula*, *Sambucus* sp. and *Sorbus aucuparia*.
- Bacidina chlorotica** (Nyl.) Vězda et Poelt — 39: bark of *Salix* sp. and *Ribes nigrum*.
- Baeomyces carneus** Flörke — 32: soil.
- B. rufus** (Huds.) Rebent. — 23, 32: granite, soil.
- ***Biatora albohyalina** (Nyl.) Bagl. et Carestia — V: bark of *Alnus incana*; det. G. Lång, 1906 (H 8004130).
- B. efflorescens** (Hedl.) Räsänen — 9, 25, 34, 35, 37–39: bark of *Acer platanoides*, *Alnus incana*, *Betula* sp., *Padus avium*, *Populus tremula*, *Quercus robur*, *Salix* spp., *Sambucus* sp. and *Sorbus aucuparia*. Thalli contain argopsin, norargopsin and two unidentified yellow pigments.
- B. globulosa** (Flörke) Fr. — 39: bark of *Alnus incana*.
- B. helvola** Körb. ex Hellb. — V, 2, 29, 30, 35–39: bark of *Alnus incana*, *Padus avium*, *Picea abies*, *Populus tremula*, *Salix* sp. and *Sorbus aucuparia*.
- B. ocelliformis** (Nyl.) Arnold [= *Lecidea atroviridis* (Arn.) Th. Fr.] — V, 34, 35, 37, a7: bark of *Alnus incana*, *Betula* sp., *Salix* sp. and *Sorbus aucuparia* (Vainio, 1934; H 8004131, H 8004133).
- ***B. pallens** (Kullh.) Printzen — 34: bark of *Acer platanoides* (LECB; fn GZV1-2011).
- Bilimbia microcarpa** (Th. Fr.) Th. Fr. — 17: mosses.
- B. sabuletorum** (Schreb.) Arnold — 4: granite (GZU).
- Bryoria capillaris** (Ach.) Brodo et D. Hawksw. — V, 6, 37: bark of *Betula* sp., *Larix* sp. and *Picea abies* (Stepanchikova et al., 2006).
- B. furcellata** (Fr.) Brodo et D. Hawksw. — 8: bark of *Abies* sp. (Stepanchikova et al., 2006; Atlas..., 2013).
- B. fuscescens** (Gyeln.) Brodo et D. Hawksw. — 16, 24: bark of *Betula* sp. and *Picea abies*, lignum of *Pinus sylvestris* (Stepanchikova et al., 2006).
- B. subcana** (Nyl. ex Stizenb.) Brodo et D. Hawksw. — 6–8, 14, 16, 22, 24, 26, 27, 31, 33–37, 39, 40, a7: bark of *Abies* sp., *Betula* sp., *Larix* sp., *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Salix* sp., *Tilia* sp. and *Ulmus* sp. (Stepanchikova et al., 2006). Protected in the Leningrad Region (Krasnaya..., 2000).
- Buellia disciformis** (Fr.) Mudd — V, 29, 30, 35, 39: bark of *Alnus* spp., *Populus tremula*, *Quercus robur*, *Salix* sp. and *Sorbus aucuparia*.
- B. erubescens** Arnold — V, 39: bark of *Sorbus aucuparia*.
- B. griseovirens** (Turner et Borrer ex Sm.) Almb. — V, 22, 25, 29, 30, 34–36, 39: bark of *Alnus* spp., *Betula* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Quercus robur*, *Salix* sp. and *Sorbus aucuparia*. Thalli contain atranorin and norstictic acid.
- ***B. schaeereri** De Not. — V: bark of coniferous tree (H 8004246).

- Calicium glaucellum** Ach. — V, 24, 31, 34: lignum and bark of conifers.
- C. pinastri** Tibell — 28: bark of *Pinus sylvestris*.
- C. trabinellum** (Ach.) Ach. — 24: lignum of *Pinus sylvestris* and *Betula* sp.
- C. viride** Pers. — V: bark of *Picea abies*, lignum. Protected in Saint Petersburg (Prilozhenie..., 2014).
- ***Caloplaca albolutescens** (Nyl.) H. Olivier — 4: concrete (GZU; fn GL-04). New for European Russia outside Caucasus, previously known from Gelendzhik, Novorossiysk, Taman Peninsula and Tuapse (J. Vondrak, pers. comm. on the base of unpublished specimens in CBFS).
- C. cerina** (Hedw.) Th. Fr. — 5, 33, 38: bark of *Populus tremula* and *Salix* sp.
- C. chlorina** (Flot.) H. Olivier — 21: concrete.
- Candelariella aurella** (Hoffm.) Zahlbr. — 4, 8, 10, 12, 18: concrete.
- C. efflorescens** R. C. Harris et W. R. Buck — 8, 9, 14, 25, 30, 33: bark of *Acer platanoides*, *Fraxinus excelsior*, *Populus tremula*, *Salix* sp. and *Tilia* sp.
- C. lutella** (Vain.) Räsänen — 38: bark of *Populus tremula*; det. L. Yakovchenko et M. Westberg, 2012 (LECB).
- C. vitellina** (Hoffm.) Müll. Arg. — 10, 17: concrete, granite.
- ***Catillaria erysiboides** (Nyl.) Th. Fr. — 22: lignum of *Pinus sylvestris* (LECB; fn GL-22).
- C. nigroclavata** (Nyl.) Schuler — 38: bark of *Populus tremula*.
- Cetraria islandica** (L.) Ach. subsp. **islandica** — 1, 3, 12, 27, 32, 34, 40: soil, lignum of conifers, rarely bark of *Pinus sylvestris* and *Calluna vulgaris* (Stepanchikova et al., 2006).
- C. sepincola** (Ehrh.) Ach. — 1, 3, 5–8, 14–16, 18, 19, 22, 25, 27, 29, 31–37, 39, 40, a7: bark of *Abies* sp., *Alnus incana*, *Betula* sp., dwarf shrubs, *Larix* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Salix* spp., *Sambucus* sp., *Tilia* sp., *Ulmus* sp. and lignum of conifers (Stepanchikova et al., 2006).
- Chaenotheca brunneola** (Ach.) Müll. Arg. — V: lignum (Vainio, 1927; H 8004384).
- C. chrysocephala** (Turner ex Ach.) Th. Fr. — 24: lignum of *Pinus sylvestris*.
- C. ferruginea** (Turner ex Sm.) Mig. [= *C. melanophaea* (Ach.) Zwackh] — V, 2, 6, 16, 19, 23–26, 28, 33, 36–38: bark of *Betula* sp., *Larix* sp., *Picea abies*, *Pinus sylvestris* and lignum of *P. sylvestris* (Vainio, 1927; H 8004390, H 8004391).
- C. furfuracea** (L.) Tibell — 29, 38, a4: bark of *Betula* sp. and *Picea abies*, fruit bodies of polypores, lignum.
- ***C. subroscida** (Eitner) Zahlbr. — V: bark of *Picea abies* (Stepanchikova et al., 2008; H 8004266, H 8004267, in the specimens of *Calicium viride*). Protected in Saint Petersburg (Prilozhenie..., 2014).
- C. trichialis** (Ach.) Th. Fr. [≡ *C. trichialis* (Ach.) Th. Fr. var. *cinerea* (Pers.) Blomb. et Forss., ≡ *Calicium trichiale* Ach.] — V, 2, 19, 22, 24, 29, 34, 35, 37–39: bark of *Betula* sp., *Picea abies* and *Salix* sp., lignum, fruit bodies of polypores (Vainio, 1927; H 8004394).
- (#)**Chaenothecopsis nigra** Tibell — 34: plant debris.
- (#)**C. pusilla** (Ach.) Alb. Schmidt s. l. [= *Embolidium inaequatum* Vain.] — V, 34: lignum and upturned roots (Vainio, 1927; TUR-V 29533a, H 8004408). Specimens in H and TUR-V represent the syntypes of *Embolidium inaequatum* Vain. (see: Alava, 1988).

