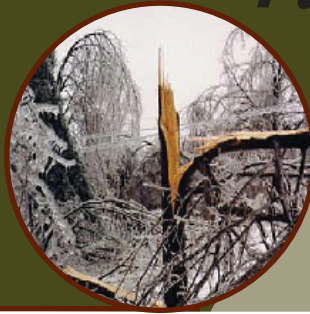




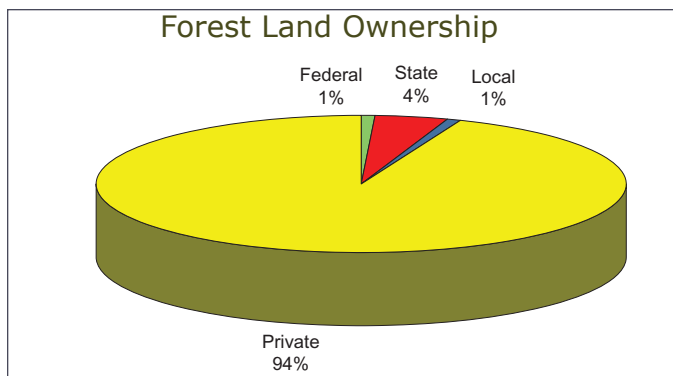
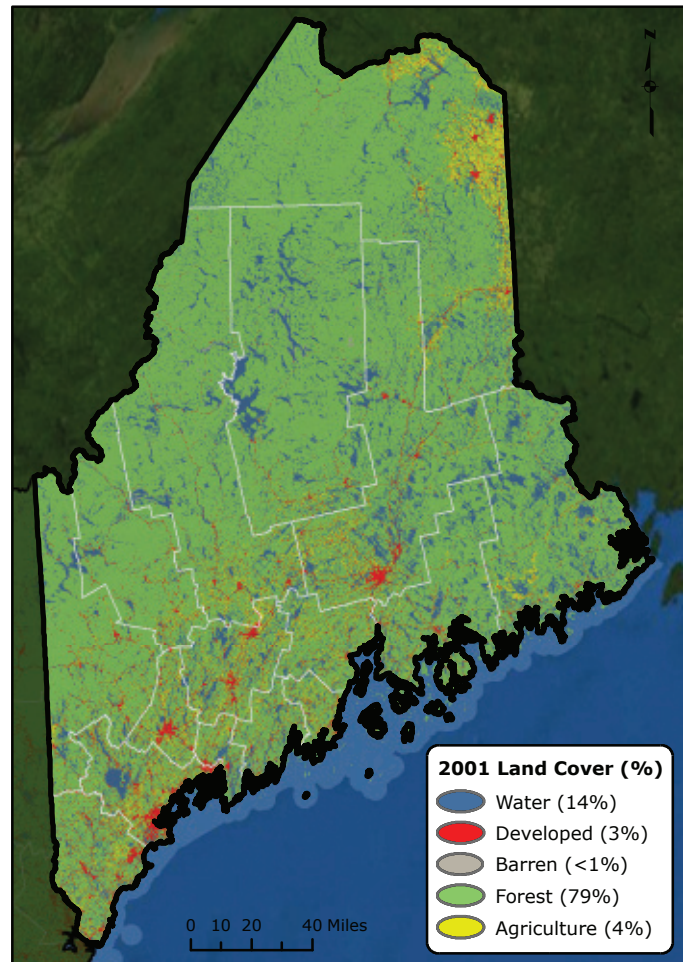
Forest Health *highlights*



