

# Lichens and lichenicolous fungi from the Bingöl Province in Turkey

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**Abstract.** This study is a contribution to the Lichen Biota of Turkey. As a result of the examination of lichens and lichenicolous fungi from 169 stations, 341 lichens and 23 lichenicolous fungi have been identified. While *Sphaerellothecium contextum*, a lichenicolous fungus, is new to Turkey, 19 lichenized and three lichenicolous fungi were found for the second time in Turkey.

**Key words:** Ascomycota, Bingöl, biodiversity, lichen, Turkey

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## Introduction

Studies on lichens and lichenicolous fungi in Turkey have intensified in recent years but, although approximately 2000 lichenized and 250 lichenicolous fungi have been identified, it is known that there are many more areas that need to be studied on the subject (Güvenç & al. 2020). So far, 27 lichens and one lichenicolous fungus have been reported from the Bingöl Province (Çobanoğlu & Yavuz 2007, John & Türk 2017, John & al. 2020, Mayrhofer & Poelt 1979, Song & al. 2019, Steiner 1921, Szatala 1960, Yazıcı & al. 2019a,b; Yazıcı & Aslan 2021).

The first lichen reports from the Bingöl Province were made by Steiner (1921) of *Diplotomma epipolium* and by Szatala (1960) of *Acarospora gallica*, *Circinaria calcarea*, *Pyrenodesmia variabilis*, and *Xanthocarpia lactea*. Furthermore, there were two herbarium specimens belonging to *Aspicilia desertorum* and *Protoparmeliopsis laatokkaensis*, which are known to have been collected from the Bingöl Province in 1974 (John & Türk 2017). In the following years, 11 species (*Aspicilia cinerea*, *Circinaria caesiocinerea*, *C. contorta*, *Candelariella vitellina*, *Lecanora horiza*, *Myriospora rufescens*, *Physcia stellaris*, *Physconia grisea*, *Polycauliona candelaria*, *Protoparmeliopsis muralis* and

*Xanthocarpia lactea*) were registered from Bingöl by Çobanoğlu & Yavuz (2007), as well as three *Rinodina* species (*Rinodina calcarea*, *R. luridescens* and *R. milvina*) by Mayrhofer & Poelt (1979), and *Athallia pyracea* by Vondrák & al. (2016). Recently, the records of lichenized and lichenicolous fungi given as new for Turkey from the Bingöl Province include *Acarospora scotica* and *Megaspora rimisorediata* (Yazıcı & Aslan 2021), *Candelariella oleaginescens* and *Verrucaria murina* (Song & al. 2019), *Polycauliona phlogina* (Yazıcı et al. 2019a) and the lichenicolous fungus *Sclerococcum tephromelarum* (Yazıcı et al. 2019b).

According to the checklist of lichenized and lichenicolous fungi (John & Türk 2017) and further subsequent records (John & al. 2020), 18 lichenized and one lichenicolous fungi have been reported from the Bingöl Province. After the latest studies, lichen diversity of the Bingöl Province accounts for 27 lichenized and one lichenicolous fungi.

Apparently, these studies do not reflect the lichen and lichenicolous flora of the region.

The present paper is a contribution to the checklist of lichens of the Bingöl Province.

Bingöl Province, in the Upper Euphrates section of the Eastern Anatolia region, is located between 38°27' and 40°27' E and 41°20' and 39°54' N. The total area of the Province is 812 537 hectares, 7.28% of which is under agricultural land, 27.92% under forests, 10.25% subject to afforestation, 51% pastures, 2.2% meadows and 1.3% under other areas.

Bingöl is strongly mountainous, with heights exceeding 3000 m. Bingöl (3250 m), Genç (2940 m), Şeytan (2906 m), and Şerafettin (2544 m) are the major mountains. The height of the plateaus and plains there does not fall below 2000 m. The high parts of the mountains are covered with peaks and glacial lakes, while the mountain foothills are strewn by moraine (moraine) rocks. The mountains are generally sparsely forested, and some of their southern parts are bare.

The Bingöl Plateau, Şerafettin, Çötele (Çotla) in Genç, Hırhal and Çavreş in Karlıova, Kiğı and Dağın Düzü in Kiğı, and Karer in Adaklı are some of the major plateaus. There are also important rivers such as Peri, Murat and Göynük (URL-1. 2022).

Bingöl, which has plenty of snow and rain, is cov-

ered with lush vegetation in spring. The valleys of the streams are especially green. The Province has meadows at high altitudes, steppes at low altitudes, and dry forests at the higher elevations around them (Baytop & Denizci 1963).

In Bingöl, which is one of the forest-richest provinces in Eastern Anatolia, oak forests prevail. These forests reach 1900 m in altitude. However, after a long-term deforestation and in places where the forests are completely destroyed, steppe vegetation has set in. Oak forests still persist in the lower parts of the mountains, below 1200 m. Broad-leaved trees are common, such as *Salix*, *Populus*, *Juglans*, *Prunus*, and *Fraxinus*, observed especially in the village settlements along rivers, streams and in lowlands (Baytop & Denizci 1963).

Bingöl has the harsh continental climate of Eastern Anatolia. It is open to humid-cool air masses coming from the north and, due to the altitude factor, the winter season in Bingöl is quite cold and long, while the summer season is hot and dry. Snowfall is plentiful. One-third of the year the Province is covered with snow. The average temperature in January, which is the coldest month in Eastern Anatolia, is -4.2 °C. The average temperature in July, the hottest month, is 24.2 °C, while the annual average temperature is 10.2 °C. The average annual total precipitation amounts to 579.4 millimeters, and most of it comes in the winter and spring seasons. It rains heavily in spring. The climate values in Bingöl are generally above the regional averages (Akman 1999).

The place with most common volcanic fields is the region between Göynük and Peri water. This volcanic region with its depressions and elevations changes the general character of the mountains. The mountainous areas at an altitude of more than 2000 m and the hilly areas at an altitude of 1500-2000 m had been formed by the tectonic shifts in the 3<sup>rd</sup> geological period (Mesozoic Tertiary). Basalt and andesites generally constitute the structure of Bingöl mountains. In the mountains, flowing lava, partly of basalt-type and partly of andesite-type, occurs extensively. After the ruptures caused by tectonic events at the end of the 3<sup>rd</sup> period, the lava that came to the surface had spread around like a cover. Meanwhile,

as a result of fractures, some masses of that cover had collapsed, while others rose. It was then that the mountains that gave the name to the Bingöl Province were formed (Afshar 1965).

## Material and methods

The lichens and lichenicolous fungi were collected at 169 different localities in the Bingöl Province, between 31.07.2018 and 18.09.2020 (Table 1, Fig. 1). Lichen samples were studied under a Nikon SMZ1500

stereomicroscope and a Nikon Eclipse 80i light microscope by standard identification methods for lichenized and lichenicolous fungi (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; Navarro-Rosinés & al. 2009; Nordin & al. 2010; Smith & al. 2009). Specimens are deposited in the Herbarium of the Biology Department, Faculty of Science, Karadeniz Technical University, Turkey (KTUB).

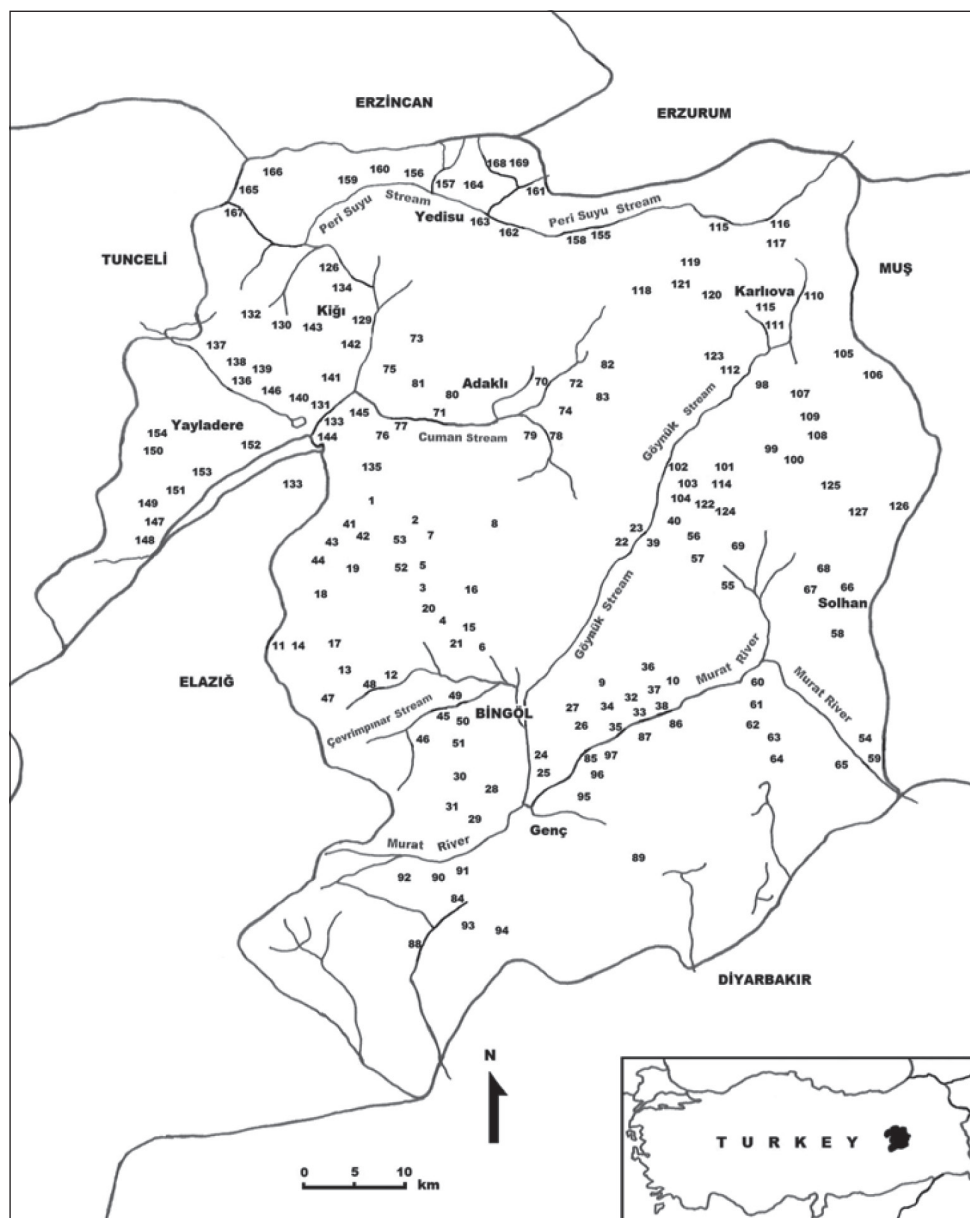


Fig. 1. Map of Turkey showing the Bingöl Province and the collecting numbers.

Table 1. List of collecting localities

Station No	Location	Coordinates	Altitude (m)	Date
1	Bingöl, center, 300 m to Sancak village	39°04'57.17"N 40°23'40.31"E	1575	29.08.2018
2	Bingöl, center, Sudüğünü village, roadside	39°04'11"N 40°25'13"E	1585	29.08.2018
3	Bingöl, center, Bingöl-Adaklı mainroad, roadside	38°57'58"N 40°25'27"E	1496	29.08.2018
4	Bingöl, center, Bingöl -Adaklı mainroad, opposite to Çiçekdere village, roadside	38°56'54"N 40°26'23"E	1346	29.08.2018
5	Bingöl: center, Bingöl-Kawrtal village road, 10 km from Kartal village, 2 km inwards from the road junction, eastwards	38°59'23"N 40°25'44"E	1656	19.05.2019
6	Bingöl: center, northern part, 500 m southwest of Sancaklı village, roadside	38°56'06"N 40°28'51"E, 38°56'27"N 40°20'01"E	1412, 1442,	19.05.2019
7	Bingöl: center, northern part, road to Sudüğünü-Oğuldere village, southeast of Sudüğünü village	39°03'12"N 40°26'26"E	1693	20.05.2019
8	Bingöl: center, Tepebaş village, southwestern part, 2 km from Tepebaşı village, roadside	39°04'38"N 40°29'44"E	1972	20.05.2019
9	Bingöl: center, 1 km ahead of the Bingöl-Ağaçeli-Solhan road, southeastwards, east of Sarıçiçek village, main roadside	38°53'20"N 40°36'44"E	1100	28.06.2019
10	Bingöl: center, Bingöl-Solhan road, 3-4 km ahead of Çavuşlar after Ağaçeli village, Bingöl-Solhan border	38°54'42"N 40°50'28"E	1517	28.06.2019
11	Bingöl: center, Bingöl-Elazığ border	38°57'27"N 40°13'59"E	1766	28.06.2019
12	Bingöl: center, on the Bingöl-Elazığ road, 1 km westwards of Bilaloğlu village	38°55'35"N 40°22'09"E	1351	28.06.2019
13	Bingöl: center, on the Bingöl-Elazığ road, 200-300 m westwards from Direkli village, Martyrs' forest	38°56'03"N 40°18'59"E	1561	28.06.2019
14	Bingöl: center, on the Bingöl-Elazığ road, opposite to Kuruca village	38°57'16"N 40°16'23"E	1701	28.06.2019
15	Bingöl: center, Çiçekdere road, 2 km from Çiçekdere village	38°56'53"N 40°26'47"E	1344	29.06.2019
16	Bingöl: center, Çiçekdere road, above Çiçekdere village, northwestward	38°57'45"N 40°27'08"E	1607	29.06.2019
17	Bingöl: center, Bingöl, Yolçatı-Sancak road, 1-2 km inland, roadside of the main road	38°57'25"N 40°17'06"E	1621	29.06.2019
18	Bingöl: center, on the Bingöl-Elazığ road, from Yolçatı village, on the Yolçatı-Sancak road, on the Yazgülü village road	38°58'35"N 40°17'20"E	1532	29.06.2019
19	Bingöl: center, Bingöl, on Yolçatı-Sancak road, roadside of the main road, opposite to Gayt dam, northwards of Yazgulu village	39°00'45"N 40°18'55"E	1590	29.06.2019

Station No	Location	Coordinates	Altitude (m)	Date
20	Bingöl: center, Sancak-Bingöl road, 7-8 km from Çiçekd-eye, on the main road	38°57'43"N 40°25'44"E	1446	29.06.2019
21	Bingöl: center, Sancak-Bingöl road, on Çiçekdere village road, 5 km from Çiçekdere, on the road	38°56'51"N 40°26'45"E	1329	29.06.2019
22	Bingöl: center, Çır Waterfall and its surroundings	39°02'55"N 40°39'50"D	1929	30.06.2019
23	Bingöl: center, Çır Waterfall and its surroundings	39°03'03"N 40°39'48"D	1964	05.09.2019
24	Bingöl: center, Çayağzı	38°47'54"N 40°33'11"D	1013	07.06.2019
25	Bingöl: center, southwards of Garip village	38°46'33"N 40°33'19"D	993	07.06.2019
26	Bingöl: center, southwards of Büyüktökren village	38°49'57"N 40°34'29"D	1011	07.07.2019
27	Bingöl: center, westwards of Çeltiksuyu village	38°51'48"N 40°34'04"D	1014	07.07.2019
28	Bingöl: center, southeastwards of Kılçadır village	38°46'31"N 40°29'56"E	1133	08.07.2019
29	Bingöl: center, southeastwards of Gümüşlü village, 300 m, roadside of the main road	38°45'33"N 40°29'01"E	1108	08.07.2019
30	Bingöl: center, Gürpınar, southern part, roadside	38°46'43"N 40°26'50"E	1400	08.07.2019
31	Bingöl: center, southwards of Yamaç	38°46'20"N 40°26'07"E	1390	08.07.2019
32	Bingöl: center, southeastwards of İncesu village	38°52'39"N 40°38'07"E	1131	09.07.2019
33	Bingöl: center, southwards of Gözeler village	38°50'20"N 40°42'00"E	1144	09.07.2019
34	Bingöl: center, northwards of Yeniköy, 400 m, roadside of the main road	38°50'54"N 40°37'52"E	1129	10.07.2019
35	Bingöl: center, northwards of Dikköy	38°49'21"N 40°39'39"E	1033	10.07.2019
36	Bingöl: center, Bingöl-Solhan road, after Ağaçeli village, 3-4 km southwards of Çavuşlar village	38°54'28"N 40°44'53"E	1347	10.07.2019
37	Bingöl: center, northwards of Gökçeli village	38°53'15"N 40°45'17"E	1494	11.07.2019
38	Bingöl: center, northwards of Kuşburnu village	38°52'01"N 40°47'26"E	1400	11.07.2019
39	Bingöl: center, Bingöl-Karlıova road, exit of Yenibaşlar village, 500-600 m ahead in the direction of Karlıova, roadside	39°01'03"N 40°42'41"E	1225	24.08.2019
40	Bingöl: center, Bingöl-Karlıova road, exit of Çobantaşı village	39°04'13"N 40°48'47"E	1549	24.08.2019

