

2011 Forest Health PENNSYLVANIA highlights



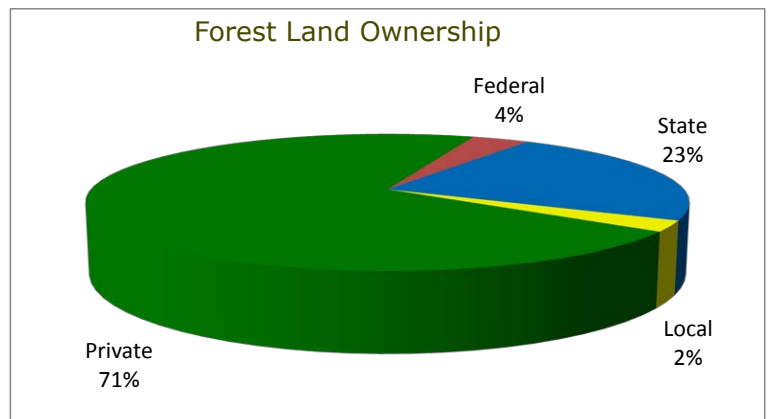
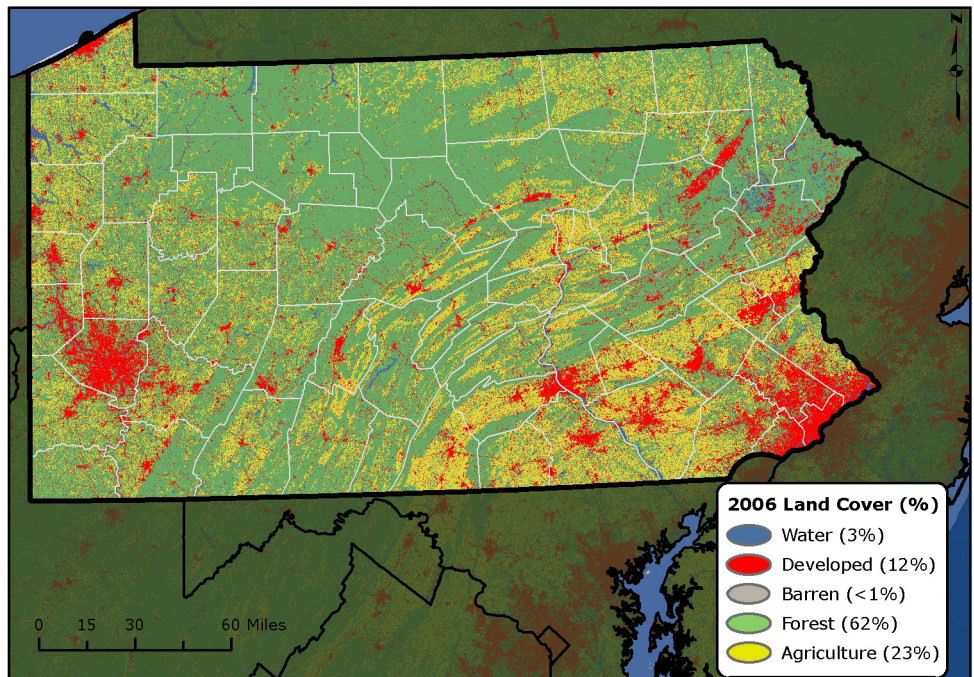
The Resource

Pennsylvania covers a land area of 25,333 square miles and is 59 percent forested. Seventy-five percent of the forest land in the State is privately owned by 513,900 landowners. Yet with a population of 12 million people, forest landowners account for only 4 percent of the total population. Forests provide timber, watershed protection, wildlife habitat, and recreational benefits for all Pennsylvanians.

