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Soil Ecologist – alpine soil macro-invertebrates
Eurac Research - Institute for Alpine Environment

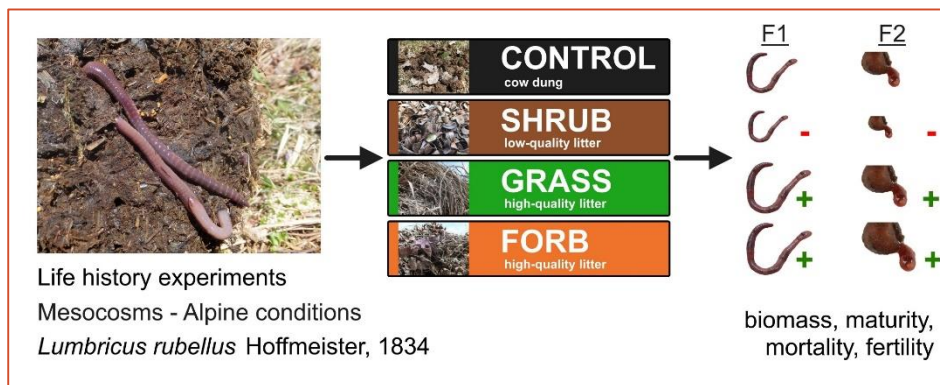
**High alpine soil macro-invertebrate
communities: First results from three elevation
gradients (1500–3000 m)**

Michael Steinwandter, Julia Seeber

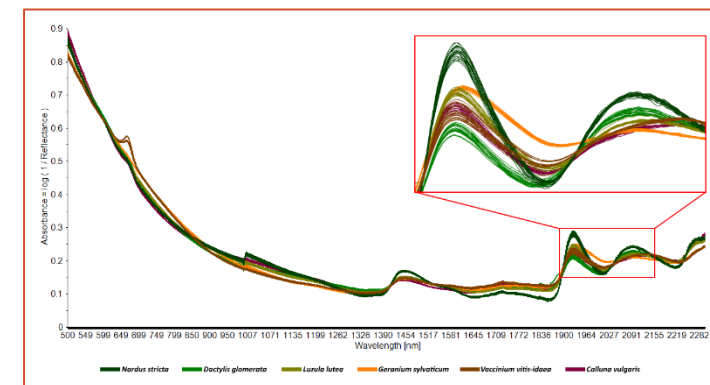
RESEARCH FIELDS - Soil Ecology and Soil Zoology