Forest Resource Summary

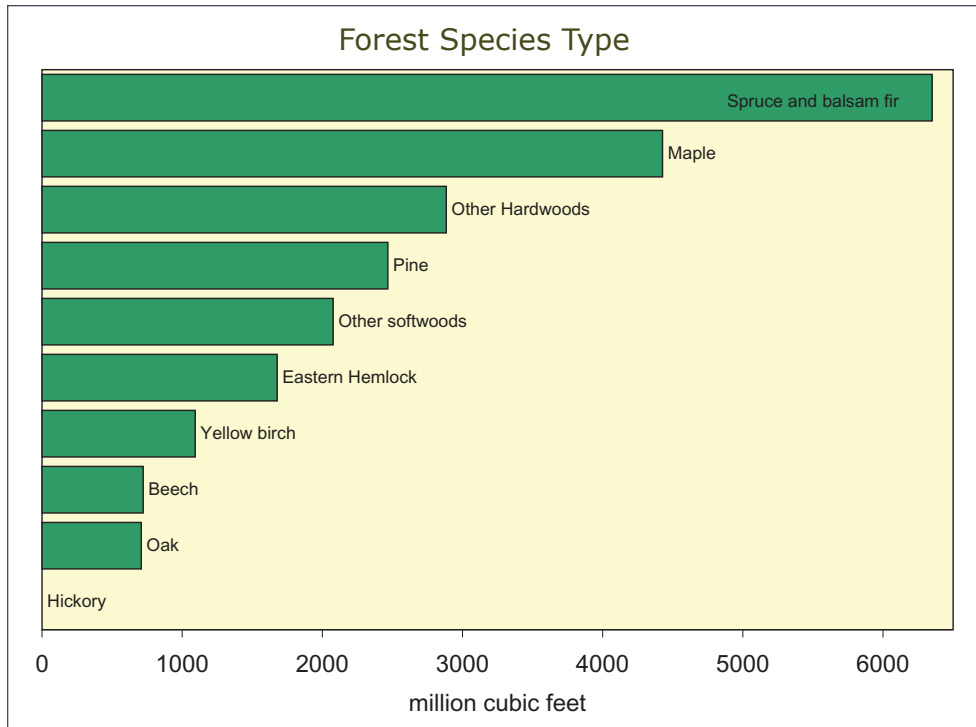
Almost all of the forest lands in Maine are privately owned—approximately 94 percent—with only 1 percent in Federal ownership that encompasses the eastern portion of the White Mountain National Forest. The latest forest inventory in Maine estimates that 17.7 million acres are forested, which is 79 percent of the State (90 percent of the land base). The forest resource is made up of a variety of forest types, mostly spruce and balsam fir, maples, other hardwoods, and pine.

Maine’s forests provide much of the raw materials to fuel the State’s mills and serve as the backdrop for the recreation industry. These forest-based industries employ more than 12 percent of Maine’s workforce and generate more than 11 percent of the State’s payroll. The overall annual contribution of the forest resource to Maine’s economy exceeds



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.



\$8.5 billion. The forests of the State also provide watershed, environmental, wildlife, and recreational benefits. Forested parks and individual shade trees provide similar amenities in urban and suburban settings.

Aerial Surveys

In Maine, almost 150,000 acres of damage were mapped, all attributed to discoloration and defoliation. Browning of white pine from needle cast diseases was reported on 60,000 acres and about 52,000 acres of cedar decline was observed. Additional significant damage was caused by browntail moth, large aspen tortrix, and spring frost.

This map delineates aerial detection survey (ADS) results for Maine in 2009 and 2010.



Forest Damage

Many species of woody plants were damaged after the hard **frosts** that occurred between May 10 and 12, 2010. The long period of warm spring weather prior to early May contributed to the frost injury because the tender young growth was exposed to freezing temperatures earlier than usual. Plant species as diverse as apples (*Malus* spp.), Andromeda (*Pieris* spp.), American beech (*Fagus grandifolia*), ash (*Fraxinus* spp.), balsam fir (*Abies balsamea*), oaks (*Quercus* spp.), and maples (*Acer* spp.) were damaged in widely scattered locations throughout north-central, central, and southern Maine (photo 1). Injury to newly flushed shoots on conifers also occurred. Some damage to evergreen ornamentals and Christmas tree plantations was observed as well (photo 2). Recovery from the damage was fairly rapid. The production of tree seed, such as acorns, may have been reduced in localized areas.



Photo 1.— Frost damage on oak (Maine Forest Service)

The majority of public assistance requests related to tree disease concerns in 2010 were due to the yellowing, browning, and premature **needle loss of white pines**. The condition, which was observed throughout the State but was most severe in western and southern counties, is caused by *Canavirgella banfieldii* and *Mycosphaerella dearnessii* (photo 3).



Photo 2.— Frost damage on balsam fir (Maine Forest Service)



Photo 3.— Browning of white pine needles (Maine Forest Service)

Some browning of the current season's needles was also observed throughout Livermore in Androscoggin County and Dixfield in Oxford County. Crowns still appear quite thin as a result of the reduced foliage, and the needle loss will likely affect tree vigor for some time. Forest management activities, including stand thinning and other practices that result in significant stand disturbance, are discouraged in stands that have had extensive needle loss or where the crowns appear especially thin. Changing stand conditions will require regular monitoring for at least an additional year to better assess management risks.



