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Some new and interesting lichens, allied fungi and lichenicolous fungi from southern and central Switzerland

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ABSTRACT

BOOM, P. P. G. van den & P. CLERC (2000). Some new and interesting lichens, allied fungi and lichenicolous fungi from southern and central Switzerland. *Candollea* 55: 87-103. In English, English and French abstracts.

Lichens, allied fungi and lichenicolous fungi, collected during a trip through southern and central Switzerland are listed. The following annotated list contains 258 identified species that are new and/or rare in Switzerland. *Agonimia vouauxii* (de Lesd.) ined., *Bacidia absistens* (Nyl.) Arnold, *Biatoridium delitescens* (Arnold) Hafellner, *Dermatocarpon leptophyllum* (Ach.) Lang, *Hymenelia similis* (A. Massal.) Poelt & Vezda, *Lepraria* aff. *flavescens* Clauzade & Cl. Roux, *Micarea botryoides* (Nyl.) Coppins, *M. leprosula* (Th. Fr.) Coppins & A. Fletcher, *Protoparmelia hypotremella* Herk, Spier & Wirth, *Rinodina rinodinoides* (Anzi) H. Mayrhofer & Scheid., *Strigula* aff. *phaea* (Ach.) R. C. Harris, *Thelopsis flaveola* Arnold, *Tremella coppinsii* Diederich & Marson, *T. phaeophysciae* Diederich & M. S. Christ have been recorded for the first time in the country.

RÉSUMÉ

BOOM, P. P. G. van den & P. CLERC (2000). Nouveautés pour les lichens, champignons lichénicoles et autres champignons non lichénisés usuellement traités avec les lichens, de Suisse centrale et méridionale. *Candollea* 55: 87-103. En anglais, résumés anglais et français.

Une liste de 258 espèces de lichens, champignons lichénicoles et autres champignons non lichénisés usuellement traités avec les lichens est présentée, résultat d'une série d'excursions en Suisse, à travers l'Oberland bernois et le Valais central. *Agonimia vouauxii* (de Lesd.) ined., *Bacidia absistens* (Nyl.) Arnold, *Biatoridium delitescens* (Arnold) Hafellner, *Dermatocarpon leptophyllum* (Ach.) Lang, *Hymenelia similis* (A. Massal.) Poelt & Vezda, *Lepraria* aff. *flavescens* Clauzade & Cl. Roux, *Micarea botryoides* (Nyl.) Coppins, *M. leprosula* (Th. Fr.) Coppins & A. Fletcher, *Protoparmelia hypotremella* Herk, Spier & Wirth, *Rinodina rinodinoides* (Anzi) H. Mayrhofer & Scheid., *Strigula* aff. *phaea* (Ach.) R. C. Harris, *Thelopsis flaveola* Arnold, *Tremella coppinsii* Diederich & Marson, *T. phaeophysciae* Diederich & M. S. Christ sont toutes des espèces nouvelles pour la Suisse.

KEY-WORDS: Lichens – Lichenicolous fungi – Switzerland.

Introduction

During a study trip through the Rhône valley (canton of Valais) and the area near Brienz (canton of Bern), in the summer of 1996, 20 sites were visited by the first author in order to survey the lichen flora. A part of this area close to Evolène (Val d'Hérens, canton of Valais) has

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a relatively well-known lichen flora where the Dutch Bryological and Lichenological Study group recorded about 600 lichens and lichenicolous fungi during the recent field work it undertook (BOOM & al., 1993).

The present paper lists lichens and lichenicolous fungi that were found in the course of the survey of several localities ranging from 650 to 2200 m in the Rhône valley. The lichen flora of the Leuk area, near Sierre, is not particularly rich. It was however, gratifying to find some very interesting lichens on a fallen, rotting trunk, among them, an undescribed species of the genus *Gyalideopsis* which was growing close to *Absconditella lignicola* Vezda & Pisut and *Catinaria atropurpurea* (Schaer.) Vezda & Poelt.

The survey of the area near Visperterminen did not show a particularly important lichen flora, with the exception of a small population of *Cetraria obtusata* (Schaer.) van den Boom & Sipman found among common terricolous lichens like *Catapyrenium cinereum* (Pers.) Körb., *Cetraria ericetorum* Opiz, *C. nivalis* (L.) Ach., *Dibaes baeomyces* (L. fil.) Rambold & Hertel, "*Lecidea*" *hypnorum* Lib. and *Rinodina mniarea* (Ach.) Körb. The most significant specimens from this area were "*Lecidea*" *rufofusca* (Anzi) Nyl. and *Rinodina conradii* Körb. which where growing in association with *Caloplaca sorocarpa* (Vain.) Zahlbr. and *Lecanora salicicola* H. Magn. on *Rhododendron* branches.

Rinodina rinodinoides (Anzi) Scheid., a rare species found in this area, was growing on a schistose stone on a west-exposed roof, of a barn in a meadow. It was growing among brown and yellow *Rhizocarpon* spp.

The sites covered by a survey at the area of Brienz (Bernese Oberland) vary from a very wet glacier valley to open fields with calcareous outcrops and low shrubs, from roadside trees to mixed forests, ranging from 960 to 2100 m. The glacier valley, with its varied exposed and damp rocks yielded an interesting lichen flora with extensive patches of *Polyblastia ardesiaca* (Bagl. & Car.) Zschacke growing with *Lepraria* sp. in most shaded areas. From the calcareous permanently wet rocks at the periphery of a gorge, that was within the radius of the spray of a waterfall, only crustose inconspicuous lichens like *Hymenelia similis* (A. Massal.) M. Choisy, *Ionaspis melanocarpa* (Kremp.) Arnold, *Eiglera homalomorpha* (Nyl.) Clauzade & Roux and *Thelidium incavatum* Mudd were collected. The first species seems to prefer habitats similar to this gorge and was present in a small amount.

