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Lichens and lichenicolous fungi from Bitlis province in Turkey

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As a result of lichenological exploration in Bitlis province (Turkey), a total of 325 lichens and 21 lichenicolous fungi, which are belonging 113 genera in *Ascomycota* were determined from 92 different localities. *Buellia vouauxii*, a lichenicolous fungus, and is new to Turkey and also new for Asia. *Aspicilia glomerulans*, *Llimoniella muralicola*, *Myriolecis invadens*, *Ochrolechia subviridis*, *Placynthium hungaricum* and *Placynthium posterulum* were reported for the second time from Turkey. Collecting localities and their substrata are presented.

Keywords: *Ascomycota*, biodiversity, Bitlis, lichen, lichenicolous fungi, new records, Turkey

Especially in last years the knowledge about lichen flora and lichenicolous fungi of Turkey has significantly increased. Compared to eastern Anatolia, more studies have been carried out in the Aegean, Black Sea and Mediterranean regions (John and Türk 2017). However there are still many lichenologically unexplored parts of Turkey (e.g. Hakkari, Şırnak, Siirt). Bitlis is such a part: it has never been the subject of a detailed lichenologically study, and only 35 lichenized fungi have thus far been reported from this area (Çobanoğlu and Yavuz 2007, Vondrák et al. 2012, Krisai-Greilhuber et al. 2017, Yazıcı and Aptroot 2017).

Bitlis, a province located 38°59'26"–39°01'18"N and 41°32'41"–43°12'51"E in the east of Turkey, has a part of Van Lake in eastern Anatolia and is surrounded by Ağrı, Batman, Muş, Siirt and Van provinces. It is 8551 km² in area. The topography of the Bitlis province is determined by the mountains located on the south and north of Lake Van, which generally show a volcanic structure, and the flat areas above them. The mountains in the south of the province are in the form of the extension of the southeast Taurus. These were fragmented by river valleys that originate from the immediate vicinity of Lake Van.

Bitlis province constitutes one of the most mountainous regions of the Eastern Anatolia Region.

In Hizan and Mutki Districts there are no plains, 90% of its area is mountainous lands.

Nemrut and Suphan Mountains, which are among the few volcanic mountains of the world, are within the borders of Bitlis province. Nemrut Mountain, which is located in the north of the provincial territory, has the feature of being the last volcanic mountain in Turkey. It is located on the north of the provincial territory and on the west of the Mount Suphan mountain, in a regular mountain range. Plains cover only 10% of the provincial territory. There is no major river within the borders of the province of Bitlis (URL-1, 2, 3).

The common soil types are limeless brown soils, alluvial soils and regosols (Kaya 2001).

The area of in southern part of the Bitlis region, where Hizan, Mutki, Güroymak districts are located, have many hills, trees, valleys and slits, is the most rugged part. The northern part, which also includes Adilcevaz and Ahlat districts, has rough woodless and open areas. Seventy-one percent of the total area is mountains, 16% plateaus, which is situated on ridges amongst peaks of mountains and 13% plains (Baytop and Denizci 1963).

The main vegetation types are forests and anthropogenic steppes. The forest area is mainly characterized by *Quercus* L., in particular *Q. infectoria* subsp. *boissieri* Reuter in higher parts (over 1800 m) of the area. In lower parts and at stream-sides *Populus* L., *Salix* L. and *Ulmus* L. spp. form the main clumps of trees. Phytogeographically the area is in the Irano-Turanian flora sector. Vegetation in Bitlis varies depending on the climate. In some parts of the area, forest cover and steppe are seen side by side. The southern slopes of Mount Nemrut are covered with oak. The wide crater pit on the

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mountain is covered with oak and wild fruit trees. Mount Suphan is completely dry and bare due to the absorbent soil covering that covers it. Forests in the mountainous area in the south of the province are sparse. The main tree species is oak in this region where forest undercover is made up of arid plants. In addition, cold resistant *Juniperus* and wild fruit trees are seen. The number of plant species increases in deep and wet valley bases in the region. There are especially willow, sycamore, poplar and walnut trees in these sections.

The climate is characterized by very cold snowy winters and hot dry short summers, with a temperature range of -21.3°C to 37°C , a mean annual rainfall is around 822.9 mm, and mean annual humidity of 61% (Akman 1999).

The present paper is a contribution to our knowledge of the lichen flora of Turkey and provides the first comprehensive checklist of lichens for Bitlis region.

Material and methods

The lichens and lichenicolous fungi were collected at 92 different localities in Bitlis province between 28 June 2016 and 12 April 2018 (Fig. 1, Table 1). Identification of lichens and lichenicolous fungi were carried out using a stereomicroscope and a light microscope with standard identification methods (Poelt 1969, Poelt and Vězda 1981, Hawksworth 1983, Mayrhofer 1984, Thomson 1984, Vitikainen 1994, Goward et al. 1995, Wirth 1995, Esslinger 1997, Brodo et al. 2001, Giralt 2001, Calatayud et al. 2002, Dobson 2005, Navarro-Rosinés et al. 2009, Smith et al. 2009, Darmostuk 2016). Vouchers are deposited in the herbarium of the

Biology Department, Faculty of Science, Karadeniz Technical University, Turkey (KTUB).

Results and discussion

Lichenological survey in Bitlis province yielded a total of 325 taxa in 113 genera of *Ascomycota*, of which 21 are lichenicolous fungi, and 6 varieties. *Buellia vouauxii*, a lichenicolous fungus, is new to Turkey and also Asia. All taxa are new for Bitlis province except 24 taxa (as shown in list).

The taxa are listed alphabetically. ‘*’ indicate new records for Turkey and Asia, ‘+’ lichenicolous fungus, ‘#’ lichenicolous lichen, while ‘-’ shows reported before from Bitlis.

List of taxa

Acarospora bullata Anzi – Loc. 39, 50, 79, 80, 82: on calcareous rock

Acarospora cervina A. Massal. – Loc. 1, 2, 3, 4, 7, 9, 11, 12, 13, 14, 21, 22, 23, 27, 29, 32, 33, 34, 38, 39, 40, 42, 44, 46, 49, 50, 53, 55, 61, 62, 64, 66, 67, 69, 70, 71, 72, 76, 78, 79, 80, 81, 10, 15, 17, 18, 26, 28, 28a, 28b, 28c, 51, 60, 77, 85, 87, 88, 89: on calcareous rock

Acarospora fuscata (Nyl.) Th. Fr. – Loc. 1, 7, 8, 9, 11, 12, 21, 22, 23, 27, 32, 33, 34, 40, 42, 43, 49, 50, 53, 55, 62, 78, 80, 82, 10, 15, 17, 18, 28, 35, 51, 59, 77, 83, 85, 87, 89: on siliceous rock

Acarospora glaucocarpa (Ach.) Körb. – Loc. 40, 72: on calcareous rock

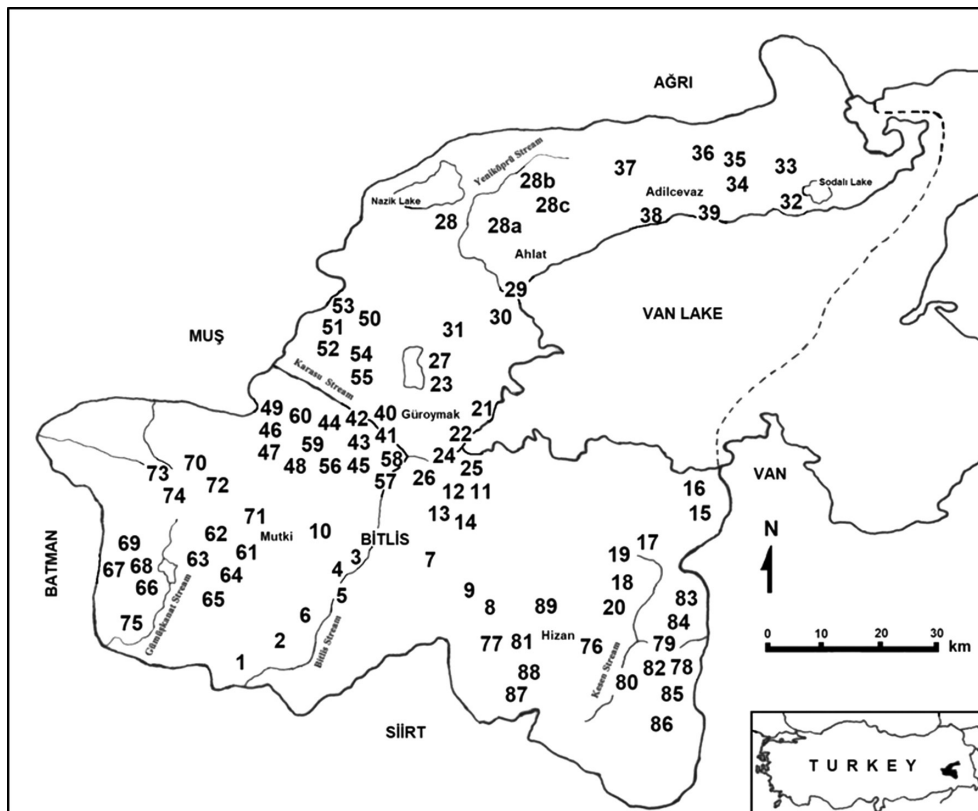


Figure 1. Collection localities in Bitlis Province (Turkey).

