

# Contributions to the knowledge of aphyllorphoroid and heterobasidioid funga (Basidiomycota) in Finland

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## Abstract

We contribute to the knowledge on the occurrences and distributions of both aphyllorphoroid and heterobasidioid fungi in Finland. We present four species new to Finland, i.e. *Helicogloea sebacea*, *Phanerochaete cremeo-ochracea*, *Steccherinum cremeoalbum*, and *Uncobasidium luteolum*, as well as 46 new records (locations) of 34 rare or rarely collected species. Additionally, we report on 40 species considered new to a certain subzone of the boreal forest vegetation zone in Finland. These records contain notes on their substrata, and the ecology and distribution of nationally new species are briefly discussed.

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## Introduction

A wealth of knowledge on the occurrence and distribution of both aphylloroid and heterobasidioid species in Finland has accumulated after the publication of the Finnish aphylloroid checklist (Kotiranta et al. 2009): comprising a total of 75 species new to Finland (Kotiranta, unpublished), 355 records of rare species, and 485 species new to some region (e.g. Kunttu et al. 2016, 2018, 2019). This is mainly explained by the fact that more input has been put into the inventories, but also previously little studied areas (e.g. Northern Finland and south-western archipelago) and substrata (e.g. fine woody debris) have been newly surveyed. Nevertheless, the occurrence and distribution of aphylloroid fungi are still inadequately known. Our recent papers (Kunttu et al. 2016, 2018, 2019) demonstrate that many species have been – or still are – poorly known and do not have such a scattered distribution as previous records indicated.

In this article, we present new records of aphylloroid and heterobasidioid fungi in Finland, considering three types of records: 1) species new to Finland, 2) rare or seldom collected species with a maximum of 10 previous records in Finland, and 3) species that are new to a certain subzone (section) of the boreal vegetation zone in Finland.

Here, we considered both aphylloroid and heterobasidioid fungi in their broader sense, and their species composition roughly follow that of Hansen and Knudsen (1997), with the exception that the gastromycetoid genera are excluded. Although we concentrated mainly on Aphyllorales, the heterobasidiomycete genera, i.e. *Helicogloea* Pat., *Spiculogloea* P. Roberts and *Eocronartium* G.F.Atk. (Pucciniomycotina) are also included, since the Finnish checklist of aphylloroid fungi also considered them (Kotiranta et al. 2009).

some records were made in systematic survey of species on driftwood logs on the shores of the Baltic Sea were also included. Some records were obtained during inventories for the Finnish Atlas of Fungi (<http://www.sieniatlas.fi>). While many of the records date from 2018 and 2019, older records were also included.

At the beginning of each fungal record, we have given the biogeographical provinces according to Knudsen and Vesterholt (2008), and Latin province names are presented on the website of the FinBIF (Anonymous 2020a) alongside this provincial division. We used two levels to name the sites within the records: a municipality and a topographical site or a village or large nature conservation area. The Finnish National Uniform Coordinate System (UCS, 27° E; Heikinheimo & Raatikainen 1981) was used to obtain the coordinates. The forest vegetation subzones (Fig. 1) are given following Ahti et al. (1968), and available also on the map by Anonymous (2020b). Following the abovementioned sources, the names of the subzones are presented in English (e.g. Ostrobothnia), unlike the Latin names of the biogeographical provinces (e.g. Ostrobottnia).

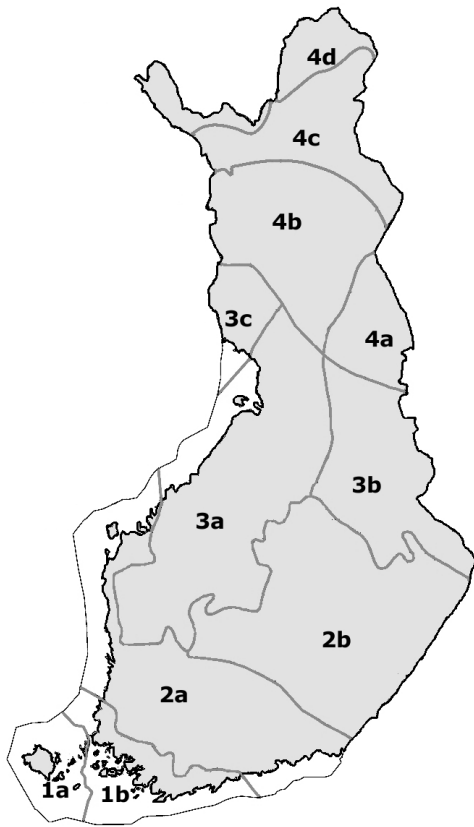
The taxonomy and nomenclature mainly follow Kotiranta et al. (2009) and Hjortstam and Ryvarde (2009), but the work of Bernicchia and Gorjón (2010) was also used for some species. The Finnish Red List evaluation of the IUCN standard corresponds to Kotiranta et al. (2019). If a species status was determined to be of least concern, it was not mentioned. The decay stage classification (1–5) of dead wood was carried out according to Renvall (1995), with stage 1 referring to hard dead wood and stage 5 referring to completely decayed wood. The diameter of dead wood was measured at chest height if the trunk was complete and from the middle if it was broken. We use the Finnish term “kelo” to refer to dead and old-growth trunks of Scots pine (*Pinus sylvestris* L.) with a grey and decorticated surface. Scots pines mainly become kelo wood in dry and barren forest habitats (Leikola 1969, Niemelä et al. 2002).

The material was collected, identified, and confirmed by several researchers as described in the record details, using the following abbreviations: TH = Teppo Helo, JJ = Jari Julkunen, HK = Heikki Kotiranta, MK = Matti Kulju, and PK = Panu Kunttu. The

## Material and methods

The majority of the records in this paper derived from opportunistic search of species by mycologists on their field trips in different parts of Finland, but

collector was also the identifier unless otherwise stated. The code after the collector's name or abbreviation represents the personal sampling number of the specimen. Voucher specimens were deposited in the herbaria of the universities of Helsinki (H), Oulu (OULU), Turku (TUR), Jyväskylä (JYV), Kuopio Natural History Museum (KUO) and/or in the private reference herbaria of Teppo Helo (TH), Jari Julkunen (JJ), or Heikki Kotiranta (HK).



**Fig. 1.** Boreal forest vegetation zones (1–4) and their subzones in Finland. 1a – Hemiboreal, Åland; 1b – Hemiboreal, Oak zone; 2a – Southern boreal, Southwestern Finland, and Southern Ostrobothnia; 2b – Southern boreal, Lake district; 3a – Middle boreal, Ostrobothnia; 3b – Middle boreal, Northern Carelia – Kainuu; 3c – Middle boreal, Southwestern Lapland; 4a – Northern boreal, Kuusamo District; 4b – Northern boreal, North Ostrobothnia; 4c – Northern boreal, Forest Lapland; 4d – Northern boreal, Fjeld Lapland.

## Results

We present four species new to Finland: *Helicogloea sebacea* (Bourdot & Galzin) Spirin & Trichies, *Phanerochaete cremeo-ochracea* (Bourdot & Galzin) Hjortstam, *Steccherinum cremealbum* Hjortstam, and *Uncobasidium luteolum* Hjortstam & Ryvar den. Also, 46 new records (locations) of 34 rare or rarely collected species (with a maximum of ten previous records in Finland) are presented. These species are listed and the ordinal number of these records in Finland is provided in Table 1.

