POSTER 80 — Interactions among soil organisms of the Alpine pasture ecosystem

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An intact soil ecosystem is the basis for sustainable agriculture and hence human wellbeing. Soil microorganisms, plants and animals play many different roles in soil ecosystems, yet live in direct contact with one another. In fact, the composition of these communities impacts soil fertility and structure, important to nutrient cycling and plant health. In addition to soil microorganisms, all plant and animal species living in the soil host their own microbial communities; however, if and how these microbial communities interact with each other is almost completely unexplored. Ongoing climate change scenarios have recently increased the awareness of the importance of soil biodiversity and expected changes in response to altered environmental conditions, and Alpine soils are predicted to undergo even more drastic changes in the near future. So far, no study has investigated the combined impacts of biotic interactions and abiotic/climatic factors on the biodiversity of soil organisms in vulnerable Alpine soils.
The EUREGIO project MICROVALU is evaluating the prokaryotic and fungal diversity of the main inhabitants of Alpine pasture ecosystems to provide a more complete understanding of the relationships between soil organisms and their effect on soil processes. For this study, samples of bulk soil, rhizosphere soil of two plant genera (*Carex* spp. and *Festuca* spp.), microfauna (nematodes), mesofauna (collembolans) and macrofauna (earthworms and beetles), as well as fecal pellets of above ground fauna (wild mammals and domestic livestock) were collected along an elevational gradient of an inner-Alpine valley (1000 - 2500 m a.s.l.). Microbial community composition of all samples was determined using our laboratory protocols optimized here for the first time to permit the comparison of microbiota from diverse matrices.
Our results indicate that each sample type harbors a unique core microbiota, overlapping to a different extent with other members of the ecosystem. Combining microbial community data with abiotic soil properties and climatic factors along an elevational gradient gives new insights into the microbial co-occurrences of soil members among changing environmental and climatic conditions.

POSTER 81 - Changes of arbuscular mycorrhizal communities along a 4000m elevation gradient in the NW Himalayas suggest increasing specialisation in higher elevations (Johannes Schweichhart) - SEE BRIEF TALKS

POSTER 82 - Impacts of drying-wetting cycles and food-type on microbial community within casts of *Lumbricus terrestris* during ageing (Jingjing Yang) - SEE BRIEF TALKS

POSTER 83 - Soil microbial biomass and its activity in soils of an agricultural post-mining chronosequence (Sergey Blagodatsky) - SEE BRIEF TALKS