USDA Forest Service, US Department of Agriculture
Northern Research Station

Delaware's Forest Resources, 2010

Research Note NRS-116

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 and uncertainty.

	2010 estimate	Sampling error (%)
Forest Land Estimates		
Area (1,000 acres)	341	4.4
Number of live trees 1-inch diameter or larger (million trees)	239	9.5
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	23,362	5.4
Net volume in live trees (1,000,000 ft^3)	857	5.9
Annual net growth of live trees (1,000 ft^3/year)	17,415	18.4
Annual mortality of all live trees (1,000 ft^3/year)	7,978	30.1
Annual harvest removals of all live trees (1,000 ft^3/year)	2,310	66.4
Annual other removals of all live trees (1,000 ft^3/year)	0	N/A
Timberland Estimates		
Area (1,000 acres)	332	4.7
Number of live trees 1-inch diameter or larger (million trees)	234	9.7
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	22,348	5.8
Net volume in live trees (1,000,000 ft^3)	813	6.1
Net volume of growing-stock trees (1,000,000 ft^3)	770	6.2
Annual net growth of growing-stock trees (1,000 ft^3/year)	15,169	16.9
Annual mortality of growing-stock trees (1,000 ft^3/year)	6,103	31.6
Annual harvest removals of growing-stock trees (1,000 ft^3/year)	1,959	66.2
Annual other removals of growing-stock trees (1,000 ft^3/year)	11,854	91.9

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

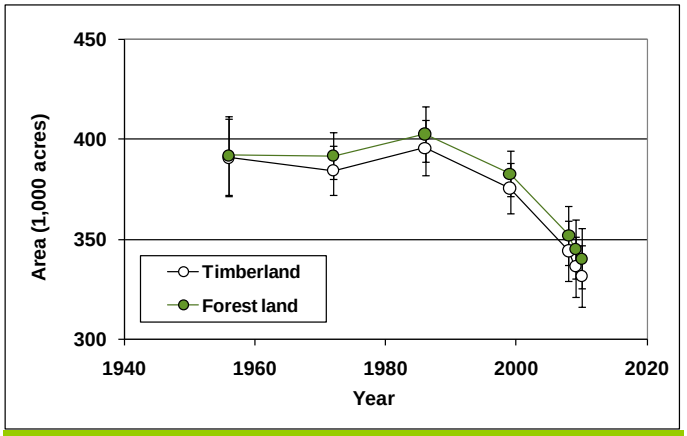

Figure 1. – Area of timberland and forest land by year.

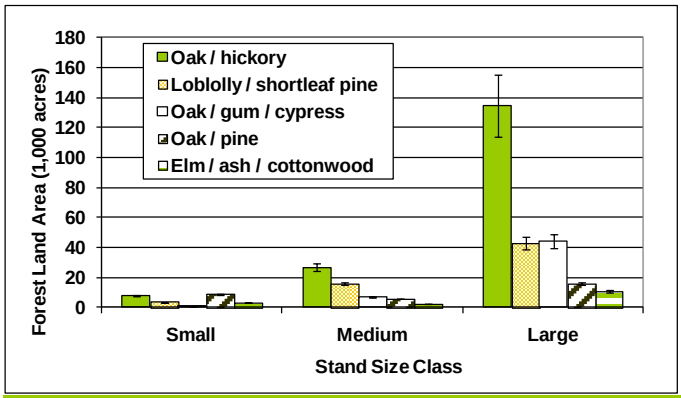

Figure 2. – Area of forest land area by top six forest type groups and stand size class, 2006-2010.

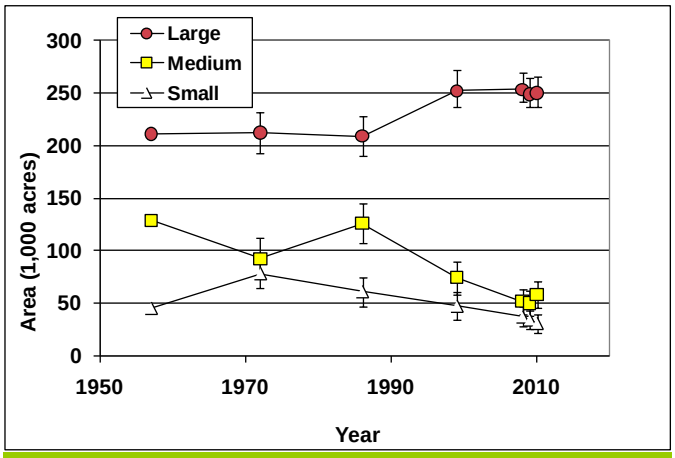

Figure 3. – Area of timberland by stand size class and year.