Photo 4.—Browntail moth larvae (Maine Forest Service)

Defoliation by the browntail moth, *Euproctis chrysorrhoea*, was extremely heavy in Bowdoinham, Bath, West Bath, Brunswick, and Topsham at the southern end of Merry Meeting Bay (photo 4). Larvae outstripped their food source early due to both unseasonably

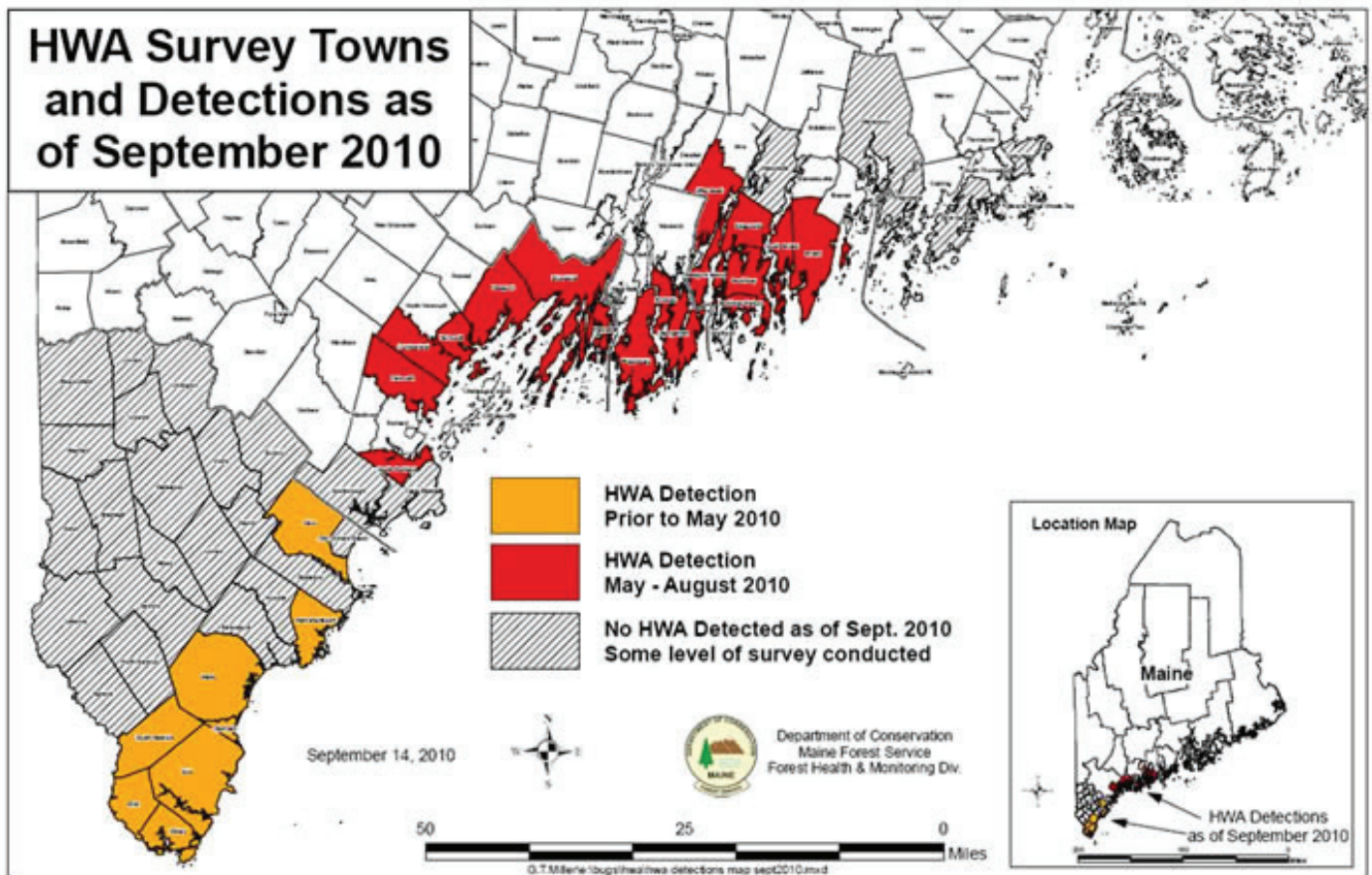


Photo 5.—Distribution of hemlock woolly adelgid in southern Maine (Maine Forest Service)

