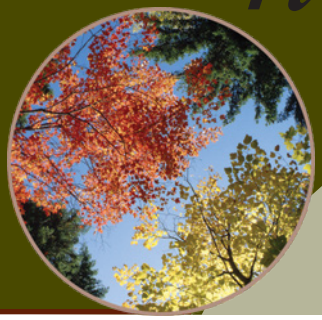
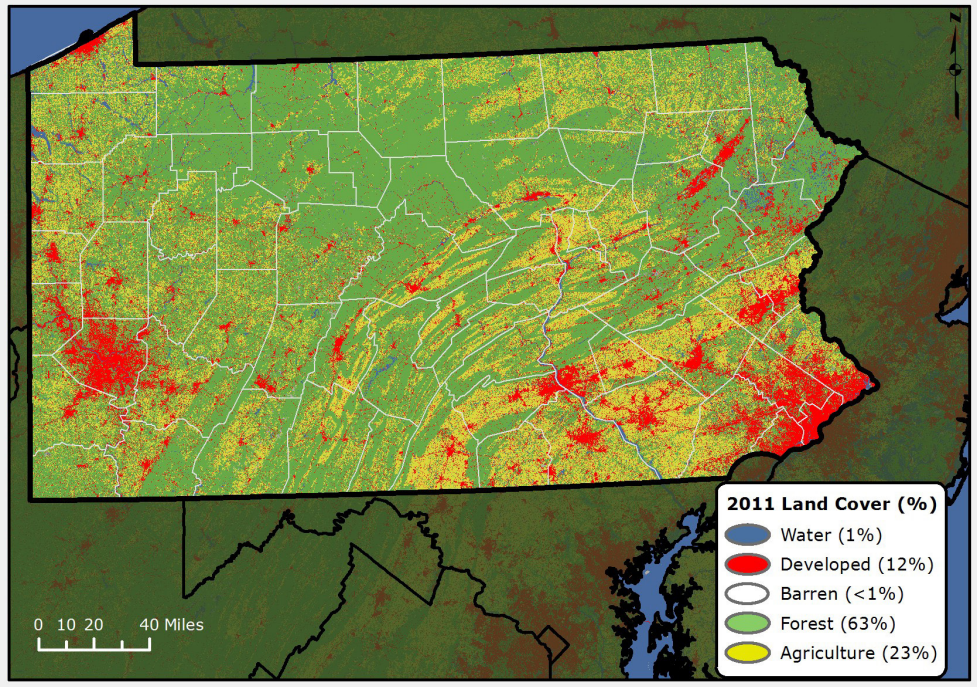
2014 Forest Health highlights

