

2012

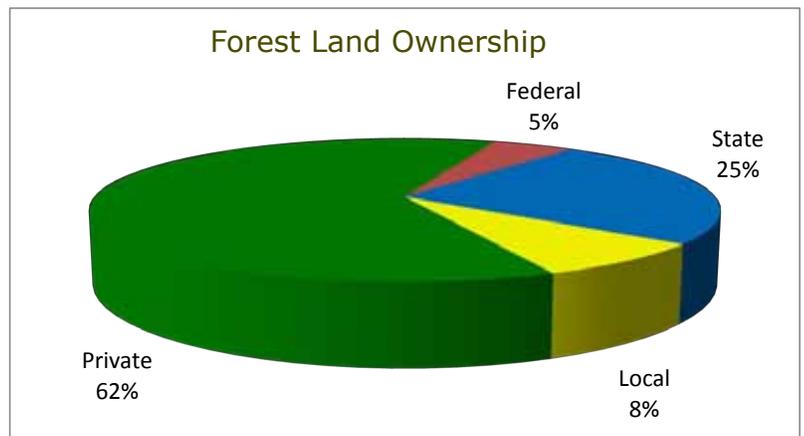
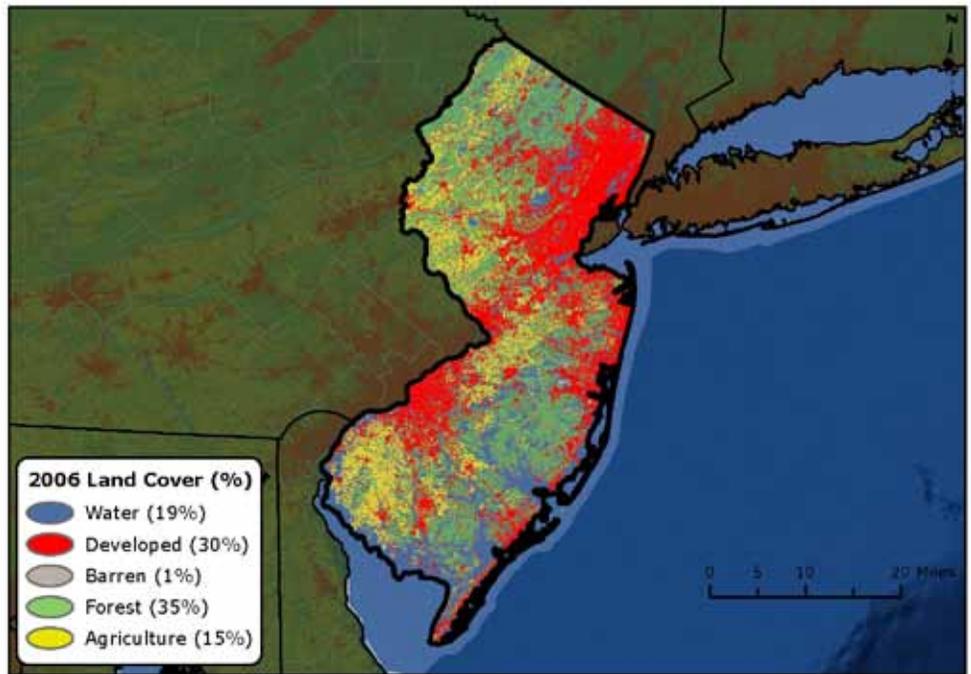
Forest Health

