

Delaware - 2020

Forest Health Highlights

The Resource

Delaware's forests presently cover approximately 382,000 acres, roughly 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.

Weather Conditions

The 2019/20 Delaware winter was very mild. All-winter lows for most of the state were only around 15 degrees F. Snow fall totals were near record lows. The spring was cool, with late frosts recorded April 17, 19 and around Mother's Day (May 10). The cool frosty spring appeared to cause some leaf necrosis and chlorosis. Some flowers appeared damaged, and then later, fruit damage became apparent on some species. A period of heavier than normal rains interspersed with hot days in the 90's affected July, August and September. Also, a record long tornado path on August 4th did severe tree damage to trees for 29 miles from south of Dover to north of Middletown.



Figure 1. A June 27, 2020 picture of willow oak in Kent County, Delaware shows chlorotic leaves likely due to a very wet and frosty spring.

Forest Insect Issues

Emerald Ash Borer (EAB)

The aerial survey, ground nesting wasps (*Cerceris* spp.) prey items surveys, and reports from other government agencies showed EAB greatly on the increase this season. Two sites with enough damage to see from the aerial survey were discovered in June. One was about eight miles west of Dover in western Kent County. Another was found on the west side of Newark in western New Castle County. The cerceris wasp surveys picked up EAB at Brecknock Park in Dover, and at River Road Park northeast of Wilmington (the only EAB discovered on the east edge of Delaware so far). Reports of EAB larvae in damaged trees also came in from the Urban and Community Forestry program for the residential neighborhoods just to the east of Brandywine Creek State Park. Also, reports of EAB in sentinel ash trees on the Carvel Research campus in central Sussex County came in from UD extension. Much of the state except for possibly the southeast corner of beaches and inland bays area is considered infested at this point.

Asian Longhorned Beetle (ALB)

ALB is a serious threat to a variety of hardwood species, especially the rural and urban maples throughout Delaware. Trapping begun in 2012 was continued in 2020. Shantung Maple (*Acer truncatum*) seedlings planted in five New Castle County parks have grown into large saplings and were inspected for ALB signs and symptoms again this year. No ALB was detected.

Sirex woodwasp (*Sirex noctilio*)

Sirex noctilio presents a threat to loblolly pine, the mainstay of the forest products industry in southern Delaware. In late July 2020, eighteen lindgren traps baited with a Sirex blend were hung at nine sites throughout the state. Traps are checked up until hard frosts reduce insect activity in late fall/early winter. *Sirex noctilio* has yet to be detected in Delaware.

Southern Pine Beetle

In 2020 Delaware continued to participate in the Annual spring SPB survey in conjunction with southern states. At five sites across Sussex County, Lindgren funnel traps were serviced for 6 weeks between April 21 to May 26. Very low adult SPB catch indicated another low or declining population for Delaware's pines.



Figure 2. June 22, 2020 aerial survey photo of a stand of loblolly pine (Pinus taeda). This stand north of Cape Henlopen, with the Delaware Bay in the background, was damaged by southern pine beetle (Dendroctonus frontalis) in 2016.

Spotted Lanternfly (SLF)

SLF was first spotted in Wilmington in November of 2017. As of July 2020, the Delaware Department of Agriculture (DDA) quarantined all of New Castle County as populations of SLF are becoming established in the northern portions of the state. The Plant Industries section within DDA continues to run a task force coordinating efforts towards eradication and population control.

Other Insects

Pheromone lures and traps for the detection of walnut twig beetle set up in six locations in New Castle County are still being sorted at this time, though the spring and early fall catch did not show any WTB once again. This insect has yet to be detected in Delaware. Fall webworm (*Hyphantria cunea*) appeared again in 2020, though down from very heavy amounts in the previous two years.



Figure 3. An unidentified caterpillar (noted but not touched!) on loblolly pine in Sussex County, summer 2020.

Forest Disease Issues

Bacterial Leaf Scorch (BLS)

BLS is very common throughout Delaware in red oaks of suburban lawns and street trees. It is particularly common and damaging to pin oak, and northern red oak. The Delaware Forest Service's permanent plots on each of the three state forests were put in place to study potential effects on natural stands of red oak. The three plots have an average length of study of about 11 years as of 2020. Mortality rates for the 11 years were calculated for an average per ten years to compare with a published study of natural rates of background mortality. For established red oaks at 15" diameter or greater, the mortality rate for the study trees was 17.9 percent dead in a decade. The background rate for the dominant/co-dominant oak trees in an undisturbed stand should be around 5.0 percent per decade.

Other diseases

Leaf infections of bacteria and fungi such as anthracnose were common again this year due to the cool spring and abundance of rainfall throughout the growing season. Shipments of sudden oak death (*phytophthora ramorum*) infested nursery stock to several eastern states (including Maryland) were traced forward to assess potential risk to Delaware watersheds. Information from the Maryland Department of Agriculture indicated that the one trace

forward to the eastern shore was for southern Wicomico county. In addition, subsequent testing for phytophthora at that site was negative.

Forest Health Monitoring

White Oak Decline Study

In a permanent plot study set up in 2014 in response to concerns over scattered mortality and extensive crown thinness in white oaks; crown dieback percentage, symptoms and general health issues have been tracked over the last six years at ten 1/5th acre circular plots in two tracts of Blackbird State Forest. Though crown dieback percentage on live trees continued downward in 2020, three additional co-dominant white oaks on the plots died between the summers of 2019 and 2020.

Beech Bark and Beech Leaf Disease Plots

Permanent study plots at four beech stands in the northern half of Delaware have been carefully observed for beech bark disease (BBD) since 2011, and beech leaf disease (BLD) since 2017. As of 2020, no symptoms or signs of either disease have been found in Delaware.

Aerial Survey

This year's aerial survey was flown between June 22nd and 23rd. Eight new damage sites were noted and mapped. These sites included 2 small flooded hardwood sites for 3.5 acres. It should be noted that Coastal flooding and saltwater damages were not mapped this year. New damage from these extensive areas have proven difficult to map from a single aerial flight each year. Other methods such as remote sensing and aerial photography will be attempted. Other damages noted included one instance of unknown damage to Norway spruce of about 2.5 acres, emerald ash borer damage to ash on two sites for about 8.6 acres, a gypsy moth defoliation of sweetgum of about 23 acres, a site of apparent frost damage to young sweetgum around 5 acres. Also, an intentional herbicide killing of sweetgum and red maple for wildlife habitat was noted. The total amount of damage mapped was 81.1 acres.

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<https://agriculture.delaware.gov/forest-service/forest-health/>

