Additional records of lichens and lichenicolous fungi from the Giresun, Trabzon and Rize provinces, Turkey

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Abstract. A lichenological survey carried out in 83 different localities of Giresun, Trabzon, and Rize provinces of Turkey yielded a total of 399 lichen taxa and 23 lichenicolous fungi. *Briancoppinsia cytospora* is new to Turkey. Three hundred and seven lichens and 19 lichenicolous fungi were collected in Giresun, 110 lichens and one lichenicolous fungus in Rize, and 223 lichens and eight lichenicolous fungi in Trabzon. Ninety-one lichens and 14 lichenicolous fungi are new for Giresun, 42 lichens and four lichenicolous fungi for Trabzon, and 53 lichens and one lichenicolous fungus for Rize. For each taxon, the substratum and the collecting locality numbers are given.

Key words: *Ascomycota*, lichen, lichenicolous fungi, new records, Giresun, Rize, Trabzon, Turkey

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Introduction

According to John & Türk 2017 and John & al. 2020, a total of 1898 lichens and lichenicolous fungi were reported from Turkey. After this research, 63 taxa with published studies were added, and the number has reached 1963 species. Giresun, Rize and Trabzon already belong to the most thoroughly explored provinces in Turkey (John & Türk 2017; John & al. 2020).

The fact is that many provinces in the Black Sea region have great lichen diversity and there are some important areas, where the lichen flora calls for a more thorough research.

Still, there are several unexplored regions in Trabzon, Giresun and Rize provinces. In the present work, some lichenologically poorly known areas have been investigated and additional data for the checklists of Giresun, Rize and Trabzon provinces have been provided.

Turkey is located between the temperate and subtropical climate zones. As a result of its geographical location and landforms, different climate types have formed. In the coastal regions, more temperate cli-

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matic features are observed, influenced by the seas. The high and massive mountains prevent sea influences from reaching inland. For this reason, continental climate characteristics prevail in the interior.

Climate, geology, plant cover, and geography of the study areas

Since the research areas contain very rugged, steep and microclimatic parts, they are very important in terms of lichen biodiversity. So far, no comprehensive study has been carried out in terms of lichen systematics in the regions. It is understood that there are regions that still need to be examined for their lichen biodiversity, considering their microclimate and difficult terrain.

Giresun

Giresun has warm coastal areas and ranks second in rainfall after Rize. Temperatures range from a winter low of –9.8 ºC to a summer high of 3 ºC. For many years, the annual average temperature in the center of the Povince has been 14 ºC. The average temperature of the coldest month (February) is 7 ºC, and the average temperature of the warmest month (August) is 22 ºC. The lowest recorded temperature has been -9.8 ºC in February, and the highest temperature has been 37 ºC in October. Precipitation is plentiful and the annual average is 1305 mm. In the south of Giresun mountains, hot summer and cold winter prevail. Precipitaion in the coastal region varies between 1300-1760 mm, and is 564 mm in the southern parts (Akman 1999). Because of high precipitation, Giresun has a rich plant cover. Approximately 38 % of the Province is covered by forests. Meadows and grasslands claim 27 % of Giresun. Up to 1000 m a.s.l., the coastal area is widely dominated by *Acer*, *Corylus*, *Castanea*, *Robinia*, *Carpinus*, *Quercus*, *Tilia*, *Fraxinus,* and *Ulmus* species, as well as by such friut trees such as *Pyrus*, *Prunus*, *Ficus,* and *Morus*. Areas lying between 1000-2000 m a.s.l. contain extensive forsests of *Pinus sylvestris* and *Picea orientalis* (Baytop & Denizci 1963; URL-1).

The city of Giresun has a relatively rugged relief and the elevation varies from 0 to 230 m, with recent Holocene in the valleys and along the western part of the littoral and uniform Upper Cretaceous volcanic facies dominating the rest of the study area. Thickness of the Çatak formation is approximately 1000 m (Erentöz 1962).

Rize

Black Sea climate prevails in the Rize Province. The Black Sea climate is characteristically cool in summers, mild in winters and rainy in all seasons. The most important factor are the mountains extending parallel to the coast. The annual average temperature in Rize is 14 ºC . The lowest temperature recorded there to date has been -7 ºC, and the highest temperature has been 38 ºC. The coldest month is January and the hottest is July. Annual precipitation is 2300 mm. Rize is the area with most rainfalls in Turkey. Precipitation in the Province is evenly distributed across the seasons, without a dry season. The least amount of rainfalls in the Province is registered in spring and the heaviest rainfalls occur in autumn. Humidity always exceeds 75 % (Akman 1999; URL-2). Nearly 48 % of the Rize Province is covered by forests and shrubbery. Forests are rich and climb up to 2800 m a.s.l. Meadows and alpine areas claim 24 %. About 40 000 hectares of the total area are put under tea gardens. *Corylus*, *Pyrus* and *Prunus* orchards predominatly occur in many areas. Along the coastaline in Rize Province, forests are formed by deciduous trees, while *Abies, Carpinus, Fagus, Picea orientalis, Pinus, Quercus,* and *Ulmus* occur in the highlands (Baytop & Denizci 1963). The Province was formed in the Palaeozoic. Valleys first appeared during the Cretaceous and have expanded since due to erosion (URL-3). Underlying rocks reflect regional diversity in type and age. In the northwest, the ancient Precambrien rocks appear in the southern tip of the structural block known as the Russian, dating back at least 540 million years ago. A second related platform is deeply covered by later formed sedimentaruy rocks. A deepwater depression, generally considered to be a vast structural downwarp, is an unusual and significant feature of the Earth's crust there. A sedimentary and a basaltic crustal layer cover the centre of the depression, with a granite layer thrust

between them at the periphery. Seafloor deposits generally vary from coarse pebbles and gravel at the periphery to fine silts at the centre of the basin (URL-4).

Trabzon

The months with the highest average temperature in Trabzon are July and August, and January and February are with the lowest. The average temperature measured during the year is 15 °C, the highest temperature is 38 °C, and the lowest temperature is –7 °C. Throughout the year, winds in Trabzon blow prevalently southwards, but with variations in the different months. The highest precipitation in Trabzon falls in October, 119 mm. February was determined as the month with the highest number of days with average snowfall. The highest precipitation in Maçka is 89 mm in May. The month with the highest number of days with average snowfall was determined as January (Akman 1999; URL-5). Plateaus claim 22 % of the total area and 78 % goes to hills. Forests vegetation climbs as high as 2300 m a.s.l. Forests cover 45% of the total area, 33 % is under arable land and the rest is meadows and grasslands. Forest vegetation in the Trabzon Province is composed mostly of deciduous and partly coniferous trees. *Picea orientalis*, *Fagus orientalis* and *Carpinus* spp., communities are predominantly spread in the highlands (Baytop & Denizci 1963).

The oldest geological unit in Trabzon belongs to the Early Middle Jurassic age and comprises weathered basalt, andesite and their pyroclastics. This formation is conformably overlain by massive and thick-bedded limestones of the Berdiga Formation of the Upper Jurassic - Lower Cretaceous. The Berdiga Formation in turn is unconformably overlain by Late Cratecous thick volcano-sedimentary successions containing andesite, basalt and daictes, and their pyroclastics, intercalated with red micritic limestones (Demir 2019).

Material and methods

The lichen samples were collected in 83 different localities from 29 September 1999 to 01 May 2018 (Table 1). The study area comprises three Turkish provinces: Giresun, Rize, and Trabzon (Fig. 1). Air-dried samples were studied using a Nikon SMZ1500

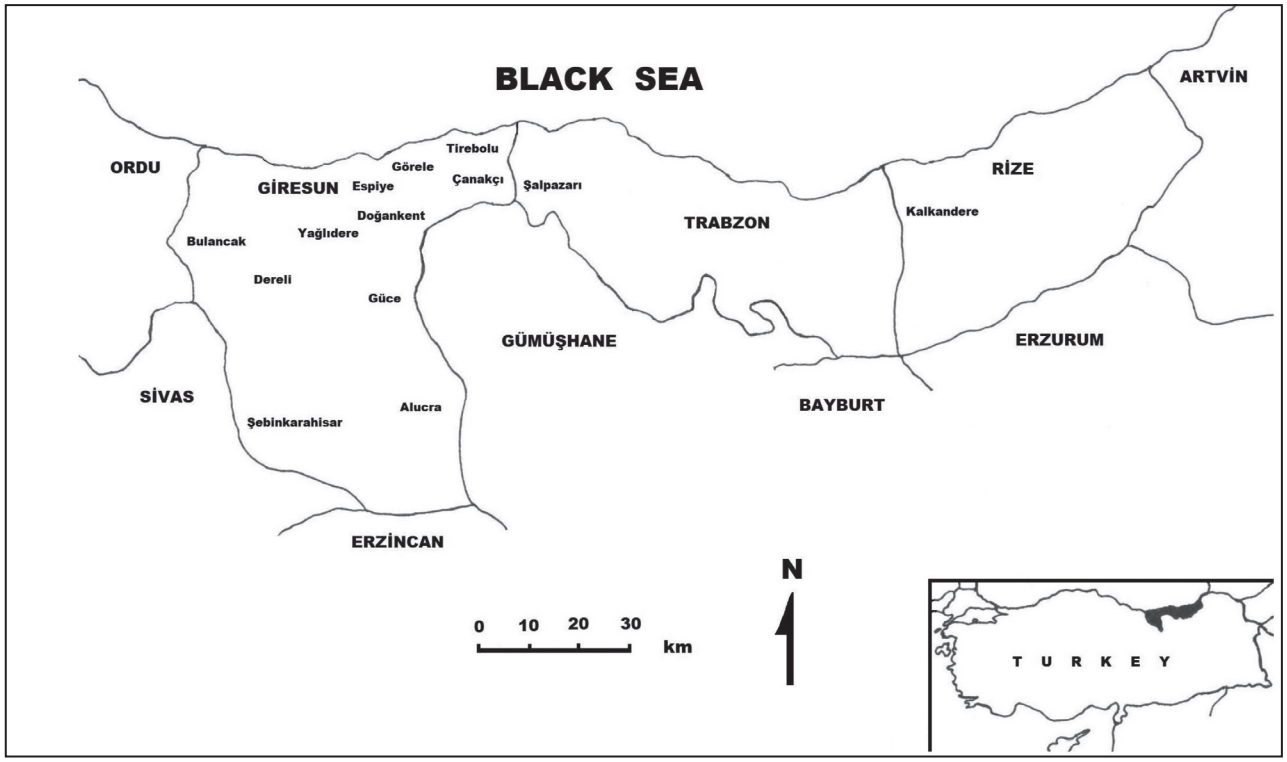

Fig. 1. Map of Turkey showing Giresun, Rize and Trabzon provinces.

