

A contribution to the knowledge of lichenized and lichenicolous fungi in Albania

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A list of 333 taxa of lichens and 23 species of lichenicolous fungi from Albania is presented including 226 taxa newly reported to the country. Hence the number of taxa recorded from Albania is raised by more than 100 percent. Species which are of special interest because of their biogeography and their connection with conservation priorities are *Baeomyces placophyllus*, *Caloplaca diphyodes*, *C. fuscorufa*, *Degelia atlantica*, *D. plumbea*, *Evernia illyrica*, *Heterodermia speciosa*, *Lobaria amplissima*, *Lobarina scrobiculata*, *Leptogium palmatum*, *Lethariella intricata*, *Megalaria grossa*, *Pachyphiale carneola*, *Pannaria conoplea*, *Parmeliella triptophylla*, *Parmotrema robustum*, *Physcia biziana*, *Physconia venusta*, *Ramalina canariensis*, *Sticta fuliginosa*, and *Verrucaria limborioides*.

Zusammenfassung: SVOBODA, D., BOUDA, F., MALÍČEK, J. & HAFELLNER J. 2012. Ein Beitrag zur Kenntnis der lichenisierten und lichenicolen Pilze Albanien. – *Herzogia* 25: 149–165.

Eine Liste von 333 Taxa von Flechten und 23 Arten lichenicoler Pilze aus Albanien wird vorgelegt. Sie enthält 226 Taxa, die erstmals in diesem Land nachgewiesen werden. Die Zahl der aus Albanien bekannten Taxa steigt damit um mehr als 100 Prozent. In biogeographischer Hinsicht oder im Zusammenhang mit Artenschutzanforderungen von besonderem Interesse sind Funde von *Baeomyces placophyllus*, *Caloplaca sinapisperma*, *Degelia atlantica*, *D. plumbea*, *Evernia illyrica*, *Heterodermia speciosa*, *Lobaria amplissima*, *Lobarina scrobiculata*, *Leptogium palmatum*, *Lethariella intricata*, *Megalaria grossa*, *Pachyphiale carneola*, *Pannaria conoplea*, *Parmeliella triptophylla*, *Parmotrema robustum*, *Physcia biziana*, *Physconia venusta*, *Ramalina canariensis*, *Sticta fuliginosa* und *Verrucaria limborioides*.

Key words: Balkan Peninsula, biodiversity, biogeography, lichens, new records.

Introduction

Albania is still one of the lichenologically most poorly investigated countries of Europe. Despite of much recent political amelioration Albania is the country where biological research is scarce including information about lichens. There is no resident lichenologist in the country. The first recent step towards the improvement of the knowledge of the diversity of lichens in Albania was done by HAFELLNER & KASHTA (2003), who published miscellaneous records from the country (152 taxa including lichenicolous fungi). In 2007 the checklist of lichens and lichenicolous fungi based on historical published records was compiled (HAFELLNER 2007). The author also outlined general characteristics of the geomorphology, phytogeography, and the history of lichenological research in the country. Single species or additional records were added since then by LLOP et al. (2007), MAYRHOFER & SHEARD (2007), HAFELLNER (2009), OBERMAYER (2009), KUKWA (2011), and HAFELLNER & ZIMMERMANN (2012).

Within the framework of two field excursions of the Department of Botany, Charles University in Prague to Albania (June 25–July 12, 2009 and June 23–July 10, 2011) several areas were investigated. The first excursion led to the Albanian Alps in North Albania (NP Theth), NP Llogorasë, NP Butrint in the Southern part of the country, and NP Bredhi i Hotovës in Central Albania. During the second excursion the Albanian Alps (NP Valbonë, NP Theth), NP Zall-Gjocaj in Central Albania and NP Bredhi i Drenovës near Korçë city were the main investigated destinations. Czech authors of this paper invited Josef Hafellner to publish jointly the data he accumulated since his most recent contribution, including part of the collections gathered during a foray organized by M. Tretiach (Trieste) in summer of 2007 and a set of specimens collected by L. Kashta and handed over to J. Hafellner for further treatment.

Material and Methods

The samples were collected by the authors (František Bouda – FB, Josef Hafellner – JH, Jiří Malíček – JM, and David Svoboda – DS) during the excursions mentioned above, if not otherwise stated. Specimens were identified using lichenological routine methods including TLC analyses (ORANGE et al. 2010) and UV light. Common and easily recognizable species were not collected at all localities therefore numbers of records for common species do not reflect their frequency of occurrence in Albania. Prepared herbaria specimens are deposited in private herbaria of the authors (David Svoboda, Jiří Malíček), in the PRM herbarium of National Museum in Prague (František Bouda), and in the GZU herbarium in Graz (Josef Hafellner). Several duplicates from JM and DS are deposited in PRC herbarium in Prague.

List of visited localities

- 1: Northern Albania, Malësia e Madhe distr., c. 5 km from Bogë village to Okol, beech forest, 42°23'54"N/19°42'55"E, alt. c. 1450 m, 28.VI.2009 (DS, FB).
- 2: Northern Albania, Shkodër distr., Bogë valley c. 6 km from Bogë to Okol, Gropa e Radohimes former settlement, limestone outcrops, alpine meadows, 42°24'04"N/19°43'38"E, alt. 1800–1900 m, 28.VI.2009 (DS, FB).
- 3: Northern Albania, Shkodër distr., Theth National Park, Theth valley, from Okol village to Qafa e Pejës pass, village, beech forest, limestone rocks and outcrops, 42°26'35"N/19°46'15"E, alt. 1050–1700 m, 29.VI.2009, 1.VII.2009, 28.VI.2011 (DS, FB, JM).
- 4: Northern Albania, Shkodër distr., Theth National Park, under Maja e Poplukës mountain near path from Buni e Gropaet to Qafa e Poplukës (Legu i Valit) pass, open pine forest, hard limestone, 42°25'43"N/19°47'11"E, alt. 1900–2045 m, 30.VI.2009, 28.VI.2011 (DS, FB, JM).
- 5: Northern Albania, Shkodër distr., Theth National Park, from Theth village to qafa e T' thore pass, deciduous forest below the pass, 42°23'13"N/19°45'49"E, alt. c. 1400 m, 1.VII.2009 (DS, FB).
- 6: Southern Albania, Vlërë distr., Llogora National Park, Llogora pass (Qafa e Llogorasë), 500–1500 m NNW bellow the pass, *Pinus-Abies* mixed forest with limestone boulders, 40°12'19"N/19°35'04"E, alt. 700–1000 m, 3.VII.2009 (DS, FB).
- 7: Southern Albania, Vlërë distr., Llogora National Park, slopes of the Maja e Qorrës and Maja e Cikës Mt., *Pinus heldreichii*, limestone and calcareous schist, 40°12'34"N/19°37'07"E, alt. 1700–1900 m, 4.VII.2009 (DS, FB).
- 8: Southern Albania, Delvinë distr., Syri i Kaltër, c. 1,5 km SW of the village Muzinë, the exsurgence and surroundings, limestone outcrops, ravines, 39°55'24"N/20°11'29"E, alt. c. 180 m, 7.VII.2009 (DS, FB).
- 9: Southern Albania, Gjirokastër distr., Gjirokastër, fortress, limestone wall, 40°04'23"N/20°08'22"E, alt. c. 300 m, 7.VII.2009 (DS, FB).



Fig. 1: Typical landscape of Albanian Alps in the Valbonë valley, the settlement Rrogam i Shales. Photo: J. Malíček, 2011.



Fig. 2: *Pinus heldreichii* in Albanian Alps. A view to the Vusanje valley near Buni i Jezercës. Photo: J. Malíček, 2011.

