



Forests of New Jersey, 2014

This publication provides an overview of forest resource attributes for New Jersey based on an annual inventory conducted by the Forest Inventory and Analysis (FIA) program of the Northern Research Station (NRS) of the U.S. Forest Service. These estimates, along with web-posted core tables, are updated annually. In 2014, NRS-FIA changed from a 5- to a 7-year inventory cycle, wherein 1/7th or 14.3 percent of plots will be measured each year until completion. To ensure that all plots are transitioned to the new cycle length, estimates reported for 2014 include data collected from 2009 to 2014, with comparisons made to data reported in 2009 (and collected from 2005 to 2009).

Overview

New Jersey is home to approximately 2 million acres of forest land, 52 percent of which is publicly owned (Table 1). Timberland accounts for 87 percent of forest land, 13 percent is reserved, and less than one-half of a percent, or 3 thousand acres, is other forest land.



Photo by New Jersey Forest Service, used with permission.

Table 1.—New Jersey’s forest statistics, 2014

	2014 estimate	Sampling error (%)	Change since 2009 (%)
Forest Land			
Area (thousand acres)	1,995	2.2	0.5
Number of live trees ≥1 inch diameter (million trees)	894	5.1	-6.9
Aboveground biomass of trees ≥1 inch diameter (thousand oven-dry tons)	118,144	3.5	8.0
Net volume of live trees ≥5 inches diameter (million ft ³)	4,266	3.7	8.4
Net growth of live trees ≥5 inches diameter (thousand ft ³ /yr)	77,354	11.9	-17.1
Annual mortality of live trees ≥5 inches diameter (thousand ft ³ /yr)	47,932	11.4	67.7
Annual harvest removals of live trees ≥5 inches diameter (thousand ft ³ /yr)	11,180	29.9	-53.9
Annual other removals of live trees ≥5 inches diameter (thousand ft ³ /yr)	1,919	56.3	356.3
Timberland			
Area (thousand acres)	1,732	3.1	1.0
Number of live trees ≥1 inch diameter (million trees)	777	5.9	-7.9
Aboveground biomass of trees ≥1 inch diameter (thousand oven-dry tons)	101,497	4.1	8.4
Net volume of live trees ≥5 inches diameter (million ft ³)	3,673	4.3	8.9
Net volume of growing-stock trees ≥5 inches diameter (million ft ³)	3,363	4.6	5.2
Net growth of growing-stock trees ≥5 inches diameter (thousand ft ³ /yr)	65,364	12.0	-24.8
Annual mortality of growing-stock trees ≥5 inches diameter (thousand ft ³ /yr)	33,879	13.0	79.7
Annual harvest removals of growing-stock trees ≥5 inches diameter (thousand ft ³ /yr)	7,411	34.9	-65.2
Annual other removals of growing-stock trees ≥5 inches diameter (thousand ft ³ /yr)	5,154	60.8	-4.1

Note: Sampling errors in tables and figures in this report represent 68% confidence intervals for estimated values.



Forest Area

In 1956, the area of forest land in New Jersey was an estimated 2.2 million acres (Fig. 1). Following a significant decrease in 1971, forest land has since hovered around 2.0 million acres. In an effort to improve consistency, FIA’s definition of forest land was revised in 1999 (Widmann 2005). As a result, areas previously classified as nonforest, e.g. forested rights-of-way and urban lands, were reclassified as forest land. Subsequently, these changes resulted in an increase in forest land in 1999, while timberland remained constant.

While forest land is widely distributed, it is heavily concentrated in the northwestern and southeastern portions of the State, with the bulk of forest land occurring in the Pinelands (Fig. 2).

Forest composition between these two regions varies considerably. Hardwood forest types, which make up 74 percent of forest land (nearly 1.5 million acres), are largely concentrated in the northern half of the State. Conversely, the distribution of softwoods is primarily in the south. Two forest-type groups—oak/hickory (917,700 acres) and loblolly/shortleaf pine (455,600 acres)—occupy 69 percent of forest land in New Jersey. Within these two groups, white oak/red oak/hickory (269,900 acres) and pitch pine (440,100 acres) are the largest forest types, respectively.

