



Project acronym: MYSSS

Project title: Mycorrhizal status of snowbed species

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Discipline: Earth Sciences & Environment: Ecosystems & Biodiversity

Station(s): Abisko Scientific Research Station (Sweden)

With the help of this INTERACT TA, we aim to relocate the snowbeds monitored in 1947 by Olav Gjaerevoll on 7 mountain tops in the area around the Abisko Research Station. During the summer of 2023, we will resurvey the snowbed plant communities and measure the soil pH using the same monitoring principle as used by Gjaerevoll. As such, we can assess how the vegetation community has changed over time, as a result of ongoing climate change.

By linking the plant species of both survey time points to their mycorrhizal associations using the FungalRoot database (Soudzilovskaia et al., 2020), we can furthermore assess the change in dominance of the different main mycorrhizal types along the spatial and temporal gradient, to assess the moment when the stable state in mycorrhizal communities is reached (Radujkovic et al. 2021). More precisely, we can then ask if the mycorrhizal fate of communities – if they will be dominated by arbuscular or ericoid mycorrhizae – is sealed at the first appearance of vegetation, or if conversions occur throughout succession.

Additionally, we will identify the structure of the present mycorrhizal community along the spatial succession gradient by applying DNA amplicon sequencing to soil samples taken along the gradient.

Pooling all this information together will allow us to assess the stability of plant-mycorrhizal interaction networks in the system, which can provide insights in its stability in the face of ongoing and predicted climate warming, with potentially important repercussions at least for other cold-climate ecosystems across the globe.