

New Jersey - 2005



Forest Health Highlights

The Forest Resource

The forests of New Jersey cover 1.8 million acres, or 42 percent of the total land mass of 4.2 million acres. This is in contrast to the approximately 3.7 million acres of forest land that existed in 1899. Following the Civil War, tens of thousands of acres were denuded for firewood, charcoal, tanning, and building uses. Overall, most of New Jersey was rural in nature, comprised of farmland with some larger cities and small towns woven into the overall landscape. Urban and suburban sprawl has and is taking place; widespread, open space is being lost at a rate of 10,000 acres per year. The remaining forests face many hazards from insects, diseases, pollution, and exotic invasive pests. As a result, many challenges exist to maintaining the health and sustainability of New Jersey's forests.

Forest Pest Issues

Gypsy Moth (GM) —Gypsy moth populations have risen dramatically since 2004 when approximately 6,500 acres statewide were defoliated. In 2005, more than 44,000 acres were defoliated to varying degrees. This increase is attributable to a dry period during May 2005, which resulted in fewer fungal parasite spores (*Entomophaga maimaiga*) being available to kill gypsy moth larvae. The New Jersey Department of Agriculture, Division of Plant Industry aerially sprayed only 478 acres of residential forest property, and the New Jersey Forest Service treated 178 acres within Lebanon State Forest. The treated acreage on State land was nonetheless severely defoliated and egg mass counts increased by 37 percent.

Asian Longhorned Beetle (ALB) — New Jersey has more than 1 million acres of urban tree cover and has the highest percentage of total tree cover in urban areas nationwide at 22 percent.

New Jersey is the most densely populated and urbanized State in the Nation, which makes the management of its community forest resources vital to the quality of life. Urban forests comprised of street trees, open spaces, parks, forested patches, and highways lined with trees constitute a critical part of community infrastructure.

Recently, there have been new threats to the vitality of New Jersey's urban forest. During 2005, ALB was found in the cities of Carteret, Linden, Rahway, and Woodbridge. These communities have a combined population of 1.3 million residents. Urban street tree assessments have shown that 47 percent of the tree species are susceptible to ALB attack. A 14.2-square mile Federal quarantine has been put in place to restrict the movement of wood from this area.

Currently, all host trees within $\frac{1}{4}$ mile of an infested tree are removed. To date, more than 10,000 trees have been removed. The resulting 14,000 tons of wood chips could not be used for mulching and composting material. As a result, the New Jersey Forest Service helped forge a partnership with the Union County Resource Recover Facility—COVANTA ENERGY. The wood chips received from tree removal have been burned using state-of-the-art combustion technology and converted to an energy equivalent of 11 million kilowatt hours of electricity, 3,840 tons of coal, or 733,600 gallons of heavy fuel oil.

The New Jersey Forest Service is responsible for replacing trees lost to the ALB with suitable species that are compatible with community need, appropriate for urban forest ecosystems, and not susceptible to the ALB. Residents can select replacement trees from a list of species. In 2005, over 1,400 trees were planted in the affected communities.

Emerald Ash Borer (EAB) — A survey of white and green ash trees was undertaken from July 6 to September 30, 2005, in 10 northern New Jersey counties. The Community Forestry Program hired two Urban Forestry Technicians to visit 327 survey sites and inspect approximately 4,645 trees. Although no signs or symptoms of the emerald ash borer were found, three other health-related problems were discovered.

- Large numbers of mature white ash in the northeastern counties were observed to be in decline or dying. This condition is primarily the result of the trees being located on shallow soils on bedrock or clay type soils.

- Ash borer (*Podosesia syringae fraxini*) activity was observed on 1- to 5-inch diameter green ash trees. Adult ash borers were captured and sent to a laboratory for positive identification. Trees so infected are usually scarred and outgrow the attack.
- White and green ash trees showed signs of anthracnose leaf blight in mid-August after a brief wet spell. About 25 percent of the trees exhibited dying leaves from the lower part of the tree into the crown.

Hemlock Woolly Adelgid (HWA) — In 2005, the primary activity of the Philip Alampi Beneficial Insect Laboratory of the New Jersey Department of Agriculture was the rearing and release of *Scymnus sinuanodulus* beetles. A total of 7,000 were produced and 1,530 were released at three sites in New Jersey.

Two hundred and thirty *Sasajiscymnus tsugae* beetles were released at one site in Warren County. Approximately 279,000 *S. tsugae* have been released at 68 sites since 1998. Most sites were within state forests and parks. Recovery methods, including beating sheets and double-sided sticky traps, have produced few adult or larval specimens.

