

Interesting lichens found during the IAL8 pre-excursion in the south-western archipelago of Finland 2016

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In July 2016, the pre-excursion of the IAL8 symposium was held in Kemiönsaari in the SW archipelago of Finland (biogeographical province V). Seven localities were visited and a number of interesting species were found, reports of which are summarized here. *Lepraria humida* is new to Fennoscandia, *Halecania viridescens*, *Lepraria nivalis*, *Protoparmelia phaeonesos*, *Reichlingia leopoldii* and *Scoliciosporum galluræ* are new to Finland, and *Lecanora norvegica*, *Ramboldia insidiosa* and *Rinodina efflorescens* are new to the biogeographical province. Notes on new finds of threatened species are also provided.

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Introduction

The pre-excursion of the 8th International Association for Lichenology symposium (IAL8), held in the parish of Kemiönsaari in the SW archipelago of Finland during 27–31 July 2016, was organized by the University of Turku (Seppo Huhtinen). Thirteen lichenologists from nine countries participated in three full-day excursions; Soili Stenroos took part into one of the excursions.

The Precambrian bedrock of this archipelago, mainly formed between 1900 and 1765 million years ago (Eklund *et al.* 2007), is dominated by microcline granites, but several other siliceous rock types are also common, calcareous rocks are rare. The last ice age, which ended about 10,000 years ago, had the most profound effect on the landscape of SW Finland. The archipelago, characterized by over 20,000 islands (von Numers & van der Maarel 1998, Granö *et al.* 1999), is dominated by siliceous rock outcrops forested with *Pinus sylvestris* (Fig. 1).



Figure 1. Our second locality Vänö Island includes typical landscape of SW Finnish archipelago. Flat siliceous rock outcrops are interspersed with *Pinus sylvestris* forests. Photo: Jiří Malíček.

The following localities were visited:

1. 28.7.2016. Vänö, Saaristomeri National Park, Yxskär Island, forests (mainly deciduous), grasslands and siliceous rock outcrops (amphibolite and quartz-feldspar gneiss).
2. 28.7.2016. Vänö, Vänö Island, village, siliceous rock outcrops (granodiorite and granite), sandy shores and forests.
3. 29.7.2016. Olmos, Purunpää, siliceous rock outcrops (granite) and coniferous and deciduous forests close to the Baltic Sea.
4. 29.7.2016. Olmos, Ekhamn, nature reserve and its surroundings, herb-rich and heath forests, old oaks (*Quercus robur*), siliceous rock outcrops (granite).
5. 29.7.2016. Söderlångvik, Söderlångvik Manor, yard (only coffee break).
6. 30.7.2016. Vesterillo, Illogruvan, nature reserve and its surroundings, abandoned limestone quarries (mainly calcite, but also some dolomite; limestone mining ended 1952), calcareous rocks and their surroundings.
7. 30.7.2016. Taalintehdas, village and its surroundings, old ironworks, parks, alley trees, small forest patches and siliceous rock outcrops (quartz-feldspar gneiss).

Kemiönsaari belongs to the biogeographical province Varsinais-Suomi (V) (Regio Aboensis (Ab)). The lichen flora of the biogeographical province is fairly well known, with 1065 species recorded (Stenroos *et al.* 2016). However, the southwestern archipelago has received less attention from lichenologists compared to the mainland of SW Finland. Ekhamn and Illogruvan are known as lichenologically important sites with several rare and red-listed species. During the recent years *Arthonia spadicea* (VU) and *Chaenotheca stemonea* (VU) have been recorded from Ekhamn, and older records are available for *Cliostomum griffithii* (VU) (1989), *Lobaria scrobiculata* (VU) (1973) and *Collema subnigrescens* (VU) (1927). The most significant rarities in the Illogruvan area are *Gyalecta subclausa* (CR) (the only locality in Finland) and *Placidium squamulosum* (EN), and there is also an older record of *Peltigera elisabethae* (EN) (1973). Red-list categories, CR = critically endangered, EN = endangered and VU = vulnerable, follow Rassi *et al.* (2010). However, the lichen flora of other localities has been little studied, but *Arthonia spadicea* (VU) has recently been recorded from Purunpää.

The well-equipped field laboratory created by Seppo to our hotel was in heavy use during the evenings, when several interesting specimens were identified; additional species were discovered subsequently after the collectors returned to their respective institutions. In this paper the most interesting lichens found, namely of species new to Fennoscandia, Finland or to the biogeographical province, or of new finds of threatened lichens, are presented.

