

# Future of FIA reports in NRS

Analytical Reporting Team:

Susan Crocker, Brian Walters, Tonya Lister, Will McWilliams, Randy Morin, Keith Moser, Rich Widmann, Chris Woodall



# Analytical Reporting Team



# History of FIA reports

## Periodic reports

- Hardcopy only
- Resource bulletin
- Detailed analysis
  - Area
  - Volume
  - GRM
  - Forest Health
- Standard tables

## Condensed bulletins

### MARYLAND FORESTS

Forests protect watersheds, provide opportunities for recreation and settings for aesthetic enjoyment, serve as habitat for wildlife, and produce wood and other forest products. The forests of Maryland contribute greatly to the quality of life of the State's residents, making the Old Line State a better place in which to live. Data in this brochure are from reports published by the USDA Forest Service, which periodically inventories the forests of all 50 states. In cooperation with the Maryland Department of Natural Resources, the Northeastern Research Station completed the fifth statewide inventory of Maryland's forest resources in 1999.

#### DECLINES IN FOREST LAND AREA CONTINUE

Forests cover 41 percent of Maryland, or 2.6 million acres. This amount of forest cover is remarkable in a state that has seen tremendous population growth and economic development in recent years. There are three reasons for this high percentage of forested land. First, most of the population has been concentrated in and around Baltimore and Washington D.C., and a few other cities, leaving much of the state fairly rural. Second, there has been a sizable decrease in the amount of land used for farming. Land in farms is now half of what it was in 1950—a loss of 2.1 million acres. Although much of the lost farmland has been developed, some of it has been abandoned and has reverted to forest land through natural regeneration and tree planting. These new forests have offset much of the losses in forest land due to development. Third, Maryland forests have been conserved and protected by various public programs such as Program Open Space, the Forest Conservation Act (FCA), and the Smart Growth and Rural Legacy Programs. If future growth is managed wisely, some of the negative impacts of urban sprawl will be minimized. Yet, despite these efforts, declines in forestland area have occurred and are likely to continue in the future, as development pressures increase on forest as well as farmland.

#### TRENDS IN FOREST LAND AREA

(Thousands of acres at each inventory)

	Inventory date				
	1950	1964	1976	1986	1999
Timberland	2,897	2,885	2,843.7	2,622.2	2,371.9
Noncommercial forest land	23	78	126.6	123.2	153.9
Total forest land	2,920	2,963	2,970.3	2,745.4	2,525.8
Percent forested	45.2%	46.0%	41.3%	42.3%	41.0%
Estimated total land area	6,324	6,319	6,320.2	6,255.8	6,255.8

The 1999 forest inventory reported that forest land in Maryland decreased by 79,500 acres since the previous inventory in 1986. The area in forest has been declining since the 1950's.

Forest land is categorized by the Forest Service as either timberland or noncommercial forest land. These categories aid in understanding the availability of forest resources and forest management planning. Ninety-two percent of forest land (2,371,900 acres) is classified as timberland that is potentially available for harvesting, though some of this is in areas not generally thought of as producing timber. The amount of area in timberland has been declining steadily since 1950.

The noncommercial forest land category includes reserved forest lands and unproductive forests. Harvesting for timber products on these lands is administratively restricted or economically impractical. Examples include parks, wildlife preserves, and wetlands with poor growing conditions. Most noncommercial forest land is owned by public agencies and has steadily increased in area from 23,000 acres in 1950 to 153,900 acres in 1999. Nearly all of this increase is due to the reclassification of timberland into this category.

Forest land is not distributed evenly across the state. Allegany County is the most heavily forested county (78 percent); Kent and Queen Annes are the least forested, together averaging only 24 percent.

#### PERCENTAGE OF LAND IN FOREST, BY COUNTY, 1999

Values on county boundaries denote an average for the two counties.

