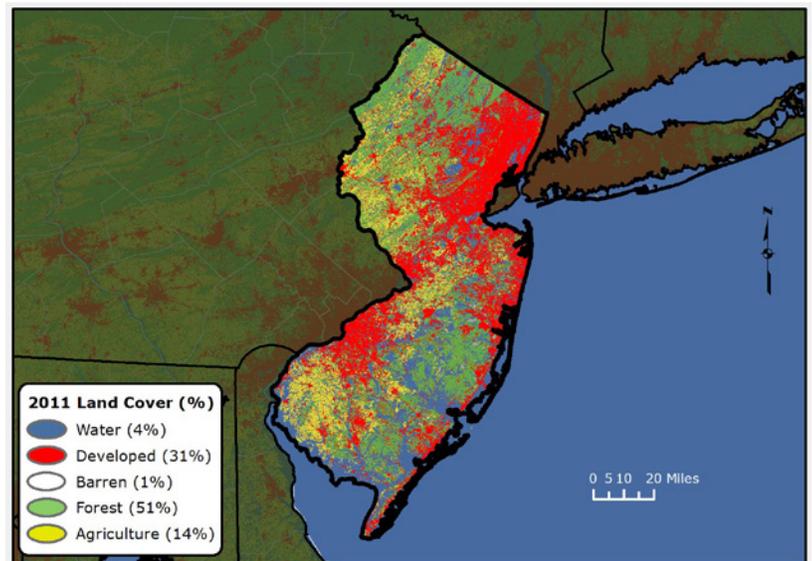




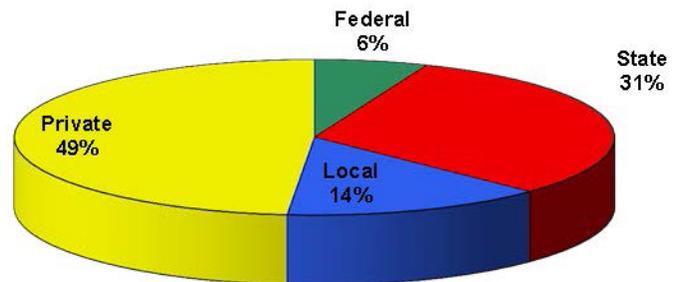
2016 Forest Health NEW JERSEY highlights

Forest Resource Summary

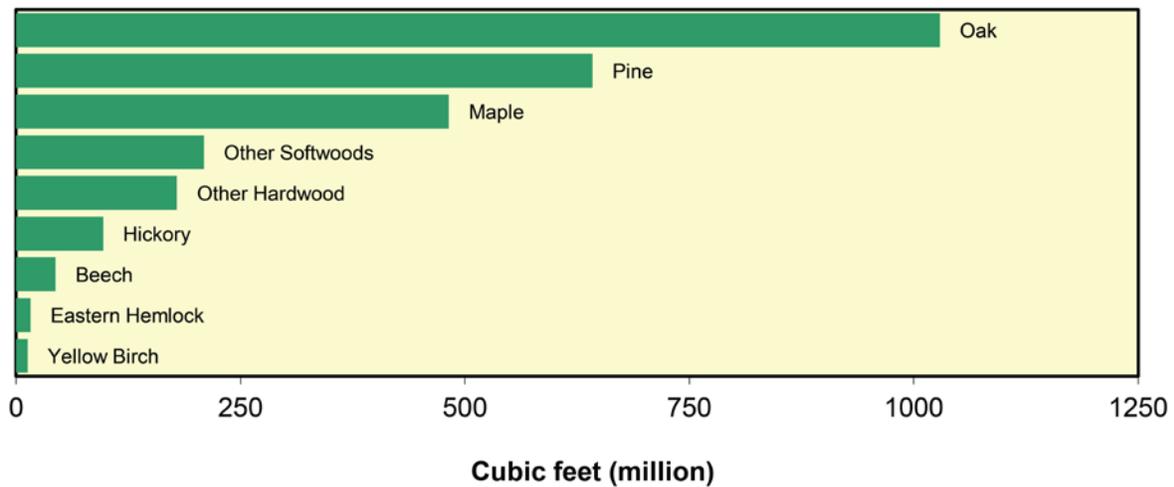
Even though New Jersey is the most densely populated State in the Nation, its forest covers approximately 2 million acres (42 percent) of the State's 4.1 million acres. Forest cover represents the largest single land use in New Jersey. The State has a diversity of forest tree species, with pitch pine and white oak/red oak/hickory representing the two dominant forest types by area. The northern counties (Sussex, Warren, Hunterdon, and Morris) are dominated by northern hardwoods, white pine, eastern hemlock, mixed oak, and a variety of other species, including isolated stands of red spruce. The southern counties (Cape May, Atlantic, Cumberland, and Burlington) are dominated by southern yellow pines such as pitch and shortleaf and, to a lesser extent, Virginia and loblolly. Various oak species such as southern red, scarlet, chestnut, and white are also prevalent. In an urban State such as New Jersey, it is critical to maintain forested areas and to manage them properly. Through forest health monitoring and sustainable planning, the State can take action to minimize or eliminate the detrimental effects of forest health-related issues.



