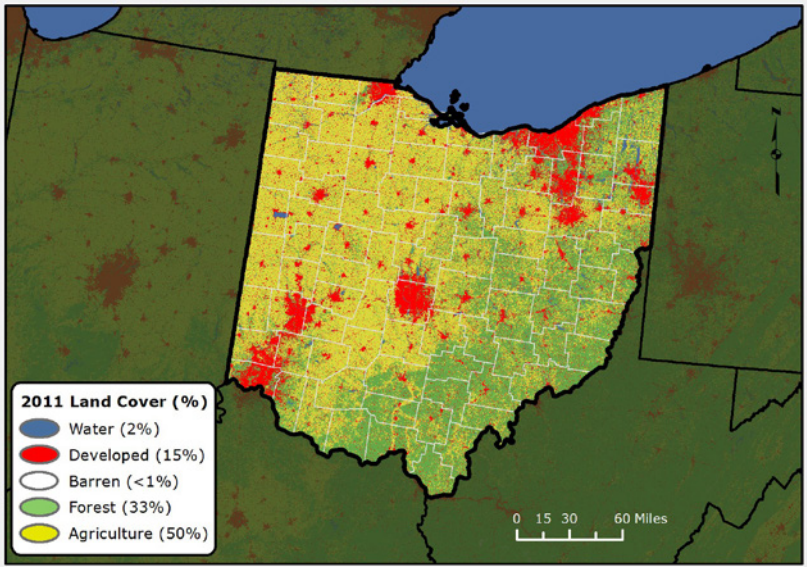
USDA
United States Department of Agriculture

2017 Forest Health highlights

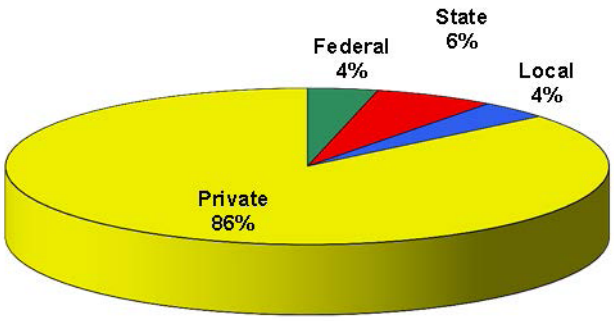
OHIO

Forest Resource Summary

Ohio encompasses 26,209,700 acres, 30.5 percent of which are forested, not including the urban forest. Forests have increased dramatically since 1940, including an increase from 7.1 to 8.0 million acres since the late 1970s. Ohio's forests are 85 percent privately owned. The predominant forest type group is oak-hickory, which occupies 63 percent of Ohio's forest land. Ohio's forest industries contribute more than $22 billion to the State's economy. The Ohio Department of Natural Resources Division of Forestry manages 21 State Forests totaling more than 200,000 acres.