Altogether, 40 species are reported as new to a certain subzone (section) of the boreal forest vegetation zone in Finland. These are Hemiboreal, Oak zone (1b), 3; Southern boreal, Southwestern Finland and Southern Ostrobothnia (2a), 2; Southern boreal, Lake district (2b), 9; Middle boreal, Ostrobothnia (3a), 5; Middle boreal, Northern Carelia – Kainuu (3b), 9; Middle boreal, Southwestern Lapland (3c), 1; Northern boreal, North Ostrobothnia (4b), 7; Northern boreal, Forest Lapland (4c), 3 and; Northern boreal, Fjeld Lapland (4d), 1.

The species are listed below in alphabetical order.

### *Amaurodon mustialaënsis* (P. Karst.) Kõljalg & K.H. Larss.

**SPECIMEN EXAMINED:** Satakunta, Hämeenkyrö, Rokkakoski, UCS 6841437:3306921, on a piece of stump in a young cultivated forest, 2 Oct 2018, leg. Vesa Salonen 12/2018 (OULU), det. MK.

This is the eight record in Finland; previous records were reported from Nousiainen (2a), Somero (2a), Tammela (three collections, 2a), Hollola (2a), and Sotkamo (3b) (Kunttu et al. 2019, Anonymous 2020c).

### *Amyloenasma allantosporum* (Oberw.) Hjortstam & Ryvar den

**SPECIMEN EXAMINED:** Tavastia australis, Lushanka, Lempää, Suviranta, UCS 68460:34334, in a managed mixed mesic heath forest, on a decorticated *Picea abies* (diam. 6 cm, decay stage 3), 16 Feb 2020, leg. & det. HK 30110 (H).

This is the tenth record in Finland; previous

**Table 1** Rare species and the ordinal number of the new record in Finland.

Species	Ordinal number of the new record
<i>Amaurodon mustialaënsis</i> (P. Karst.) Kõljalg & K.H. Larss.	8th
<i>Amyloenasma allantosporum</i> (Oberw.) Hjortstam & Ryvarde	10th
<i>Athelia sibirica</i> (Jülich) J. Erikss. & Ryvarde	6th
<i>Basidiodendron rimosum</i> (H.S. Jacks & G.W. Martin) Luck-Allen	7th
<i>Byssomerulius jose-ferreirae</i> (D.A. Reid) Zmitr.	8th
<i>Clavaria atrofusca</i> Velen.	3rd
<i>Clavulicium macounii</i> (Burt) J. Erikss. & Bold. ex. Parmasto	4th
<i>Conferticium ravum</i> Ginns & Freeman	8th
<i>Coronicium alboglaucum</i> (Bourdot & Galzin) Jülich	7th
<i>Endoperplexa enodulosa</i> (Hauerslev) P. Roberts	2nd–3rd
<i>Exidiopsis succinea</i> K. Wells & Raitv.	5th
<i>Helicogloea aquilonia</i> Spirin & V. Malysheva	2nd–4th
<i>Helicogloea sebacea</i> (Bourdot & Galzin) Spirin & Trichies	1st
<i>Melzericium udicola</i> (Bourdot) Hauerslev	4th–5th
<i>Membranomyces delectabilis</i> (H.S. Jacks.) Kotir. & Saaren.	4th–5th
<i>Paulliticium pearsonii</i> (Bourdot) J. Erikss.	6th–8th
<i>Phanerochaete cremeo-ochracea</i> (Bourdot & Galzin) Parmasto	1st
<i>Phanerochaete livescens</i> (P. Karst.) Volobuev & Spirin	4th
<i>Saccosoma farinaceum</i> (Höhn.) Spirin & K. Pöldmaa	7th
<i>Scytinostromella nannfeldtii</i> (J. Erikss.) G.W. Freeman & R.H. Petersen	6th
<i>Sistotrema autumnale</i> Ryvarde & H. Solheim	9th–10th
<i>Sistotrema heteronemum</i> (J. Erikss.) Å. Strid	2nd–3rd
<i>Sistotremella perpusilla</i> Hjortstam	3rd
<i>Spiculogloea subminuta</i> Hauerslev	3rd
<i>Steccherinum cremeoalbum</i> Hjortstam	1st
<i>Steccherinum pseudozilingianum</i> (Parmasto) Vesterh.	8th
<i>Tomentella coerulea</i> (Bres.) Höhn. & Litsch	8th–10th
<i>Tomentella subclavigera</i> Litsch.	10th
<i>Trechispora adnata</i> K.H. Larsson ined.	3rd
<i>Trechispora invisitata</i> (H.S. Jacks.) Liberta ssp. hauerslevii K.H. Larss.	7th–8th
<i>Tulasnella calospora</i> (Boud.) Juel	4th
<i>Tulasnella pallida</i> Bres.	2nd–4th
<i>Tulasnella</i> aff. <i>pallida</i>	4th
<i>Tulasnella permacra</i> P. Roberts	5th
<i>Tulasnella tomaculum</i> P. Roberts	9th–10th
<i>Uncobasidium luteolum</i> Hjortstam & Ryvarde	1st
<i>Xenasma rimicola</i> (P. Karst.) Donk	5th
<i>Xenasmatella borealis</i> (K.H. Larss. & Hjortstam) Duhem	7th–8th

records were reported from Tammisaari (1b), Helsinki (1b, two sites), Kuhmoinen (2b), Toivakka (2b), Jyväskylä (2b), Lieksa (3b), Kajaani (3b), and Suomussalmi (3b) (Kotiranta et al. 2009, Miettinen 2012, Kunttu et al. 2018).

### ***Athelia neuhoffii***

(Bres.) Donk

**SPECIMEN EXAMINED:** Savonia borealis, Iisalmi, Poskimäki W, UCS 7053991:3511026, on a fallen trunk of *Picea abies* (diam. 15 cm, decay stage 2), in a craggy heath forest next to a brow of a hill, 13 May 2019, leg. O. Ryhänen 8/13102019 (OULU), det. MK.

New to Southern boreal, Lake district (2b).

### ***Athelia sibirica***

(Jülich) J. Erikss. & Ryvarden

Specimen examined: Ostrobothnia ouluensis, Oulu, Karinkanta, UCS 7207329:3429055, on a partly decorticated fallen trunk of *Alnus incana* (diam. 10 cm, decay stage 3), in a lush coastal deciduous forest, 23 Oct 2019, leg. MK 49/19 (OULU), det. MK

This is the sixth record in Finland; previous records were reported from Lammi (2a), Oulu (two sites, 3a), Sotkamo (3b), Kittilä (3b) (Kotiranta et al. 2009, Kunttu et al. 2018, 2019).

### ***Basidiodendron rimosum***

(H.S. Jaks & G.W. Martin) Luck-Allen

Specimen examined: Regio aboënsis, Kemiönsaari, Öro UCS 6641:3227, on an uncorticated driftwood log of deciduous tree (diam. 13 cm, decay stage 2, length 4.4 m), 29 Oct 2016, leg. PK, det. MK.