- 10: Southern Albania, Përmet distr., Pagri, Bredhi i Hotovës National Park, mixed forest with *Abies borisii-regis*, *Picea*, *Quercus cerris* c. 1–2 km of the Park entrance, 40°20'29"N/20°22'33"E, alt. c. 1200 m, 8.VII.2009 (DS, FB).
- 11: Northern Albania, prov. Shkodër, Theth, Theth National Park, Liqeni Pejës, boulders near the lakes, 42°26'50"N/19°46'14"E, alt. 1650 m, 28.VI.2011 (DS, FB, JM).
- 12: Eastern Albania, Dibër distr., Lis, road to Zall Gjocaj National Park, an old cemetery with old oaks, *Quercus cerris*, 41°38'22"N/20°27'55"E, alt. c. 1150 m, 2.–3.VII.2011 (DS, FB).
- 13: Eastern Albania, Dibër distr., Lis, southern part of the Zall Gjocaj National Park, mixed and *Pinus heldreichii* forest and subalpine karstic region above lakes in the proximity of former settlement and mine Scharra, 41°41'17"N/20°10'46"E, alt. c. 1400–1950 m, 3.–4.VII.2011 (DS, FB).
- 14: Eastern Albania, Korçë distr., Lin, limestone rocks near Ohrid lake, 41°03'02"N/20°27'02"E, alt. 720 m, 5.VII.2011 (DS).
- 15: Southern Albania, prov. Sarandë, Butrint, antic ruins, 39°44'48"N/20°01'12"E, alt. c. 130 m, 6.VII.2009 (DS, FB).
- 16: Central Albania, Dibër distr., Burrel, Lis, orchard on NW border of village (*Malus domestica*), 41°37'44"N/20°05'26"E, alt. 540 m, 1.VII.2011 (JM).
- 17: Northern Albania, Tropojë distr., Valbonë National Park, Bajram Curri, Rrogam i Shales, the settlement and deciduous forest in valley NW of the village, 42°27'15"N/19°52'19"E, alt. 1100–1500 m, 26.VI.2011 (DS, FB, JM).
- 18: Northern Albania, Shkodër distr., Theth National Park, Buni i Jezercës, small rocky outcrops on a bank of a lake, 42°27'46"N/19°48'44"E, alt. 1800 m, 27.VI.2011 (DS, FB, JM).
- 19: Northern Albania, Shkodër distr., Theth National Park, along tourist route between Buni i Jezercës and Pejës, 42°27'42"N/19°47'12"E, alt. 1850–1900 m, 27.VI.2011 (DS, FB, JM).
- 20: Central Albania, Korçë distr., Korçë, Bredhi i Drenovës National Park, on the rock "Guri i Cjapit" at northern border of the Park, 40°35'25"N/20°50'53"E, alt. 1520 m, 5.VII.2011 (JM, FB).
- 21: Central Albania, Dibër distr., Burrel, Lis: serpentinite slopes along road 1,5–2,0 km E–ENE of village, 41°37'55"N/20°06'50"E, alt. 700–760 m, 2.VII.2011 (JM).
- 22: Central Albania, Korçë distr., Korçë, on tourist route in deep valley SE of Korçë between the town and Bredhi i Drenovës National Park, 40°35'19"N/20°48'50"E, alt. c. 1150 m, 5.VII.2011 (FB, JM).
- 23: Central Albania, Korçë distr., Korçë, Bredhi i Drenovës National Park, on tourist route in the northern part of the Park, 40°34'46"N/20°50'03"E, alt. 1260–1340 m, 5.VII.2011 (FB, JM).
- 24: Central Albania, Korçë distr., Korçë, Bredhi i Drenovës National Park, on hill wooded by middle-aged mixed forest with predominating *Abies borisii-regis* in the northern part of the Park, 40°35'02"N/20°50'43"E, alt. 1400 m, 6.VII.2011 (FB, JM).
- 25: Northern Albania, Malësi e Madhe distr., near the village Reçi, N of Shkodër, chestnut forest, 42°14'N/19°32'E, alt. c. 200 m, 22.V.2002 (leg. L. Kashta, det. JH).
- 26: Northern Albania, Has distr., W slopes of Pashtrik (Beshtriku) mountains, above the village Cahan, N of Kukës, hedges between pastures, 42°12'N/20°28'30"E, alt. c. 1000 m, 22.VII.2002 (leg. L. Kashta, det. JH).
- 27: Northern Albania, Has distr., W slopes of Pashtrik (Beshtriku) mountains, above the village Cahan, N of Kukës, limestone outcrops, mixed deciduous forest, 42°12'N/20°28'30"E, alt. c. 1100 m, 22.VII.2002 (leg. L. Kashta, det. JH).
- 28: Northern Albania, Malësi e Madhe distr., Bjeshkët e Nemuna (Prokletije) mountains, Qafa e Tërthores (Tërthores pass) between the villages Boga and Theth, small ridge shortly above the pass somewhat below the tree line, low outcrops of limestone with layers of argillaceous shale in open pine-beech forest, 42°23'20"N/19°43'10"E, alt. c. 1650 m, 14.VIII.2007 (JH).
- 29: Northern Albania, Malësi e Madhe distr., Bjeshkët e Nemuna (Prokletije) mountains, saddle N above the village Theth, somewhat E above the saddle, low outcrops on slopes exposed to W, pastures

- somewhat above the tree line, limestone and siliceous limestone, 42°26'40"N/19°46'20"E, alt. c. 1750 m, 15.VIII.2007 (JH).
- 30: Central Albania, Mat distr., Mali i Skënderbeut, W below Qafa e Shtamës (Shtamës pass) E of the town Krujë, deciduous forest on slope exposed to NW, 41°31'15"N/19°53'45"E, alt. c. 1130 m, 19.VIII.2007 (JH).
- 31: Central Albania, Tiranë distr.: on the mountain Dajt E above the town Tiranë, between the restaurant "Panorama" and the saddle Qafa e Qershisë, deciduous forest over limestone on slope exp. to the W, 41°22'15"N/19°55'20"E, alt. c. 1100 m, 20.VIII.2007 (JH).
- 32: Central Albania, Tiranë distr.: on the mountain Dajt E above the town Tiranë, on the saddle Qafa e Qershisë E above the restaurant "Panorama", scattered limestone outcrops on edge of deciduous forest, 41°22'25"N/19°54'40"E, alt. c. 1250 m, 20.VIII.2007 (JH).
- 33: Southern Albania, Vlorë distr.: at the coast of the Adriatic Sea NW of the town Vlorë, small island of the monastery "Fjetja e Hyjlikses", on the W coast, fringe of evergreen bushes, 40°31'00"N/19°24'00"E, alt. c. 10 m, 21.VIII.2007 (JH).
- 34: Central Albania, Dibër distr., Kurorë e Lurës mountains, somewhat W above the village Fushë-Lurë, pasture with outcrops of ophiolitic rocks, 41°48'40"N/20°12'30"E, alt. c. 1110 m, 17.VIII.2007 (JH).
- 35: Central Albania, Dibër distr., Kurorë e Lurës mountains, somewhat W above the village Fushë-Lurë, pine forest, 41°48'40"N/20°12'30"E, alt. c. 1110 m, 17.VIII.2007 (JH).
- 36: Central Albania, Dibër distr., Kurorë e Lurës mountains, SW above the village Fushë-Lurë, some km S of Liqeni i Madh (Big Lake), severely exploited beech-pine forest over ophiolitic rock, 41°46'35"N/20°11'50"E, alt. c. 1700 m, 18.VIII.2007 (JH).
- 37: Central Albania, Dibër distr., Kurorë e Lurës mountains, W above the village Fushë-Lurë, just N of Liqeni i Madh (Big Lake), severely exploited beech-pine forest over ophiolitic rock, 41°47'30"N/20°11'40"E, alt. c. 1730 m, 18.VIII.2007 (JH).
- 38: Central Albania, Dibër distr., Kurorë e Lurës mountains, W above the village Fushë-Lurë, E below Liqeni i Madh (Big Lake), beech-pine forest in a depression on slope exp. to the E, 41°47'30"N/20°11'50"E, alt. c. 1680 m, 18.VIII.2007 (JH).
- 39: Southern Albania, Vlorë distr., Qafa e Llogorasë (Llogora pass) S of the town Vlorë, mountain ridge W above the pass, shrub belt at tree line on slope exp. to the NE, 40°12'00"N/19°34'35"E, alt. c. 1260 m, 22.VIII.2007 (JH).
- 40: Southern Albania, Vlorë distr., Qafa e Llogorasë (Llogora pass) S of the town Vlorë, mountain ridge W above the pass, upper edge of pine-fir forest with evergreen understorey on slope exp. to the NE, 40°11'55"N/19°35'00"E, alt. c. 1200 m, 22.VIII.2007 (JH).
- 41: Southern Albania, Vlorë distr., road to Qafa e Llogorasë (Llogora pass) S of the town Vlorë, below the tourist village Llogora, ravine exposed to the N with shrub vegetation, 40°13'15"N/19°34'35"E, alt. c. 670 m, 22.VIII.2007 (JH).
- 42: Southern Albania, Vlorë distr., road to Qafa e Llogorasë (Llogora pass) S of the town Vlorë, somewhat above the tourist village Llogora, pine-fir forest with evergreen understorey on gentle slope exp. to the N, 40°12'35"N/19°34'45"E, alt. c. 830 m, 22.VIII.2007 (JH).
- 43: Central Albania, Mat distr., Mali i Skënderbeut, Qafa e Shtamës (Shtamës pass) SW above the town Burrel, just W below the pass, deciduous forest remnants, 41°31'20"N/19°53'55"E, alt. c. 1230 m, 19.VIII.2007 (JH).

Substrates investigated and the abbreviations used

<i>Abies alba</i>	<i>Aba</i>	<i>Acer</i> sp.	<i>Ace</i>
<i>Abies borisii-regis</i>	<i>Abb</i>	<i>Alnus</i> sp.	<i>Aln</i>
<i>Acer opalus</i>	<i>Aop</i>	<i>Buxus sempervirens</i>	<i>Bux</i>
<i>Acer pseudoplatanus</i>	<i>Aps</i>	<i>Castanea sativa</i>	<i>Cast</i>

<i>Crataegus</i> sp.	<i>Cra</i>	<i>Quercus cerris</i>	<i>Qce</i>
<i>Fagus sylvatica</i>	<i>Fag</i>	<i>Quercus coccifera</i>	<i>Qco</i>
<i>Ficus carica</i>	<i>Fic</i>	<i>Quercus</i> sp.	<i>Que</i>
<i>Fraxinus excelsior</i>	<i>Fex</i>	<i>Salix</i> sp.	<i>Sal</i>
<i>Juglans regia</i>	<i>Jug</i>	<i>Taxus baccata</i>	<i>Tba</i>
<i>Juniperus alpina</i>	<i>Jun</i>		
<i>Malus domestica</i>	<i>Mdo</i>	cor	on bark (used in the case of phorophyte not identified)
<i>Olea europaea</i>	<i>Ole</i>	cal	on limestone and calcareous schist
<i>Picea abies</i>	<i>Pic</i>	int	on intermediary rocks, e.g., siliceous limestone („Kieselkalk“)
<i>Pinus heldreichii</i>	<i>Phe</i>	sil	on siliceous rocks (excl. ophiolites)
<i>Pinus nigra</i>	<i>Pnn</i>	oph	ophiolitic rocks (mainly serpentinites)
<i>Pistacia lentiscus</i>	<i>Ple</i>	ter-cal	on soil over calcareous rocks
<i>Platanus orientalis</i>	<i>Plo</i>	ter-int	on soil over intermediary rocks
<i>Populus</i> sp.	<i>Pop</i>	ter-sil	on soil over siliceous incl. ophiolitic rocks
<i>Populus tremula</i>	<i>Ptr</i>	bry/dtr	on bryophytes and plant remnants
<i>Prunus cerasifera</i>	<i>Pcf</i>	xyl	on naked wood of stumps, snags or logs
<i>Prunus myrobalana</i>	<i>Pmy</i>		
<i>Pyrus pyraeaster</i>	<i>Pyp</i>		

Results

A total of 333 taxa of lichenized fungi and 23 species of lichenicolous fungi were recorded, including 207 lichens and 19 lichenicolous fungi new to the country.

