Water storage capacity of the green dam –Role of forest soil -

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In the Sagano High School Woods for Field Studies (SWFS), we have been conducting research about the water source recharge function and flood mitigation function of the forest (Matsuki, 2019). The purpose of this study was to find out the water retention capacity of forest soil by conducting a soil profile investigation and a soil physical properties investigation at SWFS and three other locations with different pedogenic factors. As a result of the surveys, the soil of SWFS was classified as brown forest soil (wet) and those of Umihoshi Park, in northern Kyoto Prefecture, were classified into brown forest soil (slightly dry), reddish brown forest soil, and grey soil. It was discovered that the water retention capacity of the soils was greatly influenced by topographical factors. The survey of the soil in the valley of Umihoshi Park showed the gas phase rate was low and water permeability was poor, suggesting that rainfall could easily lead to Horton overland flow.

Keywords: Soil Profile, Hydraulic conductivity, Three phases of distribution, Soil penetration strength, Soil classification