The last important site, south of Brienz, along the stream Giessbach, was also the most interesting owing to its rather well developed *Lobarion* community found in a mixed forest with *Acer, Picea* and *Sorbus*. Interspersed in well-developed fertile patches of *Lobaria pulmonaria* (L.) Hoffm. were *Bacidia absistens* (Nyl.) Arnold, *Dimerella lutea* (Dicks.) Trevis, *Hypotrachyna sinuosa* (Sm.) Hale, *Megalaria pulverea* (Borrer) Hafellner & Schreiner and *Parmeliella triptophylla* (Ach.) Müll. Arg. The last mentioned species was abundantly fertile.

Material and methods

Herbarium records have been included in table 1. Material collected during the survey was deposited in the private herbarium of the first author. Duplicates of some important collections were deposited in G. Standardized thin-layer chromatography (TLC) (CULBERSON & AMMANN, 1979) was used for identification of *Lepraria* sp. and some other collections.

The specimens which are listed below were studied mostly according to PURVIS & al. (1992). TÜRK & POELT (1993), SANTESSON (1993) or more recent publications were used mainly for the nomenclature. Coordinates (Coord.) are given according to the national grid system of Switzerland.

Collecting sites

Canton of Valais

1 = ENE of Sierre, N of Leuk, Albinen, slope along road, with *Abies* wood. Coord.: 615.000-132.300, alt. 1200 m, 2 August 1996.

2 = ENE of Sierre, N of Leuk, 0.2 km N of Albinen, along a (dry) stream on a slope. Coord.: 615.100-132.500, alt. 1260 m, 2 August 1996.

3 = ENE of Sierre, N of Leuk, 1.5 km N of Albinen, Dorbugrabu, *Picea* wood. Coord.: 615.000-133.700, alt. 1600 m, 2 August 1996.

4 = SW of Brig, SSE of Visp, Visperterminen, 1 km E of the village, path to Simplonpass and Gibidumpass, path W of a small lake. Coord.: 637.500-123.000, alt. 2050 m, 3 August 1996.

5 = SW of Brig, SSE of Visp, Visperterminen, 2 km E of the village, path to Simplonpass and Gibidumpass, near a small lake. Coord.: 638.600-123.000, alt. 2200 m, 3 August 1996.

6 = SW of Brig, SSE of Visp, Visperterminen, nearby the village, old barn and acid boulders in a meadow. Coord.: 636.000-123.000, alt. 1200 m, 3 August 1996.

7 = E of Sierre, 2 km south of Agarn, path to Unter-Meretschialp, north exposed *Picea* wood on a slope with big boulders and outcrops. Coord.: 616.900-125.400, alt. 1450 m, 4 August 1996.

8 = E of Sierre, 2.5 km E of Susten, N-S gorge, at the entrance, with calcareous rocks. Coord.: 617.900-128.400, alt. 650 m, 4 August 1996.

9 = SE of Sierre, Val d'Anniviers (N), Soussillon, path to Chandolin, Pramin, north side of stream, in a forest on a slope with calcareous outcrops. Coord.: 611.400-123.200, alt. 1600 m, 5 August 1996.

10 = SE of Sierre, Val d'Anniviers (N), Soussillon, path to Chandolin, Les Invers, south side of stream, wood on a slope with *Salix* and calcareous outcrops. Coord.: 611.500-122.900, alt. 1700 m, 5 August 1996.

11 = NW of Gletsch, Grimselpass, south exposed granite outcrops, S side of road. Coord.: 670.000-157.400, alt. 2160 m, 6 August 1996.

Canton of Bern

12 = NE of Grindelwald, Rosenlaui, road to Schwarzwaldalp, glacier valley, near outlet of gorge and damp area with calcareous outcrops near a waterfall. Coord.: 654.900-169.900, alt. 1380 m, 7 August 1996.

13 = 5 km S of Brienz, path from Chüemad to Tschingel, NW exposed meadow on a slope with calcareous outcrops. Coord.: 645.900-173.000, alt. 1850 m, 8 August 1996.

14 = 5 km S of Brienz, path from Chüemad to Tschingel, SW side of Tschingel, exposed calcareous outcrops. Coord.: 646.300-172.800, alt. 2000 m, 8 August 1996.

15 = 6 km SSE of Brienz, path E from Tschingel, S side of Axalphorn, exposed calcareous outcrops in a meadow on a slope. Coord.: 648.400-173.100, alt. 2100 m, 8 August 1996.

16 = 6 km SSE of Brienz, path NE from Axalphorn, Urserli, calcareous outcrops in karst area. Coord.: 648.200-173.600, alt. 1800 m, 8 August 1996.

17 = 3 km S of Brienz, road along Giessbach, 500 m after crossing, *Picea* wood with *Fagus,* big *Acer* and *Fraxinus* along 'road'. Coord.: 644.900-175.400, alt. 960 m, 9 August 1996.

18 = 3 km S of Brienz, road along Giessbach, 600 m after crossing, cave with steep calcareous outcrops. Coord.: 644.900-175.300, alt. 1100 m, 9 August 1996.

19 = 3 km S of Brienz, road along Giessbach, 700 m after crossing, near cottage of second bridge, *Alnus incana* along stream and big boulders. Coord.: 644.900-175.200, alt. 1080 m, 9 August 1996.

20 = 4.5 km S of Brienz, road along Giessbach, 100 m W of Giessbach, Schwand, north exposed wood on a slope with *Acer, Picea* and *Sorbus.* Coord.: 644.600-173.800, alt. 1200 m, 9 August 1996.

Annotated list of most interesting species

Abrothallus bertianus De Not. s.l.

Loc. 20, *v.d. Boom 18113*, on *Acer:* this lichenicolous fungus has been found on *Melanelia glabratula* (Lamy) Essl. According to the present literature, this species has been reported from several host species in *Cetraria* and *Parmelia* s.l. However the characteristics of this specimen do not exactly fit the description in CLAUZADE & al. (1989). A revision seems to be necessary. The ascospores are 1-septate and their dimensions are 12-15 × 5-6 µm, but the epithecium is brown and K+ greenish.

