

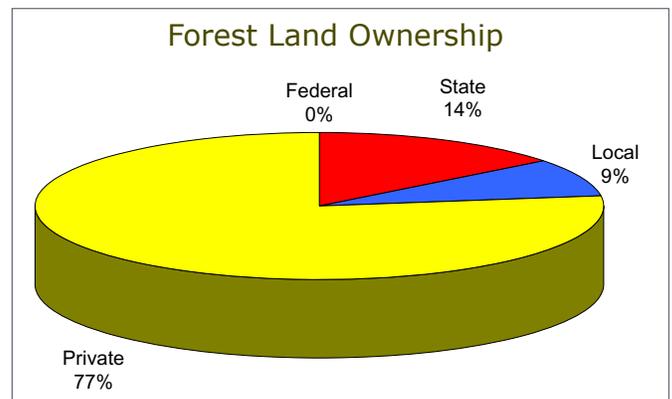
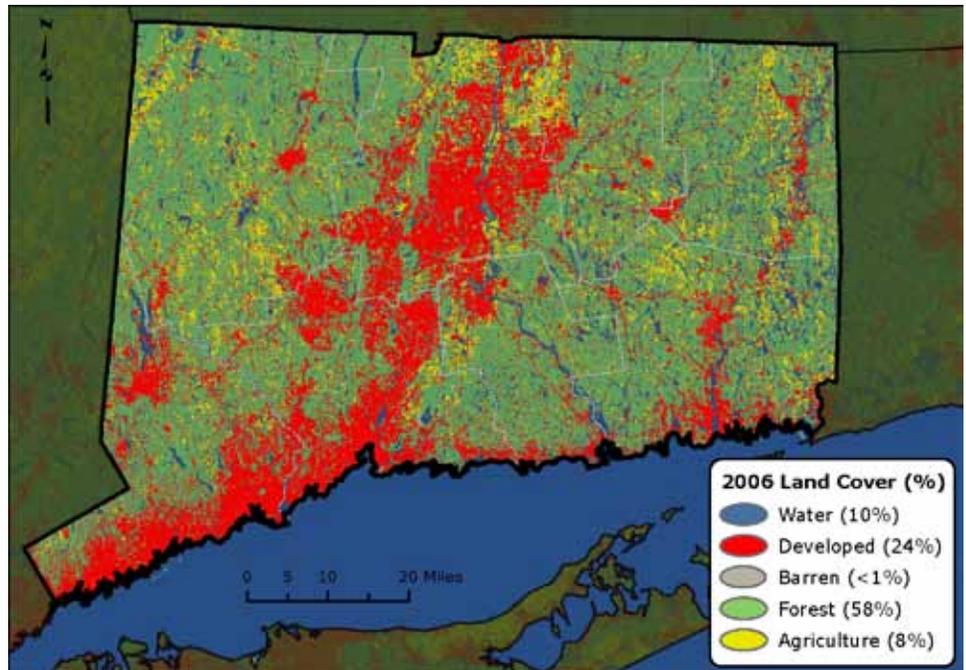
2012 Forest Health highlights

