



Soils

Soil formation and the properties of soil are the result of five factors: parent material, climate, biologic activity, topography, and time. The way these soil-forming factors and processes interact is different from one location to another, resulting in characteristically different soils and thicknesses. Soils are classified based on color, texture, structure, and other physical and chemical properties. As an example, soils with less than 20% organic material are considered mineral soils, while those with greater than 20% organic material are organic soils.

Rocks composing the San Gabriel Mountains consist of a complex mix of igneous, metamorphic, and sedimentary rocks which are highly fractured and faulted. These materials, coupled with the over-steepened slopes, result in extremely high erosion and limits potential for the formation of soils. Soil coverage in the mountains tends to be shallow, stony, and poorly developed.

Adjacent to the San Gabriel Mountains are large alluvial fans formed by the weathering and erosion of the southern flank of the San Gabriel Mountains *via* the San Gabriel River and its tributaries. Alluvial deposits on the steeper slopes closer to the base of the mountain are typically coarse-grained and poorly-graded (well-sorted). Soil formation in this region is generally thin, rocky, and easily eroded. Coarser alluvial material provides greater infiltration of groundwater into these areas. Alluvial material farther away from the mountain source is generally finer-grained and well-sorted (poorly-graded) because of the decrease in slope as well as the decrease in the ability of the San Gabriel River to transport material.

The adjacent map (Figure: Soils Map) divides the San Gabriel Watershed Basin into representative rock and soil formation types. Soils such as the Tollhouse Rock Outcrop-Bakeoven, the Cieneba-Excheqar-sobrante, and Ceneba-Pismo-Caperton occur on the rugged topography of the San Gabriel Mountains. Etsel Family Rock, Outcrop-Springdale, Anaheim-Soper-Fontana, Urban land-Hanford-Sorrento, and Tujunga-Urban land-Hanford soils are found on the more gentle slopes and flat areas of the watershed. They form on areas of alluvial fans, valley fills, and the less rugged slopes of the San Jose and Puente Hills. These areas are generally more urbanized so erosion is less of a problem.