Table 1. Collection localities, altitude, coordinates and date in the study area in Bitlis (Turkey).

| No. | Locality | Coordinates | Altitude (m) | Date |
|-----|--|---|--------------|--|
| 1 | Bitlis, center, Bitlis-Siirt mainroad, 500 m to Narlıdere village road separation | 38°13'15.33"N, 41°52'19.21"E | 846 | 08.08.2016 |
| 2 | Bitlis, center, Bitlis-Siirt, side of mainroad, 2 km to the separation of Narlıdere village | 38°14'11.68"N, 41°56'23.90"E | 1001 | 08.08.2016 |
| 3 | Bitlis, center, Bitlis-Siirt side of mainroad, passing Tatlıkaynak village, 4 km to Bitlis | 38°21'36.89"N, 42°03'51.44"E | 1416 | 08.08.2016 |
| 4 | Bitlis, center, Bitlis-Siirt side of mainroad, opposite of İçmeli village | 38°21'25.07"N, 42°02'48.33"E | 1361 | 08.08.2016 |
| 5 | Bitlis, Deliktaş village | 38°20'49.19"N, 42°02'40.72"E | 1458 | 08.08.2016 |
| 6 | Bitlis, Cumhuriyet village | 38°14'48.94"N, 41°56'29.65"E | 1088 | 08.08.2016 |
| 7 | Bitlis, Tatvan-Hizan mainroad, 3 km to Keklikdüzü | 38°20'10"N, 42°14'54"E | 1663 | 07.06.2017 |
| 8 | Bitlis, Tatvan-Hizan, mainroad, 1 km to Yolalan village | 38°16'50"N, 42°17'52"E | 1598 | 07.06.2017 |
| 9 | Bitlis, Tatvan-Hizan mainroad, opposite of Keklikdüzü village, Bitlis, 4 km to Yolalan village | 38°17'33"N, 42°16'19"E | 1563 | 07.06.2017 |
| 10 | Bitlis, Konuk Sayar | 38°24'02"N, 42°01'00"E | 1778 | 30.07.2017 |
| 11 | Tatvan Tatvan-Hizan, enter to Küçüksu village | 38°26'20"N, 42°18'56"E | 1762 | 09.06.2017 |
| 12 | Tatvan, Tatvan, Küçüksu mainroad, passing 100 m Koyunpınarı village | 38°25'42"N, 42°18'12"E | 1805 | 09.06.2017 |
| 13 | Tatvan, Tatvan-Hizan, 2 km to Küçüksuya | 38°24'38"N, 42°16'51"E | 1771 | 07.06.2017 |
| 14 | Tatvan, Tatvan-Hizan, mainroad, opposite of Kırkbulak village, 3 km to Gendarne office | 38°24'39"N, 42°10'52"E | 1785 | 07.06.2017 |
| 15 | Tatvan, Koruklu | 38°21'44"N, 42°40'28"E | 1900 | 02.07.2017 |
| 16 | Tatvan, Topraklı | 38°23'55"N, 42°39'28"E | 1770 | 02.07.2017 |
| 17 | Tatvan, Sallica village | 38°19'51"N, 42°36'34"E | 1746 | 03.07.2017 |
| 18 | Tatvan, Suboyu passing village | 38°17'02"N, 42°32'23"E | 1450 | 03.07.2017 |
| 19 | Tatvan, Dönertaş village | 38°19'01"N, 42°33'41"E | 1504 | 04.07.2017 |
| 20 | Tatvan, Yumrukaya village | 38°15'57"N, 42°33'11"E | 1385 | 04.07.2017 |
| 21 | Tatvan, Ahlat-Tatvan mainroad, 7 km to Tatvan, edge of Van Lake | 38°33'50.19"N, 42°21'43.82"E | 1704 | 28.06.2016 |
| 22 | Tatvan, Ahlat-Tatvan mainroad, 3 km to Tatvan, side of Van Lake | 38°33'18.85"N, 42°21'08.47"E | 1724 | 28.06.2016 |
| 23 | Tatvan, Nemrut mountain | 38°36'08.60"N, 42°15'35.18"E | 2360 | 29.06.2016 30.06.2016 28.06.2016 |
| 24 | Tatvan, center | 38°29'36.62"N, 42°17'27.88"E | 1655 | 30.06.2016 |
| 25 | Tatvan, center, Dalda village | 38°28'19"N, 42°16'22"E | 1775 | 30.06.2016 |
| 26 | Tatvan, cenetr, Örenlik village | 38°28'45"N, 42°14'13"E | 1876 | 30.06.2016 |
| 27 | Ahlat, Nemrut mountain | 38°38'41.33"N, 42°142'2.05"E | 2266 | 28.06.2016 29.06.2016 30.06.2016 |
| 28 | Ahlat, surrounding of Nazik lake | 38°50'09.17"N, 42°15'35.16"E | 1818 | 30.06.2016 |
| 28a | Ahlat, Seyrantepo village | 38°48'53"N, 42°24'58"E | 1017 | 12.04.2018 |
| 28b | Ahlat, Kırkdönüm village | 38°52'06"N, 42°27'58"E | 1975 | 12.04.2018 |
| 28c | Ahlat, Yuvadamı village | 38°49'48"N, 42°28'53"E | 2040 | 12.04.2018 |
| 29 | Ahlat, Tatvan-Ahlat mainroad, 4 km to Ahlat, side of Van Lake | 38°43'59.24"N, 42°26'40.51"E | 1650 | 28.06.2016 |
| 30 | Ahlat, Saka village | 38°42'13.54"N, 42°24'09.77"E | 1685 | 28.06.2016 |
| 31 | Ahlat, Serinbayır village | 38°39'57.09"N, 42°18'06.74"E | 2055 | 30.06.2016 |
| 32 | Adilcevaz, side of Sodalı Göl, Karşıyaka village | 38°49'26.29"N, 42°57'16.60"E | 1712 | 17.07.2016 |
| 33 | Adilcevaz, Süphan mountain | 38°55'1606"N, 42°53'54.94"E | 2481 | 15.07.2016 |
| 34 | Adilcevaz, edge of Aygır lake | 38°51'11.61"N, 42°48'56.00"E 38°50'4102"N, 42°49'09.39"E | 2006, 2124 | 17.07.2016 |
| 35 | Adilcevaz, Yıldızköy | 38°51'54.78"N, 42°50'20.09"E | 2200 | 17.07.2016 |
| 36 | Adilcevaz, Harmantepo village | 38°52'56.60"N, 42°46'10.22"E | 2160 | 17.07.2016 |
| 37 | Adilcevaz, edge of Batmış lake | 38°53'45.65"N, 42°37'36.59"E | 2216 | 17.07.2016 |
| 38 | Adilcevaz, 4 km to Adilcevaz, edge of Van Lake | 38°47'00.85"N, 42°41'00.16"E | 1660 | 28.06.2016 |
| 39 | Adilcevaz, passing Adilcevaz, edge of Van Lake | 38°47'19.91"N, 42°49'19.27"E | 1672 | 28.06.2016 |
| 40 | Güroymak, passing Güroymak, mainroad, Aşağıkolbaşı village | 38°34'04.45"N, 42°04'26.30"E | 1425 | 16.07.2016 |
| 41 | Güroymak, Aşağıkolbaşı village | 38°32'52.51"N, 42°06'34.31"E | 1625 | 16.07.2016 |
| 42 | Güroymak, Bölmedere village | 38°32'51.48"N, 42°01'44.32"E | 1369 | 06.08.2016 |
| 43 | Güroymak, Kavunlu village | 38°32'28.54"N, 42°03'29.95"E | 1496 | 06.08.2016 |
| 44 | Güroymak, Yayladere village | 38°33'26.92"N, 48°00'57.76"E | 1431 | 06.08.2016 |
| 45 | Güroymak, Yukarı Kolbaşı village | 38°30'58.46"N, 42°05'38.92"E | 1703 | 06.08.2016 |
| 46 | Güroymak, Saklıköy | 38°32'47.91"N, 41°58'19.99"E | 1682 | 06.08.2016 |
| 47 | Güroymak, Çallı village | 38°31'21.73"N, 44°56'35.09"E | 1676 | 06.08.2016 |
| 48 | Güroymak, Çayarası village | 38°30'03.72"N, 41°58'52.70"E | 1807 | 06.08.2016 |
| 49 | Güroymak, Günkırı village | 38°34'30.06"N, 41°58'33.94"E | 1511 | 06.08.2016 |
| 50 | Güroymak, Çıtak village | 38°40'36.82"N, 42°08'40.04"E | 1876 | 07.08.2016 |
| 51 | Güroymak, Taşüstü village | 38°40'50.78"N, 42°05'42.59"E | 1508 | 07.08.2016 |

(Continued)

Table 1. Continued.

| No. | Locality | Coordinates | Altitude (m) | Date |
|-----|---|------------------------------|--------------|---------------------------|
| 52 | Güroymak, Özkavak village | 38°40'18.34"N, 42°03'33.33"E | 1307 | 07.08.2016 |
| 53 | Güroymak, Gedikpınar village | 38°42'17.11"N, 42°04'04.56"E | 1914 | 07.08.2016 |
| 54 | Güroymak, Güzelli village | 38°39'28.08"N, 42°06'30.00"E | 1364 | 07.08.2016 |
| 55 | Güroymak, 3 km to Gölbashi village | 38°36'36.83"N, 42°05'23.51"E | 1376 | 07.08.2016 18.07.2017 |
| 56 | Güroymak, Kekliktepe village | 38°32'06"N, 42°04'34"E | 1621 | 18.07.2017 |
| 57 | Güroymak, Yazıkonak village | 38°30'15"N, 42°07'23"E | 1837 | 18.07.2017 |
| 58 | Güroymak, Tahtalı village | 38°30'20"N, 42°08'24"E | 1836 | 18.07.2017 |
| 59 | Güroymak, Yemişveren village | 38°30'44"N, 42°00'43"E | 2021 | 19.07.2017 |
| 60 | Güroymak, Yamaçköy | 38°34'36"N, 41°58'51"E | 1390 | 20.07.2017 |
| 61 | Mutki, Üstyayla village | 38°23'54.86"N, 41°53'33.70"E | 1727 | 18.08.2016 |
| 62 | Mutki, Çaygeçit village | 38°24'33.62"N, 41°50'26.04"E | 1275 | 18.08.2016 |
| 63 | Mutki, Meydan village | 38°21'36.37"N, 41°46'09.31"E | 935 | 18.08.2016 |
| 64 | Mutki, Salman village | 38°21'25.70"N, 41°51'08.78"E | 1544 | 18.08.2016 |
| 65 | Mutki, Geyikpınar mainroad, Açıklan village, on the way to Salman | 38°20'37.43"N, 41°50'16.01"E | 1309 | 18.08.2016 |
| 66 | Mutki, Bağarası village | 38°21'12.28"N, 41°44'28.11"E | 1140 | 19.08.2016 |
| 67 | Mutki, Ballı village | 38°22'41.29"N, 41°38'52.68"E | 1462 | 19.08.2016 |
| 68 | Mutki, Çatalerik village | 38°21'55.76"N, 41°42'17.00"E | 1395 | 19.08.2016 |
| 69 | Mutki, Kovanlı village | 38°23'05.71"N, 41°41'44.63"E | 1194 | 19.08.2016 |
| 70 | Mutki, opposite of Gendarme office | 38°29'01.34"N, 41°49'04.79"E | 1365 | 20.08.2016 |
| 71 | Mutki, on the way the mainroad of Kavakbaşı-Mutki, opposite of Akıncı village | 38°25'03.66"N, 41°54'59.95"E | 1408 | 20.08.2016 |
| 72 | Mutki, from Kavakbaşı village to Mutki, 200 km to separation of Koyunlu village | 38°28'36.17"N, 41°50'56.03"E | 1580 | 20.08.2016 |
| 73 | Mutki, Çitliyol village | 38°29'44.81"N, 41°44'53.56"E | 1309 | 20.08.2016 |
| 74 | Mutki, Yenidoğan village | 38°29'13.68"N, 41°46'19.39"E | 1246 | 20.08.2016, 30.07.2017 |
| 75 | Mutki, Yazıcık village | 38°16'01"N, 41°41'47"E | 940 | 29.07.2017 |
| 76 | Hizan, on the way the Akşar village | 38°12'49"N, 42°27'47"E | 1600 | 09.06.2017 |
| 77 | Hizan, Tatvan-Hizan mainroad, 5 km to Hizan town | 38°14'54"N, 42°19'22"E | 1798 | 07.06.2017 |
| 78 | Hizan, on the way the Bahçasaray, Derince village | 38°07'19"N, 42°37'10"E | 1727 | 08.06.2017 |
| 79 | Hizan, Bahçasaray-Nurs mainroad, separation, 250 m to Ortaca village | 38°08'20"N, 42°35'38"E | 1620 | 08.06.2017 |
| 80 | Hizan, separation of Soğuksu village | 38°06'28"N, 42°33'25"E | 1443 | 08.06.2017 |
| 81 | Hizan, Tatvan-Hizan mainroad, 2 km to Hizan town | 38°13'24"N, 42°20'57"E | 1732 | 07.06.2017 |
| 82 | Hizan, 500 m to Bahçasaray-Nurs road separation, South of Esenler village, roadside | 38°07'15"N, 42°34'47"E | 1478 | 08.06.2017 |
| 83 | Hizan, Yukarıçalı village | 38°10'14"N, 42°38'38"E | 1977 | 21.07.2017 |
| 84 | Hizan, Ortaca village | 38°08'53"N, 42°37'06"E | 1725 | 21.07.2017 |
| 85 | Hizan, separation of Soğuksu, Sürücüler village | 38°04'42"N, 42°36'08"E | 1931 | 22.07.2017 |
| 86 | Hizan, Soğuksu road separation, Sığınlı town | 38°04'01"N, 42°35'40"E | 1986 | 22.07.2017 |
| 87 | Hizan, Keklik village | 38°10'05"N, 42°21'14"E | 1611 | 23.07.2017 |
| 88 | Hizan, Koçlu village | 38°11'30"N, 42°22'19"E | 1402 | 23.07.2017 |
| 89 | Hizan, Budaklı village | 38°15'56"N, 42°24'14"E | 1560 | 02.07.2017 |

