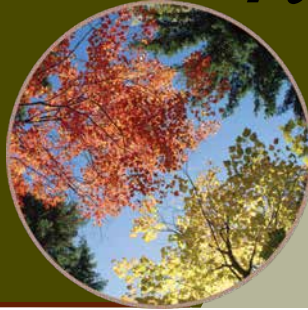


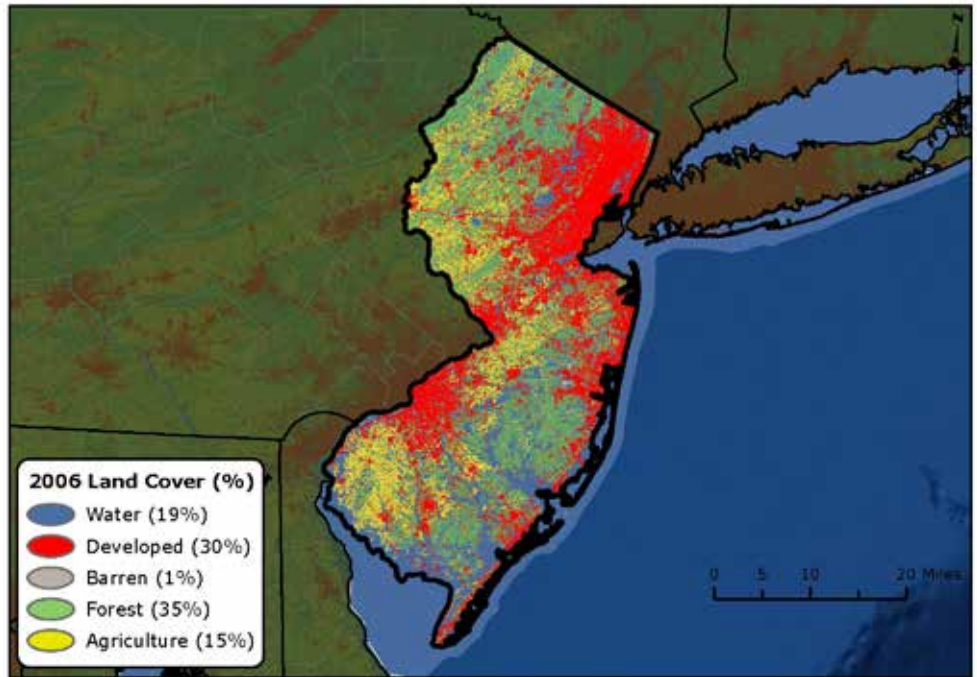
2013

Forest Health NEW JERSEY *highlights*

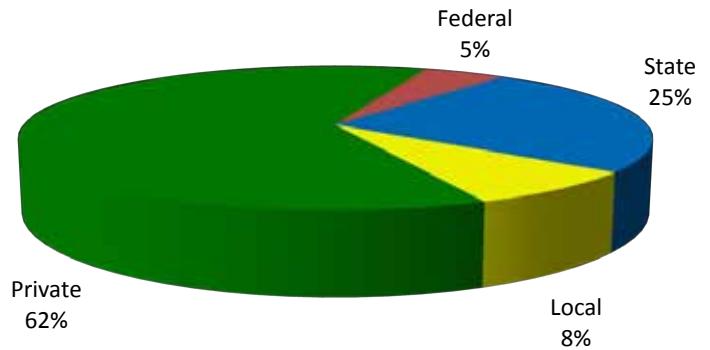


The Resource

New Jersey is the most densely populated State in the nation, and yet 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 with a diversity of forest tree species. Pitch pine and white oak/red oak/hickory represent the two dominant forest types by area in the State. 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



