Three species of Sordariomycetes (Ascomycota: Pezizomycotina) new to Norway

Björn Nordén¹, Mari Jäntti¹, John Bjarne Jordal²

¹Norwegian Institute for Nature Research (NINA), Gaustadalléen 21, N-0349 Oslo, Norway
²Auragata 3, 6600 Sunndalsøra, Norway

Corresponding author: Bjørn.Norden@nina.no

INTRODUCTION
Despite that many species of sordariomycetes (‘pyrenomycetes s. str.’) are conspicuous in the field they often don’t get the attention they deserve by mycologists. They are therefore more poorly known compared to for instance most basidiomycete taxa and lichenized fungi, enabling interesting finds on various substrates. We here report three new species for Norway, one from dead wood of ash (Fraxinus excelsior), one restricted to click beetle larvae and one lichen parasite. The finds are presented together with the known occurrence in the other Fennoscandian countries.

MATERIALS AND METHODS
Species distributions in Fennoscandia were checked using the following sources; for Norway: Species Map Service (2017), The Norwegian Mycological Database (2017), and Aarnæs (2002); Sweden: Eriksson (2014) and Artportalen (2017); Denmark: Atlas of Danish Fungi (2017); Finland: Finnish Biodiversity Info Facility (2017); Fennoscandia: Nordin et al. (2017).

RESULTS

**Hypoxylon subticinense**

*Hypoxylon subticinense* Y.M. Ju & J.D. Rogers (Fig. 1) is previously found in Denmark in Fennoscandia. It occurs on dead wood from deciduous trees. It has distinctive fluffy orange immature stromata and a KOH-reaction similar to that of *H. rubiginosum*. To separate it from *Hypoxylon ticinense* L. Petrini (not found in Fennoscandia) the ascospores need to be examined. Although only immature ascospores were found, they did appear equilateral and we refer the material to *H. subticinense*.

Material: NO Østfold, Moss, Grønliparken, UTM32 590906/ 6589076, on the upper side of log of *Fraxinus excelsior*, diameter 10 cm, in deciduous forest. Growing together with *Protocrea farinosa* and *Skeletocutis nivea*, September 22, 2016, leg. BN, det. BN.

**Ophiocordyceps stylophora**

*Ophiocordyceps stylophora* (Berk. & Broome) G.H. Sung, J.M. Sung, Hywel-Jones & Spatafora (Fig. 2) is previously known from Sweden in Fennoscandia and is otherwise rare in Europe (Chachula et al. 2011). It has a greyish stroma with a sterile tip and occurs on larva of click beetles (Elateridae) in dead wood.

Material: NO Vestfold, Sandefjord, Sand, UTM32 575732/ 6559328, on Elateridae larva in old stump of *Alnus glutinosa* in deciduous forest, October 5, 2016, leg. BN, MJ, det. BN.
Paranectria oropensis (Ces. ex Rabenh.) D. Hawksw. & Piroz. (Fig. 3) is previously found in Denmark and Sweden in Fennoscandia. It forms a white mycelium and copious orange perithecia and is a parasite on various lichen species.

Material: 6 samples. NO, Rogaland, Strand, Fiskåneset Ø, UTM32 328071/ 6556960, on lichens on bark of pollarded Fraxinus excelsior in pasture, October 8, 2012, leg. BN & JBJ, det. BN. NO, Rogaland, Strand, Rag, UTM 32 326098/ 6555365 and 326087/ 6555348, on lichens on bark of old Fraxinus excelsior in deciduous forest, October 3 & 4, 2012, leg. BN & JBJ, det. BN. NO, Hordaland, Osterøy, Kløvneset, UTM32 310658/ 6705250 and 310618/ 6705336, on dead Physcia sp. on bark of an old Fraxinus excelsior in a deciduous forest, September 30, 2013, leg. & det. BN & JBJ.

DISCUSSION
Most of the species of sordariomycetes reported for the first time in Norway in this paper, and by Nordén et al. (2015), were probably present in Norway for a long time, but has been neglected by mycologists. However, it is also possible that some may be new arrivals resulting from a warming climate. H. subticinense may be the most likely candidate since Hypoxylon is among the best known genera of sordariomycetes in Norway and since it occurred at a climatically favoured site. Similar establishments would be interesting to follow in the future and more surveys should be performed in the southern parts of Norway.

ACKNOWLEDGMENTS
The fieldwork was financed by the Norwegian research council project TransForest (number 255043/E50) and ‘Pyrenomycetes (Sordariomycetes and similar fungi) in temperate deciduous forests of southern and western Norway’ financed by the Norwegian Bio-
diversity Information Centre (project ended in 2015). Jens Maarbjerg and Christopher Reisborg kindly provided photos. The photo by C. Reisborg was produced during the work with the Encyclopedia of the Swedish Flora and Fauna at the Swedish University of Agricultural Sciences.

REFERENCES