

ESTIMATION OF FOREST SOIL HYDRAULIC PROPERTIES USING PEDO-TRANSFER MODELS

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Abstract

The study on estimation of forest soil hydraulic properties using Pedo-transfer Models was conducted in mountainous, forested headwater areas with elevation ranges from 500-2600 m above sea level. They were covered by evergreen, hill evergreen, mixed deciduous, dry dipterocarp and coniferous forests, forest plantations, and deteriorated forests. The soils were classified into Ultisols, Alfisols, Inceptisols and Spodosols, which were derived from granite, gneiss, shale, schist and sandstone. 212 soil samples were collected from each genetic horizon of soil profiles and analyzed in the laboratory for their bulk density, particle size distribution, organic matter, saturated hydraulic conductivity, and soil water retention at a range of matric potentials were determined. The models were chosen for predicting SWC and soil hydraulic conductivity and were tested against measured data from the laboratory to compare their effectiveness.

Additional Keywords: soil water characteristic, hydraulic conductivity, Thailand