Table 2. – Top 10 tree species by statewide volume estimates, 2006-2010

Rank	Species	Volume of live trees on forest land (1,000,000 ft^3)	Sampling error (%)	Volume of sawtimber trees on timberland (1,000,000 bdft)	Sampling error (%)
1	Red maple	192	11.9	557	15.5
2	Loblolly pine	118	18.2	398	20.2
3	Sweetgum	104	13.9	309	17.4
4	Yellow-poplar	100	26.3	305	26.7
5	White oak	62	18.4	256	22.0
6	Willow oak	39	34.5	198	36.3
7	Blackgum	30	20.4	79	29.2
8	Southern red oak	26	25.0	92	28.4
9	Scarlet oak	22	28.1	48	45.7
10	Virginia pine	19	31.7	68	37.9
	Other softwoods	2	92.0	5	110.7
	Other hardwoods	142	12.5	454	17.3
	All species	**857**	**5.9**	**2,769**	**7.6**

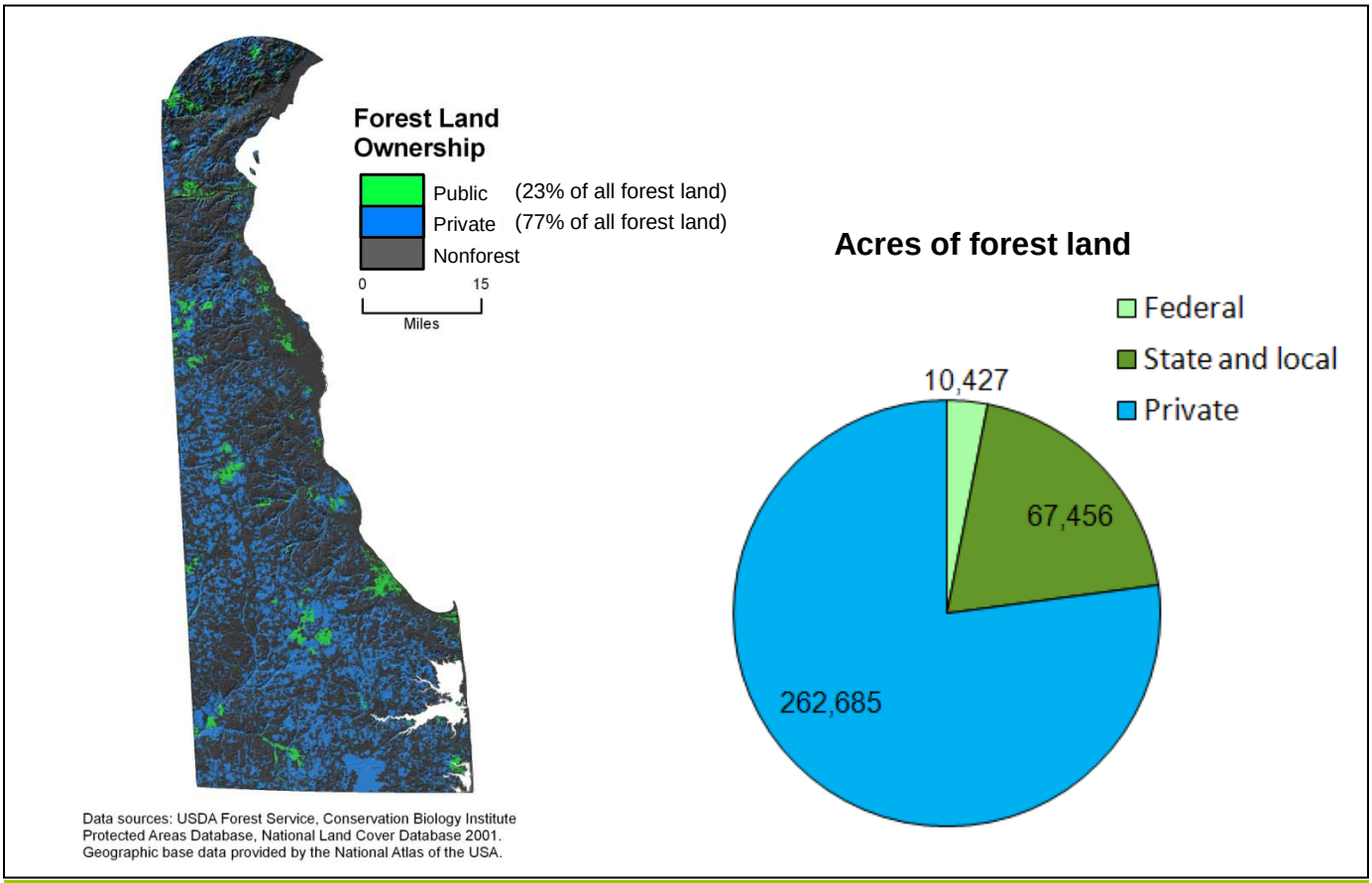

Figure 4. – Distribution of ownerships and area of forest land (acres) by ownership group, Delaware, 2010.

