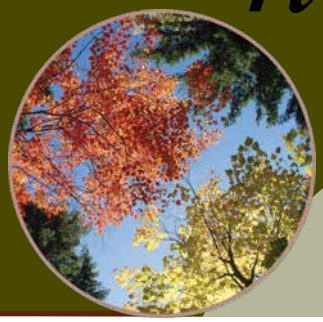
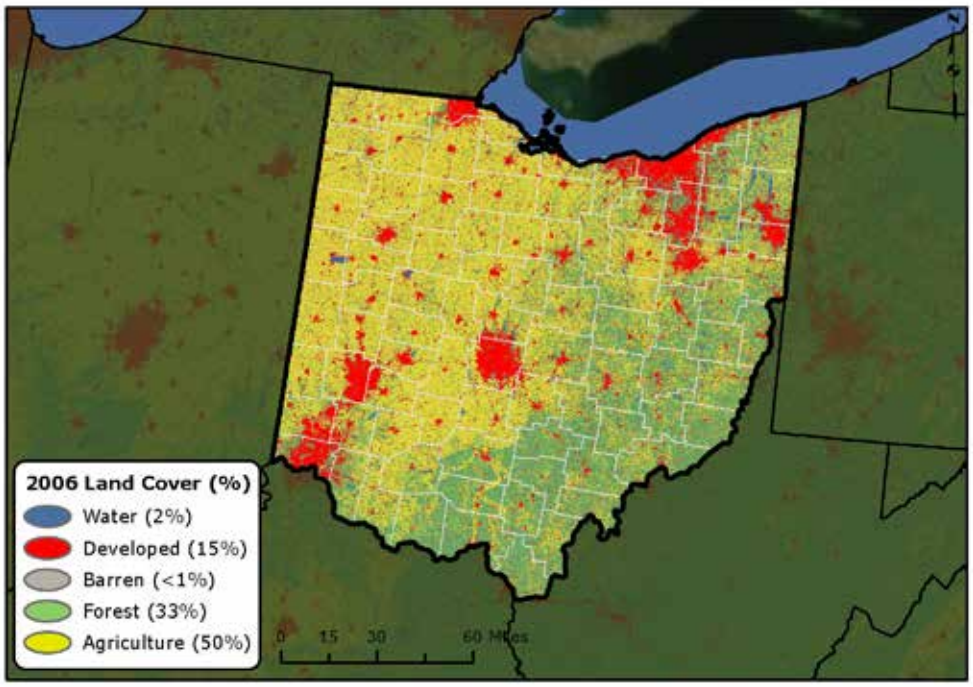
2013 Forest Health highlights

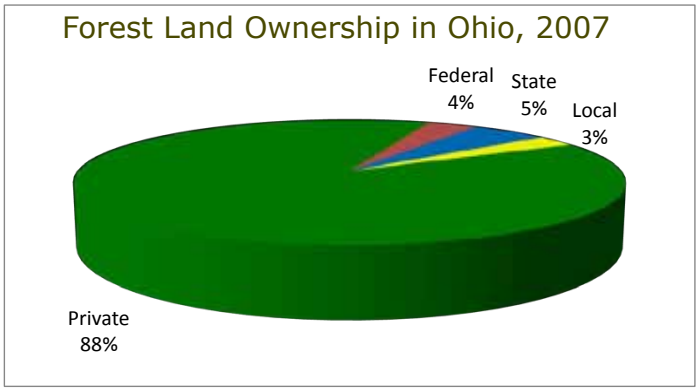
OHIO



The Resource

Ohio encompasses 26,209,700 acres, and 30.2 percent of these acres are forested, not including the urban forest. Forests have increased dramatically since 1940, and increased from 7.1 to 7.9 million acres since the late 1970s. Most (96 percent) of the forests are deciduous forest types, and most (88 percent) are privately owned. Forest industries contribute over 15 billion dollars to the State's economy. The Ohio Division of Forestry manages 21 State forests totaling approximately 200,000 acres.