Forest Land Ownership in Ohio, 2012

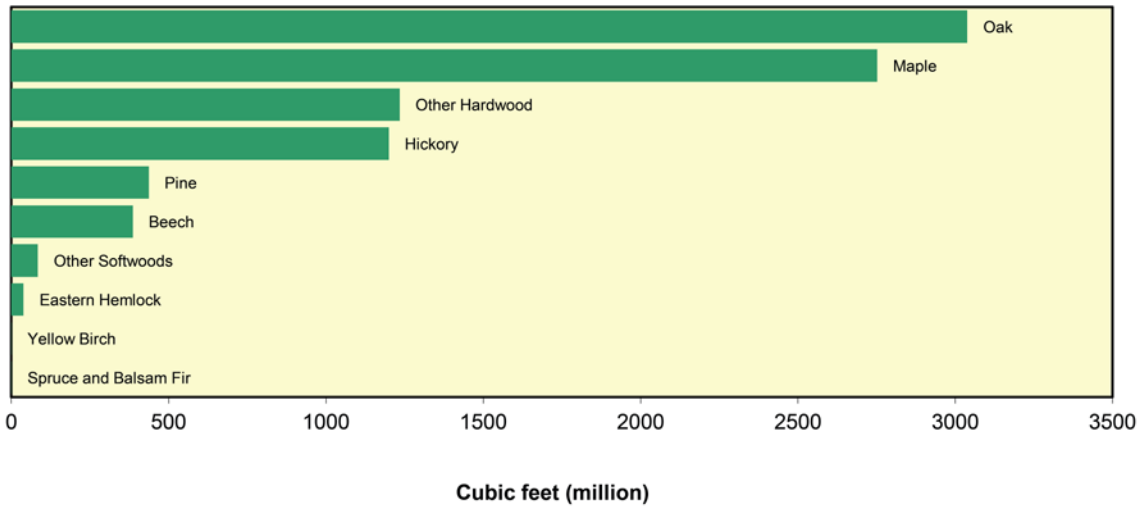


Forest Service
Northeastern Area
State and Private Forestry

Ohio Department of Natural Resources
Division of Forestry

May 2018

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



Forest Health Surveys

Each year, the Ohio Division of Forestry conducts an aerial survey over the majority of the State to survey Ohio's forest health using Ohio Division of Wildlife aircraft. This year's survey began on May 30 and concluded on June 29. Flight lines were flown in an east-to-west direction with a spacing of about 4 miles. Each flight day, two observers were equipped with digital mobile sketchmap (DMSM) tablet computers containing a GIS/GPS mapping system. The observers identified 178 different sites on a total of 11,371 acres that had discoloration, defoliation, or mortality. Ohio Division of Forestry staff inspected 136 of these sites on the ground. The top five damage-causing agents and associated acreage are in the accompanying table.

Damage-causing agent	Acres
Emerald ash borer	2,625
Flooding	1,676
Diplodia tip blight	1,122
White pine decline	379
Oak decline	176

Wildland Fire Management

The Ohio Division of Forestry is the lead agency in Ohio for wildland firefighting training, suppression assistance for large incidents, prevention activities, and prescribed fire management. On average, approximately 500 wildfires are reported on 3,000 acres in Ohio each year. Due mostly to favorable weather conditions, the total for 2017 was less than half of that average. Timber revenues from State Forests help support wildland fire suppression costs for rural fire departments. The Ohio Division of Forestry also utilizes Federal funding for pass-through

opportunities for rural fire departments. This includes Volunteer Fire Assistance grants, utilizing State Fire Assistance funds from the U.S. Forest Service for prevention and mitigation activity support, and utilizing the Federal Excess Personal Property and Firefighter Property Programs to provide fire and emergency operations equipment to fire departments. Prescribed fire is used for both prairie and forest management in Ohio. The Ohio Division of Forestry issues waivers to Ohio's burn law to allow for prescribed burning and administers the training and certification program for prescribed fire managers. In 2017, the Ohio Division of Forestry recorded more than 6,000 acres of prescribed fire management on more than 175 individual sites.

Special Issues

Beech Leaf Disease

Decline of American beech (and potentially several other non-native beech species) has been documented in northeastern Ohio since 2012. The causal agent has yet to be identified. This decline is being referred to as beech leaf disease (BLD), which was first noted in Lake County and is now known to be present in nine northeastern Ohio counties, seven northwestern Pennsylvania counties, one southwestern New York county, and the Canadian province of Ontario. Symptoms are first noticeable as dark interveinal striping on leaves that progress over a period of one or more years to stunted and distorted leaves, reduced leaf and bud production, and branch dieback. Mortality of understory trees and saplings has been documented. Several plant pathologists and researchers with the U.S. Forest Service, Ohio State University, and State and local agencies and organizations are working to process samples to identify a causal agent, document the spatial extent of BLD, and study symptom progression. The Ohio Division of Forestry is planning to monitor for BLD on State Forests.