This is the seventh record in Finland; previous records were reported from Finnström (1a), Geta, (1a), Kirkkonummi (1b), and Toivakka (2b), Puolanka (3b), and Sotkamo (3b) (Kotiranta et al. 2009, Kunttu et al. 2018, 2019).

### ***Byssomerulius jose-ferreirae***

(D.A. Reid) Zmitr.

(Syn. ***Phanerochaete jose-ferreirae***

(D.A. Reid) D.A. Reid)

Fig. 2

**SPECIMEN EXAMINED:** Satakunta, Pori, Metallinkylä, UCS 68278:32257, on a branch of deciduous tree (diam. 1 cm, decay stage 1) in a deciduous thicket forest with a high amount of dead wood, 2 Oct 2019, leg. & det. TH 2019005 (OULU), conf. MK.

This is the eighth record in Finland; previous records were reported from Hämeenlinna (two sites, 2a), Kankaanpää (2a), Jyväskylä (2b), Lapinlahti (2b), Toivakka (2b), and Keminmaa (3c) (Kotiranta et al. 2009, Kunttu et al. 2018).



Fig. 2. *Byssomerulius jose-ferreirae* in Pori (TH 2019005). Photo: Teppo Helo.



**Fig. 3.** *Clavaria atrofusca* in Pori (TH 2019008).  
Photo: Teppo Helo.

### ***Clavaria atrofusca***

Velen.

**Fig. 3**

**SPECIMEN EXAMINED:** Satakunta, Pori, Reposaaari, UCS 68469:32050, on lawn next to road, 29 Sep 2019, leg. & det. TH 2019008 (OULU), conf. T. Kekki.

New to Southern boreal, Southwestern Finland and Southern Ostrobothnia (2a). This is the third record in Finland; both previous records were reported from Helsinki (1b) (Kotiranta et al. 2009). Critically Endangered.

### ***Clavulicium macounii***

(Burt) J. Erikss. & Bold. ex. Parmasto

(Syn. *Clavulicium vinososcabens* (Burt) Pouzar)

**SPECIMEN EXAMINED:** Satakunta, Sastamala, Särkijärvenkulma, UCS 6829699:3292523, on a

stump of probably *Picea abies*, in a brookside forest in a dell, 14 Nov 2017, leg. Vesa Salonen 45/2017 (OULU), det. MK.

This is the fourth record in Finland; previous were reported from Vantaa (2a), Vehkalahti (2a), and Pomarkku (2a) (Kotiranta et al. 2009).

### ***Conferticium ravum***

(Burt) Ginns & Freeman

**SPECIMEN EXAMINED:** Tavastia australis, Luhanka, Lempää, Suviranta, UCS 68460:34334, in a managed mixed heath forest, on a decorticated trunk of *Populus tremula* (diam. 6 cm, decay stage 4), also *Kneiffiella barba-jovis* (Bull.) P. Karst., 17 Feb 2020, leg. & det. HK 30126a (H).

This is the eight record in Finland; previous records were reported from Korpilahti (2b), Sulkaiva (2b), Suonenjoki (2b), Äänekoski (2b), Konnevesi (2b), Viitasaari (2b), and Rovaniemi (3c) (Kotiranta unpubl., Kunttu et al. 2019). Vulnerable.

### ***Coronicium alboglaucum***

(Bourdot & Galzin) Jülich

**Fig. 4**

**SPECIMENS EXAMINED:** Ostrobothnia kajanensis, Kajaani, Pölyvaara, UCS 7126:3535, on a fallen branch of *Larix* sp. (diam. 2 cm, decay stage 2) in a spruce-dominated herb-rich heath forest, 23 Oct 2019, leg. & det. TH 2019017 (OULU), conf. MK; and on a fallen branch of *Picea abies* (diam. 2 cm, decay stage 2) in a spruce-dominated herb-rich heath forest, 23 Oct 2019, leg. & det. TH 2019018 (OULU), conf. MK.

This is the seventh record of the species in Finland; previous records were reported from Hämeenlinna (2a), Äänekoski (2b), Luhanka (2b), Muurame (2b), Kajaani (3b), and Paltamo (3b).

### ***Cristinia helvetica***

(Pers.) Parmasto

**Fig. 5**

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Kajaani Kajaani, Pölyvaara, UCS 7126:3535, on a fallen branch of *Picea abies* (diam. 2 cm, decay stage 3) in a spruce-dominated herb-rich heath forest, 23 Oct 2019, leg. & det. TH 2019007 (OULU), conf. MK.

New to Middle boreal, Northern Carelia – Kainuu (3b).



Fig. 4. *Coronicium alboglaucum* in Kajaani (TH 2019017). Photo: Teppo Helo.



Fig. 5. *Cristinia helvetica* in Kajaani (TH 2019007). Photo: Teppo Helo.



Fig. 6. *Endoperplexa enodulosa* in Sotkamo (TH 2019019). Photo: Teppo Helo.

### *Endoperplexa enodulosa*

(Hauerslev) P. Roberts

Fig. 6

**SPECIMENS EXAMINED:** Ostrobothnia ultima, Rovaniemi, Pisavaara Strict Nature Reserve, UCS 7359:34172, in a spruce-dominated heath forest, on a corticated trunk of *Juniperus communis* (diam. 2 cm, decay 1), 15 Sep 2009, leg. & det. HK 27245 (HK); Ostrobothnia kajanensis, Sotkamo, Losonvaara, UCS 7107:3546, on a fallen trunk of *Populus tremula* (diam. 5 cm, decay stage 2) in a spruce-dominated mesic heath forest, 22 Aug 2019, leg. & det. TH 2019019 (OULU), conf. MK.

New to Middle boreal, Northern Carelia – Kainuu (3b) and Middle boreal, Southwestern Lapland (3c). These are the second and third records in Finland; previous record was reported from Lumparland (1a) (Kotiranta et al. 2009).

### *Eocronartium muscicola*

(Pers.) Fitzp.

Fig. 7

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Kuhmo, Jylkynsalo, UCS 7103327: 3665581, on a



Fig. 7. *Eocronartium muscicola* in Kuhmo (JJ 1096). Photo: Jari Julkunen.

fallen trunk of *Populus tremula* (diam. 50 cm, decay stage 1) in a very old spruce-dominated mesic heath forest, 25 Sep 2017, leg. & det. JJ1096 (KUO).

New to Middle boreal, Northern Carelia – Kainuu (3b).



***Exidiopsis succinea***

K. Wells &amp; Raitv.

**SPECIMEN EXAMINED:** Ostrobothnia ultima, Rovaniemi, Nivankylä, Ounasjoki, UCS 7387854:3440428, on a dead corticated branch of *Salix* sp. (decay stage 3) in a riparian forest, 9 Oct 2018, leg. S. Huhmarniemi 438/18 (OULU), det. MK & V. Spirin.

New to Northern boreal, North Ostrobothnia (4b). This is the fifth record in Finland; all previous records were reported from Tammela (2a) (Anonymous 2020c). The records from Tammela were identified before as *Exidiopsis cf. effusa*.