CONNECTICUT



Forest Resource Summary

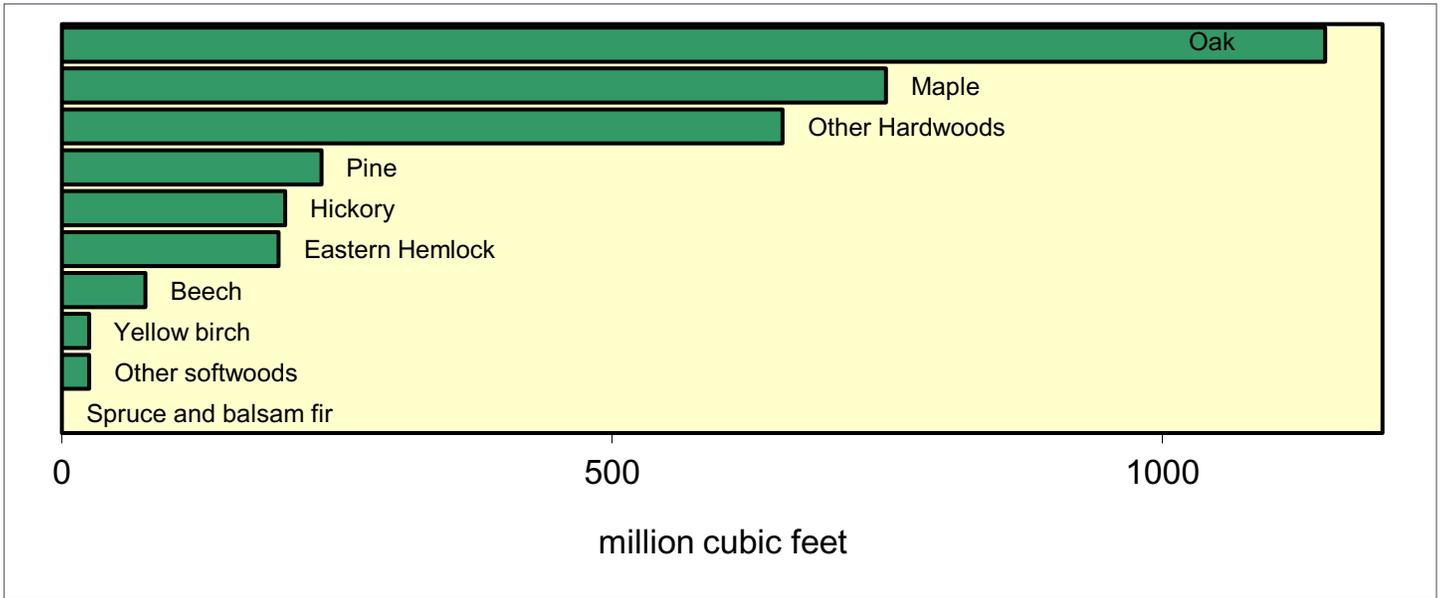
Connecticut's forests are 77 percent privately owned, with the remainder of the lands in State or local town ownership. These forests provide clean water and air, wildlife habitat, and sources of recreation, timber, and fuel. Forested parks and shade trees aesthetically enhance communities as well as provide energy savings, habitat for wildlife, and recreation opportunities. The latest Connecticut forest inventory estimates that there are approximately 1.8 million acres in the State that are forested. The forest resource is made up of a variety of forest types—mostly oak, maples, and other hardwoods—along with pine and eastern hemlock.



Forest Health Programs in the Northeast

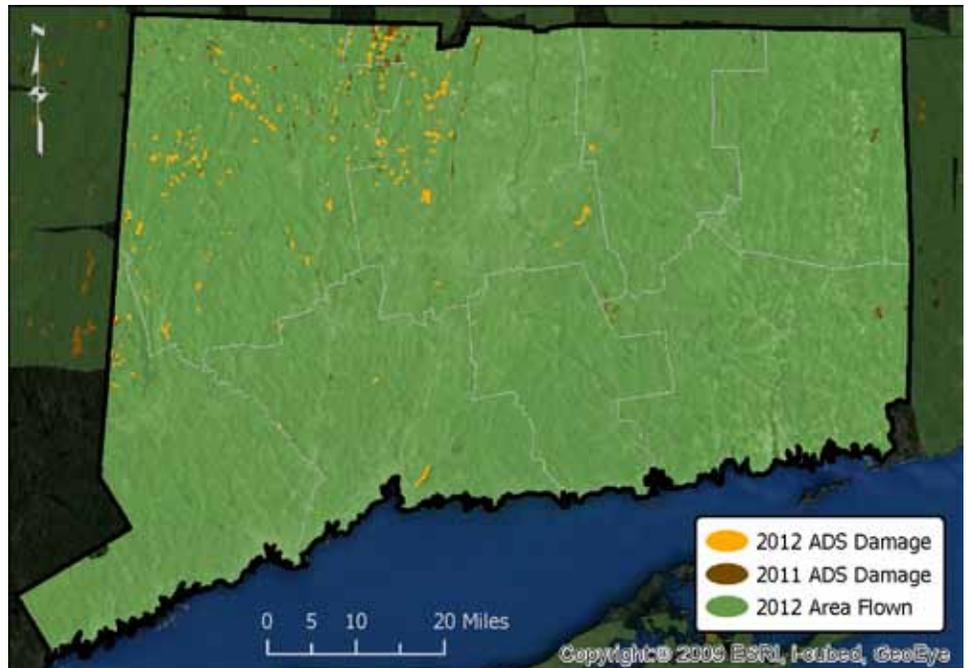
State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

Forest Species Type



Aerial Surveys

In Connecticut about 10,000 acres of damage were observed, with nearly 4,500 acres of hemlock woolly adelgid damage and over 3,300 acres of breakage from snow and ice. Other damage was from anthracnose leaf disease, locust leafminer, and ash rust.