- +**C. savonica** (Räsänen) Tibell — 24, 39: lignum of *Alnus incana* and *Betula* sp.
- *#**C. subparaica** (Nyl.) Tibell — 25: thallus of *Haematomma ochroleucum* on bark of *Betula* sp. (LECB; fn GL-25).
- +**C. viridialba** (Kremp.) Alb. Schmidt — V: bark of *Picea abies* (Stepanchikova et al., 2008; H 8004267).
- Circinaria contorta** (Hoffm.) A. Nordin, S. Savić et Tibell — 10, 21: concrete.
- Cladonia arbuscula** (Wallr.) Flot. subsp. **arbuscula** — 1, 3, 27, 31, 32, 34, 40: soil, lignum of conifers and bark of *Pinus sylvestris* (Stepanchikova et al., 2006).
- C. bacilliformis** (Nyl.) Glück — 6, 18, 24, 27, 28: lignum of conifers, bark of *Pinus sylvestris* and *Betula* sp. (Stepanchikova et al., 2006).
- C. bellidiflora** (Ach.) Schaer. — 32: soil.
- C. botrytes** (K. G. Hagen) Willd. — 3, 16, 27, 32, 34, 40, a1: soil, lignum and bark of conifers (Stepanchikova et al., 2006).
- C. cariosa** (Ach.) Spreng. — 32: soil.
- C. carneola** (Fr.) Fr. — 32, 34: lignum of *Picea abies*, soil.
- C. cenotea** (Ach.) Schaer. — 3, 6, 16, 18, 22, 24, 27, 28, 31, 37, 39, 40: bark and lignum of conifers, soil, bark of *Alnus incana* and *Betula* sp. (Stepanchikova et al., 2006).
- C. chlorophaea** (Flörke ex Sommerf.) Spreng. s. l. — 1, 3, 8, 12, 16, 20, 22–24, 27, 28, 31–40, a1: soil and lignum of conifers, bases of tree trunks (Stepanchikova et al., 2006).
- C. coniocraea** (Flörke) Spreng. — 2–4, 6, 12, 14, 16, 19, 21–26, 28–30, 33–40: soil and lignum of conifers, bases of tree trunks (Stepanchikova et al., 2006).
- C. cornuta** (L.) Hoffm. subsp. **cornuta** — 1, 3, 4, 16, 20, 22, 24, 27, 32, 34, 39, 40: soil, bark of conifers, bark of *Alnus incana* and *Betula* sp. (Stepanchikova et al., 2006).
- C. crispata** (Ach.) Flot. var. **cettrariiformis** (Delise) Vain. — 24, 27, 32, 40: soil, bark and lignum of *Pinus sylvestris*.
- C. crispata** (Ach.) Flot. var. **crispata** — 1, 3, 6, 12, 22, 27, 34, 40: lignum of *Picea abies*, soil, bark of *Pinus sylvestris* and *Betula* sp. (Stepanchikova et al., 2006).
- C. deformis** (L.) Hoffm. — 1, 3, 16, 22, 24, 27, 31, 32, 34, 39, 40: bark and lignum of conifers, soil, bark of *Alnus incana* and *Betula* sp. (Stepanchikova et al., 2006).
- C. digitata** (L.) Hoffm. — V, 24, 26, 28, 31, 34, 35, 37, 38, 40: lignum and bark of conifers, bark of *Betula* sp. (Stepanchikova et al., 2006).
- C. fimbriata** (L.) Fr. — 2–4, 6, 12, 16–20, 23, 25–29, 32–35, 37–40: soil, lignum and bases of tree trunks (Stepanchikova et al., 2006).
- C. floerkeana** (Fr.) Flörke — 27, 32, 40: bark of *Pinus sylvestris*, soil.
- C. furcata** (Huds.) Schrad. — 3, 16, 32: soil (Stepanchikova et al., 2006).
- C. gracilis** (L.) Willd. subsp. **gracilis** — 16: soil.
- C. gracilis** (L.) Willd. subsp. **turbinata** (Ach.) Ahti — 1, 3, 4, 12, 18, 20, 27, 32, 34, 40: lignum, soil, bark of *Betula* sp. (Stepanchikova et al., 2006).
- C. macilenta** Hoffm. — 3, 6, 16, 20, 22, 24, 27, 28, 31, 40: bark of *Betula* sp. and *Pinus sylvestris*, lignum of *P. sylvestris*, soil (Stepanchikova et al., 2006).
- C. mitis** Sandst. — 22: bark of *Betula* sp.
- †**C. norvegica** Tønsberg et Holien — 37: bark of *Picea abies* and *Betula* sp. (Atlas..., 2013). Protected in Saint Petersburg (Priložhenie..., 2014).