Virginia Tech shipped 300 *Laricobius nigrinus* beetles to New Jersey, which were released in Worthington State Forest. This predator is native to the Pacific Northwest and is active from fall until spring as long as temperatures remain above 32 degrees F.

The hemlock woolly adelgid continues to negatively impact hemlock stands in New Jersey as indicated by the increased percentage of trees in the highly stressed category following state-wide surveys in 2005. Other stressors contributing to the poor health of hemlocks include diminished water supply, the elongate hemlock scale (*Fiorinia externa*), drought, the hemlock borer, and periods of extreme cold. On 9 out of 10 monitored plots, tree health has improved based on an increase in the abundance of new twig growth. This could result in a resurgence of HWA and further tree decline in the hemlock forests during 2006.

Sudden Oak Death (SOD) — Sudden oak death (SOD) is a disease caused by the pathogen *Phytophthora ramorum* and was first reported in central coastal California in 1995. Once infected, certain oak tree species can die within a few months to a few years. California nurseries that had contaminated stock or the potential for contamination were quarantined to prevent materials from being sent to other parts of the country. However, prior to the quarantine, plant material, particularly *Camellia* (*Camellia* spp.), was shipped to New Jersey garden centers and nurseries and other States in 2003. Because SOD host plant material was entering New Jersey, the New Jersey Forest Service applied for and received a Federal grant to perform a survey of the woodland perimeters of nurseries that received material. The survey was performed in June 2005 and proceeded from Cape May to Bergen County. Suspect samples from 10 locations were collected and shipped to laboratories via overnight delivery to maintain sample integrity for diagnostic analysis. All samples submitted tested negative for *P. ramorum*. Woodland areas were selected for the survey based on the presence of host species in the understory and oak in the overstory.

Southern Pine Beetle (SPB) — The SPB continues to be active in extreme southern New Jersey. The counties of Cape May, Cumberland, and Atlantic have active populations at various levels. Infestations are occurring on State, Federal, and private lands. In order to determine whether the SPB is going to be an environmental factor in a given year, the NJFS performs extensive trapping, ground, and aerial surveys. Funnel traps are deployed in six southern counties at the rate of three per county. These traps are deployed when temperatures are approximately 60 degrees F to coincide with mass spring flights of SPB. This also happens to be the same period that flowering dogwood blooms. The traps are checked and the contents collected weekly for a period of 4 to 6 weeks. All trapped insects are sent to a laboratory for identification. Based on the number of SPB and the checkered beetle, an insect predator of the SPB, it can be determined whether the SPB will have a declining or low, increasing, or high, extreme outbreak. The aerial survey covers the entire New Jersey Pinelands region and outlying areas, totaling approximately 1.5 million acres. This survey is performed using Digital-Aerial Sketchmapping (D-ASM) in September of each year. It was determined that there are approximately 88 individual infestations covering 633 acres. A pilot suppression project initiated on State forest land resulted in control of local populations. Additional sites will be selected for future suppression and forest rehabilitation projects.

Bacterial Leaf Scorch (BLS) — Bacterial leaf scorch is a group of diseases caused by the xylem-limited bacterium *Xylella fastidiosa*. In New Jersey, BLS causes leaf scorch and decline primarily on red, black, pin, and scarlet oaks planted as landscape or street

trees. The disease was first identified in Camden, Gloucester, and Burlington Counties more than 15 years ago and has since increased to alarming proportions (up to 44 percent) in some residential neighborhoods, parks, and woodlots around the State. Currently, there are few cost-effective methods for the management of this disease. Antibiotics introduced in symptomatic trees are not curative and are only effective for a short time.

In 2005, the Rutgers working group initiated a study to examine xylem water pressure and xylem nutritional profiles among oak species. Determination of various acid profiles in xylem sap is also underway at the University of Florida.

Since 2003, there have been no new air or ground surveys to determine the extent and severity of BLS. Its range of infestation is still widespread from south to north in the western one-third of the State. Bartlett Tree Research Laboratories, in cooperation with the New Jersey Forest Service and the USDA Forest Service, has undertaken a project to test various chemicals and application methods to control BLS.

Results indicate that there is no cure for BLS once a tree becomes diseased and no treatment to prevent the occurrence of this disease. BLS can be managed by planting resistant species. Treatments can only prolong the life of infected trees.

For More Information



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