Species are arranged alphabetically and non-lichenized lichenicolous fungi are presented in a separate chapter. Numbers from 1 to 43 correspond to the localities listed above; the abbreviations following this number correspond to the substrates listed above. Numbers in brackets following the authors' initials are those of individual consecutive numbering systems used by the authors and shall help to identify and locate individual specimens. An asterisk (*) indicates a new record for Albania, i.e. it marks those taxa lacking in the national checklist (HAFELLNER 2007).

Lichenized fungi

- **Acarospora cervina* A.Massal. 14 cal (DS 1831) 27 Qce (JH 60529), 28 Phe (JH 80319), 31 Que (JH 71114), 36 Fag (JH 80433), 38 Fag (JH 80453), 43 Aps (JH 80514)
- **Acarospora glaucocarpa* (Ach.) Korb. 7 cal (DS 1807) **Anisomeridium polypori* (Ellis & Everh.) M.E.Barr 42 Abb (JH 80506)
- **Acrocordia gemmata* (Ach.) A.Massal. 38 Fag (JH 80452) **Arthonia cinnabarina* (DC.) Wallr. 15 Qco (FB 740)
- Agonimia tristicula* (Nyl.) Zahlbr. 28 bry/dtr (JH 75343), 29 bry/dtr (JH 75357, 75388), 41 bry/dtr (JH 80496) **Arthonia didyma* Korb. 24 Abb (FB 386)
- Alyxoria varia* (Pers.) Ertz & Tehler 8 Fic (DS 1842), 8 Plo (DS 1843) **Arthonia fusca* (A.Massal.) Hepp 21 oph (JM 4171), 29 int (JH 80373)
- Amandinea punctata* (Hoffm.) Coppins & Scheid. 3 Phe (FB 775), 6 Tba (FB 730 depon. sub *Rinodina sophodes*) **Arthonia radiata* (Pers.) Ach. 12 Jug (FB 358), 39 Cra (JH 80469), 43 Aps (JH 80515)
- Anaptychia ciliaris* (L.) Korb. 1 Fag (DS 1774 depon. sub *Parmelia submontana*), 10 Abb (DS 1677), 12 Qce (DS 1823 depon. sub *Pleurosticta acetabulum*), 17 Fag (JM 4216 depon. sub *Physconia distorta*), 24 Abb (JM 4206, FB 377, PRC), 26 Pyp (JH 60557), **Aspicilia caesiocinerea* (Nyl. ex Malbr.) Arnold 37 oph (JH 80393)
- Aspicilia calcarea* (L.) Mudd 7 cal (DS 1806 depon. sub *Caloplaca erythrocarpa*), 9 cal (DS 1641 depon. sub *Xanthoria parietina*), 32 (JH 71123, 71124)

- **Aspicilia contorta* (Hoffm.) Kremp.
4 cal (DS 1809), 28 cal (JH 80303), 29 cal (JH 80333)
- **Aspicilia grisea* Arnold
29 int (JH 80367)
- **Bacidia bagliettoana* (A.Massal. & De Not.) Jatta
10 bry/dtr (DS 1840), 18 bry/dtr (JM 4245)
- **Baeomyces placophyllus* Ach.
29 ter-int (JH 75366)
- **Baeomyces rufus* (Huds.) Rebent.
29 ter-int (JH 75367)
- **Bagliettoa baldensis* (A.Massal.) Vězda
6 cal (DS 1812, 1883, 1884)
- **Bagliettoa calciseda* (DC.) Gueidan & Cl.Roux
6 cal (DS 1885), 39 cal (JH 80475)
- Bagliettoa marmorea* (Scop.) Gueidan & Cl.Roux
6 cal (DS 1811), 7 cal (DS 1813), 29 cal (JH 80334), 31 cal (JH 71122)
- **Bilimbia lobulata* (Sommerf.) Hafellner & Coppins
6 ter-cal (FB 771), 18 ter-cal (JM 4243), 29 bry/dtr (JH 75359)
- Bilimbia sabuletorum* (Schreb.) Arnold
18 cal (DS 1953)
- **Buellia aethalea* (Ach.) Th.Fr.
21 oph (JM 4171 depon. sub *Arthonia fusca*)
- **Buellia griseovirens* (Turner & Borrer ex Sm.) Almb.
38 Aba (JH 80457), 40 Abb (JH 80501)
- **Calicium glaucellum* Ach.
6 Pnn (FB 731)
- **Calicium pinastri* Tibell
6 Pnn (DS 1803, 1804)
- **Calicium salicinum* Pers.
24 Abb (FB 368), 38 xyl (JH 80461)
- **Caloplaca albopruinosa* (Arnold) H.Olivier
7 cal (DS 1647), 18 cal (JM 4244 depon. sub *Caloplaca lactea*)
- **Caloplaca alnetorum* Giralt et al.
12 Qce (FB 356), 22 Pop (JM 4175 depon. sub *C. pyracea*)
- Caloplaca alociza* (A.Massal.) Mig.
7 cal (DS 1637, 1646)
- **Caloplaca anularis* Clauzade & Poelt
29 cal (JH 80340)
- **Caloplaca arnoldiiconfusa* Gaya & Nav.-Ros.
29 cal (JH 80341)
- **Caloplaca atroflava* (Turner) Mong.
21 oph (JM 4164 depon. sub *Caloplaca subsoluta*)
- Caloplaca aurantia* (Pers.) Hellb.
9 cal (DS 1639)
- **Caloplaca australis* (Arnold) Zahlbr.
18 cal (JM 4251)
- Caloplaca cerina* s.lat.
2 Jun (FB 398), 16 Mdo (JM 4156), 17 Fag (JM 4220 depon. sub *Lecanora chlarotera*, FB 345), 18 Sal (JM 4232, PRC), 22 Pop (JM 4176 depon. sub *C. holocarpa*, JM 4177 depon. sub *Lecanora hagenii*), 24 Ptr (JM 4210 depon. sub *C. haematites*), 28 Phe (JH 80320)
- **Caloplaca chrysodeta* (Vain. ex Räsänen) Domb.
3 cal (DS 1642), 41 cal (JH 80492)
- **Caloplaca coccinea* (Müll.Arg.) Poelt
29 cal (JH 80328)
- **Caloplaca conversa* (Kremp.) Jatta
11 sil (JM 4266 depon. sub *Caloplaca percrocata*)
- **Caloplaca coralliza* Arup & Åkelius
6 Pnn (DS 1630, 1632)
- **Caloplaca crenularia* (With.) J.R.Laundon
21 oph (JM 4163, 4172), 23 sil
- **Caloplaca diphyodes* (Nyl.) Jatta
11 sil (JM 4269)
- **Caloplaca dolomiticola* (Hue) Zahlbr.
2 cal (DS 1650), 9 cal (DS 1641 depon. sub *Xanthoria parietina*), 29 cal (JH 80335)
- **Caloplaca erodens* Tretiach, Pinna & Grube
29 cal (JH 80336)
- **Caloplaca erythrocarpa* (Pers.) Zwackh
7 cal (DS 1651, 1806)
- **Caloplaca ferrarii* s.lat.
21 oph (JM 4170)
- **Caloplaca ferruginea* (Huds.) Th.Fr.
3 Pcf (DS 1633), 4 Pnn (JM 4280), 19 Phe (JM 4254, FB 350), 24 Abb (JM 4211)
- **Caloplaca furfuracea* H.Magn.
2 Pnn (DS 1631)
- **Caloplaca fusciorufa* H.Magn.
11 sil (JM 4267)
- **Caloplaca grimmiae* (Nyl.) H.Olivier
29 int (on *Candelariella vitellina*) (JH 80344), 34 oph (on *Candelariella vitellina*) (JH 80404)
- Caloplaca haematites* (St.-Amans) Zwackh
16 Mdo (JM 4156 depon. sub *Caloplaca cerina*), 24 Ptr (JM 4210)
- **Caloplaca herbidella* (Hue) H.Magn.
11 Phe (FB 721), 40 Abb (JH 80502), 43 Aps (JH 80516)
- **Caloplaca holocarpa* agg.
18 cal (JM 4231), 22 Pop (JM 4176)
- **Caloplaca hungarica* H.Magn.
16 Mdo (JM 4157)
- **Caloplaca inconnexa* (Nyl.) Zahlbr. var. *inconnexa*
7 cal (on *Bagliettoa calciseda*) (DS 1651 depon. sub *Caloplaca erythrocarpa*)

