

# Delaware's Forest Resources, 2011

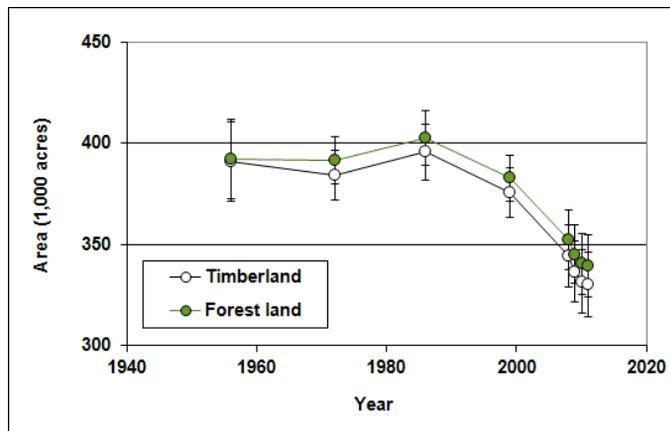
Research Note NRS-155

This publication provides an overview of forest resource attributes for Delaware based on an annual inventory conducted by the Forest Inventory and Analysis (FIA) program at 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.

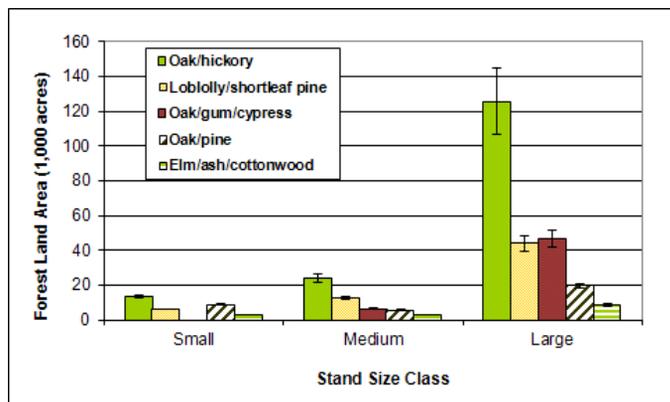
**Table 1. – Annual estimates, uncertainty and change.**

	2011 estimate	Sampling error (%)	Change since 2008 (%)
<b>Forest Land Estimates</b>			
Area (1,000 acres)	340	4.5	-3.6
Number of live trees 1-inch diameter or larger (million trees)	232	10.1	-4.3
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	23,570	5.7	-0.2
Net volume in live trees (1,000,000 ft <sup>3</sup> )	861	6.1	-0.2
Annual net growth of live trees (1,000 ft <sup>3</sup> /year)	18,406	13.5	N/A
Annual mortality of all live trees (1,000 ft <sup>3</sup> /year)	7,181	25.6	N/A
Annual removals of all live trees (1,000 ft <sup>3</sup> /year)	6,437	56.3	N/A
<b>Timberland Estimates</b>			
Area (1,000 acres)	330	4.8	-4.1
Number of live trees 1-inch diameter or larger (million trees)	226	10.3	-3.5
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	22,553	6.1	-1.7
Net volume in live trees (1,000,000 ft <sup>3</sup> )	817	6.4	-2.5
Net volume of growing-stock trees (1,000,000 ft <sup>3</sup> )	757	6.6	-6.6
Annual net growth of growing-stock trees (1,000 ft <sup>3</sup> /year)	15,598	12.5	N/A
Annual mortality of growing-stock trees (1,000 ft <sup>3</sup> /year)	5,286	27.3	N/A
Annual removals of growing-stock trees (1,000 ft <sup>3</sup> /year)	13,483	63.3	N/A

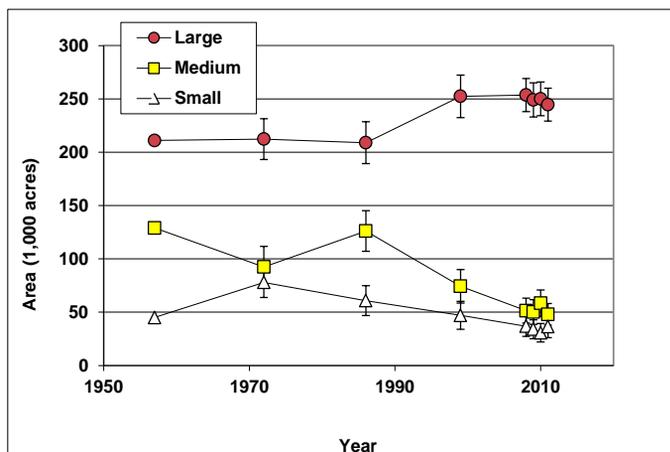
Note: When available, errors bars provided in figures represent 68 percent confidence intervals.