***Helicogloea aquilonia***

Spirin &amp; V. Malysheva

Fig. 8

**SPECIMENS EXAMINED:** Ostrobothnia kajanensis, Sotkamo, Talvivaara, UCS 7091:3557, on fallen branch of *Betula* sp. (diam 2.5 cm, decay stage 3) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 8 Oct 2019, leg. & det. TH 2019022 (OULU), conf. MK; Sotkamo, Talvivaara, UCS 7092:3557, on a fallen trunk of *Populus tremula* (diam. 30, decay stage 4) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 10 Oct 2018, leg. TH 2018088 (OULU), det. V. Spirin; Risti-järvi, Saukkovaara, UCS 7151:3559, on a fallen trunk of *Populus tremula* (diam. 12, decay stage 4), in a young herb-rich heath forest, 12 Oct 2018, leg. TH 2018076 (OULU), det. V. Spirin.

New to Middle boreal, Ostrobothnia (3a). These are the second, third and fourth records in Finland; previous record was reported from Nokia (2a) (Spirin et al. 2018).

***Helicogloea sebacea***

(Bourdot &amp; Galzin) Spirin &amp; Trichies

Fig. 9

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Hyrnsalmi, Karhisenvaara, UCS 7157:3587, on a fallen trunk of *Populus tremula* (diam. 30 cm, decay stage 4) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 28 Sep 2018, leg. TH 2018093 (OULU), det. V. Spirin.

New species to Finland, and hence new to Middle boreal, Ostrobothnia (3a).

***Henningsomyces candidus***

(Pers.) Kuntze

**SPECIMEN EXAMINED:** Lapponia sompiensis, Pelkosenniemi, Pyhä-Luosto National Park, Salmiaapa, UCS 7434677:3500346, on a broken fallen trunk of *Betula* sp. (diam. 16 cm, decay stage 2), 10 Sep 2009, leg. PK 5400 (OULU), det. MK.

New to Northern boreal, North Ostrobothnia (4b).

***Hydnomerulius pinastri***

(Fr.) Jarosch &amp; Besl

**SPECIMEN EXAMINED:** Lapponia kittilensis, Kolari, Mannajoki, UCS 7488753:3356304, on a small wooden structure of *Picea abies* (decay stage 2), 5 Sep 2018, leg. H. Lehtonen 5.9.18/30 (OULU), det. MK.

New to Northern boreal, North Ostrobothnia (4b).

***Hyphoderma nemorale***

K.H. Larss.

Fig. 10

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Kajaani, Teppana, UCS 7126:3536, on a fallen branch of *Salix caprea* (diam. 4 cm, decay stage 2) in a spruce-dominated mesic heath forest, 26 Sep 2017, leg. & det. TH 20170048 (OULU), conf. MK.

New to Middle boreal, Northern Carelia – Kainuu (3b).

***Hypochnicium erikssonii***

Hallenb. &amp; Hjortstam

**SPECIMENS EXAMINED:** Ostrobothnia ouluensis, Oulu, Karinkanta, UCS 7207329:3429026, on a decorticated fallen trunk, probably *Salix* sp. (diam. 20 cm, decay stage 1), in a lush coastal deciduous forest, 23 Oct 2019, leg. & det. MK 45/19 (OULU); Lapponia inarenensis, Inari, Vätsäri wilderness area, Karhujänkä, UCS 7663907:3553472, on a broken fallen trunk of *Betula* sp. (diam. 6 cm, decay stage 4), 18 Aug 2009, leg. PK 5027 (OULU), det. MK, conf. HK.

New to Middle boreal, Ostrobothnia (3a) and Northern boreal, Forest Lapland (4c).



Fig. 8. *Helicogloea aquilonia* in Sotkamo (TH 2018088). Photo: Teppo Helo.



Fig. 9. *Helicogloea sebacea* in Hyrynsalmi (TH 2018093). Photo: Teppo Helo.



Fig. 10. *Hyphoderma nemorale* in Kajaani (TH 20170048). Photo: Teppo Helo.



Fig. 11. *Membranomyces delectabilis* in Pori (TH 2019004). Photo: Teppo Helo.

***Leptoporus erubescens***

(Fr.) Bourdot &amp; Galzin

**SPECIMENS EXAMINED:** Tavastia australis, Kangasala, Vehiniemenharju, UCS 68127:33501, on a stump of *Pinus sylvestris*, at the edge of a sandpit, 29 Sep 2002, leg. V. Salonen 111/2002 (OULU), det. MK; Satakunta, Hämeenkyrö, Sasi, Ketunkivenkangas, UCS 68370:33078, on a dead fallen trunk of *P. sylvestris*, in a gravel pit, 1 Aug 2007, leg. V. Salonen 40/2007 (OULU), det. MK.

It is uncertain how many reliable records there are in Finland. According to Niemelä (2016), there are some records from the southern coast to the Kuusamo region. According to FinBIF (Anonymous 2020c), there are several records from Finland but only a few have been identified microscopically. Reliable records have been made in the following boreal vegetation subzones: 1b, 2a, 2b, 3a, and 4a (Niemelä 2016 and M. Kulju, unpubl.).

***Leucogyrophana sororia***

(Burt) Ginns

**SPECIMEN EXAMINED:** Lapponia sompiensis, Pelkosenniemi, Pyhä-Luosto National Park, Rymäkero, UCS 7447752:3498884, on a whole fallen kelo trunk of *Pinus sylvestris* (diam. 38 cm, decay stage 3), 5 Sep 2009, leg. PK 5307 (OULU), det. MK.

New to Northern boreal, North Ostrobothnia (4b).

***Melzericium udicola***

(Bourdot) Hauerslev

**SPECIMENS EXAMINED:** Satakunta, Ulvila, Kellarimäki, UCS 6825047:3227606, on a dead trunk of *Juniperus communis* (diam. 4 cm, decay stage 3) in an old-growth mesic heath forest, 29 Oct 2018, leg. H. Lehtonen 29.10.18/1 (OULU), det. MK; Lapponia enontekiensis, Enontekiö, Termisjoki, UCS7626825:3369140, on a dead fallen trunk of *Juniperus communis* (diam. 8 cm, decay stage 1), in a barren alpine heath, 14 Aug 2019, leg. JJ 1291 (OULU), det. MK.

New to Southern boreal, Southwestern Finland and Southern Ostrobothnia (2a) and Northern boreal, Fjeld Lapland (4d). These are the fourth and fifth records in Finland; previous records were reported from Helsinki in two sites (1b), and Luhanka (2b) (Kotiranta et al. 2009, Kunttu et al. 2011).

***Membranomyces delectabilis***

(H.S. Jacks.) Kotir. &amp; Saaren.

Fig. 11

**SPECIMENS EXAMINED:** Tavastia australis, Kuhmoinen, Isojärvi National Park, Latokuusikko, UCS 6843688:3395941, in an old-growth heath forest, on a decorticated trunk of *Pinus sylvestris* (decay stage 2), 27 Aug 2015, leg. & det. J. Purhonen 4920a (JYV); Satakunta, Pori, Mäntykallo, UCS 68440:32063, on a fallen trunk of *Alnus glutinosa* (diam. 25 cm, decay stage 2) with *Tomentella* sp. in a herb-rich heath forest near the coast, 29 Sep 2019, leg. & det. TH 2019004 (OULU), conf. MK.

These are the fourth and fifth records in Finland and species is new to the Southern boreal, Lake district (2b). Previous records were reported from Helsinki (1b), Hämeenlinna (2a), and Tammela (2a) (Kotiranta et al. 2009).