Table 1. List of collecting localities

No	Stations	Coordinates	Altitudes (m)	Dates
1	Rize: Kalkandere, center, Kızıltoprak	40°55'42.05"N, 40°26'46.41"E	190	07.08.2011
2	Rize: Kalkandere, Yenigeçitli	40°57'07.50"N, 40°25'45.15"E	170	10.08.2011
3	Rize: Kalkandere, Yumurtatepe	40°56'32.50"N, 40°26'12.93"E	190	12.08.2011
4	Rize: Kalkandere, İnci village	40°57'09.91"N, 40°26'41.61"E	293	17.08.2011
5	Rize: Kalkandere, Çağlayan	40°55'17.55"N, 40°27'57.77"E	305	30.08.2011
6	Rize: Kalkandere, Yolbaşı	40°56'59.95"N, 40°27'35.78"E	388	28.08.2011
7	Rize: Kalkandere, Seyrantepe	40°55'00.83"N 40°28'22.57"E	440	19.08.2011
8	Rize: Kalkandere, Ünalan	40°55'35.87"N, 40°29'24.26"E	544	25.08.2011
9	Rize: Kalkandere, Ormanlı village	40°56'19.57"N, 40°2511.76"E	160	16.08.2011
10	Rize: Kalkandere, Yeşilköy	40°53'07.92"N, 40°29'34.00"E	410	24.08.2011
11	Rize: Kalkandere, Yeniköy-Dağdibi	40°54'01.04"N, 40°28'02.44"E	355	20.08.2011
12	Rize: Kalkandere, Çayırlı village, Cevizli	40°50'21.85"N, 40°29'07.54"E	370	26.08.2011
13	Rize: Kalkandere, Fındıklı village	40°54'25.53"N, 40°28'02.46"E	210	14.08.2011
14	Rize: Kalkandere, Esendere village	40°52'12.62"N, 40°30'16.34"E	730	15.08.2011
15	Rize: Kalkandere, Soğuksu	40°50'31.76"N, 40°30'07.60"E	460	27.08.2011
16	Giresun: Bulancak, Paşa Konağı, Yıldıztepe	40°43'52.51"N, 38°03'52.90"E	1675	10.07.2010
17	Giresun: Bulancak, Bicik, Çamalan	40°36'29.86"N, 38°03'41.08"E	1900	11.07.2010
18	Giresun: Dereli, Alçakbel	40°39'32.59"N, 38°20'39.78"E	1320-11350	13.07.2010
19	Giresun: Bulancak, Paşa Konağı, Camidüzü	40°43'14.87"N, 38°02'58.27"E	1375	15.07.2010
20	Giresun: Bulancak, Ambar mountain, center	40°40'06.72"N, 38°08'49.31"E	1700	17.07.2010
21	Giresun: Bulancak, Paşa Konağı, Karatepe	40°43'32.61"N, 38°02'21.84"E	1400	20.07.2010
22	Giresun: Bulancak, Ambar mountain, Çatalcam plateau	40°39'01.17"N, 38°10'42.83"E	1800	21.07.2010
23	Giresun: Bulancak, Bektaş plateau	40°40'48.49"N, 38°14'56.27"E	1800	21.07.2010
24	Giresun: Dereli, 2 km to Aksu village (from East)	40°33'44.21"N 38°13'08.24"E	1750	25.07.2010
25	Giresun: Dereli, İkisu, Yarmataş	40°34'07.63"N, 38°21'48.66"E	1100	27.07.2010
26	Giresun: Dereli, Kanlıhan, Tamdere	40°31'12.15"N, 38°21'58.79"E	1400	28.07.2010

No	Stations	Coordinates	Altitudes (m)	Dates
27	Giresun: Dereli, Kulaklıeyer, Düztepe	40°36’18.30”N, 38°17’23.26”E	1600	29.07.2010
28	Giresun: Dereli, Kulakkaya	40°42’01.25”N, 38°20’18.43”E	1550	01.08.2010
29	Giresun: Dereli, Kümbet, Çamdibi	40°33’45.81”N, 38°27’04.44”E	1600	02.08.2010
30	Giresun: Dereli, Yuva village	40°36’47.16”N, 38°16’34.42”E	1350	04.08.2010
31	Giresun: Dereli, Kızıltaş village (East part)	40°34’19.18”N, 38°15’47.33”E	1440	04.08.2010
32	Giresun: Dereli, Yavuz Kemal Işıklar	40°41’52.36”N, 38°19’21.82”E	1200	05.08.2010
33	Giresun: Dereli, Kümbet, Cımbırtlık	40°32’50.13”N, 38°26’44.64”E	1200	05.08.2010
34	Giresun: Dereli, Hapan village	40°35’44.23”N, 38°16’13.13”E	1720	06.08.2010
35a	Giresun: Dereli, Güzlek plateau	40°31’17.31”N, 38°24’09.48”E	1690	07.08.2010
35b	Giresun: Dereli, Bektaş plateau	40°38’35”N, 38°19’36”E	1185	07.08.2010
35c	Giresun: Dereli, Kuzalanı waterfalls	40°37’20”N, 38°23’39”E	1304	07.08.2010
36	Giresun: Tirebolu, Tekke village	40°45’39.21”N, 38°51’57.35”E	575	23.06.2010
37	Giresun: Tirebolu, Çığlar plateau, Kütüldük	40°49’54.95”N, 38°51’50.55”E	1900	24.06.2010
38	Giresun: Tirebolu, Gelavera, Ayıdereli	40°57’50.88”N, 38°45’18.74”E	16m	25.06.2010
39	Giresun: Tirebolu Castle	41°00’27”N, 38°49’16”E	8	29.06.2010
40	Giresun: Şebinkarahisar Castle	40°17’02”N, 38°25’35”E	1500	29.09.1999
41	Giresun: Şebinkarahisar, Toplukonak village, Gölet	40°21’39”N, 38°34’26”E	1900	29.09.1999
42	Giresun: Şebinkarahisar, Şaplıca village, Saydere: Karanlıkdere	40°21’06”N, 38°26’37”E	1375	29.09.1999
43	Giresun: Şebinkarahisar, Seydere: Kabalaklı	40°21’30”N, 38°28’04”E	1900	29.09.1999
44	Giresun: Doğankent, Dereyurt-Doğankent store	40°47’44”N, 38°53’12”E	1100	30.09.1999
45	Giresun: Doğankent, Süttaşı village	40°47’34”N, 3854’03”E	520	30.09.1999
46	Giresun: Doğankent, Çatalağaç, Boğaziçi	40°46”14”N, 38°58’17”E	735	01.10.1999
47	Giresun: Doğankent, Yaşmaklı, Ağaçbaşı plateau	40°44’23.12”N, 38°54’43.06”E	2050	07.06.2010
48	Giresun: Doğankent, Tepealan plateau	40°44’56”N, 38°53’58”E	940	01.10.1999
49	Giresun: Alucra, Çakrak Mevkii, surrounding the church	40°31’42”N, 38°36’11”E	1525	02.10.1999
50	Giresun: Alucra, surrounding Boyluca village	40°21’07”N, 38°55’04”E	2125	02.10.1999

No	Stations	Coordinates	Altitudes (m)	Dates
51	Giresun: Çal mountain	40°46'15"N, 38°19'00"E	665	03.10.1999
52	Giresun: Castle	40°55'16"N, 38°23'23"E	112	04.10.1999
53	Giresun: Yağlıdere, Akpınar village	40°35'02"N, 38°36'25"E	1300	05.10.1999
54	Giresun: Yağlıdere, Güllüce yivkisu	40°33'57"N, 38°38'25"E	1725	05.10.1999
55	Giresun: Yağlıdere, Derindere	40°37'26"N, 38°36'42"E	1200	05.10.1999
56	Giresun: Güce, Beyyurdu plateau, Kurban rock	40°40'04.86"N, 38°52'14.11"E	2100	22.06.2010
57	Giresun: Güce, Sakarobası, Çöbelek rock	40°43'36"N, 38°54'50"E	1950	25.06.2010
58	Giresun: Güce, Akılbaba plateau	40°40'28"N, 38°52'20"E	1400	29.06.2010
59	Giresun: Güce, Giyimli	40°53'02"N, 38°49'35"E	320	07.10.1999
60a	Giresun: Espiye, Karadyan	40°39'38"N, 38°41'54"E	1500	08.10.1999
60b	Giresun: Espiye, Karaovacık	40°37'27"N, 38°43'34"E	1800	08.10.1999
61	Giresun: Çanakçı, Saray Village	40°54'25"N, 39°00'59"E	310	29.04.2018
62	Giresun: Çanakçı, Kahraman vilage, Alaca plateau	40°49'04"N, 39°06'17"E	1225	29.04.2018
63	Giresun: Çanakçı, Kuş village, sazlıdere	40°52'35"N, 39°02'51"E	525	29.04.2018
64	Giresun: Çanakçı, surrounding Çağlayan	40°49'43"N, 39°07'59"E	812	30.04.2018
65	Giresun: Çanakçı, Düzköy	40°50'43"N, 39°07'12"E	728	30.04.2018
66.	Giresun: Çanakçı, Karabörk	40°52'55"N, 39°02'03"E	458	30.04.2018
67	Giresun: Çanakçı, Sis Mountain, exit of center	40°55'26"N, 39°00'46" E	176	30.04.2018
68	Giresun: Görele, Beyazıt village	40°56'51"N, 39°07'03"E	400m	09.10.1999
69	Trabzon: Şalpazarı, Sis Mountain, enter of Çağmanlı plateau	40°54'18"N, 39°08'02"E	1610	01.05.2018 09.04.2018
70	Trabzon: Şalpazarı, Sis Mountain, exit of Bakıralan plateau Dokuzoluk	40°52'27"N, 39°07'02"E	1889	01.05.2018 01.05.2018
71	Trabzon: Şalpazarı, Sis Mountain, Kireçhane plateau	40°51'14"N, 39°09'55"E	1580	08.04.2018
72	Trabzon: Şalpazarı, Sis Mountain, surrounding Kireçhane plateau	40°51'13"N, 31°09'49"E	1658	08.04.2018
73	Trabzon: Şalpazarı, Sis Mountain, Kalpakkaya	40°51'33"N, 39°09'04"E	1866	08.04.2018
74	Trabzon: Şalpazarı, Sis Mountain, Summit	40°52'18"N, 39°08'44"E	1993	08.04.2018
75	Trabzon: Şalpazarı, Sis Mountain Sandık Lake	40°51'20"N, 39°08'39"E	1709	08.04.2018
76	Trabzon: Şalpazarı, Sis Mountain, exit of Kireçhane plateau	40°51'25"N, 39°09'48"E	1598	09.04.2018

No	Stations	Coordinates	Altitudes (m)	Dates
77	Trabzon: Şalpazarı, Sis Mountain, exit of Örümcek plateau	40°52'59"N, 39°08'19"E	1865	09.04.2018
78	Trabzon: Şalpazarı, Sis Mountain, exit of Çağmanlı Obası İnişdibi	40°54'40"N, 39°08'10"E	1472	09.04.2018
79	Trabzon: Şalpazarı, Sis Mountain, enter of Gökçeköy 1	40°50'47"N, 39°10'23"E	1217	30.04.2018
80	Trabzon: Şalpazarı, Sis Mountain, enter of Gökçeköy 2	40°50'43"N, 39°10'34"E	1215	30.04.2018
81	Trabzon: Şalpazarı, Sis Mountain, enter of Gökçeköy 3	40°50'31"N, 39°10'54"E	1182	30.04.2018
82	Trabzon: Şalpazarı, Sis Mountain, Hanyanı plateau	40°51'15"N, 39°09'25"E	743	01.05.2018
83	Trabzon: Şalpazarı, Sis Mountain, Kayasis Peak	40°53'11"N, 39°06'24"E	1991	01.05.2018

stereomicroscope and a Nikon Eclipse 80i light microscope. Secondary metabolites were identified by the usual spot tests and TLC method (Orange & al. 2011). The reference literature included: Arup & al. 2013; Blanco & al. 2004; Brodo & al. 2001; Calatayud & al. 2002; Darmostuk 2016; Dobson 2005; Esslinger 1997; Etayo & Calatayud 1998; Galloway & Moberg 2005; Giralt 2001; Hawksworth 1983; Marina & al. 2005; Navarro-Rosinés & al. 2009; Nordin & al. 2010; and Smith & al. 2009. Specimens were deposited in the herbarium of the Biology Department, Faculty of Sciences and Arts, Karadeniz Technical University, Turkey.

Results and discussion

The present research yielded 397 lichens, two lichenicolous lichens (398 species, one subspecies, three varieties) and 23 lichenicolous fungi, representing 114 genera of *Ascomycota* (John & Türk 2017). *Briancoppinsia cytospora* was new to Turkey. Three hundred and seven lichens and 19 lichenicolous fungi were collected in Giresun, 110 lichens and one lichenicolous fungus in Rize, and 223 lichens and eight lichenicolous fungi in Trabzon. The new records for the provinces include 91 lichens and 14 lichenicolous fungi for Giresun, 42 lichens and four lichenicolous fungi for Trabzon, and 53 lichens and one lichenicolous fungus for Rize.

The lichen taxa are listed alphabetically. Asterisks indicate lichenicolous fungi and "+" indicates lichenicolous lichen. "#" indicates a new record for Turkey and "G" for Giresun, "R" for Rize and "T" for Trabzon province, respectively.

List of taxa

**Abrothallus prodiens* (Harm.) Diederich – Loc. 29, 82: on *Hypogymnia physodes* [G, T]

**Abrothallus usneae* Rabenh. – Loc. 77, 78: on *Usnea* sp.

Acarospora cervina A. Massal – Loc. 26: on calcareous rock.

A. fuscata (Ach.) Arnold – Loc. 16, 17, 18, 19, 35a, 35b, 35c, 36, 37, 38, 41, 42, 43, 46, 47, 50, 52, 53, 58, 60b, 70, 71,73, 74, 77, 78, 83: on siliceous rocks.