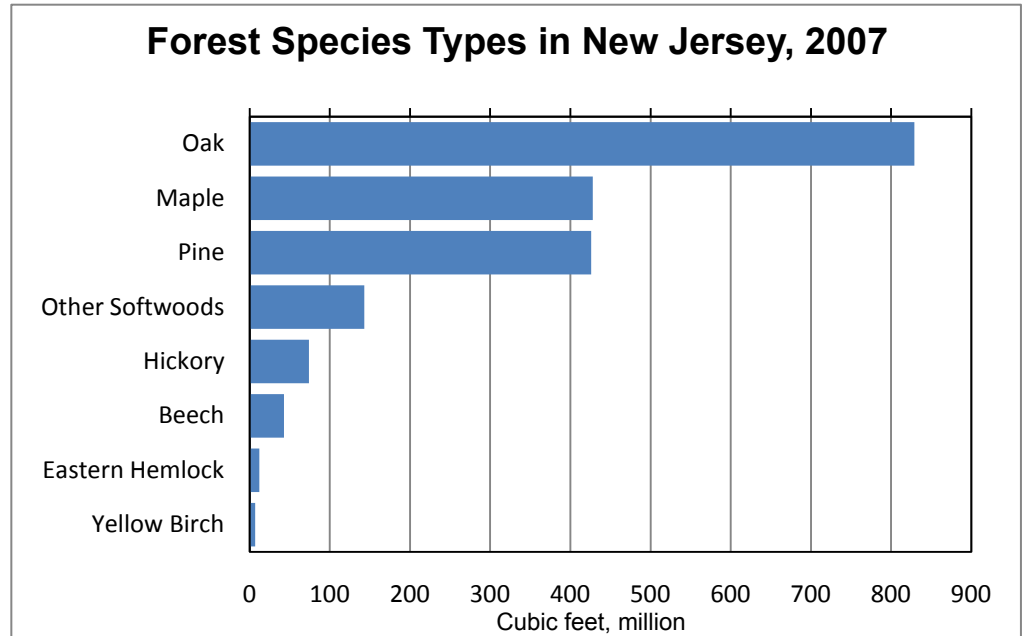
Forest Land Ownership in New Jersey, 2007



Forest Health Programs

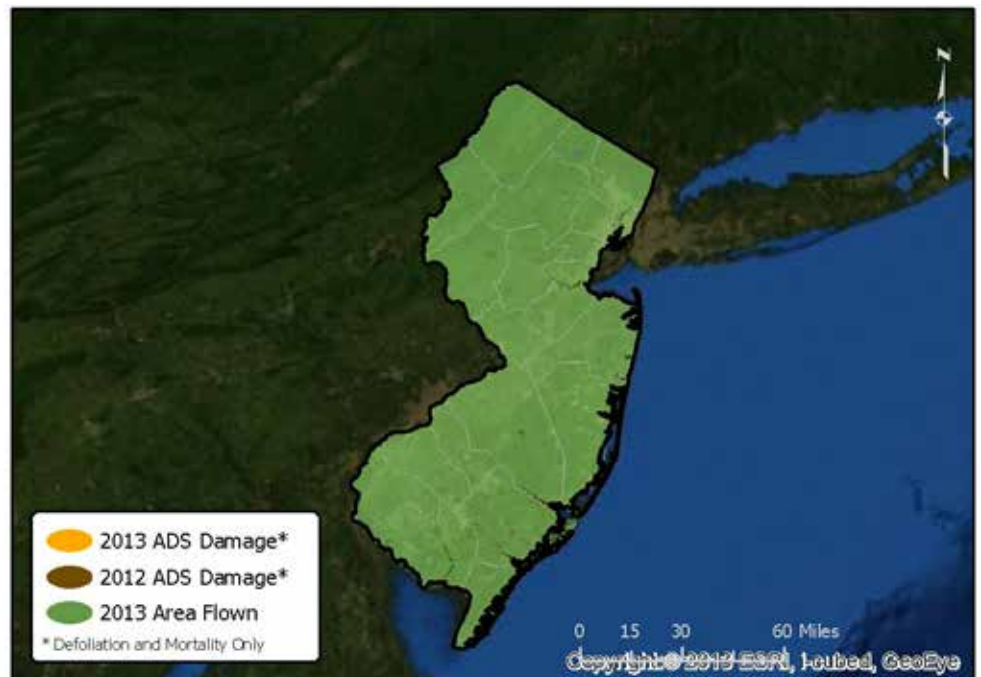
State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