Forest Land Ownership in New Jersey, 2012

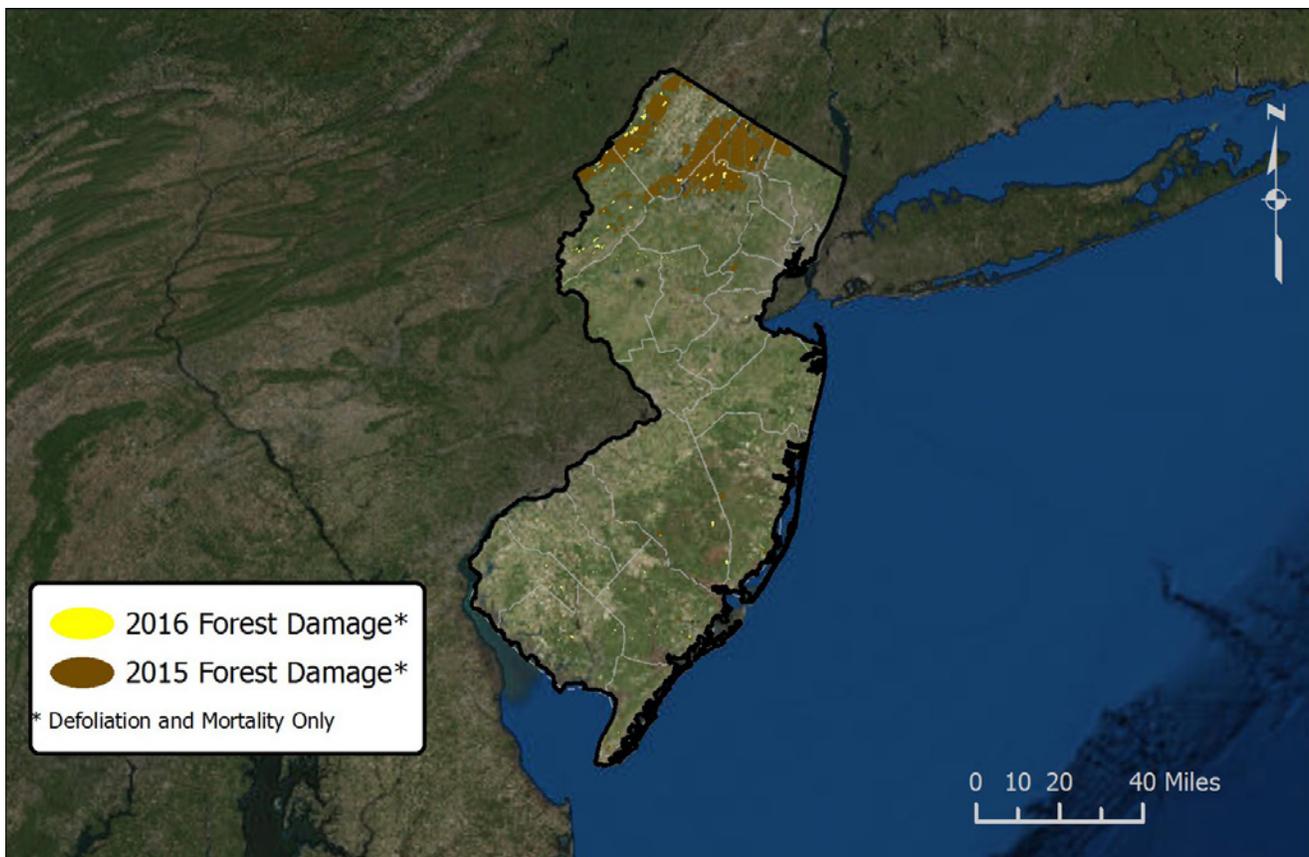


Net Volume of Growing Stock on Timberland by Species in New Jersey, 2012



Forest Health Surveys

In 2016, the greatest forest damage was caused by gypsy moth defoliation (13,449 acres), the majority of which was in northern New Jersey. Southern pine beetle mortality was found on 4,116 acres, and wildfire mortality was detected on 1,427 acres.



Forest health survey observations in New Jersey in 2015 and 2016. The entire State was flown in 2016.

Forest Pest Issues

Southern Pine Beetle

Southern pine beetle (SPB) is surveyed by aerial detection and select ground verifications. SPB damage is identified by pine tree crown color that changes from yellow to red to brown, typically over contiguous areas. Additional symptoms associated with SPB include pine mortality, crown fragmentation, pitch tubes, exit holes, and larval galleries. In New Jersey, SPB mainly affects pitch pine (*Pinus rigida*), shortleaf pine (*P. echinata*), and Virginia pine (*P. virginiana*); it has also been observed infesting Norway spruce (*Picea abies*) and eastern white pine (*Pinus strobus*). In 2016, 4,116 acres had SPB-caused pine mortality; this represents a slight increase from the 2,369 acres of SPB-caused mortality in 2015. SPB is still mainly found in the southern counties of the State.