Forest land consists mainly of sawtimber stands (69 percent); 25 percent of forest land is made up of poletimber stands, 5 percent contain sapling-seedling stands, and 1 percent is nonstocked. The average age of forest stands continues to increase (Fig. 3). Currently, 67 percent of stands are over 61 years of age.

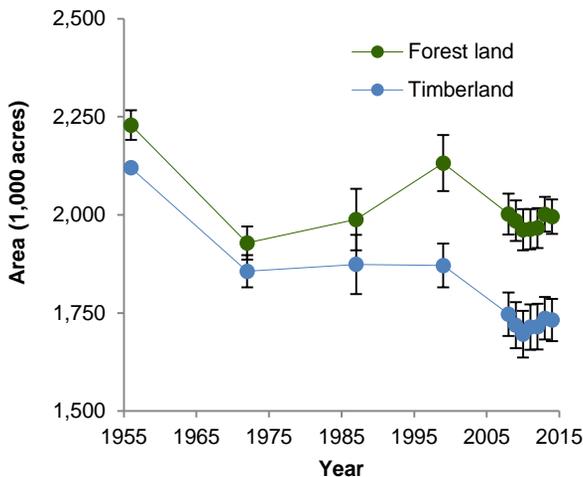


Figure 1.—Area of timberland and forest land by year, New Jersey.

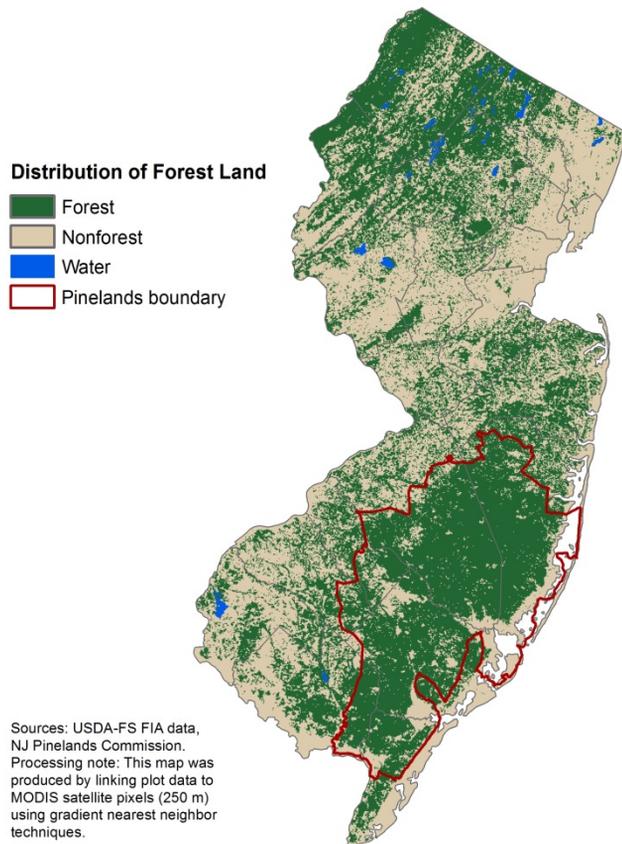


Figure 2.—Distribution of forest land, New Jersey, 2009.

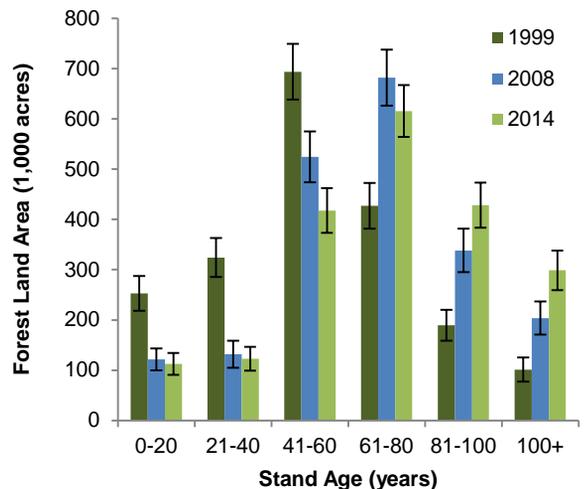


Figure 3.—Area of forest land by stand age and inventory year, New Jersey.