- Caloplaca inconnexa* var. *verrucarium* Clauzade & Cl.Roux
39 cal (on *Bagliettoa calciseda*) (JH 80476)
- **Caloplaca lactea* (A.Massal.) Zahlbr.
7 cal (DS 1636 depon. sub *Lecanora agardhiana*, 1644)
- **Caloplaca marmorata* (Bagl.) Jatta
2 cal (DS 1649)
- **Caloplaca nubigena* (Kremp.) Dalla Torre & Samth.
29 cal (on *Clauzadea immersa*) (JH 80337)
- **Caloplaca oasis* (A.Massal.) Szatala
32 cal (on *Verrucaria* spec.) (JH 71131)
- **Caloplaca percrocata* (Arnold) J.Steiner
11 sil (JM 4266)
- **Caloplaca polycarpa* (A.Massal.) Zahlbr.
7 cal (on *Bagliettoa calciseda*) (DS 1651 depon. sub *Caloplaca erythrocarpa*), 32 cal (on *Verrucaria* spec.) (JH 71125)
- **Caloplaca pyracea* (Ach.) Th.Fr.
24 Ace (JM 4203), Ptr (FB 380 depon. sub *Phaeophyscia nigricans*)
- **Caloplaca sinapisperma* (Lam. & DC.) Maheu & A.Gillet
11 ter-cal (FB 748), 18 ter-cal (JM 4238), 19 ter-cal (JM 4248, PRC), 28 bry/dtr (JH 75344, 75345), 29 bry/dtr (JH 75350)
- **Caloplaca stillicidiorum* (Vahl) Lyngé
18 ter-cal (JM 4238 depon. sub *Caloplaca sinapisperma*)
- Caloplaca subpallida* s. lat.
11 sil (JM 4266 depon. sub *Caloplaca percrocata*), 21 oph (JM 4158)
- **Caloplaca subsoluta* (Nyl.) Zahlbr.
21 oph (JM 4164)
- **Caloplaca tirolensis* Zahlbr.
29 bry/dtr (JH 80324)
- **Caloplaca variabilis* s.lat.
3 cal (JM 4272 depon. sub *Thelidium papulare*), 18 cal (JM 4229)
- Caloplaca xantholyta* (Nyl.) Jatta
41 cal (JH 80493)
- **Candelariella aurella* (Hoffm.) Zahlbr.
3 cal (JM 4272 depon. sub *Thelidium papulare*)
- Candelariella vitellina* (Hoffm.) Müll.Arg.
2 Pnn (DS 1848), 4 Pnn (JM 4281), 19 Phe (FB 532), 28 Phe (JH 80322), 29 int (JH 80345), 34 oph (JH 80405), 37 oph (JH 80394)
- **Candelariella xanthostigma* (Ach.) Lettau
11 Phe (FB 721 depon. sub *Caloplaca herbidel-la*), 24 Abb (FB 385)
- **Catapyrenium cinereum* (Pers.) Körb.
3 cal (JM 4271), 11 ter-cal (FB 750)
- Catapyrenium daedaleum* (Kremp.) Stein
13 ter-cal (FB 1019), 19 ter-cal (JM 4249)
- **Catillaria nigroclavata* (Nyl.) Schuler
43 Aps (JH 80517)
- **Catillaria subviridis* (Nyl.) Zahlbr.
6 cal (DS 1645)
- Cetraria aculeata* (Schreb.) Fr.
34 ter-sil (JH 80423)
- Cetraria islandica* (L.) Ach.
29 bry/dtr (JH 75361)
- **Cetrelia cetrarioides* (Delise ex Duby) W.L.Culb. et C.F.Culb.
10 Fag (FB 765)
- **Chaenotheca chlorella* (Ach.) Müll.Arg.
6 Pnn (DS 1707)
- **Chaenotheca chrysocephala* (Turner ex Ach.) Th.Fr.
6 Pnn (FB 726, DS 1708)
- **Chaenotheca ferruginea* (Turner & Borrer) Mig.
8 Pic (DS 1709)
- **Cladonia cariosa* (Ach.) Spreng.
21 ter-cal (JM 4159)
- Cladonia coniocraea* (Flörke) Spreng.
25 Cas (JH 60498), 38 xyl (JH 80462)
- Cladonia convoluta* (Lamkey) Anders
33 ter-cal (JH 71243)
- **Cladonia digitata* (L.) Hoffm.
36 xyl (JH 80441), 37 xyl (JH 80381)
- Cladonia fimbriata* (L.) Fr.
25 Cas (JH 60497), 26 Cra (JH 60568), 34 ter-sil (JH 80424)
- Cladonia furcata* (Huds.) Schrad.
10 ter-cal (DS 1704), 11 ter-cal (DS 1826), 36 xyl (JH 80442)
- Cladonia pocillum* (Ach.) Grognot
11 ter-cal (FB 752)
- Cladonia pyxidata* (L.) Hoffm.
4 ter-cal (DS 1800), 28 ter-cal (JH 75350), 36 bry/dtr (JH 80451), 39 bry/dtr (JH 80481)
- Cladonia rangiformis* Hoffm.
4 ter-cal (DS 1801), 10 ter-cal (FB 720), 25 ter-cal (JH 60508), 33 ter-cal (JH 71243), 34 ter-sil (JH 80425), 37 xyl (JH 80401), 39 ter-cal (JH 80480)
- **Cladonia symphyrcarpia* (Flörke) Fr.
4 ter-cal (DS 1802), 11 ter-cal (DS 1826 depon. sub *Cladonia furcata*), 18 ter-cal (JM 4241), 28 ter-cal (JH 75349), 29 ter-cal (JH 75369)
- **Clauzadea immersa* (Weber ex F.H.Wigg.) Hafellner & Bellem.
29 cal (JH 80337, as host of *Caloplaca nubigena*), 32 cal (JH 71126)
- **Clauzadea monticola* (Schaer.) Hafellner & Bellem.
28 cal (JH 80304)

- Coenogonium pineti* (Schrad. ex Ach.) Lücking & Lumbsch
6 Abb (DS 1810), 38 xyl (JH 80463)
- Collema auriforme* (With.) Coppins & J.R.Laundon
7 cal (DS 1799), 8 cal (DS 1739)
- **Collema crispum* (Huds.) Weber ex F.H.Wigg.
2 cal (DS 1727, 1728), 6 cal (DS 1737)
- **Collema cristatum* (L.) Weber ex F.H.Wigg.
7 cal (DS 1721, 1724)
- Collema flaccidum* (Ach.) Ach.
1 Fag (DS 1722), 3 Pmy (DS 1720), 6 Abb (DS 1712), 10 Abb (DS 1734), 24 Ptr (FB 378), 31 Aop (JH 71108) Fag (JH 71111), 36 oph (JH 80450), 42 Abb (JH 80507)
- **Collema furfuraceum* (Arnold) Du Rietz
1 Fag (DS 1733), 3 Pcf (DS 1726), 10 Abb (DS 1732), Qce (DS 1713), 16 Mdo (JM 4152), 17 Fag (JM 4218)
- Collema fuscovirens* (With.) J.R.Laundon
4 cal (DS 1798), 8 cal (DS 1740)
- Collema multipartitum* Sm.
41 cal (JH 80494)
- **Collema parvum* Degel.
32 cal (JH 71130)
- Collema tenax* (Sw.) Ach.
7 cal (DS 1735), 8 cal (DS 1738), 10 ter-cal (DS 1723, 1725), 14 ter-cal (DS 1919), 29 ter-cal (JH 75368), 41 ter-cal (JH 80498)
- Collema undulatum* Laurer ex Flot.
2 cal (DS 1857)
- **Cyphelium inquinans* (Sm.) Trevis.
13 Phe (DS 1827)
- **Degelia atlantica* (Degel.) M.Jørg. & P.James
3 Fag (FB 722)
- **Degelia plumbea* (Lightf.) M.Jørg. & P.James
6 Abb (DS 1751), 25 Cas (JH 60501)
- Dermatocarpon miniatum* (L.) W.Mann
3 cal (DS 1793), 4 cal (DS 1638), 28 cal (JH 75348)
- Dirina stenhammari* (Fr. ex Stenh.) Poelt & Follmann
41 cal (JH 80495)
- Evernia divaricata* (L.) Ach.
6 Phe (FB 757), 19 Phe (FB 351)
- **Evernia illyrica* (Zahlbr.) Zahlbr.
13 Phe (DS 1830), 19 Phe (JM 4252, FB 344)
- **Farnoldia jurana* (Schaer.) Hertel
39 cal (JH 80477)
- **Fellhanera bouteillei* (Desm.) Vězda
6 Bux (FB 734)
- **Frutidella pullata* (Norman) Schmull
37 xyl (JH 80382)
- **Fulgensia klementii* Kalb
2 cal (DS 1634), 4 ter-cal (DS 1635), 18 cal (JM 4242, FB 348)
- **Fuscidea kochiana* (Hepp) V.Wirth & Vězda
29 int (JH 80346)
- **Fuscidea stiriaca* (A.Massal.) Hafellner
1 Fag (DS 1862, 1864), 36 Fag (JH 80434), 37 Fag (JH 80 379)
- **Fuscopannaria leucophaea* (Vahl) M.Jørg.
37 oph (JH 80395)
- **Fuscopannaria leucosticta* (Tuck.) M.Jørg.
6 Abb (FB 761, DS 1752)
- **Graphis scripta* (L.) Ach.
15 Qco (FB 773)
- **Heppia adglutinata* (Kremp.) A.Massal.
2 ter-cal (DS 1748), 11 ter-cal (FB 745)
- **Heterodermia speciosa* (Wulfen) Trevis.
31 Aop (JH 71092)
- **Hymenelia coerulea* (DC.) A.Massal.
29 cal (JH 80325)
- Hyperphyscia adglutinata* (Flörke) H.Mayrhofer & Poelt
33 Ple (JH 71240)
- **Hypogymnia farinacea* Zopf
24 Abb (FB 369)
- Hypogymnia tubulosa* (Schaer.) Hav.
26 Cra (JH 60573)
- **Imshaugia aleurites* (Ach.) S.L.F.Meyer
37 xyl (JH 80385)
- **Lecania cyrtella* (Ach.) Th.Fr.
43 Aps (JH 80518)
- **Lecanora agardhiana* Ach. subsp. *agardhiana* var. *agardhiana*
7 cal (DS 1636), 32 cal (JH 71127)
- **Lecanora agardhiana* subsp. *sapaudica* Clauzade & Cl.Roux var. *lecidella* (Poelt) Leuckert & Poelt
29 cal (JH 80370)
- Lecanora allophana* Nyl. f. *allophana*
17 Fag (JM 4221, 4226), 24 Ptr (JM 4194, 4215)
- **Lecanora allophana* f. *sorediata* (Schaer.) Vain.
24 Ptr (JM 4198)
- Lecanora argentata* (Ach.) Malme
1 Fag (DS 1846, 1854)
- Lecanora carpinea* (L.) Vain.
1 Fag (DS 1821 depon. sub *Melanelixia glabra*), 10 Qce (DS 1653), depon. sub *Physcia leptalea*), 26 Cra (JH 60566), 43 Aps (JH 80524)
- **Lecanora cenisia* Ach.
29 int (JH 80347), 34 oph (JH 80406)
- **Lecanora chlorotera* Nyl.
10 Qce (DS 1805 depon. sub *Pleurosticta acetabulum*), 12 Qce (FB 361), 16 Mdo (JM 4151),