Acarospora hospitans H. Magn. – Loc. 7, 8, 13, 21, 22, 23, 27, 32, 33, 34, 40, 42, 44, 48, 50, 53, 64, 85: on *Aspicilia cinerea*
Acarospora impressula Th. Fr. – Loc. 23, 46, 50, 78: on siliceous rock
Acarospora macrospora (Hepp) A. Massal. ex Bagl. – Loc. 69: on calcareous rock
Acarospora oligospora (Nyl.) Arnold – Loc. 42: on calcareous rock
Acarospora scabra (Pers.) Th. Fr. – Loc. 11, 12, 13, 21, 22, 34, 39, 40, 78: on siliceous rock
Acarospora strigata (Nyl.) Jatta – Loc. 32, 33, 34, 81: on calcareous rock
Acarospora umbilicata Bagl. – Loc. 21: on siliceous rock
Acarospora veronensis A. Massal – Loc. 3, 8, 9, 22, 23, 27, 33, 34, 39, 40, 43, 44, 50, 55, 62, 78, 77, 85: on siliceous rock

Acarospora versicolor Bagl. & Carestia – Loc. 2, 49, 55: on calcareous rock
Agonimia tristicula (Nyl.) Zahlbr. – Loc. 7, 9, 23, 27, 32, 40, 64, 65, 71, 72, 86: on mosses
+ *Arthonia clemens* (Tul.) Th. Fr. – Loc. 27, 34: on *Rhizoplaca melanophthalma*
+ *Arthonia epiphyscia* Nyl. – Loc. 23: on the thallus of *Physcia dubia*
Arthonia lapidicola (Taylor) Branth & Rostr. – Loc. 8, 11, 12, 21, 22, 27, 49, 78, 81, 85, 89: on calcareous rock
+ *Arthonia phaeophysciae* Grube & Matzer – Loc. 38: on *Phaeophyscia orbicularis*
+ *Arthonia varians* (Davies) Nyl. – Loc. 7, 9, 21, 22, 23, 27, 32, 33: on *Lecanora rupicola*
– *Aspicilia cinerea* (L.) Körb. – Loc. 1, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 21, 22, 23, 27, 29, 32, 33, 34, 40, 42, 43, 44,

- 46, 49, 50, 53, 54, 55, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 76, 78, 79, 80, 81, 82, 10, 17, 28, 31, 35, 51, 77, 84, 85, 86, 89: on siliceous rock
- Aspicilia coronata* (A. Massal.) B. de Lesd. – Loc. 39: on calcareous rock
- Aspicilia desertorum* (Kremp.) Mereschk. – Loc. 1, 2, 3, 4, 7, 8, 9, 11, 12, 13, 14, 20, 22, 23, 27, 32, 33, 34, 40, 42, 43, 44, 46, 49, 50, 53, 55, 57, 61, 62, 63, 64, 66, 67, 68, 69, 70, 71, 76, 78, 79, 80, 82, 74, 85: on siliceous rock
- Aspicilia glomerulans* (Poelt) Poelt – Loc. 7, 8, 12, 14, 22, 23, 32, 33, 54: on calcareous rock
- Aspicilia polychroma* Anzi – Loc. 8, 40, 41, 79, 80, 74, 85: on calcareous rock
- Athallia holocarpa* (Hoffm.) Arup, Frödén & Söchting – Loc. 2, 8, 9, 27, 40: on *Populus* sp., 49, 50: *Quercus* sp., 55, 61: on *Quercus* sp., 63, 68: on *Morus* sp., 70, 71, 81: on *Quercus* sp.
- Bagliettoa baldensis* (A. Massal.) Vězda – Loc. 61, 66, 70, 72, 74: on siliceous rock
- Bagliettoa parmigera* (J. Steiner) Vězda & Poelt – Loc. 39, 49, 66: on siliceous rock
- Bellemerea cupreoatra* (Nyl.) Clauzade & Cl. Roux – Loc. 3, 7, 23, 27, 34, 40, 42, 50, 64, 80, 84: on siliceous rock
- Bilimbia lobulata* (Sommerf.) Hafellner & Coppins – Loc. 72: on mosses
- Bilimbia sabuletorum* (Schreb.) Arnold – Loc. 40, 72: on mosses
- Blastenia crenularia* (With.) Arup, Söchting & Frödén – Loc. 23, 27, 69, 78: on siliceous rock
- Blastenia ferruginea* (Huds.) A. Massal. – Loc. 85: on *Quercus* sp.
- Blennohallia crispa* (Weber ex F.H. Wigg.) Otálora, P.M. Jørg & Wedin – Loc. 81: on mosses
- Buellia aethalea* (Ach.) Th. Fr. – Loc. 65, 67: on siliceous rock
- # *Buellia badia* (Fr.) A. Massal. – Loc. 23, 27: on *Lecanora rupicola*, 29, 32, 34, 40, 50, 76, 85: on *Xanthoparmelia tinctina*
- Buellia epigaea* (Hoffm.) Tuck. – Loc. 23, 25, 27: on soil
- + * *Buellia vouauxii* Calat. & Barreno – Loc. 33: on *Rhizoplaca melanophthalma*
- *Calogaya biatorina* (A. Massal.) Arup, Frödén & Söchting – Loc. 11: on siliceous rock
- Calogaya decipiens* (Arnold) Arup, Frödén & Söchting – Loc. 11, 12, 13, 21, 38, 39, 46, 48, 55, 72, 28, 85: on calcareous rock
- Calogaya lobulata* (Flörke) Arup, Frödén & Söchting – Loc. 3, 13, 14, 21, 48, 64, 69, 72, 73: on *Quercus* sp., 32, 43, 34, 42, 44, 45: on *Populus* sp., 33: on *Berberis* sp., 62, 63, 68: on *Morus* sp.
- Calogaya saxicola* (Hoffm.) Vondrák – Loc. 1, 3, 7, 8, 9, 11, 12, 13, 14, 21, 22, 23, 27, 29, 32, 33, 34, 38, 39, 40, 42, 44, 46, 48, 50, 53, 55, 61, 62, 64, 66, 70, 76, 78, 81: on calcareous rock
- *Calogaya schistidii* (Anzi) Arup, Frödén & Söchting – Loc. 72: on mosses
- Caloplaca albolutescens* (Nyl.) H. Olivier – Loc. 22, 23, 27, 33, 34, 50, 54: on calcareous rock
- Caloplaca anactina* (Fr.) Häyrén – Loc. 7, 50: on siliceous rock
- Caloplaca areolata* (Zahlbr.) Clauzade – Loc. 64, 67: on calcareous rock
- Caloplaca atroflava* (Turner) Mong – Loc. 27, 28, 34, 36, 42, 48, 50, 58, 62, 64, 67, 68, 83, 85, 86: on calcareous rock
- Caloplaca ceracea* J.R. Laundon – Loc. 12, 22, 23, 27, 32, 53, 78: on siliceous rock
- *Caloplaca cerina* (Hedw.) Th. Fr. var. *cerina* – Loc. 1, 46, 71: on *Quercus* sp. 7: on *Juglans* sp., 11, 13, 14, 15, 21, 22, 23, 25, 28a, 32, 34, 40, 55: on mosses, 27: on *Berberis* sp. 33: on *Populus* sp., 48: on *Salix* sp., 58, 62: on *Quercus* sp. and *Juglans* sp., 63: on *Morus* sp. and *Juglans* sp., 67, 68: on *Morus* sp., 70: on *Pyrus elaeagnifolia*, 72, 87, 88, 73: on *Populus* sp., 84: on *Juglans* sp.
- *Caloplaca cerina* (Hedw.) Th. Fr. var. *chloroleuca* (Sm.) Th. Fr. – Loc. 7, 33, 40: on mosses
- Caloplaca chlorina* (Flot.) Sandst. – Loc. 3: on *Quercus* sp., 38, 39, 49, 67, 69: on siliceous rock
- Caloplaca fuscoatroides* J. Steiner – Loc. 23, 27, 32: on siliceous rock
- # – *Caloplaca grimmiae* (Nyl.) H. Olivier – Loc. 22, 23, 27, 32, 33: on *Candelariella vitellina*
- Caloplaca inconnexa* (Nyl.) Zahlbr. – Loc. 11, 12, 38: on siliceous rock
- *Caloplaca lactea* (A. Massal.) Zahlbr. – Loc. 40, 43, 63, 70, 72: on siliceous rock
- Caloplaca necator* Poelt & Clauzade – Loc. 54: on siliceous rock
- Caloplaca obscurella* (J. Lahm.) Th. Fr. – Loc. 62: on siliceous rock (this species is epiphytic but growing on rock is interesting)
- Caloplaca pelloidella* (Nyl.) Hasse – Loc. 2, 22, 33, 42: on siliceous rock
- Caloplaca soralifera* Vondrák & Hrouzek. – Loc. 41, 48, 50, 54: on calcareous rock
- *Caloplaca variabilis* (Pers.) Müll. Arg. – Loc. 1, 2, 8, 9, 11, 12, 23, 27, 34, 38, 39, 44, 46, 48, 49, 52, 55, 61, 63, 64, 66, 67, 68, 69, 70, 71, 72, 76, 77, 80, 81: on siliceous rock
- Caloplaca xerica* Poelt & Vězda – Loc. 27: on calcareous rock
- Candelaria concolor* (Dicks.) Arnold – Loc. 66: on *Quercus* sp.
- Candelariella aurella* (Hoffm.) Zahlbr. – Loc. 1, 9, 11, 12, 13, 23, 34, 38, 39, 40, 42, 44, 46, 48, 69, 71, 72, 73, 78, 79, 80, 81, 84 on *Quercus* sp., 3: on *Quercus* sp. and *Juglans* sp., 4, 7, 55, 49, 50, 61, 62: on *Juglans* sp., 14, 17, 21, 22, 24: on *Pyrus* sp., 27, 29: on *Berberis* sp., 33: on soil and *Berberis* sp., 63, 64, 65, 66, 67, 68: on *Morus* sp., 70: on *Pyrus elaeagnifolia*, 76: on *Alnus glutinosa*
- Candelariella kuusamoensis* Räsänen – Loc. 21: on mossy rock.
- Candelariella reflexa* (Nyl.) Lettau – Loc. 4: on *Juglans* sp., 42, 44, 5, 50, 59, 74: on *Populus* sp., 43: on *Salix* sp., 46, 48, 55, 73: on *Quercus* sp.
- *Candelariella vitellina* (Hoffm.) Müll. Arg. – Loc. 1, 2, 7, 8, 9, 11, 12, 13, 21, 22, 23, 28, 27, 29, 31, 32, 34, 37, 39, 40, 42, 43, 44, 46, 47, 49, 50, 53, 54, 55, 60, 61, 62, 64, 66, 67, 70, 71, 72, 74, 76, 77, 78, 79, 80, 81, 82, 84: on siliceous rock, 33: on mosses and soil, 48: on *Salix* sp.
- Candelariella xanthostigma* (Pers. ex Ach.) Lettau – Loc. 54: on *Populus* sp. 73: on *Quercus* sp.