Absconditella lignicola Vezda & Pisút

Loc. 2, *v.d. Boom 18132*, on rotting wood of a big fallen trunk: it was growing close to an undescribed *Gyalideopsis*. *Absconditella lignicola* is already known from the canton of Grisons (DIETRICH & al., 1992) and central Switzerland (RUOSS, 1992). New to the canton of Valais.

Agonimia vouauxii (de Lesd.) comb. ined.

Syn. *Polyblastia vouauxii* de Lesd.

Loc. 13, *v.d. Boom 18142*, open place among low calcareous outcrops, on plant debris: *Agonimia vouauxii* has a granular to squamulose greenish to brownish papillate thallus, blackish perithecia (0.15-0.25 mm in diam.), 2-spored asci and large muriform ascospores (50-70 × 15-25 µm). Known to be present in dune areas in the Netherlands (BRAND & al., 1988) and NW France (de LESDAIN, 1910, 1914; ZSCHACKE, 1934), *A. vouauxii* has also been reported from Austria (TÜRK & POELT, 1993). In a paper on lichens and lichenicolous fungi from Belgium and Luxemburg, which is in preaparation by M. Brand, P. Diederich, E. Sérusiaux & P. van den Boom, taxonomic notes are enclosed on some *Agonimia* species. This species is recorded for the first time in Switzerland.

Arthonia mediella Nyl.

Loc. 1, *v.d. Boom 17747, 17750,* on *Abies* in an *Abies* forest: *Arthonia mediella* is a species which is mainly found on conifers in boreal areas and the mountains of central Europe. New to the canton of Valais.

Arthonia muscigena Th. Fr.

Loc. 3, *v.d. Boom 18122*, on twigs of *Salix,* along a path in an *Abies* forest: this specimen was found among *Bacidia beckhausii* Körb., *B. subincompta* (Nyl.) Arnold and *Biatora helvola* Hellb.

The corticolous lichen flora on twigs and branches must have been much overlooked in Switzerland. Even the recent survey of DIETRICH & SCHEIDEGGER (1997) did not included it. This recording is interesting because it was found at an altitude of 1600 m. According to PURVIS & al. (1992), *A. muscigena* is a lowland species, known from western Europe. However according to WIRTH (1995b), this species is prevalent from central Europe to submediterranean areas at an altitude of c. 400 to 1100 m and has already been reported in Switzerland.

Bacidia absistens (Nyl.) Arnold

Loc. 19, *v.d .Boom 18067*, on *Alnus;* loc. 20, v.d. Boom 18095, on *Acer*: this species is mainly distributed in european countries along the Atlantic, but it is sometimes mentioned from continental areas, for example in the Alps (KALB, 1970). This species is recorded for the first time in Switzerland.

Bacidia vermifera (Nyl.) Th. Fr.

Loc. 12, *v.d. Boom 17984*, on *Acer* in a mixed forest. This *Bacidia* species has characteristic sigmoid spores, with dimensions of 25-30 × 2.5 µm. Conidia are short and bacilliform (c. 3.5 × 1.5 µm). The name *Bacidia hegetschweileri* (Hepp) Vain. has often been used for this species (EKMAN, 1996), but in his work, Ekman shows that the use of *B. vermifera* should be resumed. The absence of a green pigment in the hymenium and the proper exciple distinguish this species from *B. circumspecta* (Vain.) Malme (EKMAN, 1996). It is similar to *B. subcircumspecta* Coppins in pigmentation, but has different ascospores and conidia (PURVIS & al., 1992). In Switzerland this species is known only from Zurich. New to the canton of Valais.

Biatora ocelliformis (Nyl.) Arnold

Loc. 20, *v.d. Boom 18110*, on *Acer* in a mixed forest: this specimen is similar to material collected in southern Austria (Kärnten) where this species is locally rather common. According to PRINTZEN (1995) *B. ocelliformis* is widely distributed in the boreal zone, mainly in the more eastern part of central Europe. Recently this specimen was reported from Switzerland by PRINTZEN & PALICE (1999).

Biatora vernalis (L.) Fr.

Loc. 20, *v.d. Boom 17919*, on mosses, on vertical, wet and shaded calcareous outcrops: according to PRINTZEN (1995) *B. vernalis* has generally been mistaken for *B. subduplex* (Nyl.) Printzen, the most frequently found *Biatora* species in Europe. The latter species however has smaller spores (PRINTZEN, 1995, fig. 34) and a different ecology. PRINTZEN (1995) is intrigued by the absence of *B. vernalis* in southern Germany, Austria and Switzerland. This species had already been reported for Switzerland by STIZENBERGER (1882-1883) and several other lichenologists (LETTAU, 1919, 1954; MEYLAN, 1922; FREY, 1923, 1937; ZSCHACKE, 1926; BOOM & al., 1993; HINTEREGGER, 1994). Not all these specimens have been checked but those that have been checked turned out to be *B. subduplex* (PRINTZEN, 1995). Our specimen has been seen and identified by C. Printzen.

Biatoridium delitescens (Arnold) Hafellner

Loc. 20, *v.d. Boom 18082*, on *Acer* in a mixed forest: this species has been recorded in central, northern Europe and western Scotland. Being an extremely inconspicuous species, it is often overlooked. According to HAFELLNER (1994), in central Europe, it was reported not only from southern Germany but also from Spain. The spanish record has been published by ETAYO & al. (1993). This species is recorded for the first time in Switzerland.

Caloplaca aurea (Schaer.) Zahlbr.

Loc. 15, *v.d. Boom 17990*, on vertical, east exposed calcareous outcrops in a meadow on a slope, growing over sand in crevices: this species has already been published by STIZENBERGER (1882-1883), MIGULA (1929), POELT (1965) and WESTBERG & KÄRNEFELT (1998) and it is found in the following cantons: Bern, Luzern, Nidwald, Obwald, Uri, Vaud and Valais.

Caloplaca chlorina (Flot.) H. Olivier

Loc. 12,13, *v.d. Boom 17952, 17968*, on a calcareous boulder in a meadow on a slope and on *Acer* near the outlet of a gorge: the specimens found were well developed. It as compared with the type collection of *C. isidiigera* Vezda (= *C. chlorina*). The thallus of the fertile epilithic collection is coarsely cracked and areolated, with an unevenly granular to isidiate surface. In the epiphytic specimen, the thallus is fertile, but without isidia-like granules.

