

Observational Metrics

Root Growth

Ecological Process:	The Nutrient Cycle, Community Dynamics, The Water Cycle, Energy Flow
Why Monitor This Metric?	Root growth is a crucial indicator of the overall functionality of all the ecological processes. Good root growth is an expression of effective nutrient and water uptake as well as carbon sequestration through root exudation and resource exchange. Roots that are unable to grow or are restricted are indicative of poor soil aggregation and compaction, which often results in poor crop performance and increased susceptibility to disease and pest pressures.
Tools Needed:	Camera, Shovel, Pen/Paper, Data Sheet/Paper

The Process:

1. Enter the area in which you are assessing root growth.
2. Choose a site where there are plants of interest that you would like to sample.
3. Take a picture of the plant you are assessing with your camera or phone and identify the GPS coordinates. Record this on your data sheet or paper.
4. Use your shovel to dig down beside the plant until the shovel is flush with soil. Lift the soil and be careful not to damage the plant roots.
5. Excavate the soil away from the plant and examine the roots:
 - a. Are the roots abundant with lots of branches?
 - b. Are the roots deeper than 5-10”?
 - c. Do they grow horizontally at any point?
 - i. This can indicate a restrictive layer.

Use Your Observations to Rate Root Growth (adapted from ROC)

- Poor: roots are restricted and not abundant.
- Fair: roots are somewhat restricted.
- Good: roots are abundant, branched and unrestricted.