A. hospitans H. Magn. – Loc. 41: on calcareous rock.[G]

A. impressula Th. Fr. – Loc. 41: on siliceous rock.[G]

A. veronensis A. Massal – Loc. 5, 18, 41, 70: on siliceous rocks. [R, T]

Acrocordia gemmata (Ach.) A. Massal. – Loc. 69: on *Fraxinus* sp. [T]

Agonimia tristicula (Nyl.) Zahlbr. – Loc. 71: on stone, 64: on mosses [G]

Alectoria sarmentosa (Ach.) Ach. – Loc. 16, 29, 44, 60b: on *Picea orientalis* [G]

Alyxoria varia (Pers.) Ertz & Tehler – Loc. 32, 78: on *Fagus orientalis* and *Picea orientalis*

A. ochrocheila (Pers.) Ertz & Tehler – Loc. 1: on *Alnus glutinosa* [R]

Anaptychia ciliaris (L.) Körb. ex A. Massal. – Loc. 27, 29, 30, 43: on *Picea orientalis*

A. crinalis (Schleich.) Vězda ex J. Nowak – Loc. 27: on *Picea orientalis* and *Pinus* sp., 29, 30: on *Pinus* sp. [G]

A. setifera (Mereschk.) Räsänen – Loc. 29: on *Pinus* sp.

Anisomeridium polypori (Ellis & Everh.) M.E. Barr – Loc. 2: on *Pyrus* sp., 3: on *Tilia* sp. [R]

Arthonia atra (Pers.) A. Schneid. – Loc. 1, 3, 4, 5: on *Tilia* sp., 2: on *Fagus orientalis*, 9: on *Juglans* sp. and *Platanus orientalis* [R]

A. didyma Körb. – Loc. 18, 44: on *Picea orientalis* [G]

A. radiata (Pers.) Ach. – Loc. 19, 20, 82: on *Picea orientalis*, 21: on *Carpinus* sp., 22, 32: on *Salix* sp., 59: on *Carpinus* sp., 80: on *Alnus glutinosa* [T]

**A. varians* (Davies) Nyl. – Loc. 17, 22, 32, 35b, 47, 51, 74: on *Lecanora rupicola*

Arthopyrenia salicis A. Massal. – Loc. 7: on *Carpinus* sp., 8: on *Fagus orientalis* [R]

Aspicilia cinerea (L.) Körb. – Loc. 16, 19, 20, 22, 23, 24, 31, 35a, 35b, 35c, 37, 41, 42, 43, 47, 51, 50, 58, 60, 60b, 66, 69, 70, 71, 73, 74, 75, 83: on calcareous rock

A. intermutans (Nyl.) Arnold – Loc. 23, 50: on siliceous rock.

Athallia holocarpa (Hoffm.) Arup, Frödén & Søchting – Loc. 17, 19, 25, 35c, 42, 58: on calcareous rock, 53: on *Salix* sp.

A. pyracea (Hoffm.) Arup, Frödén & Søchting – Loc. 30, 32, 41, 53: on *Populus* sp. [G]

Bacidia arceutina (Ach.) Arnold – Loc. 1: on *Laurocerasus* sp., 5: on *Citrus reticulata*, 9: on *Carpinus* sp., 12: on *Ficus* sp.

B. laurocerasi (Delise ex Duby) Zahlbr. – Loc. 5: on *Ficus* sp. and *Tilia* sp.

B. rubella (Hoffm.) A. Massal. – Loc. 70, 74, 82: on *Picea orientalis*.

Bacidina arnoldiana (Körb.) V. Wirth & Vězda – Loc. 9, 12: on calcareous rock [R]

Baeomyces rufus (Huds.) Rebent. – Loc. 1: on mosses and calcareous rock, 7: on mosses, 10, 64: on calcareous rocks and *Carpinus* sp., 78: on soil

Bagliettoa baldensis (A. Massal.) Vězda – Loc. 32: on calcareos rock [G]

B. calciseda (DC.) Gueidan & Cl. Roux – Loc. 32: on calcareos rock

Bellemerea cupreoatra (Nyl.) Clauzadea & Cl. Roux – Loc. 41: on siliceous rock

Bilimbia sabuletorum (Schreb.) Arnold – Loc. 78: on *Picea orientalis* [T]

Blastenia crenularia (With.) Arup, Søchting & Frödén – Loc. 6, 35a, 43, 50, 58: on siliceous rock [R]

B. ferruginea (Huds.) A. Masal. – Loc. 14: on *Carpinus* sp., 17, 18, 19, 20, 22, 26, 29, 32, 72, 73, 77, 83: on *Picea orientalis*, 44: on *Pinus* sp.

**#Briancoppinsia cytospora* (Vouaux) Diederich, Ertz, Lawrey & van den Boom – Loc. 23: on *Rhizoplaca melanophthalma*.

Bryobilimbia hypnorum (Lib.) Fryday, Printzen & S. Ekman – Loc. 29: on mosses [G]

Bryoria bicolor (Hoffm.) Brodo & D. Hawksw. – Loc. 28, 58, 77, 82: on *Picea orientalis* and *Pinus* sp.

B. capillaris (Ach.) Brodo & D. Hawksw. – Loc. 27, 28, 43, 77: on *Picea orientalis*

B. fuscescens (Gyeln.) Brodo & D. Hawksw. – Loc. 60b: on *Pinus* sp., 77: on *Picea orientalis*

B. nadvornikiana (Gyeln.) Brodo & D. Hawksw. – Loc. 60b, 77: on *Picea orientalis*

B. smithii (Du Rietz) Brodo & D. Hawksw. – Loc. 28: on *Picea orientalis*

**Bryostigma epiphyscium* (Nyl.) S.Y. Kondr. & Hu – Loc. 28: on *Physcia* sp. [G]

B. lapidicola (Taylor) S.Y. Kondr. & Hur – Loc. 17, 23, 35a, 35b, 35c, 41, 42, 52, 57: on calcareous rock [G]

**B. phaeophysciae* (Grube & Matzer) S.Y. Kondr. & Hur – Loc. 70: on *Phaeophyscia orbicularis* [T]

Buellia aethalea (Ach.) Th. Fr. – Loc. 16, 17, 20, 22, 24, 26, 31, 35a, 35b, 35c, 42, 47, 51, 58, 72, 73: on siliceous rock

B. badia (Fr.) A. Massal. – Loc. 17, 35b, 35c, 37, 47, 51, 70, 74: on siliceous rock [G]

B. disciformis (Fr.) Mudd – Loc. 69, 70, 72, 76, 79: on *Fagus orientalis*, 82: on *Picea orientalis*

B. dives Th. Fr. – Loc. 58: on *Carpinus* sp., 58: on

Alnus glutinosa, 69: on *Ailanthus* sp. and *Fagus orientalis*, 72: on *Fagus orientalis* and *Picea orientalis* 75, 79: on *Fagus orientalis* [G]

B. griseovirens (Turner & Borrder ex Sm.) Almb. – Loc. 73, 76, 83: on *Fagus orientalis* [T]

B. stellulata (Taylor) Mudd. – Loc. 5, 7, 8: on siliceous rock [R]

Calicium viride Pers. – Loc. 82: on *Picea orientalis*

Calogaya decipiens (Arnold) Arup, Frödén & Sochting – Loc. 18, 38, 49: on calcareous rock

C. saxicola (Hoffm.) Vondrák – Loc. 66: on calcareous rock

Caloplaca cerina (Hedw.) Th. Fr. – Loc. 13: on mosses and *Tilia* sp., 32, 60b: on *Salix* sp., 34: on *Alnus glutinosa, Pinus* sp. and *Salix* sp. 53: on *Populus* sp. and *Salix* sp.

C. chlorina (Flot.) Sandst. – Loc. 32: on *Quercus* sp., 35a, 39: on siliceous rock

C. herbidella (Arnold) H. Magn. – Loc. 2, 3, 4: on *Tilia* sp., 72, 82: on *Fagus orientalis* and *Picea orientalis,* 75: on *Fagus orientalis* [R]

C. ochracea (Schaer.) Flagey – Loc. 66: on calcareous rock [G]

C. pellodella (Nyl.) Hasse – Loc. 39: on siliceous rock

Candelaria concolor (Dicks.) Arnold – Loc. 1: on *Alnus glutinosa* and *Laurocerasus* sp., 2, 8: on *Malus* sp., 5: on *Fraxinus* sp., *Populus* sp. and *Tilia* sp., 4: on tile, 6: on *Fagus orientalis*, 7: on *Alnus glutinosa* and *Populus* sp., 9: on calcareous rock, *Laurocerasus* sp., *Fagus orientalis, Fraxinus* sp. and *Prunus* sp., 11: on *Tilia* sp., 13, 34: on *Alnus glutinosa*, 41: on *Populus* sp. [R]

Candelariella aurella (Hoffm.) Zahlbr. – Loc. 13: on *Populus* sp., 16, 17, 18, 24, 32, 35a, 41, 43, 47, 50, 53, 58, 60b, 62, 70, 75: on calcareous rock, 32: on *Alnus glutinosa* and *Pyrus* sp., 34: on *Alnus glutinosa*.

C. reflexa (Nyl.) Lettau – Loc. 1: on *Alnus glutinosa, Laurocerasus* sp. and *Pyrus* sp., 3: on *Tilia* sp., 4: on *Fagus orientalis, Picea orientalis and Tilia* sp.,6: on *Fagus orientalis, Picea orientalis*, 10: on *Pyrus* sp., 11: on *Prunus* sp., 12, 66, 80: on *Alnus glutinosa*, 34: on *Pinus* sp., 58: on *Quercus* sp., 59, 62, 69: on *Picea orientalis*, 72: on *Ailanthus* sp. and *Fagus orientalis,* 73, 78, 79: on *Fagus orientalis*, 81: on *Prunus* sp.[R]

C. vitellina (Hoffm.) Müll. Arg. – Loc. 14, 15, 16, 17, 19, 20, 22, 23, 24, 25, 26, 35a, 35b, 35c, 36, 37, 39, 41, 43, 47, 48,49, 50, 51, 52, 53, 58, 60, 60b, 69, 70, 71, 73, 74, 75, 83: on siliceous rock

C. xanthostigma (Pers ex Ach.) Lettau – Loc. 75: on *Carpinus* sp.

**Carbonea vitellinaria* (Nyl.) Hertel – Loc. 41, 73: on *Candelariella vitellina*

C. vorticosa (Flörke) Hertel – Loc. 17, 23, 35b, 70: on calcareous rock [T]

**Cercidospora macrospora* (Uloth) Hafellner & Nav.-Ros. – Loc. 14: on *Protoparmeliopsis muralis* [R]

**C. xanthoriae* (Wedd.) R. Sant. – Loc. 34: on *Xanthoria elegans* [G]

Cetraria islandica (L.) Ach. – Loc. 20, 22, 26, 37: on mosses, 26: on mosses and soil, 27, 28, 37, 60, 60b: on soil

Cetrelia cetrarioides (Delise) W.L. Culb. & C.F. Culb. – Loc. 20: on *Pinus* sp., 21, 33: on mosses, 58, 62, 76: on *Alnus glutinosa*, 72, 80: on *Picea orientalis* [T]

C. olivetorum (Nyl.) W.L. Culb. & C.F. Culb. – Loc. 20, 22, 26, 27, 28: on *Pinus* sp., 21: on *Alnus glutinosa*, 29, 33: on mosses and *Quercus* sp., 58: on *Carpinus* sp., 42, 44, 46, 52, 58, 62, 69, 78, 80: on *Fagus orientalis*, 71, 72, 77, 82: on *Picea orientalis*, 76: on *Alnus glutinosa* and *Picea orientalis*, 81: on *Alnus glutinosa* and *Fagus orientalis*, 65: on *Prunus* sp.

Chaenotheca chrysocephala (Ach.) Th. Fr. – Loc. 82: on *Picea orientalis*.