***Oligoporus romellii***

(Pieri &amp; Rivoire) Niemelä

**SPECIMEN EXAMINED:** Ostrobothnia ultima, Rovaniemi, Nivankylä, Vesalanperä, UCS 7388249:3440890, on a stump of *Picea abies* (decay stage 2), in a mesic heath forest, 26 Sep 2019, leg. S. Huhmarniemi 948/19 (OULU), det. MK.

New to Northern boreal, North Ostrobothnia (4b).

***Paulliacorticiium pearsonii***

(Bourdot) J. Erikss.

Fig. 12

**SPECIMEN EXAMINED:** Tavastia borealis, Toivakka, Vuorilampi Nature Reserve, UCS 6885297:3455658, in an old-growth heath forest, on a decorticated *Picea abies* (decay stage 3), 2015, leg. & det. J. Purhonen (JYV); Rautalampi, Etelä-Konnevesi National Park, UCS 6941605:3484732, in an old-growth heath forest, on a decorticated trunk of *Picea abies* (diam. 28 cm, decay stage 3), 6 June 2016, leg. & det. J. Purhonen 2587 (JYV); Ostrobothnia kajanensis, Sotkamo, Talvivaara, UCS 7091:3557, on a fallen trunk of *Picea abies* (diam. 20 cm, decay stage 4) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 8 Oct 2019, leg. & det. TH 2019009 (OULU), conf. MK.

New to Southern boreal, Lake district (2b) and Middle boreal, Northern Carelia – Kainuu (3b). These are the 6th–8th records in Finland; previous

records were reported from Helsinki (two sites, 1b), Inkoo, (two sites, 1b), and Kemönsaari (1b) (Kotiranta et al. 2009, Kunttu et al. 2016).

***Peniophora rufa***

(Fr.) Boidin

Fig. 13

**SPECIMEN EXAMINED:** Savonia borealis, Heinävesi, Kerma, Hyövyntniemi, UCS 6928119:3592300, on a fallen branch of *Populus tremula* in a spruce-dominated mire in a dell, 8 May 2019, leg. S. Huhmarniemi 519/2019 (OULU), det. O. Laakso and TH (by sight), conf. MK (by microscope).

New to Southern boreal, Lake district (2b).

***Phanerochaete cremeo-ochracea***

(Bourdot & Galzin) Parmasto

**SPECIMEN EXAMINED:** Tavastia australis, Luhan-ka, Lempää manor house, UCS 6845:3433, in a yard, on a decorticated branch of *Syringa vulgaris* (cult.) (diam. 4 cm, decay stage 1) and partly corticated branch of *Syringa vulgaris* (cult.) twigs (diam. 0.5–0.8 cm, decay stage 1) together with *Hydnoporia tabacina* and *Peniophora incarnata*, 16 Feb 2020, leg. HK

30116, 30117 (H, HK), det. V. Spirin.

New to Finland, and hence new to Southern boreal, Lake district (2b).

***Phanerochaete livescens*** (P. Karst.)

Volobuev & Spirin

**SPECIMEN EXAMINED:** Savonia borealis, Heinävesi, Kerma, Käänninniemi, UCS6923665:3591767, on a corticated whole fallen trunk of *Alnus glutinosa* (decay stage 3), in a sub-xeric heath forest, 11 May 2018, leg. S. Huhmarniemi (OULU), det. MK.

This is the fourth record in Finland; previous records are from Helsinki (1b), Tammela (2a), and Ilomantsi (2b) (Karsten 1895, Volobuev et al. 2015, Kunttu et al. 2016).

***Physodontia lundellii***

Ryvarden & Solheim

**SPECIMEN EXAMINED:** Ostrobothnia ultima, Kemijärvi, Pyhätunturi National Park, Isonkurunkangas, UCS 7435:3510, on a whole fallen trunk of *Pinus sylvestris* (diam. 20 cm, decay stage 4), 2 Aug 2007, leg. PK 1931 (OULU), det. MK.



Fig. 12. *Paulliticium pearsonii* in Sotkamo (TH 2019009). Photo: Teppo Helo.

New to Northern boreal, North Ostrobothnia (4b). Near Threatened.

***Pseudomerulius montanus***

(Ginns) Kotir., K.H. Larss. & Saaren.

**SPECIMENS EXAMINED:** Ostrobothnia ultima, Rovaniemi, Käyrästunturi, Isonkivenmaa, UCS 7430089:3462143, on a natural stump of *Pinus sylvestris*, (diam. 20 cm, decay stage 4), 7 Sep 2007 PK 2521 (OULU), det. MK; Lapponia sompiensis, Savukoski, Vintilänkaira, Kuivatrovat, UCS 7501727:3543833, on a broken, fallen trunk of *Pinus sylvestris* (diam. 17 cm, decay stage 4), 9 Aug 2007, leg. PK 2069 (OULU), det. MK.

New to Northern boreal, North Ostrobothnia (4b).

***Saccosoma farinaceum*** (Höhn.)

Spirin & K. Pöldmaa

Fig. 14

(Syn. *Helicogloea farinacea* (Höhn.) D.P. Rogers)

**SPECIMEN EXAMINED:** Tavastia australis, Padasjoki, Korkeimmaistenjärvi, UCS 6806887: 3398800, on a fallen trunk of *Populus tremula* (diam. 30 cm, decay stage 2) in a very old spruce-dominated mesic heath forest, 10 Apr 2020, leg. & det. JJ1387 (JJ), conf. V. Spirin.

This is the seventh record in Finland; previous were reported from Karjalohja (1b), Helsinki (1b), Lempäälä (2a), Tampere (2a) and Kajaani (3b) (Kotiranta et al. 2009, Kunttu et al. 2013, 2018).

***Scytinostromella nannfeldtii*** (J. Erikss.) G.W.

Freeman & R.H. Petersen

Fig. 15

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Sotkamo, Lauttolampi, UCS 7118:3543, on a fallen branch of *Picea abies* (diam. 1 cm, decay stage 3) in a calciferous old-growth herb-rich forest, dominated by spruce, 22 Aug 2019, leg. & det. TH 2019010 (OULU), conf. MK.

This is the sixth record of this species in Finland; previous records were reported from Hyrynsalmi (3b), Paltamo (3b), Rovaniemi (3c), Kuusamo (4a), and Savukoski (4c) (Kotiranta et al. 2009, Kunttu et al. 2016, 2019).



**Fig. 13.** *Peniophora rufa* in Heinävesi (S. Huhmarniemi 519/2019). Photo: Seppo Huhmarniemi.

***Sistotrema autumnale***

Ryvarden & H. Solheim

Fig. 16

**Specimens examined.** Ostrobothnia kajanensis, Ristijärvi, Saukkovaara, UCS 7151:3559, on a fallen trunk of *Populus tremula* (diam. 5 cm, decay stage 2) in a young herb-rich heath forest with a high amount of dead thin deciduous wood, 12 Oct 2018, leg. & det. TH 2018200 (OULU), conf. MK; Sotkamo, Talvivaara, UCS 7091:3558, on a fallen trunk of *Populus tremula* (diam. 13 cm, decay stage 2) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 9 Oct 2018, leg. & det. TH 2018194 (OULU), conf. MK.