Striped leaf symptom of beech leaf disease. (Courtesy photo by Ohio Division of Forestry)

Forest Pest and Disease Issues

Hemlock Woolly Adelgid

In 2012, hemlock woolly adelgid (HWA) was discovered in southeast Ohio in Shade River State Forest (Meigs County), the first detection of HWA in a natural stand of eastern hemlock. Since 2012, HWA infestations have been discovered in eight southeastern Ohio counties. Since 2013, the Ohio Division of Forestry, with assistance from several governmental and nongovernmental partners, has protected more than 2,200 eastern hemlock trees with insecticide (370 trees treated in 2017 at the writing of this report). Treatment methods consisted of soil drench, soil tablets, trunk injection, and basal bark spray with imidacloprid, and basal bark spray with dinotefuran. Winter mortality of HWA from 2016-17 was assessed in two locations in southern Ohio. Mortality rates from these locations averaged 8 percent, compared to 28 percent in the winter of 2015-16. Since 2013, the Ohio Division of Forestry and partners have released biocontrol predatory beetles. More than 5,100 beetles (*Laricobius nigrinus* and *L. osakensis*) have been released on HWA-infested trees. These beetles were both collected in the field from North Carolina and Washington and shipped to Ohio from the

Virginia Tech HWA predator beetle rearing facility. Monitoring of treatment success and additional predator beetle releases are expected over the next several months. Continued hemlock surveys are planned for this winter.

Chemical treatment of HWA-infested eastern hemlock tree. (Courtesy photo by Ohio Division of Forestry)

In 2017, another non-native hemlock pest, elongate hemlock scale, was discovered in several locations. In most cases, it is found on planted landscape trees, but a forest infestation has been discovered in Lake County in northeastern Ohio. The Ohio Division of Forestry is working with land managers to develop a treatment strategy. The Ohio Department of Natural Resources Hemlock Conservation Plan was completed in 2017, with the Ohio Division of Forestry as the lead agency (view the plan at ohiodnr.gov/hwa). The plan prioritizes Ohio's hemlock stands and will guide the management of HWA and other hemlock pests in Ohio. The Ohio Department of Agriculture has quarantined all counties with confirmed HWA infestations to prevent the movement of potentially infested hemlock materials out of infested areas.

Elongate hemlock scale. (Courtesy photo by Ohio Division of Forestry)

Asian Longhorned Beetle

In June 2011, an Asian longhorned beetle (ALB) infestation was identified in Tate Township in Clermont County (southwest Ohio). The USDA Animal and Plant Health Inspection Service and Ohio Department of Agriculture have enacted a 62-square-mile quarantine area that is centered over Tate Township, including East Fork State Park and Wildlife Area, to prevent the movement of regulated items, including wood from any hardwood tree species, out of the quarantine area. Surveys as of December 9, 2017, have located 19,050 infested trees out of more than 2.5 million trees surveyed. As of December 9, 18,963 infested trees have been removed. The Ohio Division of Forestry initiated a replanting project in the fall of 2012 to make non-host tree species available to landowners who were impacted by landscape tree removals by the Ohio ALB program. Since the start of this program, approximately 1,600 trees have been distributed.

Tub grinder used by Ohio ALB eradication program to process infested trees into mulch. (Courtesy photo by USDA APHIS)

Emerald Ash Borer

Emerald ash borer (EAB) has been the most devastating forest pest in Ohio in recent years, and quite possibly in history. As of 2016, all 88 of Ohio's counties have confirmed infestations. In northwest Ohio, where EAB was discovered in 2002, the vast majority of native ash species has been killed. Significant mortality of ash is now occurring in central, southwest, and northeast Ohio. In late 2014, a researcher at Wright State University discovered EAB infesting white fringetree. Subsequent experiments have confirmed the ability of EAB to complete its life cycle within white fringetree as well as in cultivated olive. The impact that EAB will have on these tree species needs further research. The Ohio Division of Forestry is working with several partners to monitor native populations of white fringetree in southern Ohio. The Ohio Division of Forestry continues to help woodland owners manage their forests and utilize their ash resources, assist communities that are dealing with current and future EAB issues, and work to increase public awareness about the insect.

