FACT SHEET

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Is Acid Rain Killing Our Forests?

There is much in the newspapers about the dying of hardwood forests in the eastern U. S., and some people attribute that to acid rain, or acidic deposition as scientists refer to it. Those of us who work in the forests must be concerned about such stressors as air pollution, but finding reliable information is not always easy.

Acidic deposition is the rain, fog, and snow that falls on the earth throughout much of the eastern U. S. The major source of this acidic deposition is fossil fuel combustion, either in power plants or in motor vehicles. As a result of the 1990 Clean Air Act Amendments, emissions of sulfur, which is one component of acidic deposition, are declining. But nitrogen emissions have not declined, and have actually increased in some areas of the eastern U. S. We know this from monitoring networks, including sites in West Virginia such as the USDA Forest Service laboratory in Parsons, WV, where deposition chemistry has been monitored since 1987. West Virginia receives some of the highest levels of nitrogen deposition in the eastern U. S., much of it transported from the Ohio River valley.

Acidic deposition can alter soil properties, and this has been documented in some areas of New England. Ecosystems in West Virginia may have been impacted as well, particularly by nitrogen deposition, leading to elevated nitrate in streamwaters and increased leaching of base cations such as calcium and magnesium. Eventually, under continued acidic deposition, soil acidification may occur**.**

While effects of acidic deposition have been documented on red spruce in New England, and tentatively on sugar maple in base-poor soils in Pennsylvania, no effects of acidic deposition on hardwood forest growth or health have yet been documented. It is believed that acidic deposition may make forests more susceptible to insects and diseases, but this has not been documented in field settings.

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