- + *Carbonea vitellinaria* (Nyl.) Hertel – Loc. 23, 27, 33, 49, 50: on *Candelariella vitellina*
- + *Carbonea vorticosa* (Flörke) Hertel – Loc. 12, 13, 21, 23, 27, 33, 34, 38, 39, 40, 62: on *Lecidella carpathica*
- Catapyrenium daedaleum* (Kremp.) Stein – Loc. 71, 77: on soil
- Catapyrenium squamulosum* (Ach.) Breuss – Loc. 7, 40, 67: on soil
- + *Cercidospora melanophthalmae* Nav.-Ros., Calat. & Hafellner – Loc. 23, 34: on *Rhizoplaca melanophthalma*
- *Circinaria caesiocinerea* (Nyl. Ex Malbr.) A. Nordin, Savić & Tibell – Loc. 1, 2, 3, 4, 7, 8, 21, 22, 23, 27, 32, 33, 34, 38, 39, 40, 42, 46, 48, 49, 50, 55, 62, 63, 64, 67, 68, 69, 70, 76, 78, 79, 80, 81, 82: on calcareous rock
- Circinaria calcarea* (L.) A. Nordin Savić & Tibell – Loc. 1, 2, 3, 4, 7, 9, 12, 13, 32, 38, 39, 40, 42, 49, 54, 55, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 76, 79, 80, 81, 82, 83, 84, 86, 88: on calcareous rock
- *Circinaria contorta* (Hoffm.) A. Nordin, Savić & Tibell – Loc. 1, 7, 12, 21, 22, 23, 27, 29, 34, 39, 40, 45, 50, 51, 53, 54, 55, 61, 62, 63, 64, 66, 67, 69, 70, 71, 72, 79, 81, 84, 89: on calcareous rock
- Circinaria fruticulosa* (Eversm.) Sohrabi – Loc. 69: on soil
- Circinaria hoffmanniana* (S. Ekman & Fröberg ex R. Sant.) A. Nordin – Loc. 27, 39, 49, 50, 53, 72: on calcareous rock
- Cladonia coniocraea* (Flörke) Spreng. – Loc. 55: on soil
- Cladonia foliacea* (Huds.) Willd. – Loc. 50: on soil and mosses
- Cladonia pyxidata* (L.) Hoffm. – Loc. 1, 2, 3, 4, 5: on soil and mosses, 27, 40, 46, 48, 50, 55, 83: on mosses
- Collema auriforme* (With.) Coppins & J.R. Laundon – Loc. 4, 66: on mosses
- Collema flaccidum* (Ach.) Ach. – Loc. 34, 86, 89: on siliceous rock
- Collema polycarpon* Hoffm. – Loc. 65: on siliceous rock
- Collema subflaccidum* Degel. – Loc. 34: on siliceous rock
- Collema tenax* (Sw.) Ach. – Loc. 1, 4, 7, 11, 12, 21, 28, 29, 32, 34, 38, 39, 42, 48, 49, 54, 56, 68, 69, 70, 71, 72, 76, 78, 80, 81, 83, 86, 89. 61, 62, 63, 64, 65, 66, 67: on mosses and soil
- + *Dactylospora homoclinella* (Nyl.) Hafellner – Loc. 78: on *Aspicilia cinerea*
- Dermatocarpon intestiniforme* (Körb.) Hasse – Loc. 7, 12, 33, 40: on siliceous rock
- Dermatocarpon miniatum* (L.) W. Mann – Loc. 1, 2, 3, 14, 33, 34, 40, 42, 44, 54, 57, 61, 63, 64, 66, 67, 68, 69, 70, 71, 76, 80, 81: on siliceous rock
- Dimelaena oreina* (Ach.) Norman – Loc. 12, 21, 23, 27, 32, 33, 34, 42, 44, 46, 61, 78, 79, 80, 82: on siliceous rock
- Dimelaena radiata* (Tuck.) Hale & W.L. Culb. – Loc. 79, 80: on siliceous rock
- Diploschistes caesioplumbeus* (Nyl.) Vain. – Loc. 40: on calcareous rock
- Diploschistes diacapsis* (Ach.) Lumsch – Loc. 55: on siliceous rock
- Diploschistes gypsaceus* (Ach.) Zahlbr. – Loc. 27: on siliceous rock
- Diploschistes muscorum* (Scop.) R. Sant. – Loc. 40: on mosses, 55: on soil
- Diploschistes ocellatus* (Fr.) Norman – Loc. 8, 12, 63, 67: on calcareous rock
- Diploschistes scruposus* (Screb.) Norman – Loc. 7, 8, 9, 13, 14, 23, 34, 40, 50, 55, 62, 67, 80, 84: on siliceous rock
- Diplotomma alboatrum* (Hoffm.) Flot. – Loc. 7, 9, 12, 27, 28, 29, 34, 38, 39, 40, 43, 49, 61, 66, 67, 68, 69, 71, 79, 80, 81, 84, 89: on calcareous rock
- Diplotomma epipolium* (Ach.) Arnold – Loc. 12, 22, 49, 61, 68, 72, 81: on calcareous rock
- Diplotomma venustum* (Körb.) Körb. – Loc. 22, 61, 64, 69: on calcareous rock
- Enchylium conglomeratum* (Hoffm.) Otálora, P.M. Jørg. & Wedin – Loc. 11, 69: on *Quercus* sp.
- Endocarpon adscendens* (Anzi) Müll. Arg. – Loc. 5, 6, 9, 32, 39, 54: on soil
- Endocarpon pallidum* Ach. – Loc. 68: on soil
- Endocarpon pusillum* Hedw. – Loc. 7, 68: on soil
- + *Endococcus macrosporus* (Hepp ex Arnold) Nyl. – Loc. 34: on *Rhizocarpon geographicum*
- + *Endococcus rugulosus* Nyl. – Loc. 12: on *Aspicilia cinerea*
- # *Endohyalina insularis* (Arnold) Giralt, van den Boom & Elix – Loc. 39: on *Lecanora rupicola*
- *Flavoplaca coronata* (Kremp. ex Körb.) Arup, Frödén & Söchting – Loc. 11, 12, 13, 14, 38, 39, 50: on calcareous rock
- Flavoplaca flavocitrina* (Nyl.) Arup, Frödén & Söchting – Loc. 33, 46, 54: on calcareous rock
- *Fulgensia bracteata* (Hoffm.) Räsänen var. *bracteata* – Loc. 38, 51, 63: on soil
- Gallowayella fulva* (Hoffm.) S.Y. Kondr., Fedorenko, S. Stenroos, Kärnefelt, Elix, Hur & A. Thell – Loc. 7, 62: on *Juglans* sp., 30, 68: on *Morus* sp., 33: on *Berberis* sp., 25, 28a, 32, 34, 40, 44, 45, 50: on *Populus* sp., 46, 55, 59: on *Salix* sp., 13, 14, 19, 42, 43, 48, 61, 65, 69, 70, 73, 85: on *Quercus* sp.
- Gyalolechia flavorubescens* (Huds.) Söchting, Frödén & Arup – Loc. 1: on *Salix* sp. and *Quercus* sp., 7: on *Juglans* sp., 68: on *Morus* sp.
- Gyalolechia flavovirescens* (Wulfen) Söchting, Frödén & Arup – Loc. 2, 29, 49, 61, 64, 66, 70: on calcareous rock
- Gyalolechia fulgens* (Sw.) Söchting, Frödén & Arup – Loc. 32: on mosses
- Heteroplacidium compactum* (A. Massal.) Gueidan & Cl. Roux – Loc. 12, 49, 61, 72: on siliceous rock
- Immersaria athrocarpa* (Ach.) Rambold & Pietschm. – Loc. 1, 2, 3, 4, 7, 8, 9, 10, 12, 13, 14, 17, 21, 22, 23, 27, 28, 31, 32, 33, 34, 37, 40, 42, 44, 46, 49, 50, 53, 54, 55, 56, 61, 62, 64, 67, 68, 69, 71, 76, 78, 79, 80, 81, 84, 85, 88: on siliceous rock
- Ionaspis lacustris* (With.) Lutzoni – Loc. 23, 26: on siliceous rock
- Lathagrium cristatum* (L.) Otálora, P.M. Jørg. & Wedin – Loc. 1, 12, 31, 34, 49, 61, 63, 64, 65, 66, 68, 69, 70, 72, 81, 83 on calcareous rock, 67: on calcareous rock and soil
- Lathagrium fuscovirens* (With.) Otálora, P.M. Jørg & Wedin – Loc. 40, 61, 64, 65, 71: on calcareous rock
- Lecania erysibe* (Ach.) Mudd – Loc. 33: on calcareous rock
- Lecania fuscella* (Schaer.) A. Massal. – Loc. 73: on *Quercus* sp.
- Lecania inundata* (Hepp ex Körb.) M. Mayrhofer – Loc. 39, 48, 54, 63: on calcareous rock