- C. ochrochlora** Flörke — 34: lignum of *Picea abies*.
- C. phyllophora** Hoffm. — 1, 3, 12, 27, 32: soil (Stepanchikova *et al.*, 2006).
- C. pleurota** (Flörke) Schaer. — 1, 3, 4, 22, 38: soil, lignum, bark of *Pinus sylvestris* (Stepanchikova *et al.*, 2006).
- C. pyxidata** (L.) Hoffm. — 1, 32: soil (Stepanchikova *et al.*, 2006).
- C. rangiferina** (L.) F. H. Wigg. — 1, 3, 22, 27, 31, 32, 34, 40, a1: soil, lignum of conifers and bark of *Betula* sp. (Stepanchikova *et al.*, 2006).
- C. rei** Schaer. — 1, 3, 12, 16, 18, 22, 23, 32: soil, lignum, bark of *Picea abies* and *Pinus sylvestris* (Stepanchikova *et al.*, 2006).
- C. stellaris** (Opiz) Pouzar et Vězda — 27: soil (Atlas..., 2013). Protected in Saint Petersburg (Prilozhenie..., 2014).
- C. stygia** (Fr.) Ruoss — 40: soil.
- C. sulphurina** (Michx.) Fr. — 3, 4, 12, 22, 24, 27, 31, 32, 40: bark and lignum of *Pinus sylvestris*, soil (Stepanchikova *et al.*, 2006).
- C. uncialis** (L.) Weber ex F. H. Wigg. subsp. **biuncialis** (Hoffm.) M. Choisy — 1, 27: soil.
- C. uncialis** (L.) Weber ex F. H. Wigg. subsp. **uncialis** — 1, 3, 27, 40: soil, bark of *Pinus sylvestris* (Stepanchikova *et al.*, 2006).
- C. verticillata** (Hoffm.) Schaer. — 1, 3, 12, 27, 32: soil (Stepanchikova *et al.*, 2006).
- Coenogonium pineti** (Ach.) Lücking et Lumbsch — 19, 23, 26–29, 36–39: bark of *Picea abies*, *Pinus sylvestris*, *Juniperus communis* L., dwarf shrubs, lignum of *Alnus incana* and *Picea abies*, mosses.
- Evernia mesomorpha** Nyl. — 8, 18, 33, 35: lignum, bark of *Alnus incana*, *Salix* sp. and *Tilia* sp. (Stepanchikova *et al.*, 2006).
- E. prunastri** (L.) Ach. — V, 7, 8, 11, 33, 36, 39, a7: bark of *Alnus* spp., *Betula* sp., *Larix* sp., *Padus avium*, *Salix* sp. and *Sorbus aucuparia* (Stepanchikova *et al.*, 2006).
- Fellhanera subtilis** (Vězda) Diederich et Sérus. — 34: bark of *Betula* sp.
- Flavoplaca citrina** (Hoffm.) Arup, Frödén et Søchting — 4, 10, 21: concrete.
- F. dichroa** (Arup) Arup, Frödén et Søchting — 10: concrete; det. JP, 2012 (H).
- Fuscidea arboricola** Coppins et Tønsberg — 1, 14, 35: bark of *Alnus incana*, *Padus avium*, *Sorbus aucuparia* and *Ulmus* sp.; det. MK et IS, 2009 (LECB). Thalli contain fumarprotocetraric acid.
- F. pusilla** Tønsberg — 2, 3, 6, 8, 16, 19, 22, 23, 25–32, 34–40, a7: bark of *Abies* sp., *Alnus incana*, *Betula* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Salix* sp., *Sorbus aucuparia*, *Tilia* sp. and lignum of conifers. Thalli contain dicarboxylic acid.
- Graphis scripta** (L.) Ach. — V, 8, 25, 29, 35, 36, 38, 39, a6: bark of *Alnus* spp., *Betula* sp., *Padus avium*, *Picea abies*, *Quercus robur*, *Sorbus aucuparia* and *Tilia* sp.
- Haematomma ochroleucum** (Neck.) J. R. Laundon — 25: bark of *Betula* sp.
- Hypocomyce scalaris** (Ach.) M. Choisy — V, 1–3, 6, 8, 10, 13, 16, 18, 19, 22–25, 27, 31, 34, 35, 37, 38, 40: bark of *Betula* sp., *Picea abies*, *Pinus sylvestris* and *Tilia* sp., lignum of conifers.
- Hypogymnia physodes** (L.) Nyl. — 1–40, a6, a7: bark and lignum of different trees and shrubs, granite, concrete, fruit bodies of polypores and plant debris (Stepanchikova *et al.*, 2006).

H. tubulosa (Schaer.) Hav. — 3, 5–9, 11, 14–17, 19, 22–30, 32–40, a6, a7: bark and lignum of different trees and shrubs, concrete and plant debris (Stepanchikova et al., 2006).

Illosporopsis christiansenii (B. L. Brady et D. Hawksw.) D. Hawksw. — 2, 5, 7, 35: thalli of corticolous lichens.

Illosporium carneum Fr. — 32: thallus of *Peltigera* cf. *extenuata* on soil.

Imshaugia aleurites (Ach.) S. L. F. Meyer — 13, 31, 40: bark and lignum of *Pinus sylvestris* (Stepanchikova et al., 2006).

Japewia subaurifera Muhr et Tønsberg — 22, 24, 26, 29, 34, 37: bark of *Alnus incana*, *Betula* sp., *Picea abies*, *Pinus sylvestris* and *Sorbus aucuparia*, lignum of *Betula* sp. and *Pinus sylvestris*; det. MK et IS, 2009 (LECB). Thalli contain secalonic acids.

Lecania cyrtella (Ach.) Th. Fr. — 2, 5, 8, 25, 30, 32, 34, 35, 38: bark of *Acer platanoides*, *Populus tremula*, *Salix* sp., *Sorbus aucuparia* and *Tilia* sp.

L. cyrtellina (Nyl.) Sandst. — V, 35, 39: bark of *Salix* sp. and *Sorbus aucuparia*.

L. dubitans (Nyl.) A. L. Sm. — 14: bark of *Ulmus* sp.

L. naegelii (Hepp) Diederich et van den Boom — 5, 7, 8, 14, 30, 32, 34, 35: bark of *Populus tremula*, *Salix* sp., *Sambucus* sp., *Sorbus aucuparia*, *Tilia* sp. and *Ulmus* sp.

L. sylvestris (Arnold) Arnold — 4, 21: concrete.

***Lecanora aitema** (Ach.) Hepp — 22, 24, 34: bark of *Betula* sp., *Pinus sylvestris*, *Sorbus aucuparia* (LECB; fn GZV1-2011).

L. albella (Pers.) Ach. — V: bark of deciduous tree.

L. albellula (Nyl.) Th. Fr. — 8–11, 14, 16, 30, 33–35, 39: bark of *Abies* sp., *Acer platanoides*, *Alnus glutinosa*, *Betula* sp., *Padus avium*, *Salix* sp., *Sorbus aucuparia*, *Tilia* sp., *Ulmus* sp. and lignum.

L. albescens (Hoffm.) Branth et Rostr. — 21: concrete.

L. allophana Nyl. — 2, 5, 8, 25, 35: bark of *Abies* sp. and *Populus tremula*.

L. argentata (Ach.) Malme — V, 2, 25: bark of *Populus tremula*.

L. cadubriae (A. Massal.) Hedl. — V: bark of coniferous tree.

L. carpinea (L.) Vain. — V, 2, 5, 16, 25, 29, 30, 33, 35, 36, 38, 39: bark of *Alnus* spp., *Populus tremula*, *Salix* sp. and *Sorbus aucuparia*, fruit bodies of polypores.

L. cateilea (Ach.) A. Massal. — V: bark of deciduous tree.

L. chlarotera Nyl. — 2, 5, 7–10, 14, 18, 22, 24, 25, 28–30, 32, 33, 36, 38, 40, a6, a7: bark of *Abies* sp., *Acer platanoides*, *Alnus incana*, *Betula* sp., *Fraxinus excelsior*, *Juniperus communis*, *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Quercus robur*, *Salix* spp., *Sorbus aucuparia*, *Tilia* sp., *Ulmus* sp. and lignum.

L. conizaeoides Nyl. ex Cromb. — 19, 35: bark of *Betula* sp., *Picea abies*; sterile specimens; det. MK, 2009 (H 8005651, LECB). Thalli contain fumarprotocetraric acid.

L. dispersa (Pers.) Sommerf. — 4, 8, 10, 12, 18, 21: concrete.

L. filamentosa (Stirt.) Elix et Palice — 25, 27, 28, 31: bark of *Pinus sylvestris*.

L. hagenii (Ach.) Ach. — 5, 7–9, 14, 16, 30, 33, 34, 38, a7: bark of *Abies* sp., *Acer platanoides*, *Betula* sp., *Padus avium*, *Populus tremula*, *Salix* spp., *Sambucus* sp., *Sorbus aucuparia*, *Tilia* sp., *Ulmus* sp. and lignum.

