

Master Thesis Project

Impact of soil water availability on alpine plant growth

As a part of ongoing research on climate change effects on alpine biota, an MSc thesis project is available on how the capacity of soils to store water affects the annual growth rate of plants in the alpine and subnival zones. The aim is to expand an existing sample of soil probes and relate the water holding capacity of these soils to the annual growth estimates of ca. 3,000 plant individuals from ca. 60 species for the years 2021 – 2023. The main questions of the project are:

- Is plant growth related to the soil water holding capacity?
- How does this relationship vary across species and is this variation linked to the species' ecological indicator values of drought and/or temperature?
- Are species of lower elevations less or more sensitive to lower water holding capacity = drought stress than those of higher elevations?

Tasks to be done:

- Soil sampling during the field season 2023 (second half of July – end of August)
- Analysing the samples in the lab
- Statistical data analysis
- Writing a manuscript-like thesis

Field work will be conducted on Mount Schrankogel, where the MSc student will be based in Amberger Hütte (<https://www.ambergerhuette.at>) at 2,100 m. The work requires physical fitness and willingness to spend several weeks in an alpine environment characterized by steep slopes, with often times unpredictable weather.

The thesis project is suitable for MSc students in ecology, botany, zoology, conservation biology, or environmental sciences. It will be co-supervised by Stefan Dullinger and colleagues from the University of Natural Resources and Life Sciences who will guide the candidate in soil sampling and lab analysis.

Interested? Please contact Prof. Stefan Dullinger (stefan.dullinger@univie.ac.at).