Litter bags / Tea bags

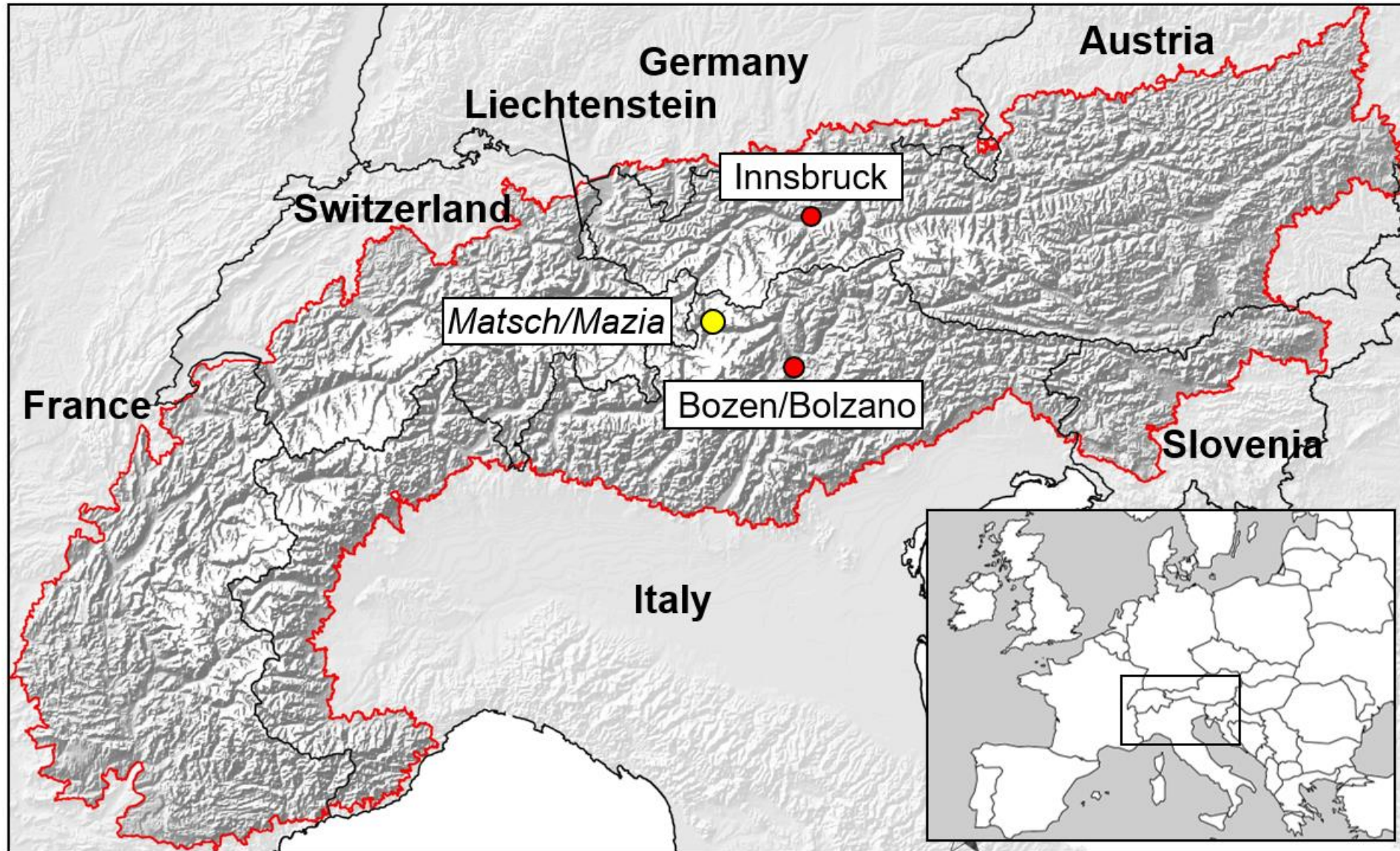


Life-history & cafeteria exp.



NIRS

METHODS - Study site and study design



BERGSTEIGER
DÖRFER

**Biodiversity
Monitoring**
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METHODS - Study site and study design



Pitfall traps (*animal activity*)