Species new to Fennoscandia

Lepraria humida Slav.-Bay. & Orange

Illogruvan, north of the lime quarries, extensive siliceous outcrops with occasional dolomite remnants and open forest dominated by *Pinus sylvestris*, NE slope, on overhanging siliceous rock, 60°01'09"N, 22°42'16"E, Lendemer 47691 (NY).

This species (Figs. 2 C and 2 D) grows on siliceous rock outcrops on sheltered vertical walls or on overhanging rocks (Slavíková-Bayerová & Orange 2006, Lendemer 2013). It was originally described from the British Isles (Slavíková-Bayerová & Orange 2006) and subsequently reported from a number of sites in eastern North America (Lendemer 2013). However, its distribution is insufficiently understood as it is probably overlooked in the field or presumed to be one of the more common members of the *L. neglecta* group. In Europe it has also been reported from Kosovo (Strasser *et al.* 2015). While it may be more common and widespread in Fennoscandia, it is noteworthy that no additional populations were encountered at other sites with abundant suitable habitats during our excursion. The specimen cited here corresponds with the chemotype reported by Lendemer (2013) in that it lacks anthraquinone pigments and stictic acid.

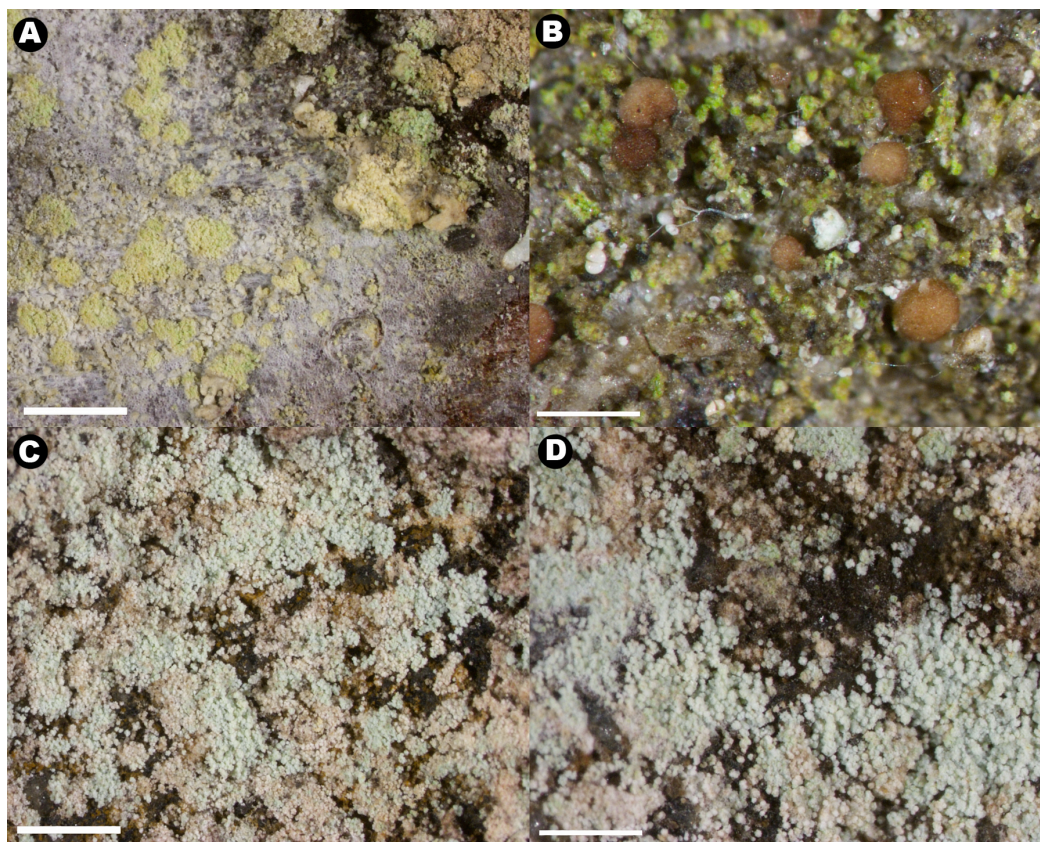
Species new to Finland

Halecania viridescens Coppins & P. James

Yxskär island, *Populus tremula* dominated forest, on bark of *Populus tremula*, rather scarce, 59°52'34"N, 22°03'09", Pykäälä 48957 (H), det. J. Malíček 2016.

This species is widely distributed in Europe (Kukwa & Jabłońska 2009). In Central Europe, it is a common nitrophilous lichen, occurring especially on twigs and branches of various deciduous trees (*e.g.* van den Boom & Palice 2006, Vondrák *et al.* 2010, Wirth *et al.* 2013). It has previously

been reported from Fennoscandia from southern Sweden (Skåne) (Ekman & Arup 2000) and from two biogeographical provinces in Norway (Tønsberg 1992, Moe & Botnen 1997, Nordin *et al.* 2016), but has probably been overlooked in Finland.