Carbonea supersparsa (Nyl.) Hertel

Loc. 7, *v.d. Boom 17846*, on schist, growing on *Lecanora polytropa* in a shaded spot in a forest: previously known from Switzerland, but rarely collected, the species has already been reported and described by STIZENBERGER (1882-1883).

Catillaria picila (A. Massal.) Coppins

Loc. 16, *v.d. Boom 18020*, on a vertical and shaded calcareous rock: this rare species is characterized by the dark brown apothecia that are ± constricted at base and 0.4-0.7 mm in diam.; the 0-(1) septate hyaline ellipsoid spores and the relatively wide hyphae of the excipulum. New to the canton of Bern.

Cercidospora sp.

Loc. 15, *v.d. Boom 17993*, on a calcareous rock, growing in the apothecia of *Aspicilia contorta* (Hoffm.) Kremp.: this lichenicolous fungus is closely related to *Cercidospora epipolytropa* (Mudd) Arnold, a species widely distibuted throughout Europe and usually found on thallus and apothecia of *Lecanora polytropa* (Hoffm.) Rabenh. and related species.

Cetraria obtusata (Schaer.) van den Boom & Sipman

Loc. 5, *v.d. Boom 17821*, terricolous: this species was studied by BOOM & SIPMAN (1994) and already recorded in Switzerland (Bern, Valais and Uri). Its distribution is restricted to the alpine zone. It has often been mistaken for *C. aculeata* (Schreb.) Fr. or *C. muricata* (Ach.) Eckfeldt, but the yellow/orange C+ deep orange medulla and the typical pycnidia-bearing projections around the pseudocyphellae are typical identification marks.

Chaenothecopsis consociata (Nádv.) A. F. W. Schmidt

Loc. 3, *v.d. Boom 17769, 17789*, on *Picea* in a forest: it was growing on thallus of *Chaenotheca chrysocephala* (Ach.) Th. Fr., associated with *Calicium trabinellum* (Ach.) Ach. New to the canton of Valais.

Chaenothecopsis viridireagens (Nádv.) A. F. W. Schmidt

Loc. 12, *v.d. Boom 17940*, on a rotting overhanging stump in a damp area, nearby a waterfall: new to the canton of Bern.

Chromatochlamys muscorum (Nyl.) H. Mayrhofer & Poelt var. ***muscorum***

Loc. 7, 10, 19, *v.d. Boom 17851, 17852, 17921, 18095*, growing on acid or calcareous boulders over mosses in rather extensive patches in open, but sheltered spots: new to the canton of Bern.

Dermatocarpon leptophyllum (Ach.) K. G. W. Lang

Loc. 8, *v.d. Boom 17863*, on a vertical, shaded and sheltered calcareous rock: this species is recognized by the single holdfast, the subglobose ascospores and the thinly pruinose, brownish thallus (ORANGE, 1998). This species is recorded for the first time in Switzerland.

Dimerella lutea (Dicks.) Trevis.

Loc. 20, *v.d. Boom 18076*, on *Acer* in a mixed forest, on a tree marked for logging: the *Lobarion* occurs here quite luxuriantly with species like *Hypotrachyna sinuosa, Nephroma bellum* (Spreng.) Tuck., *Parmeliella triptophylla* (fertile) and fertile *Lobaria pulmonaria.* New to the canton of Bern.

Dirina massiliensis Durieu & Mont. f. ***sorediata*** (Müll. Arg.) Tehler

Loc. 18, *v.d. Boom 18041*, on a steep shaded and sheltered calcareous rock in a forest on a slope: this species was associated with *Lepraria* aff. *flavescens* and *Leproplaca chrysodeta* (Räsänen) Laundon. New to the canton of Bern.

Eiglera homalomorpha (Nyl.) Clauzade & Roux

Loc. 12, *v.d. Boom 18127*, on a damp vertical sheltered calcareous rock: a small collections characterized by a I + blue apical dome of the asci, broad ellipsoid ascospores and a bluish N + red epithecium. This specimen has been compared with material from Austria, where this species is rarely collected (TÜRK & POELT, 1993). Previously recorded from Switzerland by BOISSIÈRE & al. (1989).

Endococcus propinquus (Körb.) D. Hawksw.

Loc. 10, *v.d. Boom 17977*, growing on an unidentified epilithic crust, on a vertical and wet rock in a wood on a slope: a species widely distributed in Europe, occuring on a wide range of hosts.

Farnoldia micropsis (A. Massal.) Hertel

Loc. 15, *v.d. Boom 17992*, on a calcareous outcrop in a meadow on a slope: new to the canton of Bern.

Fuscidea lightfootii (Sm.) Coppins & P. James

Loc. 19, *v.d. Boom 18065*, on *Alnus*; loc. 20, *v.d. Boom 18107*, on *Acer*: the small specimen found was fertile, but only with a few apothecia. The typical ascospores, medianly constricted with obtuse ends, in combination with divaricatic acid in the thallus are typical for this species. At locality 19, it was found among sorediate species like *Buellia griseovirens* (Sm.) Almb. It is most probably rare in Switzerland. New to the canton of Bern.

Hymenelia similis (A. Massal.) Poelt & Vezda

Loc. 12, *v.d. Boom 17939*, on a vertical and wet calcareous rock in the spread of a waterfall: this species was found several times in Carinthia (Austria) only in deep gorges where it was growing also under wet conditions (BOOM & al., 1996). The specimens in G have been checked and they appear to have been collected on the Salève in France and not in Switzerland as indicated by STIZENBERGER (1882-1883). This species is recorded so far for the first time in Switzerland.

Hypotrachyna sinuosa (Sm.) Hale

Loc. 20, *v.d. Boom 18129*, on young *Acer* in mixed forest: this is an endangered species in Switzerland (CLERC & al., 1992). It was growing with *Megalaria pulverea, Lobaria pulmonaria* (fertile) and *Parmeliella triptophylla*.