Fig. 14. *Saccosoma farinaceum* in Padasjoki (JJ1387). Photo: Jari Julkunen.

These are the ninth and tenth records from Finland; previous records were reported from Padasjoki (2a), Viitasaari (2b), Puolanka (three sites, 3b), and Kajaani (three sites, 3b) (Kotiranta et al. 2009, Kunttu et al. 2016, 2018).

### *Sistotrema heteronemum*

(J. Erikss.) Å. Strid

**SPECIMENS EXAMINED:** Regio aboënsis, Kemiönsaari, Stora Buskär UCS 6644:3229, on a decorticated driftwood log of unidentified tree species (diam. 12 cm, decay stage 2, length 2.8 m), on an open seashore, 2 Sep 2015, leg. PK 9499 (OULU), det. MK; Kemiönsaari, Örö UCS 6641:3227, on a decorticated driftwood log of conifer (diam. 23 cm, decay stage 2, length 3.4 m), on an open seashore 3 Oct 2015, leg. PK 9616 (OULU), det. V. Spirin; Örö, UCS 6641:3227, on a decorticated driftwood log of *Alnus* sp. (diam. 13 cm, decay stage 1, length 3.1 m), on an open seashore, 28 Oct 2016, leg. PK 9669 (OULU), det. MK.

New to Hemiboreal, Oak zone (1b). These are the second and third records in Finland; previous record was reported from Konnevesi (2b) (Kotiranta et al. 2009).

### *Sistotremella perpusilla*

Hjortstam

**SPECIMENS EXAMINED:** Regio aboënsis, Kemiönsaari, Örö, UCS 6642:3237, altogether five collections from decorticated driftwood logs on a seashore. Of these logs, three were conifers (diam. 17 cm, decay stage 3, length 3.1 m; diam. 30 cm, decay stage 1, length 5.6 m; diam. 29 cm, decay stage 2, length 5.2 m), and two unidentified trees (diam. 11 cm, decay stage 2, length 3 m; diam. 23 cm, decay stage 2, length 3 m), 30 Oct 2016, leg. PK 9493a, 9496a, 9506a, 9537, 9542 (OULU), det. MK, conf. HK.

This is the third record in Finland; previous records were reported from Inkoo (1b) and Lammi (2a) (Kotiranta et al. 2009).

### *Sphaerobasidium minutum*

(J. Erikss.) Oberw. ex. Jüllich

**SPECIMEN EXAMINED:** Ostrobothnia ouluensis, Oulu, Hietasaari, UCS 7213891:3425723, on a coniferous driftwood (diam. 17 cm, decay stage 3) in a lush coastal deciduous forest, 5 Oct 2019, leg. & det. MK 33/19 (OULU).

New to Middle boreal, Ostrobothnia (3a).



Fig. 15. *Scytinostromella nannfeldtii* in Sotkamo (TH 2019010). Photo: Teppo Helo.



Fig. 16. *Sistotrema autumnale* in Sotkamo TH 2018194. Photo: Teppo Helo.



***Spiculogloea subminuta***

Hauerslev

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Kajaani, Pölyvaara, UCS 7126:3535, on a fallen trunk of *Alnus incana* (diam. 5 cm, decay stage 3) with *Botrybasidium subcoronatum* (Höhn. & Litsch.) Donk, *Kneiffiella subalutacea* (P. Karst.) Jülich & Stalpers and *Peniophorella praetermissa* (P. Karst.) K.H. Larss. in a spruce-dominated mesic heath forest, 20 Sep 2017, leg. TH 20170049 (OULU), det. MK.

This is the third record of in Finland; previous records were reported Kuhmo (3b), and Inari (4c) (Kunttu et al. 2019).

***Steccherinum cremeoalbum***

Hjortstam

**SPECIMEN EXAMINED:** Regio aboënsis, Turku, Ruissalo, UCS 671:323, in a herb-rich forest, on corticated deciduous (*Betula?*) twigs (diam. 2–5 mm), 7 Oct 1964, leg. E. Ohenoja (née Kankainen) (TUR 010828), (sub. *Fibricium lapponicum*, det W. Jülich 1971), det. MK, conf. HK.

New to Finland, and hence new to Hemiboreal, Oak zone (1b).

***Steccherinum litschaueri***

(Bourd. &amp; Galz.) J. Erikss.

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Paltamo, Melalahti, UCS 714711:353276, on a fallen deciduous tree (diam. 1.6 cm, decay stage 2) in a young herb-rich forest, 24 Sep 2019, leg. P. Helo 3592 (OULU), det. TH.

New to Middle boreal, Northern Carelia – Kainuu (3b).

***Steccherinum pseudozilingianum***

(Parmasto) Vesterh.

(Syn. *Junghuhnia pseudozilingiana* (Parmasto) Ryvarden and *Irpex cremicolor* Miettinen, Niemelä & Ryvarden)

**SPECIMEN EXAMINED:** Savonia borealis, Iisalmi, Poskimäki N, UCS 7054146:3511121, on a fallen branch of *Populus tremula* (diam. 3 cm, decay stage 2), in a mesic heath forest, 8 Oct 2019, leg. O. Ry-

hänen 16/8102019 (OULU), det. MK.

New to Southern boreal, Lake district (2b). This is the eight record in Finland; previous records were reported from Finström (1a), Espoo (2a), Porvoo (2a), Kuhmo, two sites (3b), Taivalkoski (3b), Kemi (3c) (Kotiranta et al. 2009, Kunttu et al. 2012).

***Tomentella cinerascens***

(P. Karst.) Höhn. &amp; Litsch.

**SPECIMENS EXAMINED:** Ostrobothnia ouluensis, Oulu, Hietasaari, UCS 7213874:3425547, on a coniferous driftwood (diam. 13 cm, decay stage 2), in a lush coastal deciduous forest, 5 Oct 2019 leg. & det. MK 37/19 (OULU); Lapponia inarensis, Inari, Haapaniemi, UCS 7645333:3497488, on a broken fallen trunk of *Betula* sp., (diam. 22 cm, decay stage 3), 22 Sep 2008 PK 3877 (OULU), det. MK.

New to Middle boreal, Ostrobothnia (3a) and Northern boreal, Forest Lapland (4c).

***Tomentella coerulea***

(Bres.) Höhn. &amp; Litsch

**SPECIMENS EXAMINED:** Regio aboënsis, Kemiönsaari, Örö, UCS 6642:3237, on a driftwood log of unidentified tree species (diam. 21 cm, decay stage 3, length 4.4 m) on a seashore, 2 Oct 2015, leg. PK 8921 (OULU, det. MK; Ostrobothnia kajanensis, Sotkamo, Viltovaara, UCS 7084:3561, on a fallen trunk of *Populus tremula* (diam. 35 cm, decay stage 3) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 1 Oct 2018, leg. & det. TH 2018191 (OULU), conf. MK; Kuhmo, Ulvinsalo, UCS 7103:3665, on a fallen trunk of *Populus tremula* (diam. 40 cm, decay stage 3) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 8 Aug 2019, leg. TH 2019021 (OULU).

These are the eighth, ninth and tenth records in Finland; previous records were reported from Parainen (1b), Kemiönsaari (two sites, 1b), Rautalampi (2b), Kajaani (3b), Rovaniemi (3c), and Enontekiö (4c) (Kotiranta et al. 2009, Kunttu et al. 2012, 2013, 2014, 2018).