#### PEOPLE AND FORESTS

The size of the population and how people live on the land are significant forces in shaping the forest. The Nation's fifth most densely populated state with 5.3 million people, Maryland has seen its population more than double since 1950. As mentioned earlier, despite the State's high degree of urbanization, large areas of natural vegetation remain in Maryland in part because the population is not equally distributed. However, this is changing as development increases throughout the state.

Seventy-six percent of the State's forest land is owned by an estimated 130,000 private individuals and enterprises; federal, state, and other public owners hold the remaining 24 percent.

#### OWNERSHIP OF FOREST LAND IN MARYLAND

Wildlife biologists have discovered that breaking up large tracts of continuous forest into many smaller patches to accommodate roads, housing construction, and other development activities has a detrimental effect on many species of birds and other wildlife. In Maryland, the number of landowners who hold fewer than 10 acres of timberland increased by 62 percent from 1977 to 1999. These small holdings account for 11 percent of the State's private timberland. Unlike owners of large tracts, owners of small woodlots are less likely to manage their forests or allow access to their land for activities such as hunting and fishing.

#### FORESTS ARE MATURING WITH FEWER STANDS OF YOUNG TREES

Timberland is classified by the size of the trees growing on it. In Maryland, stands in which most of the stocking is in large trees suitable for sawlogs have increased in acreage since the last forest inventory of the State. These stands, which today grow on two-thirds of the timberland have many attributes that benefit wildlife: an understory with herbaceous plants and shrubs that provides food and cover, bole cavities and bark flaps for nesting and feeding sites, respectively, and large, dead trees, both standing and on the forest floor. Also, people enjoy activities such as hiking and camping in stands dominated by large trees because they find them attractive and aesthetically pleasing. Such benefits from these stands should increase as they continue to mature.

In Maryland, about 20 percent of the forest stands are of poletimber size. Trees in these stands are not sufficiently mature to produce large amounts of nuts and seeds, and often form dense overstories that inhibit the growth of understory vegetation.

Stands classified as sapling-seedling and nonstocked decreased from 20 percent of timberland in 1976 to 12 percent in 1999. Typically found in such stands are early successional, pioneer tree species as well as a variety of herbaceous and shrub plants that need full sunlight to survive. These stands provide unique nesting and feeding opportunities for wildlife. Besides offering diverse habitat for wildlife and providing a steady flow of wood products, forests that contain all stand-size classes might be more resistant to devastating outbreaks of insects and diseases.

#### TIMBERLAND AREA BY STAND-SIZE CLASS AND PERCENT OF TOTAL BY INVENTORY YEAR

Stand-size class	1976 (%)	1986 (%)	1999 (%)
Sapling-Seedling	20%	17%	12%
Poletimber	25%	25%	21%
Sawtimber	55%	58%	67%

#### THE VOLUME OF TREES HAS INCREASED

Maryland's forests now contain more large trees with increased volume. Foresters calculate the volume in the boles of trees between a 1-foot stump and a 4-inch top diameter in terms of cubic feet of wood. Average tree volume per acre increased from 964 cubic feet in 1950 to 2,194 cubic feet in 1999. During the most recent inventory period, growing-stock volume increased by 7 percent, with the portion suitable for sawlogs increasing by 14 percent to 16.2 billion board feet. Also during this period, the average number of trees per acre that are 5 inches or more in diameter (at 4 1/2 feet above the ground) has remained unchanged at 159, though average diameter has increased from 9.3 to 9.6 inches.

#### AVERAGE VOLUME PER ACRE

#### YELLOW-POPLAR TREES LEAD IN VOLUME

Maryland's forests contain a rich mix of species. The 1999 inventory identified 94 tree species, though many of these are uncommon. The 12 most common species and species groups account for 88 percent of total cubic-foot volume. Yellow-poplar leads in volume followed closely by red maple.

