DOS ARBOLITOS
Soil Microscopy Services
(210)-204-0130

Sep. 4th, 2024

Soil Assessment

Client: Sample Report
Organization: Sample Report

Sample ID: soil-1
Sample Description: Soil sample take from pasture in a patch of native grass.

Sample Received: 08/28/24
Sample Observed: 08/29/24

Beneficial Organisms	Estimated Totals (/gram) Standard Deviation (% of mean)	Notes
Bacteria	5135 µg 380 (7.4%)	Bacterial biomass is very elevated. Anaerobic or pathogenic bacteria were **NOT** observed.
Actinobacteria	2.9µg 1.9 (65%)	Low prevalence. Not a problem.
Fungi	98 µg 112 (114%)	High prevalence and variety of fungi. More than adequate population for this stage of succession.
Protozoa		
Flagellates	0 0 (0%)	A missing link in the food chain. Needs improvement.
Amoebae	0 0 (0%)	Same as Flagellates
Nematodes		
Bacterial-feeding	0	Another missing link. Needs improvement.
Fungal-feeding	0	
Predatory	0	

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Problematic Organisms	Estimated Totals (/gram) Standard Deviation (% of mean)	Notes
Oomycetes	24µg 25 (105%)	Few organisms observed. Well below the threshold for causing problems.
Protozoa		
Ciliates	0 0 (0%)	None detected. An indication that the soil is maintaining aerobic conditions.
Nematodes		
Root-feeding	230	Estimate derived from the observation of a single organism, population may not be stable.

Standard Deviation: The standard deviation (SD) for any organism count essentially tells us how stable that population is. SD over 100% renders the value of that organism group to be statistically insignificant – this may be a good thing in the case of certain problematic microbes, or this may tell us that a beneficial organism's population is unstable or not uniformly prevalent in the soil solution.

Comments: The population of bacteria is exceptionally high, although not out of rule for an early stage of succession. The fungal to bacterial ration **(F:B Ratio)** was calculated at **0.02 : 1**. This is extremely low. This is due to the elevated bacterial biomass. There's a chance the population "bloomed" due to the rainfall. Regardless, there appears to be a complete lack of bacterial predators, i.e. **Protozoa** and bacteria-feeding **nematodes**. These predators are essential for optimal nutrient cycling. Low prevalence of **Actinobacteria** is good especially since these microorganism produce secretions that block mycorrhizal formations. Low levels of **Oomycetes** indicate a small presence of anaerobic soil conditions. If not wide-spread, this is not a problem. However, heavy clay soils such as this need to be monitored for compaction. The presence of a **root-feeding nematode** is of slight concern. These nematodes attack roots and can kill plants if not kept in check. To close on a positive note, the fungal presence and diversity was very good. Pastures are considered early successional habitats and the biomass of fungi calculated from the sample is on the high end for what is typically encountered. (see attached hand-out on Stages of Succession)

