

Additions to the lichen flora of Finland. IX

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Thirteen lichen species are reported new to Finland including three species new to Fennoscandia: *Bacidia biatorina*, *Bacidina mendax* (new to Fennoscandia), *Biatora vacciniicola*, *Bryobilimbia sanguineoatra*, *Buellia arnoldii*, *Caloplaca fuscorufa*, *Lecidea strasseri* (new to Fennoscandia), *Opegrapha vermicellifera*, *Placynthium pulvinatum*, *Psorotichia lugubris*, *Thelocarpon sphaerosporum*, *Trapelia elachista* and *Verrucaria corcontica* (new to Fennoscandia). *Verrucaria cincta* is excluded from the lichen flora of Finland.

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Introduction

In the previous studies by the author, a large number of lichen species have been reported new to Finland (e.g. Pykälä 2017, Pykälä & Breuss 2011). In this paper thirteen species are reported as new to Finland, three of which are also new to Fennoscandia. Most species reported here are epiphytes, but five species growing on rock or soil and one species growing on both bark and rock are also reported. The specimens cited have been collected in 2006–2017. For one species (*Trapelia elachista*) only old herbarium specimens are reported. All specimens are or will be deposited in H. The collection number is reported after the date of the find.

The Species

Bacidia biatorina (Körb.) Vain.

New to Finland. The species is typical in broad-leaved forests with a long continuity (Arup et al. 1997). Three of the four Finnish populations were from rather old oaks with rather soft bark, which is easily loosened by hand. As the species often lacks apothecia, it has possibly been overlooked. All four populations have rather few apothecia.

Specimens examined: Varsinais-Suomi: Lohja, Vähäteutari, Vällanskärret, W-slope, in the middle of a few large siliceous boulders, on *Sorbus aucuparia*, alt. 60 m, 60°08'N, 23°56'E, 2017-04-08, 49569; Salo (Halikko), Vuorentaka, Vaisakko Nature Reserve, E-slope, deciduous mesic herb-rich forest, on *Quercus robur*, rather abundant, alt. 25 m, 60°21'N, 23°03'E, 2017-05-02, 49625; Lohja, Vähäteutari, Pytberg, nature reserve, S-slope, mixed herb-rich heath forest, OMT site type, on *Quercus robur*, on two trees, alt. 70 m, 60°09'N, 24°01'E, 2017-07-19, 49872; Lohja, Jalassaari, Tamminiemi Nature Reserve, broad-leaved mesic herb-rich forest, on *Quercus robur*, 30 × 10 cm, alt. 55 m, 60°12'N, 23°52'E, 2017-09-29, 51290.

Bacidina mendax Czarnota & Guz.-Krzem.

New to Fennoscandia. Most Finnish specimens reported as *B. caligans* (the first in Pykälä 2006) belong to the recently described *B. mendax* (Czarnota & Guzow-Krzemińska 2018) based on

morphology and ITS sequences. *B. mendax* is a hemerophilic species growing in Finland on concrete and deciduous trees in suburban habitats. However, a specimen from Northern Lapland from a dolomite rock also proved to belong to *B. mendax*.

Specimens sequenced: Uusimaa: Espoo, Suurhuopalahti, S of Majurinkuja, bushy waste field, on siliceous pebbles embedded in concrete block, alt. 2 m, 60°12'N, 24°50'E, 2008-05-19, 32566; Espoo, Suurhuopalahti, Vermo, Vermonpuistonpolku, young deciduous forest, on large *Salix caprea*, alt. 2 m, 60°12'N, 24°50'E, 2013-10-30, 47309; Espoo, Suurhuopalahti, S of Vermo, abandoned dump in Huopalahti, young deciduous forest, on *Populus*, alt. 5 m, 60°12'N, 24°50'E, 2013-10-31, 47312; Ruotsinpyhtää, Petjärvi, Ruukki, park, on *Fraxinus excelsior*, alt. 15 m, 60°31'N, 26°28'E, 2008-09-12, 33757; *Enontekiön Lappi:* Enontekiö, Porojärvet, Toskalharji, Toskaljärvi N, fell, brook, W-shore, dolomite rock outcrop, on N-slope, alt. 710 m, 69°11'N, 21°26'E, 2011-08-03, 43455.