# History of NRS-FIA reports

## Early annual reports (1999-2005)

- Similar to periodic reports
- Indy 12 tables

## 5-year report

- Comprehensive
- Statistical / QA document

## Current annual

- Condensed, 4 pages
- Research note
- 2006 thru 2011

## Future??

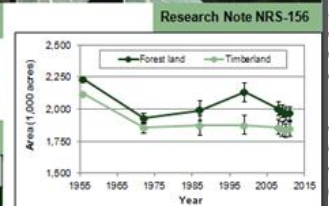
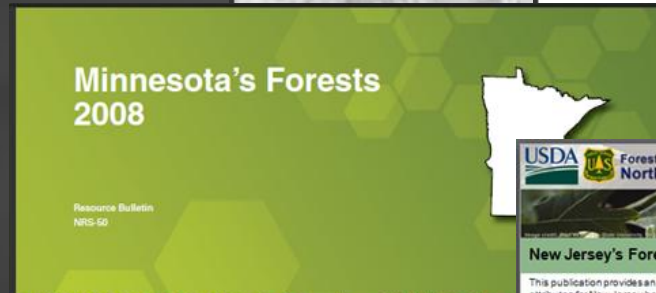


Figure 1.—Area of timberland and forest land by year, New Jersey.

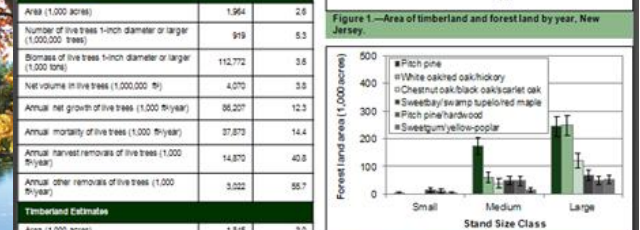


Figure 2.—Area of forest land by top six forest types and stand-size class, New Jersey, 2011.

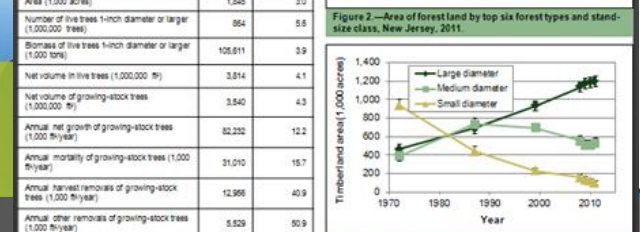


Figure 3.—Area of timberland by stand-size class and year, New Jersey.

Note: Sampling errors shown in the tables and figures in this report represent 68% confidence intervals for the estimates shown. Volumes are for both one- and two-inch diameter trees.

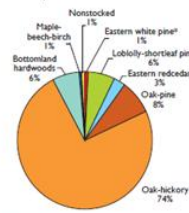
# Reporting across regions

# Southern Research Station

## FOREST COMPOSITION

The oak-hickory (*Quercus spp.-Carya spp.*) forest type accounts for an estimated 74% (9.9 million acres) of the timberland in Tennessee. The loblolly-shortleaf pine type accounts for only 6%, the majority of which is located in the eastern (302,000 acres) portion of the State. Mixed stands of the oak-pine type account for an estimated 8% of timberland in Tennessee. Bottomland hardwoods (elm-walnut-cottonwood and oak-gum-sycamore types), in West Tennessee, account for about 6% of the timberland. Eastern redcedar accounts for an estimated 3% of timberland and is predominantly located in Central Tennessee (224,000 of 351,000 total estimated acres).

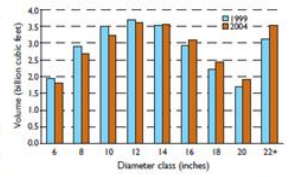
### Composition of Tennessee timberland



## TREE VOLUME

All live tree volume has increased from 25.5 billion cubic feet following the 1999 inventory to 25.9 billion cubic feet in 2004. All live tree volume trends from 1999 to 2004 indicate a similar trend as that indicated by stand-size class. From the 1999 inventory to 2004, live tree volume is recruiting from smaller diameter classes into larger classes. The peak in the distribution is shifting to larger diameter classes, indicating an aging forest resource. The second peak at the tail of the distribution is a result of clumping all live tree volume greater than or equal to the 24-inch diameter class.