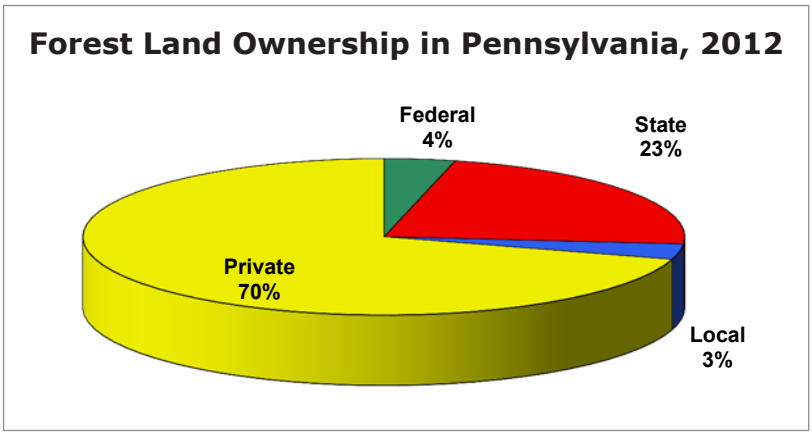
PENNSYLVANIA



Forest Resource Summary

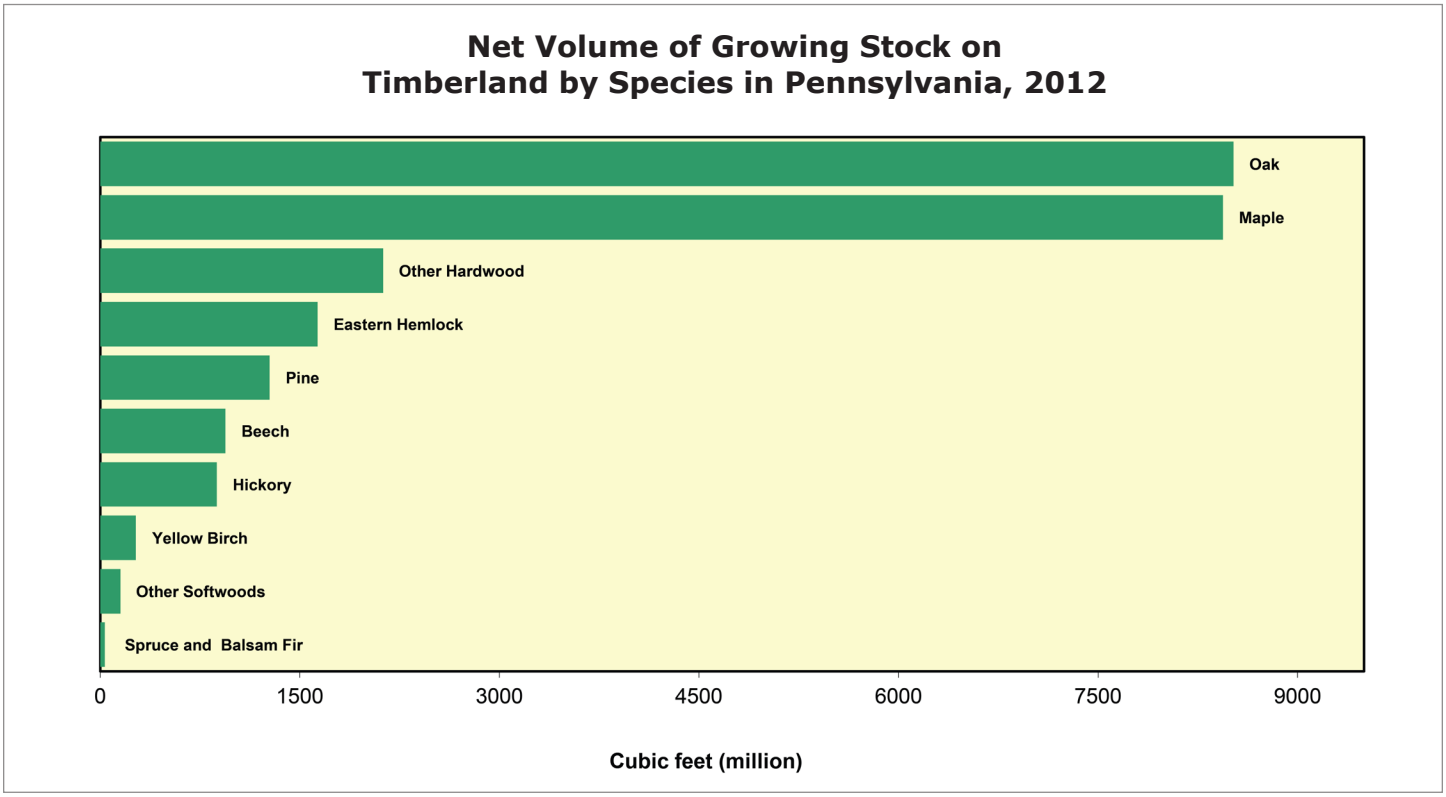
Pennsylvania covers a land area of 25,333 square miles and is 63 percent forested. Seventy percent of the forest land in the Commonwealth is privately owned by 750,000 landowners. Yet in a population of 12 million people, forest landowners account for only 6.25 percent of the total population. Forests provide timber, watershed protection, wildlife habitat, and recreational benefits for all Pennsylvanians.