C. furfuracea (L.) Tibell – Loc. 9: on *Castanea* sp. [R]

C. trichialis (Ach.) Hellb. – Loc. 82: on *Picea orientalis*

Chrysothrix chlorina (Ach.) J.R. Laundon – Loc. 9, 32: on siliceous rock [R]

C. candelaris (L.) J.R. Laundon – Loc. 21: on *Alnus glutinosa*, 27, 32: on *Pinus* sp., 28: on *Picea orientalis*, 58: on *Carpinus* sp., 82: on *Picea orientalis*

Circinaria caesiocinerea (Nyl. ex Malbr.) A. Nordin, Savić & Tibell – Loc. 16, 17, 19, 20, 22, 24, 35a, 35b, 37, 41, 43, 47, 50, 51, 52, 53, 54, 58, 60, 69, 70, 71, 73, 74, 75, 77, 78, 83: on calcareous rock

C. calcarea (L.) A. Nordin, Savić & Tibell – Loc. 66: on calcareous rock.

C. contorta (Hoffm.) A. Nordin, Savić & Tibell – Loc. 16, 25, 32, 32, 52, 57, 58, 60b, 71, 74: on calcareous rock

C. hoffmanniana (S. Ekman & Fröberg ex R. Sant.) A. Nordin – Loc. 16, 41, 52, 71, 74: on calcareous rock [G]

Cladonia arbuscula (Wallr.) Flot. – Loc. 12, 26: on mosses [R]

C. caespiticia (Pers.) Flörke – Loc. 9, 10, 11: on mosses, 8: on soil [R]

C. cariosa (Ach.) Spreng. – Loc. 41: on soil [G]

C. chlorophaea (Flörke ex Sommerf.) Spreng – Loc. 29, 43, 62: on soil

C. coniocraea (Flörke) Spreng. – Loc. 13, 14: on soil, 15, 17, 21, 20, 22, 26, 42, 44, 45, 58, 77: on mosses, 20, 28, 60b, 61, 73, 81: on *Picea orientalis*, 21: on *Alnus glutinosa*, 27, 29, 60: on *Pinus* sp., 72, 75, 76: on decayed branches of *Fagus orientalis* and mosses, 78: on *Fagus orientalis*, 8: on decayed body of *Fagus orientalis*, mosses and soil

C. fimbriata (L.) Fr. – Loc. 10, 43: on mosses, 27, 28: on *Picea orientalis*, 33: on mosses and soil

C. furcata (Huds.) Schrad. – Loc. 11, 19, 26, 27, 42, 75: on mosses, 28, 12, 70, 75, 78: on soil

C. humilis (With.) J.R. Laundon – Loc. 9: on soil

C. macilenta Hoffm. – Loc. 70: on mosses and soil

C. parasitica (Hoffm.) Hoffm. – Loc. 77: on decayed branch of *Fagus orientalis*.

C. pyxidata (L.) Hoffm. – Loc. 10, 14, 20, 29, 40, 71: on mosses, 26: on mosses and soil, 11, 13, 15, 48, 50, 52, 58, 60b, 62, 70, 72, 75, 76: on soil, 77, 83: on *Rhododendron luteum*

C. rangiferina (L.) Weber ex F.H. Wigg. – Loc. 16: on mosses and soil

C. rangiformis Hoffm. 12: on soil, 13, 15, 75, 77, 78: on mosses, 20: on mosses and *Pinus* sp., 26, 28, 47: on mosses and soil, 27: on mosses, *Pinus* sp. and soil, 42, 70: on mosses, soil and decayed body of *Pinus* sp. 82: on decayed branch of *Pinus* sp.

C. squamosa (Scop.) Hoffm. – Loc. 62, 70, 76, 77, 78, 83: on mosses

C. subulata (L.) Weber ex F.H. Wigg. – Loc. 77: on mosses

Collema flaccidum (Ach.) Ach. – Loc. 5, 32, 52, 58, 66: on mosses and siliceous rocks, 68, 76: on *Fagus orientalis* and mosses 78, 81: on mosses, 64: on *Buxus sempervirens* and mosses, 5, 32, 58: on siliceous rock

C. furfuraceum (Schaer.) Du Rietz – Loc. 32, 62: on mosses, 68: on *Alnus glutinosa*

C. subflaccidum Degel. – Loc. 5: on siliceous rock, 7, 67: on *Populus* sp., 32: on *Fraxinus* sp., 69: on *Carpinus* sp., 72: on *Picea orientalis*, 57, 76, 78: on mosses [R]

Cornicularia normoerica (Gunnerus) Du Rietz – Loc. 23, 32, 51, 74: on siliceous rock

Dermatocarpon intestiniforme (Körb.) Hasse – Loc. 71: on rock, 73: on siliceous rock

D. miniatum (L.) W. Mann. – Loc. 5, 11, 31, 34, 52, 71, 83: on calcareous rock

D. miniatum var. *complicatum* (Lightf.) Th. Fr. – Loc. 34, 52: on calcareous rock

Dimelaena oreina (Ach.) Norman – Loc. 16, 22, 23, 31, 35c, 47, 51: on siliceous rock

Diploschistes caesioplumbeus (Nyl.) Vain. – Loc. 5, 7, 8, 52: on siliceous rock [R]

D. muscorum (Scop.) R. Sant. – Loc. 60, 70: on mosses

D. scruposus (Schreb.) Norman – Loc. 16, 17, 19, 20, 22, 24, 35a, 35c, 36, 48, 51, 54, 60b, 70, 71, 73, 74,75, 83: on siliceous rock

Diplotomma epipolium (Ach.) Arnold – Loc. 35a, 51: on calcareous rock

D. venustum (Körb.) Körb. – Loc. 17, 35a: on calcareous rock [G]

Dolichousnea longissima (Ach.) Articus – Loc. 16, 28: on *Pinus* sp., 42, 77, 82: on *Picea orientalis*

Enchylium tenax (Sw.) Gray – Loc. 25, 32: on calcareous rock

Endocarpon adscendens (Anzi) Müll. Arg. – Loc. 54, 73: on soil [T]

**Endococcus macrosporus* (Hepp ex Arnold) Nyl. – Loc. 42: on *Rhizocarpon geographicum* [G]

**E. rugulosus* Nyl. – Loc. 70: on *Aspicilia cinerea* [T]

Ephebe lanata (L.) Vain. – Loc. 75: on siliceous rock

Evernia divaricata (L.) Ach. – Loc. 20, 27, 28, 29: on *Pinus* sp. 43, 44, 58, 60, 60b, 73, 77: on *Picea orientalis*

E. prunastri (L.) Ach. – Loc. 20: on mosses, 27: on *Carpinus* sp. and mosses, 32, 33: on *Quercus* sp., 28, 46, 60b, 77, 82: on *Picea orientalis*

Flavoparmelia caperata (L.) Hale – Loc. 1: on *Alnus glutinosa* and *Laurocerasus* sp., 3, 14: on *Tilia* sp., 4: on *Alnus glutinosa* and *Tilia* sp., 5, 37, 47: on *Alnus glutinosa*, calcareous rock, *Prunus* sp., *Tilia* sp. and *Vitis* sp., 7: on *Alnus glutinosa* and *Populus* sp., 8, 9, 13, 20, 21: on *Alnus glutinosa*, 11: on *Pinus* sp., *Prunus* sp. and *Pyrus* sp., 20, 32, 33, 59, 68: on *Carpinus* sp., 26, 27, 29, 31, 57: on mosses, 29: on *Pinus* sp., 32: on

Populus sp. 27: on *Carpinus* sp. and mosses, 37, 42, 45, 47, 52, 58: on *Carpinus* sp. and *Pinus* sp., 69, 72, 67: on *Fagus orientalis* and *Picea orientalis*, 28, 73, 75, 82: on *Picea orientalis*, 76: on *Fagus orientalis*, 78: on *Alnus glutinosa, Fagus orientalis* and *Juglans* sp., 80: on *Alnus glutinosa* and *Picea orientalis*, 15, 65, 81: on *Prunus* sp.

Fuscidea cyathoides (Ach.) V. Wirth & Vězda – Loc. 75: on siliceous rock [T]

Gallowayella fulva (Hoffm.) S.Y. Kondr., Fedorenko, S. Stenroos, Kärnefelt, Elix, Hur & A. Thell – Loc. 41, 60b: on *Fagus orientalis*

Glaucomaria carpinea (L.) S.Y. Kondr., L. Lőkös & Farkas – Loc. 17, 18, 19, 20, 22, 29, 32: on *Carpinus* sp., 34: on *Fagus orientalis* and *Quercus* sp., 42, 44, 80: on *Alnus glutinosa*, 53: on *Salix* sp., 60b, 69: on *Picea orientalis*, 72, 78, 79: on *Fagus orientalis*

G. bicincta (Ramond) S.Y. Kondr., L. Lőkös & Farkas – Loc. 17, 35a, 37, 45, 51: on siliceous rocks [G]*L. cenisia* Ach. – Loc. 17, 19, 22, 23, 35a, 35b 35c, 37, 43, 46, 47, 50, 51, 51, 54, 56, 57,68, 69, 70, 73, 74, 75, 77, 83: on siliceous rock

G. leptyrodes (G.B.F. Nilsson) S.Y. Kondr., L. Lőkös & Farkas – Loc. 32, 58, 62: on *Alnus glutinosa* [G]

G. sulphurea (Hoffm.) S.Y. Kondr., L. Lőkös & Farkas. – Loc. 17, 35b, 74: on siliceous rock [G]

G. swartzii (Ach.) (Ach.) S.Y. Kondr., L. Lőkös & Farkas – Loc. 16, 19, 35c: on siliceous rocks [G]

Graphis scripta (L.) Ach. – Loc. 6: on *Laurocerasus* sp., 5: on *Alnus glutinosa*, *Fagus orientalis*, *Malus* sp., *Morus* sp. and *Tilia* sp., 20: on *Populus* sp., 22, 58: on *Carpinus* sp. and *Fagus orientalis*, 59, 61, 64: on *Carpinus* sp., 62, 76: on *Fagus orientalis* and *Picea orientalis*, 79: on *Fagus orientalis*, 80: on *Alnus glutinosa*, 67: on *Alnus glutinosa* and *Populus* sp.

Gregorella humida (Kullh.) Lumbsch – Loc. 5: on siliceous rock [R]

Gyalolechia flavorubescens (Huds.) Søchting, Frödén & Arup – Loc. 2: on *Tilia* sp., 30, 53, 81: on *Populus* sp., *Prunus* sp. and *Salix* sp., 69, 78: on *Fagus orientalis* [R]

G. flavovirescens (Wulfen) Søchting, Frödén & Arup – Loc. 5, 7, 8, 25, 52, 61, 68: on calcareous rock [R]

Heterodermia speciosa (Wulfen) Trevis. – Loc. 11: on *Pinus* sp., 33: on *Carpinus* sp. 80: *Picea orientalis* and *Populus* sp., 81: on *Picea orientalis.*

Hyperphyscia adglutinata (Flörke) H. Mayrhofer & Poelt – Loc. 1, 7: on *Alnus glutinosa*, 5: on *Alnus glutinosa* and *Carpinus* sp., 9: on *Alnus glutinosa* and *Tilia* sp., 12: on *Tilia* sp. [R]

Hypogymnia physodes (Nyl.) Nyl. – Loc. 17, 19, 20, 22, 33, 58: on *Carpinus* sp., 26, 27, 29, 32, 33, 34: on, *Pinus* sp. 42, 44, 50, 51, 58: on mosses and *Pinus* sp., 58, 60, 60b, 62 69: on *Larix* sp. and *Picea orientalis*, 20, 71, 72, 75, 77, 82: on *Picea orientalis*, 73: on mosses and *Picea orientalis*, 74: on mosses, 76: on *Fagus* orientalis and *Picea orientalis*

H. tubulosa (Schaer.) Hav. – Loc. 27, 29, 34: on *Pinus* sp., 58: on *Carpinus* sp. and *Quercus* sp., 42, 44, 60, 60b, 72, 73, 77, 82: on *Picea orientalis*, 69: on *Larix* sp.

Hypotrachyna afrorevoluta (Krog & Swinscow) Krog & Swinscow – Loc. 5: on *Alnus glutinosa*, 6: on *Fagus orientalis* [R]

H. revoluta (Flörke) Hale – Loc. 12: on *Pyrus* sp. 7, 46, 62, 78: on *Fagus* orientalis, 80: on *Alnus glutinosa*, 82: on *Picea orientalis*

Icmadophila ericetorum (L.) Zahlbr. – Loc. 78: on decayed branch of *Fagus orientalis*

Immersaria athroocarpa (Ach.) Rambold & Pietschm. – Loc. 16, 23, 24, 35b, 35c, 41, 43, 50, 51, 60, 60b: on siliceous rock

Ingvariella bispora (Bagl.) Guderley & Lumbsch – Loc. 16, 20, 22, 24, 51, 74: on siliceous rock [G]

Ionaspis lacustris (With.) Lutzoni – Loc. 5, 9, 25, 35a, 37, 41, 48, 50, 54, 70: on siliceous rock [G, R]

**Lambiella insularis* (Nyl.) T. Sprib. – Loc. 17, 23, 35b, 37, 47, 83: on *Lecanora rupicola*

Lathagrium cristatum (L.) Otálora, P.M. Jørg. & Wedin – Loc. 32, 71: on calcareous rock

Lecania cyrtella (Ach.) Th. Fr. – Loc. 20, 22, 27: on *Pinus* sp., 30: on *Carpinus* sp., 32: on *Pyrus* sp., 75: on *Fagus orientalis*.