NEW JERSEY *highlights*



The Resource

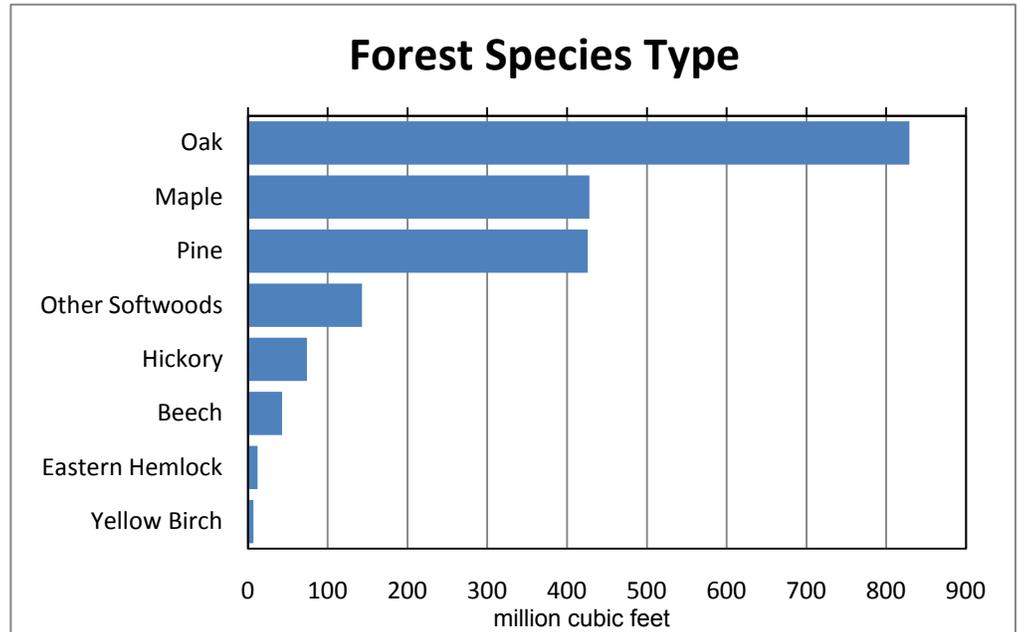
New Jersey is the most densely populated State in the Nation, and yet forest covers approximately 2 million acres (42 percent) of the State's 4.1 million acres. Forest cover represents the largest single land use with a diversity of forest tree species; pitch pine and white oak/red oak/hickory represent the two dominant forest types by area in the State. The northern counties, such as 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 such as Cape May, Atlantic, Cumberland, and Burlington are dominated by southern yellow pines—pitch and shortleaf and, to a lesser extent, Virginia



Forest Health Programs

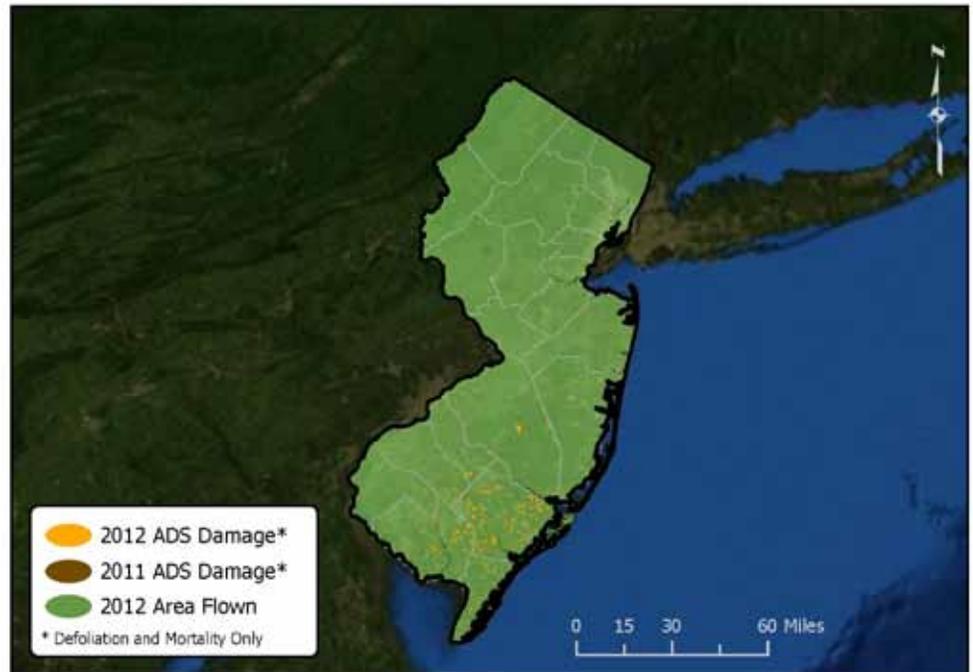
State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

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, action can be undertaken to minimize or eliminate the detrimental effects of forest health-related issues.



Aerial Surveys

According to aerial detection survey results for New Jersey in 2012, 9,083 acres were damaged. Most of this damage (6,264 acres) was attributed to the southern pine beetle. Gypsy moth damaged 1,065 acres, and wildfire caused 1,753 acres of damage.