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Figure 1. Fungal Hypha

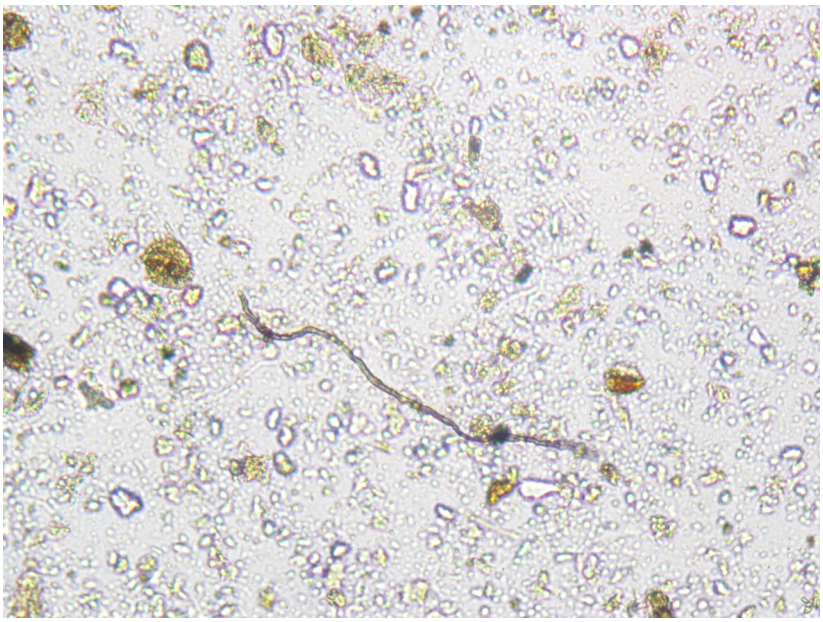

Figure 2. Fungal Hypha

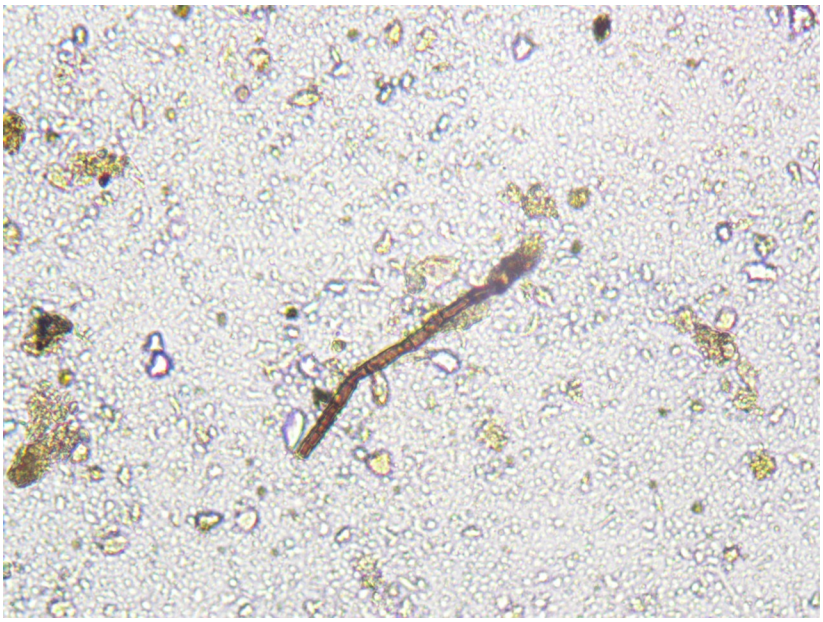

Figure 3. Fungal Hypha

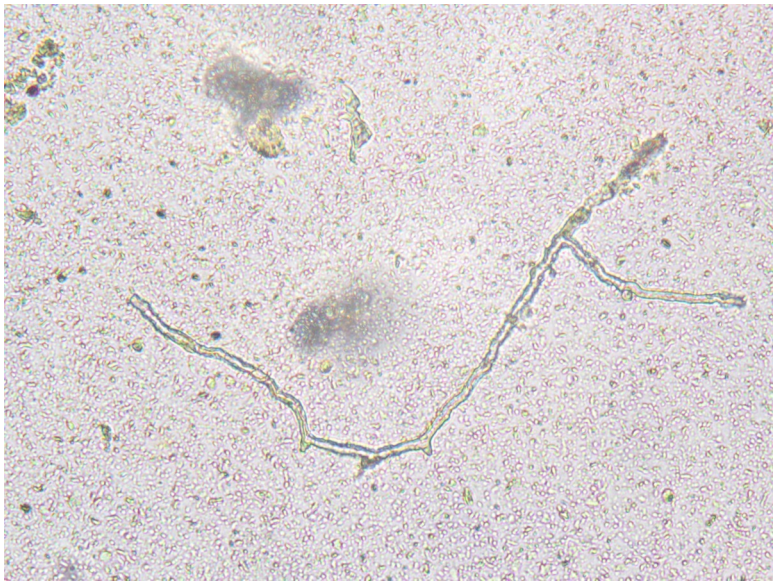

Figure 4. Root-feeding Nematode