

Publication

Soil invertebrate abundance, diversity and community composition across steep high elevation snowmelt gradients in the European Alps

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We studied abundance, diversity, and composition of soil invertebrates along snowmelt gradients to generally understand how soil animal communities are responding to life conditions across snowbeds along a west–east transect of the European Alps and to create a reference inventory for future investigations of climate change effects on snowbed habitats. We extracted microarthropods (collembolans, oribatid mites) and macroinvertebrates (spiders, beetles, insect larvae) from soil cores taken from three sections along the snowmelt gradient: high (early snowmelt), middle, and low (late snowmelt) sections. Linear models showed no correlations between either soil conditions or time of snowmelt and densities of soil animals. A small, though statistically significant, variation in the generally high soil organic matter and sand contents and high porosity of snowbed soils seems to have no effect on soil invertebrates. Species found along the snowmelt gradient were in similar shares generalist and specialist species. Microarthropod community composition in general was driven by soil porosity and soil organic matter content; for macroinvertebrate community composition we found no specific driver. We conclude that invertebrate species assemblages in snowbeds are rather similar in the European Alps.

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