### Volume of all live trees on timberland, by diameter class and survey

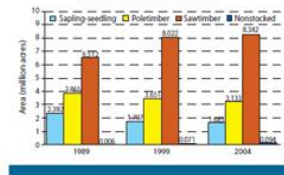


Sawtimber in the State of Tennessee is significantly dominated by hardwood species. Eighty-five percent of the estimated total sawtimber in the State are hardwood species, whereas 15% are softwood. As such, the vast majority of timber and nontimber products from Tennessee forests continue to be hardwood stand origin.

## STAND-SIZE DISTRIBUTION

The number of acres in sawtimber has steadily increased since the 1999 inventory. An estimated 8.3 million acres of timberland are in sawtimber-size stands. Since 1999, timberland acreage has been constantly recruiting from small stand-size classes into larger classes. As a result, the number of acres in the sapling-seedling stand-size class decreased from an estimated 2.4 million acres to 1.7 million acres. Essentially, this represents a loss of habitat available to early successional fauna as the Tennessee forest resource ages.

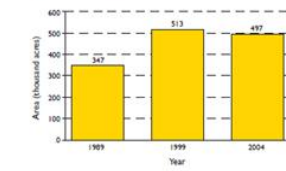
### Area of timberland by stand size



## STAND ORIGIN

An estimated 497,000 acres of timberland originated from planted stands. This represents a decrease from an estimated 513,000 acres following the 1999 inventory. For the most part, Tennessee has experienced a decrease in the number of acres planted in pine following the 1999-2001 Southern pine beetle (SPB) outbreak.

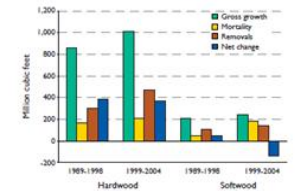
## Area of planted timberland



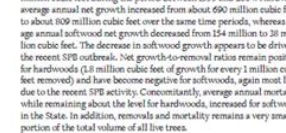
## GROWTH, REMOVALS, AND MORTALITY

The estimate of average annual net growth increased from about 843 million cubic feet during the period between 1969 and 1998 to about 948 million cubic feet during the period between 1999 and 2004. Hardwood average annual net growth increased from about 690 million cubic feet to about 800 million cubic feet over the same time periods, whereas average annual softwood net growth decreased from 154 million to 36 million cubic feet. The decrease in softwood growth appears to be driven by the recent SPB outbreak. Net growth-to-removal ratios remain positive for hardwoods (1.8 million cubic feet of growth for every 1 million cubic feet removed) and have become negative for softwoods, again most likely due to the recent SPB activity. Concurrently, average annual mortality, while remaining about the level for hardwoods, increased for softwoods in the State. In addition, removals and mortality remains a very small portion of the total volume of all live trees.

## Growth, removals, and mortality of all live trees on timberland



## Average annual removals and mortality and total volume of all live trees



## STATISTICAL RELIABILITY

A measure of reliability of inventory statistics is provided by sampling errors. These errors mean that the chances are two out of three that the true population value is within the limits indicated by a confidence interval. Sampling errors in percent and associated confidence intervals around the sample estimates for timberland area and inventory volumes are presented in the following table.

Item	Sample estimate and confidence interval	Sampling error (percent)
Timberland (100 acres)	11,254.0 ± 901	0.74
All live (M <sup>3</sup> )	25,903.0 ± 391	1.51
Growing stock (M <sup>3</sup> )	21,572.0 ± 363.4	1.68
Sawtimber (M <sup>3</sup> )	76,068.0 ± 1,643.1	2.16

FIA inventories supported by full complement of sample plots are designed to achieve reliable statistics at the survey unit and State levels. Sampling errors increase as the area or volume considered decreases in magnitude. Sampling errors and associated confidence intervals are often unacceptably high for small components of the total resource. Statistical confidence may be computed for any subdivision of State totals using the following formula.