***Biatora vacciniicola* (Tønsberg) Printzen**

New to Finland. Probably overlooked as the species is rather widely distributed in the neighbouring countries (Tønsberg 1992, Nordin et al. 2018).

Specimens examined: Satakunta, Ikaalinen, Seitsemäinen National Park, Multiharju, old-growth forest, *Picea abies*-dominated heath forest, MT site type, on old *Salix caprea*, alt. 168 m, 61°54'N, 23°24'E, 2017-07-27, 49964; *Pohjois-Karjala,* Lieksa, Koli National Park, Ukko-Koli, *Picea abies*-dominated heath forest, MT site type, on *Vaccinium myrtillus*, alt. 332 m, 63°05'N, 29°48'E, 2017-09-06, 50842.

***Bryobilimbia sanguineoatra* (Wulfen) Fryday, Printzen & S. Ekman**

New to Finland. Fryday et al. (2014) clarified the taxonomy of this species. The revision of Finnish herbarium material identified as *B. hypnorum* (Lib.) Fryday, Printzen & S. Ekman would probably bring additional finds of the species.

Specimens examined: Pohjois-Häme, Saarijärvi, Pyhä-Häkki National Park, over 1/2 km S-SW of Mastomäki, *Picea abies*-dominated old-growth forest, MT-OMT site type, on a snag of *Populus tremula*, alt. 172 m, 62°50'N, 25°28'E, 2008-07-12, 32847 & H. Hyvärinen, det. C. Printzen 2016.

***Buellia arnoldii* Servit**

New to Finland. Previous Fennoscandian records of the species are from several biogeographical provinces in Sweden and from one biogeographical province in Norway (Nordin et al. 2018). *B. arnoldii* grows on deciduous trees and on *Juniperus communis* (Nordin et al. 2018). The species differs from *B. disciformis* (Fr.) Mudd by the considerably larger spores (Foucard 2001).

Specimen examined: Etelä-Häme: Hämeenlinna (Lammi), Evo, Kotiset Nature Reserve, Musta-Kotinen, SE shore, old-growth forest, mixed heath forest, MT site type, on *Alnus glutinosa*, scarce, alt. 154 m, 61°14'N, 25°03'E, 2017-08-03, 50122.

***Caloplaca fusciorufa* H.Magn.**

New to Finland. The species is known from several localities in Sweden and Norway (Arup et al. 2007). It occurs mainly on the mountains, but in the northern part of its distribution also at low altitudes (Arup et al. 2007). *C. fusciorufa* occurs on various kinds of rocks, but prefers slightly calciferous rocks (Arup et al. 2007). The species has been previously found in Norway close to Enontekiö.

Specimen examined: Enontekiön Lappi: Enontekiö, Porojärvet, Toskalharji, Toskaljärvi N, fell, dolomite scree, gentle SE-slope, on dolomite stone, alt. 720 m, 69°11'N, 21°26'E, 2011-08-02, 43164.

Lecidea strasseri Zahlbr.

New to Fennoscandia. In habitus *L. strasseri* is similar to *Bryobilimbia hypnorum* and *B. sanguineoatra* (Fryday et al. 2014). *L. strasseri* differs from *Bryobilimbia* in thicker paraphyse apices: in the Finnish specimens up to 5–6 µm thick. Species of *Bryobilimbia* have 1–2.5 µm thick paraphyse apices (Fryday et al. 2014). The ecological requirements seem similar to those of *B. sanguineoatra*. Both species grow on mosses on the bases of deciduous trees, part of a population may grow directly on bark. In Finland, *L. strasseri* seems to be a rather rare species preferring old-growth forests.