Forest loss in Delaware

Delaware is dominated by agricultural and developed land uses, with forests comprising only 28 percent of the total land area. These forests offer a wide range of ecological, economic, and aesthetic benefits. Delaware contains portions of the Chesapeake Bay watershed and the Delaware River basin, and forests within these watersheds help maintain water quality and protect against sedimentation and nutrient enrichment. They offer habitat for forest-dwelling species and provide economic and other benefits for humans (Sprague et al. 2006). However, the Delaware forests are under increasing pressure as the demand for residential development increases (Claggett et al. 2004). Urban development is occurring at a rapid pace. Nowak et al. (2005) predicted that the area of urban land in the United States will nearly triple from 2000 to 2050. This expansion is placing greater pressure on the forests of the mid-Atlantic region and has resulted in forest loss due to the conversion of forest land to urban and residential uses.

Delaware has been losing forest land since the mid 1980s, and the 2010 FIA data suggest that this trend has continued. Since the FIA inventory in 1986, over 55,000 acres of forest land have been lost (Fig. 1). Delaware's forest land is concentrated in the west central (Kent County) and southern (Sussex County) portions of the state and occurs largely as remnant patches and corridors within a primarily urban and agricultural matrix. A significant loss of forest land has occurred since 1999 in Sussex County which is the State's most heavily forested county (Fig. 5). This loss is partially due to the divestiture of land by large industrial land owners and poor return on growing wood products due to market prices. Another factor contributing to the loss of forest land is the increase in urban and residential development during this time period. It is not surprising that forest land conversion in Sussex County is a major driving force behind the net loss of forest in Delaware. According to U.S. Census data, the population in Sussex county increased by 23 percent between 2000 and 2009, which is nearly 3 times the national average of 9 percent and more that the statewide increase of 13 percent. Population increases are greatest in the eastern region of the county due its desirable coastal location.

It is important to monitor forest loss and ensure that excessive forest fragmentation does not compromise the ability of the forest to provide benefits or ecosystem services. Not only does Sussex county host the state's greatest proportion of forest land, it also contains some of the state's largest forest patches. Figure 6 shows the proportion of forest land in each county by forest patch size. Sussex county has nearly 70 percent of its forest land in patches greater than 500 acres in size and is also host to the largest forest patches in the state. These large, contiguous areas of forest land are especially important to wildlife species that are dependant on interior forest for their survival. In contrast, the more highly developed New Castle county has 60 percent of its forest land in patches less than 500 acres.

There are a number of programs and legislative initiatives that are designed to promote wise stewardship of Delaware's forest resources. The Forest Legacy Program and Delaware's Open Space Program have allowed for the purchase of tracts of land that will be preserved. To date, Delaware has bought over 1,500 acres and secured easements on another 900 acres of land that will be protected from development.

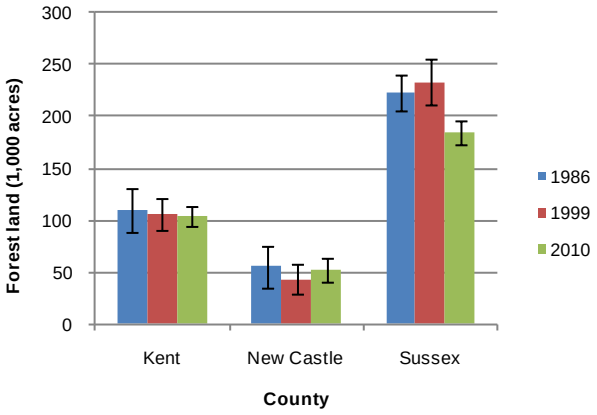

Figure 5. – Area of forest land by county, Delaware, 1986, 1999, and 2010.

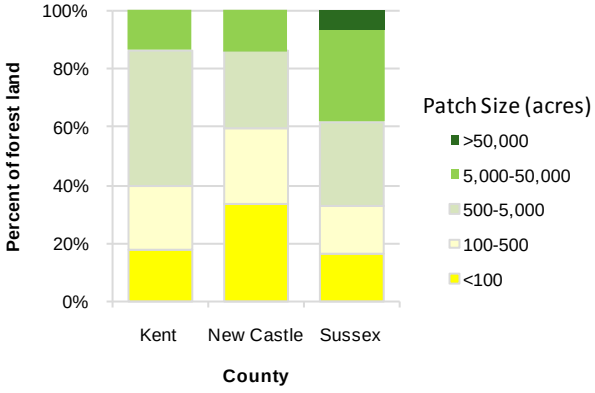

Figure 6. – Forest land (percent) by forest patch size and county, Delaware. Data derived from National Land Cover Dataset (Homer et al. 2001).

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Estimates, tabular data, and maps from this report may be generated at: www.fiatools.fs.fed.us