

# West Virginia Forest Health Highlights



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## The Resource

The West Virginia landscape is dominated by more than 11.8 million acres of forest. Due to its varied topography, the forests include a rich diversity of oaks, hickories, spruce, pines, and the state tree – sugar maple. Ninety percent of all forests in the State are privately owned, but there are 9 state forests, 36 state parks, and 56 wildlife management areas that provide public enjoyment.

## Forest Stewardship

The Forest Stewardship Program philosophy ensures that private landowners apply environmental and economic resource management principles to benefit themselves, future landowners, and the public. The focal point of the Forest Stewardship Program is the development of a long-term management plan for each woodland owner, who is willing to participate. In West Virginia, the Forest Stewardship Program includes having a forest management plan written by a professional forester, as well as financial assistance for reforestation, forest improvement, soil and water protection, wetlands protection, fisheries habitat enhancement, wildlife habitat enhancement, and forest recreation enhancement. In West Virginia, 3,305 stewardship plans covering 566,262 acres have been developed for landowners as of November 1, 2000.

## Special Issues

**Gypsy Moth** – The gypsy moth fungus, *Entomophaga maimaiga*, was first found in West Virginia in 1992. This fungus has spread throughout the gypsy moth infested areas and can now be found in 25 counties. Since 1995, it has dramatically reduced the gypsy moth population in these areas. Gypsy moth populations increased in 1999 because of the dry conditions in May that prevented infection

by *E. maimaiga*. While *E. maimaiga* was observed in 2000, infection occurred late in the season. Twenty counties in the gypsy moth generally infested regions were viewed from the air, and 299,418 acres of defoliation were detected in 16 of those counties. Several areas, where heavy larval populations occurred, were checked on the ground and light to moderate defoliation was observed.

In 2000, there were 7,417 acres in Morgan, Hampshire, Mineral, Hardy, and Webster Counties that qualified for gypsy moth suppression treatment with insecticides in the Cooperative State, County, Landowner (CSCL) Program. The insect growth regulator Dimilin (diflubenzuron) was used on 6,290 acres and Btk (*Bacillus thuringiensis* var. *kurstaki*) was applied to 1,127 acres. In the Gypsy Moth Slow the Spread (STS) Program, a total of 17,749 acres were treated with two applications of Btk at 24 BIUs per acre per application. This treatment took place in Greenbrier, the eastern edge of Fayette, and southern Nicholas Counties. The STS mating disruption application of pheromone flakes was completed on June 18 from Mercer County Airport in Bluefield, WV. The WV Department Agriculture treated 1,150 acres of private land in Mercer County.

**Hemlock Woolly Adelgid (HWA)** – The WV Department of Agriculture made four additional releases of 2,500 *Pseudotsugae* *tsugae* Sasaji and McClure adults in West Virginia in 2000. The release sites included the Fort Mill Ridge Wildlife Management Area in Hampshire County, a site near Hedgesville in Berkeley County, a site near Milam in Hardy County, and a site near Franklin in Pendleton County. The 1999 Hanging Rock site in Hampshire County was also monitored for *P. tsugae* during the year 2000. The releases enable us to study the effect of *P. tsugae* against HWA as part of a multi-state, USDA-FS predator impact study and also to try to establish populations in HWA infested stands. The predaceous beetle is the size of a poppy seed, feeds on all life stages of the adelgid, and is one of the most widespread and effective predators of HWA in Japan. Its potential as a biological control agent against HWA is extremely promising based on studies conducted by Mark McClure in Connecticut. Laboratory experiments also indicate the beetle will feed on other harmful adelgids such as balsam woolly adelgid, Cooley spruce gall adelgid, and pine bark adelgid.

**Scarlet Oak Slug Sawfly** – The scarlet oak slug sawfly, *Caliroa quercuscoccinea*, population collapsed during 1999 in the western part of the State. Defoliation occurred over an area of 185,796 acres in Wayne, Cabell, Mason, and Putnam Counties in 1998 and 115,657 acres in Wayne and Cabell Counties in 1997. During 2000, 18,403 acres were mapped during an aerial defoliation survey in Lewis (1,613 acres) and Upshur (16,790 acres) Counties. Hosts included red, scarlet, black, pin, and a limited number of white oaks.