L. cyrtellina (Nyl.) Sandst. – Loc. 30, 82: on *Picea orientalis* [G, T]

L. fuscella (Schaer.) A. Massal. – Loc. 30, 32, 77: on *Picea orientalis* [T]

L. naegelii (Hepp) Diederich & van den Boom – Loc. 30, 32: on *Fagus orientalis*

Lecanora albella (Pers.) Ach. – Loc. 22, 60b, 69, 72, 76, 78: on *Fagus orientalis*, 82: on *Picea orientalis*

L. albellula (Nyl.) Th. Fr. – Loc. 67, 82: on *Picea orientalis* [G, T]

L. allophana (Ach.) Nyl. – Loc. 5: on *Alnus glutinosa* and *Populus* sp., 9: on *Alnus glutinosa*, 32, 34, 35c, 41, 69: on *Carpinus* sp. [R]

L. argentata (Ach.) Röhl. – Loc. 1: on *Alnus glutinosa* and *Malus* sp., 5: on *Juglans* sp., *Malus* sp. and *Tilia* sp., 4, 6, 82: on *Picea orientalis*, 7: on *Alnus glutinosa* and *Juglans* sp., 9: on *Alnus glutinosa, Juglans* sp. and *Prunus* sp., 10: on *Pyrus* sp., 11: on *Castanea* sp., 17, 58: on *Carpinus* sp., 8, 12, 19, 80: on *Alnus glutinosa*, 22, 30, 32, 34, 67, 78: on *Fagus orientalis*, 58, 59, 62 69: on *Carpinus* sp. and *Fagus orientalis*, 69, 72, 76: on *Fagus orientalis* and *Picea orientalis*, 81: on *Populus* sp. [R]

L. argopholis (Ach.) Ach. – Loc. 18, 23, 35b, 35c, 50: on siliceous rock

L. caesiosora (Flörke) Körb. – Loc. 70: on siliceous rock [T]

L. campestris (Schaer.) Hue – Loc. 68: on siliceous rock

L. chlarotera Nyl. – Loc. 5: on *Juglans* sp. and *Prunus* sp., 7: on *Populus* sp., 9: on *Alnus glutinosa* and *Juglans* sp. 11: on *Juglans* sp., 17, 18, 19, 21,20, 22: on *Carpinus* sp., 27, 28, 32, 36: on *Alnus glutinosa*, 43, 44, 62, 69, 72, 73: on *Picea orientalis*, 76, 69, 78: on *Fagus orientalis*, 77, 82: on *Fagus orientalis* and *Picea orientalis*

L. expallens Ach. – Loc. 22, 72, 73: on *Picea orientalis*, 82: on *Fagus orientalis* [G]

L. gangaleoides Nyl. – Loc. 17, 22, 35b, 39: on siliceous rock

+*L. gisleriana* Müll. Arg. – Loc. 41: on *Lecanora* sp. [G]

L. horiza (Ach.) Röhl. – Loc. 34, 58: on *Picea orientalis* [G]

L. intricata (Ach.) Ach. – Loc. 17, 35b, 70, 83: on siliceous rock

L. intumescens (Rebent.) Rabenh – Loc. 10: on *Carpinus* sp., 79: on *Fagus orientalis* [R]

L. jamesii J.R. Laundon – Loc. 10, 44: on *Carpinus* sp. [G, R]

L. pannonica Szatala – Loc. 73: on siliceous rock [T]

L. polytropa (Ehrh.) Rabenh. – Loc. 17, 19, 20, 22, 23, 24, 25, 35a, 35b, 35c, 36, 37, 47, 48, 50, 51, 54, 58, 60, 60b, 70, 73, 74, 75, 77, 70, 83: on siliceous rock

L. rupicola (L.) Zahlbr. – Loc. 16, 17, 18, 19, 20, 22, 23, 24, 26, 32, 35a, 35b, 35c, 36, 37, 41, 42, 43, 47, 50, 51, 56, 57, 68, 70, 71, 73, 74: on siliceous rock

L. rupicola var *efflorens* Leucket & Poelt – Loc. 22, 26: on siliceous rock [G]

L. strobilina (Spreng.) Kieff. – Loc. 4, 6: on *Picea orientalis*, 10: on *Fagus orientalis*, *Rhododendron* sp. and *Vaccinium myrtillus*, 12: on *Juglans* sp. [R]

L. subcarnea (Sw.) Ach. – Loc. 22, 23, 35a, 37: on rock, 42, 43, 47, 50, 52, 56, 60b: on siliceous rock

L. symmicta (Ach.) Ach. – Loc. 17, 18, 20, 22, 26, 29, 34, 62, 72, 73, 76, 78, 82: on *Fagus orientalis* and *Picea orientalis*, 77: on *Picea orientalis*, 69: on *Fagus orientalis* and *Larix* sp.

Lecidea fuscoatra (L.) Ach. – Loc. 16, 20, 22, 35c, 41, 42, 43, 50, 51, 53, 60b, 70, 73, 83: on siliceous rock

L. grisella Flörke – Loc. 16, 19, 25, 68: on siliceous rock [G]

L. lapicida (Ach.) Ach. – Loc. 17, 24, 32, 35a, 37, 39, 50, 51, 70: on siliceous rock [G]

L. plana (J. Lahm) Nyl. – Loc. 16, 17, 19, 22, 25, 35a, 35c, 37, 47, 50: on siliceous rock

L. sarcogynoides Körb. – Loc. 73, 82: on siliceous rock [T]

L. tessellata Flörke – Loc. 35c, 39: on siliceous rock

Lecidella carpathica Körb. – Loc. 13, 15, 16, 17, 19, 20, 22, 23, 24, 27, 35a, 35c, 37, 41, 42, 43, 46, 47, 50, 52, 56, 58, 58, 60, 60b, 61, 69, 70, 71, 73, 74, 75, 77, 83: on calcareous rock

L. elaeochroma (Ach.) M. Choisy – Loc. 1: on *Laurocerasus* sp., 6, 7, 81: on *Populus* sp., 17, 19, 22, 30, 80: on *Alnus glutinosa*, 20, 82: on *Picea orientalis*, 26, 30, 32: on *Alnus glutinosa* and *Carpinus* sp., 34: on *Pinus* sp. and *Salix* sp., 39, 42, 44, 53: on *Salix* sp., 58, 58, 59, 62, 69: on *Carpinus* sp., 72, 75, 76, 69, 79, 70: on *Fagus orientalis*

L. euphorea (Flörke) Hertel – Loc. 1: on *Laurocerasus* sp., 7: on *Populus* sp., 9: on *Prunus* sp., 34: on *Pinus* sp. 6, 69, 75, 76, 79: on *Fagus orientalis*, 80: on *Alnus glutinosa* [G]

L. stigmatea (Ach.) Hertel & Leuckert – Loc. 24, 37, 41, 42, 43, 46, 50, 54, 55, 60b, 63: on calcareous rock

Lepra albescens (Huds.) Hafellner – Loc. 11: on *Alnus glutinosa*, 22, 26, 28, 42, 58, 76: on *Fagus orientalis* and *Juglans regia*, 69: on *Larix* sp. and *Quercus robur*, 82: on *Picea orientalis* [R]

L. amara (Ach.) Hafellner – Loc. 16, 33: on *Alnus glutinosa*, 43, 72, 82: on *Picea orientalis*

L. aspergilla (Ach.) Hafellner – Loc. 16, 22, 24, 51, 64, 70,73, 74: on siliceous rock

L. excludens (Nyl.) Hafellner – Loc. 16, 63 on siliceous rock [G]

L. leucosora (Nyl.) Hafellner – Loc. 8: on calcareous rock [R]

L. multipuncta (Turner) Hafellner – Loc. 55: on *Carpinus* sp. [G]

L. ophthalmiza (Nyl.) Hafellner – Loc. 58: on *Carpinus* sp. and *Fagus* sp. [G]

Lepraria incana (L.) Ach. – Loc. 2: on *Abies nordmanniana* and *Laurocerasus* sp., 4, 6, 7, 8, 9, 10, 12, 24, 27, 36, 42, 43, 47, 75: on calcareous rock, 64: on *Buxus sempervirens*, 82: on *Picea orientalis*, 83: on *Rhododendron luteum*

L. lobificans Nyl. – Loc. 2: on *Laurocerasus* sp., 5, 9, 17, 27, 35a, 42, 50, 51, 55, 60b: on siliceous rock [G]

L. membranacea (Dicks.) Vain. – Loc. 1, 36: on siliceous rock [G, R]

L. nivalis J.R. Laundon – Loc. 64: on *Buxus sempervirens*, 70: on mosses, 72: on *Picea* orientalis, 83: on siliceous rock [G, T]

L. vouauxii (Hue) R.C. Harris – Loc. 71: on *Picea orientalis*, 70: on siliceous rock

Leprocaulon microscopicum (Vill.) Gams – Loc. 5: on siliceous rock.

Leproplaca cirrochroa (Ach.) Arup, Frödén & Sochting – Loc. 17, 32: on limestone [G]

Leptogium cyanescens (Ach.) Körb. – Loc. 5: on *Pyrus* p., 11: on *Alnus glutinosa*, 58, 69: on *Carpinus* sp.

L. hibernicum M.E. Mitch. ex P.M. Jørg. – Loc. 78: on mosses

L. saturninum (Dicks.) Nyl. – Loc. 15, 68, 69: *Carpinus* sp., 81: on *Carpinus* sp. and *Picea orientalis*, 78, 70: on *Fagus orientalis*.

L. teretiusculum Wallr. ex Arnold – Loc. 5: on calcareous rock

Letharia vulpina (L.) Hue – Loc. 50: on *Fagus orientalis*.

**Lichenodiplis lecanorae* (Vouaux) Dyko & Hawksw. – Loc. 22: on *Lecanora* sp. [G]

**Lichenostigma elongatum* Nav.-Ros. & Hafellner – Loc. 22: on *Aspicilia cinerea* [G]

**L. rouxii* Nav.-Ros., Calat. & & Hafellner – Loc. 43: on *Squamarina cartilaginea* [G]

Lobaria pulmonaria (L.) Hoffm. – Loc. 16, 20: on *Carpinus* sp., 26, 28, 33: on *Pinus* sp., 58, 62: on mosses, 69: on mosses and *Picea orientalis*, 78: odecayed branch of *Fagus orientalis* and mosses

Lobarina scrobiculata (Scop.) Nyl. ex Cromb. –Loc. 26, 42: on mosses [G]

Lobothallia alphoplaca (Wahlenb.) Hafellner – Loc. 17, 19, 35c, 3, 41, 62: on siliceous rock [G]

L. radiosa (Hoffm.) Hafellner – Loc. 42: on calcareous rock

L. recedens (Taylor) A. Nordin, Savić & Tibell – Loc. 70, 74: on siliceous rock

Melanelia stygia (L.) Essl. – Loc. 23, 26, 35b, 47: on siliceous rock

Melanelixia fuliginosa (Fr. ex Duby) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 20: on *Picea orientalis*, 22, 41, 46, 55: on *Fagus orientalis*

M. glabra (Schaer.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 27, 34, 53: on *Fagus orientalis* [G]

M. glabratula (Lamy) Sandler & Arup – Loc. 50, 55: on *Fagus orientalis*

M. subargentifera (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 32: on *Salix* sp.

M. subaurifera (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 28, 32: on *Quercus* sp., 33: on *Pyrus* sp., 58: on *Carpinus* sp., 42, 44: *Alnus glutinosa* and *Carpinus* sp., 14, 55, 60b, 65, 69: on *Fagus orientalis*, 72: on *Fagus orientalis* and *Picea orientalis,* 73, 77, 82: on *Picea orientalis*, 80: on *Alnus glutinosa*

Melanohalea elegantula (Zahlbr.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 43: on *Picea orientalis*

M. infumata (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 41: on *Pinus* sp., 73: on siliceous rock [T]

M. exasperata (De Not.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 32, 42, 46, 50, 53: on *Populus* sp. and *Salix* sp., 60b: on *Picea orientali*.

