

Comparing Infiltration Rate at Patchily Burned and unburned spots in a Semi-arid Needleleaf Forest

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Infiltration rate is one of the key parameters controlling soil water budget. Many studies have been conducted on impact of fire on forest soil's hydraulic properties. However, limited information is available on impact of low intensity understory fire on forest soils. In this study we compared infiltration rates at burned and unburned spots in a patchily burned semi-arid needleleaf forest understory in Çankırı, Turkey. Infiltration rate was measured at coupled spots (one at burned another at adjacent unburned spot) at 15 sites (total 30 tests) with a tension infiltrometer. Soil samples were taken from each infiltration test spot and analyzed for sand, silt, clay, CaCO₃, organic matter content, electrical conductivity, pH, and aggregate stability. The steady state infiltration rate and sorptivity were calculated for each test site. The soil variables and infiltration parameters obtained at burned and unburned sites were compared by paired t-test. The results of paired t-test showed that means of soil electrical conductivity and bulk density were different at burned and unburned spots. Results further showed that the differences in infiltration rates from the burned and unburned spots were not significant.