USDA
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RESOURCE UPDATE FS-39

Forests of Illinois, 2014

This publication provides an overview of forest resource attributes for Illinois 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 annually until completion. To ensure that all plots are transitioned to the new cycle length, estimates reported for 2014 include data collected from 2009-2014, with comparisons made to data reported in 2009 (and collected from 2005-2009).

Overview

Illinois is home to 4.9 million acres of forest land, a gain of 2 percent since 2009 (Table 1). Timberland accounts for 94 percent of forest land, while the remaining 6 percent of forest land is reserved or unproductive.

Photo by Susan Crocker, U.S. Forest Service

Table 1.—Illinois' forest statistics, 2014

	2014 estimate	Sampling error (%)	Change since 2009 (%)
Forest Land			
Area (thousand acres)	4,974	1.6	2.3
Number of live trees ≥1 in diameter (million trees)	2,078	2.6	-1.9
Net volume of live trees ≥5 in diameter (million ft^3)	9,264	2.4	6.1
Live-tree aboveground biomass (thousand oven-dry tons)	251,543	2.2	6.1
Net growth of live trees ≥5 in (thousand ft^3/yr)	178,041	6.2	-15.9
Annual harvest removals of live trees 5 in (thousand ft^3/yr)	49,630	16.7	22.6
Annual other removals of live trees ≥5 in (thousand ft^3/yr)	20,318	39.1	48.8
Annual mortality of live trees ≥5 in (thousand ft^3/yr)	147,171	5.7	15.1
Timberland			
Area (thousand acres)	4,664	1.8	2.2
Number of live trees ≥1 in diameter (million trees)	1,964	2.7	-1.9
Net volume of live trees ≥5 in diameter (million ft^3)	8,651	2.6	6.0
Net volume of growing-stock trees ≥5 in diameter (million ft^3)	6,996	2.8	1.0
Live-tree aboveground biomass (thousand oven-dry tons)	235,403	2.4	6.1
Net growth of growing-stock trees ≥5 in (thousand ft^3/yr)	147,061	5.9	-11.6
Annual harvest removals of growing-stock trees ≥5 in (thousand ft^3/yr)	43,795	17.6	17.4
Annual other removals of growing-stock trees ≥5 in (thousand ft^3/yr)	14,838	37.6	26.3
Annual mortality of growing-stock trees ≥5 in (thousand ft^3/yr)	94,766	6.6	0.8

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

Forest Area

Illinois forest land has gradually increased in area since 1945 (Fig. 1). While forest land occurs throughout most of Illinois, it is concentrated in the western and southern portions of the State, with most of forest land occurring in the Shawnee National Forest (Fig. 2). Eighty-three percent, or 4.1 million acres of forest land is privately owned.

Hardwoods are the dominant species types in Illinois. Two hardwood forest-type groups—oak/hickory and elm/ash/cottonwood—occupy 92 percent of forest land in Illinois. The oak/hickory group alone occupies just over two-thirds of forest land, the bulk of which resides in the white oak/red oak/hickory forest type (1.7 million acres). Softwoods, with 80,300 acres, represent nearly 2 percent of forest land.

Forest land consists mainly of sawtimber stands (75 percent); 16 percent of forest land is made up of poletimber stands, 8 percent contain sapling-seedling stands, and 1 percent is nonstocked. The average age of forest stands continues to increase (Fig. 3). Currently, nearly half (54 percent) of stands are over 61 years of age.

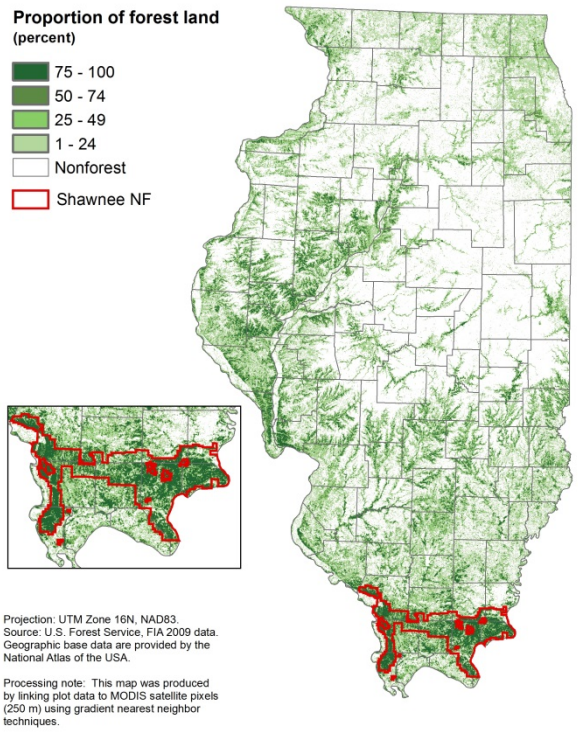

Figure 2.—Distribution of forest land, Illinois, 2009.