This map delineates aerial detection survey (ADS) results for New Jersey in 2012 and 2011.

Forest Pest Issues

Southern Pine Beetle (SPB)

Southern pine beetle (*Dendroctonus frontalis* Zimmerman) is surveyed using aerial detection and select ground verifications. The aerial survey covers the southern half of the State, which totals approximately 1.3 million acres and includes the Pinelands Region. Damage from SPB is identified by pine tree crown color change 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*), but has been observed infesting Norway spruce (*Picea abies*) and white pine (*Pinus strobus*). The 2012 aerial flight survey recorded 6,260 acres that were impacted by SPB. This represents a decrease of approximately 500 acres from 2011. SPB is still mainly found in the southern counties of the State, including Atlantic, Cape May, Cumberland, Gloucester, and Salem. SPB was not detected in Monmouth County this year, even though it was detected last year.

SPB continues to infest New Jersey's native pine species on public and private property. The New Jersey Forest Service (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 suppression activities. The NJFS performs extensive trapping, select ground verification, and aerial surveys annually. Funnel traps are deployed in six southern counties at the rate of three per county for a total of 18 traps. All trapped insects are sent to the U.S. Forest Service Morgantown Field Office for identification. Last year's extended trapping results showed that there are approximately 2 to 3 SPB generations per year in New Jersey.

The NJFS continues to ground truth aerial survey data to determine areas to be suppressed, salvaged, and restored. Suppression actions were carried out on 336.3 acres of DEP-owned lands using the cut-and-leave (68.1 acres) and cut-and-remove (268.2 acres) methods. State in-house sawyer crews conducted the cut-and-leave suppression and contract vendors conducted the cut-and-remove suppression. Suppressed sites are monitored for SPB breakouts after cutting takes place.



An area that received a cut-and-remove suppression treatment for southern pine beetle.

Sirex Woodwasp

The NJFS deployed eight traps to detect Sirex woodwasp (*Sirex noctilio*) in the northern region. In addition, the USDA APHIS and The State University of New York deployed approximately 30 traps throughout the State. This survey was performed from June through mid-November. The traps were checked and the insects were collected every 2 weeks and forwarded to the U.S. Forest Service Morgantown Field Office for identification purposes. Traps are located in red, Scotch, and pitch-shortleaf pine stands.

Asian Longhorned Beetle

The USDA APHIS Plant Protection and Quarantine unit continues to survey host trees of the Asian longhorned beetle (*Anoplophora glabripennis* Motschulsky) using bucket trucks,

climbing, and ground surveys in Union and Middlesex Counties. As of December 1, 2012, no new infestations were found as a result of the 2012 tree surveys.

Gypsy Moth

Gypsy moth (*Lymantria dispar* L.) activity remains low in 2012 and appears to continue to be decreasing when compared to 2011. Based on the New Jersey Department of Agriculture's aerial survey detection program, approximately 1,000 acres were defoliated by gypsy moth in 2012, a 300-acre drop from 2011. Egg mass surveys on nine DEP-owned lands (including State Parks and Forestry parcels, Wildlife Management Areas, and Nature Land Trust Preserves) in Atlantic, Burlington, Monmouth, Hunterdon, Sussex, and Warren Counties indicate that a suppression program is not necessary for 2013 due to the low incidence of active egg masses. The Japanese fungus (*Entomophaga maimaiga*) and the nucleopolyhedrosis virus (NPV) may have played a role in reducing gypsy moth populations over the last few years.



Gypsy moth defoliation damage.

Emerald Ash Borer (EAB)

In the summer of 2012, the NJFS worked cooperatively with the New Jersey Department of Agriculture (NJDA) to deploy approximately

450 purple triangular emerald ash borer (*Agrilus planipennis* Fairmaire) traps statewide. The traps were placed in ash trees that were accessible by car or foot. The NJFS was responsible for hanging 78 of those traps on state-owned lands. Personnel from the New Jersey Division of Fish and Wildlife and Forest Stewardship Program Woodland Steward Volunteers also helped the NJFS with deploying traps. Personnel deployed the traps in May/June, inspected and changed the lure in June/July, and inspected and took down the traps in August. All suspect insects were submitted to the NJDA for identification. No EAB were detected. The NJFS is working cooperatively with the NJDA to prepare an EAB Readiness Plan in the event EAB is found in New Jersey.