**Figure 1. – Area of timberland and forest land by year.**



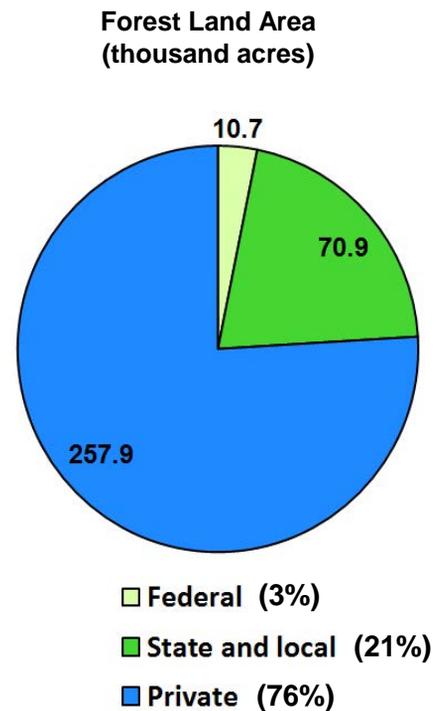
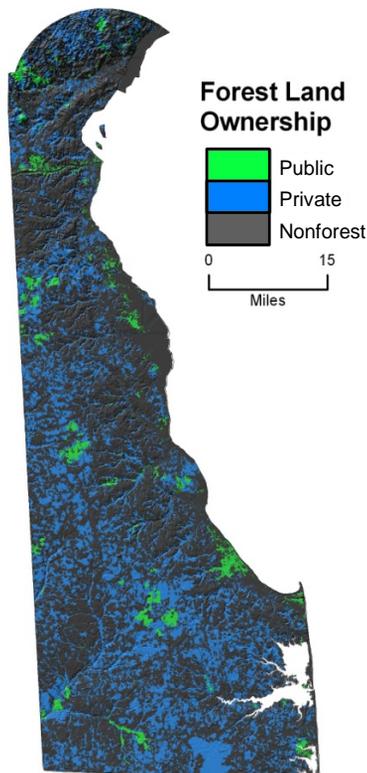
**Figure 2. – Area of forest land by top six forest-type groups and stand size class, 2007-2011.**



**Figure 3. – Area of timberland by stand size class and year.**

**Table 2. – Top 10 tree species by statewide volume estimates, 2007-2011**

Rank	Species	Volume of live trees on forest land (1,000,000 ft <sup>3</sup> )	Sampling error (%)	Change since 2008 (%)	Volume of sawtimber trees on timberland (1,000,000 bdf)	Sampling error (%)	Change since 2008 (%)
1	Red maple	181	13.0	-4.1	519	17.3	-7.1
2	Loblolly pine	122	17.9	23.5	432	19.8	32.4
3	Yellow-poplar	105	25.3	10.8	333	25.4	-19.7
4	Sweetgum	100	14.3	-12.4	308	17.9	-14.4
5	White oak	62	18.5	-5.2	248	22.9	-7.3
6	Willow oak	43	35.3	5.7	219	36.8	9.7
7	Southern red oak	34	27.9	15.5	125	30.5	19.8
8	Blackgum	29	20.8	-13.0	80	29.1	-11.2
9	Black cherry	23	28.4	-3.8	42	52.2	-6.7
10	Virginia pine	18	31.0	-28.6	63	36.9	-31.1
	Other softwoods	1	64.5	-62.5	0	N/A	N/A
	Other hardwoods	144	12.7	-2.2	443	17.7	0.6
	<b>All species</b>	<b>861</b>	<b>6.1</b>	<b>-0.2</b>	<b>2,810</b>	<b>7.9</b>	<b>-3.1</b>



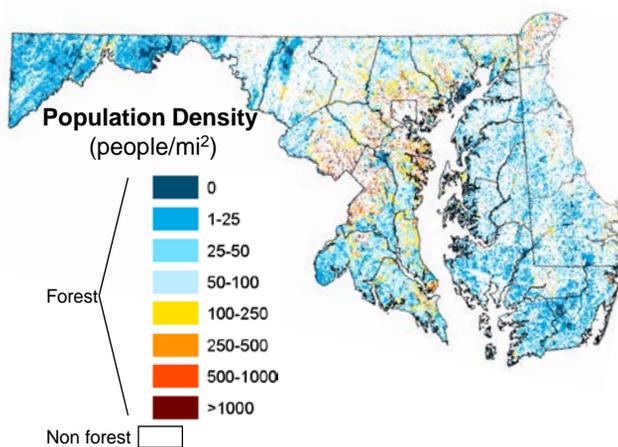
Data sources: USDA Forest Service, Conservation Biology Institute Protected Areas Database, National Land Cover Database 2001. Geographic base data provided by the National Atlas of the USA.

