

Conservation Science Webinar Series

“The Science behind the News”

The National Conservation Training Center's Conservation Science Webinar Series attempts to cut through the spin and rhetoric by providing the science behind conservation issues in the news.



Tuesday, November 19th, 2013
2:00 pm – 3:00 pm (eastern time)

Hydrologic Change at the Hubbard Brook Experimental Forest Induced by Soil Calcium Amendment

Presented by:

Dr. Mark Green, Assistant Professor of Hydrology, Center for the Environment, Plymouth State University



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www.hubbardbrook.org

Description: Acid deposition during the 20th century depleted base cations in the northeast United States and around the globe, substantially altering terrestrial ecosystem function. To understand ecological response to depleted calcium (Ca) soil concentrations, watershed 1 (W1) at the Hubbard Brook Experimental Forest was amended with enough Ca to bring soil Ca concentrations to pre-industrial levels. Following the amendment, the hydrology of W1 changed; annual evapotranspiration (ET; calculated as the difference between precipitation and runoff) increased by 25%, 18%, and 19% respectively for the three years following treatment, followed by a return to normal ET rates ever since. Concurrently, stream water chemistry changed, showing high Ca retention following the wollastonite addition. We hypothesize that trees in W1 responded to the Ca amendment through a few possible mechanisms that stimulated transpiration for the three years following treatment. Hydrologic change resulting from the Ca amendment suggests that historical and future changes to soil Ca concentrations may have concurrently altered or will alter water cycle dynamics.

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