Public Abstract
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Title:SOIL SOLUTION CHEMISTRY AND NUTRIENT FLUX IN OZARK HIGHLAND FOREST SOILS

Many forest soils in the Missouri Ozarks are highly weathered with a low nutrient supply capacity for forest regeneration. These soils may be more vulnerable to nutrient loss following forest harvest than nutrient-rich soils. The objectives of this work were to investigate the effects of simulated temperature changes associated with forest harvest on soil solution chemistry and to characterize soil solution chemistry in Ozark Highland soils prior to timber harvest.

To simulate harvest temperature changes, laboratory soil column experiments were conducted in constant temperature rooms to monitor the effect of incubation temperature. Three common soil groups present at the Missouri Ozark Forest Ecosystem Project (MOFEP) in southeastern Missouri were selected for study. Column leachates were analyzed to investigate the effects of soil nutrient status and incubation temperature on soil solution chemistry. Soil solution chemistry and nutrient flux was monitored at MOFEP in low and medium nutrient status soils that had not been harvested in the past 40 years. Throughfall and soil solution samples collected with zero-tension solution samplers at 15 and 40 cm depths were collected and analyzed. Cumulative ion flux through the system was captured using ion exchange resin samplers. Results from this study improve our understanding of soil solution chemistry and ion flux in Ozark Highland soils and will aid in a better understanding of timber harvest effects on nutrient cycling and loss.