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.



Weather Conditions

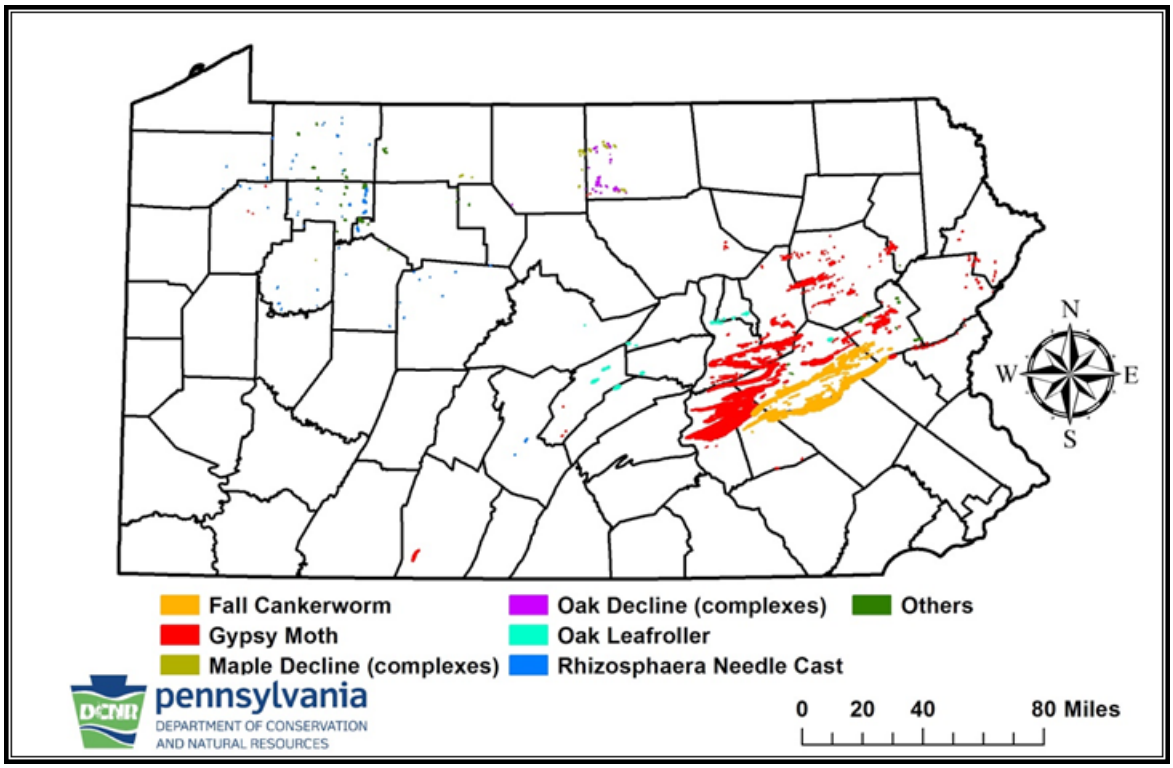
2014 Weather Impacts on Forest Health

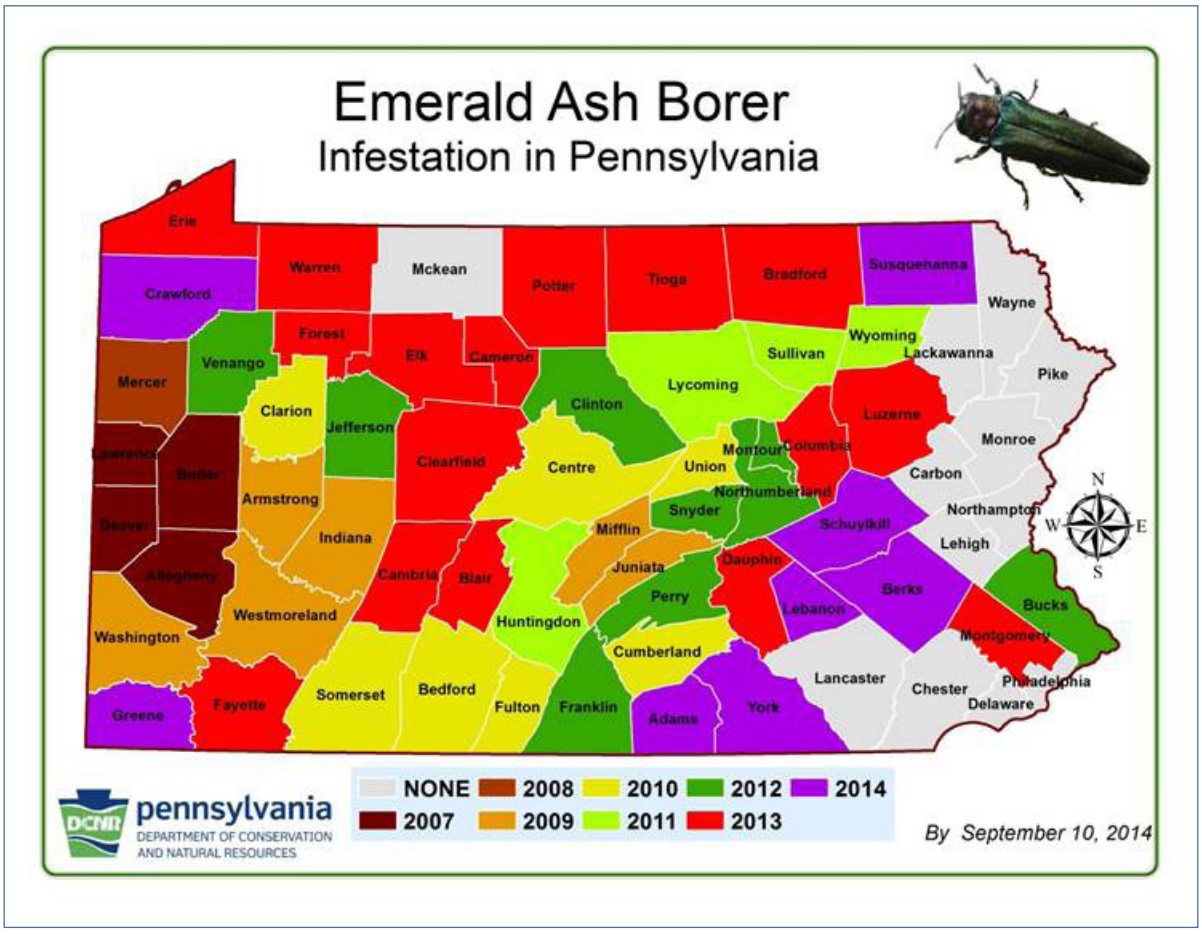
The winter of 2013–2014 tended to be colder than normal. Cumulative snowfall was normal or above normal, providing adequate soil moisture throughout the Commonwealth. Weather conditions in early spring through June tended to be wetter than normal. Conifer foliage diseases prevailed across the northern tier and the northwestern regions of the Commonwealth. Large numbers of pines (i.e. *Pinus sylvestris*, *P. nigra*, *P. resinosa*, and *P. strobus*) and spruces (i.e. *Picea pungens* and *P. abies*) exhibited severe needle cast, tip blight, and crown and branch dieback and mortality. In addition, cherry leaf spot (*Blumeriella jaapii*) on black cherry trees was also prevalent in Potter and Tioga Counties. GDD50 (Growing Degree Day above 50 ºF) accumulations at the end of the growing season were 4 percent to 7 percent above normal across the Commonwealth as compared to 2013. Precipitation totals as compared to 2013 tended to be above normal in the northwest (6 percent), north-central (10 percent), west-central (13 percent), and central (14 percent) regions, and were somewhat below normal in the east and southern tier of the Commonwealth with soil moisture remaining adequate in most areas (map next page).

