Reports can be tailored to any level of understanding. This is an example of a discussion written for an organization with an intermediate level of understanding of soil biological health.

Prepared for: --------
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Date: -------

Biology Report Discussion

In the data report you'll find recommended ranges of microorganisms for **Mid-Succession Plants** – these values have been informed by the institutional knowledge of Dr. Elaine Ingham's, Soil Food Web.

Below is what I find most noteworthy when reviewing the results of these assessments.

Bacteria
The ratio of Fungi-to-Bacteria (F:B) present in a soil system affects the types and amount of plant-available nutrients. Having slightly more bacteria compared to fungi provides the optimal flow of nutrients for mid-succession plants. A Fungi:Bacteria ratio of 0.6 – 0.9 is what mid-succession plants evolved with; when the ratio is out of range we can expect other vegetation to be favored and for our desired plants to require additional care and management, which can be quite costly.

The bacterial biomass of this sample is significantly higher than the recommended maximum, resulting in a low fungi:bacteria ratio of .05 – a value that will favor weedy species.

Protozoa & Nematodes
Bacterial populations can only be kept in check through beneficial bacterial predators like flagellates, amoebae, and bacterial-feeding nematodes. As these predators feed on bacteria, their waste is released into the rootzone as plant-available nutrients.

It is encouraging to see signs of bacterial predators like flagellates and bacterial-feeding nematodes in this sample - this means some nutrient cycling is occurring, but the vegetation on the landscape may benefit with an increase in bacteria predation (i.e. a decrease in bacterial biomass) and increase in fungal biomass.

This can be achieved by…

- using biological amendments that contain bacterial predators and good fungal biomass (135 ug/g minimum)
- minimizing common biological disturbances
- maintaining a minimum of 3 - 10% organic matter (OM)

Standard deviation
A high standard deviation means results may vary quite a bit from one sample to the next – a characteristic associated with relatively unstable populations of organisms. Over time, with biological land management practices, we want to see lower standard deviations / stable populations among various organism groups.

Biodiversity
No amoebae were observed during the main assessment. Over time, with biological land management practices, we want to see a greater biodiversity among beneficial protozoa.

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Oomycetes

This is a family of fungi that includes potentially pathogenic fungi (think molds, mildews, & root rots) which thrive in anaerobic conditions. Since many aerobic organisms were seen and beneficial fungal population is over 10x that of the potentially pathogenic fungal population, therefore likely to suppress and outcompete such organisms, the amount of oomycetes observed in this sample is not of concern.

Concluding Thoughts:

Overall, this soil appears to be capable of maintaining an aerobic environment for beneficial organisms, even after a significant rain event – great! Though some bacterial predators were observed, the bacterial biomass is relatively high and vegetation could benefit from an increase in flagellate, amoebae, and bacterial-feeding nematode populations. We can further discuss options for introducing and maintaining such organisms in the soil system.

Questions?

After reviewing, if you'd like to discuss anything please schedule a follow-up call here.

Action Shots

Photos and video collected of this sample during the microscope assessment can be found at this google drive link.
I delete files periodically, so be sure to download any you'd like to save. You're welcome to share them, with credit to Rhizos LLC.