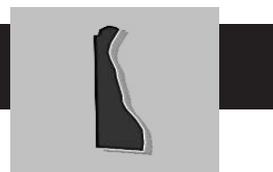


Delaware - 2005

Forest Health Highlights



The Resource

Delaware's forests presently cover approximately 383,000 acres, roughly 35 percent 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 — Surveys in the fall of 2004 found very low counts of gypsy moth egg masses. A gypsy moth suppression program was determined to be unnecessary. This was the seventh year in a row in Delaware without a spray program. In June 2005, 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 2005 revealed no significant SPB hot spots. For the fifth consecutive year, Delaware participated in the Southwide Southern Pine Beetle Pheromone Study. Beetle counts indicate that the population is at a low or declining level.

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. An expanded early detection program was implemented in 2005 as a cooperative effort between the Forest Health and Urban & Community Forestry Programs. Surveys of ash trees in the Wilmington area were performed using a bucket truck. No ALB infestations were found.

Sirex Woodwasp (*Sirex noctilio*) — *Sirex* presents a threat to loblolly pine, the mainstay of the forest products industry in southern Delaware. This pest has been found in New York State and has the ability to travel long distances. An early detection program will be initiated in Delaware in 2006.

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. Delaware's only native stand of eastern hemlock on the Coastal Plain, which was heavily infested, was treated in 2005 using systemic injections of imidacloprid. Pre- and post-treatment adelgid counts suggest that the treatments were effective in reducing pest populations on treated trees.

Other Insects — Service foresters reported damage or nuisance caused by bagworms, eastern tent caterpillar, barklice, fall webworm, tuliptree scale, and pine sawfly in 2005.

Disease Concerns

Bacterial Leaf Scorch — 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 yet been surveyed.

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.

Verticillium Wilt — This fungal disease continues to cause limited mortality in landscape and forest trees, including yellow-poplar and maples.

Dutch Elm Disease — This pathogen 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 — An expanded survey program for *Phytophthora ramorum* took place in 2005. Delaware Forest Service personnel collected leaf and twig samples at 15 sites. Ten sites were in forested areas adjacent to plant vendors known to have received potentially infected plant materials. Five sites were in general forest areas. All 31 samples from the 2005 season tested negative for *P. ramorum*.

Forest Health Monitoring

FHM Herpetological Monitoring — Monitoring terrestrial woodland salamander populations provides a more complete assessment of forest ecosystem health. In 2005, 11 State FHM plots were re-surveyed for salamanders using wood cover boards. The 8- by 8-inch rough-cut oak boards were spaced 50 feet apart on an 8 by 8 grid (64 total cover boards per plot). Salamander counts appear stable over the 6-year monitoring period.

Deer Exlosures — Deer in Delaware benefit from near-ideal habitat and mild winters. As a result, deer populations have reached very high densities. Deer browsing has been documented as a factor affecting understory composition and ingrowth in hardwood forests. A study was initiated in 2005 to quantify the browse effect. Fifteen 10- by 10-meter fenced exclosures are being installed in areas where oaks constitute at least 40 percent of stand basal area. Measurements are taken at each exclosure and its accompanying control plot. Future measurements will detect any differences due to the browse effect.

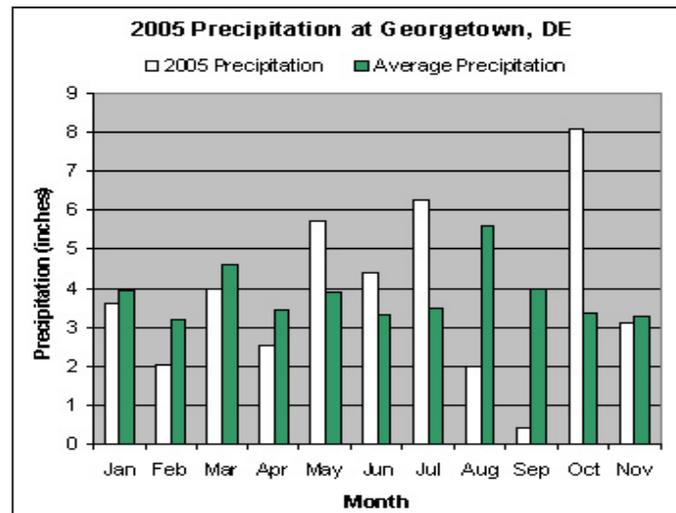
Forest Fragmentation

Studies indicate that development and other land use changes reduced forest area by 9 percent between 1992 and 1997.

Because forest fragmentation remains one of the most pressing forest health issues in the State, a new study will be carried out in 2006. Geographic Information System (GIS) technology will be used to determine the forest acreage lost annually to development. This study will provide a more current estimate of forest loss than the 1992-1997 analysis. It will also provide a more accurate and indepth view of forest fragmentation on a watershed-by-watershed and year-by-year basis.

Weather Conditions

Delaware experienced a record drought in late summer 2005 (see chart). Statewide, only about 2 inches of rain fell in August, and only a trace amount fell in September. Normal rainfall during this 2-month period is 9.5 inches. Some drought-related stress was observed late in the year, and the effects of the 2005 drought will likely be observed during the



Delaware experienced warmer than average temperatures (see table) during August and September, the months in which the drought occurred. High temperatures placed additional stress on trees affected by the lack of rainfall.

	Georgetown (south)			Wilmington (north)		
	Ave °F	Normal	Departure	Ave °F	Normal	Departure
Jan	35.0	34.3	0.7	31.8	31.5	0.3
Feb	36.8	36.2	0.6	35.1	34.2	0.9
Mar	40.4	43.9	-3.5	38.6	42.7	-4.1
Apr	53.9	52.7	1.2	53.8	52.4	1.4
May	57.7	62.2	-4.5	57.5	62.5	-5.0
Jun	72.5	70.9	1.6	72.9	71.5	1.4
Jul	77.9	75.8	2.1	77.0	76.6	0.4
Aug	78.4	74.3	4.1	77.9	75	2.9
Sep	72.4	68	4.4	71.8	67.7	4.1
Oct	59.6	56.7	2.9	57.7	55.8	1.9
Nov	51.7	47.7	4.0	47.9	45.9	2.0

For More Information



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