In 2016, the New Jersey State Forestry Services (NJFS) suppressed SPB on a total of 1.05 acres using the cut-and-leave method in Burlington County.

SPB continues to infest New Jersey's native pine species on public and private property. NJFS continues to ground truth prioritized sites on lands owned by the New Jersey Department of Environmental Protection (DEP) and address those areas for suppression. Some landowners in the Forest Stewardship Program have updated their management plans to include SPB suppression activities. NJFS performs extensive trapping, select ground verification, and aerial surveys annually. They deploy funnel traps in six southern counties at the rate of three per county for a total of 18 funnel traps. All trapped insects are sent to the U.S. Forest Service Morgantown Field Office for identification.

Sirex Woodwasp

No Sirex traps were hung in 2016. Some visual observations were made, but no signs of Sirex were detected.

Asian Longhorned Beetle

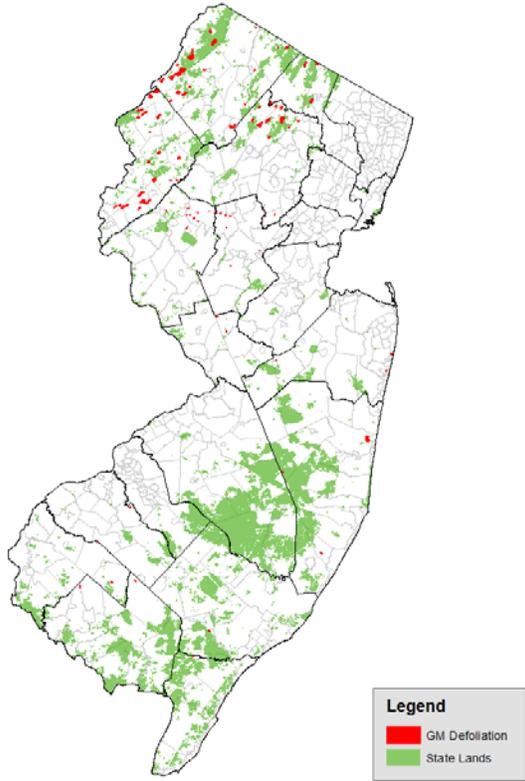
The Middlesex and Union County Asian longhorned beetle (ALB) quarantine zone was deregulated in 2013. ALB is now considered to be eradicated from these areas. No additional ALB infestations were found in 2016.

