USDA Forest Service, US Department of Agriculture
Northern Research Station

Illinois' Forest Resources, 2007

Research Note NRS-35

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 of the U.S. Forest Service. These estimates, along with web-posted core tables, will be updated annually. For more information, please refer to page 4 of this report.

Table 1 – Annual estimates, uncertainty, and change, Illinois, 2007

	2007 estimate	Sampling error (%)	Change since 2006 (%)
Forest Land Estimates			
Area (1,000 acres)	4,843.0	1.6	1.1
Number of live trees 1-inch diameter or larger (1,000,000 trees)	2,154.1	2.8	0.0
Biomass of live trees 1-inch diameter or larger (1,000 tons)	240,472.4	2.4	2.5
Net volume in live trees (1,000,000 ft^3)	8,684.3	2.5	2.1
Annual net growth of live trees (1,000 ft^3/year)	229,115.4	12.7	-17.6
Annual mortality of live trees (1,000 ft^3/year)	104,481.6	15.9	-16.2
Annual removals of live trees (1,000 ft^3/year)	47,730.4	28.4	4.9
Timberland Estimates			
Area (1,000 acres)	4,695.8	1.7	1.6
Number of live trees 1-inch diameter or larger (1,000,000 trees)	2,096.1	2.9	0.8
Biomass of live trees 1-inch diameter or larger (1,000 tons)	231,885.9	2.5	3.0
Net volume in live trees (1,000,000 ft^3)	8,371.9	2.6	2.6
Net volume of growing-stock trees (1,000,000 ft^3)	7,403.9	2.8	1.3
Annual net growth of growing-stock trees (1,000 ft^3)	251,930.0	14.5	17.4
Annual mortality of growing-stock trees (1,000 ft^3/year)	73,889.0	19.8	-25.6
Annual removals of growing-stock trees (1,000 ft^3/year)	58,724.9	29.4	35.7

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

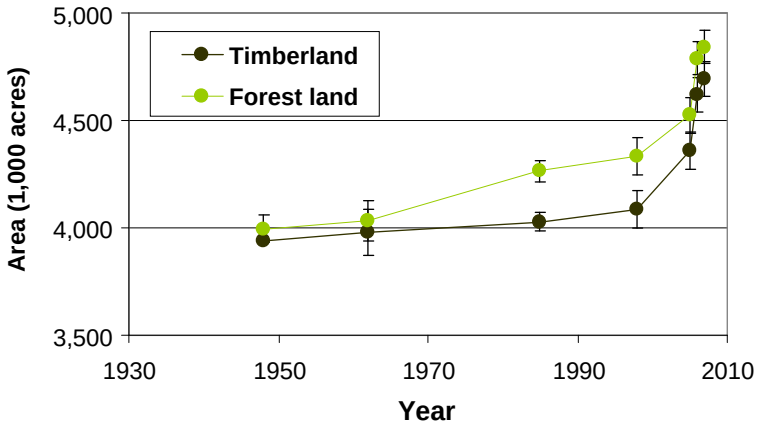

Figure 1 – Area of timberland and forest land by year, Illinois, 2007.

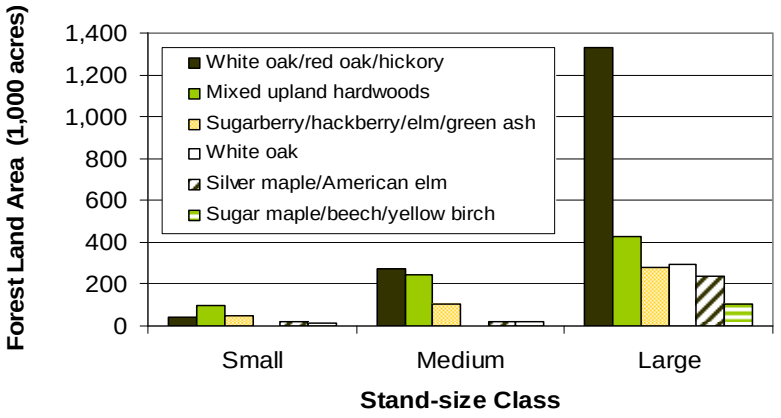

Figure 2 – Area of forest land by top six forest types and stand-size class, Illinois, 2007.