Virginia and loblolly. Various oak species, such as southern red, scarlet, chestnut, and white are also prevalent. In this urban State it is critical to maintain forested areas and to manage them properly. Through forest health monitoring and sustainable planning, action can be undertaken to minimize or eliminate the detrimental effects of forest health related issues.



Aerial Surveys

New Jersey reported 10,342 acres of damage that was detected by aerial surveys conducted in 2013. The top three damage-causing agents were southern pine beetle (5,643 acres), gypsy moth (2,886 acres defoliation), and floods (1,320 acres). Other damages reported were from general mortality, wind-tornado, hemlock woolly adelgid, and fire.



This map delineates aerial detection survey (ADS) results for New Jersey in 2013 and 2012.

Forest Pest Issues

Southern Pine Beetle (SPB)

SPB is detected by aerial survey and select ground verifications. Damage to pine trees from SPB is identified by crown color change from yellow, 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 (*Pinus echinata*), and Virginia pine (*Pinus virginiana*), but has also been observed infesting Norway spruce (*Picea abies*) and white pine (*Pinus strobus*). In 2013, 5,646 acres were impacted by SPB, which represents a decrease of approximately 600 acres from 2012. SPB is still found mainly in the southern counties of the State.

The New Jersey Forest Service has suppressed SPB on a total of 291.6 acres using a combination of the cut-and-leave (CL) and cut-and-remove (CR) methods. The following acreages have been treated by county: Atlantic 29.8 acres CL; Burlington 11.3 acres CL; Camden 4.9 acres CL; Cape May 10.1 acres CL and 7 acres CR; and Cumberland 11.7 acres CL and 216.8 acres CR. Treated sites are monitored for breakouts after cutting takes place.

SPB continues to infest New Jersey's native pine species on public and private property. The New Jersey Forest Service continues to ground truth prioritized sites on Department of Environmental Protection lands, and to address those areas for suppression. Some landowners in the Forest Stewardship Program have updated their management plans to include suppression activities. The NJ Forest Service performs extensive trapping, select ground verification, and aerial surveys annually. Eighteen funnel traps are deployed in six southern counties at the rate of three per county. All trapped insects are sent to

the Morgantown, WV, office of the Forest Service, U.S. Department of Agriculture, for identification.

Sirex Woodwasp

The New Jersey Forest Service deployed four traps in the northern region. Every 2 weeks from June through mid November, traps were checked, and insects were collected and forwarded to the U.S. Forest Service Morgantown, WV, office, for identification. Traps are located in red, Scotch, and pitch-shortleaf pine stands. No suspect insects were found.

Asian Longhorned Beetle

The Middlesex and Union Counties ALB quarantine zone was deregulated in 2013. ALB is now considered to be eradicated from this area. No additional ALB infestations were found in 2013.

Gypsy Moth

Gypsy moth activity remained low in 2013 but appears to be increasing when compared with activity in 2012. Based on the New Jersey Department of Agriculture's aerial survey detection program, approximately 2,887 acres were defoliated by gypsy moth in 2013, a 1,819-acre increase from 2012. Egg mass surveys on 31 Department of Environmental Protection lands (including State Parks and Forestry parcels, Wildlife Management Areas, and Nature Land Trust Preserves) in Bergen, Burlington, Cape May, Mercer, Morris, Ocean, Salem, Monmouth, Hunterdon, Sussex, and Warren Counties, had varying results, as pockets of high levels of egg masses were found in Passaic and Ocean Counties, and low numbers or no egg masses were found in the other counties. An aerial spray program is not planned for 2014; however, other suppression methods may be used to reduce gypsy moth populations in Passaic and Ocean Counties.