$$SE = SE_s \cdot \sqrt{\frac{N_s}{N}}$$

where

- SE<sub>s</sub> = sampling error for subdivision of State total
- SE = sampling error for State total
- N<sub>s</sub> = sum of values for the variable of interest (area or volume) for subdivision of State
- N = total area or volume for State

For example, the estimate of sampling error for area of loblolly-shortleaf pine on timberland is computed as:

$$SE = 0.74 \cdot \sqrt{\frac{11,254.0}{844.5}} = 2.92$$

## FOREST INVENTORY & ANALYSIS FACTSHEET TENNESSEE 2004

**CHANGES TO THE 1999 AND 2004 ESTIMATES**

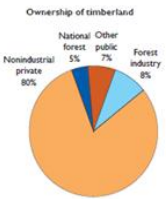
During the last several years, the U.S. Forest Service Forest Inventory and Analysis (FIA) program has experienced several changes as a result of the development of a nationally consistent database. In addition, estimation procedures have changed and strengthened over time. In some cases new methodologies reveal once unknown bias in historic estimates. That has been the case for both the 1999 and 2004 estimates previously released. For example, FIA has transitioned to the use of an automated stratification procedure that utilizes the National Land Cover Database (NLCD) to add forest land and nonforest land area stratification in order to provide more accurate forest land area estimates. The estimates used here reflect the updated estimates for 1999 and 2004.

## FOREST LAND AREA

Tennessee's forests cover an estimated 11.70 million acres or 52% of the State. In 1999 forests covered an estimated 11.85 million acres, an increase of about 247,000 acres since 1969. Although it appears that there has been a loss of an estimated 66,000 acres of forest land since 1999, the estimate statistically represents no change and is better viewed as a "leveling off" of the historical trend of increasing forest land. Forest land in Tennessee has comprised about one-half of the State's 26 million acres of land since before 1961. Since 1961, Tennessee's forests have increased slightly, from an estimated low of 50% in the 1970s to an estimated 53% in the 1999 inventory. Ninety-six percent (11.2 million acres) of the forest land is considered available for timber production.

## OWNERSHIP OF TIMBERLAND

Tennessee timberland remains overwhelmingly in private ownership. Eighty percent of timberland in the State is owned by private individuals. Slightly more than one-tenth of Tennessee's timberland is publicly owned and administered, with 9% being managed by the U.S. Forest Service as national forests and 7% held by State, local, and other federal agencies. At the time of this inventory, an estimated 8% of Tennessee's forests were owned by forest industry. However, recent and ongoing divestments by forest industry will result in a significant amount of industry land being transferred to private ownerships.



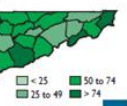
Land class	1961	1971	1981	1989	1999	2004
Timberland	11,432.4	12,039.0	12,879.0	11,265.2	11,459.2	11,254.0
Other forestland	1,658.4	204.4	478.6	312.9	280.3	450.1
Total forest	13,090.8	12,243.4	13,357.6	11,578.1	11,739.5	11,704.1
Nonforest land	15,226.2	15,355.6	13,145.6	14,244.5	15,131.4	15,295.2
Total land area	28,317.0	27,599.0	26,503.2	25,822.6	26,870.9	26,999.3
Percent forested	52%	50%	52%	53%	53%	52%

Total acreage may not add due to rounding.  
Total forest land area estimates changed slightly over time due to improvements in measurement techniques and refinements in classification of small bodies of water and streams.

## FOREST DISTRIBUTION

Of 95 Tennessee counties, 56 are estimated to be 50% forested and 17 counties 73% forested. The Cumberland Plateau unit contains the greatest number of counties with 75% or more of the land forested. Five counties are estimated to be 25% forested and are mostly located in the heavily agricultural dominated western portion of the State. The Cumberland Plateau and West-Central Tennessee are the most forested areas within the State.