- Lecania olivacella* (Nyl.) Zahlbr. – Loc. 50: on calcareous rock
- Lecania rabenhorstii* (Hepp) Arnold – Loc. 12, 40, 49, 71: on calcareous rock
- Lecania turicensis* (Hepp) Müll. Arg. – Loc. 38, 39, 48, 50, 54, 55, 63: on calcareous rock
- Lecanora alpigena* (Ach.) Cl. Roux – Loc. 11, 12, 13, 23, 27, 33, 49, 50, 58, 88: on siliceous rock
- Lecanora argentata* (Ach.) Röhl. – Loc. 11: on *Populus* sp., 12: on *Quercus* sp., 63: on *Juglans* sp.
- Lecanora argopholis* (Ach.) Ach. – Loc. 7, 9, 11, 12, 13, 14, 21, 22, 23, 27, 32, 34, 40, 42, 44, 46, 50, 51, 54, 61, 67: on siliceous rock
- Lecanora bicincta* Ramond var. *bicincta* – Loc. 7, 9, 14, 23, 27, 33, 34, 40: on siliceous rock
- Lecanora caesiosora* Poelt – Loc. 27: on siliceous rock
- Lecanora cenisia* Ach. – Loc. 7, 13, 14, 23, 27, 33, 40, 54, 74: on siliceous rock
- Lecanora concolor* Ramond – Loc. 12, 66, 69: on calcareous rock
- Lecanora conizaeoides* Nyl. ex Cromb. – Loc. 13 on *Quercus* sp.
- Lecanora frustulosa* (Dicks.) Ach. – Loc. 12, 13, 49, 51: on siliceous rock
- Lecanora gangaleoides* Nyl. – Loc. 40, 54, 82: on siliceous rock
- Lecanora garovaglii* (Körb.) Zahlbr. – Loc. 2, 7, 8, 9, 11, 12, 21, 22, 27, 32, 33, 34, 39, 42, 44, 50, 54, 55, 56, 76, 78, 79, 80, 82: on siliceous rock
- Lecanora intricata* (Ach.) Ach. – Loc. 2, 3, 12, 21, 23, 27, 28, 32, 34, 40, 42, 43, 44, 49, 50, 64, 66, 76, 78, 79, 80, 82: on siliceous rock
- Lecanora intumescens* (Rebent.) Rabenh. – Loc. 62: on *Juglans* sp.
- Lecanora pannonica* Szatala – Loc. 3, 4, 6, 7, 23, 40, 67: on siliceous rock
- Lecanora rupicola* (L.) Zahlbr. – Loc. 7, 8, 9, 16, 21, 23, 27, 28, 29, 32, 33, 34, 39, 40, 49, 50, 55, 72, 73: on siliceous rock
- Lecanora rupicola* var. *efflorens* Leuckert & Poelt – Loc. 3, 7, 9, 23, 27, 29, 40, 49, 50: on siliceous rock
- Lecanora subcarnea* (Sw.) Ach. var. *subcarnea* – Loc. 23, 33: on siliceous rock
- *Lecanora subcarnea* (Sw.) Ach. var. *soralifera* H. Magn. – Loc. 23: on calcareous rock
- Lecanora sulphurea* (Hoffm.) Ach. – Loc. 23, 27: on siliceous rock
- Lecanora swartzii* (Ach.) Ach. – Loc. 23, 27, 32, 33, 50: on siliceous rock
- Lecidea atrobrunnea* (DC.) Schaer. – Loc. 7, 21, 23, 27, 32, 33, 34, 54: on siliceous rock
- Lecidea auriculata* Th. Fr. – Loc. 23, 27: on siliceous rock
- Lecidea fuscoatra* (L.) Ach. – Loc. 1, 7, 9, 11, 12, 15, 22, 23, 27, 32, 33, 34, 37, 40, 42, 43, 44, 46, 50, 53, 54, 55, 58, 64, 66, 68, 71, 80, 81, 84: on siliceous rock
- Lecidea grisella* Flörke – Loc. 1, 27, 32: on siliceous rock
- Lecidea lapicida* (Ach.) Ach. – Loc. 31: on siliceous rock
- Lecidea plana* (J. Lahm.) Nyl. – Loc. 8, 21, 27, 29, 32, 33, 55: on siliceous rock
- Lecidea promiscua* Nyl. – Loc. 7, 13: on siliceous rock
- Lecidea sarcogynoides* Körb. – Loc. 4, 5, 7, 8, 9, 12, 22, 23, 27, 28, 32, 34, 37, 64, 78, 80, 86, 87, 89: on siliceous rock
- Lecidea tessellata* Flörke – Loc. 1, 11, 12, 32, 64, 71, 78, 80, 81: on siliceous rock
- Lecidella carpathica* (Körb.) Szatala – Loc. 1, 3, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 21, 22, 23, 27, 32, 33, 34, 38, 39, 40, 42, 43, 44, 49, 50, 53, 55, 57, 62, 66, 68, 69, 70, 78, 79, 80, 81, 82: on calcareous rock
- Lecidella patavina* (A. Massal.) Knoph & Leuckert – Loc. 11, 12, 13, 34, 39, 49: on siliceous rock
- Lecidella stigmatea* Ach. – Loc. 7, 9, 11, 12, 13, 14, 23, 27, 28a, 32, 33, 36, 39, 40, 50, 53, 62, 64, 67, 71, 76, 78, 79, 80, 83, 89: on calcareous rock
- Lempholemma polyanthes* (Schrad.) Malme – Loc. 34, 72: on calcareous rock
- Lepraria incana* (L.) Ach. – Loc. 1, 7, 12, 13, 14, 23, 27, 40, 46, 48, 50, 54, 55, 58, 65, 67, 72, 74, 76, 80, 83: on calcareous rock
- Lepraria lobificans* Nyl. – Loc. 3, 27, 48, 55: on mosses
- Lepraria membranacea* Lynge – Loc. 32, 33, 40, 46, 48, 50, 54, 55, 67, 80: on mosses
- Lepraria nivalis* J.R. Laundon – Loc. 27, 40, 55: on mosses
- Lepraria vouauxii* (Hue) R.C. Harris – Loc. 40, 46, 48, 55, 67, 80: on mosses
- Leproplaca chrysodeta* (Vain.) J.R. Laundon ex Ahti – Loc. 55: on calcareous rock
- Leproplaca xantholyta* (Nyl.) Nyl. – Loc. 29, 38, 39, 83: on calcareous rock
- Leptochidium albociliatum* (Desm.) M. Choisy – Loc. 40: on mosses
- Leptogium cyanescens* (Rabenh.) Körb. – Loc. 71: on mosses
- Leptogium teretiusculum* (Flöheke ex Wallr.) Arnold – Loc. 2, 40, 55, 69: on *Quercus* sp.
- + *Lichenostigma rouxii* Nav.-Ros., Calat. & Hafellner – Loc. 63: on *Squamarina cartilaginea*
- + *Llimoniella muralicola* Halıcı – Loc. 33, 54: on *Protoparmeliopsis muralis*
- Lobothallia alphoplaca* (Wahlenb.) Hafellner – Loc. 23, 27, 40, 41, 64, 83: on siliceous rock
- Lobothallia cheresina* (Müll. Arg.) A. Nordin, Cl. Roux & Sohrabi – Loc. 8, 12, 14, 27, 38, 49, 61, 62, 63, 64, 69, 70, 72, 77, 81, 86, 89: on calcareous rock
- Lobothallia praevalida* (Nyl.) Hafellner – Loc. 4, 8, 12, 13, 27, 40, 42, 43, 44, 48, 51, 55, 62, 63, 68, 69, 70, 78, 80, 83, 86, 89: on siliceous rock
- Lobothallia radiosa* (Hoffm.) Hafellner – Loc. 1, 2, 3, 4, 7, 8, 9, 11, 12, 13, 14, 21, 22, 23, 27, 33, 34, 38, 39, 40, 42, 43, 44, 48, 50, 53, 55, 61, 62, 63, 64, 66, 67, 68, 69, 70, 71, 72, 76, 79, 80, 81, 83: on siliceous rock
- Lobothallia recedens* (Taylor) A. Nordin, Savić & Tibell – Loc. 2, 22, 33, 34, 40, 42, 72, 76, 80: on siliceous rock
- Megaspora verrucosa* (Ach.) Hafellner & V. Wirth – Loc. 32, 33, 34, 40, 52: on soil
- Melanelia subargentifera* (Nyl.) Essl. – Loc. 55: on mosses
- Melanelia subaurifera* (Nyl.) Essl. – Loc. 73: on *Quercus* sp., 26, 59, 84, 87, 89: on *Pyrus* sp.
- Melanelixia glabra* (Schaer.) O. Blanco, A. Crespo, Divakar, Essl., D., Hawksw. & Lumbsch – Loc. 1, 69: on *Quercus* sp.
- Melanohalea elegantula* (Zahlbr.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawks. & Lumbsch – Loc. 21, 72: on siliceous rock