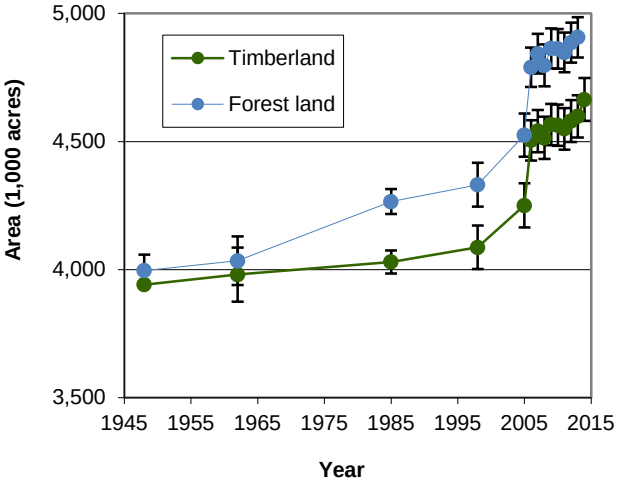

Figure 1.—Area of timberland and forest land by year, Illinois. Error bars represent 68 percent confidence interval around the estimate.

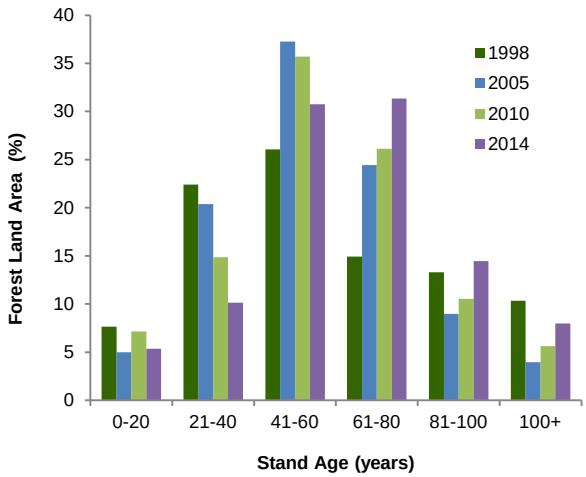

Figure 3.—Percent of forest land by stand age and inventory year, Illinois, 2014.

Volume, Biomass, and Trends

Live-tree and sapling biomass in Illinois continues to increase and currently totals 251,500 tons on forest land (Table 1). Biomass is distributed throughout the State, with the largest concentrations in the southern tier of Illinois counties (Fig. 4). Illinois' forest land contains over 2 billion trees (greater than 1 inch diameter at breast height [d.b.h.]) (Table 1). This represents an 18 percent decrease, nearly half a billion trees, since 1998, which largely due to aging forests. American elm, hackberry, and sugar maple are the most numerous species in Illinois (Fig. 5).

Volume of live trees in Illinois is increasing (Table 1). White oak, at 971.1 million ft^3, is the most voluminous species of forest land, followed by silver maple (858.6 million ft^3) and black oak (629.9 million ft^3). As a group, oaks make up one-third of total live-tree volume.

Forest growth rates have decreased by 16 percent since 2009 largely due to issues of reversion, wherein an increase in the quality of available imagery led to the detection of small changes in forest area and identified growth of trees on lands that reverted from nonforest land to forest land (Table 1); for more information on reversion issues see Crocker 2013.

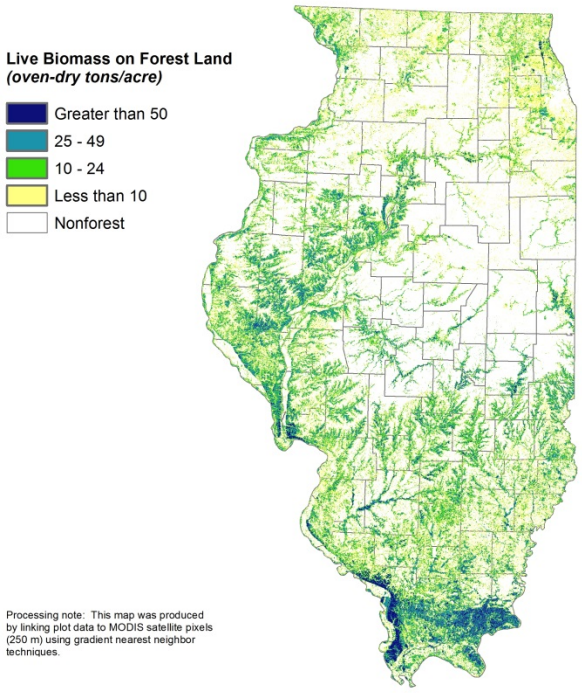

Figure 4.—Distribution of live-tree and sapling biomass on forest land, Illinois, 2009.