Gypsy Moth Egg Masses on an Oak Tree in Passaic County, NJ.

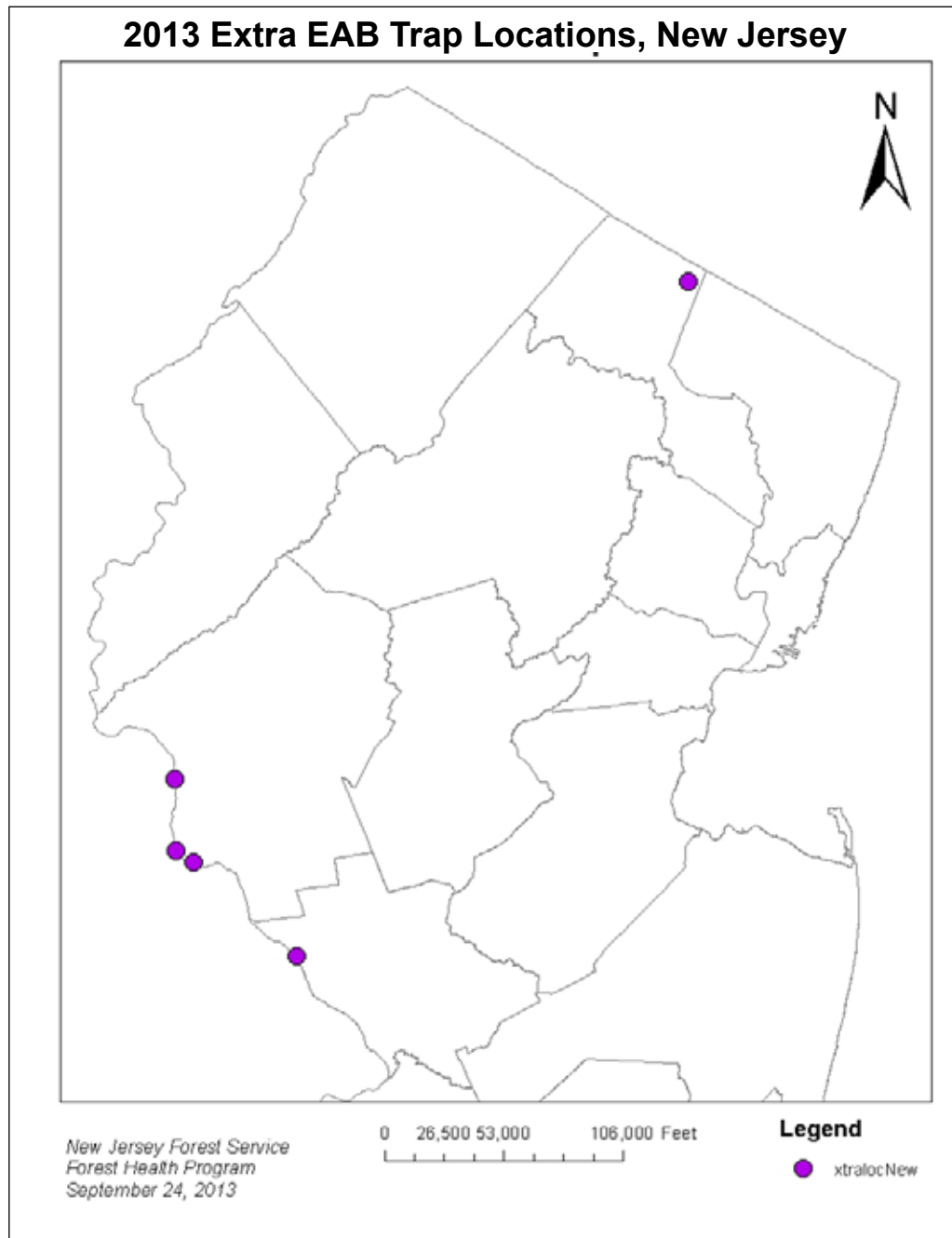


Gypsy moth egg mass on a birch tree in Passaic County, NJ.

