



## Master project: Drought intensity and drought legacy effects on trees and soil microbiota

The aim of this Master thesis is to assess the effect of drought on ectomycorrhizal (ECM) communities associated to native tree species. The thesis will be carried out in collaboration with a PhD student working on an interdisciplinary project.

Principal methods:

- Ectomycorrhiza morphotyping and sequence-based identification of fungal partners
- DNA extraction from in-growth mesh bags used for detecting fungal activity
- qPCR on DNA extracts to estimate ECM biomass production under drought

Background:

Climate change will lead to more frequent and intense droughts in the immediate future. The majority of experiments that observe drought effects on plants and soil have a replicate design with one control and one drought treatment. However, most functional responses to environmental drivers, such as drought, are non-linear. To assess the **responses of trees and associated soil microbiota to different drought intensities**, a common garden experiment has been conducted in the botanical garden here in Innsbruck. Trees and associated ectomycorrhizal fungi respond directly to drought stress. However, drought stress can also cause long-term legacy effects. In the now starting second year of the experiment, we are especially interested in these legacy effects.

If you are interested in this fascinating collaborative project involving botanists, ecologists, atmospheric science researchers and microbiologists, or want more information please contact [Ursula.peintner@uibk.ac.at](mailto:Ursula.peintner@uibk.ac.at).

Start of Master project: February or March 2026