### Percentage of land in forest by county



# Reporting across regions

## Interior West FIA


US FOREST SERVICE

### Interior West Forest Inventory & Analysis

(enter query) Search

- Forest Inventory & Analysis
- About IW-FIA
- Contact Us
- Staff/Personnel
- Data Retrieval and Tools
- Techniques Research
- Map Products
- State Inventory Results
  - Arizona
  - Colorado
  - Idaho
  - Montana
  - Nevada
  - New Mexico
  - Utah
  - Wyoming
- Library
- Data Collection
- Site Map
- Employment

**Publications & Inventory Results**



State: Wyoming

Net Volume: 11,418 MM CuFt

Last Inventory: 2000

Net Annual Growth: 128 MM CuFt

Forest Area: 11.4MM Acres

Annual Mortality: 87 MM CuFi

Percent Forest: 18.3

Annual Removals: -not calculated-

Basis for volumes:  All Live Trees on Forest Land  Growing Stock on Timber Land

[Point to a state to retrieve that state's data]

- Rocky Mountain Research Station
- Forest Service Research
- National FIA
- National Forest Systems

US FOREST SERVICE


### Interior West Forest Inventory & Analysis

(enter query) Search

- Forest Inventory & Analysis
- About IW-FIA
- Contact Us
- Staff/Personnel
- Data Retrieval and Tools
- Techniques Research
- Map Products
- State Inventory Results
  - Arizona
  - Colorado
  - Idaho
  - Montana
  - Nevada
  - New Mexico
  - Utah
  - Wyoming
- Library
- Data Collection
- Site Map
- Employment

**Colorado's Publications & Inventory Results**

This web page provides access to some of the IW FIA publications, summary tables, and other documentation that relate to Colorado's forest resources. Refer to Publications for posted reports. From 1981 to 1983, an inventory was conducted on lands outside the National Forest System. In 1997, an inventory was conducted on the Grand Mesa, Uncompahgre, and Gunnison National Forests. In 2002, implementation of the annual inventories commenced on all land ownerships.



**RECENT COLORADO STATISTICS**

[Annual Tables](#)

**PUBLICATIONS**

- [Colorado's Forest Resources, 2002-2006](#)
- [Colorado's Timber Resources \(10/1987\)](#) (PDF 3 meg)
- [Colorado Forest Health Report - not available online](#)
- [The Forest Resource of Colorado \(1964\)](#) (PDF 6 meg)

US FOREST SERVICE


### Pacific Northwest Forest Inventory and Analysis

Forest Service National Links

(enter query) Search

- PNW-FIA Home
- Contact Us
- Links
- Maps
- Newsroom
- Publications, Data & Other Products
- Statewide Results
  - US Forest Service
  - Pacific Northwest Research Station
  - Region 6
  - Evaluate Our Service

**Washington Inventory Results**



State: Washington

Forest Area: 21,798,264 acres

Timberland Area: 16,885,200 acres

Percent Forest: 51%

Volume, Growing Stock: 60,471 million cubic ft

Volume, Sawtimber (Scribner rule): 250,658 million board ft

Net Growth of growing stock (Current Annual): 1,473 million cubic ft

Removals of Growing Stock (Average Annual): 1,383 million cubic ft

Mortality of Growing Stock (Average Annual): 376 million cubic ft

Total Land Area: 42,699,545 acres

Data Source: Washington - 2000+2001 periodic data, Integrated Database v. 2.1

Pacific Northwest Forest Inventory and Analysis  
620 SW Main, Suite 400  
Portland, OR 97205  
P. O. Box 3890  
Portland, OR 97208-3890  
(503) 808-2000