Weather Conditions

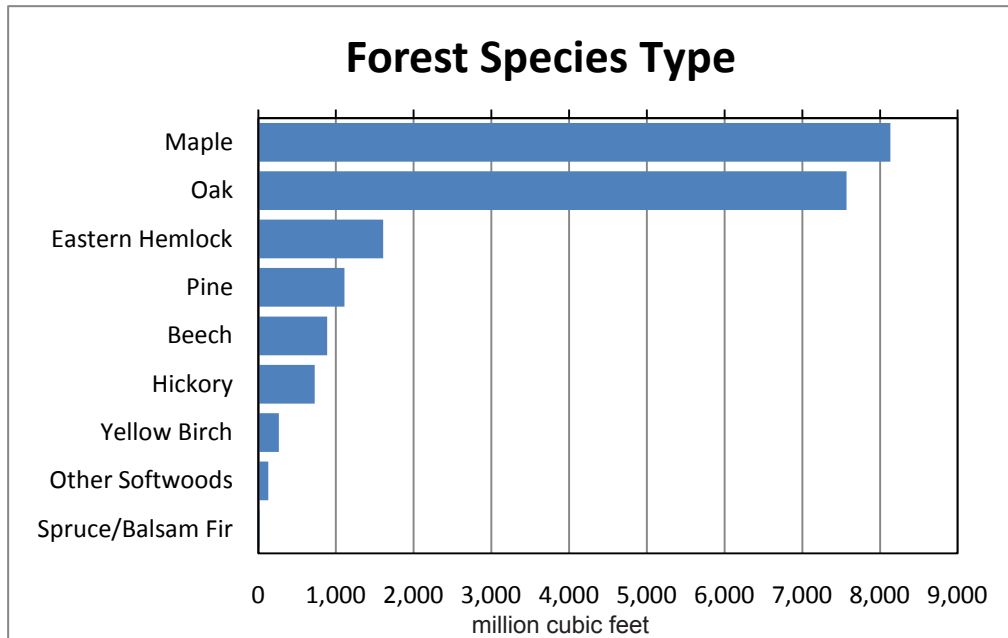
Pennsylvania weather conditions for 2011 can be summarized as excessively wet in most areas during the entire growth period from April 1 through November 6. Precipitation amounts ranged from 13 percent to 57 percent above normal with northwestern Pennsylvania on the low end of excess range and the north-central region on the high end of the excess range. Days of precipitation for this

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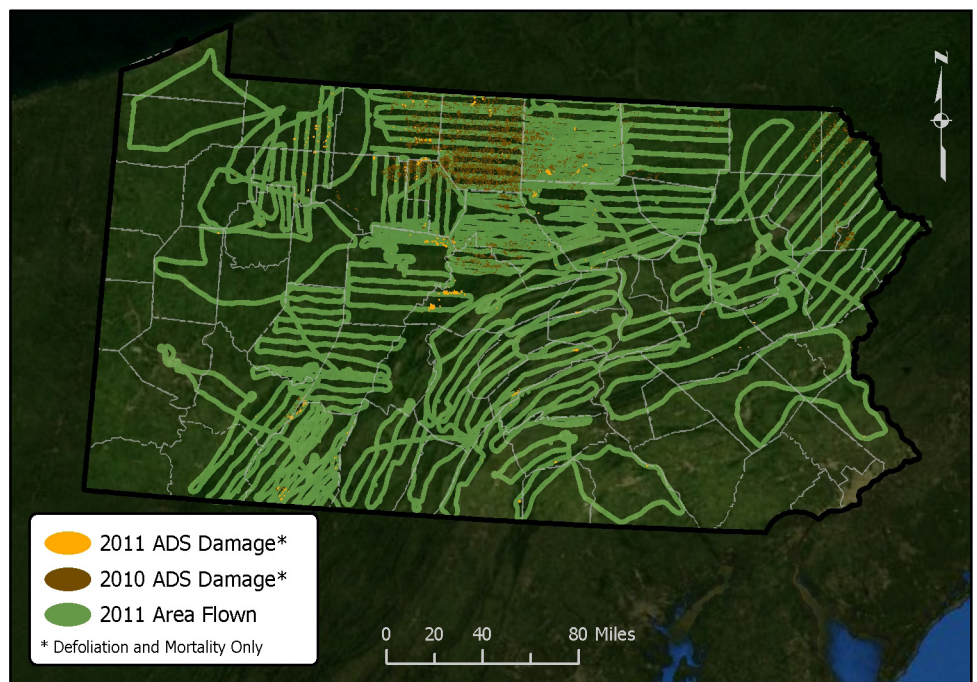
Forest Health Programs

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.



Aerial Surveys

Of the acreage flown in the aerial detection survey for Pennsylvania in 2011, 49,942 acres of damage were recorded. Most of the damage (21,166 acres, or 42 percent) was caused by a cynipid gall wasp. Gypsy moth damaged 9,369 acres, and hardwood anthracnose affected 7,505 acres. Additional acreage was damaged by the forest tent caterpillar (7,036 acres), tornado winds (2,213 acres), an unknown defoliator (1,532 acres), and hemlock woolly adelgid (774 acres).



This map delineates aerial detection survey (ADS) results for Pennsylvania in 2011 and 2010.

Weather Conditions *(continued from page 1)*

time period ranged from 35 percent (77/220 total days) to 62 percent (137/220 total days), making 2011 the wettest on record.