- 17 Fag (JM 4220, 4224), xyl (JM 4288), 18 Phe (FB 347), 23 cor (JM 4183), 24 xyl (JM 4189), Ptr (JM 4192), Fag (JM 4196), Abb (JM 4209 depon. sub *Ochrolechia szatalaensis*), 31 Aop (JH 71099 as host of *Stigidium congestum*), Fag (JH 71112), 39 Cra (JH 80474 as host of *Vouauxiella lichenicola*)
- **Lecanora crenulata* Hook.
29 cal (JH 80329)
- **Lecanora hagenii* (Ach.) Ach.
22 Pop (JM 4177)
- **Lecanora intricata* (Ach.) Ach.
29 int (JH 80348)
- Lecanora intumescens* (Rebent.) Rabenh.
10 Qce (DS 1856), 17 Fag (JM 4219, 4222, 4286), 24 Fag (JM 4195), 28 Phe (JH 80311), 31 Fag (JH 71113), 36 Fag (JH 80435), 43 Fag (JH 80511)
- **Lecanora leptyroides* (Nyl.) Degel.
10 Qce (DS 1855), 22 Jug (JM 4178), 24 Fag (JM 4197)
- **Lecanora mughicola* Nyl.
4 Pnn (JM 4282), 19 Phe (JM 4258), 37 xyl (JH 80386)
- Lecanora persimilis* (Th.Fr.) Nyl.
2 Pnn (DS 1844), 17 Fag (JM 4287). Note: Previously recorded under *L. umbrina*.
- Lecanora polytropa* (Ehrh. ex Hoffm.) Rabenh.
11 sil (JM 4264), 28 sil (JH 80306), 29 int (JH 80349), 36 oph (JH 80448), 37 oph (JH 80396)
- Lecanora pulicaris* (Pers.) Ach.
35 Pnn (JH 80427)
- **Lecanora reuteri* Schaer.
29 cal (JH 80331)
- Lecanora rupicola* (L.) Zahlbr.
29 int (JH 80374, 80375), 34 oph (JH 80407)
- Lecanora salicicola* H.Magn.
23 cor (JM 4184)
- Lecanora saligna* (Schrad.) Zahlbr.
1 Fag (DS 1821 depon. sub *Melanelixia glabra*), 4 Phe (FB 397), 26 Cra (JH 60567)
- Lecanora saxicola* (Pollich.) Ach.
11 cal, 28 sil (JH 80308), 34 oph (JH 80410)
- Lecanora semipallida* H.Magn.
18 cal (JM 4235)
- Lecanora subcarpineae* Szatala
24 Abb (JM 4212)
- Lecanora varia* (Hoffm.) Ach.
2 Pnn (DS 1845, 1852), 19 Phe (JM 4257, 4258 depon. sub *Lecanora mughicola*), 35 Pnn (JH 80428), 37 xyl (JH 80387)
- **Lecidea atrobrunnea* (Ramond ex Lam. & DC.) Schaer.
11 sil (JM 4263), 24 sil (FB 373), 29 int (JH 80350)
- *“*Lecidea*“ *varians* Ach.
33 Ple (JH 71241)
- **Lecidella carpathica* Körb.
11 int (DS 1944, JM 4263 depon. sub *Lecidea atrobrunnea*, 4268 depon. sub *Rhizocarpon reductum*, 4265, PRC), 21 oph (JM 4168), 34 oph (JH 80408), 37 oph (JH 80397)
- Lecidella elaeochroma* (Ach.) Choisy
10 Abb (DS 1949), 16 Mdo (JM 4150), 17 Fag (JM 4223), 18 Sal (JM 4232 depon. sub *Caloplaca cerina*), cor (JM 4236), 26 Cra (JH 60574)
- **Lecidella euphorea* (Flörke) Nyl.
1 Fag (DS 1815), 4 Jun (DS 1952)
- **Lecidella flavosorediata* (Vězda) Hertel & Leuckert
23 cor (JM 4182)
- Lecidella stigmatea* (Ach.) Hertel & Leuckert
7 cal (DS 1950), 18 cal (JM 4228), 29 cal (JH 80371)
- **Leptogium imbricatum* P.M.Jørg.
19 ter-cal (DS 1915)
- **Leptogium gelatinosum* (With.) J.R.Laundon
6 cal (DS 1715, 1718), 18 ter-cal (JM 4247)
- Leptogium lichenoides* (L.) Zahlbr.
1 Fag (DS 1729), 24 Fag (JM 4191), 31 Aop (JH 71093), 41 bry/dtr (JH 80497)
- **Leptogium palmatum* (Huds.) Mont.
10 ter-cal (DS 1716)
- Leptogium pulvinatum* (Hoffm.) Otálora
6 cal (DS 1736), 21 ter-cal (JM 4160)
- Leptogium saturninum* (Dicks.) Nyl.
1 Fag (DS 1731), 3 Pcf (DS 1719), 8 Fex, 24 Ptr (JM 4200), 30 Fag (JH 71233), 31 Aop (JH 71101), 43 Aps (JH 80525)
- **Leptogium schraderi* (Bernh.) Nyl.
6 cal (DS 1836 depon. sub *Toninia sedifolia*)
- Leptogium tenuissimum* (Dicks.) Körb.
7 Pnn (DS 1717), 14 cal (DS 1834)
- Leptochidium albociliatum* (Desm.) M.Choisy
21 oph (JM 4165)
- **Letharia vulpina* (L.) Hue
13 Abb, 37 xyl (JH 80388)
- Lethariella intricata* (Moris) Krog
37 xyl (JH 80389)
- **Lichinella nigrifella* (Lettau) P. Moreno & Egea
21 ter-cal (JM 4174, PRC)
- Lobaria amplissima* (Scop.) Forssell
6 Abb (DS 1689), 10 Sal (FB 756)

