Prescribed fire effects on a nitrogen-saturated hardwood forest. (S07-adams115821-Oral)

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Abstract:

In a study on the Fernow Experimental Forest in West Virginia, prescribed fire is being evaluated as a silvicultural tool for hardwood forest management. This research study also provides us an opportunity to evaluate the effects of prescribed fire on a putatively nitrogen- saturated ecosystem. The forest floor was sampled on 20 plots within the study area prior to burning. In spring of 2000, using a 30.5 cm X 30.5 cm template, the leaf litter (L layer) was collected by hand, placed in a paper bag, and the process repeated with the F+H layer. Total forest floor depth was measured at each sampling site; there were 3 samples collected per plot. In fall 2001, a prescribed fire burned through half of the plots, and the sampling was repeated on the burn plots. For the plots which were burned, average forest floor depth decreased from 5.66 to 2.50 cm. Biomass of the L layer decreased from 8062 kg/ha (std. dev.1101) to 1438 kg/ha (std dev. 1014). The mass of the F+H layer decreased from 23824 kg/ha (std. dev. 20685) to 10479kg/ha (std. dev. 4913). Litter chemistry data are being evaluated to provide estimates of nitrogen losses via volatilization, while soil solution samples will provide estimates of solution losses.

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 1:00 pm

Keywords:

Nitrogen cycling, prescribed fire, forest floor, soil leachate N