Insect Pests

Emerald Ash Borer (EAB)

Emerald ash borer continues its expansion to the east and northeast with eight new Pennsylvania counties infested in 2014 (Adams, Berks, Crawford, Greene, Lebanon, Schuylkill, Susquehanna, and York). EAB has been found in 55 of 67 Pennsylvania counties as of October 15, 2014 (map next page).


N
W
E
S
Fall Cankerworm
Gypsy Moth
Maple Decline (complexes)
Oak Decline (complexes)
Oak Leafroller
Rhizosphaera Needle Cast
Others
pennsylvania
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
0 20 40 80 Miles


Emerald Ash Borer
Infestation in Pennsylvania
Erie
Warren
Mckean
Potter
Tioga
Bradford
Susquehanna
Wayne
Crawford
Forest
Elk
Cameron
Wyoming
Sullivan
Lackawanna
Pike
Mercer
Venango
Clarion
Jefferson
Clinton
Lycoming
Luzerne
Monroe
Lawrence
Butler
Clearfield
Centre
Montour
Columbia
Union
Carbon
Armstrong
Northumberland
Snyder
Northampton
Beaver
Indiana
Mifflin
Schuylkill
Lehigh
Allegheny
Cambria
Blair
Juniata
Dauphin
Perry
Berks
Bucks
Westmoreland
Huntingdon
Lebanon
Washington
Cumberland
Montgomery
Lancaster
Chester
Philadelphia
Delaware
Greene
Fayette
Somerset
Bedford
Fulton
Franklin
Adams
York
N
W
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S
NONE
2007
2008
2009
2010
2011
2012
2013
2014
pennsylvania
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
By September 10, 2014

The Pennsylvania Bureau of Forestry's Division of Forest Pest Management continued releasing EAB biological control agents by releasing a total of 23,287 *Tetrastichus planipennisi*, 8,541 *Oobius agrili*, and 400 *Spathius agrili* at three selected sites.

EAB Management Training Sessions

EAB workshops were scheduled and completed at four locations in 2014. A total of 237 people registered for the workshops, ranging from 50 to 65 people per workshop. Meeting attendees included Federal/State/local officials, pesticide applicators, foresters, tree care professionals, arborists, landscapers, conservationists, and woodland and homeowners. Information presented at the workshops on EAB and its management, as well as potential impact on ash resources, was well received by all attendees. The overall quality of the invited speakers and organization of the meetings helped generate a considerable amount of positive feedback and comments.

State Ash Management Plan

A 10-year (2014–2023) State Forest Ash Management Plan was developed in 2014 to protect the ash resources in Pennsylvania with the following objectives: 1) managing ash as a component in the forest, 2) protecting endangered ash species, 3) mitigating potential negative impacts, 4) conserving economic value through silviculture, 5) managing seed orchards and collecting seeds, and 6) conducting training and public outreach. This plan is being carried out on State forest land beginning in June 2014, with six forest districts and Penn Nursery participating. Approximately 400 significant ash trees in strategic locations have been chemically protected so far; 101 MBF of ash logs have been salvaged in the Tuscarora District. In addition, three issues of the Bureau of Forestry's "State Forest Ash Management Newsletter" have been published to facilitate implementation and coordination within the Bureau.

Hemlock Woolly Adelgid

HWA suppression continued in State parks and State forests in 12 counties. A total of 5,594 trees (74,835 inches d.b.h.) in 635 acres were treated with imidacloprid (Xytect 75WSP and CoreTect) or dinotefuran (Safari 20SG).

The **HWA leading edge** survey continued in 19 counties surveyed in 2014. A total of 182 sites in 18 counties were examined thus far, with 27 positive detections in 8 counties.

HWA Biological Control

A total of 500 *Laricobius osakensis* were released in Sinnemahoning State Park for HWA biological control. Beetles were from laboratory colonies at Virginia Polytechnic Institute.