Volume, Biomass, and Trends

Live-tree and sapling biomass continues to increase and currently totals 118.1 million tons on forest land (Table 1). Biomass is distributed across the State, with the largest concentrations in the northwest (Fig. 4). New Jersey’s forest land contains about 894.1 million trees (greater than 1 inch diameter at breast height [d.b.h.]), the composition of which varies across the State (Table 1). Red maple (*Acer rubrum*), eastern redcedar (*Juniperus virginiana*), and sweet birch (*Betula lenta*) are the most numerous species in the north, while pitch pine (*Pinus rigida*), red maple, and Atlantic white-cedar (*Chamaecyparis thyoides*) are the most numerous species in the south (Fig. 5).

Tree volume is increasing across New Jersey (Table 1). Pitch pine (614.4 million ft³) is the most voluminous species in the State; nearly all (99 percent) pitch pine volume is found in southern New Jersey. Following pitch pine, red maple and Atlantic white-cedar are the top grossing species in the south by volume. In contrast, northern red oak (*Quercus rubra*), yellow-poplar (*Liriodendron tulipifera*), and red maple are the top ranking species by volume in the north; together these species make up one-third of regional volume.

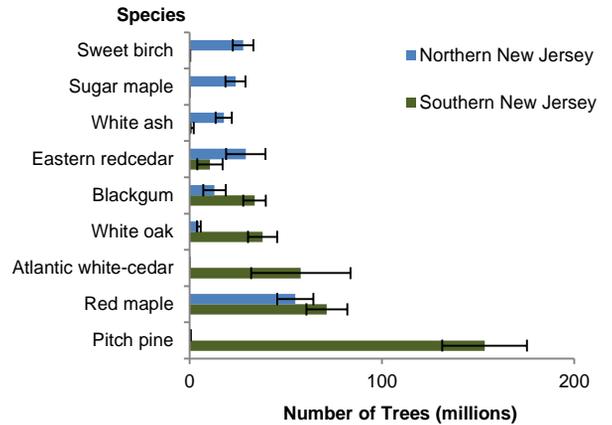
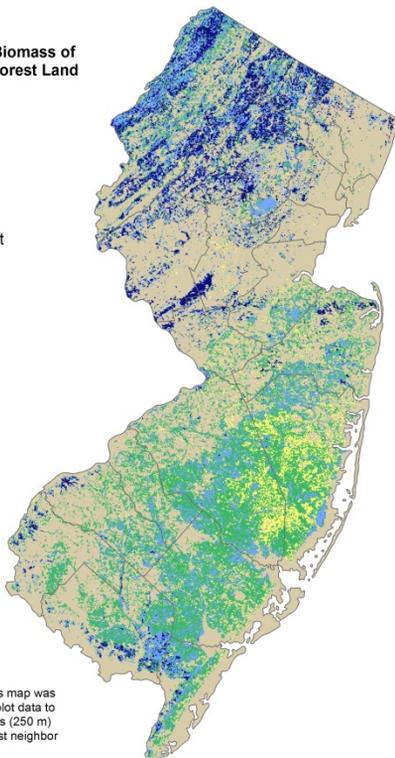


Figure 5.—Top species on forest land by number of trees in northern and southern New Jersey, 2014.

While forest growth has decreased by 17 percent since 2009, mortality has increased by 68 percent (Table 1). Atlantic white-cedar, pitch pine, scarlet oak (*Quercus coccinea*) and white ash (*Fraxinus americana*) are the largest contributors to mortality, accounting for 41 percent of statewide mortality. Norway maple (*Acer saccharinum*), quaking aspen (*Populus tremuloides*), and red pine (*Pinus resinosa*) have the highest mortality rates, with mortality-to-volume ratios greater than 5 percent, indicating a yearly loss of volume which is greater than 5 percent of total volume across the State (Fig. 6).

Aboveground Biomass of Live Trees on Forest Land (tons/acre)



Processing note: This map was produced by linking plot data to MODIS satellite pixels (250 m) using gradient nearest neighbor techniques.