M. exasperatula (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 32: on *Carpinus* sp., 41: on *Fraxinus* sp. and *Pinus* sp., 40, 42, 43, 72, 73: on *Picea orientalis*, 53: on Salix sp., 75: on *Carpinus* and *Fagus orientalis*

Menegazzia terebrata (Hoffm.) A. Massal. – Loc. 33, 58: on *Alnus glutinosa*, 44: on *Pinus* sp., 62, 82: on *Picea orientalis*

Miriquidica deusta (Stenh.) Hertel & Rambold – Loc. 42, 47, 70: on siliceous rock [G]

Mischoblastia lecanorina A. Massal. – Loc. 35a, 41, 48: on calcareous rock [G]

M. oxydata A. Massal. – Loc. 5, 7, 8: on siliceous rock [R]

Montanelia sorediata (Ach.) Divakar, A. Crespo, Wedin & Essl. – Loc. 32, 42, 47, 51, 70, 74: on siliceous rock [G, T]

**Muellerella erratica* (A. Massal.) Hafellner & Volk. John – Loc. 55: on *Acarospora* sp. [G]

**M. pygmaea* (Körb.) D. Hawksw. – Loc. 55 on *Acarospora* sp., 22, 38, 42: on *Rhizocarpon geographicum* [G]

**M. ventosicola* (Mudd.) D. Hawksw. – Loc. 57: on *Rhizocarpon geographicum* [G]

Myriolecis crenulata (Ach.) Śliwa, X. Zhao & Lumbsch – Loc. 18, 40: on calcareous rock

Naetrocymbe punctiformis (Pers.) R.C. Harris. – Loc. 10: on *Alnus glutinosa*, 20, 22: on *Carpinus* sp. [R]

Naevia dispersa (Schrad.) Thiyagaraja., Lücking & K.D. Hyde – Loc. 7: on *Fagus orientalis*, 8: on *Carpinus* sp., 82: on *Picea orientalis* [R]

Nephroma bellum (Spreng.) Tuck. – Loc. 33, 51: on *Fagus orientalis*

N. laevigatum Ach. – Loc. 82: on *Picea orientalis*

N. parile (Ach.) Ach. – Loc. 24, 33: on *Carpinus* sp. and mosses, 42, 46, 62, 77: on mosses, 68, 75: on *Fagus orientalis*, 69, 72, 76, 78: on mosses and *Picea orientalis*, 69: on *Larix* sp. and *Picea orientalis*, 81: on *Alnus glutinosa*, 70: on *Fagus orientalis* and *Rhododendron luteum*, 83: on *Fagus orientalis*, mosses and *Rhododendron luteum*

N. resupinatum (L.) Ach. – Loc. 28, 70: on *Pinus* sp.

Nephromopsis chlorophylla (Willd.) Divakar, A. Crespo & Lumbsch – Loc. 44, 77, 82: on *Picea orientalis*

Normandina pulchella (Borrer) Nyl. – Loc. 2: on *Abies nordmanniana*, *Alnus glutinosa* and *Pyrus* sp., 3: on *Tilia* sp., 4: on *Pyrus* sp., *Tilia* sp. and *Vitis* sp., 6: on *Fagus orientalis* and mosses, 9: on *Alnus glutinosa* and mosses, 11: on *Fraxinus* sp., 15: on mosses, 72, 76: on *Picea orientalis*, 67: on *Fagus orientalis* and *Populus* sp.

Ochrolechia arborea (Kreyer) Almb. – Loc. 9: on *Pyrus* sp., 69: on *Carpinus* sp. [R, T]

O. pallescens (L.) A. Massal. – Loc. 26, 69: on *Carpinus* sp., 78: on *Fagus orientalis* [T]

Omphalodina chrysoleuca (Sm.) (Sm.) S.Y. Kondr., L. Lőkös & Farkas – Loc. 23, 35b, 51, 58: on siliceous rock

Opegrapha niveoatra (Borrer) J.R. Laundon – Loc. 9: on *Prunus* sp. 78: on *Juglans* spp. [R, T]

O. vulgata (Ach.) Ach. – Loc. 18, 32: on *Alnus glutinosa*.

Oxneria fallax (Arnold) S.Y. Kondr. & Kärnefelt – Loc. 34: on *Populus* sp. [G]

Pannaria conoplea (Ach.) Bory – Loc. 26: on mosses, 62: on *Carpinus* sp. and mosses, 76: on *Fagus orientalis* and mosses

Parmelia omphalodes (L.) Ach. – Loc. 17, 19: on siliceous rock, 51, 62: on *Alnus glutinosa* and *Fagus orientalis* [G]

P. saxatilis (L.) Ach. – Loc. 17, 19: on mosses, 20: on *Carpinus* sp. and mosses, 30, 32: on *Alnus* sp., 33: on *Populus* sp. 26, 27, 35c, 42, 43, 46, 51, 56, 60: on *Pinus* sp., 16, 22, 47, 60b, 62, 68, 69, 70, 73: on siliceous rock, 72: on *Fagus orientalis* and *Picea orientalis*, 74: on mosses and siliceous rock, 76, 77, 82: on *Picea orientalis*

P. sulcata Taylor – Loc. 17, 19, 56: on siliceous rock, 20: on *Carpinus* sp., 21: on *Quercus* sp., 22: on mosses and siliceous rock, 26, 27, 28, 32, 80: on *Alnus glutinosa*, 33: on *Salix* sp., 58, 74: on mosses, 42, 44, 46, 51: mosses, *Picea orientalis* and siliceous rock, 53: *Salix* sp., 34, 55, 59, 60: on *Pinus* sp., 62, 69: on *Fagus orientalis* and *Carpinus* sp., 72, 82: on *Fagus orientalis* and *Picea orientalis*, 73: on *Picea orientalis* and stone, 76: on *Fagus orientalis*, 77: on *Picea orientalis*, 78: on *Fagus orientalis* and *Juglans* sp.

P. squarrosa Hale – Loc. 19, 21, 44: on *Fagus orientalis* [G]

Parmeliella triptophylla (Ach.) Müll. Arg. – Loc. 76: on *Fagus orientalis*

Parmelina carporrhizans (Taylor) Hale – Loc. 78:

on *Fagus orientalis*, 80: on *Picea orientalis* [T]

P. pastillifera (Harm.) Hale – Loc. 19: on siliceous rock, 78: on *Alnus glutinosa* [G]

P. quercina (Willd) Hale – Loc. 58: on *Quercus* sp.

P. tiliacea (Hoffm.) Hale – Loc. 57: on mosses, 42, 43, 76: on *Fagus orientalis*

Parmeliopsis ambigua (Wulfen) Nyl. – Loc. 44: on *Pinus* sp., 50, 60, 60b, 73, 75, 77, 82: on *Picea orientalis*, 76: on *Fagus orientalis*

P. hyperopta (Ach.) Vain. – Loc. 75: on *Picea orientalis*

Parmotrema arnoldii (Du Rietz) Hale – Loc. 33: on *Carpinus* sp., 35a, 62: on mosses, 82: on *Picea orientalis*

P. crinitum (Ach.) M. Choisy – Loc. 41, 55: on *Picea orientalis* [G]

P. perlatum (Huds.) M. Choisy – Loc. 2: on *Alnus glutinosa* and *Pyrus* sp., 5, 11, 76: on *Alnus glutinosa*, 57: on siliceous rock, 33, 42, 46, 59: on *Carpinus* sp., 80, 82: on *Picea orientalis*

P. reticulatum (Taylor) M. Choisy – Loc. 2: on *Alnus glutinosa* [R]

Peltigera canina (L.) Willd. – Loc. 10, 13, 16, 17, 22, 26, 38, 42, 48, 60, 60b, 73, 74: on mosses

P. collina (Ach.) Schrad. – Loc. 78: on *Fagus orientalis* and mosses.

P. degenii Gyeln. – Loc. 70: on mosses

P. didactyla (With.) J.R. Laundon – Loc. 72: on mosses

P. elisabethae Gyeln. – Loc. 14: on mosses, 74, 75: on mosses and soil

P. horizontalis (Huds.) Baumg. – Loc. 14, 15, 20, 55, 76, 78: on mosses.

P. lepidophora (Vain.) Bitter – Loc. 13, 15: on soil [R]

P. malacea (Ach.) Funck – Loc. 8, 60b, 70, 75: on mosses

P. membranacea (Ach.) Nyl. – Loc. 70, 75, 76, 77, 82, 83: on mosses.

P. neckeri Hepp ex Müll. Arg. – Loc. 40: on mosses

P. neopolydactyla (Gyeln.) Gyeln. – Loc 78: on mosses.

P. polydactyla (Neck.) Hoffm. – Loc. 12, 16, 33, 35a, 45, 72, 77, 78, 67: on mosses

P. ponojensis Gyeln. – Loc. 16: on mosses

P. praetextata (Flörke ex Sommerf.) Vain. – Loc. 16, 21, 27, 33, 58: on calcareous rock, 3, 8, 13, 45, 55, 70, 77, 78, 64, 82: on mosses.

P. rufescens (Weiss) Humb. – Loc. 2, 3, 11, 16, 18, 28, 40, 42, 43, 44, 48, 58, 73, 74, 77, 78, 70, 83: on mosses

P. venosa (L.) Hoffm. – Loc. 14, 72: on soil

Peltula euploca (Ach.) Poelt ex Pišút – Loc. 52: on siliceous rock

Pertusaria flavicans Lamy – Loc. 63, 73, 74, 66: on siliceous rock

P. leioplaca DC. – Loc. 70,76, 78, 79: on *Fagus orientalis*, 80: on *Alnus glutinosa*

P. pertusa (L.) Tuck. – Loc. 15, 18, 26, 42, 51: on siliceous rock, 33, 58: on *Carpinus* sp., 69: on *Carpinus* sp. and *Fagus orientalis*

P. pseudocorallina (Sw.) Arnold – Loc. 17, 41, 73, 74: on siliceous rock [G, T]

P. pupillaris (Nyl.) Th. Fr. – Loc. 22, 73, 74, 72, 76, 69, 70: on *Fagus orientalis*, 78: on *Alnus glutinosa* and *Fagus orientalis*, 80: on *Alnus glutinosa*, 82: on *Picea orientalis* [G, T]

**Phacopsis vulpina* Tul. – Loc. 50: on *Letharia vulpina* [G]

**Phacographa glaucomaria* (Nyl.) Hafellner – Loc. 17, 51: on *Lecanora rupicola* [G]

Phaeophyscia cernohorskyi (Nádv.) Hafellner – Loc. 16: on siliceous rock [G]

P. ciliata (Hoffm.) Moberg – Loc. 32: on *Alnus glutinosa*, *Pyrus* sp. and *Quercus* sp., 43, 53: on *Populus* sp. and *Prunus* sp., 59, 80: on *Alnus glutinosa*

P. endococcina (Körb.) Moberg – Loc. 24, 25, 71, 73, 74: on calcareous rock, 56: mosses, 42, 50, 59: on *Carpinus* sp. [G]

P. endophoenicea (Harm.) Moberg – Loc. 1: on *Laurocerasus* sp., 5, 7, 9: on *Alnus glutinosa*, 80: on *Alnus glutinosa* and *Picea orientalis*, 81: on *Fagus orientalis* [R]

P. hirsuta (Mereschk.) Essl. – Loc. 80: on *Alnus glutinosa* [T]

P. orbicularis (Neck.) Moberg – Loc. 1, 80: on *Alnus glutinosa*, 4: on *Vitis* sp., 5, 7: on *Populus* sp., 41: on *Faxinus* sp., 53: on *Salix* sp., 79: on *Fagus orientalis*, 65: on *Prunus* sp.