- Lobaria pulmonaria*** (L.) Hoffm.
1 Fag (DS 1686, 1687), 6 Abb (DS 1914), 10 Abb (DS 1705), 30 Fag (JH 71234), 31 Aop (JH 71107), 40 Abb (JH 80503), 43 Fag (JH 80512) Aps (JH 80519)
- ****Lobarina scrobiculata*** (Scop.) Nyl. ex Cromb.
10 Abb (DS 1695, FB 741)
- Lobothallia radiosa*** (Hoffm.) Hafellner
18 cal, 28 sil (JH 80307), 29 int (JH 80351), 34 oph (JH 80412)
- Megalaria grossa*** (Pers. ex Nyl.) Hafellner
42 Abb (JH 80508)
- ****Megaspora verrucosa*** (Ach.) Hafellner & V.Wirth var. ***verrucosa***
29 bry/dtr (JH 75362)
- ****Megaspora verrucosa*** var. ***mutabilis*** (Ach.) Nimis & Cl.Roux
2 Phe (DS 1936), 19 Ptr (FB 375), Phe (JM 4255)
- Melanelixia glabra*** (Schaer.) O.Blanco et al.
1 Fag (DS 1821), 10 Qce (DS 1773 depon. sub *Melanohalea exasperata*), 26 Pyp (JH 60561), 28 Phe (JH 80312), 31 Aop (JH 71054)
- Melanelixia glabrata*** (Lamy) Sandler & Arup
10 Qco (FB 719), 31 Aop (JH 71053), 43 Aps (JH 80526)
- ****Melanohalea elegantula*** (Zahlbr.) O.Blanco et al.
12 Qce (DS 1824, 1825, 1828, FB 362)
- Melanohalea exasperata*** (De Not.) O.Blanco et al.
1 Fag (DS 1821 depon. sub *Melanelixia glabra*), 10 Qce (DS 1773), 23 Pcf (JM 4179), Aln (FB 371), 28 Phe (JH 80313), 39 Cra (JH 80470)
- Melanohalea exasperatula*** (Nyl.) O.Blanco et al.
28 Phe (JH 80314), 35 Pnn (JH 80429)
- ****Melanohalea laciniatula*** (Flagey ex H.Olivier) O.Blanco et al.
24 Abb (JM 4205)
- ****Micarea peliocarpa*** (Anzi) Coppins & R.Sant.
6 Pnn (FB 724), 13 Phe (DS 1935)
- ****Mycoblastus sanguinarius*** (L.) Norman
37 xyl (JH 80383)
- ****Mycobilimbia epixanthoides*** (Nyl.) Vitik. et al. ex Hafellner & Türk
6 Pnn (FB 725)
- ****Mycobilimbia hypnorum*** (Lib.) Kalb & Hafellner
28 bry/dtr (JH 75346)
- Nephroma laevigatum*** Ach.
6 Abb (DS 1698, 1701), 31 Aop (JH 71109)
- ****Nephroma parile*** (Ach.) Ach.
25 Cas (JH 60494), 28 Fag (JH 80323)
- Nephroma resupinatum*** (L.) Ach.
1 Fag (DS 1671, 1706), 5 Fag (DS 1672-5), 13 Fag (DS 1829, FB 365), 24 Fag (FB 381, JM 4201), 30 Fag (JH 71235)
- ****Nephroma tangeriense*** (Maheu & A.Gillet) Zahlbr.
6 Abb (DS 1699)
- ****Normandina pulchella*** (Borrer) Nyl.
6 Pnn (FB 727), 41 Qco (JH 80499)
- Ochrolechia androgyna*** (Hoffm.) Arnold
1 Fag (DS 1745), 2 Pnn (DS 1747), 4 Phe (JM 4283), 13 Phe (FB 366)
- Ochrolechia pallescens*** (L.) A.Massal.
10 Abb (DS 1819), 12 Qce (DS 1833), 13 Abb (DS 1917), 24 Ace (JM 4208)
- Ochrolechia parella*** (L.) A.Massal.
21 oph (JM 4173, PRC)
- ****Ochrolechia szatalaensis*** Verseghy
19 Phe (JM 4253), 24 Abb (JM 4209)
- ****Ochrolechia turneri*** (Sm.) Hasselrot
3 Phe (FB 774)
- ****Opoglyphis vermicellifera*** (Kunze) J.R.Laundon
8 Fex (FB 739)
- ****Pachyphiale carneola*** (Ach.) Arnold
6 Abb (FB 762)
- ****Pachyphiale fagicola*** (Hepp) Zwackh
6 Bux (FB 733)
- Pannaria conoplea*** (Ach.) Bory
10 Abb (FB 758), 42 Abb (JH 80509)
- Parmelia saxatilis*** (L.) Ach.
1 Fag (DS 1775), 6 Pnn (DS 1776), 37 Fag (JH 80380), 38 Aba (JH 80458)
- Parmelia submontana*** Nádov. ex Hale
1 Fag (DS 1774), 24 Abb (JM 4193), Fag (FB 370), 31 Aop (JH 71056), 43 Aps (JH 80527)
- Parmelia sulcata*** Taylor
10 Qce (DS 1805 depon. sub *Pleurosticta acetabulum*), 25 Cas (JH 60495), 31 Aop (JH 71055), 43 Aps (JH 80528)
- ****Parmeliella triptophylla*** (Ach.) Müll.Arg.
5 Fag (DS 1749), 30 Fag (JH 71236), 31 Aop (JH 71094), 36 Fag (JH 80436), 38 Fag (JH 80454)
- ****Parmelina carporrhizans*** (Taylor) Poelt & Vězda
31 Aop (JH 71057)
- Parmelina pastillifera*** (Harm.) Hale
1 Fag (DS 1743), 6 Cra (DS 1676), 12 Qce (DS 1824 depon. sub *Melanohalea elegantula*, FB 360), 16 Mdo (JM 4154), 28 Phe (JH 80315), 31 Aop (JH 71058), 36 Fag (JH 80437), 39 Cra (JH 80471), 43 Aps (JH 80529)
- Parmelina quercina*** (Willd.) Hale
3 Pyp (FB 774), 16 Mdo (JM 4155), 17 Fag (JM 4285)
- Parmelina tiliacea*** (Hoffm.) Hale
25 Cas (JH 60496), 31 Aop (JH 71059)
- ****Parmeliopsis ambigua*** (Wulfen) Nyl.
13 Abb, 17 Phe (FB 350 depon. sub *Caloplaca ferruginea*), 35 Pnn (JH 80430), 36 xyl (JH 80443), 37 xyl (JH 80390)

- **Parmeliopsis hyperopta* (Ach.) Arnold
17 Phe (FB 350 depon. sub *Caloplaca ferruginea*), 19 Phe (JM 4259), 36 xyl (JH 80444), 38 Aba (JH 80459) xyl (JH 80464)
- **Parmotrema perlatum* (Huds.) M.Choisy
41 Qco (JH 80500)
- **Parmotrema robustum* (Degel.) Hale
8 Fic (DS 1781)
- **Peltigera collina* (Ach.) Schrad.
10 Abb (FB 759), 30 Fag (JH 71237), 31 Aop (JH 71096)
- **Peltigera degenii* Gyeln.
1 Fag (DS 1679), 3 Pmy (DS 1685), 10 ter-cal (DS 1680, 1683)
- Peltigera horizontalis* (Huds.) Baumg.
10 ter-cal (DS 1674), 30 cal (JH 71239)
- **Peltigera membranacea* (Ach.) Nyl.
3 Fag (DS 1684), 10 ter-cal (DS 1702)
- **Peltigera neckeri* Hepp ex Müll.Arg.
10 ter-cal (DS 1667, 1682), 13 ter-cal (FB 357), 18 ter-cal (JM 4240)
- **Peltigera polydactylon* (Neck.) Hoffm.
10 ter-cal (DS 1681, FB 754)
- Peltigera praetextata* (Flörke ex Sommerf.) Zopf
5 Fag (DS 1678), 10 ter-cal (DS 1668-9), 40 Abb (JH 80504)
- Peltigera rufescens* (Weiss) Humb.
28 ter-cal (JH 75351)
- **Peltigera venosa* (L.) Hoffm.
28 ter-cal (JH 75352)
- Pertusaria albescens* (Huds.) M.Choisy & Werner
6 Abb (DS 1794), 24 Abb (JM 4199, FB 382), 25 Cas (JH 60500), 31 Aop (JH 71097), 31 Que (JH 71116), 38 Aba (JH 80460)
- Pertusaria amara* (Ach.) Nyl.
1 Fag (DS 1792), 10 Abb (DS 1795)
- **Pertusaria chiodectionoides* Bagl. ex A.Massal.
34 oph (JH 80414)
- **Pertusaria coccodes* (Ach.) Nyl.
38 Fag (JH 80456), 43 Aps (JH 80530)
- **Pertusaria coronata* (Ach.) Th.Fr.
10 Abb (DS 1746), 38 Fag (JH 80455)
- **Pertusaria flavida* (DC.) J.R.Laundon
1 Fag (DS 1790), 10 Abb (FB 735), 12 Qce (FB 359, DS 1921)
- Pertusaria pertusa* (Weigel) Tuck.
1 Fag (DS 1789), 30 Fag (JH 71210)
- **Petractis clausa* (Hoffm.) Kremp.
3 cal (DS 1786), 6 cal (DS 1785),
- **Phaeophyscia endophoenicea* (Harm.) Moberg
17 Fag (JM 4217)
- **Phaeophyscia nigricans* (Harm.) Moberg
22 Pop (JM 4177 depon. sub *Lecanora hagenii*), 24 Ptr (FB 380, JM 4202, PRC)
- Phaeophyscia orbicularis* (Neck.) Moberg
16 Mdo (JM 4149), 22 Pop (JM 4177 depon. sub *Lecanora hagenii*), 30 Fag (JH 71238)
- **Phaeophyscia sciastra* (Ach.) Moberg
11 int (DS 1932)
- Phlyctis agelaea* (Ach.) Flot.
42 Abb (JH 80510)
- Phlyctis argena* (Spreng.) Flot.
26 Pyp (JH 60560), 26 Cra (JH 60572), 31 Aop (JH 71097) Que (JH 71118), 43 Aps (JH 80520, 80531)
- Physcia adscendens* (Fr.) H.Olivier
10 Abb (DS 1662 depon. sub *Physcia leptalea*)
- Physcia aipolia* (Ehrh. ex Humb.) Fűrnr.
10 Abb (DS 1661), 23 Pcf (JM 4179 depon. sub *Melanohalea exasperata*), 24 Ace (JM 4204), 25 Cas (JH 60492), 31 Que (JH 71117)
- Physcia biziana* (A.Massal.) Zahlbr.
6 Abb (DS 1658)
- Physcia leptalea* (Ach.) DC.
6 Abb (DS 1655), 8 Fex, 10 Abb, Qce (DS 1653, 1662), 19 Phe (JM 4260), 39 Cra (JH 80472)
- Physcia stellaris* (L.) Nyl.
26 Cra (JH 60571), 28 Phe (JH 80316)
- **Physcia tenella* (Scop.) DC.
10 Abb (DS 1662 depon. sub *Physcia leptalea*), 16 Mdo (JM 4149 depon. sub *Phaeophyscia orbicularis*), 23 Abb (JM 4180)
- Physcia tribacia* (Ach.) Nyl.
11 cal (DS 1918)
- **Physcia wainioi* Räsänen
34 oph (JH 80409)
- Physconia distorta* (With.) J.R.Laundon
6 Abb (DS 1656), 10 Abb (DS 1666), 12 Qce (DS 1823 depon. sub *Pleurosticta acetabulum*), 16 Mdo (JM 4153), 17 Fag (JM 4216), 24 Abb (JM 4188), 25 Cas (JH 60493), 43 Fag (JH 80513) Aps (JH 80521)
- **Physconia muscigena* (Ach.) Poelt
29 bry/dtr (JH 75363)
- **Physconia perisidiosa* (Erichsen) Moberg
24 Abb (FB 384)
- **Physconia venusta* (Ach.) Poelt
3 Pmy (DS 1657, 1663), 12 Qce (DS 1823 depon. sub *Pleurosticta acetabulum*)
- Placidium squamulosum* (Ach.) Breuss
6 ter-cal (DS 1946), 19 ter-cal (JM 4250)
- **Placopyrenium fuscillum* (Turner) Gueidan & Cl.Roux
29 cal (on *Verrucaria nigrescens* agg.) (JH 80366)
- Placynthiella icmalea* (Ach.) Coppins & P.James
36 xyl (JH 80447)
- **Placynthium filiforme* (Garov.) M.Choisy
3 cal (JM 4274)