Station No	Location	Coordinates	Altitude (m)	Date
41	Bingöl: center, on Yolçatı-Sancak road, between Kuşkondu and Sancak, 1.5 km from Kuşkondu village towards Sancak, on the main road	39°04'24"N 40°19'35"E	1580	11.09.2019
42	Bingöl: center, On Yolçatı-Sancak road, between Arıcılar-Kuşkondu, on the main road	39°03'33"N 40°18'54"E	1584	11.09.2019
43	Bingöl: center, 1 km northwards of Ayrıkçayır village	39°01'38"N 40°16'49"E	1604	12.09.2019
44	Bingöl: center, between the villages of Ayrılık and Uğurova, 1.5 km from Uğurova village, the northern part, on the main road	39°01'34"N 40°15'47"E	1770	12.09.2019
45	Bingöl: center, Altıncık road, opposite to Altıncık village, north-westwards, roadside	38°52'34"N 40°25'26"E	1328	13.09.2019
46	Bingöl: center, on the Altıncık-Aşağıköy road, roadside of the main road and its southern part	38°51'20"N 40°23'12"E	1459	13.09.2019
47	Bingöl: center, on Dikme village road, 300 m away from Dikme village	38°54'56"N 40°18'50"E	1624	14.09.2019
48	Bingöl: center, on the southwestern road of Bilaloğlu-Kırkağıl, roadside	38°55'04"N 40°20'50"E	1461	14.09.2019
49	Bingöl: center, Bingöl-Üçyaka main road, roadside and along the road	38°53'08"N 40°27'59"E	1317	15.09.2019
50	Bingöl: center, eastwards of Yukarıakpınar village, Üçyaka village road, roadside	38°51'36"N 40°27'19"E	1657	15.09.2019
51	Bingöl: center, south-western part, westwards of Altınışık village, northwards of Haziran village, roadside	38°49'57"N 40°26'37"E	1700	15.09.2019
52	Bingöl: center, Kartal village	39°00'11"N 40°24'47"E	1787	22.09.2019
53	Bingöl: center, northern part, between Balıklıçay and Sudüğünü villages, 1200 m away from the village of Sudüğünü, roadside	39°03'12"N 40°24'09"E	1620	22.09.2019
54	Bingöl, Solhan, Asmakaya village, Tarhan locality	38°47'52"N 41°04'30"E	1500	31.07.2018
55	Bingöl, Solhan, southwards of Hazarşah village, around Aksakal lake	38°58'21"N 40°56'40"E	1371	31.07.2018
56	Bingöl, Solhan, Hazarşah village, new settlement	39°01'05"N 40°53'21"E	1735	31.07.2018
57	Bingöl, Solhan, Hazarşah village	38°59'32"N 40°53'12"E	1550	31.07.2018
58	Bingöl, Solhan, between Esmetaş-Şimşirpınar	38°55'54"N 41°03'08"E	1480	31.07.2018
59	Bingöl, Solhan, Asmakaya, Mergan locality	38°47'01"N 41°06'38"E	1368	31.07.2018
60	Bingöl: Solhan, northwestwards of Oymapınar village	38°51'24"N 40°57'53"E	1179	15.07.2020

Station No	Location	Coordinates	Altitude (m)	Date
61	Bingöl: Solhan, westwards of Sülünkaş village	38°50'20"N 40°57'23"E	1531	15.07.2020
62	Bingöl: Solhan, southwestwards of Sükyan village	38°49'53"N 40°56'56"E	1662	15.07.2020
63	Bingöl: Solhan, Yenibaşak village	38°48'41"N 41°00'00"E	1475	15.07.2020
64	Bingöl: Solhan, northwards of Gençtavus, westwards of Yeni Başkaya village	38°48'19"N 40°58'55"E	170	16.07.2020
65	Bingöl: Solhan, Kale village	38°47'43"N 41°03'04"E	1165	16.07.2020
66	Bingöl: Solhan, westwards of Arakonak village (northeastwards of Solhan)	38°58'15"N 41°07'16"E	1627	17.07.2020
67	Bingöl: Solhan, westwards of Elbaşı village, northwards of Solhan	38°59'11"N 41°02'15"E	1568	17.07.2020
68	Bingöl: Solhan, Elbaşı village and its surroundings, roadside	38°59'17"N 41°03'25"E	1634	17.07.2020
69	Bingöl: Solhan, southwards of Göksu village	38°59'53"N 41°04'50"E	1864	17.07.2020
70	Bingöl, Adaklı, 3 km from Adaklı, Çatma village, main road roadside	39°14'29.22"N 40°33'10.12"E	1580	28.08.2018
71	Bingöl, Adaklı, Karaçubuk, Çır locality	39°11'57"N 40°27'39"E	1473	28.08.2018
72	Bingöl, Adaklı, Mercan village and its surroundings	39°13'44"N 40°39'09"E	1919	28.08.2018
73	Bingöl, Adaklı, Yeldeğirmeni village	39°16'25"N 40°26'01"E	1901	28.08.2018
74	Bingöl, Adaklı, Doğanlı village, streamside	39°11'50"N 40°35'17"E	1472	28.08.2018
75	Bingöl, Adaklı, Bağlıpınar village	39°14'53"N 40°22'24"E	1333	28.08.2018
76	Bingöl: Adaklı, Hasbağlar road, southwards of Hasbağlar, roadside of the main road	39°10'32"N 40°22'12"E	1725	21.05.2019
77	Bingöl: Adaklı, northwards of Hasbağlar village	39°11'48"N 40°22'13"E	1562	21.05.2019
78	Bingöl: Adaklı, Erler village	39°09'55"N 40°33'03"E	1533	24.07.2020
79	Bingöl: Adaklı, northwards of Kozlu village	39°10'23"N 40°31'06"E	1533	24.07.2020
80	Bingöl: Adaklı, northwards of Döşlüce village	39°14'03"N 40°27'22"E	1454	25.07.2020
81	Bingöl: Adaklı, westwards of Akbinek village	39°14'44"N 40°26'04"E	1513	25.07.2020

Station No	Location	Coordinates	Altitude (m)	Date
82	Bingöl: Adaklı, Mercan-Elmadüzü village road, 1.5 km from Elmadüzü village	39°14'25"N 40°41'08"E	1971m,	26.07.2020
83	Bingöl: Adaklı, southeastwards of Mercan village	39°12'52"N 40°39'31"E	1894m,	26.07.2020
84	Bingöl, Young, Guzeldere region	38°40'11"N 40°25'33"E	1391	01.08.2018
85	Bingöl, Genç, Meşedalı village	38°46'55"N 40°37'25"E	1015	01.08.2018
86	Bingöl, Genç, Yağızca village	38°48'38"N 40°45'52"E	1176	01.08.2018
87	Bingöl, Genç, Çaytepe village	38°48'20"N 40°41'39"E	1193	01.08.2018
88	Bingöl, Genç, Kavaklı village	38°38'34"N 40°20'51"E	1144	01.08.2018
89	Bingöl, Genç, Yazkonağı village	38°40'07"N 40°41'46"E	1747	01.08.2018
90	Bingöl, Genç, Çamlıyurt road	38°42'27"N 40°24'11"E	1085	06.09.2020
91	Bingöl, Genç, Soğukpınar village	38°42'34"N 40°26'53"E	1108	06.09.2020
92	Bingöl, Genç, Şeyismail road, Çamlıyurt-Şeyismail village	38°42'51"N 40°21'26"E	1113	06.09.2020
93	Bingöl, Genç, southeastwards of Guzeldere village,	38°40'15"N 40°25'44"E	1385	07.09.2020
94	Bingöl, Genç, around Karcı village, western part	38°39'43"N 40°26'31"E	1235	07.09.2020
95	Bingöl, Genç, between the villages of Sürekli-Ardıçdibi	38°45'40"N 40°36'37"E	1167	08.09.2020
96	Bingöl, Genç, northeastwards of Ardıçdibi village	38°45'55"N 40°37'03"E	1180	08.09.2020
97	Bingöl, Genç, eastern part of Meşedalı village	38°46'48"N 40°38'56"E	1218	08.09.2020
98	Bingöl: Karlhova, Toklular village, main roadside	39°16'01"N 40°59'06"E	1796	16.06.2019
99	Bingöl: Karlhova, Boncukgöze village, main roadside	39°13'50"N 40°58'29"E	1746	16.06.2019
100	Bingöl: Karlhova, Hasanova village, main roadside	39°10'33"N 41°00'54"E	1951	17.06.2019
101	Bingöl: Karlhova, Cilligöl village, main roadside	39°10'15"N 40°55'59"E	1895	17.06.2019
102	Bingöl: Karlhova, Karabalçık village, main roadside	39°10'49"N 40°54'03"E	1663	17.06.2019



Station No	Location	Coordinates	Altitude (m)	Date
103	Bingöl: Karlıova, Bingöl-Karlıova road, 200 m away from Hacılar village	39°05'30"N 40°49'16"E	1504	18.06.2019
104	Bingöl: Karlıova: Karlıova-Bingöl road, 35 km from Bingöl, 5 km from Çobantaşı village	39°05'07"N 40°48'58"E	1539	18.06.2019
105	Bingöl: Karlıova, 2 km from the Karlıova-Muş border, roadside	39°17'52"N 41°07'19"E	1945	18.06.2019
106	Bingöl: Karlıova, Karlıova-Muş border	39°16'47"N 41°08'31"E	1873	18.06.2019
107	Bingöl: Karlıova, Serpmekaya village, Yalnızhan locality	39°15'26"N 40°02'52"E	1815	19.06.2019
108	Bingöl: Karlıova, Serpmekaya village	39°15'13"N 41°02'55"E	1849	19.06.2019
109	Bingöl: Karlıova, Kale village, opposite to Serpmekaya village	39°15'17"N 41°02'04"E	1777	19.06.2019
110	Bingöl: Karlıova, Tuzluca village, opposite to Kantarkaya village	39°22'00"N 41°03'38"E	1941	19.06.2019
111	Bingöl: Karlıova, Kantarkaya village	39°21'27"N 41°01'35"E	1891	19.06.2019
112	Bingöl: Karlıova, Taşlıçay village	39°17'00"N 40°56'49"E	1946	19.06.2019
113	Bingöl: Karlıova, Hırhal Mountain, northwards of Harmantepe and Viranşehir villages	39°25'57"N 40°57'48"E, 39°26'21"N 40°57'56"E, 39°26'42"N 40°58'06"E	2384, 2306, 2449	20.06.2019
114	Bingöl: Karlıova, Bingöl-Karlıova road, Karlıova: exit of Kalencik village	39°09'41"N 40°54'07"E	1752	24.08.2019
115	Bingöl: Karlıova, Karlıova-Erzurum: Çat road, 2 km from Dörtöl	39°21'49"N 40°59'53"E	1848	24.08.2019
116	Bingöl: Karlıova, Karlıova-Erzurum border	39°26'29"N 41°03'15"E, 39°26'50"N 41°03'28"E,	1966, 2049	05.09.2019
117	Bingöl: Karlıova, 2 km from the Karlıova-Erzurum border	39°26'28"N 41°03'03"E	1969	05.09.2019
118	Bingöl: Karlıova, Karlıova: from Çatak (Dörtöl), on the main entrance road, after Kaynakpınar village	39°22'48"N 40°44'51"E	1761	06.09.2019
119	Bingöl: Karlıova, Suçatı village	39°23'26"N 40°55'00"E	1860	16.09.2020
120	Bingöl: Karlıova, northwards of Ilıpınar village	39°22'41"N 40°56'23"E	1833	16.09.2020
121	Bingöl: Karlıova, around Kazanlı village	39°22'54"N 40°54'18"E	1884	16.09.2020

Station No	Location	Coordinates	Altitude (m)	Date
122	Bingöl: Karlıova, opposite to Sudurağı village (western part)	39°07'53"N 40°49'33"E	1450	17.09.2020
123	Bingöl: Karlıova, north-westwards, between Taşlıca and Çabir villages	39°17'27"N 40°56'09"E	2029	17.09.2020
124	Bingöl: Karlıova, southwards of Göynük region	39°07'07"N 40°53'31"E	1859	17.09.2020
125	Bingöl: Karlıova, southwards of Hasanova village	39°07'34"N 41°02'36"E	2154	18.09.2020
126	Bingöl: Karlıova, southwards of Bağlısa viilage	39°07'13"N 41°10'26"E	1860	18.09.2020
127	Bingöl: Karlıova, western part of Bağlısa village	39°07'04"N 41°07'18"E	1970	18.09.2020
128	Bingöl, Kiğı, Topraklık village, Dam edge	39°22'35"N 40°20'15"E	1465	02.08.2018
129	Bingöl, Kiğı, Eskikavak village	39°17'10"N 40°24'10"E	1458	02.08.2018
130	Bingöl, Kiğı, Çukurbağ village	39°18'08"N 40°19'39"E	1626	02.08.2018
131	Bingöl, Kiğı, Yedisu Dam edge, Baklalı village road	39°13'49"N 40°19'46"E	1213	02.08.2018
132	Bingöl, Kiğı, Ölmez Village	39°19'07"N 40°17'26"E	1760	10.08.2018
133	Bingöl, Kiğı, Yedisu Dam edge, Kutluca village road	39°13'10"N 40°17'46"E	1316	11.08.2018
134	Bingöl, Kiğı, Tekbaş village, Dam edge	39°22'21"N 40°20'25"E	1450	12.08.2018
135	Bingöl: Kiğı, Kiğı-Adaklı border, eastwards of Nacaklı village	39°10'02"N 40°22'09"E	1684	21.05.2019
136	Bingöl: Kiğı, northern side of Açıkgüney village	39°15'57"N 40°13'10"E	1426	03.06.2019
137	Bingöl: Kiğı, between Açıkgüney-Sabırtaş villages, northwards of Açıkgüney village	39°16'46"N 40°13'08"E	1526	03.06.2019
138	Bingöl: Kiğı, western part of Yazgünü village	39°16'01"N 40°14'49"E	1526	03.06.2019
139	Bingöl: Kiğı, southwards of Ağaçöven village	39°15'59"N 40°16'39"E	1601	04.06.2019
140	Bingöl: between the villages of Kiğı, Dallica and Eşme, roadside	39°15'13"N 40°18'23"E	1416	04.06.2019
141	Bingöl: Kiğı, northwestwards of Eşme village, roadside	39°15'55"N 40°19'36"E	1385	04.06.2019
142	Bingöl: Kiğı, northwards of Duranlar village, across the road	39°16'32"N 40°20'38"E	1303	05.06.2019

