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Plant Biology Colloquium | The Impact of Shifting Nutrient Economics on Forested Ecosystems, Oct. 23

Ohio University College of Arts & Sciences

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Categories: Events
Tags: environmental and plant biology colloquium, environmental and plant biology events, Jared DeForest

Dr. Jared DeForest

The Environmental & Plant Biology Colloquium Series presents **Dr. Jared DeForest** discussing "The impact of shifting nutrient economics on forested ecosystems: Reevaluating paradigms from a decadal research experiment" on Oct. 23 at 11:50 a.m.

- Join Microsoft Teams Meeting
- +1 614-706-6572 United States, Columbus (Toll) Conference ID: 798 343 578#

DeForest is Associate Professor of Environmental & Plant Biology at Ohio University.

Abstract: Mineral nutrition is an important factor for understanding forest ecosystem productivity, function and composition. An emerging paradigm suggests that the dominant form of nutrients can be the driving factor mediating plant-microbial-soil interactions and feedbacks, in addition to the biogeochemical cycling of carbon and nutrients. For example, an inorganic nutrient economy is characteristic of an acquiring system where nutrients cycle rapidly by microbial "scavengers" whereas an organic nutrient economy is characteristic of a recycling system where nutrient turnover is slower, processed by the microbial "miners". Related to this, I present my three core research activities addressing several paradigms: Mycorrhizal-Associated Nutrient Economy (MANE) hypothesis, the microbial mining hypothesis, and nutrients in synergy hypothesis. This is accomplished by leveraging my 11-year manipulation experiment where the native, nutrient-poor organic nutrient economy was shifted towards a nutrient-rich inorganic economy by adding phosphate fertilizer and/or lime in several mixed mesophytic forests. In this presentation I, 1) provide evidence that shifting nutrient economics can have a disproportionate impact on tree growth depending on their symbiotic associations with fungi. 2) Show increasing soil pH and/or phosphorus can suppress late-stage oak litter decay rates and may be contributing to increased soil carbon storage. 3) Present novel evidence that increasing phosphorus can also increase the cycling and availability of soil nitrogen, showing these two essential nutrients are tightly linked.