Specimens examined: Varsinais-Suomi: Nummi-Pusula, Mettula, Pahanalhonkallio, SE-slope, *Tilia cordata* -dominated herb-rich forest, on exposed thick root of *Tilia cordata*, scarce, alt. 90 m, 60°25'N, 23°59'E, 2009-05-22, 34409, det. C. Printzen 2017; Lohja, Osuniemi, Tammiranta 150 m SW, mesic herb-rich forest dominated by *Picea abies*, *Populus tremula* and *Sorbus aucuparia*, on base of *Sorbus aucuparia*, 11 × 10 and 9 × 8 cm, alt. 45 m, 60°12'N, 23°55'E, 2017-05-27, 49682; Lohja, Vähäteutari, Pytberg, nature reserve, S-slope, mixed herb-rich heath forest, OMT site type, on *Quercus robur*, alt. 70 m, 60°09'N, 24°01'E, 2017-07-19, 49871; Lohja, Jalassaari, Tamminiemi Nature Reserve, broad-leaved mesic herb-rich forest, on *Tilia cordata*, on base, scarce, alt. 53 m, 60°12'N, 23°52'E, 2017-09-29, 51299; *Eielä-Häme:* Padasjoki, Vesijako Strict Nature Reserve, Hyödynmäki, *Picea abies* -dominated old-growth heath forest (MT site type), on base of *Betula pendula*, alt. 165 m, 61°21'N, 25°06'E, 2016-08-24, 49047 & Kimmo Jääskeläinen, det. C. Printzen 2017.

Opegrapha vermicellifera (J. Kunze) J.R. Laundon

New to Finland. This species prefers broad-leaved forests on shady sites with high air humidity (Arup et al. 1997).

Specimen examined: Varsinais-Suomi: Salo (Halikko), Vuorentaka, Vaisakko Nature Reserve, deciduous mesic herb-rich forest, on bark of an almost dead, hollow old *Tilia cordata*, rather scarce, alt. 5 m, 60°21'N, 23°03'E, 2017-05-02, 49637.

Placynthium pulvinatum Øvstedal

New to Finland. This recently described species (Øvstedal et al. 2009) is known in Fennoscandia from few localities in northern Norway (Jørgensen 2007) and Sweden (Westberg et al. 2016). All the Finnish populations are tiny. The species grows on moss or soil over calcareous rocks. One specimen has few apothecia. The long spores separate the species from *P. nigrum* (Huds.) Gray. The Salla localities are in the Oulanka National Park, which is famous for its populations of several disjunct, arctic-alpine species.

Specimens examined: Enontekiön Lappi: Enontekiö, Porojärvet, Toskalharji, 1.2 km NE of Toskaljärvi, fell, SW-slope, gentle E-slope, *Dryas* heath, on soil, alt. 875 m, 69°12'N, 21°28'E, 2011-08-05, 43679; Enontekiö, Kilpisjärvi, Saana, nature reserve, E-part, fell, steep SW-slope, dolomite rock outcrop, SW-slope, on soil, alt. 730 m, 69°02'N, 20°51'E, 2011-08-12, 44260; Enontekiö, Kilpisjärvi, Saana, nature reserve, E-part, fell, steep SW-slope, dolomite rock outcrop, on soil, scarce, alt. 890 m, 69°02'N, 20°51'E, 2011-08-13, 44326; Enontekiö, Kilpisjärvi, Saana, nature reserve, fell, steep SW-slope, dolomite rock outcrop, SW-slope, on SW-facing wall, on soil, very scarce, alt. 835 m, 69°02'N, 20°50'E, 2011-08-14, 44434; *Koillismaa:* Salla, Oulanka National Park, Savilampi 850 m N, shore of Savinajoki River, calciferous (dolomite) schistose rock outcrop, on SE-facing wall, on thin soil, very scarce, alt. 183 m, 66°26'N, 29°10'E, 2011-08-23, 44818; Salla, Oulanka National Park, Savilampi 1.2 km NE, shore of Savinajoki River, dolomite rock outcrop, on NE-facing wall, on dead moss and directly on rock, very scarce (ca. 2–4 ex), alt. 184 m, 66°26'N, 29°11'E, 2011-08-23, 44869.

Psorotichia lugubris (A. Massal.) Arnold

New to Finland. Prieto et al. (2015) recently reported the species from Sweden where it appears to be relatively frequent on Gotland and Öland. The species is apparently very rare in Finland although it could also have been mistaken for *P. schaereri* (A. Massal.) Arnold. *P. lugubris* is characterized by a thick areolate thallus and a dark brown to blackish proper exciple.