Station No	Location	Coordinates	Altitude (m)	Date
143	Bingöl: Kiğı, northwards of Yeşilyurt village, roadside	39°17'35"N 40°21'27"E	1219	05.06.2019
144	Bingöl: Kiğı, Kiğı-Yayladere road, 2-3 km from Yayladere border, main roadside	39°12'31"N 40°14'38"E	1269	23.08.2019
145	Bingöl: Kiğı, Adaklı-Kiğı border, Yedisu dam edge	39°14'54"N 40°22'09"E	1304	21.09.2019
146	Bingöl: Kiğı, on Açıkgüney road	39°15'37"N 40°13'32"E	1390	21.09.2019
147	Bingöl: Yayladere, opposite to Doğucak village, main roadside	39°09'32"N 40°04'12"E	1465	22.08.2019
148	Bingöl: Yayladere, Doğucak village, 3-4 km southwards from the main road, in the direction of Yedisu dam.	39°07'53"N 40°03'49"E	1090	22.08.2019
149	Bingöl: Yayladere, on the Aydınlar village road, 1 km away	39°10'01"N 40°03'40"E	1622	22.08.2019
150	Bingöl: Yayladere, Merkez-Yolgüden village road, Akçadamar village junction, 1 km ahead, roadside, in the stream	39°12'14"N 40°03'38"E	1494	23.08.2019
151	Bingöl: Yayladere, center-Yolgüden village road, Yolgüden village exit, main roadside, forest and its edge	39°10'03"N 40°04'46"E	1521	23.08.2019
152	Bingöl: Yayladere, on Kiğı-Yayladere road, 2 km from Zeyneli village, Kiğı-Yayladere border, roadside	39°12'07"N 40°12'40"E 39°12'18"N 40°13'16"E	1310, 1336	23.08.2019
153	Bingöl: Yayladere, close to the center, 200 m away from Batıyaz village	39°11'37"N 40°06'41"E	1453	23.08.2019
154	Bingöl: Yayladere, 700-800 m eastwards from the centre, 200 m eastwards from the military barracks, main roadside	39°13'01"N 40°03'38"E	1608	23.08.2019
155	Bingöl: Yedisu, Karlıova-Yedisu road, Karlıova-Yedisu border, 1 km from Dinarbey village, roadside	39°22'22"N 40°40'50"E	1658	06.09.2019
156	Bingöl: Yedisu, Yedisu-center, 10 km westwards, along the main road, 1 km westwards of Eskibalta village, roadside	39°27'51"N 40°26'25"E 39°28'03"N 40°25'47"E	1471, 1506	06.09.2019
157	Bingöl: Yedisu, Yedisu-center in western direction, main road side	39°27'03"N 40°30'07"E	1416	06.09.2019
158	Bingöl: Yedisu, Dinarbey village	39°22'24"N 40°39'42"E	1644	06.09.2019
159	Bingöl: Yedisu: on Eskibalta village road, Gelinpertek village road, 1 km away	39°28'08"N 40°23'56"E	1425	07.09.2019
160	Bingöl: Yedisu, on mainroad to Eskibalta village, northwards of Gelinpertek village, 4-5 km westwards of Ayanoğlu village	39°28'49"N 40°24'02"E	1574	07.09.2019
161	Bingöl: Yedisu, Yeşilgöl surroundings	39°25'13"N 40°36'03"E	1874	29.08.2020

Station No	Location	Coordinates	Altitude (m)	Date
162	Bingöl: Yedisu, Şenköy surroundings	39°24'43"N 40°32'08"E	1633	29.08.2020
163	Bingöl: Yedisu, surroundings of Kabaoluk village	39°25'27"N 40°30'28"E	1500	29.08.2020
164	Bingöl: Yedisu, Döşengi village	39°27'07"N 40°31'01"E	1478	29.08.2020
165	Bingöl: Yedisu, northeastwards of Kabayel village	39°28'44"N 40°18'56"E	1522	30.08.2020
166	Bingöl: Yedisu, northeastwards of Kabayel village	39°29'21"N 40°20'22"E	1773	30.08.2020
167	Bingöl: Yedisu, southwestwards of Kabayel village	39°27'45"N 40°17'13"E	1576	30.08.2020
168	Bingöl: Yedisu, Yağmurpınarı	39°28'47"N 40°32'30"E	1805	31.08.2020
169	Bingöl: Yedisu, 500 m to Kaşıklı village, western part, roadside	39°28'54"N 40°33'41"E	1944	31.08.2020

## Results and discussion

A total of 341 lichenized and 23 lichenicolous fungi, of which six are varieties, have been identified from 169 different localities in the Bingöl Province (Turkey). Lichenicolous fungus *Sphaerellothecium contextum* is new to Turkey. Three hundred and seven lichens and 22 lichenicolous fungi have been reported for the first time from Bingöl (Çobanoğlu & Yavuz 2007; John & Türk 2017; John & al. 2020; Mayrhofer & Poelt 1979; Song & al. 2019; Steiner 1921; Szatala 1960; Yazıcı & al. 2019a,b; Yazıcı & Aslan 2021). Nineteen lichens and three lichenicolous fungi were found for the second time in Turkey (John & Türk 2017; John & al. 2020).

The taxa are listed alphabetically. The used indications are: “\*” for the new records for Turkey, “+” for a lichenicolous fungus, and “-“ for a lichenicolous lichen.

## List of taxa

*Acarospora bullata* Anzi – Loc. 1, 2, 13, 71, 105, 114, 143, 152, 160: on calcareous rocks.

*Acarospora cervina* A. Massal. – Loc. 1, 2, 4, 7, 9, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 27, 33, 35, 37, 38, 39, 40, 43, 44, 45, 46, 47, 48, 49, 54, 55, 56, 57, 58, 59, 61, 62, 68, 69, 70, 71, 73, 74, 75, 79, 85, 86, 88, 89, 93, 97, 99, 100, 101, 103, 104, 105, 106, 107, 109, 110, 111, 112, 113, 114, 115, 116, 117, 119, 121, 123, 125, 126, 128, 130, 133, 134, 136, 139, 142, 143, 145, 146, 147, 149, 150, 151, 152, 154, 155, 157, 160, 164, 168, 169: on calcareous rocks.

*Acarospora fuscata* (Ach.) Arnold – Loc. 1, 2, 5, 6, 8, 7, 11, 12, 15, 17, 21, 23, 39, 43, 45, 46, 47, 48, 49, 54, 55, 57, 58, 59, 71, 72, 73, 74, 76, 77, 80, 81, 84, 85, 86, 87, 88, 89, 97, 100, 102, 105, 106, 107, 108, 109, 112, 116, 128, 134, 136, 138, 143, 147, 151, 154, 156, 157: on siliceous rocks.

*Acarospora glaucocarpa* (Ach.) Arnold – Loc. 12, 45, 46, 47, 100, 143: on calcareous rocks.

*Acarospora hospitans* H. Magn. – Loc. 2, 7, 8, 13, 17, 21, 57, 72, 84, 86, 87, 86, 106, 109, 112, 114, 123, 125, 128, 134, 143, 153, 155, 156: on siliceous rocks; Loc. 9,

11, 14, 16, 18, 19, 20, 54, 55, 58, 69, 85, 99, 101, 105: on *Aspicilia* sp.

*Acarospora impressula* Th. Fr. – Loc. 12, 107, 114: on siliceous rocks

*Acarospora laqueata* Stizenb. ex Flagey – Loc. 89: on calcareous rocks.

*Acarospora macrospora* (Hepp ex Nyl.) A. Massal. – Loc. 12, 22, 86, 88, 114: on siliceous rocks.

*Acarospora pelioscypa* (Wahlenb.) Th. Fr. – Loc. 85, 151, 152: on siliceous rocks.

*Acarospora pseudofuscata* Sipman – Loc. 1, 2, 13, 16, 17, 58, 84, 87, 107, 108, 109, 125: on siliceous rocks.

*Acarospora scabra* (Pers.) Th. Fr. – Loc. 43, 68, 76, 77, 103, 113, 139: on siliceous rocks.

-*Acarospora scotica* Hue – Loc. 18, 57, 106: on *Circinaria caesiocinerea*.

*Acarospora strigata* (Nyl.) Jatta – Loc. 21, 44, 58, 93, 100, 107, 113, 114, 116, 138, 148, 152, 160: on calcareous rocks.

*Acarospora umbilicata* Bagl. – Loc. 1, 9, 21, 71, 78, 84, 101, 105, 125, 136, 152: on siliceous rocks.

*Acarospora veronensis* A. Massal. – Loc. 1, 4, 7, 10, 11, 13, 14, 17, 18, 19, 20, 22, 33, 55, 68, 76, 77, 71, 85, 99, 105, 106, 109, 123, 125, 126, 127, 136, 138, 139, 140, 141, 143, 145, 147, 151, 159, 160, 164: on siliceous rocks.

*Acarospora versicolor* Bagl. & Carestia – Loc. 9, 86, 93, 113, 116: on siliceous rocks.

*Agonimia tristicula* (Nyl.) Zahlbr. – Loc. 6, 12, 34, 36, 40, 43, 44, 47, 48, 49, 61, 62, 68, 69, 71, 72, 74, 76, 77, 88, 100, 104, 116, 125, 139, 168, 169: on mosses.

+*Arthonia hertelii* (Calat., Barreno & V.J. Rico) Hafellner & Volk. John – Loc. 16, 114: on *Aspicilia desertorum*.

+*Arthonia varians* (Davies) Nyl. – Loc. 1, 11, 14, 16, 22, 23, 57, 72, 86, 99, 100, 101, 106, 107, 108, 109, 114, 116, 154: on *Lecanora rupicola*.

*Aspicilia albosparsa* (Werner) S.Y. Kondr. – Loc. 10, 40, 73, 101, 106, 151: on siliceous rocks.

*Aspicilia candida* (Anzi) Hue – Loc. 40, 45, 48, 49, 125, 130: on calcareous rocks.

*Aspicilia cinerea* (L.) Körb. – Loc. 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 33, 37, 38, 40, 44, 43, 44, 45, 46, 47, 48, 49, 50, 51, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 68, 69, 70, 71, 72, 73, 74, 75,

76, 77, 79, 80, 81, 84, 85, 86, 87, 88, 89, 93, 97, 99, 100, 101, 103, 105, 106, 107, 108, 109, 112, 113, 114, 116, 119, 121, 125, 128, 134, 129, 130, 133, 136, 138, 139, 142, 143, 144, 145, 147, 148, 149, 151, 152, 153, 154, 155, 156, 164: on siliceous rocks.

*Aspicilia coronata* (A. Massal.) B. de Lesd. – Loc. 39, 44, 130, 144, 152, 157: on calcareous rocks.

*Aspicilia desertorum* (Kremp.) Mereschk. – Loc. 1, 3, 5, 6, 7, 8, 9, 11, 12, 13, 15, 16, 17, 18, 20, 21, 26, 32, 37, 38, 39, 40, 50, 51, 54, 56, 57, 58, 59, 61, 62, 68, 69, 70, 71, 73, 74, 75, 76, 77, 78, 80, 81, 84, 85, 86, 87, 88, 89, 93, 99, 100, 101, 103, 105, 106, 108, 109, 112, 113, 114, 116, 122, 123, 124, 127, 128, 134, 129, 133, 142, 144, 151, 152, 153, 154, 155, 156, 157, 158, 164, 168, 169: on siliceous rocks.

*Aspicilia glomerulans* (Poelt) Poelt – Loc. 1, 13, 15, 18, 20, 22, 23, 70, 71, 72, 74, 103, 128, 129, 142, 152, 154, 134, 143: on calcareous rocks.

*Aspicilia laevata* (Ach.) Arnold – Loc. 22, 23, 74, 88, 89: on siliceous rocks.

*Aspicilia polychroma* Anzi – Loc. 4, 12, 13, 17, 21, 39, 40, 45, 46, 49, 50, 51, 70, 74, 79, 80, 81, 86, 87, 88, 89, 101, 103, 113, 114, 116, 119, 123, 125, 128, 134, 138, 139, 147, 148, 150, 151, 152, 154, 156, 158, 160: on calcareous rocks.

*Aspiciliella cupreoglauca* (B. de Lesd.) Zakeri, Divakar & Otte – Loc. 1, 3, 4, 9, 12, 15, 17, 18, 23, 43, 44, 58, 69, 73, 74, 89, 99, 105, 106, 107, 114, 121, 123, 125, 142, 151, 152, 154: on siliceous rocks.

*Aspiciliella intermutans* (Nyl.) M. Choisy – Loc. 10, 105: on siliceous rocks.

*Athallia holocarpa* (Hoffm.) Arup, Frödén & Søchting – Loc. 101, 110, 143: on calcareous rocks.

*Athallia inconnexa* (Nylander) S.Y. Kondr. & L. Lökös – Loc. 40, 110, 113, 130: on calcareous rocks.

*Athallia pyracea* (Ach.) Arup, Frödén & Søchting – Loc. 4, 5, 6, 24, 36, 37, 45, 46, 47, 48, 49, 50, 51, 69, 70, 76, 77, 79, 85, 93, 99, 100, 101, 118, 138, 147, 148, 149, 151, 152, 154, 155, 160, 164, 168, 169: on *Quercus* sp., 25: on *Populus* sp., *Salix* sp. and *Fraxinus* sp., 38: on *Populus* sp., *Salix* sp. and *Quercus* sp., 156: on *Quercus* sp. and *Salix* sp., 158: on *Quercus* sp., *Salix* sp. and *Fraxinus* sp.

*Bagliettoa baldensis* (A. Massal.) Vězda – Loc. 5, 8, 32, 43, 45, 47, 48, 50, 51, 62, 79, 99, 101, 126, 127, 130,

143: on calcareous rocks.

*Bagliettoa calciseda* (DC.) Gueidan & Cl. Roux – Loc. 6, 33, 37, 38, 43, 44, 45, 46, 49, 61, 62, 69, 99, 123, 130, 138, 139, 140, 141, 143, 144, 145, 148, 152, 160, 168, 169: on calcareous rocks.

*Bagliettoa marmorea* (Scop.) Gueidan & Cl. Roux – Loc. 50, 103, 118, 130: on calcareous rocks.

*Bagliettoa parmigera* (J. Steiner) Vězda & Poelt – Loc. 148: on calcareous rocks.

*Bellemerea cinereorufescens* (Ach.) Clauzade & Cl. Roux – Loc. 106: on siliceous rocks.

*Bellemerea cupreoatra* (Nyl.) Clauzade & Cl. Roux – Loc. 1, 2, 7, 9, 10, 13, 14, 17, 18, 22, 43, 44, 58, 69, 74, 84, 85, 86, 88, 89, 97, 100, 106, 108, 109, 112, 114, 116, 125, 142, 147, 151, 153, 154, 155, 156: on siliceous rocks.

*Blastenia crenularia* (With.) Arup, Söchting & Frödén – Loc. 103, 115, 160: on siliceous rocks.

*Blennothallia crispa* (Huds.) Otálora, P.M. Jørg & Taylor – Loc. 12, 36, 74, 79, 80, 81, 99, 100, 101, 103, 110, 111, 130, 138, 139, 148, 157, 158, 160, 164, 168, 169: on soil.

*Bryostigma lapidicola* (Taylor) S.Y. Kondr. & Hur – Loc. 4, 5, 8, 12, 14, 43, 44, 45, 46, 49, 50, 51, 61, 62, 79, 93, 97, 99, 110, 113, 116, 119, 121, 123, 125, 138, 142, 143, 148, 160, 164, 168, 169: on calcareous rocks.

+*Bryopstigma epiphyscium* (Nyl.) S.Y. Kondr. & Hur – Loc. 113: on *Physcia dubia*, 116: on *Physcia biziana*.

+*Bryostigma phaeophysciae* (Grube & Matzer) S.Y. Kondr. & Hur – Loc. 26: on *Phaeophyscia orbicularis*.

*Bellia aethalea* (Ach.) Th. Fr. – Loc. 72, 101, 125, 164: on siliceous rocks.

*Buellia badia* (Fr.) A. Massal. – Loc. 1, 6, 14, 33, 37, 38, 50, 51, 61, 62, 71, 72, 85, 99, 107: on siliceous rocks.