L. hypopta (Ach.) Vain. — 22: bark of *Pinus sylvestris*.

L. hypoptella (Nyl.) Grummann — 27, 33: bark of *Pinus sylvestris* and *Salix* sp.

L. intricata (Ach.) Ach. — 10, 20, 34: granite.

L. phaeostigma (Körb.) Almb. — 38, 40: bark of *Picea abies* and *Pinus sylvestris*.

L. polytropa (Ehrh. ex Hoffm.) Rabenh. — 21: granite.

L. populicola (DC.) Duby — 5, 35: bark of *Populus tremula*.

L. pulicaris (Pers.) Ach. — V, 1, 11, 16, 24, 25, 29–31, 34–39, a7: bark of *Acer platanoides*, *Alnus* spp., *Betula* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Quercus robur*, *Salix* spp., *Sambucus* sp., *Sorbus aucuparia* and lignum.

L. subintricata (Nyl.) Th. Fr. — a7: bark of *Betula* sp.

L. subrugosa Nyl. — 30, 33: bark of *Populus tremula* and *Salix* sp. (GZU).

L. symmicta (Ach.) Ach. — 2, 5, 7, 8, 10, 11, 13, 14, 23–26, 29–39: bark of *Abies* sp., *Acer platanoides*, *Alnus* spp., *Betula* sp., *Fraxinus excelsior*, *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Quercus robur*, *Salix* spp., *Sambucus* sp., *Sorbus aucuparia* and *Tilia* sp., fruit bodies of polypores and lignum.

L. varia (Hoffm.) Ach. — 8, 10, 11, 18, 23, 30, 39: bark of *Abies* sp., *Alnus glutinosa*, *Alnus incana*, *Betula* sp., *Picea abies*, *Pinus sylvestris* and lignum.

Lecidea fuscoatra (L.) Ach. — 17: granite.

***L. lapicida** (Ach.) Ach. var. **pantherina** Ach. — 17: granite (LECB; fn GL-17).

L. nylanderii (Anzi) Th. Fr. — V, 3, 6, 16, 22–24, 28, 34, 35, 37, 40: bark and lignum of conifers, bark of *Betula* sp.

L. turgidula Fr. — 22–24, 26, 28, 31, 34, 37, 38: bark and lignum of conifers.

Lecidella elaeochroma (Ach.) M. Choisy — 5, 25, 30, 33, 35, 38: bark of *Populus tremula*, *Salix* sp. and *Sorbus aucuparia*.

L. euphorea (Flörke) Hertel — 5: bark of *Populus tremula*.

L. stigmatea (Ach.) Hertel et Leuckert — 10, 21, 34: concrete, granite.

Lemmopsis arnoldiana (Hepp) Zahlbr. — 10: concrete.

***Lepraria caesioalba** (de Lesd.) J. R. Laundon — 20: granite. Thallus contains atranorin and roccellic/angardhianic acid (LECB; fn GL-20).

L. elobata Tønsberg — 2, 4, 16, 23, 26, 29, 33–38, a1: bark of *Alnus incana*, *Betula* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Salix* sp. and *Sorbus aucuparia*, lignum of *Picea abies*, mosses, granite. Thalli contain atranorin, zeorin and stictic acid complex.

L. incana (L.) Ach. — 16, 19, 22, 23, 34–38, 40: bark of *Betula* sp., *Picea abies*, *Pinus sylvestris*, *Salix* spp., *Sorbus aucuparia*, *Picea abies*.

L. jackii Tønsberg — 16, 21–25, 28, 34–38: bark of *Betula* sp., *Picea abies* and *Pinus sylvestris*, lignum of *Picea abies*, mosses, granite, soil; det. MK et IS, 2009 (LECB). Thalli contain atranorin, jackinic/rangiformic and roccellic acids.

L. lobificans Nyl. — 23, 25, 35–37, 39: bark of *Alnus incana*, *Betula* sp., *Padus avium*, *Pinus sylvestris* and *Sorbus aucuparia*. Thalli contain atranorin, zeorin and stictic acid complex.

+**Leptorhaphis atomaria** (Ach.) Szatala — 5: bark of *Populus tremula*.

+**L. epidermidis** (Ach.) Th. Fr. — 34–36, 40, a7: bark of *Betula* sp.

Loxospora elatina (Ach.) A. Massal. — 22: bark of *Pinus sylvestris*.

Melanelixia glabratula (Lamy) Sandler et Arup — V, 35: bark of *Alnus incana*.

M. subaurifera (Nyl.) O. Blanco et al. [= *Melanelia subaurifera* (Nyl.) Essl.] — 5, 7, 33–35, 39: bark of *Padus avium*, *Pinus sylvestris*, *Populus tremula*, *Quercus robur*, *Salix* sp., *Sambucus* sp. and *Sorbus aucuparia* (Stepanchikova et al., 2006).

Melanohalea exasperata (De Not.) O. Blanco et al. [= *Melanelia exasperata* (De Not.) Essl.] — 2, 5, 7, 8, 14, 35, 38: bark of *Alnus incana*, *Fraxinus excelsior*, *Populus tremula*, *Salix* sp. and *Tilia* sp. (Stepanchikova et al., 2006).

M. exasperatula (Nyl.) O. Blanco et al. [= *Melanelia exasperatula* (Nyl.) Essl.] — 5, 7–9, 14, 16, 17, 33–36, 39, a7: bark of *Acer platanoides*, *Betula* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Quercus robur*, *Salix* sp., *Sambucus* sp., *Sorbus aucuparia*, *Tilia* sp. and *Ulmus* sp., granite (Stepanchikova et al., 2006).

M. olivacea (L.) O. Blanco et al. [= *Melanelia olivacea* (L.) Essl.] — V, 7, 8, 14, 17, 29, 30, 32–36, 39, a7: bark of *Alnus* spp., *Betula* sp., *Padus avium*, *Picea abies*, *Populus tremula*, *Salix* sp., *Sambucus* sp., *Sorbus aucuparia*, *Tilia* sp. and *Ulmus* sp. (Stepanchikova et al., 2006).

M. septentrionalis (Lynge) O. Blanco et al. [= *Melanelia septentrionalis* (Lynge) Essl.] — 7: bark of *Salix* sp. (Stepanchikova et al., 2006).

Micarea denigrata (Fr.) Hedl. — 27: bark of *Pinus sylvestris*.

M. elachista (Körb.) Coppins et R. Sant. — 22, 38: bark of *Pinus sylvestris*.

M. erratica (Körb.) Hertel, Rambold et Pietschm. — 32: granite.

M. lithinella (Nyl.) Hedl. — 34: granite.

M. melana (Nyl.) Hedl. — 23, 24, 28, 37, 38: bark of *Pinus sylvestris*.

M. misella (Nyl.) Hedl. — 29, 40: lignum and bark of *Pinus sylvestris*.

M. nitschkeana (J. Lahm ex Rabenh.) Harm. — 28, 31: bark of *Pinus sylvestris*.

M. prasina Fr. s. l. — 2, 6, 19, 22–24, 27, 28, 30, 34–40: lignum, bark of *Betula* sp., *Larix* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Quercus robur*, bark of *Salix* spp. and *Sorbus aucuparia*.

M. sylvicola (Flot.) Vězda et V. Wirth — 38, a2, a5: iron, granite.

*+**Microcalicium ahlneri** Tibell — 23: lignum of *Pinus sylvestris* (LECB; fn GL-23).

#**M. disseminatum** (Ach.) Vain. — V: thallus of *Chaenotheca ferruginea* on bark of coniferous tree (Atlas..., 2013). Protected in Saint Petersburg (Prilozhenie..., 2014).