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

Forest Health Monitoring Sites

During the summer and autumn of 2012, The Connecticut Agricultural Experiment Station (CAES) Forest Health staff examined 51 permanent, 1-acre forest plots that were established to monitor forest health in Connecticut. These plots are located on properties owned by the State, The Nature Conservancy, and municipal water companies. We considered 25 pathogens for monitoring and determined which trees served as host plants. Within each plot, 20 to 30 trees were tagged for long-term studies. We evaluated signs of defoliation and disease, such as dead tree branches, limbs, and crowns. Descriptions and determinations are designed to reflect increasing damage or tree decline. We measure tree diameter at breast height as an additional way to monitor tree health. We will continue to use these plots to monitor the forests over several years to assess whether our State forests remain healthy or are declining. Although many plots were damaged during Hurricane/Tropical Storm Irene and the Halloween Nor'easter, our forests remain healthy.

Plots containing a significant ash (*Fraxinus* sp.) component served as sites for trapping efforts for the emerald ash borer (*Agrilus planipennis*), an invasive insect that was detected in July 2010 in Saugerties, NY, and in Prospect, CT, in July 2012.

Forest Damage

The winter of 2011–2012 was nearly snowless; in some areas of the State, there were only one or two measurable snow events. The dry conditions persisted through spring 2012, with less than 2 inches of rain in both February and March. Rainfall levels approached normal through the remainder of the spring and summer.

For the first time in many years, there was no observable defoliation due to **gypsy moth** recorded in Connecticut in 2012. During egg mass surveys in the winter of 2011–2012, very few viable egg masses were found.

Consequently, in 2012, damage caused by gypsy moth was negligible statewide. In November and December 2012, a gypsy moth egg mass survey was conducted in favorable host areas at 102 sites on a 7-mile grid throughout Connecticut.

The **hemlock woolly adelgid** has been present in the State for many years, and continues to cause patchy damage and decline among the remaining population of hemlocks. In 2012, areas in Fairfield, Hartford, Litchfield, New Haven, Middlesex, and New London Counties were affected by the adelgid. Statewide, 4,510.5 acres were affected. In fact, many areas of hemlock are healthy, especially in the northwest corner of the State; hemlocks are recovering in many areas due to wet summers and reduction in adelgid populations, especially where biological control was implemented.

The **Asian longhorned beetle** was a target in the Wood Boring/Bark Beetle survey through the Cooperative Agricultural Pest Survey (CAPS) Program in 2012. Visual surveys for signs of the beetle were conducted at numerous locations statewide. We examined many thousands of trees for signs of infestation. In addition, insects submitted by arborists and homeowners as possible Asian longhorned beetles have been examined. All surveys and identifications, thus far, have been negative. White spotted sawyer and western conifer seed bug are most frequently confused with the Asian longhorned beetle.

As part of the ***P. ramorum* leaf blight** CAPS, we inspected 20 nurseries during 2012. During this survey, tens of thousands of plants have been inspected and 180 samples from symptomatic plants were submitted for lab analysis. All samples were cultured and tested by ELISA; DNA from ELISA-positive samples was sent to Beltsville for PCR confirmation. Sixty-one samples, about 33.8 percent, were ELISA positive, indicating the presence of *Phytophthora* sp. All samples from the nurseries were negative for *P. ramorum*.

An aquatic survey was made in conjunction with the U.S. Forest Service. The stream selected for the survey surrounds a 400-acre production nursery that has been implicated in *P. ramorum* trace-back activity. One location upstream of the nursery and one location downstream were planned for baiting with rhododendron leaves during April through September 2012; the baiting period was intended to be about 2 weeks each month, with a hiatus during June and July when the water temperature exceeded 20° C. Four samples of leaf baits were submitted for testing to labs at the Pennsylvania Department of Agriculture and at Cornell University. While many leaf baits have been positive for *Phytophthora* species, all leaf baits have been negative for *P. ramorum*.

Emerald Ash Borer

Cerceris fumipennis is a solitary, sand-nesting wasp (it doesn't sting people) that stocks her burrows with metallic, wood-boring beetles (Family Buprestidae) for her young, including the **emerald ash borer** if it is present. Dr. Claire Rutledge was funded by the U.S. Forest Service and started looking for *Cerceris fumipennis* colonies in Connecticut in 2008. By the end of 2009 we had found over 70 scattered all over the State. In 2010, we started the "Wasp Watcher" program. Watchers are citizen scientists, usually people with a strong interest in forests, who are assigned a colony of wasps to monitor. Currently we have a dense network of colonies (over 150) and watchers throughout the State of Connecticut. *Cerceris fumipennis* colonies are being monitored in most of the Northeast as well as in several other States.

