

## **Effects of climate-change induced vegetation die-off on soil biodiversity and functioning**

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Climate change-induced vegetation die-off is nowadays a widespread phenomenon responsible for limiting the capacity of terrestrial ecosystems to provide essential services worldwide. Less is known, however, about how vegetation die-off relates with changes in the biodiversity and ecology of the soil compartment, which accounts for many of the vital ecosystem functions such as providing essential nutrients for plant growth (nitrogen, N; or phosphorous, P), or long-term carbon (C) sequestration. The death of the vegetation alters soil abiotic (microclimate) conditions and limits the supply of the energy (carbohydrates specially) demanded by the soil biological communities. These abiotic and biotic changes triggers a cascade of causal-effect processes that may result in irreversible losses in soil biodiversity and in the stability of the trophic webs that sustain soil functions such as N fixation, mineralization of essential nutrients or C stabilization. However, to date, information on the potential impacts of climate-change induced vegetation die-off over soil biodiversity and functioning is fragmented (e.g. case-studies) and not very conclusive. We here want to summarize the state of the knowledge on all potential effects of climate-change induced vegetation die-off over soil biodiversity and soil functioning. Additionally, we also discuss the functional resilience of soils to climate-change vegetation die-off and how management practices could improve the resilience and the sustainability of the soil functioning.