*Buellia caldesiana* Bagl. – Loc. 71: on siliceous rocks.

*Buellia epigaea* (Hoffm.) Tuck. – Loc. 160: on soil.

*Calogaya arnoldii* (Wedd.) Arup, Frödén & Söchting – Loc. 103: on calcareous rocks.

*Calogaya biatorina* (A. Massal.) Arup, Frödén & Söchting – Loc. 11, 39, 101, 103, 113, 116, 117, 119, 130, 160: on calcareous rocks.

*Calogaya decipiens* (Arnold) Arup, Frödén & Söchting – Loc. 4, 5, 6, 43, 44, 45, 46, 47, 48, 49, 50, 51, 61, 62, 76, 77, 93, 97, 99, 100, 101, 103, 104, 110, 113, 115, 119, 123, 130, 136, 138, 139, 143, 148: on calcareous rocks.

*Calogaya pusilla* (A. Massal.) Arup, Frödén &

Söchting – Loc. 39: on calcareous rocks.

*Calogaya saxicola* (Hoffm.) Vondrák – Loc. 1, 5, 8, 13, 39, 45, 46, 47, 48, 49, 50, 51, 58, 70, 71, 74, 75, 76, 77, 80, 81, 88, 104, 113, 114, 115, 116, 119, 125, 128, 130, 134, 139, 140, 141, 147, 149, 150, 151, 152, 154, 157, 164, 168, 169: on siliceous rocks.

*Calogaya schistidii* (Anzi) Arup, Frödén & Söchting – Loc. 8, 58, 101, 136, 148, 160: on mosses.

*Caloplaca agardhiana* (Flot.) Flagey – Loc. 130, 160: on calcareous rocks.

*Caloplaca albopruinosa* (Arnold) H. Olivier – Loc. 22, 23, 39, 110, 113, 117, 118, 130: on calcareous rocks.

*Caloplaca areolata* (Zahlbr.) Clauzade – Loc. 2, 6, 106, 108, 117, 128, 134: on siliceous rocks.

*Caloplaca ceracea* J.R. Laundon – Loc. 4, 7, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 23, 48, 49, 50, 51, 54, 55, 56, 57, 59, 62, 71, 72, 73, 84, 86, 87, 101, 109, 110, 114, 128, 134, 139, 143, 151, 152, 153, 160: on siliceous rocks.

*Caloplaca cerina* (Hedw.) Th. Fr. var. *cerina* – Loc. 10, 11, 12, 16, 17, 20, 21, 24, 32, 36, 33, 36, 45, 46, 48, 49, 50, 51, 54, 55, 58, 59, 73, 74, 79, 84, 85, 87, 93, 99, 114, 126, 127, 139, 144, 148, 152: on *Quercus* sp., 70: on *Fraxinus* sp., *Juglans* sp., *Quercus* sp., 71: on *Quercus* sp., mosses, *Salix* sp., *Crataegus* sp., *Prunus* sp., 129: on *Quercus* sp. and *Salix* sp., 156: on *Salix* sp., 14, 23, 88, 89: on mosses

*Caloplaca cerina* (Hedw.) Th. Fr. var. *muscorum* (A. Massal.) Jatta – Loc. 5, 6, 26, 32: on mosses.

*Caloplaca lactea* (A. Massal.) Zahlbr. – Loc. 10, 12, 40, 71, 74, 100, 101, 110, 111, 123, 144, 148: on calcareous rocks.

*Caloplaca obscurella* (J. Lahm.) Th. Fr. – J. Lahm.) Th. Fr. a 1, 74, 100, 101, 11.

*Caloplaca ochracea* (Schaer.) Flagey – Loc. 160: on calcareous rocks.

*Caloplaca soralifera* Vondrák & Hrouzek – Loc. 71, 74: on calcareous rocks.

*Caloplaca sororicida* M. Steiner & Poelt – Loc. 103: on calcareous rocks.

*Caloplaca xerica* Poelt & Vězda – Loc. 106: on siliceous rocks.

*Candelariella antennaria* Räsänen – Loc. 26: on *Populus* sp., *Salix* sp. and *Fraxinus* sp., 31, 38, 49: on *Salix* sp., *Populus* sp., *Fraxinus* sp., and *Quercus* sp., 70: on *Juglans* sp., *Fraxinus* sp. and *Quercus* sp., 71: on

*Crataegus* sp., *Prunus* sp. and *Quercus* sp., 155 *Crataegus* sp., 156: *Quercus* sp. and *Salix* sp., 4, 5, 6, 10, 12, 13, 17, 20, 21, 24, 25, 28, 29, 30, 33, 34, 36, 37, 43, 44, 45, 46, 47, 48, 50, 51, 54, 55, 57, 58, 60, 61, 73, 76, 77, 78, 79, 80, 81, 84, 87, 88, 90, 91, 92, 97, 99, 100, 101, 118, 120, 122, 125, 126, 127, 128, 129, 130, 131, 133, 138, 139, 142, 143, 147, 148, 151, 152, 158, 160, 164, 165, 166, 167, 168, 169: on *Quercus* sp.

*Candelariella aurella* (Hoffm.) Zahlbr. – Loc. 2, 4, 8, 10, 11, 17, 27, 32, 39, 40, 43, 44, 46, 47, 49, 50, 51, 55, 61, 62, 70, 72, 76, 77, 85, 87, 88, 99, 103, 108, 109, 110, 113, 114, 115, 116, 117, 119, 126, 127, 128, 129, 130, 131, 133, 134, 139, 140, 141, 143, 147, 148, 150, 151, 156, 157, 158, 165, 166, 167, 168, 169: on calcareous rocks.

*Candelariella kuusamoensis* Räsänen – Loc. 3, 18, 84: on mosses

*Candelariella oleaginescens* Rondon – Loc. 104, 110, 113, 116: on calcareous rocks.

*Candelariella reflexa* (Nyl.) Lettau – Loc. 58, 70, 86, 88 148: on *Quercus* sp.

*Candelariella vitellina* (Hoffm.) Müll. Arg. – Loc. 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 32, 33, 36, 39, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 60, 68, 70, 71, 72, 73, 74, 76, 77, 78, 79, 80, 81, 84, 85, 86, 87, 88, 89, 97, 99, 100, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 119, 120, 121, 125, 128, 129, 130, 131, 132, 133, 134, 138, 139, 140, 141, 142, 143, 144, 145, 147, 148, 149, 151, 152, 153, 154, 155, 156, 157, 159, 160, 164: on siliceous rocks.

*Candelariella xanthostigma* (Pers. ex Ach.) Lettau – Loc. 86, 158: on *Quercus* sp.

+*Carbonea supersparsa* (Nyl.) Hertel – Loc. 73: on *Lecanora polytropa*.

+*Carbonea vitellinaria* (Nyl.) Hertel – Loc. 1, 2, 3, 4, 12, 22, 23, 26, 71, 72, 89, 106, 110, 112, 160: on *Candelariella vitellina*

*Carbonea vorticosa* (Flörke) Hertel – Loc. 3, 43, 89, 113, 142: on siliceous rocks.

*Catapyrenium squamulosum* (Ach.) Breuss – Loc. 71, 111, 138: on soil, 99, 110, 157: on mosses.

+*Cercidospora epipolytropa* (Mudd) Arnold – Loc. 4, 73: on *Lecanora polytropa*.

+*Cercidospora macrospora* (Uloth) Hafellner & Nav.-Ros. – Loc. 109, 116: on *Protoparmeliopsis muralis*.

+*Cercidospora melanophthalmae* Nav.-Ros., Calat. & Hafellner – Loc. 22: on *Rhizopaca melanophthalma*.

*Circinaria caesiocinerea* (Nyl. ex Malbr.) A. Nordin, Savić & Tibell – Loc. 8, 10, 12, 15, 20, 21, 22, 23, 41, 42, 45, 46, 47, 48, 49, 50, 51, 55, 56, 57, 58, 59, 71, 72, 74, 76, 77, 84, 86, 87, 89, 97, 105, 106, 113, 114, 116, 119, 128, 134, 136, 138, 141, 142, 143, 147, 150, 151, 152, 154, 156, 165, 166, 167, 168, 169: on siliceous rocks.

*Circinaria calcarea* (L.) Nordin, Savić & Tibell – Loc. 8, 39, 40, 50, 51, 114, 116, 130, 133, 144, 148, 158, 167: on siliceous rocks.

*Circinaria contorta* (Hoffm.) A. Nordin, Savić & Tibell – Loc. 17, 39, 40, 44, 54, 56, 57, 59, 74, 86, 93, 104, 113, 115, 125, 139, 143, 148, 152, 164: on calcareous rocks.

*Circinaria hoffmanniana* (S. Ekman & Fröberg ex R. Sant.) A. Nordin – Loc. 12, 13, 40, 43, 57, 59, 62, 68, 100, 101, 107, 115, 133, 160, 168, 169: on calcareous rocks.

*Cladonia chlorophaea* (Flörke ex Sommerf.) Spreng. – Loc. 71: on mosses.

*Cladonia coniocraea* (Flörke) Spreng. – Loc. 118: on mosses and soil

*Cladonia deformis* (L.) Hoffm. – Loc. 118: on *Quercus* sp.

*Cladonia foliacea* (Huds.) Willd. – Loc. 118: on mosses.

*Cladonia pyxidata* (L.) Hoffm. – Loc. 6, 70, 74, 118, 139, 142, 148, 155, 158, 160: on mosses.

*Collema flaccidum* (Ach.) Ach. – Loc. 34, 43, 45, 46, 47, 48, 49, 132, 151: on siliceous rocks.

*Collema subflaccidum* Degel. – Loc. 45, 46, 47, 139, 143: on *Quercus* sp.

*Dermatocarpon intestiniforme* (Körb.) Hasse – Loc. 3, 7, 17, 18, 22, 23, 50, 51, 56, 71, 72, 90, 91, 92, 107, 110, 113, 119, 121, 125, 153, 154, 156, 159: on calcareous rocks.

*Dermatocarpon miniatum* (L.) W. Mann – Loc. 4, 5, 3, 18, 22, 23, 45, 46, 49, 55, 56, 70, 73, 108, 110, 111, 113, 115, 130, 143, 152, 153, 155, 157, 167: on calcareous rocks.

*Dermatocarpon miniatum* (L.) W. Mann var. *circisodes* (Ach.) Zahlbr. – Loc. 8, 13: on calcareous rocks.

*Dimelaena oreina* (Ach.) Norman – Loc. 1, 22, 23, 43, 44, 93, 97, 100, 123, 126, 136, 137, 146, 148, 149, 157, 159: on siliceous rocks.

*Diploschistes gypsaceus* (Ach.) Zahlbr. – Loc. 87: on calcareous rocks.

*Diploschistes muscorum* (Scop.) R. Sant. – Loc. 70, 155, 158: on mosses.

*Diploschistes scruposus* (Schreb.) Norman – Loc. 4, 5, 10, 12, 14, 32, 36, 43, 44, 45, 46, 47, 48, 49, 52, 53, 55, 57, 58, 61, 70, 71, 72, 74, 76, 77, 85, 87, 88, 89, 100, 118, 122, 125, 126, 127, 128, 134, 138, 139, 142, 143, 146, 150, 152, 153, 155, 157, 158, 16: on siliceous rocks.

*Diplotomma alboatrum* (Hoffm.) Flot. – Loc. 5, 6: on calcareous rocks.

*Diplotomma ambiguum* (Ach.) Flagey – Loc. 71: on siliceous rocks.

*Diplotomma epipolium* (Ach.) Arnold – Loc. 12, 13, 33, 40, 74, 50, 51, 101, 103, 104, 110, 111, 113, 114, 115, 116, 117, 119, 122, 129, 130, 133, 137, 146, 155, 157, 158, 164: on calcareous rocks.

*Enchylium tenax* (Sw.) Gray – Loc. 34, 40, 74, 100, 104, 110, 111, 113, 115, 129, 138, 139, 143, 147, 151, 157: on calcareous rocks.

*Enchylium polycarpon* (Hoffm.) Otálora, P.M. Jørg. & Wedin – Loc. 101, 111, 113, 115, 119, 139: on calcareous rocks.

*Endocarpon adscendens* (Anzi) Müll. Arg. – Loc. 40, 160: on soil.

*Endocarpon pusillum* Hedw. – Loc. 73: on soil.

+*Endococcus macrosporus* (Hepp ex Arnold) Nyl. – Loc. 1, 3, 11, 114: on *Rinodina milvina*, 4, 71: on *Rhizocarpon geographicum*, 154: on *Aspicilia cinerea* and *Rhizocarpon geographicum*, 115: on *Prtoparmeliopsis muralis*, 73: on *Caloplaca* sp.

+*Endococcus rugulosus* Nyl. – Loc. 75: on *Aspicilia cinerea*.

+*Endococcus verrucosus* Hafellner – Loc. 1, 11, 73, 109, 112, 116, 128: on *Aspicilia cinerea*, 154: on *Aspiciliella cupreoglauca*.

*Erichansenia epithallina* (Lynge) S.Y. Kondr., Kärnefelt & Thell – Loc. 11: on *Aspicilia* sp.

*Farnoldia micropsis* (A. Massal.) Hertel – Loc. 113, 116: on calcareous rocks.

*Flavoplaca citrina* (Hoffm.) Arup, Frödén & Söchting – Loc. 72: on calcareous rocks.

*Flavoplaca coronata* (Kremp. ex Körb.) Arup, Frödén & Söchting – Loc. 40, 100, 115, 121, 125, 130, 156, 157: on calcareous rocks.

*Flavoplaca flavocitrina* (Nyl.) Arup, Frödén & Söchting – Loc. 113, 151: on calcareous rocks.

*Gallowayella fulva* (Hoffm.) S.Y. Kondr., Fedorenko, S.Stenroos, Kärnefelt, Elix, Hur & A. Thell – Loc. 10, 13, 16, 28, 29, 30, 34, 37, 54, 55, 57, 58, 59, 72, 80, 81, 84, 85, 86, 87, 90, 91, 92, 97, 99, 100, 101, 122, 126, 127, 130, 133, 143, 144, 148, 158, 161, 162, 163, 168, 169: on *Quercus* sp., 31, 38: on *Salix* sp., *Populus* sp., *Fraxinus* sp., *Quercus* sp., 33: on *Populus* sp., *Salix* sp., *Fraxinus* sp., 38: on *Fraxinus* sp., *Juglans* sp., *Quercus* sp., 71: on *Quercus* sp. and *Salix* sp., 150: on *Juglans* sp.

*Glaucomaria bicincta* (Ramond) S.Y. Kondr., L. Lökös & Farkas – Loc. 2, 11, 17, 160: on siliceous rocks.

*Glaucomaria sulphurea* (Hoffm.) S.Y. Kondr., Lökös & Farkas – Loc. 108: on siliceous rocks.

*Gyalolechia bracteata* (Hoffm.) A. Massal. – Loc. 14, 24: on soil, 25, 159: on mosses and soil.

*Gyalolechia subbracteata* (Nyl.) Söchting, Frödén & Arup – Loc. 45, 50, 110: on mosses and soil, 49, 51, 111: on soil.

*Gyalolechia flavorubescens* (Huds.) Söchting, Frödén & Arup – Loc. 118: on *Quercus* sp.

*Gyalolechia flavovirescens* (Wulfen) Söchting, Frödén & Arup – Loc. 32, 44: on siliceous rocks.

*Gyalolechia fulgens* (Sw.) Söchting, Frödén & Arup – Loc. 45, 48, 49, 110, 111, 113: on mosses, 152: on soil.

*Immersaria athroocarpa* (Ach.) Rambold & Piet-schm – Loc. 1, 2, 3, 4, 6, 7, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 33, 40, 44, 45, 46, 47, 48, 49, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 69, 70, 71, 72, 73, 74, 75, 79, 84, 85, 86, 87, 88, 89, 93, 97, 99, 101, 102, 105, 106, 107, 108, 109, 110, 112, 114, 115, 116, 119, 121, 123, 125, 128, 134, 136, 137, 138, 139, 142, 143, 146, 147, 151, 152, 154, 155, 156, 160, 164, 165, 166, 167, 168, 169: on siliceous rocks.

