



Effect of fire on soil physical and chemical properties in a Mediterranean area of Sardinia.

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Wildfires are one of the most widespread factors of ecosystem degradation around the world. The degree of change in both chemical and biological properties of soil inducted by forest fires is related to temperature and persistence of the fire as well as to moisture content of soil and of fuel.

The present note reports the first experimental results of a wider-scale research project, whose aim is to develop methods for analysis and collection of field data by using a multidisciplinary approach in order to evaluate land erosion hazard.

Specific objectives of this study are: i) to compare burned and unburned soil in order to evaluate the effect of fire on physical and chemical soil properties; ii) to measure soil erosion after fire in relation to different slopes.

The experimental site is located in Mediterranean basin, on a steep slope in a hilly area of north-western Sardinia (Municipality of Ittiri, Italy), where a human caused fire occurred in august 2013. The area is mainly covered by the typical Mediterranean vegetation.

Immediately after fire, several soil samples were collected from 0-10 cm depth, both in burned and in unburned plots. The soil organic matter, N, and P contents, pH, and soil texture were then determined in laboratory. Soil erosion rates from experimental plots were measured and estimated by silt fences technique taking into account different slopes and vegetation distribution.