- Melanohalea infumata* (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – Loc. 3, 7, 8, 9, 11, 12, 13, 21, 34, 40, 42, 44, 54, 55, 78, 83: on mosses, 22, 23, 27, 29, 32, 33: on *Berberis* sp. and mosses, 72: on *Quercus* sp., 43: on calcareous rock
- Miriquidica deusta* (Stenh.) Hertel & Rambold – Loc. 1, 12, 32, 33, 55, 80: on siliceous rock
- Montanelia soreliata* (Ach.) Divakar, A. Crespo, Wedin & Essl. – Loc. 80: on siliceous rock
- + *Muellerella erratica* (A. Massal) Hafellner & Volk. John – Loc. 81: on *Lecidea tessellata*
- + *Muellerella pygmaea* (Körb.) D. Hawksw. – Loc. 34: on *Immersaria athroocarpa*, 21: on *Aspicilia* sp., 27: on *Aspicilia cinerea*
- + *Muellerella ventosicola* (Mudd) D. Hawksw. – Loc. 34: on *Rhizocarpon geographicum*
- Myriolecis albescens* (Hoffm.) Śliwa, Zhao Xin & Lumbsch – Loc. 12, 23, 27, 38, 39, 42, 43, 44, 49, 50, 53, 54, 55, 64, 65, 66, 68, 69, 71: on calcareous rock
- Myriolecis crenulata* (Ach.) Śliwa, Zhao Xin & Lumbsch – Loc. 7, 8, 9, 11, 12, 13, 14, 21, 22, 23, 27, 34, 38, 39, 42, 44, 49, 52, 55, 61, 66, 67, 69, 70, 71, 78, 81: on calcareous rock
- Myriolecis dispersa* (Pers.) Śliwa, Zhao Xin & Lumbsch – Loc. 1, 2, 3, 4, 7, 9, 11, 12, 13, 14, 21, 22, 23, 28, on *Populus* sp., 32, 33, 49, 79, 80, 81, 82: on *Populus* sp., 34, 37, 38, 39, 40, 42, 43, 44, 46, 48, 50, 54, 55, 57, 61, 72, 73, 77, 88: on *Quercus* sp., 62, 63, 64, 65, 66, 67, 68, 69, 70, calcareous rock and *Juglans* sp., 27: on calcareous rock, 71: on calcareous rock and *Quercus* sp., 78: on *Alnus glutinosa*, 76: on *Alnus glutinosa*, 89: on *Pyrus* sp. and calcareous rock
- Myriolecis hagenii* (Ach.) Śliwa, Zhao Xin & Lumbsch – Loc. 1, 2, 3, 48, 50, 55, 61, 69, 70, 71, 72, 73, 89: on *Quercus* sp., 4, 62: on *Juglans* sp., 21, 22, 23, 24: on *Prunus* sp., 27, 29, 32, 33: on *Berberis* sp., 34, 40, 42, 44: *Populus* sp., 64, 68: on *Morus* sp.
- Myriolecis invadens* (H. Magn.) Śliwa, Zhao Xin & Lumbsch. – Loc. 34, 71: on soil
- Myriolecis semipallida* (H. Magn.) Śliwa, Zhao Xin & Lumbsch – Loc. 23, 34, 39, 50, 63, 67, 78, 81: on calcareous rock
- + *Nesolechia fusca* (Triebl & Rambold) Pérez-Ort. – Loc. 79: on *Xanthoparmelia tinctoria*, 80: on *Xanthoparmelia pulla*
- Ochrolechia subviridis* (Høeg) Erichsen – Loc. 13, 67: on calcareous rock
- Oxneria fallax* (Arnold) S.Y. Kondr. & Kärnefelt – Loc. 24, 16, 17, 56, 62, 73: on *Quercus* sp. and *Prunus* sp., 10: on *Prunus* sp., 15, 20, 35, 58: on *Populus* sp.
- Parmelina tiliacea* (Hoffm.) Hale – Loc. 21, 22, 26, 32, 33, 34, 40, 50, 53, 55, 82, 88: on mosses, 69: on *Quercus* sp.
- Parvoplaca tirolionis* (Zahlbr.) Arup, Søchting & Frödén – Loc. 40, 48, 72: on mosses
- Peltigera canina* (L.) Willd. – Loc. 7, 23, 27, 38, 39, 40, 55, 65, 66, 69: on mosses
- Peltigera horizontalis* (Huds.) Baumg. – Loc. 71: on mosses
- Peltigera neckeri* Hepp ex Müll. Arg. – Loc. 55: on mosses
- Peltigera ponojensis* Gyeln. – Loc. 7, 39, 71: on mosses
- Peltigera praetextata* (Flörke ex Sommerf.) Zopf – Loc. 40: on soil and mosses, 83: on mosses
- Peltigera rufescens* (Weiss.) Humb. – Loc. 1, 2, 4, 5, 7, 9, 12, 14, 21, 23, 27, 40, 48, 55, 62, 65, 66, 67, 68, 71, 72, 80: on mosses, 6: on soil
- Peltula euploca* (Ach.) Poelt ex Pišút – Loc. 2: on siliceous rock
- Pertusaria coccodes* (Ach.) Nyl. – Loc. 27: on siliceous rock
- Pertusaria excludens* Nyl. – Loc. 7, 22, 62, 67, 80, 88: on siliceous rock
- Pertusaria flavicans* Lamy – Loc. 80: on siliceous rock.
- Phaeophyscia cernohorskyi* Nád. – Loc. 7, 8, 11, 12, 13, 14, 22, 27, 32, 34, 38, 39, 40, 42, 61, 62, 78: on mosses, 55, 64, 74, 80: on calcareous rock
- Phaeophyscia ciliata* (Hoffm.) Moberg – Loc. 62: on *Quercus* sp.
- Phaeophyscia endococcina* (Körb.) Moberg – Loc. 13, 23, 27, 32, 39, 40, 58: on calcareous rock
- Phaeophyscia nigricans* (Flörke) Moberg – Loc. 3, 11, 14, 28c, 78: calcareous rock
- Phaeophyscia orbicularis* (Neck.) Moberg – Loc. 2, 3, 16, 17, 18, 28c, 35, 36, 48, 50, 51, 53, 56, 59, 60, 61, 64, 65, 69, 72, 85, 86: on *Quercus* sp., 1: on *Populus* sp. and *Quercus* sp., 70, 71: on *Prunus* sp. and *Quercus* sp., 30, 11, 22, 28a, 88, 12, 14, 78: on *Pyrus* sp., 4, 7, 62: on *Juglans* sp., 68: on *Morus* sp., 63: on *Juglans* sp. and *Morus* sp., 24, 84: on *Prunus* sp., 38, 39, 46: on *Salix* sp., 73: on *Populus* sp., 76: on *Alnus glutinosa*
- Phaeophyscia sciastra* (Ach.) Moberg – Loc. 23, 27: on siliceous rock
- Physcia adscendens* H. Olivier – Loc. 1, 16, 19, 25, 28c, 71, 73: on *Quercus* sp., 32, 44: on *Salix* sp. and *Populus* sp., 41: on *Salix* sp., 43, *Salix* sp. and *Quercus* sp., 15, 45, 57, 60, 84: on *Populus* sp., 76: on *Alnus glutinosa*, 85, 87: on *Salix* sp.
- Physcia aipolia* (Ehrh. Ex Humb.) Fűrnr. – Loc. 10, 14, 19, 25, 43, 46, 50, 60, 61, 71, 72: on *Quercus* sp., 20, 25: on *Pyrus* sp., 13, 20, 23, 26, 28a, 30, 32, 33, 34, 35, 40, 42, 45, 58, 88: on *Populus* sp., 44, 57: on *Salix* sp., 36, 21: on *Pyrus* sp., *Salix* sp. and *Populus* sp., 38, 39: on *Salix* sp. and *Populus* sp.
- Physcia biziana* (A. Massal.) Zahlbr. – Loc. 3, 7, 12, 13, 14, 27, 40, 42, 43, 44, 46, 50, 62, 72, 69, 71: on *Quercus* sp., 24: on *Prunus* sp., 78, 29: on *Prunus* sp., 33: on *Populus* sp., 63: on *Morus* sp. and *Juglans* sp., 64: on *Morus* sp. and *Quercus* sp., 70: on *Pyrus elaeagnifolia* and *Quercus* sp., 76: on *Alnus glutinosa*
- Physcia caesia* (Hoffm.) Hampe ex Fűrnr. – Loc. 14, 23, 27, 28, 29, 33, 40, 83, 89: on calcareous rock, 43, 44, 55, 62, 70, 82: on mosses
- Physcia dimidiata* (Arnold) Nyl. – Loc. 1, 2, 3, 21, 31, 39, 55, 73, 74: on mossy rock, 24: on mossy body of *Prunus* sp., 32: on mossy body of *Berberis* sp., 66, 68: on mossy body of *Morus* sp.
- Physcia dubia* (Hoffm.) Lettau – Loc. 1: on calcareous rock and *Salix* sp., 2: 3: on *Quercus* sp., 23, 34: on *Populus* sp., 33, 40: on *Berberis* sp. and mosses, 6, 7, 8, 9, 11, 12, 13, 14, 21, 22, 27, 29, 32, 38, 39, 44, 45, 47, 49, 50, 55, 61: on mosses, 42, 43, 46, 54, 48, 62, 64, 66, 67, 69, 73, 79, 78, 80, 81, 82, 74, 77, 85, 86, 87, 88, 89: on calcareous rock
- *Physcia stellaris* (L.) Nyl. – Loc. 1, 3, 70: on *Quercus* sp., 76: *Quercus* sp. and *Alnus glutinosa*, 59: on *Alnus glutinosa*

