

Impacts of Deforestation and Land Cover Change on Mountain Soils in Hrazdan, Armenia

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Armenia 2006-2008

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In this study, the impacts of deforestation and land cover change upon underlying soils were examined on one hillside in central Armenia. Soils characteristics in three land cover areas, forest, coppice, and pasture, were recorded and soil samples were analyzed. Deforestation and land cover change were found to increase erosion rates.

From soil horizon and structural characteristics, it can be estimated that 40cm of soil have been lost in the pasture and 20cm have been lost in the coppice compared to the forest. Soil organic carbon was also affected by deforestation and land cover change. Compared to the forest (8.2% organic carbon), both the coppice (6.3%) and the pasture (5.9%) had lower values. Phosphorus, potassium, and nitrogen had varying levels and may have been affected by erosion, animal deposition, differing amounts of vegetative residues present, differing organic matter decomposition rates, and differing hydrological processes. Deforestation was also found to change the species composition of seedlings and saplings in the coppice in comparison to the forest; reducing oak numbers and increasing hornbeam recruitment.