Emerald Ash Borer (EAB)

In summer 2013, the NJ Forest Service worked cooperatively with the NJ Department of Agriculture to deploy approximately 250 purple triangular EAB traps Statewide. The traps were placed in ash trees that were accessible by car or foot. The NJ Forest Service was responsible for hanging 18 of those traps on State-owned lands and deployed additional traps on State lands that

were in close proximity to the Pennsylvania and New York EAB finds. The traps were deployed in May-June, then they were inspected and lures were changed in June-July. Traps were inspected again and taken down in August. All suspect insects were submitted to the NJ Department of Agriculture for identification; no EAB were detected. Of the additional trees with traps, two were girdled in summer and will be cut and peeled this winter, to look for EAB life stages.





Top photo: Girdled June 2013; will cut down and peel in winter 2013-2014.

Two locations: Ringwood State Park in Passaic County & D&R Canal in Hunterdon County

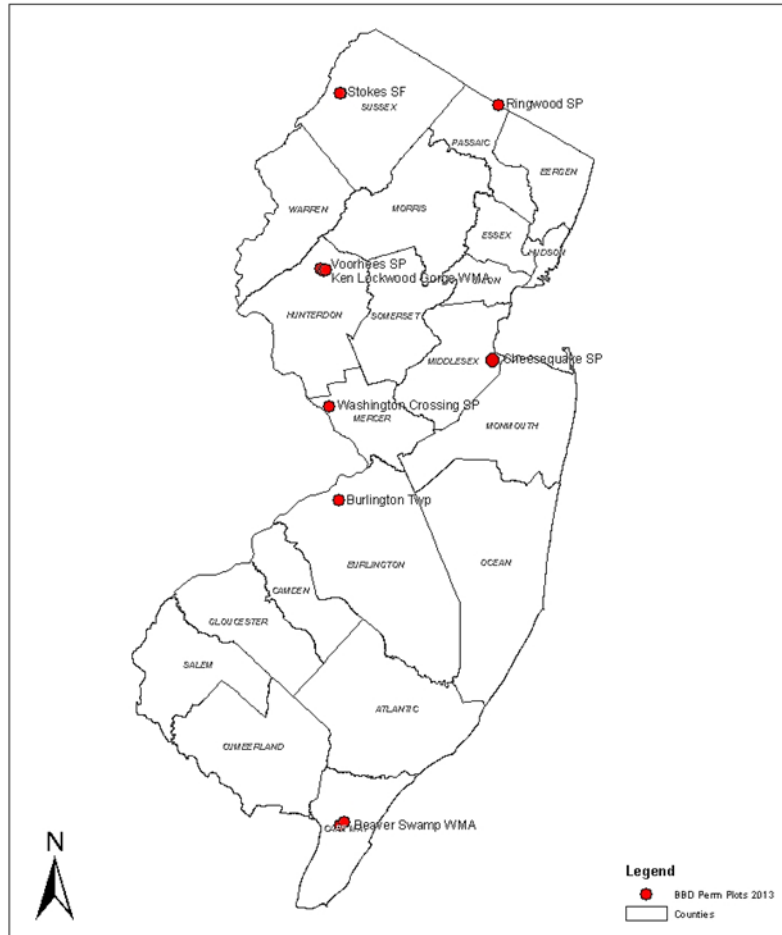
Beech Bark Disease (BBD)

In 2013, seven permanent plots (three in the north, three in central New Jersey, and one in the south) were established in cooperation with the U.S. Forest Service, to monitor beech stands across the State. Beech health and possible BBD resistance were also recorded. 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 by the scale and infected by the fungus. At this time, no BBD has been found in central or southern New Jersey. Also, 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. As a result of establishing the seven permanent plots, it has been determined that there is no clear transition zone between where BBD occurs and does not occur due to the break in distribution of beech across the State.