P. pusilloides (Zahlbr.) Essl. – Loc. 79: on *Fagus orientalis*, 80: on *Alnus glutinosa*, 65: on *Prunus* sp.

P. rubropulchra (Degel.) Moberg – Loc. 80: on *Alnus glutinosa* [T]

P. sciastra (Ach.) Moberg – Loc. 71: on siliceous rock

Phlyctis agelaea (Ach.) Flot. – Loc. 82: on *Fagus orientalis* [T]

P. argena (Ach.) Flot. – Loc. 3, 4: on *Tilia* sp., 6, 7, 76: on *Fagus orientalis*, 65: on *Prunus* sp. [G]

Physcia adscendens H. Olivier – Loc. 2: on *Alnus glutinosa, Pyrus* sp., *Malus* sp., *Morus* sp. and *Tilia* sp., 3: on *Tilia* sp., 4: on *Tilia* sp. and *Vitis* sp., 7: on *Alnus glutinosa*, *Populus* sp. and *Prunus* sp., 5: on *Alnus glutinosa*, *Tilia* sp. and *Populus* sp., 27: on *Pinus* sp., 32: on *Populus* sp. and *Pyrus* sp., 58: on *Quercus* sp., 36, 53: on *Salix* sp., 69: on *Fagus orientalis*, 73: on *Picea orientalis*, 75: on *Alnus glutinosa* and *Robinia pseudoacacia*

P. aipolia (Ehrh. ex Humb.) Fürnr. – Loc. 8: on *Alnus glutinosa*, 17, 30: on *Pyrus* sp., 32: on *Fagus* sp., *Populus* sp. and *Pyrus* sp., 34: on *Alnus glutinosa*, *Fagus orientalis* and *Quercus* sp., 47: on calcareous rock, 42, 43, 53, 53, 58,: on *Populus* sp., *Pinus* sp. and *Salix* sp., 72, 73, 78, 79: on *Fagus orientalis*, 69: on *Fagus orientalis* and *Larix* sp., 81: on *Populus* sp., 65: on *Acer* sp., *Prunus* sp. and *Ulmus* sp.

P. biziana (A. Massal.) Zahlbr. – Loc. 32: on *Populus* sp. and *Quercus* sp., 41: on *Carpinus* sp. and *Fraxinus* sp., 42: on *Carpinus* sp. [G]

P. caesia (Hoffm.) Hampe ex Fürnr. – Loc. 9, 16, 17, 19, 35c, 42, 48, 56, 73, 74: on calcareous rock

P. dubia (Hoffm.) Lettau – Loc. 35a, 35c, 41, 42, 46, 47, 52, 55, 71, 73, 74: on siliceous rock

P. stellaris (L.) Nyl. – Loc. 32: on *Pyrus* sp. 75: on *Alnus glutinosa*, 69: on *Picea orientalis*

P. tenella (Scop.) DC. – Loc. 33, 75: on *Picea orientalis*, 80: on *Alnus glutinosa*

Physciella chloantha (Ach.) Essl. – Loc. 5: on *Ficus* sp. and siliceous rock, 4, 6: on tile, 12: on *Alnus glutinosa* [R]

Physconia distorta (With.) J.R. Laundon – Loc. 8, 30, 32: on *Prunus* sp., 34: on *Quercus* sp. 41, 53: on *Populus* sp., *Salix* sp., 55, 72: on *Picea orientalis*, 69: on *Fagus orientalis*, *Larix* sp. and *Quercus robus*, 78: on *Fagus orientalis* and *Juglans regia*, 79: on *Fagus orientalis*, 80: on *Alnus glutinosa* [R]

P. enteroxantha (Nyl.) Poelt – Loc. 10, 40: on mosses [R]

P. muscigena (Ach.) Poelt – Loc. 58, 73: on mosses

P. perisidiosa (Erichsen) Moberg – Loc. 9: on *Alnus glutinosa* [R]

P. subpulverulenta (Szatala) Poelt – Loc. 53: on *Populus* sp

+Pisutiella grimmiae (Nyl.) S.Y. Kondr., Lőkös & Farkas – Loc. 17, 19, 20, 22, 24, 35c, 47: on *Candelariella vitallina*

Placynthium garovaglii (A. Massal) Malme – Loc. 32: on calcareous rock [G]

P. nigrum (Huds.) Gray – Loc. 5, 24, 32, 61, 63, 71: on calcareous rock

Platismatia glauca (L.) W.L. Culb. & C.F. Culb – Loc. 20: on *Carpinus* sp., 76, 81: on *Alnus glutinosa*, 70, 72, 82: on *Picea orientalis*.

Polychidium muscicola (Sw.) Gray – Loc. 75: on soil.

Polyozosia albescens (Hoffm.) S.Y. Kondr., L. Lőkös & Farkas – Loc. 17, 37, 43, 47, 48: on calcareous rock

P. dispersa (Pers.) S.Y. Kondr., L. Lőkös & Farkas – Loc. 16, 20: on *Carpinus* sp., 22, 26, 30, 47, 49, 55, 56, 70, 74, 83: on calcareous rock, 41: on *Fraxinus* sp.

P. hagenii (Ach.) S.Y. Kondr., L. Lőkös & Farkas – Loc. 40, 51, 53: on *Populus* sp. and *Prunus* sp.

P. persimilis (Th. Fr.) S.Y. Kondr., L. Lőkös & Farkas – Loc. 32: on *Pyrus* sp. and *Quercus* sp., 34, 53: on *Populus* sp., *Prunus* sp. and *Salix* sp., 62, 72, 69: on *Fagus orientalis*, 73: on *Picea orientalis*, 80: on *Alnus glutinosa* [G]

P. semipallida (H. Magn.) S.Y. Kondr., L. Lőkös & Farkas – Loc. 37, 73: on calcareous rock [T]

Porpidia albocaerulescens (Wulfen) Hertel & Knoph – Loc. 5, 9, 54, 75, 76: on siliceous rock [R]

P. cinereoatra (Ach.) Hertel & Knoph – Loc. 60: on siliceous rock

P. crustulata (Ach.) Hertel & Knoph – Loc. 43, 60: on siliceous rock [G]

P. speirea (Ach.) Kremp. – Loc. 54, 71: on calcareous rock

P. tuberculosa (Sm.) Hertel & Knoph – Loc. 5, 66: on siliceous rock [R]

Protoblastenia incrustans (DC.) J. Steiner – Loc. 71: on calcareous rock [T]

P. rupestris (Scop.) J. Steiner – Loc. 63, 66: on calcareous rock.

Protopannaria pezizoides (Weber) P.M. Jørg. & S. Ekman – Loc. 83: on mosses

Protoparmelia atriseda (Fr.) R. Sant. & V. Wirth – Loc. 23, 35b: on siliceous rock [G]

P. badia (Hoffm.) Hafellner – Loc. 22, 35a, 35b, 37, 47, 51, 73: on siliceous rock

Protoparmeliopsis bolcana (Pollini) Lumbsch –Loc. 16, 17, 18, 19, 22, 24, 35c, 40, 41, 42: on siliceous rock.

P. garovaglii (Körb.) Arup, X. Zhao & Lumbsch – Loc. 18: on calcareous rock

P. muralis (Schreb.) M. Choisy – Loc. 3, 5, 10, 17, 18, 19, 22, 23, 25, 35c, 40, 41, 42, 43, 47, 50, 51, 52, 56, 57, 60, 60b, 61, 63 68, 71, 73, 74, 77, 83: on calcareous rock

P. peltata (Ramond) Arup, X. Zhao & Lumbsch – Loc. 23, 35b: on siliceous rock

Pseudevernia furfuracea (L.) Zopf. var. *furfuracea* – Loc. 16, 74: on mosses, 19, 27, 28, 29, 41: on *Pinus* sp., 17, 43, 51, 60, 60b, 72, 73, 77, 82: on *Picea orientalis*, 75, 76: on *Fagus orientalis* and *Picea orientalis*, 69: on *Larix* sp., 78: on *Fagus orientalis*

P. furfuracea var. *ceratea* (Ach.) D. Hawksw. – Loc. 41: on Pinus sp.

Pseudosagedia aenea (Körb.) Hafellner & Kalb – Loc. 69: on *Fagus orientalis*, 67: on *Alnus glutinosa* and *Populus* sp. [T]

Pseudoschismatomma rufescens (Pers.) Ertz & Tehler – Loc. 2: on *Malus* sp. [R]

Pyrenodesmia atroflava (Turner) S.Y. Kondr. – Loc. 41: on calcareous rock

P. variabilis (Pers.) A. Massal. – Loc. 73: on calcareous rock

Pyrenula laevigata (Pers.) Arnold – Loc. 76: on *Fagus orientalis* and *Picea orientalis* [T]

P. macrospora (Degel.) Coppins & P. James – Loc. 76: on *Fagus orientalis* and *Picea orientalis* [T]

P. nitida (Weigel) Ach. – Loc. 2, 3: on *Tilia* sp., 4: on *Pyrus* sp., 59: on *Carpinus* sp.

Pyrrhospora quernea (Dicks.) Körb. – Loc. 72, 73, 69: on *Picea orientalis*, 76: on *Fagus orientalis*, 67: on *Alnus glutinosa*, 82: on *Fagus orientalis* and *Picea orientalis* [G]

Ramalina calicaris (R.) Röhl. – Loc. 2, 8, 72, 73: on *Picea orientalis*, 69: on *Larix* sp. and *Picea orientalis*, 81: on *Populus* sp. [R]

R. capitata (Ach.) Nyl. – Loc. 22: on siliceous rock

R. farinacea (L.) Ach. – Loc. 16, 20, 82, 82: on *Picea orientalis*, 21: on *Populus* sp., 27: on *Pinus* sp., 28, 29, 33: on *Carpinus* sp., 58: on mosses, 42, 55, 76: on *Fagus orientalis* and *Picea orientalis*, 80: on *Alnus glutinosa* and *Picea orientalis*

R. fastigiata (Pers.) Ach. – Loc. 28: on *Fagus orientalis*

R. pollinaria (Westr.) Ach. – Loc. 16, 22, 28, 29, 35a, 58, 62, 69, 72: on *Fagus orientalis*, 73, 74: on sliceous rock, 82: on *Picea orientalis*

R. polymorpha (Lilj.) Ach. – Loc. 23: on mosses

R. thrausta (Ach.) Nyl. – Loc. 21, 44: on *Fagus orientalis*

Rhizocarpon badioatrum (Flörke ex Spreng.) Th. Fr. – Loc. 16, 25, 36, 42, 47, 55, 60, 60b, 70, 83: on siliceous rock

R. disporum (Nägeli ex Hepp) Müll. Arg. – Loc. 19, 31, 41, 42, 43, 50, 55, 71, 73: on siliceous rock [G,T]

R. epispilum (Nyl.) Zahlbr. – Loc. 47: on siliceous rock [G]

R. geminatum **Körb.** – Loc. 24, 38, 50, 70, 71, 74: on siliceous rock

R. geographicum (L.) DC. – Loc. 14, 16, 17, 19, 20, 22, 23, 24, 25, 26, 31, 32, 35a, 35b, 35c, 36, 37, 41, 42, 43, 47, 48, 50, 51, 52, 54, 55, 56, 57, 60, 60b, 68, 69, 70, 71, 73, 74, 75, 77, 83: on siliceous rock

R. hochstetteri (Körb.) Vain. – Loc. 41, 51, 54: on siliceous rock [G]

R. lavatum (Ach.) Hazsl. – Loc. 37, 47, 54, 71, 75: on siliceous rock

R. lecanorinum Anders – Loc. 19, 36, 41, 47, 73, 74: on siliceous rock

R. oederi (Ach.) Körb. – Loc. 35a: on siliceous rock

R. reductum Th. Fr. – Loc. 36, 37, 54: on siliceous rock

R. subgeminatum Eitner – Loc. 24: on siliceous rock

R. umbilicatum (Ramond) Flagey – Loc. 66: on siliceous rock

Rhizoplaca melanophthalma (DC.) Leuckert – Loc. 23, 35b, 42, 51, 58: on siliceous rock*Ricasolia amplissima* (Scop.) De Not. – Loc. 24, 33: on *Carpinus* sp.