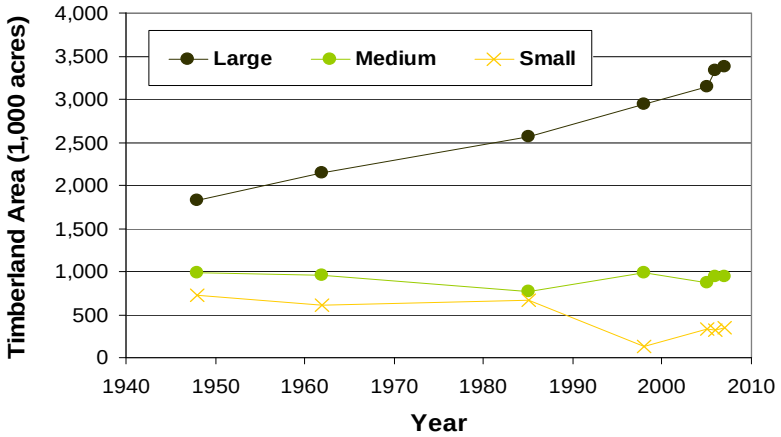

Figure 3 – Area of timberland by stand-size class and year, Illinois, 2007.

Table 2 – Top 10 tree species by statewide volume estimates, Illinois, 2007

Rank	Species	Volume of live trees on forest land (1,000,000 ft^3)	Sampling error (%)	Change since 2006 (%)	Volume of sawtimber trees on timberland (1,000,000 bdft)	Sampling error (%)	Change since 2006 (%)
1	White oak	1,085.2	6.9	6.80	4,138.7	7.5	8.90
2	Silver maple	767.4	14.2	2.10	2,449.6	15.5	5.80
3	Black oak	530.7	8.8	-0.50	2,018.7	9.5	-4.20
4	Northern red oak	481.9	10.4	1.20	1,868.6	11.6	-0.40
5	Eastern cottonwood	350.7	17.6	1.00	1,298.6	17.4	-1.90
6	Shagbark hickory	315.7	9.3	-1.60	993.2	12.3	-5.50
7	Green ash	314.3	10.0	9.00	900.9	12.4	12.70
8	American sycamore	299.2	18.6	-1.90	1,101.6	19.1	-5.30
9	Sugar maple	279.0	10.7	-3.80	839.9	13.6	-6.70
10	Bur oak	273.1	17.2	8.20	839.8	18.2	2.50
	Other softwoods	250.8	17.8	0.80	934.5	20.3	2.70
	Other hardwoods	3,736.4	3.4	1.60	10,054.3	4.6	1.20
	All Species	**8,684.3**	**2.5**	**2.10**	**27,438.3**	**3.1**	**1.60**