Figures 2a–d. **a.** *Lecanora norvegica* (Lendemer 47501), **b.** *Scoliciosporum gallurae* (Lendemer 47492), **c–d.** *Lepraria humida* (Lendemer 47691). Scales = 2.0 mm in **a** and **c**, 1.0 mm in **d**, and 0.5 mm in **b**. Photos: James Lendemer.

Lepraria nivalis J. R. Laundon

Illogruvan, limestone area with old quarries and its close surroundings, on limestone rock, 60°01'06"N, 22°42'33"E, Maliček 9541 (herb. Maliček).

The species is widely distributed in Sweden (Nordin *et al.* 2016) and thus its discovery in Finland is not unexpected. The specimen cited here belongs to the chemotype with atranorin and protocetraric acid (chemotype I sensu Leuckert *et al.* 2004). Lohtander (1994, 1995) revised the material of *Lepraria* in the Finnish herbaria and did not locate material of this species. However, the genus has been generally overlooked in lichenological field studies in Finland. *Lepraria nivalis* is likely to be rare in Finland since it occurs on natural calcareous rock outcrops, a substrate that is rare in the region.

***Protoparmelia phaeonesos* Poelt**

Yxskär, SE corner, large siliceous rock outcrops with *Juniperus communis*, on rock, on *Aspicilia*, 59°52'25"N, 22°03'02"E, Lendemer 47411 (NY).

In Fennoscandia the species is known from Sweden and Norway (Nordin *et al.* 2016). It is a parasite of *Aspilidea myrinii*, the specimen cited here being entirely parasitic on a species of *Aspicilia* and not growing independently.

***Reichlingia leopoldii* Diederich & Scheid.**

Ekhamn, Fallkil NW, nature reserve, deciduous forest, on overhanging base of *Quercus robur*, on bark, rather scarce, 60°02'00"N, 22°23'30"E, Pykälä 48985 (H), conf. J. Malíček 2016; Illogruvan, north of the lime quarries, extensive siliceous outcrops with occasional dolomite remnants and open forest dominated by *Pinus sylvestris*, NE slope, in rock overhang (schistose or gneissic rock), 60°01'09"N, 22°42'16"E, Lendemer 47693 (NY).

This hyphomyceteous lichen (Diederich & Scheidegger 1996) has proved to be widely distributed in Europe (Kukwa 2004, Motiejūnaitė 2009, Malíček *et al.* 2014, 2015, Yatsyna 2014), and in Fennoscandia it was recently reported from five biogeographical provinces in Sweden (Knutsson 2015, Nordin *et al.* 2016). The species prefers humid shady sites usually growing on bark of deciduous trees, more rarely on rocks (Malíček *et al.* 2014). It has apparently been overlooked in Finland.

***Scoliciosporum gallurae* Vězda & Poelt**

Vänö, Kappalsudden, E of Kappal, vicinity of Sandstranden, sandy heath interspersed with granite rock outcrops, on *Sorbus aucuparia*, 59°52'20"N, 22°12'39"E, Lendemer 47458 (NY); Purunpää, Glasberget, extensive granitic rock outcrops with *Pinus sylvestris* forest, on *Salix caprea*, 60°00'29"N, 22°32'15"E, Lendemer 47492 (NY); Yxskär island, granite rock outcrops along shore, with *Juniperus communis* and graminoids, interspersed with wet depressions, *Alnus glutinosa* and *Betula pubescens*, on deciduous shrub twigs, 59°52'32"N, 22°03'09"E, Haughland 2016-103 (herb. Haughland), det. J. Lendemer 2016.

This sorediate species (Fig. 2B) differs from the generally more common *Scoliciosporum sarothamni* in its shorter, 1–3-septate, straight to slightly curved ascospores (Dymytrova 2011). *Scoliciosporum gallurae* has been previously reported from Fennoscandia from only two biogeographical provinces in Norway (Tønsberg 1992, Nordin *et al.* 2016). It has apparently been overlooked in Finland, and may prove to be widely distributed. The species often grows on the twigs of deciduous trees, which is an overlooked habitat for lichens in Finland. Furthermore, it often lacks apothecia (Dymytrova 2011) and sterile specimens cannot be distinguished from *S. sarothamni* with confidence in regions where both species occur. Apothecia are, however, present in the Finnish specimens.

Species new to the biogeographical province V***Lecanora norvegica* Tønsberg**

Purunpää, Glasberget, extensive granitic outcrops with *Pinus sylvestris* forest, on *Pinus sylvestris*, 60°00'29"N 22°32'15"E, Lendemer 47501 (NY, H).