Hemlock Woolly Adelgid (HWA)

Nearly all hemlock in New Jersey, approximately 25,000 acres, has been infested with HWA to some extent. Eastern hemlock is designated as a priority forest resource in the NJ Statewide Forest Resource Assessment and Strategies. The NJ Forest Service was awarded a grant to chemically treat select hemlock areas and to prepare a hemlock resource assessment. Treatments began in spring 2011 and continued in 2012 and 2013. In 2013, a total of 69 trees were treated in Sussex, Passaic, and Mercer Counties (8 in Ringwood State Park, 21 in Stokes State Forest, 2 in Washington Crossing State Park, 9 in Flatbrook Wildlife Management Area, 16 in Kittatinny Valley State Park, and 13 in Princeton Battlefield). Chemical treatments will continue in 2014. NJ Department of Agriculture continues to monitor and manage the biological control, *Laricobius nigrinus*.

NJ Beech Bark Disease Permanent Plots 2013

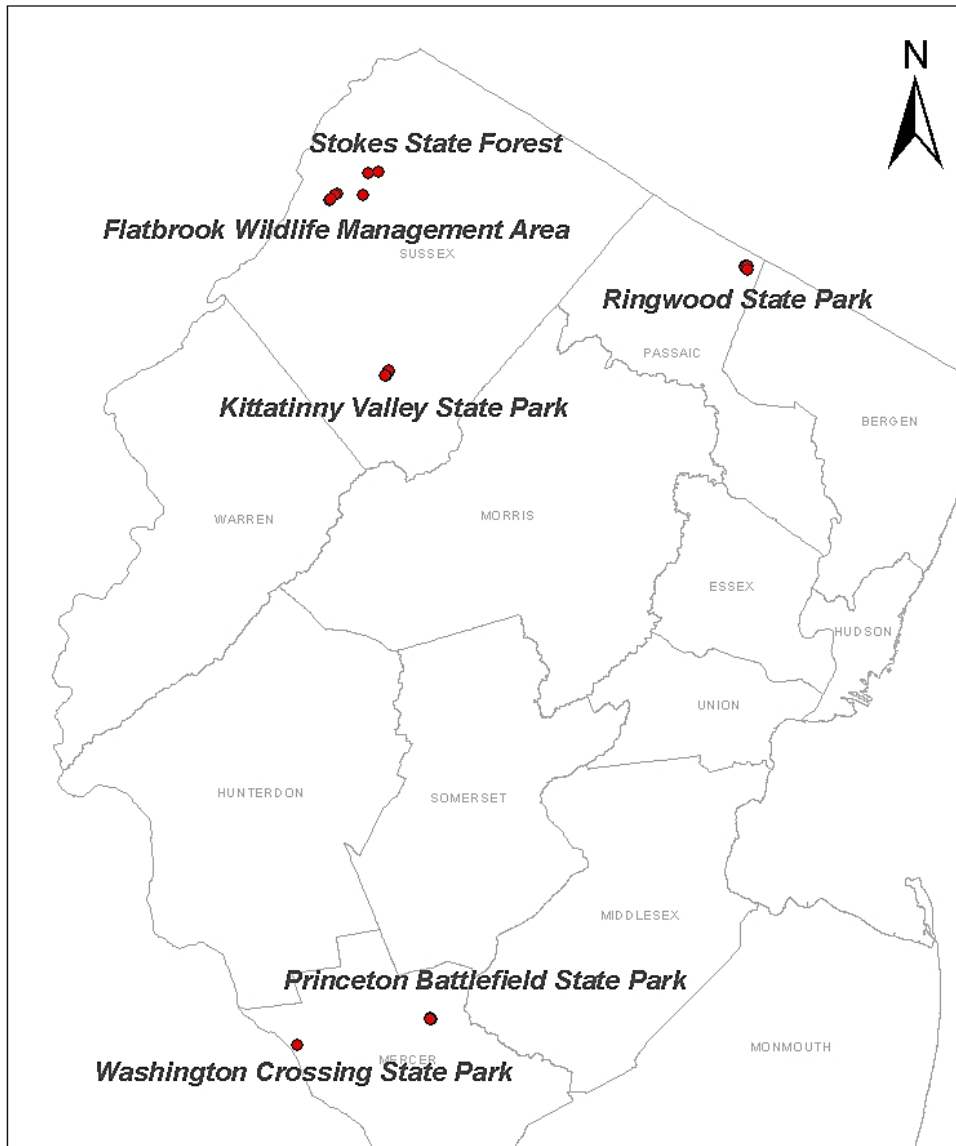


July 8, 2013
 New Jersey Forestry Services
 Forest Health Program

0 62,500 125,000 250,000 Feet

Parcel Name	Trees	Treatment Type
Flatbrook	9	Soil Drench
Kittatinny	16	Soil Drench
Princeton	13	Tablets
Ringwood	8	Bark Spray
Stokes	13	Tablets
Stokes	8	Bark Spray
Washington	2	Tablets
Total	69	

2013 HWA Treatment Sites, New Jersey



New Jersey Forest Service
Forest Health Program
September 24, 2013

0 25,500 51,000 102,000 Feet

Legend

● hwa treatment 2013



Hemlock woolly adelgid infested branch.

Bacterial Leaf Scorch (BLS)