- Physcia tenella* (Scop.) DC. – Loc. 68: on *Morus* sp., 71: on *Quercus* sp., 76: on *Alnus glutinosa*
- *Physcia tribacia* (Ach.) Nyl. – Loc. 67: on mossy body of *Quercus* sp.
- Physconia detersa* (Nyl.) Poelt – Loc. 21, 22: on mossy body of *Quercus* sp.
- Physconia distorta* (With.) J.R. Laundon – Loc. 1: on *Populus* sp. and *Quercus* sp., 2, 3, 13, 14, 25, 32, 40, 43, 44, 46, 61, 65, 69, 71: on *Quercus* sp., 4: on *Juglans* sp., 19: on *Prunus* sp., 27: on *Berberis* sp., 48: on *Populus* sp., 62: on *Quercus* sp. and *Juglans* sp., 63: on *Juglans* sp., 68: on *Morus* sp., 73, 76, 87, 89: on *Alnus glutinosa*
- Physconia enteroxantha* (Nyl.) Poelt – Loc. 21, 55, 62: on mosses
- *Physconia grisea* (Lam.) Poelt – Loc. 8, 52: on mossy body of *Quercus* sp.
- Physconia muscigena* (Ach.) Poelt – Loc. 7, 9, 12, 21, 22, 24, 27, 32, 55, 62, 76, 80, 74: on mossy rocks
- Physconia perisidiosa* (Erichsen) Moberg – Loc. 2, 7, 9, 21, 23, 27, 32, 50, 52, 55, 62, 73, 74: on mossy body of *Quercus* sp.
- Physconia venusta* (Ach.) Poelt – Loc. 2: on *Quercus* sp.
- Placocarpus schaeferi* (Fr.) Breuss – Loc. 10, 29, 31, 38, 38, 52, 63, 69, 77 on calcareous rock
- Placopyrenium bucekii* (Nádv. & Servít) Breuss – Loc. 2, 3, 44, 46, 55, 64, 66, 68, 69: on siliceous rock
- Placopyrenium iranicum* Breuss – Loc. 9, 41, 44, 54, 78: on siliceous rock
- Placopyrenium trachyticum* (Hazsl.) Breuss – Loc. 1, 2, 7, 9, 12, 14, 32, 40, 44, 46, 48, 64, 66, 67, 69, 70, 71, 81: on siliceous rock
- Placynthium hungaricum* Gyeln. – Loc. 72: on calcareous rock
- Placynthium nigrum* (Huds.) Gray – Loc. 2, 9, 11, 13, 14, 28b, 32, 38, 39, 61, 63, 64, 65, 66, 67, 69, 70, 71, 72, 74, 81: on on calcareous rock
- Placynthium posterulum* (Nyl.) Henssen – Loc. 34: on calcareous rock
- Placynthium stenophyllum* (Tuck) Fink – Loc. 1: on calcareous rock
- Polyblastia cupularis* A. Massal. – Loc. 63, 71: on calcareous rock
- *Polycauliona candelaria* (L.) Frödén, Arup & Søchting – Loc. 64: on calcareous rock
- + *Polycoccum pulvinatum* (Eiher) R. Sant. – Loc. 11: on *Physcia* sp.
- Polysporina simplex* (Taylor) Vězda – Loc. 6, 8, 9, 78: on siliceous rock
- Protoblastenia incrustans* (DC.) J. Steiner – Loc. 71: on calcareous rock
- Protoblastenia rupestris* (Scop.) Steiner – Loc. 71, 72: on calcareous rock
- Protoparmelia atriseda* (Fr.) R. Sant. & V. Wirth – Loc. 78, 79, 80: on calcareous rock
- Protoparmelia badia* (Hoffm.) Hafellner – Loc. 81: on siliceous rock
- Protoparmeliopsis bolcana* (Pollini) Lumbsch – Loc. 21, 22, 23, 27, 42, 54, 80, 82: on siliceous rock
- Protoparmeliopsis klauskalbii* (Sipman) Şenkard. – Loc. 63: on calcareous rock
- Protoparmeliopsis laatokkensis* (Räsänen) Moberg & R. Sant. – Loc. 7, 21, 22, 23, 40, 61, 68, 78, 80: on siliceous rock
- Protoparmeliopsis macrocyclos* (H. Magn.) Moberg & R. Sant. – Loc. 40: on siliceous rock
- *Protoparmeliopsis muralis* (Schreb.) M. Choisy – Loc. 1, 2, 4, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 21, 22, 23, 27, 28, 28a, 28b, 28c, 29, 31, 32, 33, 34, 36, 37, 38, 39, 40, 42, 44, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 58, 59, 61, 62, 63, 64, 65, 66, 72, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 88, 89: on calcareous rock, 67, 68, 69, 70, 71: on calcareous rock and mosses.
- Psora decipiens* (Hedw.) Hoffm. – Loc. 23, 27, 34, 71, 52: on soil
- Psora testacea* Hoffm. – Loc. 63: on soily rock
- Psora vallesiaca* (Schaer.) Timdal – Loc. 63, 71, 72: on soil
- Psorotichia schaeferi* (A. Massal.) Arnold – Loc. 72: on calcareous rock
- Pyrenopsis subareolata* Nyl. – Loc. 66: on siliceous rock
- Ramalina capitata* (Ach.) Nyl. – Loc. 21, 24, 32, 33, 34, 52, 55: on siliceous rock
- Ramalina pollinaria* (Westr.) Ach. – Loc. 55: on siliceous rock
- Rhizocarpon disporum* (Nägeli ex Hepp) Müll. Arg. – Loc. 3, 7, 27, 62, 79, 80: on siliceous rock
- Rhizocarpon distinctum* Th. Fr. – Loc. 11: on siliceous rock
- Rhizocarpon geminatum* Körb. – Loc. 8, 40, 42, 52, 79: on siliceous rock
- Rhizocarpon geographicum* (L.) DC. – Loc. 2, 3, 4, 6, 7, 8, 9, 12, 13, 14, 17, 21, 22, 23, 27, 28, 31, 32, 33, 34, 36, 37, 40, 42, 44, 46, 49, 50, 52, 53, 54, 55, 57, 58, 62, 64, 69, 76, 77, 78, 79, 80, 82, 83, 85, 86: on siliceous rock
- Rhizocarpon hochstetteri* (Körb.) Vain. – Loc. 79: on siliceous rock
- Rhizocarpon lecanorinum* Anders – Loc. 7, 9, 49: on siliceous rock
- Rhizoplaca chrysoleuca* (Sm.) Zopf – Loc. 21, 23, 27, 33, 50: on siliceous rock
- Rhizoplaca melanophthalma* (DC.) Leuckert – Loc. 11, 12, 13, 21, 22, 23, 27, 28, 31, 32, 33, 34, 37, 39, 40, 42, 43, 44, 46, 50, 57, 58, 77, 85, 86, 89: on siliceous rock
- Rhizoplaca peltata* (Ramond) Leuckert – Loc. 11, 12, 13, 21, 22, 23, 27, 32, 33, 34, 42, 43, 44, 76, 78, 79, 80, 82: on siliceous rock
- Rinodina albana* (A. Massal.) A. Massal. – Loc. 82: on *Quercus* sp.
- Rinodina bischoffii* (Hepp) A. Massal. – Loc. 7, 9, 14, 11, 12, 33, 38, 39, 40, 43, 44, 49, 54, 61, 63, 64, 66, 67, 69, 70, 71, 72, 76, 81: on calcareous rock
- Rinodina calcarea* (Hepp ex Arnold) Arnold – Loc. 38, 39: on calcareous rock
- Rinodina capensis* Hampe – Loc. 80: on *Alnus glutinosa*
- Rinodina guzzini* Jatta – Loc. 63: on calcareous rock
- Rinodina immersa* (Körb.) J. Steiner – Loc. 23, 28b, 38, 39, 41, 70: on calcareous rock
- Rinodina lecanorina* (A. Massal.) A. Massal. – Loc. 3, 7, 9, 12, 23, 27, 34, 38, 39, 46, 48, 49, 63, 66, 69, 70, 71, 72, 81: on siliceous rock
- Rinodina luridata* (Körb.) H. Mayrhofer, Scheid. & Sheard – Loc. 63, 71: on siliceous rock

- Rinodina milvina* (Wahlenb.) Th. Fr. – Loc. 2, 3, 4, 6, 7, 8, 9, 12, 21, 22, 23, 27, 28b, 29, 32, 33, 34, 38, 39, 40, 42, 46, 48, 49, 50, 55, 62, 63, 64, 65, 66, 69, 70, 72, 78, 79, 80, 81: on calcareous rock
- Rinodina obnascens* (Nyl.) H. Olivier – Loc. 27, 32, 33: on siliceous rock
- Rinodina oleae* Bagl. – Loc. 8: on calcareous rock
- # *Rinodina parasitica* H. Mayrhofer & Poelt – Loc. 8: on *Aspicilia* sp.
- Rinodina pyrina* (Ach.) Arnold – Loc. 27: on *Populus* sp.
- Rinodina rinodinoides* (Anzi) H. Mayrhofer & Scheid. – Loc. 27: on siliceous rock
- Rinodina terrestris* Tomin – Loc. 8: on soil
- *Rinodina zwackhiana* (Kremp.) Körb. – Loc. 3: on calcareous rock
- Romjularia lurida* (Ach.) Timdal – Loc. 2, 7, 11, 20, 32, 34, 37, 40, 67, 71, 72, 77, 79: on soil
- + *Rosellinula haplospora* (Th. Fr. & Almq.) R. Sant. – Loc. 22: on *Circinaria* cf. *calcareae*, 32: on *Aspicilia* sp.
- Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén – Loc. 2, 7, 9, 12, 13, 14, 22, 23, 27, 29, 33, 34, 42, 47, 50, 53, 54, 62, 64, 67, 68, 69, 70, 71, 80: on siliceous rock
- Sagedia mastrucata* (Wahlenb.) A. Nordin, Savić & Tibell – Loc. 1, 11, 12, 21, 22, 34, 42, 44, 64, 82: on siliceous rock
- Sarcogyne clavus* (DC.) Kremp. – Loc. 3, 27, 34, 38, 39, 49, 52, 61, 63, 66, 76, 78: on siliceous rock
- Sarcogyne privigna* (Ach.) A. Massal. – Loc. 14, 27, 34, 49, 59, 63, 78: on siliceous rock
- Sarcogyne regularis* Körb. – Loc. 7, 9, 39, 49, 52, 58, 63, 64, 66, 70, 71, 72, 76, 85, 89: on siliceous rock
- Schaereria fuscocinerea* (Nyl.) Clauzade & Cl. Roux – Loc. 3, 4, 7, 8, 9, 80, 86: on siliceous rock
- Scoliciosporum umbrinum* (Ach.) Arnold – Loc. 34, 39, 49, 68: on siliceous rock
- Scytinium callopismum* (A. Massal.) Otálora, P.M. Jørg & Wedin – Loc. 29: on calcareous rock
- Scytinium gelatinosum* (With.) Otálora, P.M. Jørg. & Wedin – Loc. 1, 21, 27, 40, 50, 53, 65, 70, 71, 72, 85: on mosses
- Scytinium intermedium* (Arnold) Otálora, P.M. Jørg & Wedin – Loc. 1: on mosses
- Scytinium lichenoides* (L.) Otálora, P.M. Jørg. & Wedin – Loc. 1, 2, 3, 5, 6, 23, 27, 28, 40, 50, 65, 68, 71, 72, 77, 83, 85, 86, 89: on mosses
- Scytinium palmatum* (Huds.) Gray – Loc. 72: on mosses
- Scytinium parvum* (Degel.) Otálora, P.M. Jørg. & Wedin – Loc. 1, 32, 38, 49, 61, 65, 66, 70, 72: on calcareous rock
- Scytinium schraderi* (Ach.) Otálora, P.M. Jørg. & Wedin – Loc. 67: on calcareous rock
- Solenopsora candicans* (Dicks.) J. Steiner – Loc. 50, 67: on calcareous rock
- Solenopsora holophaea* (Mont.) Samp. – Loc. 2, 7, 27, 32, 50, 67: on soil
- Squamarina cartilaginea* (With.) P. James – Loc. 2, 49, 63: on soil
- Squamarina lentigera* (Weber) Poelt – Loc. 2, 21, 22, 63: on soil
- Squamulea subsoluta* (Nyl.) Arup, Søchting & Frödén – Loc. 54: on siliceous rock
- Staurothele areolata* (Ach.) Lettau – Loc. 17, 28, 89: on siliceous rock
- Staurothele caesia* (Arnold) Arnold – Loc. 63, 64, 65, 71: on calcareous rock
- Staurothele fissa* (Taylor) Zwackh – Loc. 2, 14, 34, 40, 42, 50, 70: on siliceous rock
- + *Stigmatidium gyrophorarum* (Arnold) D. Hawksw. – Loc. 33: on the thallus of *Umbilicaria crustulosa*
- Tephromela atra* (Huds.) Hafellner – Loc. 7, 17, 23, 27, 33, 57: on siliceous rock
- Tephromela grumosa* (Pers.) Hafellner & Cl. Roux – Loc. 1, 7, 8, 9, 12, 27, 40: on siliceous rock
- Thelenella muscorum* (Th. Fr.) Vain. – Loc. 55: on mosses
- *Thelidium minutulum* Körb. – Loc. 32: on calcareous rock
- Thyrea confusa* Henssen, in Henssen & Jørgensen – Loc. 1, 2, 41, 44, 55, 63, 68, 86: on calcareous rock
- Toninia candida* (Weber) Th. Fr. – Loc. 14, 29, 63, 65, 66, 68, 71, 72, 77: on soily calcareous rock
- Toninia diffracta* (A. Massal.) Zahlbr. – Loc. 63, 67, 69: on soil
- Toninia opuntioides* (Vill.) Timdal – Loc. 77: on soil
- Toninia sedifolia* (Scop.) Timdal – Loc. 1, 2, 3, 5, 6, 18, 20, 28, 28c, 23, 27, 29, 32, 33, 36, 37, 38, 39, 46, 48, 50, 52, 62, 63, 65, 68, 70, 71, 72, 77, 84: on soil
- Toninia squalida* (Ach.) A. Massal. – Loc. 32, 33, 34, 63, 78, 80: on soil
- Umbilicaria crustulosa* (Ach.) Lamy – Loc. 23, 27, 32, 33, 34: on siliceous rock
- Umbilicaria cylindrica* (L.) Delise – Loc. 27, 42, 43, 44: on siliceous rock
- Umbilicaria decussata* (Vill.) Zahlbr. – Loc. 33: on siliceous rock
- Umbilicaria deusta* (L.) Baumg. – Loc. 33: on siliceous rock
- Umbilicaria hirsuta* (Sw. Ex Westr.) Ach. – Loc. 7, 12, 13, 42: on siliceous rock
- Umbilicaria proboscidea* (L.) Schrad. – Loc. 33: on siliceous rock
- Umbilicaria vellea* (L.) Ach. – Loc. 33, 42, 44: on siliceous rock
- Variospora dolomiticola* (Hue) Arup, Søchting & Frödén – Loc. 39, 61, 71: on calcareous rock
- Verrucaria fuscella* (Turner) Winch – Loc. 1, 21, 32, 34, 39, 62, 67, 70: on calcareous rock
- Verrucaria hochstetteri* Fr. – Loc. 71, 80: on calcareous rock
- Verrucaria latericola* Erichsen – Loc. 48: on calcareous rock
- Verrucaria macrostoma* Dufour ex DC. – Loc. 50: on calcareous rock
- Verrucaria muralis* Ach. – Loc. 4, 23, 27, 34, 39, 42, 63, 67, 76, 80: on calcareous rock
- Verrucaria nigrescens* Pers. – Loc. 1, 2, 3, 7, 8, 9, 11, 12, 28b, 29, 34, 38, 39, 42, 43, 44, 46, 48, 49, 50, 54, 56, 61, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 76, 80, 81, 83, 86, 88: on calcareous rock
- Verrucaria ochrostoma* Borrer – Loc. 9, 11, 38, 46, 50, 62, 64, 65: on calcareous rock
- Verrucaria polysticta* Borrer – Loc. 2, 41: on calcareous rock
- Verrucaria sphaerospora* Anzi – Loc. 12, 13, 33, 39, 46, 48, 61: on calcareous rock
- Verrucaria viridula* (Schrad.) Ach. – Loc. 9, 34, 40, 42, 54, 55, 65, 66, 68, 71, 72, 80: on calcareous rock
- Verruculopsis lecideoides* (A. Massal.) Gueidan & Cl. Roux – Loc. 1, 64, 69: on calcareous rock

