

## Submitted Abstract

ID IMC22-FSAbstr- 674

<b>First Author</b> First Name Last Name	Michael (1) Steinwandter
<b>Submitting Author</b> First Name Last Name	Michael Steinwandter
<b>Correspondence</b>	michael.steinwandter@eurac.edu
<b>Co-Authors</b> >> E-Mails will be not listed	Von Spinn, Julian (2); Seeber, Julia (1,2)
<b>Organisations</b>	1: Eurac Research, Institute for Alpine Environment, Viale Druso 1, 39100 Bozen/Bolzano, Italy 2: Department of Ecology, University of Innsbruck, Technikerstraße 25, 6020 Innsbruck, Austria
<b>Country</b>	Italy
<b>Region</b>	Western Europe
<b>Title</b>	Soil Fauna Mountaineers: Surveying High Alpine Ground-Dwelling Invertebrate Communities.
<b>Keywords</b>	Soil Fauna Biodiversity, Central Alps, High Alpine Grassland, Pitfall Traps, Ltser
<b>Type</b>	List Of Focus Session
<b>Focus Session ID</b>	43

## Abstract

Since the 2010s, the number of studies on soil fauna studies increased considerably. However, still few studies focus on high alpine areas. Here we present a comprehensive pitfall trap survey on ground-dwelling invertebrates in alpine grazed grassland spanning from 1500-3000 m along three distinct elevation gradients. The study was conducted in the European Central Alps in the LTSER area "Val Mazia/Matschertal", South Tyrol, Italy. The aim was to investigate (i) the abundance of the soil fauna and especially those of ground-dwelling spider species, (ii) changes in community composition with elevation, and (iii) seasonal community dynamics. We are focusing on the 3000-m sites where soil fauna data is very rare.

On each of the 12 plots (3 for each 500-m step), we installed 3 pitfall traps per sampling period: 3x for 2 weeks at the lower and 2x for 3 weeks at the higher sites (in sum all were active for 6 weeks). All taxa were identified to family level where possible (Coleoptera, Myriapoda, Diptera larvae); Araneae to species level. Additionally, soil properties, soil temperature and humidity and the vegetation were surveyed.

First results show high and consistent taxa numbers for the 2500-3000-m sites, with on average 26.00 ( $\pm 1.00$ ) and 23.67 ( $\pm 1.73$ ) taxa per sample, respectively. In contrast, on the lower sites considerably lower and variable numbers of taxa were found (e.g., at the 2000-m sites 19.67  $\pm 4.51$ ).

Drawing first conclusions, we are surprised by the high macrofauna diversity in the high alpine sites, and especially by the high variable and species-poor community at the 2000-m sites. This is confirmed, for example, by the millipedes Julidae. They were almost absent in former investigations, but were recorded in many 3000-m pitfall traps along with Craspedosomatidae; the snow-rich winter 2020/2021 might have benefited their development. On the lower sites, Coleoptera show their highest activity in the peak of summer, along with mesofauna groups (Acari, Collembola). As already a highlight, we could find one new spider species for South Tyrol at the 2500-m sites (the Salticidae Pellens lapponicus (Sundevall, 1833)) and expect further new findings for these understudies high alpine ecosystems.