#**Monodictys epilepraria** Kukwa et Diederich — 37: thallus of *Lepraria jackii* on bark of *Pinus sylvestris*; det. JM (Himmelbrant et al., 2013; BILAS).

Montanelia sorediata (Ach.) Divakar et al. [= *Melanelia sorediata* (Ach.) Goward et Ahti] — 17, 20, a5: granite (Stepanchikova et al., 2006; Atlas..., 2013). Protected in the Leningrad Region (Krasnaya..., 2000) and Saint Petersburg (Prilozhenie..., 2014).

Mycobilimbia carneoalbida (Müll. Arg.) Printzen — 35: bark of *Populus tremula*.

M. epixanthoides (Nyl.) Vitik. et al. — 4: mosses on stone.

+**Mycocalicium subtile** (Pers.) Szatala — V, 22, 24, 27, 28, 31, 34, 38, 40: lignum and rarely bark of conifers.

*+**Mycomicrothelia wallrothii** (Hepp) D. Hawksw. — 35: bark of *Betula* sp. (LECB; fn GZ-01).

*+**Naetrocymbe rhypona** (Ach.) R. C. Harris — 8: bark of *Acer platanoides* (LECB; fn GL-08).

***Nephroma parile** (Ach.) Ach. — V: mosses (H 8000357, H 8000358). Protected in Saint Petersburg (Prilozhenie..., 2014).

***N. resupinatum** (L.) Ach. — V: mosses (Stepanchikova et al., 2008; H 8000374). Protected in the Leningrad Region (Krasnaya..., 2000) and Saint Petersburg (Prilozhenie..., 2014).

- Ochrolechia arborea** (Kreyer) Almb. — 22: bark of *Pinus sylvestris*.
- O. microstictoides** Räsänen — 29: bark of *Alnus incana*; det. MK, 2009 (Kukwa, 2011; H 8005642).
- Opegrapha vulgata** (Ach.) Ach. — V: bark of deciduous tree.
- Pachyphiale fagicola** (Hepp) Zwackh — V, 2, 14, 16, 33, 35: bark of *Betula* sp., *Fraxinus excelsior*, *Populus tremula* and *Salix* sp.
- Parmelia saxatilis** (L.) Ach. — 20: granite (Stepanchikova *et al.*, 2006; Atlas..., 2013).
- P. sulcata** Taylor — V, 2, 5–12, 14, 16, 18, 20, 21, 24, 25, 29–39, a6, a7: bark of deciduous trees, less often bark of conifers, concrete, lignum and granite (Stepanchikova *et al.*, 2006).
- Parmeliopsis ambigua** (Wulfen) Nyl. — V, 1–3, 6–8, 10, 11, 13, 16, 18–20, 22–31, 33–40, a7: bark and lignum of conifers and *Betula* sp., less often bark of deciduous trees and granite (Stepanchikova *et al.*, 2006).
- P. hyperopta** (Ach.) Arnold — 2, 3, 6, 10, 16, 18, 22–24, 27–34, 36, 37, 39, 40: bark and lignum of conifers and *Betula* sp., less often bark of *Alnus incana*, *Padus avium*, *Populus tremula*, *Quercus robur* and *Salix* sp. (Stepanchikova *et al.*, 2006).
- Peltigera canina** (L.) Willd. — 32: soil.
- P. degenii** Gyeln. — a3: soil (Stepanchikova *et al.*, 2006; Atlas..., 2013). Protected in the Leningrad Region (Krasnaya..., 2000).
- P. didactyla** (With.) J. R. Laundon — 3, 4, 6, 12, 16, 32, 35: soil and mosses, once on bark of *Salix* sp. (Stepanchikova *et al.*, 2006).
- P. exnuata** (Nyl. ex Vain.) Lojka — 12, 16, 21, 32: soil (Stepanchikova *et al.*, 2006).
- P. neckeri** Hepp ex Müll. Arg. — 21: mosses.
- P. neopolydactyla** (Gyeln.) Gyeln. — 29: soil.
- P. praetextata** (Flörke ex Sommerf.) Zopf — V, 35: mosses.
- P. rufescens** (Weiss) Humb. — 12, 21: soil (Stepanchikova *et al.*, 2006).
- Pertusaria albescens** (Huds.) M. Choisy et Werner — 33: bark of *Salix* sp.
- P. amara** (Ach.) Nyl. — V: bark of *Alnus incana*.
- P. carneopallida** (Nyl.) Anzi — 35, a6: bark of *Alnus incana* and *Sorbus aucuparia*.
- P. pupillaris** (Nyl.) Th. Fr. — 35: bark of *Betula* sp. and *Padus avium*; det. MK, 2009 (H 8005653, LECB). Thalli contain fumarprotocetraric acid.
- Phaeophyscia ciliata** (Hoffm.) Moberg — 5, 38: bark of *Populus tremula* (Stepanchikova *et al.*, 2006).
- P. nigricans** (Flörke) Moberg — 9, 10, 12, a7: concrete, bark of *Acer platanoides* and *Betula* sp. (Stepanchikova *et al.*, 2006).
- P. orbicularis** (Neck.) Moberg — 5, 7–10, 14, 16, a7: bark of *Acer platanoides*, *Betula* sp., *Fraxinus excelsior*, *Populus tremula*, *Salix* sp., *Tilia* sp. and *Ulmus* sp., concrete, lignum (Stepanchikova *et al.*, 2006).
- Phlyctis argena** (Spreng.) Flot. — V; 5, 35, 36, 38, 39: bark of *Alnus* spp., *Padus avium*, *Populus tremula*, *Quercus robur* and *Sorbus aucuparia*.
- Physcia adscendens** H. Olivier — 4, 5, 7–9, 12, 21, 36, a7: bark of *Acer platanoides*, *Betula* sp., *Padus avium*, *Populus tremula*, *Salix* sp. and *Tilia* sp., concrete, granite (Stepanchikova *et al.*, 2006).

P. aipolia (Ehrh. ex Humb.) Fűrnr. — 2, 5–9, 14, 32–35, 38, a7: bark of *Acer platanoides*, *Betula* sp., *Fraxinus excelsior*, *Populus tremula*, *Salix* sp., *Sambucus* sp. and *Tilia* sp. (Stepanchikova et al., 2006).

P. alnophila (Vain.) Lohtander et al. — 5: bark of *Populus tremula*.

P. caesia (Hoffm.) Fűrnr. — 4, 10, 12: concrete, iron (Stepanchikova et al., 2006).

P. dubia (Hoffm.) Lettau — 8–10, 12, 14, 16–18, 21: bark of *Acer platanoides*, *Betula* sp. and *Fraxinus excelsior*, concrete, granite (Stepanchikova et al., 2006).

P. stellaris (L.) Nyl. — 5, 33, 38: bark of *Populus tremula* and *Salix* sp. (Stepanchikova et al., 2006).

P. tenella (Scop.) DC. — 5, 33, 38: bark of *Acer platanoides*, *Betula* sp., *Fraxinus excelsior*, *Padus avium*, *Populus tremula*, *Salix* sp., *Sambucus* sp., *Sorbus aucuparia*, *Tilia* sp. and *Ulmus* sp., concrete (Stepanchikova et al., 2006).