- **Placynthium garovaglioii* (A.Massal.) Malme
3 cal (JM 4273)
- **Placynthium nigrum* (Huds.) Gray
3 cal (JM 4276)
- **Placynthium stenophyllum* (Tuck.) Fink
6 cal (DS 1652, 1714)
- Platismatia glauca* (L.) W.L.Culb. & C.F.Culb.
13 Abb, 36 Fag (JH 80438)
- Pleurosticta acetabulum* (Neck.) Elix & Lumbsch
10 Abb, Qce (DS 1744, 1805), 12 Qce (DS 1823), 24 Abb (JM 4190), 26 Pyp (JH 60558), 26 Cra (JH 60569), 27 Qce (JH 60528), 31 Que (JH 71119), 43 Aps (JH 80522)
- **Polyblastia cupularis* A.Massal.
2 cal (DS 1889, 1890), 4 cal (DS 1887) 11 cal (DS 1938)
- **Polyblastia dermatodes* A.Massal
2 cal (DS 1891)
- **Polysporina cyclocarpa* (Anzi) Vězda
4 cal (DS 1937)
- **Protoblastenia calva* (Dicks.) Zahlbr.
6 cal (DS 1788), 29 cal (JH 80326), 32 cal (JH 71128)
- **Protoblastenia cyclospora* (Hepp ex Körb.) Poelt
3 cal (DS 1643), 6 cal (DS 1648), 11 cal (FB 353)
- **Protoblastenia incrustans* (DC.) J.Steiner
14 cal (DS 1924), 29 cal (JH 80330), 32 cal (JH 71129)
- Protoblastenia rupestris* (Scop.) J.Steiner
6 cal (DS 1787)
- **Protoparmelia badia* (Hoffm.) Hafellner
29 int (JH 80352)
- Psodevernia furfuracea* (L.) Zopf
3 Phe (FB 763), 13 Abb, 26 Pyp (JH 60559), 26 Cra (JH 60570), 28 Phe (JH 80317), 35 Pnn (JH 80431)
- Psora decipiens* (Hedw.) Hoffm.
2 ter-cal (DS 1748 depon sub. *Heppia adglutinata*), 18 ter-cal (JM 4237, FB 349), 19 ter-cal (JM 4250 depon. sub *Placidium squamulosum*), 28 ter-cal (JH 75353), 29 ter-cal (JH 75370)
- **Psora globifera* (Ach.) A.Massal.
34 ter-sil (JH 80426)
- **Psora rubiformis* (Ach.) Hook.
20 sil (JM 4187)
- **Psora testacea* Hoffm.
13 cal (FB 354)
- **Psoroma tenue* Henssen var. *boreale* Henssen
29 ter-int (JH 75371)
- Punctelia subrudecta* (Nyl.) Krog
25 Cas (JH 60499)
- **Pycnora sorophora* (Vain.) Hafellner
37 xyl (JH 80391)
- Ramalina calicaris* (L.) Fr.
10 Abb, Qce (DS 1763, 1766), 23 Abb (JM 4186)
- Ramalina canariensis* J.Steiner
6 Pnn (DS 1765), 15 Qco (FB), 24 Abb (FB 374)
- Ramalina farinacea* (L.) Ach.
10 Abb, Qce (DS 1757-8), 15 Ole (DS 1755), 31 Aop (JH 71102), Que (JH 71120), 40 Abb (JH 80505)
- Ramalina fastigiata* (Pers.) Ach.
6 Pnn (DS 1765 depon. sub *Ramalina canariensis*), 10 Abb (DS 1759, 1771), 31 Aop (JH 71103), 43 Aps (JH 80523)
- Ramalina fraxinea* (L.) Ach.
1 Fag (DS 1821 depon. sub *Melanelixia glabra*), 10 Abb, Qce (DS 1762, 1770, 1772, 1768), 17 Fag (JM 4225), 22 Pcf (JM 4181), 24 Abb (FB 379), 26 Cra (JH 60565), 27 Qce (JH 60531), 31 Aop (JH 71104)
- Rhizocarpon geographicum* (L.) DC.
11 sil (DS 1926, JM 4263 depon. sub *Lecidea atrobrunnea*, 4268 depon. sub *Rhizocarpon reductum*), 18 sil, 28 sil (JH 80309), 29 int (JH 80353), 34 oph (JH 80415), 37 oph (JH 80398)
- **Rhizocarpon polycarpum* (Hepp) Th.Fr.
28 sil (JH 80310)
- **Rhizocarpon reductum* Th.Fr.
11 sil (JM 4268)
- Rhizocarpon umbilicatum* (Ramond) Flagey
4 cal (DS 1941), 21 oph (JM 4169), 29 cal (JH 80338)
- **Rhizocarpon viridiatrum* (Wulfen) Körb.
34 oph (on *Aspicilia* spec.) (JH 80416)
- **Rimularia insularis* (Nyl.) Rambold & Hertel
29 int (on *Lecanora rupicola* agg.) (JH 80354)
- **Rinodina albana* (A.Massal.) A.Massal.
17 Fag (JM 4227)
- **Rinodina immersa* (Körb.) Zahlbr.
7 cal (DS 1808), 14 cal (DS 1923), 28 cal (JH 80305), 29 cal (JH 80327)
- Rinodina sophodes* (Ach.) A.Massal.
6 Tba (FB 730), 28 Phe (JH 80318)
- Rinodina trevisanii* (Hepp) Körb.
19 Phe (JM 4261)
- Romjularia lurida* (Ach.) Timdal
4 ter-cal (JM 4278), 7 ter-cal (DS 1861), 11 ter-cal (DS 1934), 17 ter-cal (FB 1017), 28 ter-cal (JH 75354), 29 ter-cal (JH 75372)
- **Sagiolechia protuberans* (Ach.) A.Massal.
39 cal (JH 80478)
- **Sarcogyne regularis* Körb.
2 cal (DS 1649 depon. sub *Caloplaca marmorata*), 4 cal (DS 1841)