Walnut Twig Beetle/Thousand Cankers Disease

In late 2012, walnut twig beetle (WTB), the insect vector of thousand cankers disease (TCD), was caught in Ohio Division of Forestry traps in Butler County (southwest Ohio). The fungal pathogen that causes TCD, *Geosmithia morbida*, was subsequently confirmed from infested trees in Butler County in 2013. In 2014, the known infested black walnut trees were removed and examined as part of a U.S. Forest Service research project. Since 2013, only a single WTB has been caught in a Lindgren funnel trap monitored by the Ohio Department of Agriculture. The Ohio Department of Agriculture has quarantined Butler County to prevent the movement of potentially infested walnut material out of the county. Further research on this pest will help guide future management activities.

Gypsy Moth

The European gypsy moth was less abundant in 2017. In Ohio, gypsy moth occurs in the majority of the eastern half of the State, with the edge of the infested area extending generally from northwest Ohio to southeast Ohio. Fifty-one of Ohio's 88 counties are quarantined by the Ohio Department of Agriculture to prevent the movement of gypsy moth out of those counties. No additional counties were added to the quarantine in 2017. Male gypsy moth catch was down 16% from 2016. The Ohio Department of Agriculture continued its treatment efforts within the Slow the Spread transition zone with two types of treatments occurring in 2017: larvicide (Btk bacterium) and mating disruption pheromone. A total of 3,747 acres were treated with larvicide, and mating disruption pheromone was applied to 89,309 acres. The Ohio Department of Agriculture will continue to monitor gypsy moth populations and assess treatment effectiveness.

Notable Occurrences

Forest Insect Pests

Several pests of oak species were widely reported throughout the State in 2017. Damage by oak shothole leafminer and spiny oak sawfly was very common across Ohio in the spring. While the effects of these fly and sawfly species, respectively, were obvious, they did little or no harm to their host oak species. Oak leaftier caterpillar populations were high on various oak species in many areas of southern Ohio during the summer, but, like the oak shothole leafminer, had little to no effect on tree health. Beech blight aphid populations were very high in the summer of 2017, but caused little to no harm to their American beech host trees. Populations of yellow-poplar weevil, which had significant outbreaks from 2013-2015, were mainly low and caused little to no damage across most of the State in 2017.

Oak leaftier caterpillar. (Courtesy photo by Ohio Division of Forestry)

Non-native Invasive Plants

Non-native invasive plants are a threat to the biodiversity of forests throughout Ohio. Some forests are already declining due to severe infestations of invasive plants such as *Ailanthus*, bush honeysuckles, autumn olive, multiflora rose, and Japanese stiltgrass, while other areas remain largely uninvaded. Aerial mapping of *Ailanthus* in southern Ohio has allowed for targeted treatments to reduce infestations on State Forest, national forest, and neighboring lands. The Ohio Division of Forestry has partnered with researchers from the U.S. Forest Service Northern Research Station to examine the efficacy of *Verticillium nonalfalfae*, a soil-borne fungus, as a potential biocontrol for *Ailanthus*. The Ohio Division of Forestry promotes invasive plant control by working with Ohio's Cooperative Weed Management Areas and Cooperative Invasive Species Management Areas and on private land through its Service Forestry Program and other outreach events.

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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.

U.S. Department of Agriculture
Forest Service
Northeastern Area
State and Private Forestry
11 Campus Blvd., Suite 200
Newtown Square, PA 19073
https://www.fs.usda.gov/naspf/

Forest Health Protection
Northeastern Area
State and Private Forestry
180 Canfield Street
Morgantown, WV 26505
304–285–1545

Ohio Department of Natural Resources
Division of Forestry
2045 Morse Road Building
H–1 Columbus, OH 43229–6693
614–265–6694
http://forestry.ohiodnr.gov/