Fig. 17. *Trechispora adnata* in Pori (TH 2019006). Photo: Teppo Helo.

### ***Tomentella lateritia***

Pat.

**SPECIMENS EXAMINED:** Tavastia borealis, Rautalampi, Iso Niinivuori, UCS 6934420:3487177, on a decorticated fallen trunk of *Juniperus communis* (diam. 6 cm, decay stage 1) in a mesic heath forest, 16 Sep 2017, leg. & det. MK 40/17 (OULU); Lapponia inarensis, Inari, Angelintie W, UCS 7649599:3489507, on a dead trunk of *Pinus sylvestris* (diam. 10 cm, decay stage 3) in a heath forest, 31 Aug 2018, leg. H. Lehtonen 31.8.18/50 (OULU), det. H. Lehtonen & TH, conf. MK.

New to Southern boreal, Lake district (2b) and Northern boreal, Forest Lapland (4c).

### ***Tomentella subclavigera***

Litsch.

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Sotkamo, Korkeakoskenpuro, UCS 7089:3558, on a fallen trunk of deciduous tree (diam. 4 cm, decay

stage 3) in an old spruce-dominated herb-rich heath forest with a high amount of dead wood, 24 Sep 2018, leg. & det. TH 2018175 (OULU), conf. MK.

This is the tenth record in Finland; previous records were reported from Helsinki (three sites, 1a), Tammela (2a), Mänttä-Vilppula (2b), Savonranta (2b), Kajaani (3b), Sotkamo (3b), and Rovaniemi (3c) (Kunttu et al. 2016, 2018).

### ***Trechispora adnata***

K.H. Larsson ined.

Fig. 17

**SPECIMEN EXAMINED:** Satakunta, Pori, Metallinkylä, UCS 68280:32256, on a branch of *Salix eu-xina* 'Bullata' (diam. 4 cm, decay stage 3) in a small mesic heath forest with *Salix*-trees planted next to the road, 2 Oct. 2019, leg. & det. TH 2019006 (OULU), conf. MK.

This is the third record in Finland; previous records were reported from Merikarvia (1b), and Hämeenlinna (1b) (Kotiranta et al. 2009).



Fig. 18. *Trechispora invisitata* in Ulvila (TH 2019015). Photo: Teppo Helo.

***Trechispora invisitata*** (H.S. Jacks.)

Liberta ssp. *hauerslevii* K.H. Larss.

Fig. 18

**SPECIMEN EXAMINED:** Satakunta, Ulvila, Koivumetsä, UCS 68252:32270, on a fallen trunk of *Populus tremula* (diam. 20 cm, decay stage 4) in a herb-rich heath forest dominated by aspen, 29 Sep 2019, leg. & det. TH 2019015 (OULU), conf. MK; Pori, Raumaluoto, UCS 68473:32077, on a fallen trunk of *Alnus glutinosa* (diam. 40 cm, decay stage 4) in a herb-rich forest dominated by alder, 1 Oct 2019, leg. & det. TH 2019016 (OULU), conf. MK.

These are the seventh and eighth records in Finland; previous records were reported from Parainen (1b), Kemiönsaari (three sites, 1b), Hämeenlinna (2a), and Muurame (2b) (Kotiranta et al. 2009, Kunttu et al. 2009, 2012).

***Trechispora minuta***

K.H. Larsson

Fig. 19

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Kajaani, Pölyvaara, UCS 7126:3535, on fallen

branches of *Picea abies* (diam. 0.5 – 2, decay stage 2) in a spruce-dominated herb-rich heath forest, 23 Oct 2019, leg. & det. TH 2019003 (OULU), conf. MK.

New to Middle boreal, Northern Carelia – Kainuu (3b).

***Tulasnella albida***

Bourdot & Galzin

**SPECIMEN EXAMINED:** Regio aboënsis, Kemiönsaari Öro UCS 6641:3227, on a decorticated driftwood log of conifer (diam. 32 cm, decay stage 2, length 3.4 m), 28 Oct 2016, PK 9345 (OULU), det. MK, conf. HK.

New to Hemiboreal, Oak zone (1b).

***Tulasnella calospora***

(Boud.) Juel

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Sotkamo, Talvivaara, UCS 7091:3557, on a fallen trunk of *Picea abies* (diam. 10 cm, decay stage 3)



Fig. 19. *Trechispora minuta* in Kajaani (TH 2019003). Photo: Teppo Helo.

with *Botryobasidium subcoronatum* in a young aspen-dominated herb-rich heath forest with a high amount of thin dead wood, 8 Oct 2019, leg. & det. TH 2019014 (OULU), conf. MK.

This is the fourth record in Finland; previous records were reported from Virolahti (2a), Kajaani (3b), and Sotkamo (3b) (Kunttu et al. 2012, 2019).

### ***Tulasnella pallida***

Bres.

Fig. 20

**SPECIMENS EXAMINED:** Tavastia australis, Ylöjärvi, Poikeluksentie, UCS 6867324:3328092, on a dead trunk of *Populus tremula* (diam. 7 cm, decay stage 2), in a moist brookside forest in a slope, 3 Nov 2018, leg. H. Lehtonen 3.11.18/4 (OULU), det. H. Lehtonen & MK; Ostrobothnia kajanensis, Puolanka, Latvavaara, UCS 7177:3546, on a fallen trunk of *Populus tremula* (diam. 30 cm, decay stage 3) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 17 Sep 2018, leg. & det. TH 2018161 (OULU), conf. MK and HK; Sotka-

mo, Losonvaara, UCS 7107:3546, on a fallen branch of *Picea abies* (diam. 2 cm, decay stage 2) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 6 Oct 2018, leg. & det. TH 2018172 (OULU), conf. MK and HK.

New to Southern boreal, Lake district (2b) and Middle boreal, Northern Carelia – Kainuu (3b). These are the second, third and fourth records in Finland; the first record was reported from Marttila (1b).

### ***Tulasnella aff. pallida***

Fig. 21

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Sotkamo, Losonvaara, UCS 7106:3546, on a fallen trunk of *Salix caprea* (diam. 4 cm, decay stage 2) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 28 Jul 2018, leg. TH 2018143 (OULU), det. HK. Spores differ from *T. pallida*.

New to Middle boreal, Northern Carelia – Kainuu (3b). This is the fourth record in Finland; all previous records were reported from Helsinki (1b) (Kotiranta et al. 2009).



Fig. 20. *Tulasnella pallida* in Puolanka (TH 2018161). Photo: Teppo Helo.



Fig. 21. *Tulasnella* aff. *pallida* in Sotkamo (TH 2018143). Photo: Teppo Helo.



Fig. 22. *Xenasma rimicola* in Sotkamo (TH 2019011). Photo: Teppo Helo.



Fig. 23. *Xenasmatella borealis* in Puolanka (TH 2018137). Photo: Teppo Helo.

***Tulasnella permacra***

P. Roberts

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Sotkamo, Talvivaara, UCS 7091:3557, on fallen trunk of *Populus tremula* (diam. 6 cm, decay stage 3) with *Athelia fibulata* M.P. Christ., in a young aspen-dominated herb-rich heath forest with high amount of thin dead wood, 8 Oct 2019, leg. & det. TH 2019013 (OULU), conf. MK.