This species (Fig. 2A) has been previously reported from only one biogeographical province (EH) in Finland (Stenroos *et al.* 2016), but it is perhaps not rare in pine forests.

Ramboldia insidiosa (Th. Fr.) Hafellner (VU)

Vänö island, Vänö harbour, rock outcrop on shore of the Baltic Sea, on a rotten boat, on *Lecanora varia*, scarce, 59°52'07"N, 22°11'47"E, Pykälä 48969 (H).

Fourth record of the species from Finland, being previously reported from the Åland Islands (two localities, both in 1976) and from South Häme (Tammela, 1868, type locality of the species).

Rinodina efflorescens Malme

Illogruvan, limestone area with old quarries and its neighbouring surroundings, on bark of *Betula pendula*, 60°01'06"N, 22°42'33"E, Malíček 9530 (herb. Malíček).

The species is widely distributed in Sweden (Nordin *et al.* 2016). This is only the fourth record for Finland; however, small sorediate lichens have been largely overlooked in Finland.

New localities for threatened species

Arthonia spadicea Leight. (VU)

Illogruvan, north of the lime quarries, extensive siliceous outcrops with occasional dolomite remnants and open forest dominated by *Pinus sylvestris*, NE slope, on dead *Populus tremula*, 60°01'09"N, 22°42'16"E, Lendemmer 47629 (NY).

Several recent records of the species are known from Finland, and it may be less rare than previously considered.

Caloplaca lucifuga G. Thor (CR)

Ekhamn, 50 m NE of Notholmen, rocky mixed forest, on bark of old *Quercus robur*, on overhanging trunk, scarce, 60°02'14"N, 22°23'01"E, Pykälä 48981 (H); Ekhamn, nature reserve, deciduous forest (*Alnus glutinosa*, *Populus tremula*, *Quercus robur*), on bark of dead *Quercus robur*, 60°02'13"N, 22°23'03"E, Malíček 9511 (herb. Malíček).

Ekhamn is the sixth locality for the species in Finland, with c. 15 known host trees; *C. lucifuga* occurs on one roadside tree outside the nature reserve and the other within the reserve. It is very rare in Finland due to the rarity of old oaks, but it may have been overlooked.

Cliostomum griffithii (Sm.) Coppins (VU)

Yxskär island, paludified deciduous forest, on snag of *Populus tremula*, rather scarce, 59°52'34"N, 22°02'41"E, Pykälä 48961 (H); Yxskär Island, siliceous rocks with deciduous trees, on bark of *Alnus glutinosa*, 59°52'32"N, 22°03'09"E, Malíček 9486 (herb. Malíček); Yxskär island, E side, large siliceous rock outcrops along shore, wet depression forested with *Alnus glutinosa* and *Betula pubescens*, on trunk of *Alnus glutinosa*, 59°52'32"N, 22°03'09"E, Haughland 2016-122 (PMAE), det T. Spribille 2016; Ekhamn, Ekhamnsviken, mixed forest, roadside, on old *Quercus robur*, scarce, 60°02'17"N, 22°23'01"E, Pykälä 48978 (H).

Approximately 50 localities of this species are known for Finland, but most records are old. All recent finds are close to the sea or lake shores. It was previously found from Ekhamn (1989 A. Puolasmaa, TUR), but the exact locality is unknown.

Protoparmelia oleagina (Harm.) Coppins (VU)

Purunpää, 200 m E of Glasberget, rock outcrop on the shore of the Baltic Sea, NW-slope, dominated by *Pinus sylvestris*, on dead, standing, decorticated *Pinus sylvestris*, scarce, 60°00'31"N, 22°23'03"E, Pykälä 48975 (H).

Only half of a dozen records of the species are known from Finland. The species is probably overlooked.

Ramalina baltica Lettau (EN)

Ekhamn, Ekhamnsviken, deciduous forest, roadside, on bark of *Quercus robur*, several tens of thalli, 60°02'21"N, 22°23'00"E, Pykälä 48987 (H).

Many old records of the species are known from Finland, but recent records are rather few. Most recent finds are from old oaks; it has declined due to forestry practices and air pollution.

Scytinium subtile (Schrader) Otálora, P. M. Jørg. & Wedin (VU)

Ekhamn, Ekhamnsviken, road bank, on soil, scarce, 60°02'17"N, 22°23'01"E, Pykälä 48989 (H).

This species has declined in Finland as an epiphyte, but less is known of its occurrence on soil; although found mainly on calcareous soil, but some records are from non-calcareous soil such as the Ekhamn locality. On road banks the species may possibly have benefitted from the use of de-icing salt.

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