Gypsy Moth

The operational period for the 2014 gypsy moth suppression program was May 24 through May 29 with aerial applications conducted in four counties: Clarion, Clearfield, Crawford, and Venango. A total of 42 spray blocks totaling 1,901 acres were treated with *Bacillus thuringiensis* var. *kurstaki* (Btk) (Foray® 76B) undiluted at a dose of 38 CLU/acre in a single application at a rate of ½ gallon per acre. Participants included Clearfield County, Crawford County, Venango County, and the Pennsylvania Association of Conservation Districts. All lands treated were private residential forests or Forest Stewardship lands. State, county, and Federal governments shared the expense of this program. Participating counties contributed $25 per acre toward the treatment of private and county/municipal forest lands, raising the monies through landowner assessments.

Ten of the 42 spray blocks were sampled for post-treatment evaluation. All of the evaluated treatment sites met the criteria for success.

Pathology Section

Conifer Blights

Moist conditions may have contributed to significant levels of conifer needlecasts and twig and branch dieback of blue spruce, Scotch pine, and black or Austrian pine. *Rhizosphaera* needlecast and *Sphaeropsis* twig blight activity were evident. Old abandoned Christmas tree plantations and residential plantings were more likely to exhibit damage across the northern tier. The Pennsylvania State University and the Pennsylvania Department of Agriculture have detected *Stigmina lautii* associated with needlecast on Norway and blue spruce, which is very similar to *Rhizosphaera* but may be more virulent.

Excess soil moisture conditions may have contributed to conifer mortality in residential and low-lying landscape positions along with salt injury associated with aerosol sprays and osmotic shock to roots.

Thousand Cankers Disease (TCD)

Ongoing surveys in Bucks County for walnut twig beetle (WTB, *Pityophthorus juglandis*) and the fungal causal agent of TCD (*Geosmithia morbida*) were conducted at 14-day intervals from April through early November. In 2014, WTB was detected at two locations where the insect vector has been active since 2011. The Pennsylvania Department of Agriculture verified two new detections of WTB with TCD in Chester and Lancaster Counties. The WTB/TCD quarantine has been expanded to Bucks, Chester, Delaware, Lancaster, Montgomery, and Philadelphia Counties.

Beech Scale Resistance

Assessment of beech scale challenge tests led to scion collection from 15 American beech trees from State Forest Districts 8, 9, 13, and 15 representing Clarion, Clearfield, Cameron, and Potter Counties. These sources of beech families resistant to *Cryptococcus fagisuga* scale will eventually be added to the scale-resistant American beech seed orchard that has been established near the Moshannon State Forest District Office.

Butternut Conservation

A butternut seed orchard at the Penn Nursery (Greenwood Furnace Seed Orchard) received grafted materials representing 12 Pennsylvania sources of *Juglans cinerea*. Eventually these plantings will produce certified *J. cinerea* seeds and seedlings for conservation plantings; they will also support breeding programs for disease resistance screening to butternut canker diseases.

Oak Mortality

Oak decline and subsequent mortality in Tioga, Potter, and Cameron Counties have extended in area. Continuous declines have been observed in south-central and southeastern Pennsylvania in previous years, but the recent incidence was mapped in a relatively new area in the north-central region of the Commonwealth.

References

Land Cover Map:

Jin, S.; Yang, L.; Danielson, P.; Homer, C.; Fry, J.; Xian, G. 2013. A comprehensive change detection method for updating the National Land Cover Database to circa 2011. Remote Sensing of Environment. 132: 159–175.

Forest Land Area by Ownership:

Oswalt, Sonja N.; Smith, W. Brad; Miles, Patrick D.; Pugh, Scott A. 2014. Forest resources of the United States, 2012: a technical document supporting the Forest Service 2015 update of the RPA Assessment. Gen. Tech. Rep. WO–91. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. Table 2.

Net Volume of Growing Stock on Timberland by Species:

Oswalt, Sonja N.; Smith, W. Brad; Miles, Patrick D.; Pugh, Scott A. 2014. Forest resources of the United States, 2012: a technical document supporting the Forest Service 2015 update of the RPA Assessment. Gen. Tech. Rep. WO–91. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. Table 23 & 24.

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