Gypsy Moth

Gypsy moth defoliation decreased in 2016. Based on the New Jersey Department of Agriculture (NJDA) aerial survey detection program, gypsy moth defoliated 13,449 acres in 2016, a 276,551-acre decrease from 2015. The majority of the defoliation was seen in the northern part of the State. Egg mass surveys on DEP-owned lands (including State Parks and Forestry parcels, Wildlife Management Areas, and Nature Land Trust Preserves) did not result in areas of significant egg mass numbers. A spray program on State DEP lands will not be proposed in 2017.

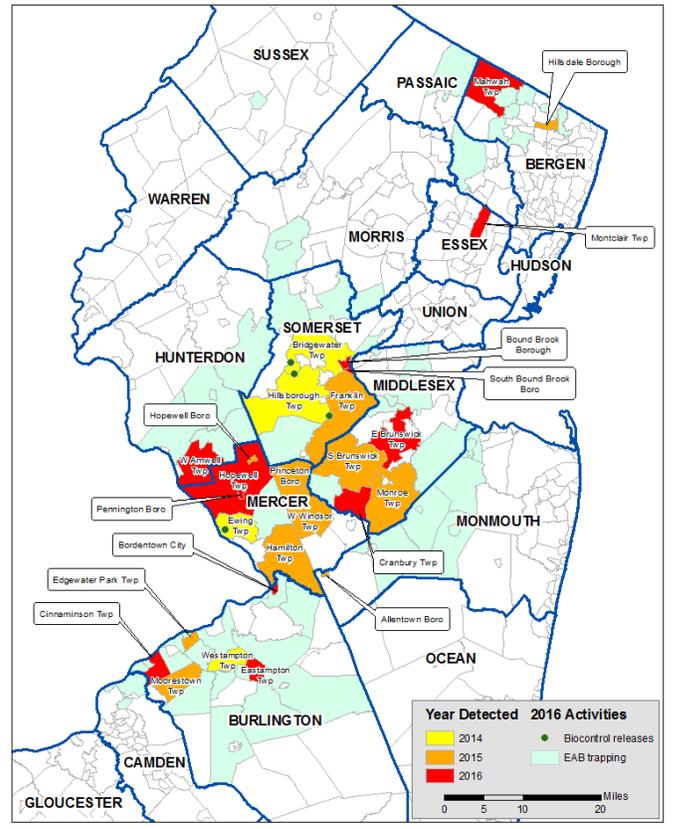
In 2016, the gypsy moth suppression program sprayed a total of 18,590 acres (1,112 by NJFS and 17,478 by NJDA) using aerial application of *Btk*.

Gypsy Moth Defoliation Detected in 2016



Gypsy moth defoliation detected in 2016.

NJ Municipalities with Confirmed EAB



New Jersey municipalities with confirmed emerald ash borer.

Emerald Ash Borer

In 2016, the emerald ash borer (EAB) was positively identified in Bergen County (Mahwah Township); Burlington County (Bordentown City and Delanco, Eastampton, Hainesport, Mt. Laurel, and Cinnaminson Townships); Essex County (Montclair Township); Hunterdon County (West Amwell Township); Mercer County (Hopewell and Pennington Townships and Princeton Borough); Middlesex County (East Brunswick Township); and Somerset County (Bound Brook and South Bound Brook Boroughs). The entire State is included under the Federal EAB quarantine.

NJFS continued to work cooperatively with NJDA and Rutgers University to deploy purple triangular traps and green funnel traps statewide in the summer of 2016. Volunteers were primarily responsible for hanging the

purple prism traps on municipal lands. NJFS hung nine green funnel traps on State-owned lands and one green funnel trap on municipal lands. The traps were deployed in May/June, inspected and had the lure changed in June/July, and inspected and taken down in August.