Lecania cf. ***cyrtellina*** (Nyl.) Sandst.

Loc. 10, *v.d. Boom 17883*, on *Salix*; loc. 16, *v.d. Boom 18008*, on a shrub (cf. *Rhododendron*): the apothecia are ± biatorine, the ascospores are relative small (c. 2.5-3 µm) and mostly non-septate. These characteristics are typical for *L. cyrtellina,* but because of the lack of macroconidia, the identification is not certain.

Lecania inundata (Hepp ex Körb.) M. Mayrhofer

Loc. 8, *v.d. Boom 17866*; loc. 18, *v.d. Boom 18048*, on a calcareous rock: in the latter it was growing on a steep rock face among *Lecania suavis* (Müll. Arg.) Mig. in a forest on a slope. New to the canton of Valais and to the canton of Bern.

Lecania suavis (Müll. Arg.) Mig.

Loc. 18, *v.d. Boom 18043*, on a shaded and sheltered calcareous rock in a forest on a slope: mentioned in BOOM & al. (1993) for the canton of Valais. New to the canton of Bern.

Lecanora handelii J. Steiner

Loc. 7, *v.d. Boom 17838*, on ferro-rich siliceous shaded outcrop, along a forest path: it was growing with *Lecanora epanora* (Ach.) Ach., *L. polytropa* and *Miriquidica leucophaea* (Rabenh.) Hertel & Rambold. New to the canton of Valais.

Lecanora jamesii J. R. Laundon

Loc. 3, *v.d. Boom 17765*, on wood and on soil along a path in a *Picea* forest: *Lecanora jamesii* is mainly known in regions along the Atlantic ocean, from the British Isles to Portugal,

where it is locally abundant. Although this species was mentioned from the canton of Valais before (HANKO, 1983), it has been collected only rarely in Switzerland and Austria (TÜRK & POELT, 1993).

"Lecidea" rufofusca (Anzi) Nyl.

According to PRINTZEN (1995: 208) *Biatora porphyroplaca* Hinteregger & Poelt is probably identical with *L. rufofusca.*

Loc. 5, *v.d. Boom 18123*, on *Rhododendron*: already known from the canton of Valais (BOOM & al., 1993), this species has rarely been collected. It is known in boreal-alpine areas from a wide range of substrata, such as terricolous or epiphytic mosses, plant debris, shrubs etc. It has already been published for Switzerland by STIZENBERGER (1882-1883), MIGULA (1931) and HINTEREGGER (1994).

Lempholemma botryosum (A. Massal.) Zahlbr.

Loc. 18, *v.d. Boom 18040*, on a steep and shaded calcareous rock: this species was found in a species poor community, with only *Caloplaca cirrochroa* (Ach.) Th. Fr. as accompanying species.

Lepraria cf. ***cacuminum*** (A. Massal.) Lothander

Loc. 11, *v.d. Boom 17873*, on a south facing vertical surface on a granite outcrop: this specimen contains atranorin and most probably porphyrillic acid (Rf 2-3 in solvent A). It was compared with specimens identified by Prof. C. Leuckert.

Lepraria aff. ***flavescens*** Clauzade & Roux

Loc. 18, *v.d. Boom 18042, 18046*, on a sheltered, shaded and steep calcareous rock: according to WIRTH (1995a) *L. flavescens* is the only species which occurs on calcareous rock and has a C+yellow thallus reaction. Our specimens contain atranorin and the unknown 5-6/2-3/5 (TLC); Spot tests give C+ deep yellow, K+yellow and P+yellow reactions. Morphologically it is similar to *L. flavescens* and it is most probably related to this species. It is recorded for the first time in Switzerland.

Lepraria nivalis J. R. Laundon

Loc. 12, *v.d. Boom 17941*, on a shaded vertical calcareous outcrop influenced by a waterfall: atratorin and protocetraric acid are detected by TLC. The thallus is white, ± lobed-like. Morphologically it is identical with a specimen collected in a similar habitat in Austria (BOOM & al., 1996). The specimen from loc. 16, *v.d. Boom 18009*, belongs to another chemotype, with gyrophoric acid as main substance and protocetraric acid. According to WIRTH (1995b), this species occurs in the Swiss part of the Jura.

Leptochidium albociliatum (Desm.) M. Choisy

Loc. 9, *v.d. Boom 18125*, on a well-lit calcareous rock among moss: associated species is *Caloplaca stillicidiorum* (Vahl.) Lynge. It is a small sterile collection, but with globose isidia and the characteristic convex, white-pubescent lobes. It is, however, similar to fertile collections (hb. v.d. Boom) from southern Europe.

Leptorhaphis epidermidis (Ach. ex Hepp) Th. Fr.

Loc. 12, *v.d. Boom 17955*, on *Betula*: The thallus seems to be absent in this specimen.

Lichenoconium erodens M. S. Christ. & D. Hawksw.

Loc. 9, *v.d. Boom 17909*, on *Lecanora* sp. on *Larix*: this common lichenicolous species is known from a wide range of hosts and is widely distibuted in Europe.

Lichinella nigritella (Lettau) Moreno & Egea

Loc. 8, *v.d. Boom 17861*, on a vertical, moderately shaded and sheltered calcareous outcrop: this specimen was compared with the following exsiccatum: *Arnold Lich. Exsicc. No 1596* (*Collema furvum* Ach. f. *conchilobum* Flot. 'An Porphyrfelsen im Dorfe Jenesien bei Bozen; Tirol. Aug. 1893, collector: Kernstock') that is mentioned by LETTAU (1942) in the protologue as being *L. nigritella.* Both specimens obviously belong to the same species. *Lichinella nigritella* is a central European species with some known localities in the northern part of the mediterranean region (NIMIS, 1993).

Loxospora cismonica (Beltr.) Hafellner

Loc. 20, *v.d. Boom 18105*, on *Acer* in a mixed forest: according to DIETRICH & SCHEIDEGGER (1996), this species is rare in the pre-Alps and the central Plateau.