Specimen examined: Varsinais-Suomi: Länsi-Turunmaa (Korppoo), Elfsjö, Alskär Island, on flat calcareous rock outcrop, abundant, alt. 3 m, 60°08'N, 21°25'E, 2010-06-22, 38318.

Thelocarpon sphaerosporum H. Magn.

New to Finland. Distribution of *T. sphaerosporum* is mainly arctic-alpine. The species is known from five localities in Sweden (Westberg et al. 2016) and from two biogeographical provinces in Norway (Nordin et al. 2018).

Specimen examined: Enontekiön Lappi: Enontekiö, Porojärvet, Toskalharji, Toskalpahta Fell, dolomite rock outcrop, beneath SW-facing wall, SW-slope, on soil, alt. 810 m, 69°11'N, 21°30'E, 2011-08-04, 43488.

Trapelia elachista (Ach.) Orange

New to Finland. The specimens have been originally identified as *Trapelia coarctata* var. *elachista* by V. Räsänen and E. Vainio, respectively. They match well with the description of *T. elachista* by Orange (2018). The type of *T. elachista* is probably from Sweden (Orange 2018), and the species may prove to be widely distributed in Fennoscandia.

Specimens examined: Ahvenanmaa: Geta, Bolstaholm, Kummelberg, varjoisalla kallioseinällä [on shady rock wall], 1908-07-02 K. Linkola (H); *Uusimaa:* Helsinki, supra lapidem calcaream sylva ad Fredriksberg, 1858 W. Nylander (H).

Verrucaria corcontica Servít

New to Fennoscandia. Description based on the Finnish specimen: thallus endolithic or thinly epilithic, continuous or often only surrounding perithecia, white to grey, algal cells c. 5–8 µm; prothallus not seen; perithecia 0.21–0.32 mm in diam., 1/4–1/2-immersed, not leaving pits, often thinly thalline covered except apex, c. 120 perithecia / cm²; ostiole inconspicuous, tiny, dark, plane or depressed, c. 10–30 µm wide; involucrellum to the exciple base, c. 50–70 µm thick, appressed to the exciple or slightly diverging from it near the base; exciple 0.18–0.22 mm in diam., wall medium brown to dark brown, c. 12–15 µm thick; periphysoids c. 25–30(–35) × 1–1.5 µm, rather sparsely branched; spores 15–22(–25) × 6–8 µm.

The specimen was originally published as *V. cincta* Hepp, nom illeg. by Pykälä & Breuss (2011). However, the type material of *V. cincta* differs by larger perithecia (0.24–0.44 mm), leaving shallow to deep pits and thicker involucrellum (70–120 µm) (Pykälä et al. 2017). The specimen is somewhat similar to *V. corcontica* (PRM-765225!) described from the Czech Republic (Servít 1950) and only known from two localities (Servít 1954). The specimen is here tentatively included in *V. corcontica*. It is not easy to separate *V. corcontica* from *V. deversa* Vain. However, based on ITS sequences the Finnish specimen is not closely related to the sequenced specimens of *V. deversa*. *V. deversa* tends to have a shorter involucrellum. It rather rarely extends to the exciple-base level and is usually diverging from the exciple.

Pykälä & Breuss (2011) also reported another specimen as *V. cincta*. After comparison with the type material of *V. cincta*, this specimen has also been excluded from *V. cincta*. However, at the moment the identity of the specimen is not solved. *V. cincta* has here been excluded from the lichen flora of Finland.

Note that Breuss (2008) considered *V. corcontica* a synonym of *V. dufourii* DC. (*Parabagliettoa dufourii* (DC.) Gueidan & Cl. Roux). Here they are not considered conspecific. The involucrellum is thinner in *V. corcontica* than in *V. dufourii* (where it usually exceeds 100 µm). *V. dufourii* is also characterized by a rather broad ostiolar depression (Orange 2013).

