Title: Investigating Foraging Strategies in Functionally Redundant Soil Communities

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Soil communities are often described as functionally redundant. However, there are few studies that elucidate fine scale behavioral dynamics to explain soil community assemblages.

Nematodes play key roles in soil ecosystem processes and their sensitivity to abiotic and biotic changes make them ideal biological indicators of soil fertility and ecosystem succession. The precision of a biological indicator depends on our understanding of community dynamics. Trophic group ratios are often used as indicator values; however, intra-trophic differences in taxa populations, in response to the same disturbance, suggest the need for finer scale resolution of the trophic group. Part of this difference may be explained by differences in foraging behavior if differences can be demonstrated.

Characterization of bacterivorous nematode foraging was quantified based on two-dimensional movements on agar media. Differences in measured parameters, for bacterial feeding nematode families Cephalobidae and Rhabditidae, suggest there are differences in foraging behavior within a trophic group. Further analysis shows that there is an effect of bacteria prey presence on foraging strategy, based on turn angle distributions. Currently, nematode foraging is being modeled using a complex valued autoregressive model. Calculation of current labor inputs and possible future collaborations in accordance with these rudimentary results justify further investigation and characterization of nematode foraging.