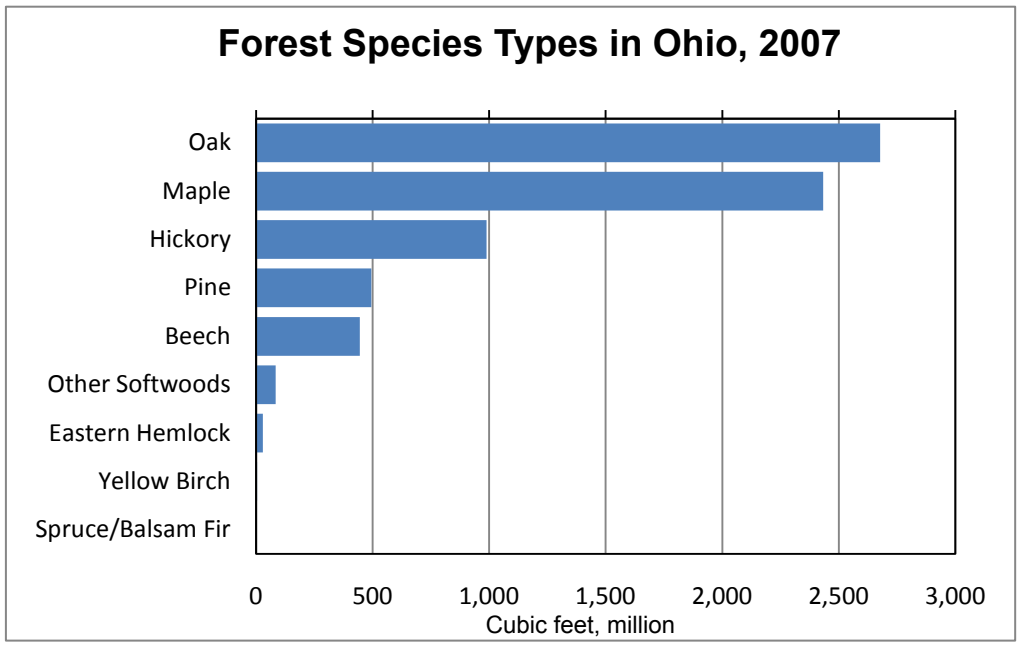


Forest Health Programs

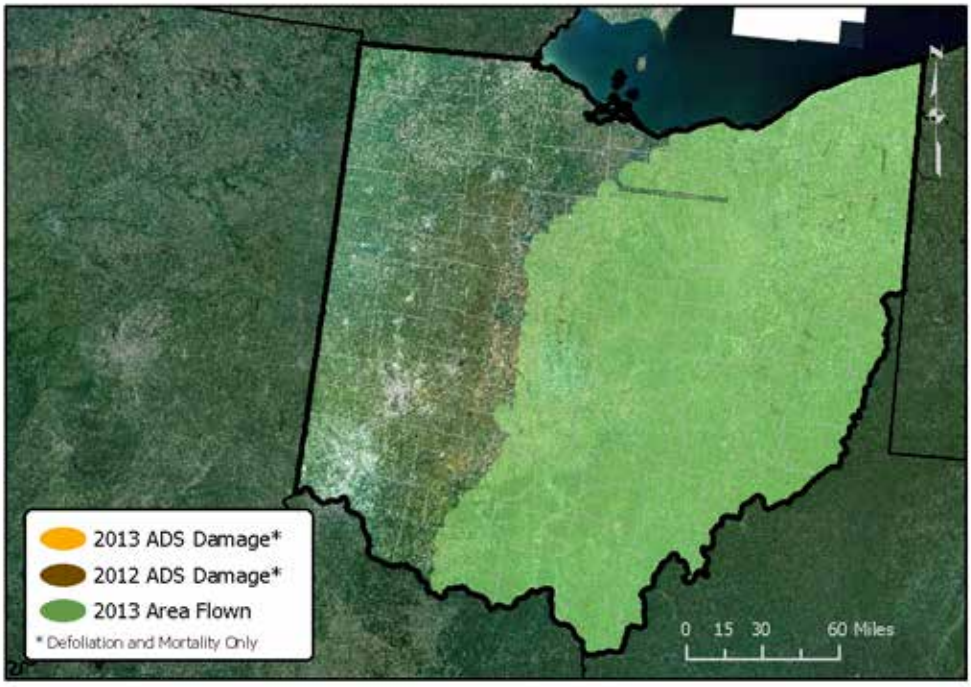
State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

Aerial Surveys

Each year, the Ohio Division of Forestry and Department of Agriculture cooperatively conduct an aerial forest health survey over the majority of the State. This year's survey began on June 10th and concluded on June 28th. Five- and three-minute lines were flown in an east-to-west direction. Each flight day, two observers were equipped with computers containing a GIS/GPS mapping system. Observers identified 172 different sites with discoloration, defoliation, or mortality. Ground truthing determined the causes of this damage to include these:



Cause of damage	Acres damaged
Yellow-poplar weevil	4,732
Emerald ash borer	2,308
Dutch elm disease	1,994
Ash decline	1,559
General decline	1,228
Herbicide	962
Drought	864
Wind	746
Hail	613
Dogwood anthracnose	554
Eastern tent caterpillar	549
Logging	546