Specimen examined: Varsinais-Suomi: Karjalohja, Saarenpää, W of Rauhala, backyard of a new house, 1 m high NW-facing wall of a calcareous rock, alt. 55 m, 60°13'N, 23°49'E, 2006-06-08, 28727.

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References

- Arup, U., Arneng, E. & Søchting, U. 2007. *Caloplaca fuscorufa* – a misunderstood species in northern Europe. *Lichenologist* **39**: 409–414.
- Arup, U., Ekman, S., Kärnefelt, I. & Mattsson, J.-E. (eds) 1997. *Skyddsvärda lavar i sydvästra Sverige*. SBF-förlaget, Lund, 276 pp.
- Breuss, O. 2008. Bemerkungen zu einigen Arten der Flechtengattung *Verrucaria*. *Sauteria* **15**: 121–138.
- Czarnota, P. & Guzow-Krzemińska, B. 2018. *Bacidina mendax* sp. nov., a new widespread species in Central Europe, together with a new combination within the genus *Bacidina*. *Lichenologist* **50**: 43–57.
- Foucard, T. 2001. *Svenska skorplavar och svampar som växer på dem*. Interpublishing, Stockholm, 392 pp.
- Fryday, A., Printzen, C. & Ekman, S. 2014. *Bryobilimbia*, a new generic name for *Lecidea hypnorum* and closely related species. *Lichenologist* **46**: 25–37.
- Jørgensen, P. M. 2007. Placynthiaceae. *Nordic Lichen Flora* **3**: 134–142.
- Nordin, A., Moberg, R., Tønsberg, T., Vitikainen, O., Dalsätt, Å, Myrdal, M., Snitting, D. & Ekman, S. 2018. *Santesson's checklist of Fennoscandian lichen-forming and lichenicolous fungi*. Museum of Evolution, Uppsala University. <http://www.evolutionsmuseet.uu.se/databaser/santesson.htm> (downloaded 20.3.2018).
- Orange, A. 2013. British and Other Pyrenocarpous Lichens. Department of Biodiversity and Systematic Biology, National Museum of Wales, Cardiff. <https://museum.wales/media/13849/Orange-A-2013-British-and-otherpyrenocarpous-lichens.pdf>
- Orange, A. 2018. A new species-level taxonomy for *Trapelia* (Trapeliaceae, Ostropomycetidae) with special reference to Great Britain and the Falkland Islands. *Lichenologist* **50**: 3–42.
- Øvstedal, D. O., Tønsberg, T. & Elvebakk, A. 2009. The lichen flora of Svalbard. *Sommerfeltia* **73**: 1–393.
- Prieto, M., Westberg, M. & Schultz, M. 2015. New records of Lichinomycetes in Sweden and the Nordic countries. *Herzogia* **28**: 142–152.
- Pykälä, J. 2006. Additions to the lichen flora of Finland. *Graphis Scripta* **18**: 41–48.
- Pykälä, J. 2017. Additions to the lichen flora of Finland. VIII. *Graphis Scripta* **29**: 1–5.
- Pykälä, J. & Breuss, O. 2011. Notes on some rare *Verrucaria* species (lichenised Ascomycotina, Verrucariales). *Österr. Z. Pilzk.* **20**: 29–34.
- Pykälä, J., Launis, A. & Myllys, L. 2017. Four new species of *Verrucaria* from calcareous rocks in Finland. *Lichenologist* **48**: 27–37.
- Servit, M. 1950. New lichens of the Pyrenocarpaceae-group. IV. *Stud. Bot. Cechoslov.* **11**(3): 101–144.
- Servit, M. 1954. Československé lišejníky čeledi Verrucariaceae. Lichenes familiae Verrucariacearum. Nakladatelství Československé Akademie Věd, Praha, 249 pp.

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- Tønsberg, T. 1992. The soresiate and isidiate, corticolous, crustose lichens in Norway. *Sommerfeltia* **14**: 1–331.
- Westberg, M., Arup, U., Berglund, T., Ekman, S., Nordin, A., Prieto, M. & Svensson, M. 2016. New and interesting records of lichens from Pältsan (Mt Bealccan) in northernmost Sweden. *Graphis Scripta* **28**: 22–32.