Megalaria pulverea (Borrer) Hafellner & E. Schreiner

Loc. 20, *v.d. Boom 18098*, on *Acer* in a mixed forest: this species was growing abundantly in the *Lobarion* community. The specimen is sterile.

Micarea botryoides (Nyl.) Coppins

Loc. 3, *v.d. Boom 18136*, on a rotting wood along a path in a *Picea* forest: only a small collection with pynidia which contain the characteristic dark K- pigment, but apothecia are not found. It was growing together with *Dimerella pineti* (Ach.) Vezda. It was most probably overlooked in past surveys and is recorded here for the first time in Switzerland.

Micarea leprosula (Th. Fr.) Coppins & A. Fletcher

Loc. 19, *v.d. Boom 18073*, on calcareous outcrops, growing over mosses: this species was found in large amounts, containing typical pale greenish sorediate (sterile) patches. It is recorded for the first time in Switzerland.

Micarea sylvicola (Flot.) Vezda & V. Wirth

Loc. 7, 10, *v.d. Boom 17842, 17878*, on a vertical shaded and sheltered acid rock: this species has not been reported from Switzerland since the last century. In STIZENBERGER (1882-1883) this species was reported from the canton of Uri. New to the canton of Valais.

Miriquidica leucophaea (Flörke ex Rabenh.) Hertel & Rambold

Loc. 7, on a ferro-rich siliceous rock along a path in a forest: this species was growing close to *Lecanora polytropa.* New to the canton of Valais.

Placynthium filiforme (Garov.) M. Choisy

Loc. 14, *v.d. Boom 17985*, on a vertical and slightly overhanging and shaded calcareous rock: it was found growing close to *Squamarina cartilaginea* (With.) P. James, *S. gypsacea* (Sm.) Poelt and *Toninia alutacea* (Anzi) Jatta.

Placynthium tremniacum (A. Massal.) Jatta

Loc. 9, *v.d. Boom 17905*, on a calcareous outcrop in a forest on a slope: this specimen was collected together with *P. nigrum* (Huds.) Gray which was growing in close proximity. The 1-septate spores and pruinose thallus with somewhat stouter, ± flat minute squamules, different marginal lobes, and the less developed prothallus distinguish this species from *P. nigrum* (GYELNIK, 1940).

Polyblastia ardesiaca Zschacke

Loc. 12, *v.d. Boom 17937, 17945*, on a calcareous rock: *Polyblastia ardesiaca* was previously known from two localities in Switzerland: Val Tremola and Guttannen (ZSCHACKE, 1934). This species was growing very abundantly on shaded and permanently wet rocks close to a waterfall in a deep gorge, associated with *Lepraria* sp.

Porina linearis (Leight.) Zahlbr.

Loc. 18, *v.d. Boom 18054*, on a steep shaded north facing calcareous outcrop: new to the canton of Bern.

Protoparmelia hypotremella Herk, Spier & V. Wirth

Loc. 19, *v.d. Boom 18069*, on *Alnus incana* along stream: this species is characterized by its granular thallus. The typical granules are isidia-like, convex, rounded to elongate or globose (APTROOT & al., 1997). This sterile species has never been found with ascomata or conidiomata. Our specimen was compared with specimens from north-western Europe (hb. v.d. Boom, hb. Diederich) where this species is locally common. It is recorded for the first time in Switzerland.

Rinodina griseosoralifera Coppins

Loc. 10, *v.d. Boom 17923*, on *Salix*; loc. 19, *v.d. Boom 18058,* on *Acer*: both collections were sterile but contain many characteristic discrete soralia. Atranorin and zeorin were detected with TLC. Only a few specimens have been recorded in the Alps (TÜRK & POELT, 1993). New to the canton of Valais and to the canton of Bern.

Rinodina orculata Poelt & M. Steiner

Loc. 3, *v.d. Boom 17777*, on *Sorbus*: this species has already been mentioned from Switzerland by HINTEREGGER & al. (1989) and ROPIN & MAYRHOFER (1993) as *R. trevisanii* auct. For a detailed description see also HINTEREGGER (1994). It is most probably an overlooked species.

Rinodina rinodinoides (Anzi) H. Mayrhofer & Scheid.

= *R. serpentini* H. Mayrhofer & Poelt

Loc. 6, *v.d. Boom 17759*, on schistose stones on a roof of barn in a meadow on a slope: this species is recognized by the *Milvina*-type ascospores and the lecideine subimmersed apothecia. It is a rather rare species and has previously been recorded in several localities in mountainous areas from northern to southern Europe, including two localities from the alpine belt in Spain (MIGULA, 1929; MAYRHOFER & al., 1992; GIRALT & LLIMONA, 1997). It is recorded for the first time in Switzerland.

Strigula aff. ***phaea*** (Ach.) R. C. Harris

Loc. 16, *v.d. Boom 18126*, on an unidentified shrub: rather a small specimen, it belongs to *Strigula* aff. *phaea,* as it seems morphologically similar to *S. phaea* (pers. comm. E. Sérusiaux). However only microconidia have been found. Macroconida are most important for identification of species in the genus. This complex includes circa 5 species and is presently under investigation by Emmanuël Sérusiaux. It is recorded for the first time in Switzerland.

Thelopsis flaveola Arnold

Loc. 16, *v.d. Boom 18131*, on an unidentified shrub among calcareous outcrop: an inconspicuous species, found growing among *Lecania cyrtella* (Ach.) Th. Fr. and *Biatora subduplex.* Only a few localities are known in Austria and Germany, where this species was found growing on *Rhododendron* as mentioned by HINTEREGGER (1994). It is recorded for the first time in Switzerland.

Thermutis velutina (Ach.) Flot.

Loc. 19, *v.d. Boom 18060*, on a vertical east side of a large boulder: accompanying species were *Agonimia tristicula* (Nyl.) Zahlbr. and *Leptogium lichenoides* (L.) Zahlbr.

