# Acid rains effect on spruce forests studied

WASHINGTON — Secretary of Agriculture John R. Block has announced that seven grants totaling $1.05 million have been awarded to study what effects, if any, acid rain may be having on spruce-fir forests.

Research will begin under the leadership of the Forest Service's Northeastern Forest Experiment Station in Broomall, Pa.

Block said these studies are part of a new Forest Response Research Program to study whether acid rain may be adversely affecting the nation's forests. The program was launched this year by the USDA's Forest Service, the Environmental Protection Agency, and the National Council of the Paper Industry for Air and Stream Improvement. It is the first major cooperative research effort between federal agencies and the private sector in this area.

Overall program manager is Forest Service researcher Ann Carey. Deputy program manager is EPA researcher Eric Preston.

The spruce-fir research is under the direction of the Forest Service's Dr. Gerard D. Hertel. It will study spruce-fir in the eastern United States to determine why spruce are declining at high elevations and if air pollutants and acid rain might be affecting these forests.

The Forest Response Research Program is divided into 6 study areas. Under the first, called the National Vegetation Survey, scientists are measuring the extent of unexplained damage to the forests.

Second is the EPA-sponsored Atmospheric Deposition Monitoring Support Project, which provides deposition monitoring at intensively studied sites. The final four studies are aimed at determining the actual biological and chemical effects of acid rain on different forest types and deciding what actions, if any, might be taken to mitigate or control those effects. These include studies on spruce-fir, southern commercial pine, western conifer, and eastern hardwoods.

Three studies will test different aspects of nitrogen fertilization and its possible interaction with winter damage as probable causes of spruce decline. Conducting these studies will be Manfred W. Williams, Jrs., Forest Service scientist and Donald H. DeHayes, a geneticist at the University of Vermont; Jay S. Jacobson of Boyce Thompson Institute and James P. Lassoi of Cornell University; and Forest Service scientists Ronald C. Wilkinson and Robert A. Gregory.

Three studies will adress genetic variability of spruce and fir forests and the viability of field collected seed. Since genetic diversity influences both spruce and fir growth rate and survival, it is likely to influence response to air pollution exposure. Conducting these studied will be Robert T. Eckert and David O'Malley, University of New Hampshire; Donald H. DeHayes, Univerity of Vermont; and Franklin T. Bonner and J.A. Vozzo, Forest Service.

Another study will focus on responses of spruce and fir to acidic nitrogen deposition, ozone, and combinations of pollutants and natural stresses. It will be conducted by Curtis Richardson, Duke University School of Forestry and Environmental Studies.

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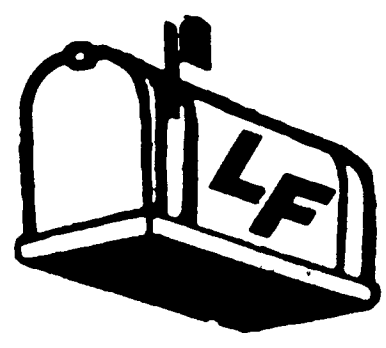


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