Physconia distorta (With.) J. R. Laundon — 2, 5, 9: bark of *Acer platanoides* and *Populus tremula* (Stepanchikova et al., 2006).

P. enteroxantha (Nyl.) Poelt — 9, 14, 34: bark of *Acer platanoides*, *Sambucus* sp. and *Ulmus* sp. (Stepanchikova et al., 2006).

Piccolia ochrophora (Nyl.) Hafellner — 9: bark of *Acer platanoides* (Stepanchikova et al., 2010).

Placynthiella dasaea (Stirt.) Tønberg — 12, 16, 27, 29, 34–37, 39, 40: bark of *Alnus incana* and *Betula* sp., fruit bodies of polypores, lignum, plant debris, soil and upturned roots.

P. icmalea (Ach.) Coppins et P. James — 1, 16, 19, 23, 26, 29, 31, 33–36, 38, 39: bark of *Betula* sp., *Padus avium*, *Picea abies* and *Salix* sp., lignum, mosses, soil and upturned roots.

P. oligotropha (J. R. Laundon) Coppins et P. James — 32: soil.

P. uliginosa (Schrad.) Coppins et P. James — 12, 18, 27, 31, 38, 39: bark of *Padus avium*, lignum and mosses.

Platismatia glauca (L.) W. L. Culb. et C. F. Culb. — 2, 3, 5–8, 14–16, 18, 19, 22–29, 33–40: bark of *Abies* sp., *Alnus incana*, *Betula* sp., *Fraxinus excelsior*, *Larix* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Quercus robur*, *Salix* spp., *Tilia* sp. and *Ulmus* sp., lignum of conifers (Stepanchikova et al., 2006).

Polycaulonia candelaria (L.) Frödén, Arup et Søchting — 39: bark of *Padus avium*.

P. polycarpa (Hoffm.) Frödén, Arup et Søchting [= *Xanthoria polycarpa* (Hoffm.) Th. Fr. ex Rieber] — 5, 7–11, 14–16, 32–36, 38, 39, a7: bark of *Acer platanoides*, *Alnus* spp., *Betula* sp., *Fraxinus excelsior*, *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Quercus robur*, *Salix* spp., *Sambucus* sp., *Sorbus aucuparia*, *Tilia* sp. and *Ulmus* sp., lignum (Stepanchikova et al., 2006).

Porpidia crustulata (Ach.) Hertel et Knoph — 4, 32: granite.

P. macrocarpa (DC.) Hertel et A. J. Schwab — 10, 20, 23: granite.

***P. soredizodes** (Lamy ex Nyl.) J. R. Laundon — 38: granite (LECB; fn GL-20, GZ-04).

***P. tuberculosa** (Sm.) Hertel et Knoph — 4, 20: granite. Thalli contain confluent acid and 2'-O-methylperlatolic acid (LECB; fn GL-04, GL-20).

Protoparmeliopsis muralis (Schreb.) M. Choisy — 10, 20: concrete, granite.

***Protothelenella corrosa** (Körb.) H. Mayrhofer et Poelt — 4: granite; det. J. Hafellner (LECB; fn GL-04).

Pseudevernia furfuracea (L.) Zopf — 3, 5–7, 13, 16, 22, 24, 27, 29, 31, 33–35, 37–40, a7: bark of *Alnus incana*, *Betula* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Salix* spp., *Sorbus aucuparia*, lignum of conifers and plant debris (Stepanchikova *et al.*, 2006).

Psilolechia clavulifera (Nyl.) Coppins — 22, 34, 37, 38: bark of *Picea abies* and *Pinus sylvestris*, fruit bodies of polypores, plant debris, soil, upturned roots.

P. lucida (Ach.) M. Choisy — 23: bark of *Picea abies*.

***Psorotichia schaeferi** (A. Massal.) Arnold — 10: concrete (LECB; fn GL-10).

***Pycnora praestabilis** (Nyl.) Hafellner — 16, 18: bark of *Pinus sylvestris*, lignum (LECB; fn GL-16, GL-18).

P. sorophora (Vain.) Hafellner — 16, 22, 24, 31, 40: bark and lignum of *Pinus sylvestris*.

Ramalina farinacea (L.) Ach. — V, 30, 34–36, 39: bark of *Alnus incana*, *Larix* sp., *Padus avium*, *Populus tremula*, *Quercus robur*, *Salix* sp. and *Sorbus aucuparia*.

R. fraxinea (L.) Ach. — 5: bark of *Populus tremula* (Stepanchikova *et al.*, 2006; Atlas..., 2013). Protected in the Leningrad Region (Krasnaya..., 2000).

***Ramalina thrausta** (Ach.) Nyl. — V: bark of *Picea abies* (Ahlner, 1948; H 8003463). Protected in the Leningrad Region (Krasnaya..., 2000) and Saint Petersburg (Prilozhenie..., 2014).

Ramboldia cinnabarina (Sommerf.) Kalb *et al.* — 30: bark of *Populus tremula*; det. MK. Thallus contain fumarprotocetraric acid.

***Rhizocarpon cinereonigrum** Vain. — a5: granite (LECB; fn GL-ad.6).

R. distinctum Th. Fr. — 10: granite.

R. geographicum (L.) DC. — a5: granite.

***R. grande** (Flörke) Arnold — 20: granite (LECB; fn GL-20).

***R. jemtlandicum** Malme — 20: granite (LECB; fn GL-20).

R. lavatum (Fr.) Hazsl. — 17: granite.

Rinodina pyrina (Ach.) Arnold — 35: bark of *Populus tremula*.

R. septentrionalis Malme — 5, 33, 34, 39: bark of *Populus tremula*, *Salix* sp., *Sambucus* sp. and *Sorbus aucuparia*.

Ropalospora viridis (Tønsberg) Tønsberg — 1, 11, 25, 29, 35–39: bark of *Alnus* spp., *Betula* sp., *Populus tremula*, *Quercus robur*, *Salix* spp. and *Sorbus aucuparia*. Thalli contain perlatolic acid.

Rusavskia elegans (Link) S. Y. Kondr. *et* Kärnefelt [= *Xanthoria elegans* (Link) Th. Fr.] — 12: concrete (Stepanchikova *et al.*, 2006).

Sarcogyne regularis Körb. — 12, 21, 32: concrete.

+**Sarea difformis** (Fr.) Fr. — 37, 38: resin of *Picea abies*.

+**S. resiniae** (Fr.: Fr.) Kuntze — 37, 38: resin of *Picea abies*.

***Schismatomma pericleum** (Ach.) Branth *et* Rostr. — V: bark of *Picea abies* (Stepanchikova *et al.*, 2008; H 8004267, in the specimen of *Calicium viride* and 8004394, in the specimen of *Chaenotheca trichialis*). Protected in Saint Petersburg (Prilozhenie..., 2014).

Scoliosporum chlorococcum (Graewe ex Stenh.) Vězda — 1–3, 6–11, 14, 16, 23–25, 27, 29–32, 34–40, a7: bark and lignum of different trees.