Rinodina milvina (Wahlenb.) Th. Fr. – Loc. 17, 19, 20, 22, 35a, 35b, 35c, 41, 42, 43, 47, 50, 60, 60b, 70, 83: on calcareous rock

R. oleae Bagl. – Loc. 27, 34: on Pinus sp.

R. pyrina (Ach.) Arnold – Loc. 7: on *Alnus glutinosa*, 17: on *Pyrus* sp., 20: on *Carpinus* sp., 22, 26, 29, 30, 32: on *Prunus* sp. 34, 53: on *Salix* sp., 60, 62: on *Pinus* sp. [R]

R. sophodes (Ach.) A. Massal. – Loc. 58: on *Alnus glutinosa*.

Romjularia lurida (Ach.) Timdal – Loc. 32: on soil

Rufoplaca arenaria (Pers.) Arup, Søchting & Frödén – Loc. 50, 60, 60b: on siliceous rock

Sarcogyne clavus (DC.) Kremp. – Loc. 31, 37: on siliceous rock [G]

S. privigna (Ach.) A. Massal. – Loc. 25: on siliceous rock

Schaereria fuscocinerea (Nyl.) Clauzade & Cl. Roux – Loc. 70: on siliceous rock.

**Sclerococcum montagnei* Hafellner – Loc. 35b: on *Lecanora rupicola* [G]

Scoliciosporum umbrinum (Ach.) Arnold – Loc. 35c, 46, 52, 55, 57: on siliceous rock

Scytinium gelatinosum (With.) Otálora, P.M. Jørg & Wedin – Loc. 25: on mosses

S. lichenoides (L.) Otálora, P.M. Jørg & Wedin – Loc. 34, 70: on *Fagus orientalis* and *Rhododendron luteum*, 64, 71, 72, 76, 78: on mosses, 72: on *Picea orientalis*, 81: on *Alnus glutinosa*, 67: on *Fagus orientalis*, 83: on mosses and *Rhododendron luteum*

Seawardiella lobulata (Flörke) S.Y. Kondr., I. Kärnefelt & A. Thell – Loc. 41: on *Populus* sp. [G]

Sedelnikovaea subdiscrepans (Nyl.) S.Y. Kondr., L. Lőkös & Farkas – Loc. 23, 51: on siliceous rock [G]

**Sphinctrina tubaeformis* A. Massal. – Loc. 69: on *Pertusaria pertusa* [T]

Squamarina cartilaginea (With.) P. James – Loc. 43: on soil

Stereocaulon pileatum Ach. – Loc. 8, 9, 70, 75, 83: on siliceous rock

Sticta sylvatica (Huds.) Ach. – Loc. 62: on mosses [G]

Tephromela atra (Huds) Hafellner – Loc. 17, 20, 22, 23, 35b, 35c, 51, 56, 68, 73, 74: on siliceous rock

T. grumosa (Pers.) Hafellner & Cl. Roux – Loc. 74: on siliceous rock

Thalloidima opuntioides (Vill.) Kistenich, Timdal, Bendiksby & S. Ekman – Loc. 73: on soil

T. sedifolium (Scop.) Kistenich, Timdal, Bendiksby & S. Ekman – Loc. 34: on soil

Thelidium papulare (Fr.) Arnold – Loc. 63: on calcareous rock [G]

Thelotrema lepadinum (Ach.) Ach. – Loc. 42, 64: on *Buxus sempervirens*

Toninia squalida (Ach.) A. Massal. – Loc. 73: on soil [T]

Trapelia coarctata (Turner) M. Choisy – Loc. 5, 8, 9, 11, 14, 78, 64, 82: on siliceous rock

T. placodioides Coppins & P. James – Loc. 4, 6: on tile, 5, 9, 63: on siliceous rocks [G]

Tremolecia atrata (Ach.) Hertel – Loc. 12: on siliceous rock [R]

Tuckneraria laureri (Kremp.) Randlane & A. Thell – Loc. 73, 82: on *Picea orientalis*, 64: on *Carpinus* sp. [G, T]

Umbilicaria crustulosa (Ach.) Lamy – Loc. 23, 68, 69, 70: on siliceous rock [G, T]

U. cylindrica (L.) Delise – Loc. 17, 20, 22, 23, 35a, 35b 35c, 37, 43, 51, 74, 70, 83: on siliceous rock.

U. deusta (L.) Baumg, – Loc. 17, 23, 35a. 42, 47, 48, 54, 70, 74, 77, 83: on siliceous rock

U. subglabra (Nyl.) Harm – Loc. 23, 35a: on siliceous rock

U. vellea (L.) Ach. – Loc. 22, 26, 35a, 47, 51, 56, 70, 74: on siliceous rock

Usnea cavernosa Tuck. – Loc. 60b: on *Picea orientalis* [G]

U. cornuta Körb. – Loc. 77: on *Picea orientalis* [T]

U. filipendula Stirt. – Loc. 28: on *Pinus* sp. 58: on *Alnus glutinosa* and *Carpinus* sp., 72, 77, 82: on *Picea orientalis*

U. florida (L.) Weber ex F.H. Wigg. – Loc. 28, 29: on *Pinus* sp., 32, 51, 52, 58, 72, 76, 77, 69, 78, 82: on *Picea orientalis* and *Larix* sp.

U. glabrata (Ach.) Vain. – Loc. 73: on *Picea orientalis* [T]

U. glabrescens (Nyl. ex Vain.) Vain. – Loc. 43, 76: on *Picea orientalis*.

U. intermedia (A. Massal.) Jatta – Loc. 58, 60b, 69: on *Picea orientalis* [G, T]

U. lapponica Vain. – Loc. 28, 33: on *Carpinus* sp., 43, 58: on *Picea orientalis*

U. subfloridana Stirt. – Loc. 60, 60b, 72, 76, 77, 82: on *Picea orientalis*.

U. substerilis Motyka – Loc. 72: on *Picea orientalis* [T]

Vahliella leucophaea (Vahl) P.M. Jørg – Loc. 16, 71: on calcareous rock

Varicellaria lactea (L.) I. Schmitt & Arnold – Loc. 5, 16, 17, 18, 19, 24, 25, 26, 31, 35a, 35c, 47, 51, 52, 55, 57, 59, 70, 73, 74: on siliceous rock

Variospora dolomiticola (Hue) Arup, Sochting &

Frödén – Loc. 7, 8: on calcareous rock

Verrucaria dolosa Hepp – Loc. 2: on siliceous rock [R]

V. muralis Ach. – Loc. 2, 5, 18, 49, 54, 61: on calcareous rock

V. nigrescens Pers. – Loc. 17, 35a, 35c, 47, 63, 68, 66: on calcareous rock

Verseghya thysanophora R.C. Harris S.Y. Kondr., L. Lőkös, Farkas & Hur – Loc. 5: on Tilia sp., 6, 9, 10, 79, 81: on *Fagus orientalis*

Vulpicida pinastri (Scop.) J.-E. Mattsson & M.J. Lai – Loc. 73, 77, 82: on *Picea orientalis*, 75: on *Fagus orientalis* and *Picea orientalis*, 70, 83: on *Rhododendron luteum*.

Xanthocarpia lactea (A. Massal.)A. Massal. – Loc. 17: on calcareous rock

Xanthoparmelia conspersa (Ehrh. ex Ach.) Hale – Loc. 5, 42, 45, 46, 47, 52, 63, 68, 70, 71, 73, 74: on siliceous rock

X. pulla (Ach.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – Loc. 24, 35c, 38, 42, 52, 60, 60b, 73: on siliceous rock

X. stenophylla (Ach.) Ahti & D. Hawksw. – Loc. 16, 22, 24, 25, 35c, 56: on siliceous rocks, 40, 45, 58, 60, 60b, 61, 73: on mosses and siliceous rock

X. tinctina (Maheu & A. Gillet) Hale – Loc. 5, 7, 8, 16, 17, 19, 22, 24, 35c, 40, 42, 43, 46, 47, 51, 56: on siliceous rock [R]

X. verruculifera (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – Loc. 39, 51, 57, 73, 74: on siliceous rock [T]

Xanthoria aureola (Ach.) Erichsen – Loc. 39, 81: on *Populus* sp.

X. elegans (Link) Th. Fr. – Loc. 10: on *Populus* sp., 16, 35c, 40, 41, 47, 56: on siliceous rock, 49, 73: on *Picea orientalis* and siliceous rock

X. parietina (L.) Th. Fr. – Loc. 7: on *Tilia* sp., 30: on *Quercus* sp., 32: on *Pyrus* sp., 58: on *Quercus* sp., 39, 53: on *Populus* sp., 65: on *Alnus glutinosa* and *Prunus* sp.

Zahlbrucknerella calcarea (Herre) Herre – Loc. 83: on calcareous rock [T]

Zwackhia viridis (Ach.) Nyl. – Loc. 1: on *Pyrus* sp., 2: on *Malus* sp., 3, 4: on *Tilia* sp., 4: on *Tilia* sp. and *Picea orientalis*, 6: on *Picea orientalis* [R]

**Zwackhiomyces coepulonus* (Norman) Grube & R. Sant. – Loc. 40: on *Xanhoria elegans* [G]

Most study areas in the region consist of forests or rocky terrains with tree communities. Some stations are close to arable land but are not affected much by agriculture. Also, for a long time, climate changes have been rare. Therefore, it has been considered that all this does not affect abnormally lichen biodiversity so as to change it.

Since the study area is quite hilly, forest terrains are plentiful, humidity is high, and there are all kinds of plant communities, it has been expected that all kinds of lichen taxa, mostly epiphytic lichens, will be abundant and thrive on abundant substrates. The research has confirmed that a wide variety of lichen taxa could develop, while the epiphytic lichens thrive in abundance (i.e. *Usnea*, *Xanthoria*, *Pseudevernia*, *Ramalina*, etc.).

Foliose genera such as *Flavoparmelia*, *Melanelixia*, *Melanohalea, Parmelia, Peltigera, Phaeophyscia, Physcia, Physconia*, *Xanthoparmelia,* and *Xanthoria* were mostly found in Trabzon and Giresun (Fig. 1, Table 1), predominantly on deciduous species (*Alnus*, *Carpinus*, *Prunus*, *Pyrus*, *Salix*), coniferous trees (*Picea orientalis*, *Pinus* sp.), and on mosses. The most preferred trees have been *Picea orientalis*, *Fagus orientalis*, *Alnus glutinosa*, *Carpinus* spp., *Pinus,* and *Populus* spp., respectively.

Lecanora, *Cladonia*, *Peltigera*, *Rhizocarpon,* and *Usnea* were the most common genera in the study area. The genus of *Lecanora* has shown the greatest diversity among the other genera (represented by 28 taxa growing on rocks and deciduous and coniferous trees, mostly in Giresun, Rize and Trabzon regions). Second came genus *Cladonia* (represented by 16 species, mostly on rocks, soil, coniferous, and deciduous trees) and mainly occurring in Giresun and Trabzon districts. The other common genera have been *Peltigera* (16 species), *Rhizocarpon* (12 species), and *Usnea* (10 species). Most species of the genera *Peltigera*, *Cladonia,* and *Usnea* were occurring on the bark of *Picea orientalis* and *Fagus orientalis,* especially in Giresun and Trabzon (Fig. 1, Table 1). *Peltigera* and *Cladonia* were found on soil and mosses in these areas.

The substrata reported for these lichens reflect the general habitat features in the Trabzon and Giresun provinces and to a certain extent determine the pres-

ence of species. *Candelaria concolor, Candelariella reflexa, Cetrelia olivetorum, Evernia prunastri, Flavoparmelia caperata, Graphis scripta, Hypogymnia physodes, Lecanora argentata, L. chlarotera, Lecidella elaeochroma, Melanelixia subaurifera, Melanohalea exasperatula, Nephroma parile, Normandina pulchella, Parmelia saxatilis, P. sulcata, Parmeliopsis ambigua, Parmotrema perlatum, Physcia adscendens, P. aipolia, Physconia distorta, Pseudevernia furfuracea, Ramalina farinacea, R. pollinaria, Rinodina pyrina*, *Usnea filipendul, a* and *U. florida* have been most common and best represented phorophytes.

Abrothallus usneae, Gregorella humida, Lichenodiplis lecanorae, *Parmelia squarrosa*, *Rhizocarpon hochstetteri,* and *Sclerococcum montagnei* have been recorded for the second time in Turkey (John & Türk 2017; Yazıcı & Aslan 2019), while *Ingvariella bispora, Lecanora expallens, L. jamesii, Phaeophyscia rubropulchra, Physciella chloantha, Pseudoschismatomma rufescens, Porina macrospora, Ramalina thrausta, Trapelia placodioides, Tuckneraria laureri, Usnea cavernosa, U. glabrata, Zahlbrucknerella calcarea,* and *Zwackhiomyces coepulonus* have been very rare (John & Türk 2017; John & al. 2020).

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