Tremella coppinsii Diederich & Marson

Loc. 20, *v.d. Boom 17746*, on *Acer,* growing on *Platismatia glauca* (L.) W. L. Culb. & C. F. Culb.: this lichenicolous fungus was abundant in extensive patches of the host and has been found so far only on *P. glauca* (DIEDERICH, 1996; DIEDERICH & MARSON, 1988). It is recorded for the first time in Switzerland.

Tremella phaeophysciae Diederich & M. S. Christ.

Loc. 12, *v.d. Boom 18133*, on *Acer*, growing on *Phaeophyscia orbicularis* (Neck.) Moberg: this species, recently described in DIEDERICH (1996) and so far only known from one host (*P. orbicularis*) is widely distributed, mainly in Western Europe. It is recorded for the first time in Switzerland.

Verrucaria foveolata (Flörke) A. Massal.

Loc. 12, *v.d. Boom 17954*, on stones along rotting trunk on a slope near a waterfall.

Verrucaria umbrinula Nyl.

Loc. 7, *v.d. Boom 17844*, on a vertical and shaded granite in a *Picea* wood on a slope: it is characterized by the dark brown rather thin rimose and matt thallus together with the circa 17 × 7 µm ascospores and the circa 150 µm diam. ± globose perithecia. A species, reported from northern, north-western and central Europe. It has been mentioned as present in Switzerland by STIZENBERGER (1882-1883, as *V. subnigrescens* Nyl.).

Vouauxiella lichenicola (Linds.) Petr. & Syd.

Loc. 17, *v.d. Boom 18028*, on *Fraxinus,* on *Lecanora chlarotera* Nyl.: this lichenicolous fungus is common in many parts of Europe. Its distribution pattern in Switzerland is unknown to us.

Substrate abbreviations

Ab = *Abies*
Ac = *Acer*
Al = *Alnus*
Be = *Betula*
Fr = *Fraxinus*
Ju = *Juniperus*
La = *Larix*
Pic = *Picea*
Rh = *Rhododendron*
Sa = *Salix*
So = *Sorbus*
c = calcareous rock
s = siliceous rock
m = moss
w = wood
t = terricolous
sh = unidentified shrub

Table 1. – List of specimens

The numbers indicate the collecting sites (see in material and methods)

Abrothallus bertianus s.l. 20A
Absconditella lignicola 2w
Acarospora badiofusca 6s
Acarospora fuscata 6s
Acrocordia conoidea 18c
Agonimia tristicula 13c 15c 19c
Agonimia vouauxii 13t
Arthonia mediella 1Ab
Arthonia muscigena 3Sa
Arthonia radiata 1Ab 7So 12So 17Fr
Arthopyrenia punctiformis 3So 12w
Arthrorhaphis citrinella 5t 10c
Aspicilia cf. rolleana 11s
Bacidia absistens 19Al 20Ac
Bacidia arnoldiana 8c 20Ac
Bacidia bagliettoana 13c
Bacidia beckhausii 3Sa 10Sa 16sh
Bacidia rubella 17Ac
"Bacidia" sabuletorum 12c 13c 14c 16c
Bacidia subincompta 3Sa
Bacidia vermifera 12A
Baeomyces rufus 4t
Biatora chrysantha 1Ab 10c
Biatora flavopunctata 15Rh
Biatora helvola 2w 3Sa 20Ac
Biatora ocelliformis 20Ac
Biatora subduplex 16sh
Biatora vernalis 9c
Biatoridium delitescens 20Ac
Biatoropsis usnearum 3Pic
Bryoria capillaris 3Pic
Buellia griseovirens 19Al
Buellia punctata 4w
Buellia schaereri 3Pic 7Pic 9La
Calicium trabinellum 3Pic
Caloplaca aurea 15c
Caloplaca cerina 12Sa
Caloplaca chlorina 12Ac 13c
Caloplaca herbidella 19Al
Caloplaca sinapisperma 19c
Caloplaca sorocarpa 4sh
Caloplaca stillicidiorum 9c
Candelariella aurella 15c
Candelariella vitellina 4w
Candelariella xanthostigma 10Sa
Carbonea supersparsa 7s
Carbonea vitellinaria 11s
Catapyrenium cinereum 5t 13t 15t
Catapyrenium lachneum 15c
Catillaria picila 16c
Catinaria atropurpurea 2w
Cercidospora sp. 15c
Cetraria ericetorum 5t
Cetraria nivalis 5t
Cetraria obtusata 5t
Cetrelia cetrarioides 19Al
Chaenotheca chrysocephala 20Pic
Chaenotheca furfuracea 7s 10s 12w