This is the fifth record in Finland; previous records were reported from Helsinki (1b), Tammissaari (1b), Puolanka (3b), and Sotkamo (3b).

***Tulasnella tomaculum***

P. Roberts

**SPECIMENS EXAMINED.** Regio aboënsis, Turku, Ruissalo, UCS 6711:3232, on a fallen trunk of deciduous trees (diam. 6 cm, decay stage 3) in a herb-rich forest next to a road, 30 Sep 2019, leg. & det. TH 2019012 (OULU), conf. MK; Ostrobothnia kajanensis, Puolanka, Mustakumpu, UCS 7172:3550, on a fallen trunk of *Picea abies* (diam. 8 cm, decay stage 3) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 23 Sep 2018, leg. & det. TH 2018212 (OULU), conf. MK.

These are the ninth and tenth records in Finland; previous records were reported from Lemland (1a), Helsinki (1b), Padasjoki (2a), Luhanka (2b), Kajaani (three sites, 3b), Kuusamo (4a), and Inari (4c) (Kotiranta et al. 2009, Kunttu et al. 2018).

***Uncobasidium luteolum***

Hjortstam &amp; Ryvarde

**SPECIMEN EXAMINED:** Tavastia australis, Luhanka, Lempää manor house, UCS 6845:3433, in a yard, on a corticated branch of *Syringa vulgaris* (cult.) (diam. 0.2 mm, decay stage 1), 16 Feb 2020, leg. HK 30119 (HK), and on a corticated branch of *Syringa vulgaris* (cult.) (diam. 0.3 cm, decay 1) (same bush), 23 Feb 2020, leg. HK 30136 (H). det. V. Spirin.

New to Finland, and hence new to Southern boreal, Lake district (2b).

***Xenasma rimicola***

(P. Karst.) Donk

Fig. 22

**SPECIMEN EXAMINED:** Ostrobothnia kajanensis, Sotkamo, Talvivaara, UCS 7091:3557, on a fallen trunk of *Picea abies* (diam. 8 cm, decay stage 3) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 8 Oct 2019, leg. & det. TH 2019011 (OULU), conf. MK.

This is the fifth record in Finland; previous records were reported from Tammela (2a) in 1889, Ruovesi (2b), Ilomantsi (3b), and Sotkamo (3b) (Kotiranta et al. 2009, Kunttu et al. 2019). This is the first Finnish collection from coniferous tree.

***Xenasmatella borealis***

(K.H. Larss. &amp; Hjortstam) Duhem

Fig. 23

**Specimens examined.** Ostrobothnia kajanensis, Puolanka, Mustakumpu, UCS 7173:3549, on a fallen top of *Picea abies* (diam. 3 cm, decay stage 3) in an old-growth spruce-dominated mesic heath forest with a high amount of dead wood, 23 Sep 2018, leg. TH 2018137 (OULU), det. HK; Lapponia sompiensis, Sodankylä, Kakslauttanen, UCS 7583:3515, on a fallen branch of *Pinus sylvestris* (diam. 8 cm, decay stage 3) in an old-growth xeric heath forest with a high amount of dead wood, 4 Sep 2018, leg. TH 2018103 (OULU), det. HK.

These are the seventh and eighth records in Finland; previous records were reported from Helsinki (1b), Kuhmoinen (2b), Petäjävesi (2b), Kajaani (3b), Lieksa (3b), and Salla (4c) (Kotiranta et al. 2009, Kunttu et al. 2018). The records from Kajaani (Kunttu et al. 2018) were situated so near each other that from now on they are considered as a one record.

**Discussion****Species new to Finland**

*Helicogloea sebacea* (Bourdot & Galzin) Spirin & Trichies was described from France as *Saccoblastia sebacea* (Bourdot & Galzin 1909). Thereafter, it has also been reported from Denmark, Estonia,

the United Kingdom, Germany, Ukraine, Russia (including both European and Asian regions), the USA (Ohio, South Carolina, Tennessee, and Iowa) and Canada (Spirin et al. 2018, Anonymous 2020d). The ecology of the species seems to be poorly known even though it is reported to grow on fallen and rather decayed deciduous logs of *Acer*, *Betula*, *Fagus*, and *Quercus* (Spirin et al. 2018), as well on on *Populus* in Finland.

*Steccherinum cremeoalbum* Hjortstam was described from Västmanland, Sweden in 1984 (Hjortstam 1984) and the species also occurs in Denmark (Eriksson et al. 1984, Hjortstam 1984), the USA (Florida), Germany (Anonymous 2020d) and India, where it grew on a decaying angiospermic stick (Sanyal et al. 2016). This species' other substrata or ecological requirements are unknown or unreported. The Finnish specimen was collected from a very thin twig of deciduous wood.

According to Bernicchia and Gorjón (2010) *Phanerochaete cremeo-ochracea* (Bourdot & Galzin) Hjortstam has been reported from Belarus, France, Poland, Russia, and Sweden. The hosts mentioned by Bourdot and Galzin (1927) are *Fagus* and *Fraxinus*, and in Finland on a small-diameter branch of cultivated *Syringa vulgaris*.

Hjortstam and Ryvarde (1978) mentioned three collections of *Uncobasidium luteolum* Hjortstam & Ryvarde: two from Norway (*Salix*, deciduous tree) and one from Sweden (*Populus*). The substratum in Finland was a small-diameter branch of cultivated *Syringa vulgaris*.

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## Significant extensions of the known distribution

Several new regional records have been made far from their previously known locations, especially in northern Finland. For example, the new record of *Hypochnicium erikssonii* in Inari extended its known range by nearly 900 km. Similarly, the record of *Melzerium udicola*, made in Enontekiö, is ca. 750 km farther north than the nearest previous collection in Luhanka, while the new record of *Tomentella lateritia* found in Inari is approximately 700 km farther north

compared to previous records. Further, *Exidiopsis succinea* was found in Rovaniemi, at a location approximately 650 km north of the previous records in Tamela, in central southern Finland. A distance of more than 500 km the location of the first Finnish record of *Tulasnella pallida* and the new northernmost find.

The new records of *Tulasnella* aff. *pallida* and *Paullicorticium pearsonii* from Sotkamo are 450 km and 400 km, respectively, north of previous reports, the former species being recorded in Helsinki. Moreover, *Sistotrema heteronemum* has now been found in the southwestern archipelago from which the distance to the previously recorded site is 380 km to the south. The record of *Trechispora minuta* in Kajaani is 200 km north from previous sites.

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## Conclusions

As demonstrated in this paper and previously, when performing surveys and inventories in poorly studied areas and neglected habitats or of species with tiny basidiocarps, additional new information about corticioid fungi will be gathered. For several species, the new records are from distant geographic locations and it is unlikely that their range would be as fragmented as currently known. It is most probable that many of these species occur in numerous sites between the scattered records. Of course, a certain portion of aphylloroid species are truly rare or geographically restricted, for example, because they are specialized to live in a certain habitat type or substratum. To find out the actual distribution of species, more effort should be allocated to field studies. All such additional knowledge about the occurrences and habitats is important for understanding species' ecology and conservation needs, likewise the diversity of aphylloroid fungi in Finland.

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