HAY-SCENTED FERN SPORE PRODUCTION FOLLOWING CLEARCUTTING

Kathy A. Penrod and Larry H. McCormick[1]

Abstract: Hay-scented fern is a common forest understory weed native to the Appalachian region. It interferes with oak and other hardwood seedling growth and often leads to regeneration failures. Harvesting is know to increase rates of vegetative expansion, spore germination, and possibly spore production of hay-scented fern. To examine the latter effect, a progressive series of five annual clearcuts was made in each year from 1990 to 1994 in a mixed oak stand in central Pennsylvania. Four populations of hay-scented fern in each clearcut and in an uncut control stand were sampled in August 1994. The number of fronds per square meter increased four-fold in the first two growing seasons following clearcutting then decreased to about twice the density of the uncut control stand following five growing seasons. Percentage of fertile fronds declined the first growing season as new fronds emerged then increased continuously each growing season as new fronds matured. Spore production per frond increased four-fold and estimated population spore production increased twelve-fold by the fifth growing season following clearcutting. Spore production increases of this magnitude can lead to large increases in the soil sporebank of hay-scented fern.

[1] Graduate Student and Professor, respectively, School of Forest Resources, The Pennsylvania State University, University Park, PA 16802.

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Four invited papers, 46 volunteer papers, and 11 volunteer poster summaries presented at the 11th Central Hardwood Forest Conference. Presentation topics included harvesting, economics, forest health, silviculture, ecology, genetics, physiology, and regeneration.

KEY WORDS: Forest management, forest ecology, silviculture, stand dynamics, forest health, tree physiology, forest economics, harvesting.

Our job at the North Central Forest Experiment Station is discovering and creating new knowledge and technology in the field of natural resources and conveying this information to the people who can use it. As a new generation of forests emerges in our region, managers are confronted with two unique challenges: (1) Dealing with the great diversity in composition, quality, and ownership of the forests, and (2) Reconciling the conflicting demands of the people who use them. Helping the forest manager meet these challenges while protecting the environment is what research at North Central is all about.