Figure 4.—Distribution of live-tree and sapling aboveground biomass on forest land, New Jersey, 2009.

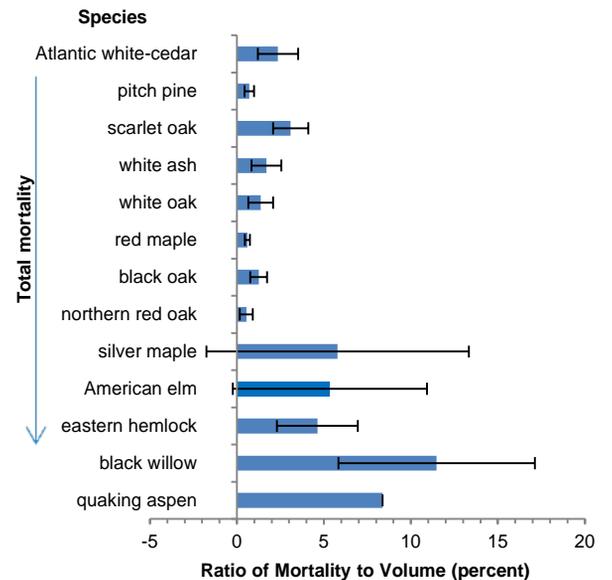


Figure 6.—Average annual mortality of growing stock as a percentage of total growing-stock volume by species, New Jersey, 2014. (Species listed in decreasing order of total mortality.)

Emerald ash borer detected in New Jersey

Emerald ash borer (*Agrilus planipennis*; EAB), an exotic wood-boring beetle, was positively identified in central New Jersey in May 2014. EAB is a pest of all North American ash (*Fraxinus* spp.) and has recently been found to colonize white fringetree (*Chionanthus virginicus*) (Cipollini 2015, Poland and McCullough 2006).

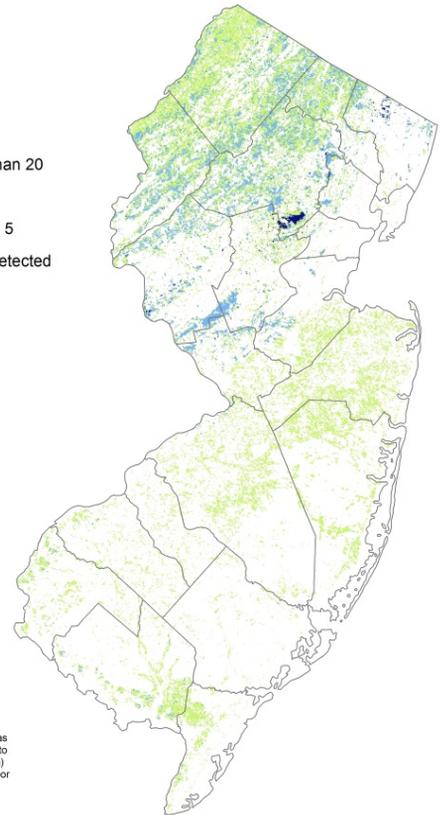
New Jersey's forest land contains 20.8 million ash trees (≥ 1 -inch diameter). White ash is the most abundant ash species (91 percent), followed by green ash (*F. pennsylvanica*) and black ash (*F. nigra*), 6 percent and 3 percent respectively. Ash accounts for nearly 250.8 million ft³ of volume, or 6 percent of total net volume of live trees (≥ 5 -inches diameter) on forest land. Widely distributed across the State, ash is concentrated in northern New Jersey (Fig. 4). EAB has caused extensive ash mortality throughout the northern United States and it represents a significant threat to the forested and urban tree resource across the New Jersey. Continued monitoring will help to identify the long-term impacts of EAB on New Jersey's forest resource.



Emerald ash borer. Photo by Leah Bauer, U.S. Forest Service.

Ash Basal Area
(ft²/acre)

Greater than 20
5 - 20
Less than 5
No Ash Detected



Processing note: This map was produced by linking plot data to MODIS satellite pixels (250 m) using gradient nearest neighbor techniques.

Figure 7.—Ash density on forest land, New Jersey, 2009 (Wilson et al. 2013).

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