**Figure 4. – Distribution of ownerships and area of forest land (thousand acres) by ownership group, Delaware, 2011.**

## Urban Forest Land in Delaware and Maryland

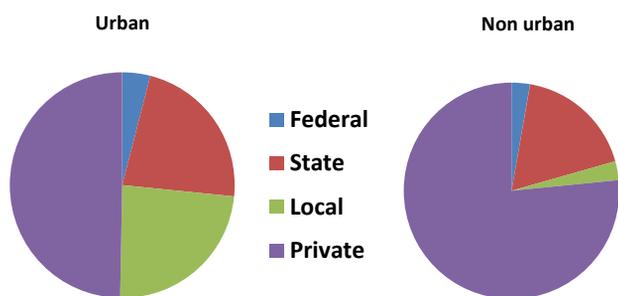
More than 80 percent of the U.S. population lives in urban areas. Tree cover in these areas offers a wide range of environmental benefits, including the provision of wildlife habitat, aesthetic appeal and visual barriers, climate control, carbon sequestration, water quality improvement, and air and noise pollution abatement. Many studies indicate that forest land that lies in close proximity to developed land or in areas of high population density may be strongly influenced by urban land uses. These forests often differ from their rural counterparts in forest structure and function as they may be exposed to a unique set of abiotic and biotic pressures associated with their proximity to developed areas. The higher density of forest-nonforest edges near urban areas can significantly impact the flora and fauna of these areas by altering patterns of seed dispersal and by changing local climate and moisture dynamics.

Delaware and Maryland are ranked 5<sup>th</sup> and 6<sup>th</sup>, respectively, among the U.S. states in terms of percent urban land, which includes urbanized areas and urban clusters as defined by the U.S. Census Bureau (2010). Urban area is generally found in census blocks that have a population density of at least 1,000 people per square mile. Using FIA's definition of forest land, the forested portion of this urban land is estimated to be 34,000 acres in Delaware and 310,000 acres in Maryland. Figure 5 shows the spatial distribution of forest land by population density class. Urban forest land in Delaware is mostly located in northern New Castle County. Urban forest land in Maryland is concentrated primarily in the central part of the state along the Baltimore-Washington, D.C., corridor.



**Figure 5. – Distribution of forest land by population density class in Delaware and Maryland.**

FIA data was used to characterize the forest land in these urban areas to see if it differed from the forest land of the non-urban areas. Since the area of urban forest land is relatively small, FIA data from Delaware and Maryland were combined to increase the reliability of the estimates. The oak/hickory forest type group predominates in both urban and non-urban areas and the distribution of forest land by forest type group and stand size is similar for both urban non-urban areas in Delaware and Maryland. Figure 6 shows the proportion of forest land in each major ownership group. Most forest land in both urban and non-urban areas is privately owned, however the data suggest a greater proportion of local and municipal government forest land ownership in urban areas than in non-urban areas.



**Figure 6. – Urban and non-urban forest land by ownership category in Delaware and Maryland.**

There are many trees in urban areas that are not included in the FIA inventory because they don't meet FIA's definition of forest. For example, a treed area may not meet FIA's minimum size and shape requirements (Woudenberg and others 2010). In an effort to estimate and characterize the full extent of tree cover in urban areas, the Forest Service has partnered with local organizations to inventory trees in select cities. Currently, the Forest Service's Philadelphia Urban Field Station is partnering with FIA and local cooperators to measure the urban tree resource in New Castle County, Delaware. Results of this study will help scientists quantify the benefits these urban trees provide in terms of provision of wildlife habitat, climate control, water quality improvement, and air and noise pollution abatement.

### Citation for this Publication

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### FIA Program Information

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### Contact Information

Lead Analyst: Tonya Lister (610) 557-4033, [tlister01@fs.fed.us](mailto:tlister01@fs.fed.us)

Data processing/access: Chuck Barnett, (610) 557-4037, [cjbarnett@fs.fed.us](mailto:cjbarnett@fs.fed.us)

Field data collection: Tom Willard, (717) 718-7881, [thomaswillard@fs.fed.us](mailto:thomaswillard@fs.fed.us)

Estimates, tabular data, and maps from this report may be generated at: [www.fiatools.fs.fed.us](http://www.fiatools.fs.fed.us)

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