National Fire Plan

Oak Regeneration Prescribed Burn
2005 - Allegheny National Forest

Prior to European settlement of the region, the Seneca Indians used fire in the forests to clear underbrush, improving hunting conditions and increasing berry production. Today, resource professionals believe the quality oak stands in the river corridors on the Allegheny National Forest are a direct result of periodic understory fire used by the Seneca. Oaks in the region are valuable for wildlife, and are both aesthetically pleasing and recreationally and commercially valuable.

The gypsy moth, *Lymantria dispar*, is one of North America's most devastating forest pests. Tree mortality during the late 1980s was caused by a gypsy moth infestation, defoliation, and drought – the combination of which was devastating to the oak stands. Land managers on the Allegheny Plateau believe that excessive deer browse of the young seedlings and the absence of periodic fire are the top reasons for the lack of adequate regeneration.

Regenerating oak has been a long-standing challenge for natural resource managers throughout much of the Eastern United States, and the Allegheny National Forest in northwestern Pennsylvania is no exception. Though oak regeneration is a priority on the Allegheny, it's made difficult by excessive browsing of the young oak seedlings by whitetail deer and the absence of periodic fire to reduce competing vegetation.

To address this challenge, in the summer of 2001 with funding provided by the National Fire Plan, Allegheny National Forest resource managers teamed up with the Forestry Sciences Lab at Irvine, PA, and the State University of New York, College of Environmental Sciences and Forestry. A partnership study was designed to examine the application of prescribed fire to an ecosystem where fire has been absent since the Seneca occupied the area.

Challenges in using prescribed fire in this region, though, include the exceptionally small windows during which prescribed burns can be accomplished. When the perfect such window presented itself in May 2005, prescribed burns were conducted on five selected oak stands on the Allegheny. Half of each plot was burned; the unburned areas on the plots will serve as a control. These plots, totaling 78 acres, were assessed with extensive pre-burn analyses of the regeneration layer, and site preparation included an initial

thinning that removed about a third of the trees in the burn area to allow sunlight to reach the forest floor. Fencing was also installed to exclude deer. The burns were conducted by personnel from throughout the Allegheny under the direction of Brad Bernardy of the Green Mountain National Forest.

It will be at least a year before fire effects will be highly visible, but one initial finding is that using prescribed fire to control excessive oak sapling competition allows more successful seedling establishment. Monitoring of the plots will continue for five years to gather data to determine the next best steps to further improve oak regeneration.

Secondary benefits of this project were plentiful. Many partners worked together to achieve a safe and successful burn; persons just beginning work in fire management and use were provided training. A number of representatives from other natural resources agencies were on hand to observe activities and gather information for the use of prescribed fire on lands they manage.

With the successful return of fire, resource managers on public and private lands across the Plateau will have an additional proven tool for restoring and maintaining healthy and diverse forests for the future.

Technical Contacts: Mike Antalosky 814-723-5150 and Pat Brose 814-563-1040