In 2013, the Rutgers Plant Diagnostic Laboratory informed the NJ Forest Service that BLS has been identified in all counties except three—Sussex, Passaic, and Hudson. The NJ Forest Service tested six trees for BLS—four from Sussex County and two from Passaic County. All samples came back negative for BLS; however, anthracnose was present this summer and can mask the BLS signs. Although the samples from Sussex and Passaic Counties came back negative for BLS, it is not unreasonable to assume that BLS is present in these counties.

Thousand Cankers Disease (TCD)

Although TCD has not been detected in NJ, in 2011 it was detected in Bucks County, PA. Due to the close proximity to New Jersey, the NJ Department of Agriculture set up eight traps for the walnut twig beetle: four in Mercer County, three in Hunterdon, and one in Burlington, in March and July 2012. All samples were submitted to the Rutgers Plant Diagnostic Laboratory; results have not yet been received. To date, no walnut twig beetles have been detected in New Jersey. Visual inspections continue, especially along the Delaware River, adjacent to Bucks County, PA.

Pine Looper

Although pine looper damage was reported in 2012, none was identified in 2013. The last recorded incident was in 1997-1998 when over 375,000 acres were impacted.

Ash Yellows

In July 2013 seven ash samples (one from Sussex County, two from Passaic, two from Hunterdon, one from Somerset, and one from Middlesex) were submitted to the Rutgers Plant Diagnostic Laboratory to be tested for the presence of the phytoplasma associated with ash yellows. Widespread ash mortality and dieback initiated this survey. Four of the samples (two from Passaic County, one from Middlesex, and one from Hunterdon) tested positive for the phytoplasma that causes ash yellows. Although ash yellows may be present throughout the State, only these specific sites were tested. This is the first official record of ash yellows in New Jersey.