S. sarothamni (Vain.) Vězda — 2, 3, 5, 7–10, 14, 16, 19, 24–32, 34–40: bark and lignum of different trees.

- S. umbrinum** (Ach.) Arnold — 17, 20, 21, a5: granite.
- Scytinium teretiusculum** (Wallr.) Otálora et al. [≡ *Leptogium teretiusculum* (Wallr.) Arnold] — 21; mosses (Stepanchikova et al., 2008; Atlas..., 2013). Protected in Saint Petersburg (Prilozhenie..., 2014).
- Steinia geophana** (Nyl.) Stein — 2: lignum of wet log.
- +**Stenocybe pullatula** (Ach.) Stein — V, 2, 29, 30, 35, 36, 39: bark of *Alnus* spp.
- Stereocaulon alpinum** Laurer — 20, 32: soil, granite (Stepanchikova et al., 2006).
- S. condensatum** Hoffm. — 32: soil.
- S. paschale** (L.) Hoffm. — 4: soil (Stepanchikova et al., 2006).
- S. tomentosum** Fr. — 4, 32: soil, granite (Stepanchikova et al., 2006).
- Strangospora moriformis** (Ach.) Stein — 18, 40: bark of *Pinus sylvestris*, lignum.
- Thelenella pertusariella** (Nyl.) Vain. — 38: bark of *Acer platanoides* and *Sorbus aucuparia*.
- Thelocarpon epibolum** Nyl. — 38: granite.
- ***Toensbergia leucococca** (R. Sant.) Bendiksby et Timdal [≡ *Pycnora leucococca* (R. Sant.) R. Sant.] — 29, 37: bark of *Alnus incana* and *Betula* sp. (LECB; fn GL-29, GZ-03-2012).
- Trapelia coarctata** (Sm.) M. Choisy — 4, 32: granite.
- T. placodioides** Coppins et P. James — 12, 20, 21, 34: granite.
- Trapeliopsis flexuosa** (Fr.) Coppins et P. James — 13, 16, 18, 19, 22, 24, 27–29, 31, 33–37, 39, 40: bark of *Alnus incana*, *Betula* sp., *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Salix* spp. and *Sorbus aucuparia*, lignum, soil, upturned roots.
- T. granulosa** (Hoffm.) Lumbsch — 1, 27, 32: soil, once on bark of *Pinus sylvestris*.
- #**Tremella cladoniae** Diederich et M. S. Christ. — 34: thallus of *Cladonia* sp.; det. JM, 2014 (BILAS).
- #**T. lichenicola** Diederich — 23, 24, 35, 37, 39: thalli of *Violella fucata*; det. MK et IS, 2009 (Stepanchikova et al., 2010).
- Tuckermannopsis chlorophylla** (Willd.) Hale — 3, 6, 8, 10, 14–16, 19, 23, 26, 29, 34–38, 40, a7: bark of *Abies* sp., *Alnus incana*, *Betula* sp., *Fraxinus excelsior*, *Padus avium*, *Picea abies*, *Pinus sylvestris*, *Sambucus* sp., *Sorbus aucuparia* and *Tilia* sp., lignum of conifers (Stepanchikova et al., 2006).
- Umbilicaria deusta** (L.) Baumg. — 20, a5: granite (Stepanchikova et al., 2006; Atlas..., 2013).
- U. polyphylla** (L.) Baumg. — 20, a5: granite (Stepanchikova et al., 2006; Atlas..., 2013). Protected in Saint Petersburg (Prilozhenie..., 2014).
- Usnea dasyposa** (Ach.) Nyl. — 40, a7: bark of *Betula* sp. and *Pinus sylvestris*.
- U. glabrescens** (Nyl. ex Vain.) Vain. — 33: bark of *Salix* sp.
- U. hirta** (L.) Weber ex F. H. Wigg. — 5, 7, 8, 13, 17, 22: bark of *Pinus sylvestris*, *Populus tremula*, *Salix* sp. and *Tilia* sp., lignum of *Pinus sylvestris*, granite (Stepanchikova et al., 2006).
- U. subfloridana** Stirt. — V, 5, 8: bark of *Populus tremula* and *Tilia* sp. (Stepanchikova et al., 2006).
- ***U. wasmuthii** Räsänen — V: bark of *Larix* sp.; det. P. Halonen, 1994 (H 8003734).

- Verrucaria christiansenii** Servit — 21: concrete; det. JP, 2013 (H).
V. dolosa Hepp — 4, 38: concrete, granite; det. JP, 2012 (H).
V. memnonia (Körb.) Arnold — 21: granite; det. JP, 2012 (H).
V. pilosoides Servit — 10, 21, 32: concrete; det. JP, 2013 (H)
V. xyloxena Norman — 4, 32: soil.
Vezdaea acicularis Coppins — 40: mossy soil (Atlas..., 2013).
Violella fucata (Stirt.) T. Sprib. — 1, 22–25, 27, 28, 33, 35, 37, 39, a6: bark of *Alnus incana*, *Betula* sp., *Picea abies*, *Pinus sylvestris*, *Populus tremula*, *Salix* spp. and *Sorbus aucuparia*, lignum of *Pinus sylvestris*; det. MK et IS, 2009 (LECB). Thalli contain atranorin and fumarprotocetraric acid.
Vulpicida pinastri (Scop.) J.-E. Mattsson et M. J. Lai — 1, 3, 6–8, 10, 11, 14–16, 18–40, a7: bark and lignum of coniferous trees and less often on bark of deciduous trees, granite and plant debris (Stepanchikova *et al.*, 2006).
Xanthoparmelia conspersa (Ach.) Hale — 10, 18, 20: concrete, granite, lignum (Stepanchikova *et al.*, 2006).
X. stenophylla (Ach.) Ahti et D. Hawksw. — 20, a5: granite (Stepanchikova *et al.*, 2006).
Xanthoria parietina (L.) Th. Fr. — 2, 5, 7–9, 12, 14, 16, 18, 25, 30, 32, 33, 35, 38, a7: bark of deciduous trees, concrete and lignum (Stepanchikova *et al.*, 2006).
Xylographa parallela (Ach.: Fr.) Fr. — 34: lignum of *Picea abies*.
Xylopsora caradocensis (Nyl.) Bendiksby et Timdal [= *Hypocenomyce caradocensis* (Leight. ex Nyl.) P. James et Gotth. Schneid.] — 16, 24, 26, 31, 40: bark and lignum of *Pinus sylvestris*, bark of *Picea abies*.
X. friesii (Ach.) Bendiksby et Timdal. [= *Hypocenomyce friesii* (Ach.) P. James et Gotth. Schneid.] — V, 23, 24, 26, 40: bark of *Picea abies*, bark and lignum of *Pinus sylvestris*.

Excluded taxon

Nephroma bellum (Spreng.) Tuck. (Stepanchikova *et al.*, 2008) — published erroneously due to misprint.

Altogether the revealed lichen flora of GPA comprises 310 species: 287 lichens, 9 lichenicolous, 2 facultatively lichenicolous and 12 saprobic fungi related to lichens. One species — *Caloplaca albolutescens* — is published for the first time for the European Russia excluding Caucasus, and 25 species are new to St. Petersburg.