Beech Bark Disease (BBD)

American beech grows on approximately 205,000 acres throughout New Jersey. The majority of beech trees grow in northern New Jersey, and there is a beech component in the southern half of the State along the Delaware River corridor. Based on recent field observations, beech bark disease (*Neonectria coccinea* var. *faginata*) was found in Sussex and Passaic Counties, but not as extensively as expected. BBD-infested trees are scattered among clean beech trees or beech trees with trace amounts of scale. Beech trees inspected on State and county lands in Warren, Hunterdon, Mercer, Monmouth, Morris, Somerset, and Union Counties did not show signs of BBD or scale. However, one site in Burlington County had trace amounts of scale with no BBD; the other sites in Burlington County had no signs of BBD or scale. Plant pathologist Alan Iskra from the U.S. Forest Service Office in Morgantown, WV, helped with the BBD field surveys. Potential BBD-resistant trees were identified and will be revisited in the future. Field surveys will continue to be used to determine the extent of BBD in New Jersey and the BBD "transition zone."



Beech bark disease in Ringwood State Park in Passaic County.



Beech bark disease fungal fruiting bodies of *Neonectria*.

Hemlock Woolly Adelgid (HWA)

It appears that the hemlock woolly adelgid (*Adelges tsugae* Annand) populations in 2012 are continuing to decrease or remain static. In addition, aerial surveys were conducted in the summer of 2012 to assess hemlock in the northern half of the State. Flight data indicated the presence or absence of hemlock and overall health condition. Using the results of the ground assessments and aerial flight data, a statewide hemlock resource recovery plan will be developed.

Since 2005, the NJDA has released the predatory beetle, *Laricobius nigrinus*. However, in 2011 and 2012, no *L. nigrinus* beetles were released because the recovery of *L. nigrinus* in the spring of 2012 indicated that populations were successfully overwintering and reproducing. The NJDA has applied for a USDA APHIS Plant Protection and Quarantine permit to release *Scymnus coniferarum* next year. *S. coniferarum* is an active predator of HWA during summer months while *L. nigrinus* is more active in the fall and winter months.

The NJFS treated 75 hemlock trees in Ringwood State Park, Stokes State Forest, and Swartswood State Park using CoreTect tablets. These trees will continue to be monitored for treatment success. The NJFS is seeking additional sites to continue HWA treatments in the spring of 2013.



Hemlock woolly adelgid *sistens* on hemlock.

Bacterial Leaf Scorch (BLS)

The NJFS continues to observe bacterial leaf scorch (*Xylella fastidiosa*) damage; however, central and southern New Jersey were heavily impacted this year. Additional areas may have also been impacted but were not observed, particularly in the northern portion of the State. Two oak trees in Hunterdon County tested positive for BLS. In 2011, a 36-acre silvicultural treatment area in Belleplain State Forest was completed. This treatment was designed to evaluate the effect of a sanitation cut that removes BLS-infected trees on the health and condition of residual trees over time. A first 5-year evaluation will be conducted to determine the efficacy of the silvicultural treatment.



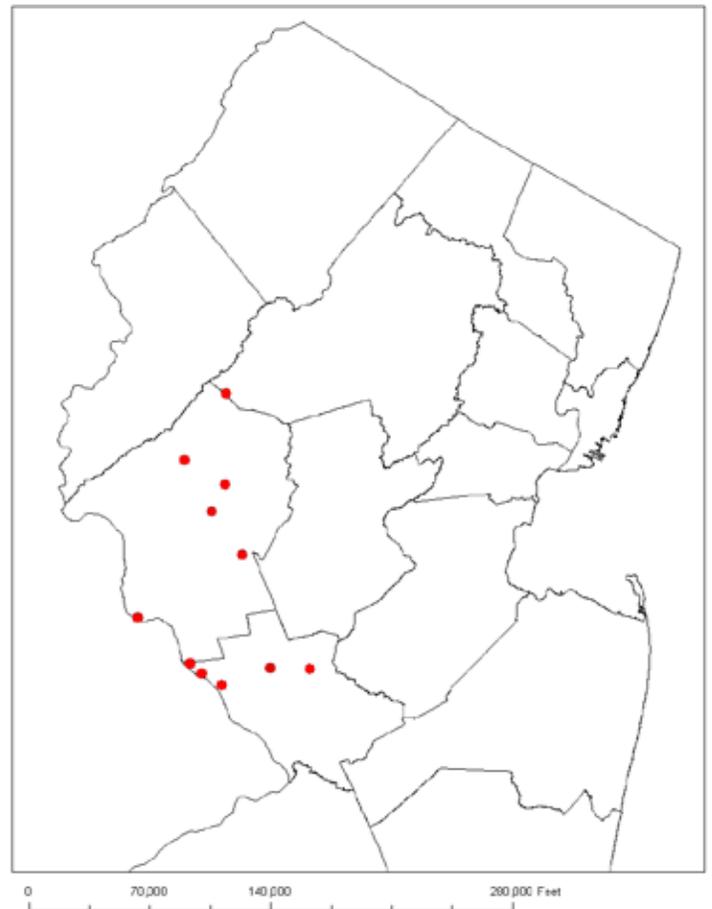
Tree exhibiting symptoms of bacterial leaf scorch in Hunterdon County.