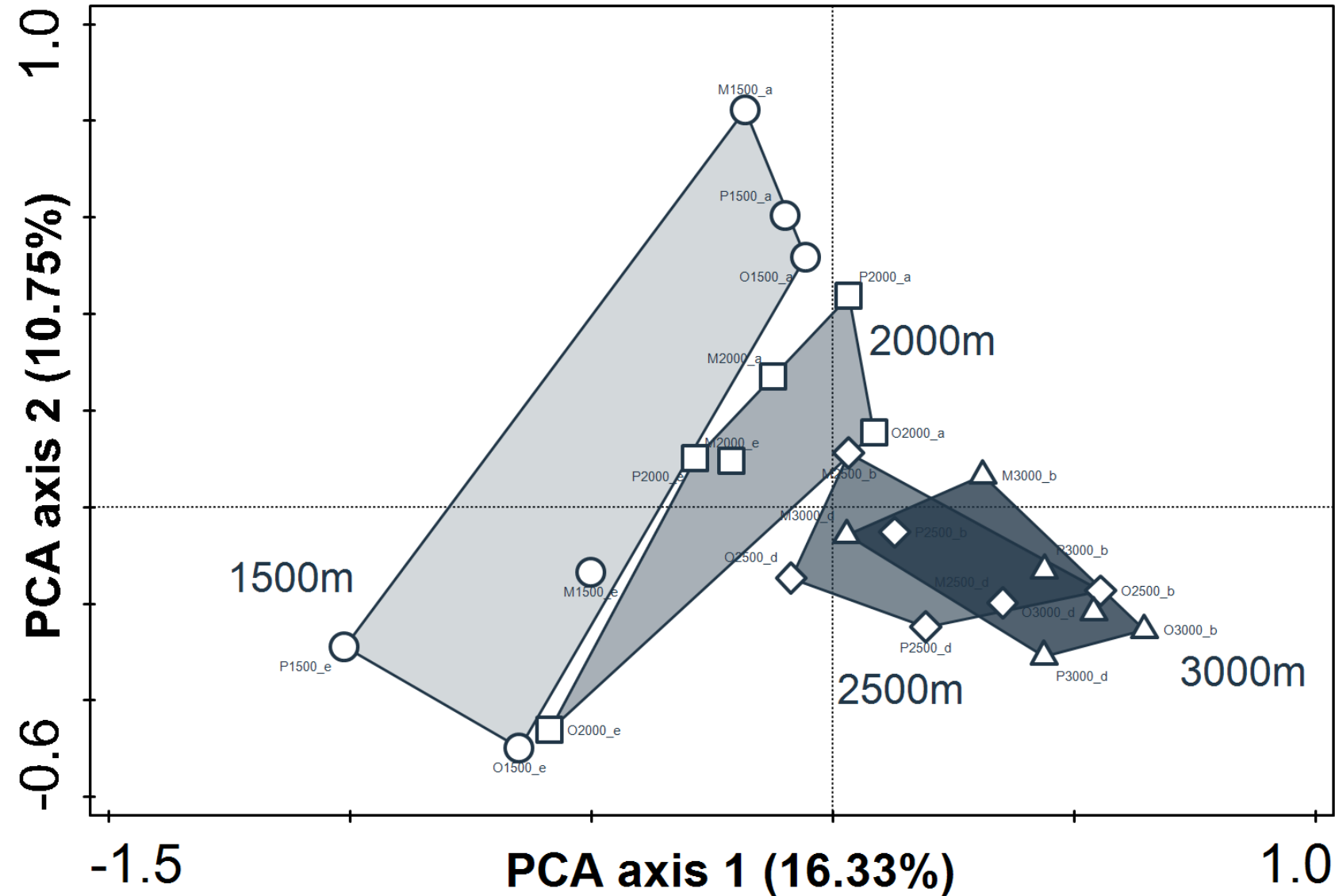
- **glass jars** with twist-off lids
- opening of 71 mm (408 ml)
- **transparent roofs** (Lexan, “unbreakable”)
- 2 or 4 poles with flat washers ●

- collection fluid: **propylene glycol**
- **active for 6 weeks** (one vegetation period)

	May	Jun	Jul	Aug	Sep
1500m	■		■		■
2000m	■		■		■
2500m		■		■	
3000m		■		■	

Basic research: what lives in/on high alpine soils?
Gradients: how do communities change with elevation?

