

## Observations of sediment transport rate of various forest soils using soil trays under open rainfall condition

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Tree density control practice, which can facilitate the growth of understory vegetation, is thought to be an effective way for preventing soil erosion in unmanaged Japanese cypress plantations. However, the effects of thinning practice such as the change of rainfall conditions on the magnitude and processes of sediment transport are not discussed sufficiently. In this study, we observed sediment transport rates of soil from various material rocks under natural rainfall condition using soil trays.

Four forest soils, named as A (clay loam soil from sedimentary rock), B(Light soil from shale), C(Clay loam soil from granite)and D (Light clay soil with high repellency from sedimentary rock) were passed through 5.6 mm sieve and thereafter contained into soil trays (W30 cm, L 63 cm, with slope of 10o). The trays were set at an open field in Terrestrial Environment Research Center, University of Tsukuba. Sediments were collected with splashed boards attached to soil trays in 7 times during observation, from Aug. to Oct. 2008. Collected sediments were dried and weighed to calculate sediment transport rates.

Total sediments transport rates were greatest with C followed by D, A and then B. This result suggested that soil of coarse particles were readily removed relative to soil of fine particle and that soil repellency increases sediment transport even in soils with similar particle size distribution. Sediment transport rates of each soil were highly correlated total amount of rainfall and total raindrop kinetic energy. This contrastive results to Nanko et al.(2008), showing the weak correlation between splash detachment rate and total raindrop kinetic energy in a Japanese cypress plantation, indicated the difference process of sediment transport between inside and outside of forest.