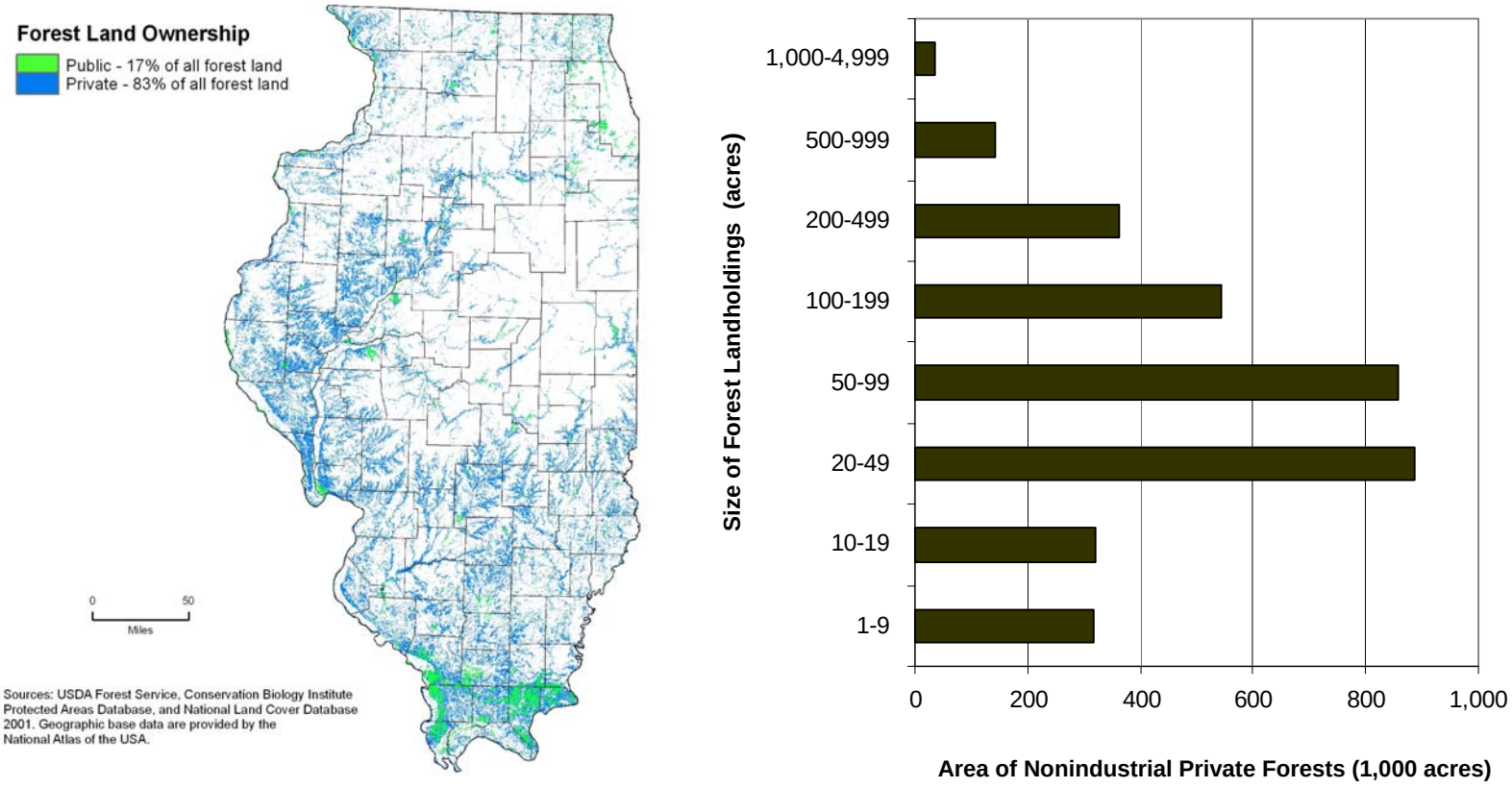

Figure 4 – Distribution of forest land by major owner group (map) and size of nonindustrial private forest landholdings (graph), Illinois, 2002-2006.

Illinois Issue Update – The Oak Resource

Oak/hickory forests are an important and dominant feature on the Illinois landscape. With 3.2 million acres of forest land distributed across the State, oak/hickory is by far the most prevalent forest-type group. Illinois' oak resource is composed mainly of white, black, red, and bur oak. The majority of this resource is made up of large-diameter or sawtimber stands; over 65 percent of Illinois forest land is composed of sawtimber-sized oak/hickory forest types.

The number of oaks on forest land totals approximately 222 million trees, or 11 percent of all trees greater than 1 inch in diameter. In comparison to hickories and maples, oak species have fewer numbers of trees in small diameter classes (Fig. 5). Oaks are instead more numerous in the large diameter classes; nearly half of all oak trees in Illinois are 15 inches or greater. As a result, it is not surprising that oaks make up the largest percentage (17 percent) of growing-stock volume on timberland. While mature oaks dominate the overstory, oak seedlings make up a relatively small component of the understory. As a group, maples represent 13 percent of total seedlings, whereas oaks represent 7 percent of seedlings.

Oaks continue to accumulate volume as they grow into larger diameter classes. Net growth of growing stock was highest among silver maple and white oak, which averaged 37.1 and 21.8 million cubic feet per year, respectively; for both species, 100 percent of this growth occurred in the large-diameter stand-size class. Growing-stock mortality was highest for black oak, comprising 14 percent of total mortality. American elm, Siberian elm, green ash, and red oak also had high mortality.

With a largely mature resource, high mortality and little regeneration, the future of the oak resource in Illinois is uncertain. Though ash and elm are numerous in the smaller diameter classes, the continued health and growth of these species is threatened by insects (the emerald ash borer) and disease (Dutch elm disease). Therefore, it is likely that the maples that currently make up a large portion of the seedling, sapling, and poletimber classes may replace oaks as dominant species in the overstory. Successful seedling regeneration and sapling development will be an important factor in maintaining a healthy oak resource.

