Collapse prevention force of forest root systems in mountainous steep slopes

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   Though traditinal methods of thinking for slope stability with forest root systems have been used for two dimentional soil layer, it evaluated to only vartical root systems. Slope collapses occur three dimention. On the analysis of slope stability, it is necessary to evaluate the horizontal root systems. This report shows that the collapse prevention force(C,kN/m2) of the horizontal root systems as the cohesion value in Coulomb's equation in the various species, various stand density,and various age of forest. Culculate method of C is summarized the pulling force for root diameter in vertical one square meter of soil layer. The smallest point of C in the artificial Hinoki forest and Larix forest is the center between two stands. The C in the saturated soil condition is 70% of the ordinary condition. The C changes for tree species,stand density. Thinnig makes C value twice as large as the no thinnig. Three dimentional analysis for slope stability shows the horizontal root systems is up to 0.2 for the rate of slope stability in the saturated soil condition. Maximum C for stand density is about 900/ha.

Keywords: root system, collapse prevention, mountainous slope, forest, Coulomb's equation, slope stability