warm spring weather in which larvae developed faster than the foliage expanded, and high moth populations. Larvae descended from trees and carpeted the ground, buildings, and everything else in their path. Heavy infestations on Freeport islands collapsed for unknown reasons, while the population in Kennebunkport expanded to the mainland in isolated spots. Other isolated populations were reported in Lewiston, Turner, and Falmouth. Augusta also had expanding populations. Total defoliation covered 4,702 acres. Populations were high enough to considerably impact affected residents. The Maine Forest Service will continue to conduct winter surveys to monitor the population.

Hemlock woolly adelgid, *Adelges tsugae*, was first detected in native hemlocks in Maine in 2003. It had not been found outside of York County until May 2010, when it was confirmed from a landowner report in Harpswell in Cumberland County. Subsequent survey and landowner reports revealed infestations along the southern and mid-coast region of the State. To date, the adelgid has been found in Cumberland, Lincoln, Sagadahoc, and York Counties (previous page). Biological control efforts with predatory beetles continue in some of the affected areas.

In late August 2010, an arborist observed **elongate hemlock scale**, *Fiorinia externa*, on planted hemlock in Cape Elizabeth in Cumberland County (photo 6). This follows detections in two sites in York County in 2009, where infested trees were probably brought into the State before the hemlock woolly adelgid quarantine on nursery stock was tightened in 2001. Scale populations on the planted hemlock were high and had spread to nearby native hemlock and fir trees. Similar to the York County sites, this area will be treated in spring 2011 to contain this outlier infestation. The first forest infestation of elongate hemlock scale in Maine, likely representing the natural spread of the insect, was detected in 2010 in Kittery Point in York



Photo 6.—Elongate hemlock scale (Photo by: Allison Kanoti, Maine Forest Service).

County. Light populations of the scale were found in the mid canopy of all sampled trees at this site.

The **tip blight of Eastern hemlocks**, recently attributed to *Sirococcus tsugae*, has continued to cause damage (photo 7). The disease is particularly evident in understory regeneration, but has also been found in upper-canopy hemlocks as well. Heavy damage, possibly resulting in some mortality of hemlock regeneration, was observed in Berwick and North Berwick in York County and Scarborough in Cumberland County. The disease has been found throughout southern and south-central Maine.

Monitoring for the invasive insect **emerald ash borer**, *Agrilus planipennis*, continued in central and southwestern Maine. The nearest



Photo 7.—Tip blight on Eastern hemlock (Maine Forest Service)

known infestation of this significant pest is now in eastern New York. The Maine survey included 26 purple prism traps at 13 locations and biosurveillance with the predatory wasp, *Cerceris fumipennis*, at 19 locations. No emerald ash borers have been detected in the State. Individuals and groups of volunteers were involved in the biosurveillance program. There are now 66 known *C. fumipennis* colonies that are monitored in Maine.

Balsam fir tip blight, *Delphinella balsameae*, was identified from several infected trees in Frenchville in Aroostook County. The disease first became apparent in early to mid-June, appearing as browning and shriveling of the current-season growth at the branch tips (photo 8). Shortly thereafter, similar damage

was identified in Dover-Foxcroft in Piscataquis County. In both cases, the disease was affecting sapling-sized to small pole-sized trees in the 4- to 8-inch diameter range.

In an attempt to limit the spread of invasive pests into the State, the Maine Legislature has banned the importation of untreated firewood, which can carry forest insects and diseases.

The Maine Forest Service set up a voluntary firewood stop at the York rest area on Interstate 95 over several weekends to alert the public to this new regulation. Rangers provided information to campers and swapped out firewood stick for stick. Information on the ban can be found at <http://www.maine.gov/doc/mfs/fhm/pages/firewood.html>.



Photo 8.—Fir tip blight in northern Maine (Maine Forest Service)



Forest Health Protection
USDA Forest Service
271 Mast Rd.
Durham, NH 03824
603-868-7708
<http://www.na.fs.fed.us>



Maine Department of Conservation
Maine Forest Service
22 State House Station
Augusta, ME 04333-0022
207-287-4981
<http://www.maine.gov/doc/mfs/>

January 2011