

# Delaware

## Forest Health Highlights



April 1999

### The Resource

From 1984 to 1992, Delaware's forested area decreased by an estimated 34,906 acres (from 380,684 to 345,778 acres), or an average of nearly 4,400 acres per year based on satellite imagery data. This is a 9 percent reduction in the total forestland base in Delaware. Coniferous forests were reduced by 2,308 acres. An estimated loss of 77,482 acres of deciduous forests occurred within this 8-year period. However, 44,884 acres were reverted to a mixed stand of hardwoods/softwoods.

We suspect this trend continued from 1992 to 1997, but we will not know for sure until more recent satellite imagery data is analyzed. You may visit the following web site for more detailed information: <http://bluehen.ags.udel.edu/spatlab/lulc>

### Urban Forest Health Alert

The Asian longhorned beetle, *Anoplophora glabripennis*, recently devastated the urban forest in the Greenpoint section of Brooklyn, New York, and then spread to Amityville, New York. In 1998, another serious outbreak was reported in Chicago, Illinois. To date, this exotic tree-killer has not been detected attacking trees in the Mid-Atlantic States, but if it spreads to Delaware, it will pose a serious threat to our urban and community forests. A large proportion of these forests are comprised of Norway, red, sugar, silver, and boxelder maple, all of which are preferred hosts for the beetle.

### Special Issues

**Gypsy Moth** — In June 1998, the Delaware Department of Agriculture (DDA) Forest Service's Forest Health Specialist conducted an aerial survey of

gypsy moth defoliation over the entire State of Delaware. Defoliation levels of 30 percent or more were not detected on any surveyed forestland. Gypsy moth populations in Delaware are at their lowest level since 1980. The gypsy moth fungus, *Entomophaga maimaiga*, is probably responsible for the state-wide and region-wide population decline.

In the late summer and fall of 1997, gypsy moth egg mass surveys were conducted on 45,055 acres of forested lands. Only 569 acres qualified (>250 egg masses per acre) for the 1998 suppression program. Of the 48,717 acres surveyed in 1998, none were qualified for a 1999 suppression program.

### Gypsy Moth Defoliation in Delaware



**Oak Decline** — During a routine, statewide aerial survey for gypsy moth defoliation, numerous white oak snags could easily be seen from an altitude of 2,000 feet as whitish-grey silhouettes against a contrasting forest-green background. Since there is no specific cause for this widespread mortality, it is best described as oak decline. Such a state of decline is not unique to Delaware; it has been detected around the world by both scientists and foresters.

Stressful conditions initiating decline are triggered by living organisms (e.g., defoliating insects, fungal diseases), abiotic factors (e.g., frost, drought, air pollution), or by natural processes involving the tree (e.g., low vigor caused by competition or advancing age). The process of decline is ongoing--an individual tree may exhibit symptoms of failing health for several years before death occurs. Severe drought in 1995 predisposed many trees to decline, but in 1996 (the third wettest year on record) stressful conditions were relieved.

Stress brought on by defoliation, drought, and ice storm damage has created a situation whereby many oaks in Delaware, especially white oaks, have started to decline. The two-lined chestnut borer, *Agilus bilineatus*, only attacks trees that are under stress, and its preferred hosts include oak trees. The shoe-string fungus, *Armillaria mellea*, likewise attacks trees in a weakened state. These two organisms have been linked to oak decline in many regions in the United States. We expect more oaks to die in the coming years as a result of this decline.

## Bark Beetle Survey

In 1998, a focus funded survey of bark beetles (Coleoptera: Scolytidae) in Delaware was completed. Based on survey work in 1997 and 1998 and a check of museum specimens at the University of Delaware, the total number of scolytids known to occur in the state increased from 11 to 61. Perhaps the most interesting and alarming results of our survey was that 15 of the 61 species (about 25 percent) are established exotic species. Such a list will serve as baseline information for future surveys and introductions of other exotic bark beetles.

## Forest Stewardship

The Forest Stewardship program remains active in Delaware, providing opportunities and incentives to nonindustrial private landowners. This program cost-shares up to \$10,000 for approved land management projects and provides property tax relief benefits. As of 1998, there were approximately 28,000 acres of Delaware forests managed under approved stewardship plans. Approved cost-shares totaling over \$275,000 have helped 130 Delaware forest landowners with wildlife habitat improvement, recreation enhancement, and timber production objectives.

## Best Management Practices

The Delaware Department of Agriculture Forest Service recently developed a set of Best Management Practices (BMPs) for forest management activities to reduce erosion and sedimentation of forest soils. BMPs minimize disturbances to the forest floor during harvesting and other forest management operations. These practices improve and maintain water quality in local streams, rivers, and bays while improving the conditions of our forests.

## Other Forest Health Concerns

**Deer Damage** — Although no hard data is available yet, we suspect that increasing deer populations are seriously damaging valuable oak stands in certain parts of the State. Extensive deer browsing on seedlings has the potential to dramatically reduce forest sustainability.

**Forest Fragmentation** — Large-scale construction projects, residential development, and conversion of forestland to cropland are further fragmenting Delaware's forests. Such fragmentation often leads to a reduction in species diversity and may lead to a decline in overall forest health.

**Exotic Species** — There is a growing concern over the introduction and establishment of non-native species. If conditions are favorable, some introduced species rapidly spread and disrupt native ecosystems, often causing irreparable harm to our native plant and animal communities. There are many well-known examples of insects and diseases that have caused extensive damage to our forest resource. These include the gypsy moth, Dutch elm disease, and many invasive plants such as mile-a-minute and Japanese honeysuckle. These have the potential to cause extensive losses. In response to a growing need to efficiently address issues involving invasive exotic species, a Delaware Invasive Species Council (DISC) was recently organized by the DDA Plant Industries Section. The Council, first of its kind in the nation, will promote public awareness, facilitate information exchange, encourage the use of native species, support research efforts, and serve as an advisory panel for various interests concerned with nonnative, invasive species.

## For More Information



Delaware  
Department of Agriculture  
Forest Service

2320 South DuPont Highway  
Dover, DE 19901  
Phone: 302/739-4811  
Web: <http://www.state.de.us/deptagri/index.htm>

USDA Forest Service  
Northeastern Area  
State and Private Forestry



Forest Health Protection  
180 Canfield Street  
Morgantown, WV 26505  
Phone: 304/285-1541