New Jersey
Forest Health Highlights

January 2000

The Forest Resource

About 42 percent of New Jersey's 4.2 million acres are forested. To maintain the health and sustainability of 1.8 million forested acres, the New Jersey Forest Service faces many challenges. The major forest health issues in New Jersey are urban development, loss of habitat, invasive plant species, and exotic insect infestations.

Forests in New Jersey capable of producing timber products have decreased slightly during the last 45 years from 2.1 million acres in 1955 to 1.8 million acres in 1987, the latest inventory available. In addition to fewer forested acres, New Jersey has experienced urban development that fragments forests and destroys forest habitats.

Land ownership patterns have also changed over the same period. In 1955, an estimated 29,000 landowners held 88 percent of the forests. By 1987, this number more than doubled to 78,000 landowners owning slightly less forest land than earlier. The result of this change has meant each individual now owns fewer forested acres in New Jersey.
http://www.state.nj.us/dep/forestry/service/

Forest Pest Issues

Eastern Pine Looper and Pine Needleminer – The damage done by these caterpillars to pitch pine was the most important forest health issue in New Jersey in 1999. Trees on over 400,000 acres in the Pinelands were defoliated. Surveys indicated that only 12 percent of the needles remained healthy. This defoliation plus the drought created an extremely dangerous potential for a major forest fire. Plans to develop suppression techniques against these insects led to an experimental spray program with *Bacillus thuringiensis.* During July, 150 acres of private forests were treated. Larval populations collapsed from natural causes making evaluation of the spray impossible. Although scant literature is available about the eastern pine looper life cycle and environmental conditions favorable to starting an outbreak, this infestation lasted only two years, the same as the previous infestations in New Jersey. Recommendations for controlling these insects would imply that treatment in the future should take place during the first year of defoliation.

Gypsy Moth – Even though the gypsy moth has been in New Jersey long enough for many people to think of it as a native shadetree and forest pest, it is actually a European species first introduced to Massachusetts in the late 1860's. Little more than a hundred years later, New Jersey's forests experienced their first defoliation by this insect. Since then, this pest has gone throught three distinct outbreak cycles in New Jersey. The first cycle peaked in 1973 when 258,000 acres were defoliated. The second and most damaging cycle occurred in 1981 when 780,000 acres were defoliated. Most recently, a third cycle peaked in 1990 when 431,000 acres were defoliated. Since 1990, gypsy moth populations have been on a steady decline. One important factor in this decline has been the presence of the insect pathogen, *Entomophaga maimaiga*. This fungal pathogen, which is spread throughout the gypsy moth population in the East, has helped keep gypsy moth densities low.

During 1999, the annual aerial survey detected only 1,380 acres of defoliation by the gypsy moth, a slight decrease from the 1,995 acres defoliated in 1998. Consequently, gypsy moth suppression activities were minimal compared to those of previous years. State and private forests in the southern part of the State totaling 1,394 acres were aerially sprayed with *Btk* in May. Presently, field surveys indicate that there may be gypsy moth populations building in northern New Jersey where abundant egg masses have been reported in various hot spots.

Asian Longhorned Beetle (ALB) — For the third consecutive year, personnel from the New Jersey Department of Agriculture, New Jersey Forest Service, and the U.S. Department of Agriculture cooperatively surveyed for the ALB in New Jersey. In 1999, APHIS contracted climbers to examine all trees within a 1/4 mile radius of each warehouse. All of the trees on 306 plots were examined without finding any evidence of this exotic pest of hardwood trees. However, wooden packing material suspected of harboring ALB was found during the examination of several warehouses. Fumigation and burning of this suspect packing material eliminated any potential of this insect spreading from these sites.

Hemlock Woolly Adelgid (HWA) — The spread of this exotic insect within the 26,000 acres of eastern hemlocks in northern New Jersey continued unchecked in 1999. Hemlock stands that in the previous year had little evidence of HWA became heavily infested in 1999.

The only hope in checking this problem lies with continued release of the introduced predatory beetle, *Pseudoscymnus tsugae*. Approximately 85,000 of these beetles were release at various sites in State and private forests. Data were collected following release pertaining to HWA population levels and for hemlock shoot growth and crown condition. The fact that *Pseudoscymnus tsugae* was retrieved at release sites is encouraging and offers hope that proliferation of the beetles will save the hemlocks in New Jersey.

Bacterial Leaf Scorch — Crown discoloration and dieback in pin, scarlet, and red oaks and other urban trees, such as elm and sycamore was sporadic during 1998 in southwestern New Jersey, was again widespread there in 1999. Surveys conducted by the New Jersey Forest Service revealed that foliage on these trees was affected by the bacterium, *Xylella fastidiosa*. The bacterium is transmitted to healthy trees by feeding leafhopper and spittlebug insects moving from diseased herbaceous plants, such as goldenrod, blackberries, and clover, to healthy trees. The bacterium enters the tree at the feeding site, rapidly colonizes the water conducting tissues of the infected tree, thereby physically interrupting water transport. Additional bacterial toxins and host tyloses further disrupt tissues. Characteristically, leaves of infected trees develop brown margins with a "watersoaked" zone between live and dead tissue. The entire leaf changes color from the tip toward the petiole and eventually dies. Leaf scorch on oak first appears on the outer and upper main branches. Symptoms of this disease develop faster during hot weather.
http://www.state.nj.us/dep/forestry/fpm.htm

Community Forestry

The New Jersey Community Forestry Program is responsible for the planning, design, and management of vegetation on public lands in and around communities to maximize their visual, social, economic, and environmental benefits. The program is administered by the Department of Environmental Protection's State Forest Service. The Community Forestry Program advises and assists counties, municipalities, and local organizations in developing long-term strategies for natural resource planning. The program also helps implement community forestry activities that promote tree health, such as proper tree selection, planting and maintenance, and insect and disease management. Other aspects of the program include promotion and formation of State and local advocacy groups for the care and planting of trees. Organizational, training, and technical workshops are provided to encourage ongoing public participation and increase volunteer support.

Tree Seedlings for Planting — New Jersey's Forest Service greenhouse, located at the Forest Resource Education Center in Jackson, Ocean County, plays an important role in promoting planting trees in suitable environments in order to improve the quality of life in New Jersey. Two programs of special recognition are the Arbor Day Seedling Program and the Atlantic White Cedar Reforestation Program. The Arbor Day Seedling Program distributes tree seedlings to area schools to encourage student participation in tree planting activities commemorating Arbor Day. The Atlantic White Cedar Reforestation Program grows seedlings from cuttings and distributes them to help replenish this threatened tree species.

Forest Fire Protection

In 1999, there were 2,061 fires that burned 16,445 acres. Equipment use caused fires on 12,405 acres, and one arsonist was responsible for a fire that burned approximately 2,043 acres.

Forest Health Monitoring

One-third of the 30 Forest Health Monitoring (FHM) plots established in New Jersey during 1991 were visited last year as part of the annual FHM detection monitoring program. The data gathered from these plots will help to evaluate the influence of climate change, insect and disease pests, and anthropogenic impacts on forest ecological resources across the United States.
http://willow.ncfes.umn.edu/fhm/northeast/ne99.htm

For More Information

New Jersey
Department of Environmental Protection
Forestry Services

501 E. State Street, CN-404
Trenton, NJ 08625-0404
Phone: 609/292-2531
Web: www.state.nj.us/dep/forestry/service

USDA Forest Service
Northeastern Area
State and Private Forestry

Forest Health Protection
180 Canfield Street
Morgantown, WV 26505
Phone: 304/285-1541
Web: www.fs.fed.us/na/morgantown