On Monday, July 16, 2012, the first emerald ash borer was detected in Connecticut in the town of Prospect at a colony in Canfield Park. The initial detection was by Moiara Scott working for Dr. Claire Rutledge. Moiara intercepted a female wasp that was carrying the invasive pest. This is the first detection of a new infestation in a State using the

wasp as a surveillance method. Twenty-five other emerald ash borers were recovered by our program from the wasps at this site. In addition, a volunteer Wasp Watcher also captured borers at Canfield Park in Prospect on July 2, 3, and 4, but did not report them until July 19. We also found the borer at a colony in Fusco Field in Prospect on July 17 and one was captured from a wasp in a ball field in Beacon Falls on July 24. It has now been detected in four towns in New Haven County: Prospect, Naugatuck, Bethany, and Beacon Falls. Purple prism traps maintained by the University of Connecticut Cooperative Extension Forestry, with support from the USDA-APHIS-PPQ, captured beetles in Prospect, Naugatuck, and Bethany. Surveillance in Connecticut was a statewide, multiagency effort involving *Cerceris* wasps, the purple traps, trap ash trees (girdled trees that are highly attractive to the borers), inspection of trees, and public outreach and reporting of suspect insects.



*Dorsal view of the first emerald ash borer detected in Connecticut at Canfield Park in the town of Prospect (top); Moiara Scott and Stone Ng collect beetles from female *Cerceris* wasps returning to their burrow at Canfield Park (bottom).*

On August 9, 2012, the CAES quarantined New Haven County for emerald ash borer and also put in place emergency firewood regulations to regulate firewood movement into and within Connecticut. The State quarantine parallels the Federal quarantine for New Haven County that the USDA-APHIS-PPQ added to the emerald ash borer regulated area on September 12, 2012.

Anthracnose diseases of hardwood trees may be caused by several different genera of fungi; for mapping purposes, any severe discoloration and defoliation of hardwoods is considered to be anthracnose. These diseases are favored by cool, wet conditions, similar to those experienced in late summer of 2012. Damage to trees from anthracnose diseases was sporadic across the State; 1,229.5 acres in Litchfield County and 54.1 acres in Middlesex County were affected.

The **orange-striped oakworm**, *Anisota senatoria*, is a native moth that ranges from Eastern Canada southward to Georgia. It is a common pest of oak species in Connecticut. However, in 2012, no damage due to this defoliator was recorded.

Red pine scale, *Matsucoccus gallicolus*, was described in Connecticut in the 1940s and causes sporadic damage. In Hartford County, 4.0 acres were affected; in Litchfield County, 5.6 acres were affected; and in Windham County, 4.0 acres were affected by red pine scale, for a total of 13.6 acres statewide.

The **locust leafminer**, *Odontota dorsalis*, is primarily a pest of black locust. Adults skeletonize and eat holes in the leaves, whereas larvae mine the tissue between the upper and lower leaf surface (mining damage is the most destructive). Under outbreak conditions, whole hillsides turn gray or brown, often suggesting fall color change. Outbreaks of the locust leafminer are generally more spectacular than destructive. In 2012, 570.9 acres in Fairfield County and 115.9 acres in Litchfield County were affected by locust leafminer.

Near coastal areas, **ash rust** (*Puccinia sparganioides*) infects several ash (*Fraxinus*) species including white, green, and occasionally black ash. The alternate hosts are several species of cordgrass (*Spartina* sp.) and a marsh grass (*Distichlis spicata*). Generally, ash rust disfigures and defoliates trees but it does not seriously threaten their health. Nevertheless, near wetlands where cordgrass and marsh grass grow, repeated ash rust infections may weaken ash trees, making them more susceptible to winter damage and branch dieback due to opportunistic diseases. In New Haven County, about 275 acres were affected by ash rust.

During **Hurricane Irene and the severe winter of 2010–2011**, many trees were damaged by wind, snow, and ice. These trees are still showing the effects of branch breakage, loss of crowns, and general wind damage. Hartford and Litchfield Counties, areas especially hard hit during winter storms, had 2,937.3 acres and 311.5 acres of damage, respectively. In Tolland County, there were 113.1 acres affected. In addition, about 42 acres in Hartford and Litchfield Counties were affected by fire in 2012.

Due to limited numbers of walnut in Connecticut, there is no monitoring program for **thousand cankers disease**, even though this disease is the subject of a number of newly enacted quarantine regulations for many States.

Butternut Research

Butternut populations are declining throughout the native range of butternut, and efforts to find trees resistant to the pathogens that kill them have been under way for some time. The CAES has maintained a list of reported butternut trees in the State since 1994, and in the last 3 years we have been sampling the trees to determine what pathogens are present.

Two pure butternut trees have been identified in the State using a DNA test, and all the rest of the trees sampled have been Japanese walnuts or hybrids. The butternut canker pathogen, *Sirococcus clavigignenti-juglandacearum*, has been found twice in Connecticut, and one of the isolates contains a dsRNA virus. Inoculations of small butternut, Japanese walnut, and hybrid trees at Lockwood Farm will be done this winter to compare the virulence of these strains.

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