**Virginia Pine Sawfly** - The Virginia pine sawfly, *Neodiprion pratti pratti*, caused heavy defoliation on Virginia pine in Kanawha, Mason, Cabell, Lincoln, Putnam, Mingo, Logan, and Wayne Counties during spring 2000. Some isolated, spotty populations were observed in Upshur, Barbour, and Preston Counties. Old needles were consumed and the new needles left on the trees gave the limbs a sparse, tufted appearance.

**White Pine Blister Rust Disease (WPBR)** - White pine blister rust disease, caused by the fungus *Cronartium ribicola*, is considered the most serious threat to our white pine timber resource. A spot check survey was conducted in white pine stands in four counties (Mercer, Monroe, Pocahontas, and Summers) to assess the impact of WPBR disease on native stands of white pine. The survey was conducted using control area grid maps developed by the old WPBR survey and control program. A total of 36 one-square-mile grids containing 9,973 acres of white pine timber in all sizes and age classes were surveyed. No *Ribes* plants were found on 17 of 36 grids. Active blister rust cankers were observed on 25 of 36 grids visited. Only small *Ribes* plants were detected in areas previously designated as hot spots.

There is no doubt that the control program had and continues to have a tremendous impact on *Ribes* populations and WPBR disease in the control zone. A review of the old control area files revealed that 36,000 *Ribes* plants were destroyed on one grid and 17,000 *Ribes* plants were destroyed on two other grids when initially worked in the 1940s and 1950s. In fact, the majority of grids surveyed (24 of 36), showed 1,000 or more *Ribes* plants were destroyed on each grid when they were initially worked. Subsequently, all grids were worked two or three more times over a period of years to ensure that they were *Ribes* free and then placed on maintenance. During the current spot check survey, 16 *Ribes* plants and eight *Ribes* plants were found on two other grids. Six or fewer *Ribes* plants were detected on the remaining grids. From the current surveys, it is apparent that the *Ribes* populations have not rebounded. The results of this survey reaffirmed our belief that

the WPBR project did and continues to protect the approximately 130,000 acres of white pine timber in the State from WPBR disease.

**Christmas Tree Pest Survey** - Systematic pest surveys were conducted in 17 Christmas tree plantations in the State. Each plantation was surveyed three times. A total of 30 insect and disease or abiotic problems were noted in 2000. All detected insect and disease problems were restricted to a relatively small percentage of the trees in any given plantation and caused relatively little economic loss. The 10 most commonly observed pest problems included: eastern spruce gall adelgid, *Atropellis* canker, sawflies, spider mites, white pine weevil, bagworms, eastern gall rust, *Rhizosphaera* needlecast, white pine aphid, *Diplodia* tip blight, and spittlebugs. Control recommendations were provided to the Christmas tree growers when pest problems became apparent.

## Forest Fires

While all areas of the State reported above normal rainfall during the 2000 spring and summer growing months, the fall and winter months were below average in several areas of the State. Overall, the drought of 2000 wasn't as bad as 1999, but the State is still suffering drought conditions. There were 1,178 forest fires burning 53,639 acres. The estimated damage to the forest resource was \$196,305,000 dollars. The cost to suppress these forest fires was \$181,899 dollars. The number one cause of wildfires in West Virginia continues to be arson at 35 percent, with debris fires a close second at 32 percent, of all fires occurring in West Virginia.

## Forest Health Monitoring

Since 1995, the West Virginia Division of Forestry has maintained a permanent network of 96 plots to monitor forest health conditions across the State. This past year that number was increased to 162 plots. This network is part of the National Forest Health Monitoring Program conducted by the U.S. Forest Service. In June of 2000, full-time forestry personnel from the Division of Forestry received training at Amherst, MA. These personnel then visited 34 plots across West Virginia, to monitor crown conditions, tree damage, lichen populations, and soil sampling. These forestry personnel also received ozone damage recognition training conducted by the West Virginia Department of Agriculture forest entomologist at a one-day training session in central West Virginia.

### For More Information



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