Chaenotheca trichialis 3Pic 12Pic 20Pic
Chaenothecopsis consociata 3Pic
Chaenothecopsis pusilla 12w
Chaenothecopsis viridireagens 12w
Chromatochlamys muscorum 7s 10c 19c
Cladonia phyllophora 4t
Clauzadea monticola 10s 12c
Collema auriforme 8c
Collema cristatum 13c
Collema multipartitum 8c
Collema undulatum 8c 15c
Cyphelium inquinans 9La
Cyphelium tigillare 14w
Cystocoleus ebeneus 10s
Dacampia hookeri 16c
Dermatocarpon intestiniforme 9c
Dermatocarpon leptophyllum 8c
Dermatocarpon miniatum 9c 13c
Dibaeis baeomyces 5t 14t
Dimerella lutea 20Ac
Dimerella pineti 3w 20Ac
Diplotomma epipolium 18c
Dirina massiliensis f. sored. 18c
Eiglera homalomorpha 12c
Endocarpon pallidum 15c
Endocarpon pusillum 9c 15c
Endococcus propinquus 10s
Evernia divaricata 3Pic
Farnoldia jurana 16c
Farnoldia micropsis 15c
Fulgensia fulgens 14c
Fuscidea lightfootii 19A l20Ac
Gyalecta jenensis 12c
Hymenelia similis 12c
Hypocenomyce scalaris 9La
Hypotrachyna sinuosa 20Ac
Icmadophila ericetorum 12w
Imshaugia aleurites 9La
Ionaspis melanocarpa 12c
Lecania cyrtella 16sh 17Ac
Lecania cf. cyrtellina 10Sa 16sh
Lecania inundata 8c 18c
Lecania naegelii 17Fr
Lecania suavis 18c
Lecania turicensis 18c
Lecanora albella 19Al
Lecanora cadubriae 4sh
Lecanora circumborealis 4w
Lecanora crenulata 18c
Lecanora dispersa 10s
Lecanora epanora 7s
Lecanora handelii 7s
Lecanora intricata 7s
Lecanora intumescens 17Fr
Lecanora jamesii 3w
Lecanora piniperda 4sh 5Rh 9La
Lecanora rupicola 4w
Lecanora salicicola 5Rh
Lecanora varia 4w
"Lecidea" berengeriana 18c
"Lecidea" hypnorum 5Rh 13c 16c
"Lecidea" lurida 8c 9c 13c 15c
"Lecidea" rufofusca 5Rh
Lecidella elaeochroma 1Ab 10Sa
Lecidella elaeochroma var. soralifera 17Fr
Lecidella euphora 9Ju 12Sa 16sh
Lecidella stigmatea 10s
Lecidoma demissum 11t
Lempholemma botryosum 18c
Lepraria cf. cacuminum 11s
Lepraria eburnea 12Pic
Lepraria aff. flavescens 8c
Lepraria nivalis 12c
Lepraria rigidula 20Ac
Leprocaulon microscopicu 9s
Leproplaca chrysodeta 18c
Leptochidium albociliatum 9c
Leptogium gelatinosum 13c
Leptogium lichenoides 19c
Leptogium plicatile 8c
Leptogium saturninum 12Ac 19Ac
Leptogium tenuissimum 16c
Leptorhaphis epidermidis 12Be
Letharia vulpina 3La
Lichenoconium erodens 9La
Lichinella nigritella 8c
Lobaria linita 10c
Lobaria pulmonaria (fer.) 19Ac 20Ac
Lobothallia radiosa 15c
Loxospora cismonica 20Ac
Loxospora elatina .....20So Ac Pic
Megalaria pulverea 20Ac
Melanelia disjuncta 9s
Melanelia glabratula 20Ac
Micarea botryoides 3w
Micarea denigrata 3w 4w 7w 9La
Micarea leprosula 19c
Micarea lignaria var. lignaria 12w
Micarea misella 12Pic
Micarea prasina 20Ac
Micarea sylvicola 7s 10s
Miriquidica instrata 11s
Miriquidica leucophaea 7s
Mycobilimbia obscurata 3Sa 16c
Neofuscelia pulla 6s
Nephroma bellum 20Ac
Nephroma parile 9t 10s
Nephroma resupinatum 3Sa 7So 20So
Normandina pulchella 19Al
Ochrolechia alboflavescens 3Pic 9La
Ochrolechia androgyna 19Al
Opegrapha rufescens 17Fr
Opegrapha vulgata 20Ac
Pannaria pezizoides 10c 20So
Parmelina pastillifera 17Fa
Parmeliella triptophylla 20Ac,So
Peltigera aphtosa 4t
Peltigera collina 7s 20So
Peltigera didactyla 9c
Peltigera horizontalis 10c
Peltigera leucophlebia 10c
Peltigera neckeri 2w
Peltigera polydactyla 20So
Peltigera praetextata 3t 7t 20Ac
Pertusaria coccodes 9La
Phaeophyscia endophoenicea 17Fr
Phaeophyscia orbicularis 12Ac
Phlyctis argena 1Ab
Physcia albinea 9s
Physcia dubia 13c
Physconia distorta 17Fa
Physconia muscigena 15c
Physconia perisidiosa 17Fa
Placidium lachneum 15c
Placynthiella oligotropha 5t
Placynthium filiforme 14c
Placynthium nigrum 14c
Placynthium tremniacum 9c

Polyblastia ardesiaca 12c
Polyblastia cupularis 12c
Polychidium muscicola 9c
Porina aenea 20Ac
Porina linearis 18c
Porpidia cf. crustulata 10s
Protoparmelia hypotremella 19Al
Psora decipiens 14c 16c
Psoroma hypnorum 10c
Ramalina pollinaria 7s
Rhizocarpon badioatrum 11s
Rhizocarpon geminatum 6s
Rhizocarpon obscuratum 11s
Rhizoplaca chrysoleuca 6s
Rhizoplaca melanophtalma 6s
Rinodina conradii 5t 5Rh
Rinodina exigua 2Sa 3Sa 9La 10Sa
Rinodina griseosoralifera 10Sa 19Ac
Rinodina milvina 9s
Rinodina mniaraea 5t
Rinodina orculata 3So
Rinodina parasitica 9s
Rinodina septentrionalis 4w
Rinodina rinodinoides 6s
Sarea difformis 1Ab
Solorina crocea 5t
Solorina spongiosa 3t
Squamarina cartilaginea 14c
Squamarina gypsacea 14c
Staurothele areolata 13c 15c
Steinia geophana 14t
Strigula aff. phaea 16sh
Thamnolia vermicularis 14c
Thelidium decipiens 16c
Thelidium incavatum 12c
Thelopsis flaveola 16sh
Thermutis velutina 19c
Thyrea confusa 8c
Toninia alutacea 14c
Toninia aromatica 14c
Toninia candida 9c
Toninia diffracta 14c
Toninia lobulata 14c 16c
Toninia rosulata 13c
Toninia sedifolia 9c
Trapeliopsis flexuosa 4w
Trapeliopsis granulosa 11t
Tremella coppinsii 20Ac
Tremella phaeophysciae 12Ac
Umbilicaria hirsuta 6s
Usnea cavernosa 3Pic 7Pic
Usnea scabrata s.l. 3Pic 7Pic
Usnea substerilis 3Pic 7Pic
Verrucaria coerulea 18c
Verrucaria foveolata 12c
Verrucaria lecideoides 15c
Verrucaria umbrinula 7s
Vouauxiella lichenicola 17Fr
Xanthoria candelaria 4w
Xanthoria elegans 15c
Xanthoria fulva 12Ac
Xanthoria sorediata 13c
Xylographa vitiligo 3w

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