However, a severe period of drought from mid-July through mid-August was observed in Potter and Tioga Counties where understory beech brush, fern, and stinging nettles exhibited severe wilt and sapling mortality. Similarly, mortality in sugar maple stands defoliated in 2009 and 2010 along with drought stress in 2011 was noted by mid-September across the northern sector of both counties.

Hurricane Irene brought historic flooding to northeastern and central Pennsylvania, with massive wind and flood damage to urban forests in many communities along the Susquehanna River. A snowstorm in late October created significant crown damage and tipped over many trees along forest roadways.

Forest Pest Issues

Pennsylvania forests were generally healthy in 2011 thanks to the population crash of the forest tent caterpillar in northern counties and fall cankerworm in Westmoreland and Somerset Counties as well as the low populations of gypsy moth across the State. Only 28,000 acres of forests were defoliated this year compared to 520,000 in 2010. Major defoliators included the jumping oak gall *Neuroterus saltarius* (Edwards) (Hymenoptera: Cynipidae) on white oak and anthracnose on oaks and maples. Tree mortality was observed in 23,000 acres of forests, the result of forest tent caterpillar defoliation in 2010 and a gypsy moth outbreak in 2008. On the other hand, emerald ash borer continues its expansion to the northeast, and thousand cankers disease was first confirmed in Bucks County.

Gypsy Moth

There was minimal defoliation and no spray program in 2011.

Hemlock Woolly Adelgid

As of November 2011, 53 counties in Pennsylvania have been infested by the hemlock woolly adelgid (HWA). Indiana County was confirmed as positive when a new infestation was found this year. We continued our detection survey in 16 counties along the leading edges in the west. In addition, population suppression through chemical treatment is being conducted on 1,200 acres of hemlock forests in 74 selected sites. A total of 11,000 trees with an accumulated diameter at breast height of 128,000 inches will be treated by the end of the year. A total of 774 acres of HWA caused mortality were observed.



Hemlock woolly adelgid.

Emerald Ash Borer

An integrated pest management (IPM) project was implemented at a selected site using limited tree removal, chemical control with Tree-äge, and biological control with three hymenopteran parasitoids: *Tetrastichus planipennisi* Yang (Eulophidae), *Spathius agrili* Yang (Braconidae), and *Oobius agrili* Zhang & Huang (Encyrtidae). Parasitoids were also released at two additional sites. Overall, 17 infested ash trees were removed and 249 trees were chemically treated through trunk injection at the IPM site, with more than 14,000 parasitoids introduced to all three study sites.



An emerald ash borer adult on a penny.

Exotic Bark Beetles

We participated in the multistate early detection and rapid response project for the second year, with over 9,000 specimens collected from 12 sites over the 12-week period. Preliminary results showed that *Xylosandrus germanus* Blandford and *Anisandrus sayi* Hopkins dominated the collections, with no detection of *Pityophthorus juglandis* Blackman or *Anisandrus maiche* Eggers.

Asian Longhorned Beetle

A zip code-based firewood survey was initiated last year and continued in 2011 to survey for the Asian longhorned beetle (ALB). A total of 548 host trees (mostly maple) from 84 campsites in 29 State Parks were visually inspected. No ALB infestation has been detected so far.

Disease Conditions

Anthracnose

Anthracnose was observed across the Commonwealth. In addition to the usual sycamore infestation, most oak groups and maples were also infested. Anthracnose symptoms were most noticeable during the spring growing season. A total of 7,505 acres were observed to be defoliated.



Anthracnose on sycamore.

Sudden Oak Death

Thirty-five surveillance plots have been established in 23 counties in Pennsylvania to detect *Phytophthora ramorum*, the causal agent of sudden oak death. Ninety-eight samples from these plots were tested for *P. ramorum* and were all found to be negative.

Thousand Cankers Disease

This pathogen was detected and confirmed on black walnut branch samples from Bucks County north of Doylestown. An internal quarantine has been established by the Pennsylvania Department of Agriculture to restrict movement of any black walnut wood, bark, and by-product from Bucks County. Regulatory and natural resource professionals have implemented detection surveys in adjacent counties to monitor and report on the distribution of the insect vector and disease.

For More Information

2011 Pennsylvania Forest Health Report

http://www.dcnr.state.pa.us/ucmprd1/groups/public/documents/document/dcnr_009463.pdf

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.

Photo Credits

Hemlock Woolly Adelgid: Michael Montgomery, USDA Forest Service, Bugwood.org

Emerald Ash Borer: Howard Russell, Michigan State University, Bugwood.org

Anthraxnose: Clemson University - USDA Cooperative Extension Slide Series, Bugwood.org



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