NJFS and NJDA also worked cooperatively to release two parasitoids, *Oobius agrili* and *Tetrastichus planipennis*, at four sites—Somerset County (Franklin and Bridgewater Townships and Hillsborough) and Mercer County (Ewing Township). A total of 48,731 parasitoids have been released at these sites over the last 2 years for EAB population control. Biocontrol releases are planned for next year at four sites in Burlington, Essex, and Mercer Counties.

Beech Bark Disease

In 2016, NJFS continued to cooperate with the U.S. Forest Service to monitor beech stands across the State. Five of the 8 permanent beech plots were revisited in 2016 (Washington Crossing, Thungergut, Burlington County, Cheesequake, and Beaver Swamp). It appears that beech scale is declining as beech diameter growth is increasing. American beech occurs on approximately 205,000 acres throughout New Jersey, with the majority found in northern New Jersey and a component in the southern half of the State along the Delaware River corridor. The majority of beech found in the northern counties have been infested and infected by both the scale and fungus, respectively. At this time, no beech bark disease has been found in central or southern New Jersey. In addition, scale has not yet been identified in the southern half of the State; however, some small-scale populations have been identified in the central counties.

Hemlock Woolly Adelgid

Nearly all hemlocks in New Jersey, which cover approximately 25,000 acres, have been infested with hemlock woolly adelgid (HWA) to some extent. Eastern hemlock is designated as a priority forest resource in the New Jersey Statewide Forest Resource Assessment & Strategies. NJFS was awarded a grant to chemically treat select hemlock areas and to prepare a hemlock resource assessment. Treatments began in the spring of 2011 and continued in 2012, 2013, 2014, and 2015. In 2016, no hemlocks were treated. NJFS and NJDA are jointly participating in the HWA-resistant hemlock planting study with University of Rhode Island. NJDA continues to monitor and manage the biocontrol agent *Laricobius nigrinus*.

Bacterial Leaf Scorch

Bacterial leaf scorch continues to occur across the State.

Spotted Lanternfly

Spotted lanternfly (SLF) was detected in Berks County, Pennsylvania, in 2014, the first find in North America. SLF has been found in additional Pennsylvania counties along the western border of New Jersey. No traps were deployed for SLF; however, visual surveys were conducted during field visits to forested sites along the western part of the State. No SLF was detected in 2016.

Thousand Cankers Disease

In 2016, NJFS deployed six traps for walnut twig beetle (WTB) on State lands along the western border of the State. The traps were deployed in the fall for 6 weeks, from the end of August until the middle of October. Traps were deployed on the following State lands: Bulls Island, Washington Crossing, Goat Hill, Fort Mott, Taylor Preserve, and Andoloro. Trap collections have been sent for WTB identification. We are waiting for results as of this writing.

Ash Yellows

Ash yellows continues to occur in New Jersey.

Oak Wilt

Although oak wilt has not yet been detected in New Jersey, it was detected in 2016 in Long Island, NY, the closest oak wilt confirmation to New Jersey to date. As a result, NJFS conducted an aerial survey in August of 564,600 acres in the northern half of the State, concentrating along the New York and Pennsylvania borders. Two suspect sites were detected but later determined to be related to flooding. Aerial surveillance for oak wilt will continue next year.

Agrilus smaragdifrons

In 2015, an unidentified *Agrilus* species was caught in an EAB green funnel trap in multiple locations. In 2016, Rick Hoebeke identified the insect as *Agrilus smaragdifrons*. This is the first North American record of this insect. Trapping specifically for *A. smaragdifrons* will continue in 2017. To date, *A. smaragdifrons* has been detected in Burlington and Somerset Counties.

Drought

The State declared drought warnings for several counties across the State: Bergen, Passaic, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Somerset, Sussex, Union, and Warren. The following counties are under a drought watch: Burlington, Camden, Gloucester, and Salem. Although specific forest health conditions related to drought were not recorded in 2016, the effects of drought will be seen in forest health surveys in the coming years if the State continues to experience drought.

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(1 March 2016).



Forest Health Programs

State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

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