FIRST RESULTS – Soil macrofauna communities

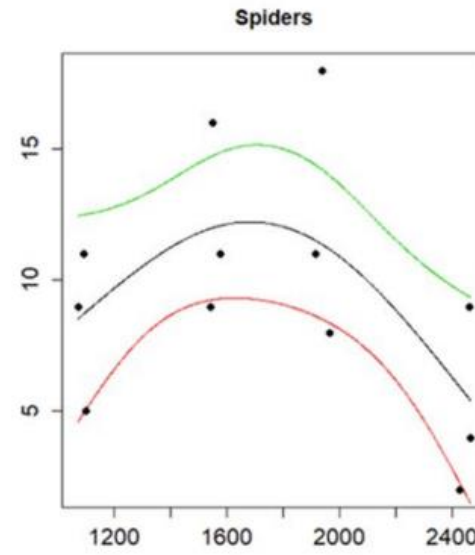
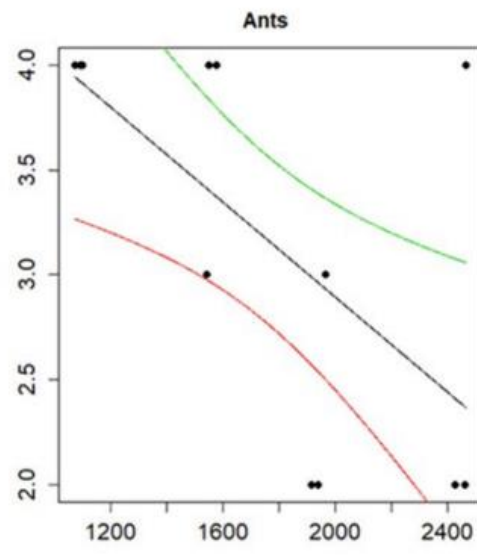
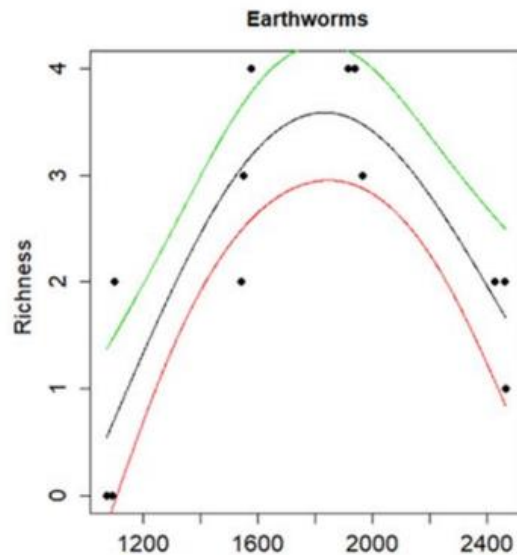


- axis 1 = elevation
- surface communities differ greatly:
 - 1500m and 2000m show high variability
 - 2000m and 3000m have similar communities

FIRST RESULTS – Soil macrofauna biodiversity

Elevation	Arachnida (11)	Myriapoda (6)	Coleoptera (23)	Overall Taxa Richness
1500m	6	4	12	26.33 (± 4.51)
2000m	6	5	8	19.67 (± 4.51)
2500m	8	4	13	26.00 (± 1.00)
3000m	8	3	17	23.67 (± 1.73)

- high elevation sites show very high biodiversity
- surprises at 3000m:
 - **Isopoda**
 - **Diplopoda: Julidae**
- 2500m = taxa rich sites, peak of gradient?



Fontana et al. 2020
Scientific Reports

FIRST RESULTS – Soil macrofauna biodiversity

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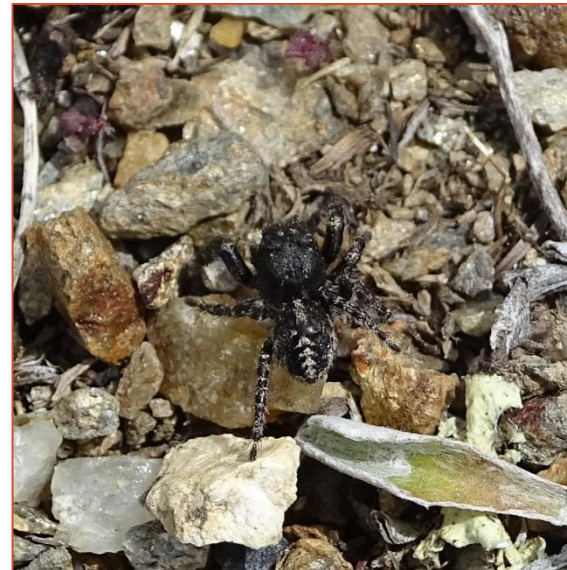
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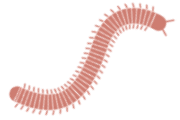
← New species for South Tyrol: *Pellenes lapponicus*



CONCLUSION & OUTLOOK



High alpine soil fauna patterns are **rarely investigated**



Results revealed already **new and surprising insights** (Julidae)



ToDo: finish identification, analyses on biodiversity & community



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