*Immersaria usbekica* (Hertel) M. Barbero, Nav.-Ros. & Cl. Roux – Loc. 87, 123: on siliceous rocks.

+*Intralichen baccisporus* D. Hawks. & M.S. Cole – Loc. 116: on *Xanthoria elegans*.

*Ionaspis lacustris* (With.) Lutzoni – Loc. 114: on siliceous rocks.

-*Lambiella insularis* (Nyl.) T. Sprib. – Loc. 1, 5, 11, 12, 14, 16, 23, 40, 45, 46, 49, 71, 72, 86, 89, 108, 101, 103, 107, 108, 113, 119, 148: on *Lecanora rupicola*.

*Lathagrium auriforme* (With.) Otálora, P.M. Jørg. & Wedin – Loc. 10, 36, 45, 47, 49, 50, 51, 59, 118, 123, 136: on soil, 10, 36, 45, 47, 49, 50, 140, 141, 150, 157: on mosses.



*Lathagrium cristatum* (L.) Otálora, P.M. Jørg. & Wedin – Loc. 4, 39, 40, 41, 42, 45, 46, 47, 48, 49, 59, 61, 62, 70, 74, 76, 77, 93, 99, 101, 103, 104, 105, 110, 111, 113, 115, 119, 120, 123, 125, 129, 130, 136, 138, 140, 141, 142, 143, 149, 152, 156, 157, 158, 160: on calcareous rocks.

*Lathagrium fuscovirens* (With.) Otálora, P.M. Jørg. & Wedin – Loc. 79, 80, 81, 110, 152, 158, 160: on calcareous rocks.

*Lathagrium undulatum* (Laurer ex Flot.) Otálora, P.M. Jørg. & Wedin – Loc. 115: on calcareous rocks.

*Lathagrium undulatum* var. *granulosum* (Degel.) M. Schultz & McCune – Loc. 152: on calcareous rocks.

*Lecania cuprea* (A. Massal.) van den Boom & Coppins – Loc. 110, 111: on calcareous rocks.

*Lecania fuscella* (Schaer.) A. Massal. – Loc. 101: on *Quercus* sp.

*Lecania turicensis* (Hepp) Müll. Arg. – Loc. 101: on calcareous rocks.

*Lecanora argopholis* (Ach.) Ach. – Loc. 1, 2, 7, 9, 10, 11, 12, 15, 16, 17, 18, 20, 21, 22, 23, 36, 43, 44, 54, 55, 56, 59, 72, 73, 79, 84, 85, 86, 89, 105, 106, 107, 108, 109, 112, 114, 128, 132, 134, 142, 143, 155, 152, 153, 154, 156, 159: on siliceous rocks.

*Lecanora caesiosora* Poelt – Loc. 101: on siliceous rocks.

*Lecanora cenisia* Ach. – Loc. 2, 7, 14, 22, 23, 52, 53, 61, 71, 72, 73, 76, 77, 90, 91, 92, 105, 106, 107, 112, 114, 116, 123, 139, 164: on siliceous rocks.

*Lecanora chlarotera* Nyl. – Loc. 70: on *Quercus* sp.

*Lecanora concolor* Ramond – Loc. 15: on siliceous rocks.

*Lecanora frustulosa* (Dicks.) Ach. – Loc. 1, 2, 11, 12, 16, 20, 71, 72, 73, 105, 106, 108, 107, 109, 112, 115, 139, 154: on siliceous rocks.

*Lecanora gangaleoides* Nyl. – Loc. 158: on siliceous rocks.

*Lecanora intricata* (Ach.) Ach. – Loc. 160: on siliceous rocks.

*Lecanora kjachtensis* J. Steiner – Loc. 12: on calcareous rocks.

*Lecanora pannonica* Szatala – Loc. 1, 2, 22, 23, 70: on siliceous rocks.

*Lecanora polytropa* (Ehrh.) Rabenh. – Loc. 2, 3, 4, 7, 8, 11, 14, 17, 19, 22, 23, 32, 37, 38, 45, 46, 47, 48, 49, 71,

72, 73, 40, 45, 46, 49, 60, 61, 62, 69, 71, 72, 86, 89, 100, 103, 105, 106, 107, 112, 116, 121, 126, 127, 137, 146, 148, 149, 155, 160: on siliceous rocks.

*Lecanora rupicola* (L.) Zahlbr. – Loc. 1, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 33, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 56, 57, 58, 70, 71, 72, 73, 74, 75, 76, 77, 84, 89, 97, 99, 100, 101, 105, 106, 107, 108, 109, 110, 112, 113, 114, 116, 119, 121, 125, 133, 136, 138, 139, 140, 141, 142, 143, 147, 148, 151, 154, 159, 164, 168, 169: on siliceous rocks.

*Lecanora rupicola* var. *efflorens* Leuckert & Poelt – Loc. 14, 22, 23, 116, 154: on siliceous rocks.

*Lecanora subcarnea* (Sw.) Ach. – Loc. 1, 22, 23, 71, 107, 108, 109: on siliceous rocks.

*Lecanora subcarnea* var. *soralifera* H. Magn. – Loc. 70: on siliceous rocks.

*Lecidea atrobrunnea* (DC.) Schaer. – Loc. 1, 2, 3, 7, 10, 11, 12, 13, 14, 16, 17, 21, 22, 23, 41, 42, 43, 44, 52, 53, 54, 55, 56, 57, 58, 59, 60, 63, 64, 72, 73, 90, 91, 92, 105, 106, 107, 108, 112, 114, 116, 121, 151, 152, 155, 156: on siliceous rocks.

*Lecidea auriculata* Th. Fr. – Loc. 10, 20, 89, 108, 118: on siliceous rocks.

*Lecidea confluens* (Weber) Ach. – Loc. 118: on siliceous rocks.

*Lecidea fuscoatra* (L.) Ach. – Loc. 1, 2, 3, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 37, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 70, 71, 72, 73, 74, 76, 77, 78, 84, 85, 86, 87, 88, 89, 99, 100, 105, 106, 107, 108, 109, 112, 114, 115, 125, 126, 127, 128, 134, 136, 138, 139, 142, 147, 148, 149, 151, 152, 153, 154, 155, 156, 158, 161, 162, 163, 165, 166, 167: on siliceous rocks.

*Lecidea lactea* Flörke ex Schaer. – Loc. 89: on siliceous rocks.

*Lecidea lapicida* (Ach.) Ach. – Loc. 3, 4, 11, 14, 19, 17, 22, 73, 78, 89, 90, 91, 92, 99, 103, 107, 160: on siliceous rocks.

*Lecidea plana* (J. Lahm.) Nyl. – Loc. 10, 113, 114, 158: on siliceous rocks.

*Lecidea promiscens* Nyl. – Loc. 23: on siliceous rocks.

*Lecidea sarcogynoides* Körb. – Loc. 3, 4, 11, 12, 16, 22, 23, 57, 58, 73, 84, 89, 99, 105, 110, 111, 113, 114, 115, 116, 117, 118, 119, 128, 134, 137, 151, 153, 154: on

siliceous rocks.

*Lecidea tessellata* Flörke – Loc. 10, 70, 74, 89, 103, 113, 114, 116, 119, 146: on siliceous rocks.

*Lecidella carpathica* Körb. – Loc. 1, 2, 3, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 32, 36, 38, 39, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 71, 72, 73, 74, 76, 77, 78, 84, 85, 87, 88, 89, 97, 100, 101, 105, 106, 107, 108, 109, 110, 112, 113, 114, 116, 119, 120, 124, 128, 132, 134, 138, 139, 140, 141, 142, 143, 144, 147, 148, 151, 152, 153, 154, 155, 156, 157, 158, 160, 168, 169: on siliceous rocks.

*Lecidella elaeochroma* (Ach.) M. Choisy – Loc. 10, 28, 37, 45, 48, 49, 50, 51, 80, 81, 93, 97, 99, 113, 126, 127, 136: on *Quercus* sp., 31, 38: on *Salix* sp., *Populus* sp., *Fraxinus* sp. and *Quercus* sp., 70: on *Juglans* sp. and *Quercus* sp.

*Lecidella patavina* (A. Massal.) Knoph & Leuckert – Loc. 113, 116, 117: on siliceous rocks.

*Lecidella stigmatea* (Ach.) Hertel & Leuckert – Loc. 2, 10, 11, 13, 14, 16, 18, 22, 23, 37, 38, 54, 57, 59, 62, 70, 71, 72, 87, 89, 105, 106, 112, 113, 114, 116, 118, 121, 123, 131, 135, 137, 138, 146, 147, 149, 151, 152, 153, 154, 155, 158: on calcareous rocks.

*Lempholemma polyanthes* (Schrad.) Malme – Loc. 59, 150: on mosses.

*Lepra aspergilla* (Ach.) Hafellner – Loc. 2, 70, 103, 114, 123, 150: on siliceous rocks.

*Lepra excludens* (Nyl.) Hafellner – Loc. 12, 13, 22, 23, 43, 71, 74, 84, 87, 88, 89, 113, 114, 116, 119, 128, 150, 157, 159: on siliceous rocks.

*Lepraria incana* (L.) Ach. – Loc. 8, 44, 51, 135, 164: on mosses, 4, 26, 50, 70, 74, 136, 147, 151: on siliceous rocks.

*Lepraria membranacea* (Dicks.) Vain. – Loc. 70, 71, 87: on mosses.

*Lepraria nivalis* J.R. Laundon – Loc. 11, 14, 17, 18, 55, 70, 71, 74, 89, 106, 151, 153, 155, 158: on mosses.

*Lepraria vouauxii* (Hue) R.C. Harris – Loc. 74, 87, 88, 111, 115, 150, 158: on mosses.

*Leproplaca chrysodeta* (Vain.) J.R. Laundon ex Ahti – Loc. 150: on calcareous rocks.

*Leproplaca cirrochroa* (Ach.) Arup, Frödén & Søchting – Loc. 10, 150: on calcareous rocks.

*Leproplaca xantholyta* (Nyl.) Nyl. – Loc. 71: on calcareous rocks.

*Leptochidium albociliatum* (Desm.) M. Choisy – Loc. 71: on mosses.

*Leptogium cyanescens* (Ach.) Körb. – Loc. 167: on mosses.

+*Lichenostigma triseptatum* Halıcı & D. Hawksw. – Loc. 79: on *Aspicilia* sp.

*Lichinella algerica* (J. Steiner) P.P. Moreno & Egea – Loc. 39: on calcareous rocks.

*Lichinella myriospora* (Zahlbr.) P.P. Moreno & Egea – Loc. 129: on siliceous rocks.

*Lichinella stipatula* Nyl. – Loc. 22, 71, 72, 73, 103: on siliceous rocks

*Lobothallia alphoplaca* (Wahlenb.) Hafellner – Loc. 17, 22, 23, 39, 71, 73, 74, 76, 77, 101, 114, 130, 138: on siliceous rocks.

*Lobothallia cheresina* (Müll. Arg.) A. Nordin, Cl. Roux & Sohrabi – Loc. 101, 116, 130, 148, 155: on calcareous rocks.

*Lobothallia farinosa* (Flörke) A. Nordin, Savić & Tibell – Loc. 144: on calcareous rocks.

*Lobothallia praeradiosa* (Nyl.) Hafellner – Loc. 22, 23, 33, 50, 51, 74, 80, 81, 86, 103, 123, 155, 156, 159, 160: on siliceous rocks.

*Lobothallia radiosa* (Hoffm.) Hafellner – Loc. 2, 3, 4, 7, 8, 9, 10, 11, 12, 14, 15, 17, 18, 22, 35, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 55, 56, 57, 59, 71, 74, 75, 79, 84, 85, 86, 87, 88, 89, 99, 100, 102, 105, 106, 112, 113, 114, 116, 119, 120, 124, 125, 128, 134, 135, 130, 149, 152, 153, 154, 155, 156, 157, 161, 162, 163: on calcareous rocks.

*Lobothallia recedens* (Taylor) A. Nordin, Savić & Tibell – Loc. 17, 59, 74, 116, 152, 156: on siliceous rocks.

*Megaspora rimisorediata* Valadb. & A. Nordin – Loc. 70, 113: on *Quercus* sp., 150: on *Juglans* sp.

*Megaspora verrucosa* (Ach.) Arcadia & A. Nordin – Loc. 23, 35, 74: on mosses, 70: on soil.

*Melanelixia glabra* (Schaer.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 26, 93, 160: on *Quercus* sp.

*Melanelixia subargentifera* (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 13, 20, 45, 48, 49: on *Quercus* sp.

*Melanelixia subaurifera* (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 16,

36, 97, 101, 132, 161, 162, 163, 165, 166, 167, 125: on *Quercus* sp.

*Melanohalea elegantula* (Zahlbr.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 12, 13, 20, 26, 70, 74, 112, 113, 128, 134, 154: on *Quercus* sp.

*Melanohalea exasperata* (De Not.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 10, 12, 13, 14, 20, 21, 26, 27, 28, 29, 30, 37, 43, 44, 45, 46, 47, 48, 49, 50, 51, 54, 55, 58, 61, 65, 66, 67, 69, 70, 78, 79, 87, 93, 97, 99, 118, 122, 126, 138, 139, 142, 143, 148, 149, 155, 159, 161, 162, 163: on *Quercus* sp., 156: on *Quercus* sp. and *Salix* sp., 31: on *Salix* sp., *Populus* sp., *Fraxinus* sp. and *Quercus* sp., 34: on *Populus* sp., *Salix* sp., *Fraxinus* sp. and *Quercus* sp., 38: on *Populus* sp., *Salix* sp., *Fraxinus* sp. and *Quercus* sp.

*Melanohalea exasperatula* (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 6, 70, 122, 168, 169: on *Quercus* sp.

*Melanohalea infumata* (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 4, 11, 15, 20, 21, 23, 24, 25, 33, 54, 58, 71, 74, 78, 87, 90, 91, 92, 112, 113, 114, 116, 127, 128, 136, 152, 154, 155, 164: on siliceous rocks, 12, 13, 16: on *Quercus* sp., 70: on mosses, *Fraxinus* sp. and *Juglans* sp., 89: on mosses, 150: on *Juglans* sp.

*Miriquidica deusta* (Stenh.) Hertel & Rambold – Loc. 3, 7, 11, 12, 13, 14, 17, 18, 19, 22, 23, 100, 106, 112, 114, 146: on siliceous rocks.

*Mischoblastia lecanorina* A. Massal. – Loc. 1, 14, 39, 40, 56, 57, 72, 103, 107, 114, 115, 116, 135, 136, 137: on calcareous rocks.

+*Muellerella erratica* (A. Massal.) Hafellner & Volk. John – Loc. 113: on *Lecidella* sp.

+*Muellerella pygmaea* (Körb.) D. Hawksw. – Loc. 70: on *Lecidea fuscoatra*, 103: on *Aspicilia* sp., 129: on *Circinaria* sp., 103: on *Aspicilia*, 129: on *Circinaria* sp.

+*Muellerella ventosicola* (Mudd) D. Hawksw. – Loc. 116, 128: on *Rhizocarpon geographicum*

*Myriolecis crenulata* (Ach.) Śliwa, Zhao Xin & Lumbsch – Loc. 5, 11, 13, 40, 68, 73, 87, 103, 107, 111, 113, 115, 117, 119, 125, 128, 129, 130, 131, 134, 138, 142, 143, 147, 151, 155, 156, 157: on calcareous rocks.

*Myriospora smaragdula* (Wahlenb.) Nägeli ex Uloth – Loc. 17, 71, 89: on siliceous rocks.

*Ochrolechia subviridis* (Høeg) Erichsen – Loc. 40, 103: on siliceous rocks.