However, nowadays 290 species are known from GPA, as 20 species collected historically by A. O. Kihlman were not found later within the area. These species were: *Arthonia didyma*, *A. subfuscicola*, *Bacidia laurocerasi*, *Biatora albohyalina*, *Buellia schaeereri*, *Calicium viride*, *Chaenotheca brunneola*, *C. subroscida*, *Chaenothecopsis viridialba*, *Lecanora albella*, *L. cadubriae*, *L. cateilea*, *Microcalicium disseminatum*, *Nephroma parile*, *N. resupinatum*, *Opegrapha vulgata*, *Pertusaria amara*, *Ramalina thrausta*, *Schismatomma pericleum*, *Usnea wasmuthii*. The most

of the species cited above are forest lichens and are rare in managed areas in North-Western European Russia (see: e. g.: Fadeeva *et al.*, 2007; Kuznetsova *et al.*, 2007). Among them, seven species — *Chaenotheca subroscida*, *Chaenothecopsis viridialba*, *Microcalicium disseminatum*, *Nephroma parile*, *N. resupinatum*, *Ramalina thrausta*, *Schismatomma pericleum* — are habitat specialists and indicator species of old-growth undisturbed forests (Vyyavlenie..., 2009), all of them are now extinct in the limits of St. Petersburg (Prilozhenie..., 2014) and are rare in the Leningrad Region according to our data (database «Lichens of the Leningrad Region and St. Petersburg» by D. E. Himelbrant, E. S. Kuznetsova and I. S. Stepanchikova, 2014). For example, *Chaenotheca subroscida* in the western part of the Leningrad Region was collected twice: in Konevets Island in 1938 by V. Räsänen (H), and in 2011 by us in damp spruce forest in the Smorodinka River valley (Stepanchikova *et al.*, 2013); all other known localities (the number exceeds 90) refer to the eastern part of the Leningrad Region. *Chaenothecopsis viridialba* is known from few localities in the eastern part of the Region as well. *Ramalina thrausta* was much more distributed in the Region before (see e. g.: Ahlner, 1948), but now it is extremely rare and known from the eastern part of the Leningrad Region only. *Schismatomma pericleum* is very rare in the Region in general; it was collected in 19th century by A. O. Kihlman in Karelian isthmus (Muola, Pällilä and Vammelsuu) and by Frederik Elfving in the Eastern Leningrad Region (Nikola); nowadays it is known only from Zavgubsky Peninsula, eastern part of the Region (Stepanchikova *et al.*, 2011). *Microcalicium disseminatum* and *Nephroma* spp. are more widespread, but also are confined to relatively undisturbed areas; all the historical localities within the city are lost now.

The historical data on lichen flora allow to suppose that in the late 19th century almost undisturbed old-growth forests were still present in vicinities of Vammelsuu. Around 1930s the area of Gladyshevskiy was heavily destroyed by cuttings, the Gladyshevka-Chyornaya River was used for log driving. The most of indicator species and habitat specialists of old-growth forests should have disappeared due to loss of microhabitats which existed in undisturbed spruce stands in the area of GPA before cuttings; air pollution must have led to loss of the complex of sensitive species (*Nephroma* spp., *Usnea* spp. and others). So, on one hand, now the lichen biota of GPA is significantly impoverished in comparison to the past. On the other hand, anthropogenic substrates (first of all concrete) and biotopes appeared there and formed a habitat for other ecological groups of lichens. So, nowadays the lichen biota of the area is significantly transformed, but still it is comparatively rich.

Of 290 species found in Gladyshevsky protected area in 2005–2013, 187 species (64.5 %) were recorded on bark of trees and shrubs, 82 (28.3 %) on lignum, 74 (25.5 %) on stones, 52 (17.9 %) on soil, plant debris and upturned roots, 14 (4.8 %) on mosses, 7 (2.4 %) on fruit bodies of polypores, 2 (0.7 %) on iron and same amount on resin, and 6 (2.1 %) were lichenicolous. The richest phorophytes were *Betula* spp. (82 species, 28.3 % of the lichen flora), *Pinus sylvestris* (77 species, 26.6 %), *Populus tremula* (77, 26.6 %) and *Salix* spp. (70, 24.1 %). From *Picea abies* only 56 epiphytic lichens were recorded (19.3 % of the lichen flora), as well as from *Sorbus aucuparia*, though spruce forests are widespread within the protected area. Of the saxicolous lichens, 52 (17.9 % of the lichen flora) were recorded on granite and 33 (11.4 %) — on concrete constructions. To compare, in the Smorodinka River valley which is geographically close to GPA, but is less disturbed due to historical reasons, 77 species have been recorded on bark of spruce (Stepanchikova *et al.*, 2013). Relatively low amount of lichens on bark of *Picea abies* reflects the secondary type of the forest communities in Gladyshevskiy. We can predict that the significant part of spruce epiphytes disappeared after cuttings around 80–100 years ago. Noteworthy that the amount of willow epiphytes is rather high due to anthropogenic transformation of the area: in several places old planted trees of *Salix* spp. present on open glades. Their bark gives shelter to many lichen species, some of them being recorded in GPA only from old willow trees (like *Melanohalea septentrionalis*, *Pertusaria albescens*, *Usnea glabrescens*).

Anyway, nowadays the lichen diversity of the Gladyshevskiy protected area is the richest in St. Petersburg and the nearest surroundings. Notable is also, that we listed altogether 14 indicator species and habitat specialists of biologically valuable forests from GPA (Vyyavlenie..., 2009), seven of them being still present within the area: *Arthonia helvola*, *Bacidia rubella*, *Chaenothecopsis nigra*, *Chaenothecopsis subparvoica*, *Cladonia norvegica*, *Leptogium teretiusculum* and *Microcalicium ahlneri*. Among 14 species known in GPA and included in the Red Data Book of St. Petersburg, seven present in GPA also nowadays: *Anaptychia ciliaris*, *Bacidia rubella*, *Cladonia norvegica*, *C. stellaris*, *Leptogium teretiusculum*, *Montanella soreliata*, *Umbilicaria polyphylla*.

Although the lichen biota of the area is seriously transformed, still it is comparatively rich and deserves protection. GPA is an existing protected area now, therefore we can expect that in future the lichen diversity within this area will become higher due to old-growth forests forming on base of existing stands. Some of the species that disappeared from the area might slowly come back. But in the same time the city of St. Petersburg

is developing and becoming larger, so in the nearest decades the anthropogenic pressure on the Region will increase. Air pollution and recreation are the factors which are expected to limit the recovery of natural biotopes in GPA.

Acknowledgements

The authors wish to express sincere gratitude to J. Hafellner (Graz, Austria), M. Kukwa (Gdansk, Poland), J. Motiejūnaitė (Vilnius, Lithuania), J. Pykälä (Helsinki, Finland), M. Westberg (Stockholm, Sweden), L. Yakovchenko (Vladivostok, Russia) for help in identification of the selected specimens, and J. Vondrák for valuable comments on distribution of *Caloplaca albolutescens*. Our thanks are also due to T. Ahti for help in revising the collection of Kihlman in H, and E. S. Kuznetsova and L. V. Kuzmina (St. Petersburg) who participated in the field investigations. We express special thanks to curators of the lichen herbaria — Leena Myllys (Botanical Museum of University of Helsinki) and Seppo Huhtinen (University of Turku). We would like to thank the reviewer Piret Lõhmus (University of Tartu) for corrections and valuable comments. The study was funded by Russian Foundation for Basic Research (grant 14-04-01411), by Saint Petersburg State University (research grant 1.37.151.2014) and by the Program of Basic Research of the Presidium of RAS «Wildlife: Current Status and Problems of Development» and also supported by the Directorate of Nature Protected Areas of St. Petersburg.

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