

Interregional Comparison of Nutrient Uptake Rates in Managed and Old-Growth Watersheds

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Abstract

We compared nutrient uptake rates to examine the effect of timber harvest on streams. From 1999-2002, nutrient additions were conducted in 50 stream reaches in 4 ecoregions (southern Blue Ridge, NC, Ouachita Mountains, AR, Cascade Mountains, OR, and the redwood forests of the Coast Range, CA). Nutrient uptake (NH_4^{+1} , PO_4^{-3}) was measured, along with the Cl- tracer, by depletion over stream distance. Streams draining logged watersheds had smaller dominant substrate size, more open canopies, and more sand and fine sediments in the channel. Phosphate (P) uptake lengths were not significantly different when comparing streams draining old-growth or harvested watersheds or ecoregions. Ammonium (N) uptake lengths were significantly longer in old-growth compared to harvested watersheds but were not different among ecoregions.

Keywords: nutrient uptake rates, interregional comparisons, harvest regimes

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