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## **Titel**

Connecting biodiversity monitoring with soil inventory information – A Swiss case study

## **Abstract**

Switzerland is one of the first countries in the world to monitor its biological diversity. The Federal Office for the environment (FOEN), triggered by the Rio world summit, initiated 1995 a program for this purpose called Biodiversity Monitoring in Switzerland (BDM). According to the Convention on Biological Diversity various biodiversity targets were defined and the action plan strategy biodiversity Switzerland serves to implement these strategic goals. Unfortunately, up to very recently, soil was not part of these considerations.

In the Swiss biodiversity monitoring system a core indicator, species diversity in habitats, is designed to document changes in species diversity of vascular plants and mosses in Switzerland's major habitats. Together with the current land use and general metadata like elevation, slope, exposition and geology these data are stored in a central database. Since 2001 the totally 1'600 sites based on a regular grid (6 by 4 km) are resampled in a 5 years interval. In the third sampling campaign (2011-2015) the setting was broadened by taking soil samples at all locations possible. At each site 4 replicates 0-20 cm were taken to provide predictions on plot scale variability. All samples were prepared in the laboratory of the Swiss Soil Monitoring Network. Exploratory data analyses for pH, soil organic carbon and nitrogen revealed distinct patterns according to land use as well as to altitude; pH decreases from colline to alpine zones. Furthermore, regional analyses show enormous differences between the northern and southern side of the Alps.

Connecting measured soil parameters with the outcome of the BDM survey enables to determine the impact of environmental conditions on species diversity of vascular plants and mosses as well as on soil-plant interactions. Therefore, connecting measured soil inventory data and plant and moss diversity information provide a clear added value to the Biodiversity Monitoring in Switzerland.