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

Urban Forestry

Ohio is home to 11,536,504 people (2010 U.S. Census). Ohio's 938 incorporated places (cities and villages) occupy 11 percent of the land area and represent a substantial urban forest resource. Ohio leads the nation with 248 Tree City USA communities, which represent over half of the 80 percent of Ohioans living and/or working in urban areas, and a significant commitment to their quality of life. These Tree City USA communities planted more trees than they removed and maintained more trees than they planted. This was true everywhere except in northwest Ohio, where the emerald ash borer has become established. There cities, villages, and townships are faced with the reality of removing dead and dying ash trees. To proactively address the economic and environmental burden presented by this pest, all Ohio communities are being encouraged to develop emerald ash borer management plans. To date, at least 90 of these plans have been completed.

Special Issues

Asian Longhorned Beetle

On June 13, 2011, adult Asian longhorned beetles (*Anoplophora glabripennis*) were found in Tate Township in Clermont County. Following species verification, the USDA Animal and Plant Health Inspection Service (APHIS) and Ohio Department of Agriculture initiated a quarantine of Tate Township and neighboring East Fork State Park and Wildlife Area. Along with APHIS personnel, Ohio Department of Natural Resources has one forester assigned to the program, and the Ohio Department of Agriculture has hired crews of full-time surveyors. As of November 9 surveys showed 10,425 infested trees in Tate Township, a smaller population of 47 infested trees in neighboring Monroe Township, and three infested trees on one property in neighboring Stonelick Township. The Monroe and Stonelick Township sites were the direct result of firewood being moved out of the quarantine area before the discovery of ALB. The Monroe Township site was discovered within the first year of infestation. Removal of infested trees began on November 4, 2011. Since then, 10,320 infested trees have been removed, 8,671 stumps have been ground, and 1,084 stumps have been treated with herbicide to prevent resprouting and subsequent reinfestation by ALB. An Environmental Assessment was released in May 2012 allowing for the removal of high-risk host trees. The Department of Natural Resources is currently offering professional forestry assistance to all residents in the ALB quarantine zone for reestablishing tree cover following removals. A replanting pilot project initiated in October 2012 made trees available to landowners who were impacted by landscape tree removals by the Ohio ALB program. Trees were also made available to landowners in spring 2013. This program is planned to continue in spring 2014.

Trees are staged for a canopy restoration program after removal of Asian longhorned beetle infested trees in Clermont County, OH.

Hemlock Woolly Adelgid (HWA)

In January 2012, HWA was discovered in Shade River State Forest (Meigs County) in a natural stand of eastern hemlocks. Annual surveys detected a total of eight HWA-infested trees. Due to the location and small size of these trees, all eight were removed and burned in an attempt to eradicate the population. After these removals at Shade

River State Forest, surveys found additional infested trees. Reports of suspicious landscape trees led to the discovery of established HWA populations in the towns of Belpre and Marietta in Washington County.

The second infestation of a natural stand of eastern hemlock was discovered in the Cantwell Cliffs area of Hocking State Park in Hocking County by Ohio Department of Agriculture surveys. Insecticide treatments of imidacloprid were applied via soil drench, trunk injection, and basal bark spray at the Hocking and Meigs County infestations (both approximately 1 acre) in spring 2013. Also in spring 2013, over 800 *Laricobius nigrinus* beetles collected from North Carolina were released at the Belpre and Marietta landscape infestation sites (Washington County) for biocontrol of HWA. Monitoring of treatment success and additional predator beetle releases are expected over the next several months.

Concentrated surveys of remaining hemlocks in both Shade River State Forest and Hocking State Park are planned for this winter. Shade River State Forest is located along the Ohio River and borders Wood County, WV, where HWA has been established since 2008. Due to the remote location of these infested trees, it is believed that this population has spread naturally from West Virginia into Ohio and is not the result of human movement. The Hocking County infestation, however, is likely the result of human transportation of HWA, as it is isolated from other known infested counties. Hocking, Meigs, and Washington Counties are quarantined by the Ohio Department of Agriculture to prevent the movement of hemlock materials out of the infested areas.

Climber treats eastern hemlock with basal bark spray at Cantwell Cliffs in Hocking County, OH.