Zahlbrucknerella calcarea (Herre) Herre – Loc. 66, 69: on calcareous rock
 + *Zwackhiomyces coepulonus* (Norman) Grube & R. Sant. – Loc. 34: on *Xanthoria elegans*
 – *Xanthocarpia crenulatella* (Nyl.) Frödén, Arup & Søching – Loc. 9, 11, 12, 14, 21, 22, 23, 27, 29, 33, 34, 38, 39, 48, 49, 50, 54, 55, 63, 67, 69, 70, 71, 72, 81, 86: on calcareous rock
 – *Xanthocarpia marmorata* (Bagl.) Frödén, Arup & Søchting – Loc. 39, 48, 66, 71: on calcareous rock
Xanthoparmelia conspersa (Ehrh. Ex Ach.) Hale – Loc. 42, 43, 44, 79: on siliceous rock
Xanthoparmelia delisei (Duby) O. Blanco, A. Crespo, Elix, D. Hawks. & Lumbsch – Loc. 62: on siliceous rock
Xanthoparmelia pokornyii (Körb.) O. Blanco, A. Crespo, Elix, D. Hawks. & Lumbsch – Loc. 40: on soil
Xanthoparmelia pulla (Ach.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – Loc. 2, 3, 4, 7, 8, 9, 12, 13, 21, 22, 23, 27, 28, 32, 33, 34, 40: on calcareous rock and mosses, 42, 43, 44, 46, 50, 51, 52, 54, 55, 62: on mosses, 63, 73, 76, 78, 79, 80, 82: on siliceous rock
Xanthoparmelia tinctina (Maheu & A. Gillet) Hale – Loc. 3, 8, 32, 42, 43, 44, 62, 76, 79, 80, 82, 86: on siliceous rock
Xanthoparmelia verruculifera (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – Loc. 1, 3, 4, 7, 8, 9, 21, 22, 23, 27, 28, 29, 32, 33, 34, 37, 40, 42, 43, 44, 46, 50, 54, 55, 59, 62, 76, 79, 80, 82: on siliceous rock
 – *Xanthoria elegans* (Link.) Th. Fr. – Loc. 3, 7, 8, 9, 11, 12, 13, 14, 15, 21, 22, 23, 27, 28, 32, 33, 34, 36, 39, 40, 43, 44, 50, 54, 55, 61, 62, 66, 69, 78, 81: on siliceous rock
Xanthoria parietina (L.) Th. Fr. – Loc. 19, 59: on *Populus* sp. 57: on *Alnus glutinosa*, 84: on *Pyrus* sp. and *Alnus glutinosa*.

Discussion

Five lichens, *Acarospora hospitans* (on *Aspicilia cinerea*), *Buelia badia* (on *Lecanora rupicola* and *Xanthoparmelia tinctina*), *Caloplaca grimmiae* (on *Candelariella vitellina*), *Endohyalina insularis* (on *Lecanora rupicola*), *Rinodina parasitica* (on *Aspicilia* sp.), were found to grow as lichenicolous lichen on some other lichens.

Excluding lichenicolous fungi and lichenicolous lichens, lichens were found to be growing on different substrates such as siliceous and calcareous rocks, mosses, soil, *Populus*, *Alnus glutinosa*, *Pyrus*, *Quercus*, *Juglans*, *Prunus*, *Berberis*, *Morus* and *Salix*.

Acarospora cervina, *A. fuscata*, *Aspicilia cinerea*, *A. desertorum*, *C. variabilis*, *C. vitellina*, *Gallowayella fulva*, *Lecanora rupicola*, *Lecidea fuscoatra*, *Lecidella carpathica*, *Lobothallia radiosa*, *Myriolecis hagenii*, *Protoparmeliopsis muralis*, *Rhizocarpon geographicum*, *Rhizoplaca melanophthalma*, *Rinodina bischoffii*, *Rinodina milvina*, *Verrucaria nigrescens* and *Xanthoparmelia verruculifera* were seen to grow plentifully in the study area.

Some corticolous and crustose lichen species such as *Calogaya lobulata*, *Caloplaca cerina*, *Candelariella aurella*, *Candelariella reflexa*, *Gallowayella fulva*, *Gyalolechia flavorubescens*, *Lecanora argentata*, *Myriolecis dispersa*, *Myriolecis hagenii*, *Oxneria fallax*, *Phaeophyscia orbicularis*, *Physcia adscendens*,

Physcia biziana, *Physcia dimidiata*, *Physcia dubia*, *Physconia distorta* are not very selective in terms of substrate selection compared to other species, but are very cosmopolitan.

The main vegetation types are forests and steppes. The forest area is mainly characterized by *Quercus* spp. in higher parts (over 1800 m) of the area. Along the stream *Populus*, *Salix* and *Ulmus* are mainly seen.

The vegetation change in Bitlis is caused by the climate. In some areas, forest and steppe vegetations can be found side by side on the research area. In Bitlis because of hard winter and dry summer, low precipitation, soft and anhydrous soil, scarce forest area, the lichens, most of which are crustose, preferred to grow and aggregate on mostly siliceous and calcareous rocks. So terricolous and muscicolous lichens such as *Catapyrenium*, *Cladonia*, *Collema*, *Endocarpon*, *Peltigera*, *Psora* and *Toninia*, which can grow easily on mosses and soil widespreadly, were not found plentifully on these substrata as expected. On the other hand *Gallowayella*, *Caloplaca*, *Lecanora*, *Phaeophyscia*, *Physcia*, *Physconia*, cosmopolitan epiphytic lichens, were found just on some trees of *Quercus*, *Pyrus*, *Prunus* and *Morus*.

Seventy-nine lichen taxa were defined to grow epiphytic. On the other hand 44 species were found on mosses. Two-hundred-twenty-two lichen taxa were found growing on rocks while 32 lichen species preferred to grow on soil. Twenty-one lichenicolous fungi were found to be on different hosts, such as *Aspicilia* sp., *Aspicilia* cf. *calcarea*, *Aspicilia cinerea*, *Candelariella vitellina*, *Immersaria athroocarpa*, *Lecanora rupicola*, *Lecidea tessellata*, *Lecidella carpathica*, *Phaeophyscia orbicularis*, *Physcia* sp., *Physcia dubia*, *Protoparmeliopsis muralis*, *Rhizocarpon geographicum*, *Rhizoplaca melanophthalma*, *Squamarina cartilaginea*, *Umbilicaria crustulosa*, *Xanthoparmelia pulla*, *Xanthoparmelia tinctina* and *Xanthoria elegans*, of these *Carbonea vorticosa* and *Carbonea vitellinaria* are the most common taxa.

Some crustose lichen and lichenicolous species of genera *Aspicilia*, *Llimoniella*, *Placopyrenium*, *Placynthium* and *Rinodina* are known to grow rarely in Turkey, and of these *Aspicilia glomerulans*, *Llimoniella muralicola*, *Myriolecis invadens*, *Ochrolechia subviridis*, *Placynthium hungaricum* and *Placynthium posterulum* were reported for the second time from Turkey (Halıcı 2008, Oran and Öztürk 2010, Aslan and Yazıcı 2013, Aptroot et al. 2015, Yazıcı and Aslan 2016).

In Bitlis province, in a total of 113 genera (excluding lichenicolous fungi), *Lecanora* (20 taxa), *Caloplaca* (18 taxa), *Rinodina* (16 taxa), *Acarospora* (13 taxa), *Verrucaria* and *Physcia* (10 taxa) are the most common genera in the study area respectively.

Localities in south, north and northwest of Güroymak district are very rich about lichen biodiversity and localities in Hizan and Mutki districts are situated near a lime pit in where *Verrucaria baldensis*, *V. calciseda* and *V. nigrescens* are found, they are identified as an indicator species of lime and calcareous substratum (Fig. 1, Table 1).

It has been determined that soil and mosses are not suitable for the development of lichens in Bitlis province. Therefore, it was observed that lichens developed more on rocks and tree trunks and bodies throughout the province. It is observed that lichens can develop very weakly on soil since it is not suitable for soil lichen development. In addition it has

been observed that lichens were determined less on mosses which are not developed much throughout the province.

In the northern part of the province of Bitlis, it has been observed that lichens can mostly develop on the rocks. Therefore, in the northern parts of the province, it has been determined that lichens generally develop on the rocks in Ahlat, Adilcevaz and Güroymak (northern part) districts. Since the southern part of the province is richer in terms of tree than the northern part, we see more lichens on tree trunks and rocks.

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