Soil Characterization Profile Exposure – Pit Method

Field Guide

Task

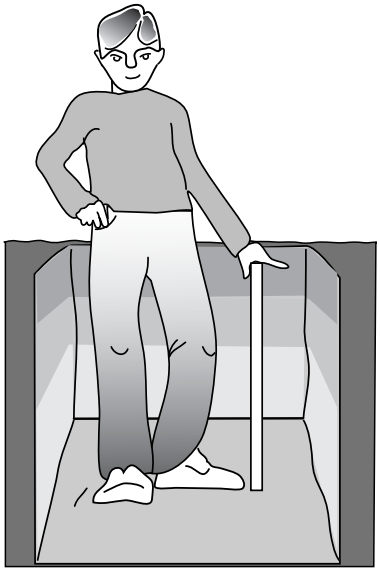
To dig a soil pit that exposes a soil profile for soil characterization measurements and to define the site

What You Need

- ❑ Shovels, trowels, backhoe or other digging implements
- ❑ Flags for marking the site
- ❑ Fence, boards, or other protection to surround and cover a pit when not in use
- ❑ Plastic tarp or other plastic sheet to cover piles of soil
- ❑ *Site Definition Sheet*
- ❑ Help with digging!
- ❑ Clinometer (made from materials described in the *Land Cover Investigation*)
- ❑ Local information about your site
- ❑ Compass
- ❑ GPS receiver or other means of determining coordinates

In the Field

Exposing the Soil Profile



1. Identify a location where you can dig a soil pit.
2. Dig the soil pit approximately 1 meter deep (or until a hard layer is reached). Make the pit as big around as is necessary to easily observe all of the soil horizons from the bottom to the top of the pit (approximately 1.5 m x 1.5 m).
3. As soil is removed from the pit, place it carefully on a plastic sheet like a tarp in piles representing each of the natural layers of the profile. The horizons need to be replaced in reverse order (last out, first in) once you are finished using the pit. Cover the pile of soil with plastic to prevent the soil from eroding (blowing or washing) away.
4. Surround the pit with a fence and mark it with flags to alert people of its location.
5. Cover the pit with boards or some other material to keep animals or debris from falling in when it is not being used.

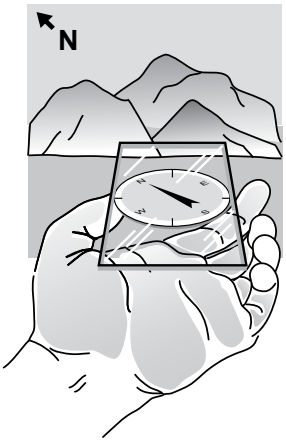
Defining the Site for Soil Characterization Protocols

1. Give the site a unique name (e.g., front of school). Record this on the *Site Definition Sheet*.
2. Determine the latitude, longitude, and elevation of the site using a GPS receiver or other method such as a topographic map. Record this information on the *Site Definition Sheet*.
3. Identify the steepest slope that crosses the area of exposed soil.

   a. Two students (A and B) are needed whose eyes are at about the same height to measure the slope. One other student (C) is needed to be the "reader" and "recorder".

   b. Student A holds the clinometer (made from materials described in the *Land Cover Investigation*) and stands down slope while Student B walks to the opposite side of the hole. Students A and B should be about 30 m apart (or as far apart as possible). Student C should stand next to Student A.

   c. Looking through the clinometer, Student A sites the eye level of Student B. Student C reads the angle of slope on the clinometer in degrees, and records this reading on the *Site Definition Sheet*.



4. Identify the aspect of the steepest slope:

   a. Face up the steepest slope across the exposed soil area.

   b. Hold the compass in your hand so that the red arrow is lined up with the North position on the compass.

   c. Read the number on the edge of the compass housing (which can range from 0 to 360).

   d. Record this value on the *Site Definition Sheet*.
5. Record "Pit" as the method used to expose the soil profile.
6. Record whether the site is on or off school grounds.
7. Record a description of the site location (as detailed as possible when completing the site definition sheet).
8. Describe and record the position on the landscape where the site is found. (Summit, Side Slope, Depression, Large Flat Area, or Stream Bank)
9. Describe and record the cover type of the site (Bare Soil, Rocks, Grass, Shrubs, Trees, or Other).
10. Describe and record the type of parent material from which the soil was formed at the site (Bedrock, Organic Material, Construction Material, Marine, Lake, Stream, Wind, Glaciers, Volcanoes, Loose Materials on Slope moved by gravity, or Other).
11. Describe and record the land use at the site (Urban, Agricultural, Recreation, Wilderness, or Other)
12. Measure and record the distance (up to 50 m) of the site from major features (e.g., buildings, power poles, roads, etc.).
13. Describe and record any other distinguishing characteristics of this site.