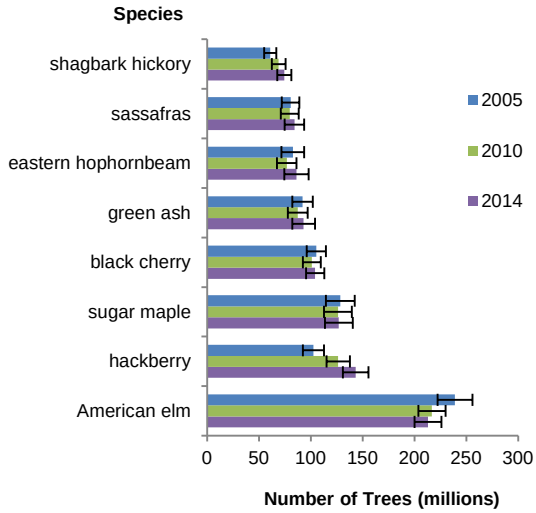

Figure 5.—Top eight species on forest land by number of trees and inventory year, Illinois.

Mortality has increased over the past 7 years, primarily on forest land (Table 1). American elm is the top contributor to total mortality in Illinois, followed by black oak, silver maple, and northern red oak (Fig. 6). Several species, including pumpkin ash, black willow, and river birch, had mortality-to-volume ratios greater than 6 percent, indicating a yearly loss greater than 6 percent of volume (Fig. 6).

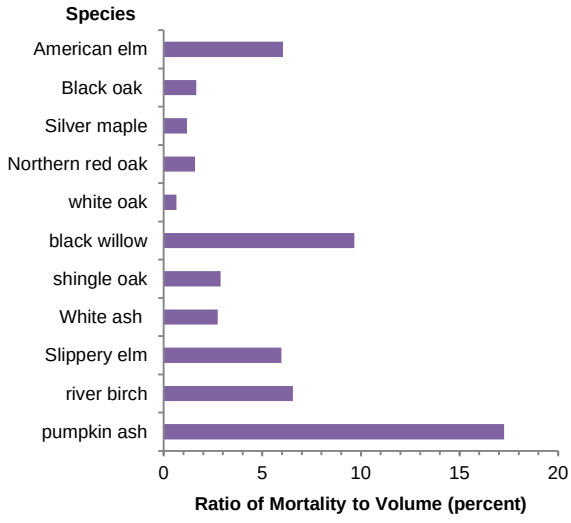

Figure 6.—Average annual mortality of growing stock as a percentage of total growing-stock volume by species, Illinois, 2014. (Species are shown in decreasing order of total mortality.)

Emerald Ash Borer Continues to Kill Illinois Ash

Emerald ash borer (*Agrilus planipennis*; EAB) was first detected in Illinois in 2006, though it is believed to have been present for 3 to 5 years prior (Poland and McCullough 2006). EAB is now found in 60 percent, or 61 Illinois counties (as of Nov 2014) (IL DOA 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). Illinois' forest land contains 145. 3 million ash trees (greater than 1-inch d.b.h.). Ash mortality has quadrupled over the past two decades, increasing from 1.5 million ft^3 per year in 1985 to 6.1 million ft^3 per year in 2014.

Ash mortality from emerald ash borer. Photo by Bill McNee, WI DNR, via Bugwood.org.

Literature Cited

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Definitions

Forest land — Land that has at least 10 percent canopy cover of live trees of any size or formerly having had such tree cover and is not currently developed for nonforest uses. The area with trees must be at least 1 acre in size and at least 120 feet wide.

Timberland — Forest land that is producing or is capable of producing in excess of 20 cubic feet per acre per year of industrial wood in natural stands and is not withdrawn from timber utilization by statute or administrative regulation.

Growing-stock volume — The amount of sound wood in live, commercial tree species; trees must be at least 5 inches in d.b.h. or greater and free of defect.

Sawtimber volume — Net volume of the saw log portion of live sawtimber, measured in board feet, from a 1-foot stump to minimum top diameter (9 inches for hardwoods and 7 inches for softwoods).

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