Walnut Twig Beetle and Thousand Cankers Disease

Thousand cankers disease (TCD) threatens black walnuts across the country. This disease is spread by the walnut twig beetle (WTB), which is native to the western United States. In late 2012, after catching WTB in traps in Butler County, the Ohio Department of Agriculture established over 100 traps within a 5-10 mile radius of the initial catch. Three of these traps, all north of the initial catch site, resulted in WTB catches. The fungus *Geosmithia morbida* associated with TCD was subsequently confirmed in Butler County in August 2013. To locate any other possible TCD infestations in the State, the Ohio Department of Natural Resources placed 30 WTB traps in 21 counties across Ohio. Traps were placed in public and private walnut plantations and at sawmills that process local or imported walnut logs. None of these traps had caught WTB at the time of this writing. Plans for management of the confirmed infested trees in Butler County are currently being developed.

Black walnut twig infested by thousand cankers disease at infestation site in Butler County, OH.

Forest Pest Issues

Emerald Ash Borer (EAB)

In 2010, the Ohio Department of Agriculture imposed a Statewide quarantine. Today, 72 of 88 counties have known infestations, but EAB is suspected in many other areas of the State. New counties confirmed with EAB in 2012 were Hocking, Highland, Fayette, Jefferson, Holmes, Tuscarawas, Stark, and Ashtabula. The Ohio Department of Natural Resources Division of Forestry continues to help woodland owners manage their forests and use their ash resources, assist communities that are dealing with current and future EAB issues, and work to increase public awareness about the insect.

Gypsy Moth

The European gypsy moth (*Lymantria dispar* (L.)) increased in abundance in 2013. This year's increase in the gypsy moth population likely is due to the hot and dry conditions in summer 2012, which set back the level of the gypsy moth fungus (*Entomophaga maimiaga*). A total of 24,803 male moths were caught in traps in 70 counties, an increase of nearly 35 percent from 2012. The Ohio Department of Agriculture is continuing their treatment efforts in the Slow-the-Spread transition zone, treating 89,369 acres with *B.t.k.*, nuclear polyhedrosis virus, and/or Disrupt II in 2013.

White Oak Decline

Mortality and decline of white oak (*Quercus alba*) continue to occur in southern Ohio. Several insect pests began defoliating white oak trees in 2002. Severe defoliation, coupled with drought conditions in 1999 and 2002, caused significant tree mortality, especially in some Ross County white oak stands. While no significant new findings of white oak decline were reported in 2013, it remains a significant concern for forest health in Ohio. The half-wing geometer (*Phigalia* spp.), the common oak moth (*Phoberia autumalis*), and tent caterpillars caused the initial defoliation damage. A jumping oak gall outbreak in 2010 and again in 2013 further compounded the complex. Gypsy moth may now be a factor in weakening the trees further. Two-lined chestnut borer, Armillaria root rot, Hypoxylon canker, and Phytophthora work together as a group of secondary pests to kill already-weakened trees.

Nonnative Invasive Plants

Aggressive invasive plants threaten forests throughout the State of Ohio. Some forests are already declining due to severe infestations of invasive plants, while other areas remain largely uninvaded. An aerial survey to locate infestations of the invasive tree-of-heaven (*Ailanthus altissima*) is planned for winter 2013-2014 within and around the Marietta District of the Wayne National

Forest.The Division of Forestry promotes invasive plant control through the service forestry program and through workshops, presentations, and other outreach events.

Notable Occurrences

Beech Bark Disease (BBD)

Though BBD—both the *Nectria* fungus and the European beech scale—was confirmed in Lake and Geauga Counties in northeast Ohio at the Holden Arboretum in 2003, recent investigations from field staff in the area report that the amount of beech scale is much reduced from recent years, and in some areas is no longer present. An effort by the U.S. Forest Service and the Ohio Department of Natural Resources to establish permanent BBD monitoring plots is ongoing.

Scarlet Oak Sawfly

For the third year in a row, northeast Ohio recorded an outbreak of scarlet oak sawfly (*Caliroa quercuscoccineae*). Landowners began reporting pin oak discoloration and defoliation to service foresters in late June. This outbreak was recorded across Trumbull, Ashtabula, Geauga, and Portage Counties. Personnel recorded 21 acres of damage caused by the scarlet oak sawfly during the annual aerial survey, but the total damaged area was much larger later in summer following the aerial survey.

Yellow-Poplar Weevil

Across most of southeastern Ohio, yellow-poplar had high populations of yellow-poplar weevil. This outbreak resulted in defoliation and some mortality in the affected area. Over 4,700 acres in the State had damage from the weevil.

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 Ohio Department of Natural Resources, Division of Forestry. Photos: Ohio Department of Natural Resources, Division of Forestry

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January 2014