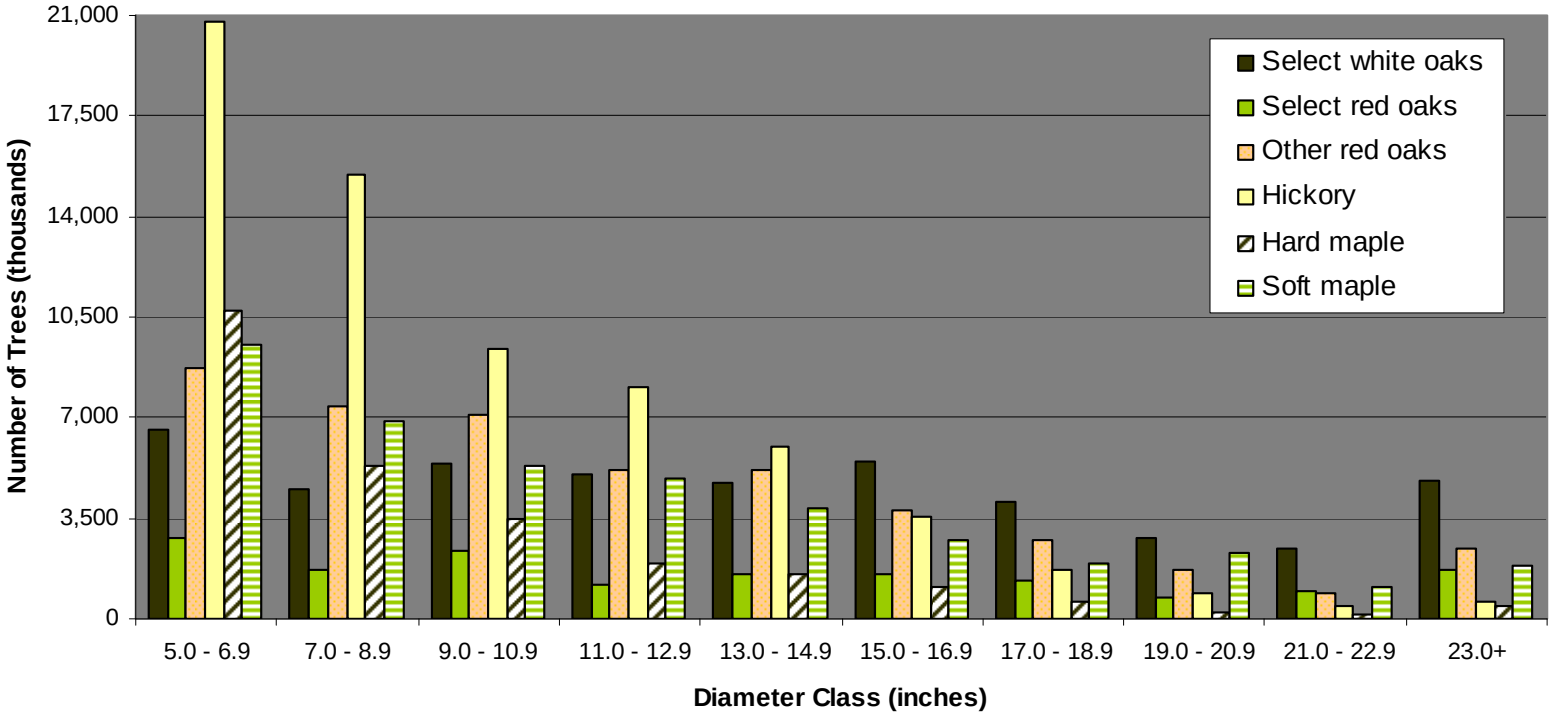

Figure 5 – Number of trees on forest land greater than 5-inches in diameter by diameter class, Illinois, 2003-2007.

Citation for this Publication

Crocker, S.J. 2009. Illinois' forest resources, 2007. Res. Note. NRS-35. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 4 p.

FIA Program Information

Bechtold, W.A.; Patterson, P.L. 2005. The enhanced Forest Inventory and Analysis Program: national sampling design and estimation procedures. Gen. Tech. Rep. SRS-80. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 85 p.

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USDA Forest Service. 2005. Forest inventory and analysis national core field guide, Vol. 1, field data collection procedures for phase 2 plots, ver. 3.0. [Online] http://www.fia.fs.fed.us/library/field-guides-methods-proc/ (verified Aug. 1 2008).

Additional Illinois Inventory Information

Crocker, Susan J.; Brand, Gary J.; Butler, Brett J.; et al. 2009. Illinois' Forests 2005. Resour. Bull. NRS-29. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 114 p.

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Definitions

Forest land — Land that is at least 10 percent stocked by 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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