Decadal Responses in Soil N Dynamics at the Bear Brook Watershed in Maine. (S07-shah092825-Oral)

Authors:

- S.S.Shah - *University of Maine*
- I.J.Fernandez - *University of Maine*
- L.E.Rustad - *USDA Forest Service*
- D.B.Dail - *University of Maine*

Abstract:

Nitrogen is commonly thought of as the most limiting nutrient for plant growth throughout the world. Yet elevated N deposition can result in excess N accumulating in an ecosystem resulting in changing soil N dynamics. These changes are often reflected in initial increases in net N mineralization and nitrification rates followed by decreases resulting in loss of forest productivity. Nitrogen dynamics in the forest floor and mineral soils were studied at a paired experimental watershed known as the Bear Brook Watershed in Maine (BBWM). One watershed serves as a reference and one watershed is treated with (NH4)2SO4. Laboratory incubations and in-situ measurements were used to evaluate net N mineralization and net nitrification. Significantly higher rates of net N mineralization and nitrification were observed in the treated watershed after over a decade of treatment. Hardwood stands within the watershed had significantly higher net N mineralization than softwood stands in the organic horizons, but softwoods had higher rates in the mineral soils.

Corresponding Author Information:

Sultana Shah
University of Maine
5722 Deering Hall
Orono, ME 04469-5722

phone: 2075812914
fax: 2075812999
e-mail: sultana_shah@umit.maine.edu

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