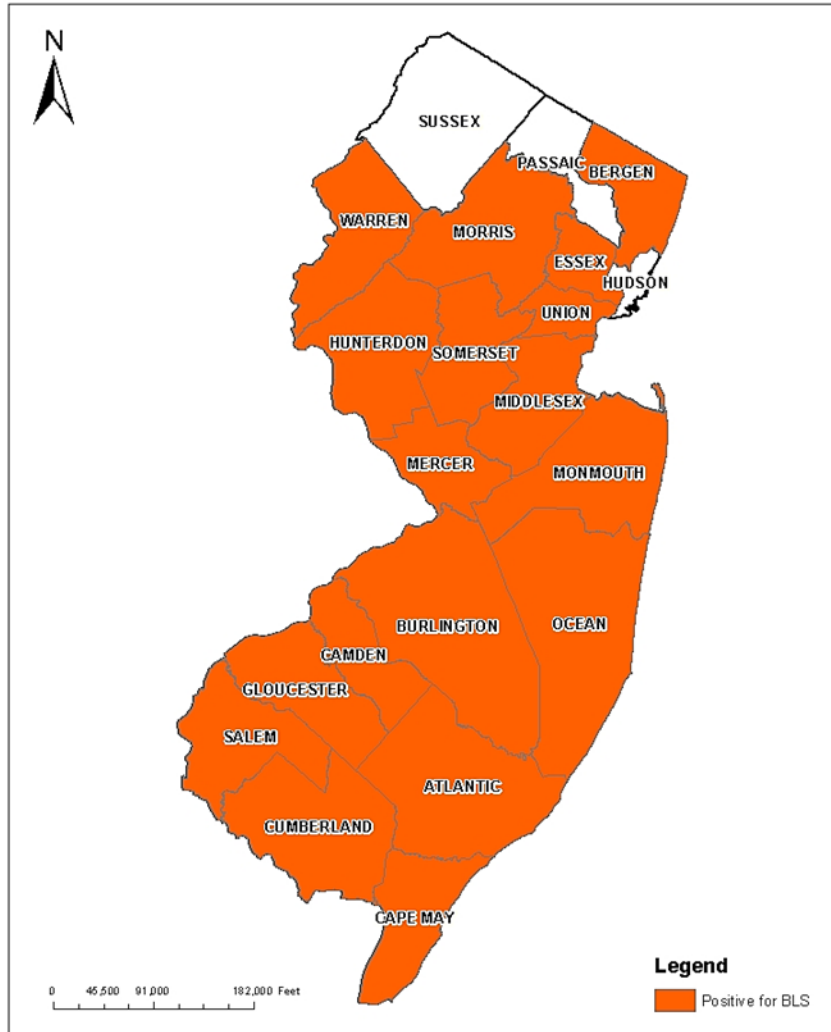
Cicada

In 2013, the 17-year cicadas emerged in New Jersey. Their emergence, however, was concentrated in pockets across the State, and was heavier in some areas than in others. By summer, the characteristic flagging caused by females cutting slits in twigs and laying eggs in them could be seen along highways, in parks, and in residential properties.

Variable Oakleaf Caterpillar

A landowner from the Tuckahoe-Woodbine area reported the presence of variable oakleaf caterpillar. The majority of defoliation was found on the lower branches of oak trees. The variable oakleaf caterpillar may have also been present in other counties, but a complete survey was not conducted. No control measures are necessary because the insect has natural predators.

NJ Counties Positive for BLS



New Jersey Forest Service
Forest Health Program
September 23, 2013

Bacterial Leaf Scorch (BLS)(Xylella fastidiosa)



Ash yellows/decline at Ringwood State Park.



Ash yellows/decline at private residence in Colonia, NJ.



Magicada: The 17 – Year Cicada.

Acknowledgments

The aerial detection survey map was produced by the U.S. Forest Service, Forest Health Protection, in Morgantown, WV, using survey data from the New Jersey Division of Parks and Forestry.

Photos: New Jersey Division of Parks and Forestry

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Land Cover Map:

U.S. Geological Survey. 2011. 2006 National land cover dataset. Sioux Falls, SD.

Forest Land Ownership, Forest Species Type:

U.S. Department of Agriculture, Forest Service. 2009. Forest resources of the United States, 2007. Gen. Tech. Rep. WO-78. Washington, DC. 336 p.



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