West Virginia - 2002

Forest Health Highlights

The Resource

The West Virginia landscape is dominated by more than 11.8 million acres of forest. Due in large part to its varied topography, the forests are a rich diversity of oaks, hickories, yellow poplar, spruce, pines and sugar maple - the State tree. Ninety percent of all forested acreage in the State are privately owned. The remaining ten percent comprise 9 state forests, 36 state parks and 56 wildlife management areas that provide for 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, 3,500 stewardship plans covering 600,000 acres have been developed for landowners as of June 30, 2001.

Special Issues

Gypsy Moth – The gypsy moth fungus, *Entomophaga maimaiga*, was first found in West Virginia in 1992. This fungus has spread throughout the generally 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. The presence of the fungus was more evident during late May and June of 2001; however, several areas had healthy larval populations that pupated, emerged as adults, and laid egg masses. There were 603,630 acres of defoliation in 18 counties in 2001.

In 2001, there were 228,992 acres 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 130,139 acres and *Btk* (*Bacillus thuringiensis* var. *kurstaki*) was applied to 6,241 acres. Mimic 2LV was used on 520 acres of Cooper's Rock State Forest in Monongalia County. The Gypsy Moth Slow the Spread (STS) mating disruption application of pheromone flakes was completed on June 16 and 17 from the Beckley/Raleigh County Airport near Beckley, WV. The WV Department of Agriculture (WVDA) treated 36,600 acres in Kanawha, Fayette, Summers, Greenbrier, and Mercer Counties.

Hemlock Woolly Adelgid (HWA) – HWA was detected for the first time in three new counties during 2001: Randolph, Raleigh and Tucker. Additionally, the WVDA made two supplemental releases of 2,500 *Pseudoscymnus tsugae* Sasaji and McClure adults in West Virginia in 2001. The release sites included the Fort Mill Ridge Wildlife Management Area in Hampshire County and a site near Hedgesville in Berkeley County. The 1999 Hanging Rock site in Hampshire County was also monitored for *P. tsugae* during the year 2001. The Hanging Rock site three-year intensive monitoring requirement was met with the end of the 2001 season, but will still be monitored in the future using the abbreviated data forms. 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.

Oak Gall Wasp – During the 2001 growing season, an unexpected outbreak of an oak gall wasp, *Neuroterus* sp., occurred on the white oak resource over a large percentage of West Virginia. By late May to early June, white oaks experienced different levels of infestation. Lightly infested trees had discolored foliage. Severely infested trees browned out, and foliage prematurely dropped from the tree. A similar oak gall wasp, *N. saltatorius*, known as the jumping oak gall wasp, has been in outbreak status in western states for the past several years. While the gall wasp could not be specifically identified by the Systematic Entomology Laboratory in Beltsville, MD, it possibly coul be *N. saltatorius* working its way east. Based on what western states have experienced, it is not unusual for outbreaks to last four or five seasons.

Adult *Neuroterus* sp. are very tiny wasps (1.0 – 1.5 mm long) and do not sting. Life cycle information on *N. saltatorius* states that adults lay eggs on buds early in the spring, resulting in the formation of small, button-

shaped galls on the leaves. The first generation completes its life cycle by mid-May. The second generation reaches the gall stage by June. There are two generations per year. The young galls are green, and turn brown as they mature. Each gall has a single immature wasp inside. When mature, the galls fall off the foliage, leaving small pits in the undersides of leaves where they were attached. The galls drop to the ground where pupation occurs. Second generation adults overwinter inside the galls and emerge the following spring.

Southern Pine Beetle – Ground searches and Lindgren funnel trap surveys detected the southern pine beetle, *Dendroctonus frontalis*, at low densities in spotty, isolated areas in Pleasants, Jackson, Greenbrier, Wayne, Kanawha, Boone, Lincoln, Wyoming and Mercer Counties during 2001. Surveys were conducted to determine if the recent outbreaks of this predominantly southern forest pest in Kentucky and Virginia had moved into West Virginia.

Christmas Tree Pest Survey – Systematic pest surveys were conducted in 21 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 2001. In many of the plantations surveyed, there was little economic loss from pests. However, it became apparent that certain pest problems could easily build to damaging levels over entire stands during a single or several growing seasons. Atropellis canker is a disease that has caused serious economic losses in some plantations. For example, one grower destroyed over 900 Scotch pine trees, and several others growers destroyed more than 400 Scotch pine because of Atropellis canker infection. 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.

Oak Wilt Survey - Aerial oak wilt surveys were conducted over Ohio, Brooke, Tucker, and Webster Counties, the four historically oak wilt free counties. Additionally, aerial surveys were conducted over four high disease incidence quadrangles in the Eastern Panhandle. No oak wilt centers were detected in Brooke, Ohio, Tucker, and Webster Counties. A total of 30 oak wilt disease centers were detected in the four high disease incidence quadrangles. Of the 30 centers detected, 28 were in Grant County, and two were detected in Hardy County. Widespread gypsy moth defoliation in the four high incidence quadrangles made recognition of oak wilt diseased trees difficult.

Bacterial Leaf Scorch – A survey was conducted in Charleston, Huntington, and South Charleston to determine if bacterial leaf scorch disease, caused by the bacterium *Xylella fastidiosa*, occurred in western West Virginia. Large numbers of apparently healthy trees were noted while driving through each city. Very few trees displayed any of the symptoms associated with physiological or bacterial leaf scorch disease. Foliage collected from several of the trees displaying scorch symptoms was sent to the Rutgers University Pest Identification Laboratory for analysis. The bacterial leaf scorch pathogen was not detected in any of the foliage samples. To date, bacterial leaf scorch disease has only been confirmed at one location in West Virginia and that was at Middleway, Jefferson County in the Eastern Panhandle.

Forest Fires

The State of West Virginia has experienced 3 years of drought conditions, but 2001 was a year of extremes in rainfall. Long periods of dry weather were followed by intense periods of rainfall, causing some of the worst floods the southern part of the State has ever seen. By contrast, some parts of the State ended 2001 with a deficit of four inches or more below normal. For the year 2001, there were 1,702 fires burning approximately 88,610 acres. This resulted in estimated damages to the timber resource of $26,583,000. The cost to suppress these wildfires was in excess of $500,000. One hundred National Guard soldiers were mobilized as firefighters for 20 days during 2001. The number one cause of wildfires in West Virginia continues to be arson at 40 percent with debris fires second at 27 percent.

Forest Health Monitoring

Since 1995, the West Virginia Division of Forestry has maintained a permanent network of 162 plots to monitor forest health conditions across the State. This network is part of the National Forest Health Monitoring Program conducted by the USDA Forest Service. In June of 2001, full-time forestry personnel from the Division of Forestry received training at Hillsboro, NH. These personnel then visited 34 plots across West Virginia, to monitor crown conditions, tree damage, lichen populations, and to sample soil.

For More Information

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