

Delaware - 2004

Forest Health Highlights



The Resource

Delaware's forests presently cover slightly more than 350,000 acres, about one-third of the land area in the State. Delaware has experienced a rapid conversion of forests and agricultural lands to residential and other urban uses since the 1980s. See the discussion under "Forest Fragmentation" later in this report for details.

Forest Pest Issues

Gypsy Moth — In the fall of 2003, 45,000 acres of forest land in Delaware were surveyed for the presence of gypsy moth egg masses. Counts were so low that a gypsy moth aerial suppression program was determined to be unnecessary. This was the sixth year in a row in Delaware without a spray program. In June 2004, an aerial survey of the entire State found no detectable gypsy moth defoliation.

Southern Pine Beetle (SPB) — An aerial survey of the entire southern portion of the State in June 2004 revealed no significant SPB hot spots. For the fourth consecutive year, Delaware participated in the Southwide Southern Pine Beetle Pheromone Study. Beetle counts indicate the population is at a low or declining level. An isolated SPB infestation in a loblolly pine stand at Redden State Forest required an 11-acre sanitation harvest in late 2003.

Asian Longhorned Beetle (ALB) — Preferred host species of ALB are heavily concentrated in both the urban and rural forests of Delaware. This insect has been found in New York and New Jersey, but to date all surveys in Delaware failed to detect its presence.

Emerald Ash Borer (EAB) — Delaware's urban forests contain a high percentage of ash trees. Given the susceptibility of this resource, and the recent detection of EAB in Maryland, this pest is a concern. An expanded survey program will be implemented in 2005.

Pine Shoot Beetle (PSB) — The exotic bark beetle, *Tomicus piniperda*, has not been detected in Delaware as of December 2004, but poses a serious threat to our pine resources.

Hemlock Woolly Adelgid (HWA) — HWA remains the major threat to the eastern hemlock, and this pest has been confirmed from each of Delaware's three counties.

Other Insects — Service foresters reported damage or nuisance caused by bagworms, eastern tent caterpillar, fall webworm, tuliptree scale, and pine sawfly in 2004.

Disease Concerns

Bacterial Leaf Scorch (BLS) — This disease is transmitted by leaf hoppers and affects a number of species in the red oak sub-genus. The disease is known to occur in New Castle County, but Kent and Sussex Counties have not been surveyed. Several neighborhoods in North Wilmington have a number of large trees that are severely affected. Antibiotic trials are scheduled to begin next spring.

Dogwood Anthracnose — Dogwood anthracnose continues to be prevalent in all three Counties. Dead and dying dogwood trees are noticeable in urban areas as well as forests throughout the State. Wetter-than-usual weather this growing season, especially in the northern half of the State, may have created favorable conditions for this fungal disease.

Verticillium Wilt — This fungal disease was an issue in 2004, causing limited mortality in landscape and forest trees. As with dogwood anthracnose, wet weather may have favored the development of Verticillium wilt.

Dutch Elm Disease (DED) — This fungal disease continues to be an issue in several neighborhoods in Wilmington. The Delaware Forest Service has been working with the Delaware Center for Horticulture to save a number of large American elms in this area.

Sudden Oak Death (SOD) — Surveys began in 2004 for *Phytophthora ramorum*, the organism suspected of causing the condition known as Sudden Oak Death. Delaware Forest Service personnel collected foliar samples in forested areas adjacent to plant vendors known to have received stock from nurseries where *P. ramorum* has been confirmed. All samples from the 2004 season tested negative for *P. ramorum*. An expanded sampling regime will be implemented statewide in 2005.

Forest Health Monitoring

Permanent Plots — Fifteen permanent Forest Health Monitoring (FHM) plots were installed on a State intensified grid system coinciding with the USDA Forest Service, Forest Inventory and Analysis plots. All 21 plots for 2004 included lichen sampling and a complete vegetation survey, the data from which will reveal the numbers and relative abundance of native and exotic plants associated with Delaware's forests. Delaware's FHM program is on a 5-year (5-panel) schedule. Over a 5-year period, all plots throughout the State will be visited.

FHM Herpetological Monitoring — Monitoring terrestrial woodland salamander populations two or three times a year, in conjunction with traditional forestry measurements at a site, provides a more complete assessment of forest ecosystem health. In 2004, 11 State FHM plots were re-surveyed for salamanders using wood cover boards. The 8- by 8-inch rough-cut red oak boards were spaced 50 feet apart on an 8 by 8 grid (64 total cover boards per plot). In 2004, a record number of salamanders were detected. Numbers appear stable over the 6-year monitoring period.

Forest Fragmentation

The College of Agriculture and Natural Resources at the University of Delaware completed a detailed analysis of land use in Delaware in 1999. The study found that forested acreage was reduced by 9 percent between 1984 and 1992, and this reduction continued at this high rate from 1992 to 1997. In general, the loss of forest is due to conversion to urban and residential land uses.

An in-house analysis by the Delaware Forest Service was carried out to estimate the rate of forest loss between 1997 and 2002. Using Geographic Information System (GIS) technology, the change

in forested acreage was calculated for each of the 45 watersheds in the State, as well as for the entire State. While this analysis also found a statewide loss of 9 percent of forested acreage over the 5-year period, some watersheds in rapidly developing areas saw reductions of more than 20 percent. The rapid loss of forest land, and the accompanying fragmentation of remaining forests, is an area of continuing concern.

Weather Conditions

Precipitation was average in southern Delaware and above average in northern Delaware. The months April through September, which approximate the growing season, were particularly wet in the northern half of the State, in part due to an active hurricane season.

Delaware experienced warmer than average spring temperatures, particularly in the southern portions of the State (see table below).

	Georgetown (south)			Wilmington (north)		
	Ave °F	Normal	Departure	Ave °F	Normal	Departure
Jan	29.6	34.3	-4.7	25.4	31.5	-6.1
Feb	37.4	36.2	1.2	34	34.2	-0.2
Mar	47.7	43.9	3.8	44.6	42.7	1.9
Apr	56.7	52.7	4	53.7	52.4	1.3
May	70.6	62.2	8.4	68.2	62.5	5.7
Jun	72.4	70.9	1.5	70	71.5	-1.5
Jul	77.3	75.8	1.5	74.7	76.6	-1.9
Aug	74.5	74.3	0.2	73.1	75	-1.9
Sep	70.8	68	2.8	68.8	67.7	-1.1
Oct	58	56.7	1.3	54.6	55.8	-1.2
Nov	50.3	47.7	2.6	47	45.9	1.1

For More Information



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