Forest Type and Treatment Effects on Soil Solution Ca at the Bear Brook Watershed in Maine (BBWM). (S07-szillery100414-Oral)

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Abstract:

Deposition of sulfates and nitrates in northeastern North America has resulted in continuing concerns over base cation depletion in forest soils. At the Bear Brook Watershed in Maine (BBWM), a paired watershed study, the experimental watershed has been treated with ~4 times ambient N and ~3 times ambient S for over a decade. Soils studies suggested differential effects of forest type and soil horizon on base cation depletion. Soil solutions were sampled in both the treated and reference watersheds. The study design allowed us to evaluate the influence of forest type and soil horizon on solution properties using both tension lysimeters and ion-exchange resins in 2001 and 2002. In hardwood stands, soil solution base cation concentrations decreased with depth in the reference watershed but increased with depth in the treated watershed. In contrast, softwood stands in both treated and reference watersheds showed increased base cation concentrations with depth (X 1.3 and 2 increases, respectively). Of the base cations, Ca was dominant and also showed the greatest response to forest type and treatment. Solution Al concentrations were inversely correlated to Ca concentrations.

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