Prescribed Burning in the Southern Appalachians: Management Goals and Soil Responses. (S07knoepp094855-Oral)

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Abstract:

Prescribed burning is increasingly used in the southern Appalachians to restore degraded ecosystems. Over the last decade, scientists at Coweeta Hydrologic Lab have been quantifying short and long-term ecosystem responses to prescribed burning for a variety of prescriptions. Prescriptions include; fell and burn, stand restoration burn, and understory burn in mixed oak-pine forests and a mid-elevation cove. Soil responses varied with fire severity. Fell and burn treatment, the most intense burn, resulted in increased soil extractable nutrient concentrations (Ca, K, NH4, and NO3) for up to 8 years. We measured significant soil nutrient release during the cove understory burn using ion exchange membranes. Ca, K, NH4, NO3, and PO4 were released however, one year later differences between burn and control areas were insignificant. In contrast, stand restoration and understory burning in the mixed oak-pine forests had no effect on extractable soil nutrients. We conclude that burning has varying effects on soil nutrients and responses may be dependent on the extraction method used.

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