*Omphalodina chrysoleuca* (Sm.) S.Y. Kondr., Lökös & Farkas – Loc. 116: on siliceous rocks.

*Omphalodina pseudistera* (Nyl.) S.Y. Kondr., Lökös & Farkas – Loc. Eklendi Rock.

*Oxneria fallax* (Arnold) S.Y. Kondr., & Kärnefelt – Loc. 4, 10, 12, 13, 16, 27, 28, 29, 30, 33, 34, 37, 43, 44, 45, 46, 47, 48, 49, 50, 51, 54, 55, 58, 63, 64, 65, 66, 67, 73, 76, 77, 78, 79, 84, 86, 87, 90, 91, 92, 101, 102, 118, 125, 127, 138, 140, 141, 142, 144, 155, 158, 159, 161, 162, 163: on *Quercus* p., 31, 38: on *Salix* sp., *Populus* sp., *Fraxinus* sp., *Quercus* sp. 70: on *Fraxinus* sp., *Juglans* sp. and *Quercus* sp., 71: on *Crataegus* sp. *Prunus* sp., *Quercus* sp., 156: on *Quercus* sp. and *Salix* sp.

*Parmelina tiliacea* (Hoffm.) Hale – Loc. 1, 12, 16, 30, 72, 79, 88, 89, 114, 128, 134: on mosses, 31: on *Salix* sp., *Populus* sp., *Fraxinus* sp. and *Quercus* sp., 58: on mosses, siliceous rocks, 70: on mosses, *Fraxinus* sp. and *Juglans* sp., 71: on mosses and siliceous rocks.

*Parvoplaca tirolensis* (Zahlbr.) Arup, Søchting & Frödén – Loc. 16, 17, 24, 25, 112, 150, 153, 162: on mosses.

*Peltigera canina* (L.) Willd. – Loc. 70, 90, 98: on soil, 71, 102, 120, 136: on mosses, 91, 92: on soil and mosses.

*Peltigera didactyla* (With.) J.R. Laundon – Loc. 70, 71: on mosses.

*Peltigera horizontalis* (Huds.) Baumg. – Loc. 98, 120: on mosses, 132: on soil.

*Peltigera ponojensis* Gyeln. – Loc. 61, 71: on mosses.

*Peltigera praetextata* (Flörke ex Sommerf.) Zopf – Loc. 12, 34, 136, 137, 148, 149, 160: on mosses.

*Peltigera rufescens* (Weiss) Humb. – Loc. 71, 139: on mosses and soil, 10, 12, 57, 70, 118, 125, 135, 142, 165, 166, 167, 168, 169, 146, 160: on mosses.

*Peltula euploca* (Ach.) Poelt ex Pišút – Loc. 108: on siliceous rock

*Pertusaria chiodectionoides* Bagl. ex A. Massal. – Loc. 12, 71, 114, 156: on calcareous rocks.

*Pertusaria flavicans* Lamy – Loc. 74, 80, 81, 88, 89: on siliceous rocks.

+*Phacographa glaucomaria* (Nyl.) Hafellner – Loc. 107: on *Lecanora rupicola*.

*Phaeophyscia endococcina* (Körb.) Moberg – Loc.

10, 54, 55, 57, 71, 74, 89, 103, 114, 128, 144, 150, 154, 164: on siliceous rocks.

*Phaeophyscia nigricans* (Flörke) Moberg – Loc. 74, 129: on *Quercus* sp., 158: on *Quercus* sp. and *Salix* sp.

*Phaeophyscia orbicularis* (Neck.) Moberg – Loc. 4, 10, 12, 13, 14, 17, 20, 21, 24, 25, 27, 28, 29, 30, 35, 39, 43, 44, 45, 46, 47, 48, 49, 54, 55, 57, 58, 60, 63, 64, 65, 66, 67, 73, 74, 76, 77, 84, 86, 87, 90, 91, 92, 95, 96, 99, 103, 130, 131, 133, 120, 122, 125, 126, 127, 128, 129, 134, 142, 143, 144, 147, 148, 151, 152, 155, 158, 159, 161, 162, 163, 168, 169: on *Quercus* sp., 150: on *Juglans* sp., 70: on *Fraxinus* sp., *Juglans* sp. and *Quercus* sp., 26: on *Populus* sp., *Salix* sp., *Fraxinus* sp., 31: on *Salix* sp., *Populus* sp., *Fraxinus* sp., *Quercus* sp., 71: on *Crataegus* sp., *Prunus* sp. and *Quercus* sp., 156: on *Quercus* sp. and *Salix* sp.

*Phaeophyscia sciastra* (Ach.) Moberg – Loc. 71: on siliceous rocks.

*Physcia adscendens* H. Olivier – Loc. 6, 20, 21, 24, 25, 33, 36, 61, 84, 86, 122, 124, 139, 144, 150: on *Quercus* sp., 70: on *Fraxinus* sp., *Juglans* sp. and *Quercus* sp., 158: on *Quercus* sp. and *Salix* sp.

*Physcia aipolia* (Ehrh. ex Humb.) Fűrnr. – Loc. 4, 10, 12, 13, 14, 17, 20, 21, 28, 29, 30, 35, 37, 43, 44, 45, 46, 47, 48, 49, 55, 58, 60, 68, 69, 71, 73, 74, 78, 84, 87, 90, 91, 92, 94, 95, 96, 97, 98, 99, 101, 114, 118, 125, 144, 147, 150, 151, 122, 140, 141, 142, 143, 148, 149, 152, 155, 161, 162, 163, 165, 166, 167: on *Quercus* sp., 158: on *Quercus* sp. and *Salix* sp., 70: on *Fraxinus* sp. and *Quercus* sp., 38: on *Populus* sp. and *Salix* sp., *Fraxinus* sp. and *Quercus* sp., 31: on *Salix* sp., *Populus* sp., *Fraxinus* sp. and *Quercus* sp., 26: on *Populus* sp., *Salix* sp. and *Fraxinus* sp.

*Physcia albinea* (Ach.) Malbr. – Loc. 1, 72: on siliceous rocks.

*Physcia biziana* (A. Massal.) Zahlbr. – Loc. 1, 10, 12, 13, 17, 22, 27, 28, 29, 30, 33, 37, 52, 53, 54, 55, 58, 60, 61, 62, 63, 64, 65, 66, 67, 69, 71, 78, 80, 81, 82, 83, 86, 87, 88, 93, 94, 95, 96, 98, 114, 118, 120, 124, 128, 129, 130, 132, 133, 134, 144, 150, 158, 160, 161, 162, 163, 164, 165, 166, 167: on *Quercus* sp., 31: on *Salix* sp., *Populus* sp., *Fraxinus* sp. and *Quercus* sp., 38: on *Populus* sp., *Salix* sp., *Fraxinus* sp. and *Quercus* sp., 155: on *Crataegus* sp. and *Quercus* sp.

*Physcia caesia* (Hoffm.) Fűrnr. – Loc. 11, 12, 55, 72,

87, 114, 146, 151, 152, 159: on siliceous rocks, 14, 23, 45, 58, 68, 71, 74, 85, 88, 105, 116, 132, 150, 156: on mosses.

*Physcia cernohorskyi* Nád. – Loc. 39: on mosses and calcareous rocks, 41, 42, 74, 103, 104: on mosses, 105, 109, 113, 114, 115, 119, 122, 135, 137, 158, 161, 162, 163, 167: on siliceous rocks.

*Physcia dimidiata* (Arnold) Nyl. – Loc. 158: on *Quercus* sp.

*Physcia dubia* (Hoffm.) Lettau – Loc. 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 33, 35, 36, 39, 41, 42, 43, 50, 53, 54, 56, 57, 58, 59, 60, 65, 66, 67, 71, 73, 74, 75, 78, 84, 85, 86, 87, 88, 89, 95, 96, 101, 103, 104, 105, 106, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 120, 121, 126, 128, 130, 134, 138, 142, 147, 148, 149, 150, 152, 153, 154, 155, 160, 165, 167: on siliceous rocks, 26: on *Populus* sp., *Salix* sp. and *Fraxinus* sp., 72: on *Salix* sp. and *Quercus* sp., 51, 52, 55, 70, 107, 151, 156, 166: on *Quercus* sp.

*Physcia stellaris* (L.) Nyl. – Loc. 13, 158: on *Quercus* sp.

*Physcia tenella* (Scop.) DC. – Loc. 58, 144, 158: on *Quercus* sp., 70: on *Fraxinus* sp., 158: on *Salix* sp.

*Physcia tribacia* (Ach.) Nyl. – Loc. 12, 15, 112, 114, 152, 157: on mosses, 16, 19, 20, 21, 74, 115, 154: on *Quercus* sp., 158: on *Quercus* sp. and *Salix* sp.

*Physconia detersa* (Nyl.) Poelt – Loc. 15: on mosses.

*Physconia distorta* (With.) J.R. Laundon – Loc. 4, 10, 12, 13, 20, 21, 24, 25, 50, 51, 52, 53, 55, 58, 65, 66, 67, 80, 81, 82, 83, 84, 87, 90, 91, 92, 94, 95, 96, 101, 124, 139, 140, 141, 143, 144, 147, 149, 150, 151, 156, 165, 166, 167, 168, 169: on *Quercus* sp., 26: on *Populus* sp., *Salix* sp., *Fraxinus* sp., 54: on *Quercus* sp., *Fraxinus* sp., 70: on *Juglans* sp., *Fraxinus* sp., 71: on *Crataegus* sp., *Prunus* sp. and *Quercus* sp., 158: on *Quercus* sp. and *Salix* sp.

*Physconia enteroxantha* (Nyl.) Poelt – Loc. 15, 20, 24, 25, 71, 74, 78, 148: on mosses, 70: on *Fraxinus* sp.

*Physconia grisea* (Lam.) Poelt – Loc. 15, 71, 74, 114, 150, 157, 159: on mosses, 70: on mosses, *Fraxinus* sp. and *Juglans* sp.

*Physconia muscigena* (Ach.) Poelt – Loc. 2, 15, 70, 73, 86, 87, 114, 128, 134, 137, 167: on mosses.

*Physconia perisidiosa* (Erichsen) Moberg – Loc. 1, 6, 7, 15, 20, 21, 24, 25, 57, 63, 64, 71, 73, 74, 103, 114, 120, 140, 150, 151, 154, 157, 158: on mosses.

-*Pisutiella grimmiae* (Nyl.) S.Y. Kondr., Lőkös & Farkas – Loc. 1, 4, 13, 16, 17, 20, 21, 73, 74, 120, 165: on *Candelariella vitellina*

*Placocarpus schaeereri* (Fr.) Breuss – Loc. 39, 43, 44, 115, 137, 146, 149: on calcareous rocks.

+*Polycoccum evae* Calat. & V.J. Rico – Loc. 157: on *Dimelaena oreina*.

*Placopyrenium bucekii* (Nádv. & Servit) Breuss – Loc. 58, 59, 68, 101, 110, 115, 132, 137, 159, 161, 162, 163: on siliceous rocks.

*Placopyrenium iranum* Breuss – Loc. 71, 85, 115, 116: on siliceous rocks.

*Placopyrenium trachyticum* (Hazsl.) Breuss – Loc. 39, 41, 42, 43, 59, 71, 90, 91, 92, 109, 110, 111, 114, 115, 130, 131, 133, 135, 140, 145, 146, 149, 155, 158, 165, 166, 167: on siliceous rocks.

*Placynthium lismorensense* (Cromb.) Vain. – Loc. 58: on calcareous rocks.

*Placynthium nigrum* (Huds.) Gray – Loc. 34, 39, 40, 60, 61, 62, 70, 78, 90, 91, 92, 94, 103, 104, 110, 111, 113, 115, 119, 130, 138, 140, 141, 149, 156, 161, 162, 163, 165, 166, 167: on calcareous rocks.

*Polyblastia cupularis* A. Massal. – Loc. 152: on calcareous rocks.

*Polyozosia agardhiana* (Ach.) S.Y. Kondr. Lőkös & Farkas – Loc. 163: on calcareous rocks.

*Polyozosia albescens* (Hoffm.) S.Y. Kondr., Lőkös & Farkas – Loc. 3, 40, 88, 109, 111, 116, 129, 130, 131, 133, 159: on calcareous rocks.

*Polyozosia dispersa* (Pers.) S.Y. Kondr., Lőkös & Farkas – Loc. 73: on *Fraxinus* sp., 150: on *Juglans* sp., 12, 16, 58, 70, 144, 151, 155: on *Quercus* sp., 2, 5, 13, 17, 21, 23, 24, 25, 39, 40, 47, 54, 55, 68, 71, 72, 74, 78, 85, 88, 90, 92, 104, 107, 108, 110, 113, 114, 115, 116, 123, 125, 130, 133, 135, 137, 138, 141, 147, 154, 158, 162, 165: on calcareous rocks, 1, 7, 9, 10, 27, 32, 45, 46, 48, 49, 70, 84, 87, 89, 91, 103, 106, 109, 111, 117, 122, 128, 134, 140, 143, 153, 156, 157, 161, 163, 166, 167: on siliceous rocks.

*Polyozosia flowersiana* (H. Magn.) S.Y. Kondr., Lőkös & Farkas – Loc. 113: on calcareous rocks.

*Polyozosia hagenii* (Ach.) Śliwa, Zhao Xin & Lumbsch – Loc. 1, 4, 10, 12, 13, 14, 17, 20, 21, 24, 25, 34, 37, 44, 54, 50, 51, 52, 53, 55, 58, 63, 64, 76, 77, 78, 84, 85, 87, 94, 95, 96, 98, 100, 107, 113, 114, 118, 120,

124, 144, 128, 130, 133, 139, 140, 142, 148, 149, 150, 151, 153, 155, 156, 159, 164: on *Quercus* sp., 129: on *Salix* sp. and *Quercus* sp., 158: on *Quercus* sp. and *Salix* sp., 26: on *Populus* sp. *Salix* sp. *Fraxinus* sp., 38: *Populus* sp., *Salix* sp., *Fraxinus* sp. and *Quercus* sp., 70: on *Fraxinus* sp., *Juglans* sp. and *Quercus* sp., 71: on *Crataegus* sp, *Prunus* sp. and *Quercus* sp., 73: on *Fraxinus* sp.

*Polyozosia invadens* (H. Magn.) S.Y. Kondr., Lőkös & Farkas – Loc. 1, 88, 107, 115, 116: on soil.

*Polyozosia persimilis* (Th. Fr.) S.Y. Kondr. Lőkös & Farkas – Loc. 10, 12, 55, 131: on *Quercus* sp.

*Polyozosia percrenata* (H. Magn.) S.Y. Kondr., Lőkös & Farkas – Loc. 103, 149: on calcareous rocks.

*Polyozosia semipallida* (H. Magn.) S.Y. Kondr. Lőkös & Farkas – Loc. 6, 12, 39, 59, 74, 88, 89, 103, 109, 110, 113, 114, 115, 116, 123, 128, 130, 135, 147, 149, 151, 162, 163: on calcareous rocks.

*Protoblastenia incrustans* (DC.) J. Steiner – Loc. 165: on calcareous rocks.

*Protoblastenia rupestris* (Scop.) J. Steiner – Loc. 35, 137, 165, 166, 167: on calcareous rocks.

*Protoparmelia atriseda* (Fr.) R. Sant. & V. Wirth – Loc. 2, 16, 107, 154: on siliceous rocks.

*Protoparmelia badia* (Hoffm.) Hafellner – Loc. 71: on calcareous rocks.

*Protoparmeliopsis bolcana* (Pollini) Lumbsch – Loc. 1, 2, 3, 7, 9, 10, 11, 12, 13, 14, 16, 17, 18, 22, 23, 50, 51, 54, 55, 56, 57, 58, 63, 64, 68, 72, 73, 74, 82, 83, 84, 86, 89, 94, 101, 106, 107, 108, 109, 114, 116, 121, 128, 134, 135, 136, 140, 146, 148, 151, 152, 153, 154, 156, 159, 160, 165, 166, 167: on siliceous rocks.

