

Botanical composition of grassland in the Alps as an indicator for changes in management

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Abstract

In recent decades, there have been important changes in agriculture in the Swiss Alps involving shifts in the type and intensity of land use. Since grassland systems are the main source of forage production and a main contributor to biodiversity in the Alps, it is important to know the effects of these ongoing changes on the botanical composition of grassland. In order to study alterations in plant species composition, 114 relevés of six vegetation units (VU) made at Château d'Oex, Switzerland (between 920 and 2140 m asl) in 1981 were repeated in 2002. There were significant changes between the old and new relevés in all six VUs, with the time of recording explaining between 5.0 to 9.5 % of the total variation in botanical composition. For intensively managed meadows and nutrient poor pastures at lower altitudes, changes over time were mainly due to an intensification of management. In these VUs species indicating disturbed ground and species growing on nutrient rich soils increased. Such intensification of land use in nutrient poor pastures could in the future result in a decrease in biodiversity. In the other VUs shifts in the botanical composition could either not be explained by management or indicated different trends in land use practice.

Keywords: vegetation change, grassland, botanical composition, Swiss Alps