

## AN ABSTRACT OF THE THESIS OF

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The DIRT (Detrital Input and Removal Treatments) experiment has been the basis for many analyses on carbon and nitrogen dynamics in relation to detrital manipulation. To this day, no other biogeochemical component has been measured in the DIRT sites. In light of this fact, the objective of my research was to observe how different quantities and qualities of detrital inputs affect calcium and phosphorus dynamics. Calcium and phosphorus levels were analyzed in lysimeter leachate from the H.J. Andrews Experimental Forest and in soil incubations from the Harvard Forest. Nitrate and ammonium were also measured for comparison. The results from the H.J. Andrews showed that detrital manipulation had no statistically significant effects on the levels of calcium, phosphorus, nitrate, and ammonium in leachate. However, in the Harvard Forest, nitrate levels were affected by the detrital treatments, illustrating the fact that more organic matter results in greater immobilization of nitrogen. Calcium, phosphorus, and ammonium were not significantly affected by the detrital treatments, but rather by soil profile and depth. This suggests that they are good indicators of cell walls in plant material, bedrock, and other minerals in B horizon soil.

Key Words: DIRT, H.J. Andrews Experimental Forest, Harvard Forest, calcium, phosphorus

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The effects of long-term detrital manipulation on micronutrients in soil solution

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