

PhD project: Karolina Jörgensen

Comparing effects of endogenic and anthropogenic N-supply on ectomycorrhizal fungi

My PhD project aims to describe how different species of ectomycorrhizal fungi relate to variation in nutrient availability, and if they respond differently to anthropogenic and endogenic sources of nitrogen. I will use metabarcoding to characterize the fungal community in forest soils and measure enzymatic activities connected with fungal decomposition of organic matter. By doing this it is possible to connect fungi to nutrient cycling and carbon sequestration in the soil.

My project consists of three major parts:

(I) *Fertilization (2017-2020)*

In this project we sampled soils in a long term fertilization and thinning experiment across all of Sweden with the aim to quantify the effects forest management practices on carbon storage as well as to better understand effects of management on the fungal community and its function.

(II) *Nitrogen deposition (2018-2020)*

In this project we've sampled forests around Uppsala and in Skåne/Halland to compare fungal community composition and functioning along local gradients in natural fertility in regions with and without additions of nitrogen through atmospheric deposition.

(III) *Cafeteria experiment (2019-2021)*

In this project we will study nutrient acquisition strategies of ectomycorrhizal fungi by burying bags containing substrates of different quality in forest soils. By analysing which fungi prefer what substrates we aim at gaining deeper understanding about the ecology of different fungal species.

My supervisors are:

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