Chapter 15

TEXTURE AND DEPTH PROPERTIES OF FOREST SOILS ON THREE DISTINCT BEDROCKS (NORTH OF MERSIN CITY, TURKEY)

Celalettin DURAN[1]

INTRODUCTION

The inorganic parts of the soil are composed of variously sized particles. The larger particles such as gravel and stones are named as the large course parts of soil. The textural class of soil is determined by the percentage of textural fractions, sand, silt, and clay (particles less than 2 mm). The texture of the soil affects the properties of soil, such as plasticity, hardness, permeability, drought, productivity (Atalay 2006; Kantarcı 2000).

Soil texture and depth are basic soil quality indicators. These are useful for comparing soil quality among soil types, and within a soil type before and after some management practice has been imposed. Soil texture is the most fundamental qualitative soil physical property controlling water, nutrient, and oxygen exchange, retention, and uptake. The relative thickness of soil horizons could also be a sensitive indicator of several soil functions (Schoenholtz *et al.* 2000).

Soil texture has an important role in soil moisture. In the regions that have humid soil conditions, there are mostly woody species, whereas on the arid regions, there seem to be mostly herbaceous species (Fernandez-Illescas *et al.* 2001). In addition, it has an effect on plant root growth and nutrition.

Soils can be at various depths. The depth of the soil varies depending on the characteristics of the bedrock, the topography, the vegetation, the climate and the effects of living things (especially the human). Soils formed from easy-decomposable rocks are deep. Soils formed from difficult-decomposable rocks are shallow (Kantarcı 2000). Soils on steep slopes, due to erosion, are shallow. Erosion reduces the depth of soils. The upper layer of soil is removed and lost. Therefore, these soils generally reflect the character of the parent material.

[1] Assist.Prof.PhD., Kastamonu University, Faculty of Arts and Sciences, Department of Geography, Kastamonu, Turkey. cduran@kastamonu.edu.tr

As a result, in order to achieve more accurate results in the transformation of point data to spatial data, more uniform land surfaces offered by the stream systems and topography should be selected as the study area and the number of samples in uneven terrain should be increased. Due to a large number of variables in nature, in studies using interpolation techniques, micro-scale basins reflecting the rainfall-runoff relationship should be selected. The method is especially suitable for narrow areas and extra samples on variable topography conditions.

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