- **Schaereria fuscocinerea* (Nyl.) Clauzade & Cl.Roux
29 int (JH 80355)
- **Sclerophora peronella* (Ach.) Tibell
6 Abb (DS 1822)
- Scoliosporum umbrinum* (Ach.) Arnold
17 Fag (JM 4223 depon. sub *Lecidella elaeo-*
chroma), 24 Abb (JM 4213), (FB 387)
- **Seiophora contortuplicata* (Ach.) Frödén
29 cal (JH 80332)
- Solorina bispora* Nyl.
2 ter-cal (DS 1700), 18 ter-cal (JM 4234), 29
ter-cal (JH 80368, 80369)
- **Solorina spongiosa* (Sm.) Anzi
19 ter-cal (DS 1916)
- Squamarina cartilaginea* (With.) P.James
2 cal (DS 1640), 14 cal (DS 1920), 18 cal (JM
4239)
- Squamarina gypsacea* (Sm.) Poelt
4 cal (DS 1814), 28 ter-cal (JH 75355), 29 ter-
cal (JH 75373)
- **Squamarina lamarckii* (DC.) Poelt
29 cal (JH 80342)
- **Staurothele areolata* (Ach.) Lettau
11 sil (JM 4270), 24 sil (FB 373 depon. sub
Lecidea atrobrunnea)
- **Sticta fuliginosa* (Hoffm.) Ach.
10 Abb (FB 760)
- **Tephromela atra* (Huds.) Hafellner ex Kalb var. *atra*
29 int (JH 80356), 34 oph (JH 80411)
- Tephromela atra* var. *torulosa* (Flot.) Hafellner
12 Qce (FB 355), 27 Qce (JH 60530), 36 Fag
(JH 80439)
- **Thelidium papulare* (Fr.) Arnold
3 cal (JM 4272)
- Toninia candida* (Weber) Th.Fr.
2 cal (DS 1837)
- **Toninia opuntioides* (Vill.) Timdal
2 cal (DS 1835), 7 cal (DS 1838), 14 cal (DS
1832)
- **Toninia rosulata* (Anzi) H.Olivier
4 ter-cal (JM 4284), 7 ter-cal (DS 1863)
- Toninia sedifolia* (Scop.) Timdal
2 cal (DS 1857 depon. sub *Collema undulatum*),
6 cal (DS 1836)
- **Trapelia placodioides* Coppins & P.James
36 oph (JH 80449), 37 oph (JH 80399)
- **Umbilicaria cylindrica* (L.) Delise ex Duby
29 int (JH 80357)
- **Umbilicaria deusta* (L.) Baumg.
29 int (JH 80358)
- **Usnea lapponica* Vain.
10 Abb (DS 1783), 24 Abb (FB 372)
- **Usnea scabrata* Nyl.
24 Abb (FB 372 depon. sub *Usnea lapponica*,
JM 4207)
- **Verrucaria hochstetteri* Fr.
3 cal (JM 4275)
- **Verrucaria limborioides* A.Massal.
2 cal (DS 1893, 1894)
- **Verrucaria muralis* Ach.
2 cal (DS 1892)
- Verrucaria nigrescens* Pers.
2 cal (DS 1888), 6 cal (DS 1886), 11 cal (DS
1943), 39 cal (JH 80479)
- **Xanthomendoza fulva* (Hoffm.) Søchting, Kämefelt
& S.Kondr.
24 Ptr (FB 376)
- Xanthoparmelia conspersa* (Ehrh. ex Ach.) Hale
34 oph (JH 80412)
- Xanthoparmelia pulla* (Ach.) O.Blanco et al.
23 sil (FB 367)
- Xanthoparmelia tinctina* (Maheu & A.Gillet) Hale
21 oph (JM 4166)
- Xanthoria elegans* (Link) Th.Fr.
29 cal (JH 80339)
- Xanthoria parietina* (L.) Th.Fr.
8 Fex, 9 cal (DS 1641), 16 Mdo (JM 4151
depon. sub *Lecanora chlarotera*), 33 Ple (JH
71242), 39 Cra (JH 80473)

Non-lichenized lichenicolous fungi

Note: For lichenized lichenicolous fungi see above under *Caloplaca grimmiae*, *C. inconnexa* var. *inconnexa*, *C. inconnexa* var. *verrucariarum*, *C. nubigena*, *C. oasis*, *C. polycarpa*, *Placopyrenium fuscillum*, *Rhizocarpon viridiatrum*, and *Rimularia insularis*.

- **Arthonia varians* (Davies) Nyl.
29 (JH 80361), 34 (JH 80417) on *Lecanora ru-*
picola agg.
- **Arthrorhaphis aeruginosa* R.Sant. & Tønsberg
36 (JH 80440) on *Cladonia* sp.
- **Carbonea superspersa* (Nyl.) Hertel
29 (JH 80362) on *Lecanora polytropa*
- **Carbonea vitellinaria* (Nyl.) Hertel
29 (JH 80363), 34 (JH 80418) on *Candelariella*
vitellina
- **Cercidospora epipolytropa* (Mudd) Arnold
29 (JH 80378) on *Lecanora polytropa*
- **Dacampia engeliana* (Saut.) A.Massal.
29 (JH 75374) on *Solorina* sp.

- **Endococcus macrosporus* (Arnold) Nyl.
29 (JH 80364) on *Rhizocarpon geographicum*
- **Halospora discrepans* (J.Lahm ex Arnold) Hafellner
29 (JH 80372) on *Protoblastenia incrustans*
- Lichenostigma elongata* Nav.-Ros. & Hafellner
34 (JH 80419) on *Lobothallia radiosa*
- Lichenostigma maureri* Hafellner
35 (JH 80432) on *Pseudevernia furfuracea*
- **Muellerella atricola* (Linds.) Sacc. & D.Sacc.
34 (JH 80420) on *Tephromela atra*
- Muellerella pygmaea* (Körb.) D.Hawksw.
29 (JH 80377) on *Lecidea* sp.
- **Nectriopsis lecanodes* (Ces.) Diederich & Schroers
31 (JH 71099) on *Lobaria pulmonaria*
- **Phacopsis vulpina* Tul.
37 (JH 80392) on *Letharia vulpina*
- **Phacographa protoparmeliae* Hafellner
29 (JH 80365) on *Protoparmelia badia*
- Polycoccus pulvinatum* (Eitner) R.Sant.
34 (JH 80421) on *Physcia wainioi*
- **Rosellinula haplospora* (Th.Fr. & Almq.) R.Sant.
29 (JH 80376) on *Aspicilia* sp.
- **Sphaerellothecium cladoniae* (Alstrup & Zhurb.)
Hafellner
28 (JH 75356) on *Cladonia pyxidata*, 29 (JH 75364) on *Cladonia* sp.
- **Stigmidium congestum* (Körb.) Triebel
31 (JH 71099) on *Lecanora chlarotera*
- **Stigmidium psorae* (Anzi) Hafellner
29 (JH 75375) on *Psora decipiens*
- **Stigmidium pumilum* (Lettau) Matzer & Hafellner
34 (JH 80422) on *Physcia wainioi*
- **Tremella ramalinae* Diederich
31 (JH 71100) on *Ramalina fraxinea*
- **Vouauxiella lichenicola* (Linds.) Petr. & Syd.
37 (JH 80403) on *Lecanora chlarotera*, 39 (JH 80474) on *Lecanora* sp.

Discussion

Taking into consideration the number of known taxa from various European countries of similar size (cf. HAFELLNER 2007) we expect that with this contribution now about one third of the total diversity of lichenized and lichenicolous fungi has been documented.

Besides the simple counting of number of species, recorded taxa could be ranged following main lichen- or phytogeographical units. Albania hosts many taxa with oceanic tendencies, (e.g. *Baeomyces placophyllus*, *Leptogium palmatum*, *Megalaria grossa*, *Parmotrema robustum*, *Ramalina canariensis*), typical species of old growth (oceanic) forests (e.g. *Degelia atlantica*, *D. plumbea*, *Heterodermia speciosa*, *Lobaria amplissima*, *Lobarina scrobiculata*, *Nephroma* sp. div., *Pachyphiale carneola*, *Pannaria conoplea*, *Parmeliella triptophylla*, *Sticta fuliginosa*) and many Mediterranean elements (for example *Caloplaca erythrocarpa*, *C. haematites*, *Evernia illyrica*, *Lethariella intricata*, *Physcia biziana*, *P. leptalea*, *Physconia venusta*, *Verrucaria limborioides*). The presence of high mountains favors the development of mountain terricolous and saxicolous associations which are often very rich in species diversity. Good representatives of these high altitude lichen communities are *Caloplaca sinapisperma*, *Catapyrenium cinereum*, *C. daedaleum*, *Psoroma tenue*, *Toninia rosulata* and *Solorina bispora* on the ground, and *Caloplaca anularis*, *C. arnoldiiconfusa*, *C. coccinea*, *C. diphodes*, *C. fusciorufa*, *C. percrocata*, *C. nubigena*, *Fuscidea kochiana*, *Lecidea atrobrunnea*, and *Squamarina lamarckii* on rocks. These records are comparable with records of other Mediterranean countries as Macedonia (MAYRHOFER et al. 2012), Italy (NIMIS & MARTELLOS 2003) or Montenegro (KNEŽEVIĆ & MAYRHOFER 2009).

Unfortunately, several localities with populations of such species as mentioned above are now negatively influenced by side effects of the accelerated development of the country. In particular many forested areas are rapidly modified by intensive logging (often illegal), for example old-growth beech forests inside of the Theth National Park and near park borders (Theth valley, Boge valley) were severely logged during our visit in 2009. Similar activities were noticed in Lurë National Park during our foray in 2007. These forests host(ed) well developed epiphytic communities including several *Lobarion* species (*Degelia plumbea*, *Lobaria* sp. div,

Lobarina scrobiculata, *Nephroma* sp. div., *Pannaria conoplea*, *Peltigera* sp. div., etc.) comparable to the more often visited UNESCO World heritage centre Biogradska Gora in neighbouring Montenegro. Recently (2011–2012) built new paved roads to the Theth village and to the Valbonë valley can even increase this impact.

Several national parks have been exploited much more – for example visited parts of the NP Zall Gjocaj in Central Albania are totally deforested from mature specimens of *Pinus heldreichii*; dissevered remains of hundreds of these 200–650 years old trees are dispersed in the land as cut up in situ. Forests dominated by *Abies borisii-regis* and beech there and in the NP Bredhi i Drenovës were cut almost clearly. Only small patch of preserved mature specimens of *Abies borisii-regis* trees we observed in the NP Llogora in Southern Albania and in the upper part of the NP Bredhi i Hotovës. Old-growth forests, generally so rare in the Balkan Peninsula, serve as biodiversity centres where many organisms can survive and they have very important conservational status (cf. SCHEIDEGGER & WERTH 2009). We hope that Albanian authorities can manage soon to embank these destructive activities in order to ensure the survival of many rare biota including several endangered epiphytic lichen species.

Subalpine and alpine ecosystems are better preserved; intensive tourism has not yet developed in the country and grazing with sheep and goats during the summer months has, as far as we could see, little impact on ground lichens.

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