*Protoparmeliopsis garovaglii* (Körb.) Arup, Zhao Xin & Lumbsch – Loc. 1, 12, 15, 16, 21, 41, 42, 58, 71, 73, 85, 88, 90, 91, 92, 93, 109, 113, 114, 116, 121, 124, 128, 134, 137, 146, 149, 152, 156, 161, 162, 163: on siliceous rocks.

*Protoparmeliopsis klauskalbii* (Sipman) Şenkard. – Loc. 2, 3, 14, 17, 19, 22, 23, 39, 41, 42, 52, 53, 54, 55, 58, 59, 60, 62, 72, 73, 102, 114, 119, 125, 135, 140, 141, 149, 160, 164: on siliceous rocks.

*Protoparmeliopsis laatokkensis* (Räsänen) Moberg & R. Sant. – Loc. 10, 11, 14, 17, 21, 55, 108: on siliceous rocks.

*Protoparmeliopsis macrocyclos* (H. Magn.) Moberg

& R. Sant. – Loc. 3, 16, 20, 21, 55, 58, 71, 86, 94, 152, 114, 140, 141, 163: on siliceous rocks.

*Protoparmeliopsis muralis* (Schreb.) M. Choisy – Loc. 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 32, 33, 35, 36, 37, 38, 39, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 70, 71, 72, 73, 74, 75, 76, 77, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 112, 113, 114, 115, 116, 118, 119, 125, 128, 130, 134, 135, 136, 137, 138, 141, 142, 144, 145, 146, 147, 148, 150, 151, 152, 153, 154, 156, 157, 158, 159, 161, 162, 163, 164, 165, 166, 167: on siliceous rocks.

*Protoparmeliopsis peltata* (Ramond) Arup, Zhao Xin & Lumbsch – Loc. 1, 3, 7, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 41, 42, 54, 55, 56, 57, 58, 71, 72, 73, 74, 86, 88, 89, 101, 105, 106, 107, 109, 112, 114, 116, 141, 151, 152, 153, 154, 159, 160, 163: on siliceous rocks

*Pseudoleptogium diffractum* (Kremp.) Müll. Arg. – Loc. 90, 91, 92: on calcareous rocks.

*Psora decipiens* (Hedw.) Hoffm. 60, 115, 140, 162: on soil.

*Psora globifera* (Ach.) A. Massal. – Loc. 59: on soil.

*Psora vallesiaca* (Schaer). Timdal – Loc. 74, 89, 103: on soil.

*Pyrenodesmia albolutescens* (Nyl.) S.Y. Kondr. – Loc. 158: on calcareous rocks.

*Pyrenodesmia alociza* (A. Massal.) Arnold – Loc. 130, 140, 159: on calcareous rocks.

*Pyrenodesmia aractina* (Fr.) S.Y. Kondr. – Loc. 14, 23, 70, 114, 141: on calcareous rocks.

*Pyrenodesmia atroflava* (Turner) S.Y. Kondr. – Loc. 3, 9, 10, 11, 12, 13, 14, 15, 18, 19, 21, 22, 23, 35, 39, 41, 42, 45, 48, 49, 52, 53, 54, 55, 56, 57, 59, 70, 73, 82, 83, 84, 86, 89, 88, 90, 91, 92, 100, 101, 106, 107, 108, 109, 112, 114, 116, 132, 140, 141, 144, 147, 151, 152, 154, 155, 156: on siliceous rocks.

*Pyrenodesmia chalybaea* (Fr.) A. Massal. – Loc. 40, 101, 110, 111, 115, 130, 163: on calcareous rocks.

*Pyrenodesmia erodens* (Tretiach, Pinna & Grube) Søchting, Arup & Frödén – Loc. 113: on calcareous rock.

*Pyrenodesmia variabilis* (Pers.) A. Massal. – Loc. 3, 12, 27, 39, 60, 68, 73, 40, 41, 42, 43, 44, 54, 80, 81, 82, 83, 98, 100, 102, 103, 104, 110, 111, 113, 114, 115, 116, 117, 120, 124, 125, 129, 130, 131, 133, 135, 136, 142, 144,

145, 155, 157, 158, 161, 162, 163: on calcareous rocks.

*Rhizocarpon disporum* (Nägeli ex Hepp) Müll. Arg. – Loc. 10, 12, 56, 58, 71, 74, 114, 151: on siliceous rocks.

*Rhizocarpon distinctum* Th. Fr. – Loc. 2, 71, 118, 158: on siliceous rocks.

*Rhizocarpon furfurosum* H. Magn. & Poelt – Loc. 12, 14, 55, 59, 74, 84, 85, 86, 88, 89, 107, 116, 152: on siliceous rocks.

*Rhizocarpon geminatum* Körb. – Loc. 4, 10, 12, 15, 20, 21, 55, 57, 58, 71, 72, 74, 84, 85, 87, 88, 89, 90, 91, 92, 98, 101, 102, 105, 107, 112, 114, 120, 121, 122, 126, 128, 138, 140, 141, 148, 150, 151, 152, 154, 156, 159, 160: on siliceous rocks.

*Rhizocarpon geographicum* (L.) DC. – Loc. 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 36, 41, 42, 43, 44, 45, 46, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 70, 71, 72, 73, 74, 76, 77, 78, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 94, 101, 102, 101, 105, 106, 107, 108, 109, 112, 113, 114, 116, 125, 128, 132, 134, 135, 136, 137, 138, 140, 141, 143, 144, 146, 147, 149, 150, 151, 152, 153, 154, 155, 156, 159, 160, 161, 162, 163, 165, 166, 167: on siliceous rocks.

*Rhizocarpon lecanorinum* Anders – Loc. 3, 10, 18, 39, 41, 42, 44, 55, 60, 74, 87, 89, 98, 107, 114, 116, 135, 152, 159, 165, 166, 167: on siliceous rocks.

*Rhizocarpon reductum* Th. Fr. – Loc. 71: on siliceous rocks.

*Rhizocarpon subgeminatum* Eitner – Loc. 74: on siliceous rocks.

*Rhizoplaca melanophthalma* (DC.) Leuckert – Loc. 15, 16, 21, 22, 23, 71, 114, 116, 161: on siliceous rocks.

*Rinodina bischoffii* (Hepp) A. Massal. – Loc. 22, 39, 40, 74, 89, 103, 104, 110, 111, 113, 115, 117, 124, 129, 130, 132, 135, 137, 140, 144, 146, 148, 154, 159: on calcareous rocks.

*Rinodina guzzinii* Jatta – Loc. 130: on calcareous rocks.

*Rinodina immersa* (Körb.) J. Steiner – Loc. 40, 90, 91, 92, 98, 113, 115, 119, 130, 137, 161, 162, 163: on calcareous rocks.

*Rinodina milvina* (Wahlenb.) Th. Fr. – Loc. 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 36, 41, 42, 45, 46, 47, 54, 55, 56, 57, 58, 59, 60, 63, 64, 71, 72, 73, 75, 78, 82, 83, 84, 88, 89, 90, 91, 92, 101,

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*Rinodina obnascens* (Nyl.) H. Olivier – Loc. 4, 74, 89: on siliceous rocks

*Rinodina occulta* (Körb.) Sheard – Loc. 20, 71, 74, 140: on siliceous rocks.

*Rinodina poeltii* Giralt & Obermayer – Loc. 12, 67: on calcareous rocks.

*Rinodina pyrina* (Ach.) Arnold – Loc. 12, 17, 20, 21, 28, 29, 30, 35, 43, 45, 46, 47, 48, 49, 60, 63, 64, 90, 91, 92, 98, 120, 124, 132, 144, 137, 140, 141, 143, 147, 148, 149, 151, 159, 161, 162, 163, 165, 166, 167: on *Quercus* sp., 31: on *Salix* sp., *Populus* sp., *Fraxinus* sp. and *Quercus* sp.

*Rinodina rinodinoides* (Anzi) H. Mayrhofer & Scheid. – Loc. 40, 88, 89, 116: on siliceous rocks.

*Rinodina teichophila* (Nyl.) Arnold – Loc. 57, 88, 112: on siliceous rocks.

*Rinodina terrestris* Tomin – Loc. 107: on soil.

*Rinodina trachytica* (A. Massal.) Arnold – Loc. 13, 57, 58, 70, 71, 72, 88, 112, 152: on calcareous rocks.

*Mischoblasia lecanorina* A. Massal.

*Romjularia lurida* (Ach.) Timdal – Loc. 2, 7, 8, 35, 44, 57, 70, 73, 86, 89, 95, 96, 98, 111, 112, 113, 114, 120, 124, 125, 128, 129, 130, 132, 134, 135, 138, 140, 149, 152, 159, 161, 162, 163, 165, 166, 167: on soil.

+*Rosellinula frustulosae* (Vouaux) R. Sant. – Loc. 85, 156: on *Lecanora frustulosa*.

*Rufoplaca arenaria* (Pers) Arup, Søchting & Frödén – Loc. 1, 3, 7, 9, 12, 14, 17, 22, 23, 35, 54, 55, 56, 57, 59, 71, 74, 84, 85, 86, 87, 88, 89, 107, 108, 114, 116, 128, 140, 144, 149, 152, 153, 154, 156, 158: on siliceous rocks.

*Rusavskia soreliata* (Vain.) S.Y. Kondr. & Kärnefelt – Loc. 74, 113: on calcareous rocks.

*Sagedia mastrucata* (Wahlenb.) A. Nordin, Savić & Tibell – Loc. 12, 20, 21, 22, 23, 89, 113, 116, 123, 114: on siliceous rocks.

*Sarcogyne clavus* (DC.) Kremp. – Loc. 50, 51, 98, 101, 110, 113, 116, 139: on siliceous rocks.

*Sarcogyne fallax* H. Magn. – Loc. 113: on calcareous rocks.

*Sarcogyne privigna* (Ach.) A. Massal. – Loc. 66, 67, 85, 87, 113, 115, 116, 119, 132, 137, 149, 165, 167: on

siliceous rocks.

*Sarcogyne regularis* Körb. – Loc. 13, 27, 82, 83, 104, 110, 113, 116, 129, 135, 138, 141, 146, 148, 155, 159, 161, 163: on siliceous rocks

*Schaereria fuscocinerea* (Nyl.) Clauzade & Cl. Roux – Loc. 13, 54, 57, 58, 71, 140, 152, 159: on siliceous rocks.

+*Sclerococcum montagnei* Hafellner – Loc. 22: on *Lecanora rupicola*, 157: on *Dimelaena oreina*

+*Sclerococcum tephromelarum* Etayo & Calat. – Loc. 6: on *Tephromela atra*.

*Scythioria phlogina* (Ach.) S.Y. Kondr., Kärnefelt, Elix, A. Thell & Hur – Loc. 70: on *Quercus* sp., 150: on *Juglans* sp.

*Scytinium gelatinosum* (With.) Otálora, P.M. Jørg. & Wedin – Loc. 60, 90, 91, 92, 98, 102, 131, 140: on mosses.

*Scytinium intermedium* (Arnold) Otálora, P.M. Jørg. & Wedin – Loc. 12: on mosses.

*Scytinium lichenoides* (L.) Otálora, P.M. Jørg. & Wedin – Loc. 10, 46, 47, 48, 52, 53, 59, 60, 70, 71, 74, 82, 83, 90, 91, 92, 95, 96, 98, 101, 118, 120, 124, 140, 141, 142, 143, 150, 155, 156, 157, 158, 161, 162, 163, 165, 166, 167: on mosses.

*Scytinium parvum* (Degel.) Otálora, P.M. Jørg & Wedin – Loc. 89, 110, 115, 157: on calcareous rocks.

*Scytinium schraderi* (Ach.) Otálora, P.M. Jørg & Wedin – Loc. 111, 159: on mosses.

*Seawardiella lobulata* (Flörke) S.Y. Kondr., I. Kärnefelt & A. Thell – Loc. 10, 12, 13, 14, 16, 17, 50, 51, 54, 55, 57, 58, 60, 63, 64, 65, 66, 67, 72, 78, 80, 81, 82, 83, 84, 86, 87, 89, 90, 91, 92, 94, 95, 96, 98, 102, 118, 120, 122, 124, 125, 129, 130, 131, 132, 133, 135, 144, 147, 148, 149, 150, 151, 152, 155, 161, 162, 163, 165, 166, 167: on *Quercus* sp., 70: on *Fraxinus* sp., *Juglans* sp. and *Quercus* sp., 71: on *Crataegus* sp., *Prunus* sp. and *Quercus* sp., 158: on *Quercus* sp. and *Salix* sp.

*Silobia rufescens* (Ach.) M. Westb. & Wedin – Loc. 114: on siliceous rocks.

\*+*Sphaerellothecium contextum* Triebel – Loc 21: on *Rhizoplaca melanophthalma*.

*Sporastatia testudinea* (Ach.) A. Massal. – Loc. 12, 58, 71: on siliceous rocks.

*Squamarina cartilaginea* (With.) P. James – Loc. 39, 46: on soil, 45, 48, 98: on mosses, 139, 158, 159: on

calcareous rocks.

*Squamarina lentigera* (Weber) Poelt – Loc. 12: on mosses and calcareous rock.

*Staurothele areolata* (Ach.) Lettau – Loc. 3, 7, 11, 22, 23, 45, 46, 47, 48, 49, 60, 72, 73, 78, 90, 91, 92, 94, 105, 106, 108, 109, 111, 113, 116, 124, 128, 130, 134, 135, 137, 140, 141, 146, 149, 154, 155, 160: on siliceous rocks.

*Staurothele rufa* (A. Massal.) Zschacke – Loc. 144: on calcareous rocks.

*Staurothele fissa* (Taylor) Zwackh – Loc. 78, 116, 130, 136: on siliceous rocks.

*Synalissa symphorea* (Ach.) Nyl. – Loc. 40, 58: on calcareous rocks

*Tephromela atra* (Huds.) Hafellner – Loc. 9, 12, 22, 23, 45, 49, 52, 53, 71, 86, 89, 109, 113, 128, 135, 137, 146, 148, 150, 158, 159: on siliceous rocks.

*Tephromela grumosa* (Pers.) Hafellner & Cl. Roux – Loc. 55, 89: on siliceous rocks.

*Thalloidima physaroides* (Opiz) Kistenich, Timdal, Bendiksby & S. Ekman – Loc. 70, 78: on soil.

*Thalloidima sedifolium* (Scop.) Kistenich, Timdal, Bendiksby & S. Ekman – Loc. 1, 14, 41, 42, 44, 45, 46, 47, 48, 49, 52, 53, 54, 59, 60, 63, 64, 65, 66, 67, 72, 74, 78, 82, 83, 87, 90, 91, 92, 9, 94, 95, 96, 98, 101, 102, 103, 115, 116, 120, 124, 125, 129, 130, 132, 135, 136, 137, 138, 140, 141, 142, 143, 146, 148, 149, 150, 152, 157, 159, 161, 162, 163, 165, 166, 167, 168, 169: on soil.

*Thalloidima candidum* (Weber) A. Massal. – Loc. 39, 40, 90, 91, 92, 103, 129, 152: on siliceous rocks.

*Thyrea confusa* Henssen – Loc. 70, 132, 139: on calcareous rocks.

*Toninia cinereovirens* (Schaer.) A. Massal. – Loc. 157: on siliceous rocks.

*Tonina diffracta* (A. Massal.) Zahlbr. – Loc. 4, 78: on soil, 94: on mosses.

*Tonina squalida* (Ach.) A. Massal. – Loc. 12, 23, 60, 63, 64, 70, 78, 94, 95, 96, 102, 120, 135, 140, 148, 149, 152, 157, 59, 165, 166, 167: on soil.

*Trapelia placodioides* Coppins & P. James – Loc. 72: on siliceous rocks.

*Umbilicaria crustulosa* (Ach.) Lamy – Loc. 121: on siliceous rocks

*Umbilicaria cylindrica* (L.) Delise – Loc. 137, 157, 161, 162, 163, 166: on siliceous rocks.

