



Kalkaska
Sand

Michigan's State Soil

Color your State Soil!

KALKASKA SAND

What Are Soil Horizons?

Soils are deposited in or developed into layers. These layers, called horizons, can be seen where roads have been cut through hills, where ditches have been dug, or in other areas where the soil is exposed.

Where soil forming factors are favorable, five or six master horizons may make up a mineral soil profile. Each master horizon is subdivided into specific layers that have a unique identity. The thickness of each layer varies with location. Under disturbed conditions, such as intensive agriculture, or where erosion is severe, not all horizons will be present. Young soils, such as bottomland soils, have fewer major horizons.

The uppermost layer generally is an organic horizon, or O horizon. It consists of fresh and decaying plant residue from such sources as leaves, needles, twigs, moss, lichens, and other organic material accumulations. Some organic materials were deposited under water. Subdivisions of O_a, O_e, and O_i are used to identify different levels of decomposition. The characteristic dark color of the O horizon is the result of humus formation from the decomposition of organic matter.

Below the O horizon is the A horizon, or topsoil. The A horizon is mainly mineral material. It is generally darker than the lower horizons because of greater amounts of decomposed or humified organic matter. This horizon is where most root activity occurs and is usually the most productive layer of the soil. It may be referred to as a surface layer in a soil survey.

The E horizon, or subsurface layer, generally is bleached or white-ish in appearance. As water moves down through this horizon, soluble minerals and nutrients dissolve and some dissolved materials are washed (leached) out. The main feature of this horizon is the loss of silicate clay, iron, aluminum, humus, or some combination of these, leaving a concentration of sand and silt particles. In cultivated areas, the O, A, E, and possibly the upper part of the B horizons are incorporated into an Ale horizon, or plow layer.

Below the A or E horizon is the B horizon, or subsoil. The B horizon is usually lighter colored, denser, and lower in organic matter than the A horizon. It commonly is the zone where leached materials accumulate. The B horizon is further defined by the materials that make up the accumulation, such as "h" in the form of "B_h", which identifies that humus has accumulated. Other alluvial concentrations or accumulations include iron, aluminum, clay, or carbonates. Soil not having recognizable concentrations within B horizons but show color or structural differences from adjacent horizons is designated "B_w".

Still deeper is the C horizon, or substratum. The C horizon may consist of less clay, or other less weathered sediments. Partially disintegrated parent material and mineral particles are in this horizon. C horizons described as "2C" consist of different material, usually of an older age than horizons which overlay it. C horizons may also be called "parent material".

The lowest horizon, the R horizon, is bedrock. Bedrock can be within a few inches of the surface or many feet below the surface. Where bedrock is very deep and below normal depths of observation, an R horizon is not described.