



The effect of land use on spatial variability of soil water repellency

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Soil water repellency was identified as a fundamental phenomenon during a soil survey dedicated to soil hydrological properties and processes in watersheds of the Little Carpathians Mts. (SW Slovakia). The investigated area represents the viticulture region with various soil management practices. Thus, soils of the region are influenced by deep ploughing during vineyard establishment, by cultivation of vineyards, by reforestation of abandoned vineyards as well as by long-term forestry practices. The soils developed from granitic rocks are naturally susceptible to water repellency development. The obtained results showed marked variability in physical and chemical soil properties. In particular, the soil pH values, the clay and organic carbon contents differed significantly depending on soil management. Due to these differences, the soil water repellency increased from wettable to extremely water repellent approximately in order: deeply ploughed vineyard soils < cultivated vineyard soils < abandoned vineyard soils < afforested vineyard soils < original forest soils. The impact of soil water repellency on infiltration process was observed by means of field experiments.