*Umbilicaria hirsuta* (Sw. ex Westr.) Ach. – Loc. 70: on siliceous rocks.

*Umbilicaria vellea* (L.) Ach. – Loc. 161, 163: on siliceous rocks.

*Variospora dolomiticola* (Hue) Arup, Søchting & Frödén – Loc. 39, 115, 117, 130: on calcareous rocks.

*Verrucaria fuscella* (Turner) Winch – Loc. 85, 103, 110, 111, 130, 131, 143, 159, 167: on calcareous rocks.

*Verrucaria hochstetteri* Fr. – Loc. 54: on calcareous rocks.

*Verrucaria muralis* Ach. – Loc. 48: on calcareous rocks.

*Verrucaria murina* Leight. – Loc. 54: on siliceous rocks.

*Verrucaria nigrescens* Pers. – Loc. 28, 29, 30, 33, 35, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 52, 53, 60, 61, 62, 65, 66, 67, 72, 76, 77, 78, 82, 83, 84, 90, 91, 92, , 94, 95, 96, 98, 101, 102, 103, 104, 110, 113, 116, 120, 124, 125, 130, 131, 132, 133, 135, 136, 137, 138, 139, 140, 141, 144, 145, 146, 147, 148, 149, 159, 161, 162, 163, 168, 169: on calcareous rocks.

*Verrucaria ochrostoma* (Borrer ex Leight.) Trevis. – Loc. 82, 83, 149, 165: on calcareous rocks.

*Verrucaria polysticta* Borrer – Loc. 103, 109, 113, 114, 115, 130, 149: on calcareous rocks.

*Verrucaria sphaerospora* Anzi – Loc. 1, 12, 14, 17, 20, 21, 39, 55, 57, 59, 60, 65, 66, 67, 71, 72, 73, 74, 84, 87, 88, 90, 91, 92, 103, 106, 108, 109, 110, 111, 113, 116, 130, 132, 135, 137, 140, 143, 144, 146, 149, 156, 161, 162, 163, 165, 167: on calcareous rocks.

*Verrucaria viridula* (Schrader) Ach. – Loc. 39, 70, 87, 88: on calcareous rocks.

*Verruculopsis lecideoides* (A. Massal.) Gueidan & Cl. Roux – Loc. 4, 67, 157, 159: on calcareous rocks.

*Xalocoa ocellata* (Fr.) Kraichak, Lücking & Lumbsch – Loc. 43, 60, 70, 94, 135: on calcareous rocks.

*Xanthocarpia ferrarii* (Bagl.) Frödén, Arup & Søchting – Loc. 11: on calcareous rocks.

*Xanthocarpia crenulatella* (Nyl.) Frödén, Arup & Søchting – Loc. 9, 20, 21, 40, 54, 59, 60, 65, 66, 68, 71, 78, 87, 88, 90, 91, 92, 104, 105, 109, 110, 111, 113, 115, 116, 118, 119, 124, 126, 128, 129, 130, 132, 133, 135, 137, 138, 140, 141, 146, 149, 153, 154, 157, 159, 161, 162, 163, 165, 166, 167: on calcareous rocks.



*Xanthocarpia interfulgens* (Nyl.) Frödén, Arup & Söchting – Loc. 113: on calcareous rocks.

*Xanthocarpia marmorata* (Bagl.) Frödén, Arup & Söchting – Loc. 110: on calcareous rocks.

*Xanthoparmelia conspersa* (Ehrh. ex Ach.) Hale – Loc. 59, 70, 71, 140: on siliceous rocks.

*Xanthoparmelia delisei* (Duby) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – Loc. 13, 71: on siliceous rocks.

*Xanthoparmelia pulla* (Ach.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – Loc. 1, 5, 10, 12, 13, 15, 16, 20, 21, 22, 23, 43, 45, 49, 52, 53, 55, 58, 65, 67, 71, 72, 74, 78, 84, 85, 86, 87, 88, 90, 91, 92, 100, 102, 114, 128, 134, 135, 137, 140, 146, 147, 149, 151, 152, 154, 158, 159, 161, 162, 163, 165, 166, 167: on siliceous rocks.

*Xanthoparmelia stenophylla* (Ach.) Ahti & D. Hawksw. – Loc. 98, 149, 161: on mosses. 116: on siliceous rock and mosses 140, 162, 163: on siliceous rocks.

*Xanthoparmelia tinctina* (Maheu & A. Gillet) Hale – Loc. 4, 12, 20, 21, 43, 44, 45, 47, 48, 52, 53, 70, 71, 78, 82, 83, 85, 100, 116, 114, 132, 135, 137, 151, 152, 159: on siliceous rocks.

*Xanthoparmelia verruculifera* (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – Loc. 1, 7, 12, 13, 16, 19, 20, 21, 22, 23, 41, 42, 44, 52, 53, 55, 56, 56, 58, 65, 66, 67, 70, 71, 74, 82, 83, 85, 86, 87, 88, 100, 101, 102, 107, 109, 114, 116, 126, 128, 132, 134, 135, 136, 137, 138, 139, 140, 141, 143, 146, 148, 149, 152, 154, 156, 157, 161, 162, 163, 160, 165, 166, 167: on siliceous rocks.

*Xanthoria elegans* (Link) Th. Fr. – Loc. 1, 2, 4, 12, 15, 17, 20, 21, 23, 52, 53, 71, 75, 89, 107, 112, 114, 128, 154: on calcareous rocks, 16, 22, 58, 74, 78, 102, 109, 113, 116, 124, 149: on siliceous rocks.

*Xanthoria parietina* (L.) Th. Fr. – Loc. 45, 47, 49, 60, 98: on *Quercus* sp.

*Xanthoria contortuplicata* (Ach.) Boistel – Loc. 113: on siliceous rocks.

Five lichens, namely *Acarospora hospitans*, *Acarospora scotica*, *Erichansenia epithallina*, *Lambiella insularis*, and *Pisutiella grimmiae*, have been identified as lichenicolous lichens found on other lichens.

*Protoparmeliopsis muralis* is the most common species found in 132 out of 169 stations in the Bingöl

Province. Other most common species are *Candelariella vitellina* (116 stations), *Rhizocarpon geographicum* (109) and *Aspicilia cinerea* (105).

Eighteen lichenized and one lichenicolous fungi have been reported from the Bingöl Province in the checklist of lichenized and lichenicolous fungi (John & Türk 2017) and in the further records (John & al. 2020). After recent studies, lichen diversity of the Bingöl Province consists of 27 lichenized and one lichenicolous fungi. As a result of the examination of lichens and lichenicolous fungi from a total of 169 stations, 341 lichens, five of which lichenicolous, and 23 lichenicolous fungi have been identified. Lichenicolous fungus *Sphaerellothecium contextum* is new to Turkey. Three hundred and seven lichenized fungi have been recorded for the first time from the Bingöl Province. Eighteen lichens (*Aspicilia glomerulans*, *Aspiciliella cupreoglauca*, *Buellia caldesiana*, *Candelariella antennaria*, *C. kuusamoensis*, *Calogaya pusilla*, *Caloplaca soralifera*, *Dermatocarpon minutum* var. *cirsodes*, *Immersaria usbekica*, *Lathagrium undulatum* var. *granulosum*, *Lecania cuprea*, *Lecanora subcarnea* var. *soralifera*, *L. kjachtensis*, *Polyozosia flowersiana*, *Pertusaria chiodectionoides*, *Placynthium lismorensis*, *Protoparmelia atriseda*, and *Trapelia placodioides*) and four lichenicolous fungi (*Cercidospora melanophthalmae*, *Endococcus verrucosus*, *Intralichen baccisporus*, *Sclerococcum montagnei*) were found for the second time in Turkey.

Of the earlier reported species from the Bingöl Province (John & Türk 2017), *Lecanora horiza*, *Rinodina luridescens* and *Polycaulina candelaria* have not been detected in this study.

It has been found that lichenized and lichenicolous lichens develop on a total of 15 different substrates. Some lichens have been widely distributed on many substrates, while others on only one type of substrate. The most tolerant species in terms of substrate preference are *Athallia pyracea*, *Caloplaca cerina*, *Candelariella antennaria*, *Candelariella antennaria*, *Lecidella elaeochroma*, *Melanohalea exasperata*, *Oxneria fallax*, *Phaeophyscia orbicularis*, *Physcia adscendens*, *Physcia aipolia*, *Polyozosia dispersa*, *Physcia aipolia*, *Physcia aipolia*, *Polyozosia haegenii*, *Rinodina pyrina*, and *Seawardiella lobulata*.

Considering the general state of lichen cover in the

Province, lichens have been mostly found in large communities and on large stretches of land covered by oak trees, where the lichen taxa can develop. Bark and leafy lichens develop mostly on abundant rocks and on extensive stretches of soil, otherwise extremely poor for lichen development. Lichens can develop mostly on rocks in the region. Leafy lichens have been found to develop on tree trunks, especially of *Quercus*. Lichens growing on soil and on the highways have been much less in number than the lichen taxa developing on rocks and tree trunks.

Some studies have been carried out in Bingöl before, and 27 lichens and one lichenicolous fungus have been reported. Nineteen lichens and three lichenicolous fungi were found for the second time in Turkey.

Except for the lichenicolous fungi, 261 lichens were crustose, 67 foliose, seven fruticose, and another seven leprose taxa. While 83 of the identified taxa (with the exception of lichenicolous fungi) were epiphytic, 67 were exclusively epiphytic, 251 were detected on rocks (saxicolous), 242 were exclusively saxicolous, 27 were exclusively muscicolous (on moss), and 13 were exclusively terricolous (on soil). Forty-eight taxa were observed to grow on mosses. While a total of 42 taxa have developed on trees, 34 taxa were observed to de-

velop exclusively on trees (Table 2).

Although there have been communities formed by broad-leaved trees, such as *Quercus*, *Crataegus*, *Fraxinus*, etc., crustose species have been mostly found on rocks, because the forest areas are very poor.

With the exception of lichenicolous fungi, 261 lichens are crustose, 67 foliose, seven fruticose, and seven leprose taxa. While 83 of the identified taxa (except for the lichenicolous fungi) have been epiphytic, 67 have been exclusively epiphytic, 251 taxa have been detected on rocks (saxicolous), 242 taxa have been exclusively saxicolous, 27 have been exclusively muscicolous (on moss), and 13 have been exclusively terricolous (on soil). Forty-eight taxa have been observed to grow on mosses. While a total of 42 taxa have developed on trees, 34 taxa have been observed to develop exclusively on trees.

Localities with the highest number of taxa are: 13 (52 taxa), 14 (46 taxa), 107 (45 taxa), 54 (43 taxa), 57 (43 taxa), 59 (40 taxa), 61 (26 taxa), 120 (23 taxa), 5 (22 taxa), 8 (20 taxa), 80 (18 taxa), 126 (18 taxa), and 121 (17 taxa).

Although the forest area in the Bingöl district accounts for 38.17 %, the observed development of lichens on mosses has been poor.

Lichen flora of the Bingöl Province is mostly com-

**Table 2.** The number of taxa based on the growth form and substrate in Bingöl

	Lichen growth forms	Saxicolous		Terricolous	Epiphytic	Muscicolous	Total	Lichenicolous fungi	Lichenicolous lichen
		Calcareous	Siliceous						
Species that grow on only one substrate one substrate	Crustose	90	116	5	16	7	235	18	4
	Foliose	12	15	1	18	12	58		
	Fruticose	1					1		
	Leprose	3				3	6		
	Squamulose		1	7	1	3	12		
	<b>Total</b>	<b>106</b>	<b>132</b>	<b>13</b>	<b>35</b>	<b>25</b>	<b>312</b>	<b>18</b>	<b>4</b>
		238							
Species that grow on two or more substrates	Crustose	1	2	4	1	4	6	5	1
	Foliose	2	7	5	6	13	15		
	Fruticose								
	Leprose		1			1	1		
	Squamulose	2	0	3		4	4		
	<b>Total</b>	<b>5</b>	<b>10</b>	<b>12</b>	<b>7</b>	<b>22</b>	<b>26</b>	<b>23</b>	<b>5</b>
		253		<b>25</b>	<b>42</b>	<b>47</b>	<b>338</b>		

posed of crustose lichens and predominantly develop on rocks. The most common species growing on these substrates are: *Acarospora cervina*, *A. fuscata*, *A. hospitans*, *A. veronensis*, *Aspicilia cinerea*, *A. desertorum*, *Athallia pyracea*, *Blennothallia crispa*, *Calogaya saxicola*, *Caloplaca cerina*, *Candelariella antennaria*, *Candelariella aurella*, *Candelariella vitellina*, *Circinaria caesiocinerea*, *Circinaria calcarea*, *Circinaria contorta*, *Immersaria athrocarpa*, *Lathagrium cristatum*, *Lecanora rupicola*, *Lecidea fuscoatra*, *Lecidella carpathica*, *Lecidella elaeochroma*, *Lecidella stigmata*, *Lobothallia radiosa*, *Phaeophyscia orbicularis*, *Polyozosia dispersa*, *Polyozosia hagenii*, *Protoparmeliopsis bolcana*, *Protoparmeliopsis muralis*, *Pyrenodesmia atroflava*, *Pyrenodesmia variabilis*, *Rhizocarpon geographicum*, *Rinodina bischoffii*, *Rinodina milvina*, *Romjularia lurida*, *Seawardiella lobulata*, *Scytinium lichenoides*, *Thalloidima sedifolium*, *Verrucaria nigrescens* and *Xanthocarpia crenulatella*.

Species such as *Agonimia tristicula*, *Calogaya schistidii*, *Catapyrenium squamulosum*, *Cladonia pyxidata*, *Gyalolechia bracteata*, *Gyalolechia fulgens*, *Lathagrium auriforme*, *Lepraria nivalis*, *Scytinium gelatinosum*, and *Scytinium lichenoides* have been identified more frequently in mosses. Such species as *Blennothallia crispa*, *Enchylium tenax*, *Peltigera rufescens*, *Psora vallesiaca*, *Romjularia lurida*, *Thalloidima sedifolium*, and *Tonina squalida* have been observed to grow on soil.

There have been some studies on lichens performed in the eastern part of Turkey. Many common crustose species found during these surveys have been also seen and identified in the present research area. Since Ardahan, Artvin, Bitlis, Gümüşhane, Erzincan, Iğdır, and Muş regions are similar to the Bingöl region in terms of climate and terrain, lichen diversity in the above-mentioned provinces is similar to that in the study area in terms of crustose, foliose and fruticose taxa (Yazıcı & Aslan 2003, 2016a,b, 2019; Osyczka & al. 2011; Yazıcı & al. 2011a,b, 2013, 2018, 2020a,b; Yazıcı & Etayo 2014; Krisai-Greilhuber & al. 2017; Yazıcı & Aptroot 2017).

When lichen diversity of the Bingöl Province is compared with the best studied neighboring provinces (Elazığ, Erzurum, Muş), the greatest similar-

ty has been found in Muş (68%), followed by Elazığ (51%). These neighboring provinces are located at the same latitude as Bingöl. Lichen diversity of the Bingöl Province is compared to that in the Erzurum Province located farther north and has shown similarity of 39%. The number of common species between Bingöl and Muş provinces is 211, 133 with Elazığ Province and 112 with Erzurum Province. Similarities between Bingöl and Muş provinces based on lichen diversity were noted down also by Güvenç & al. 2020.

Lichen cover (in terms of lichens that can grow on trees and mosses) in the Province of Bingöl remains relatively poor as compared to that in the above-mentioned provinces. The general state of the lichen cover in the Bingöl Province reflects, in addition to lands without forests with mostly common oak trees, occasionally abundant bare areas, with rare rocks and trees, as well as areas where the soil is very poor in terms of lichen growth. In that region, the lichens develop mostly on rocks. Common bark and foliose lichens also develop on oaks that do not form forest areas.

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