Bacterial leaf scorch on a tree in Hunterdon County.

Thousand Cankers Disease (TCD)

Although thousand cankers disease (*Geosmithia morbida*) has not been detected in New Jersey, TCD was detected in Bucks County, Pennsylvania, in 2011. Due to the proximity of this detection to New Jersey, the U.S. Forest Service set up 11 traps for the walnut twig beetle in Mercer County (5 traps) and Hunterdon County (6 traps) in March and July 2012. 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.



Walnut twig beetle trap locations in New Jersey.

Pine Looper

Pine looper damage was predominantly observed in Ocean and Burlington Counties; however, additional areas that may have also been impacted by the pine looper were not observed. The last recorded incident was in 1997/1998 when over 375,000 acres were impacted.

Storm Damage

In the summer of 2012, a derecho, or a straight-line wind storm, moved through South Jersey from Salem County to Atlantic County, hitting parts of Cumberland and Cape May Counties. This storm was several miles wide, and the swath of destruction impacted several State parks and forests, including Parvin State Park and Belleplain State Forest. Damage in these areas was severe enough to close the park and forest until hazard trees were assessed and removed. Most of the damage included blowdown, snapped trees, and broken branches. Other state-owned lands, including Wildlife Management Areas, and private properties were also impacted, but an assessment was not conducted in these areas.

In October 2012, Superstorm Sandy hit the coast and impacted much of the State. The areas along the coast incurred severe damage from wind and flooding. Many trees were blown over, and tree damage from saltwater intrusion is still yet to be seen in flooded areas, particularly Atlantic white cedar stands that cannot tolerate any salt water. The inland areas, particularly north and central New Jersey, incurred damage from excessive wind that caused trees to blow down and branches to break. Much of the storm damage in northern and central New Jersey occurred in pine or spruce plantations, or to tree species that retained their leaves such as oak and beech. The extensive damage in pine stands has the potential to attract native and exotic invasive species, such as *Sirex* woodwasp, due to the increase in terpenes and other chemical attractants. Continual monitoring in these areas will be necessary.

In December 2012, the NJFS conducted an aerial survey of priority forested woodland areas. The aerial survey covered 55,000 acres within 7 State parks and forests (Abram S. Hewitt State Forest, High Point State Park, Norvin Green State Forest, Stokes State

Forest, Washington Crossing State Park, Wawayanda State Park, and Worthington State Forest) in Sussex, Passaic, Warren, and Mercer Counties. In these areas alone, over 4,500 acres were damaged: 2,396 acres had 15-25 percent forest cover damage, 1,794 acres had 26-50 percent forest cover damage, and 314 acres had 51-100 percent forest cover damage. Storm damage in other areas has not been aerially surveyed by the NJFS but has been assessed on the ground. Salvage and utilization efforts of blown down and broken-topped trees for homeowners or commercial contractors are in progress to help with cleanup and restoration efforts after the storm. Cleanup in some areas is still in progress.



Tree damage from the 2012 Derecho in Parvin State Park in Salem County.



Superstorm Sandy tree damage at Hacklebarney State Park in Morris County.



Superstorm Sandy tree damage off of Oak Ridge Road in Passaic County.



Aerial photo of Superstorm Sandy tree damage in a conifer stand in northern New Jersey.

References

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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March 2013