## Pacific NW FIA

# Purpose of FIA reports

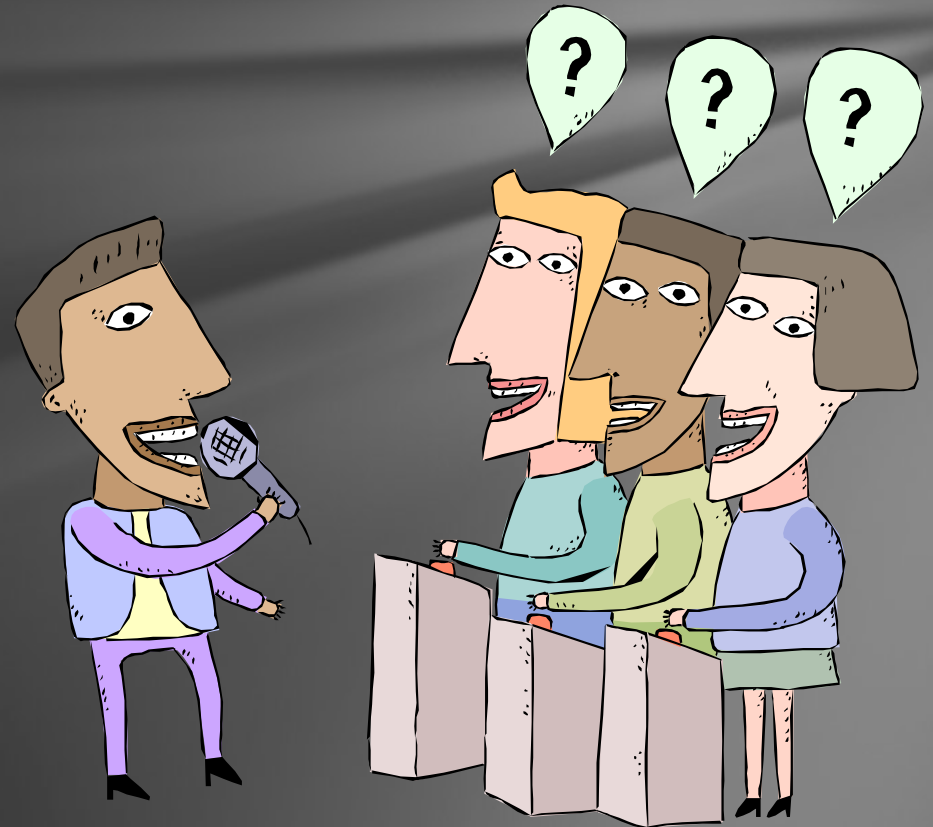
Internal QA/QC process

Data dissemination

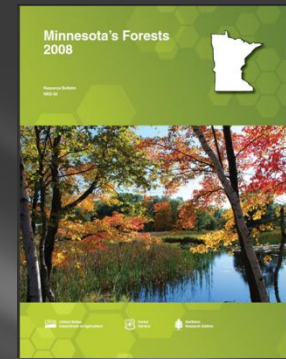
Questions:

- What purpose to annual reports serve to users/States?
  - PR?
- Are user needs currently being met?
- How can annual reports be improved?

**Question and  
Answer portion**

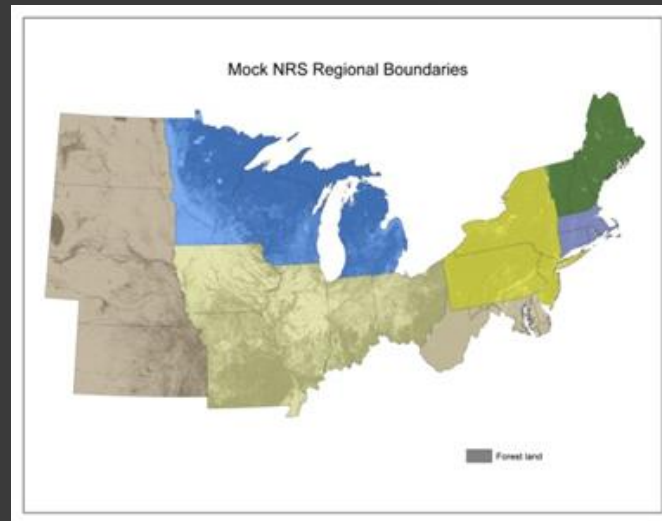
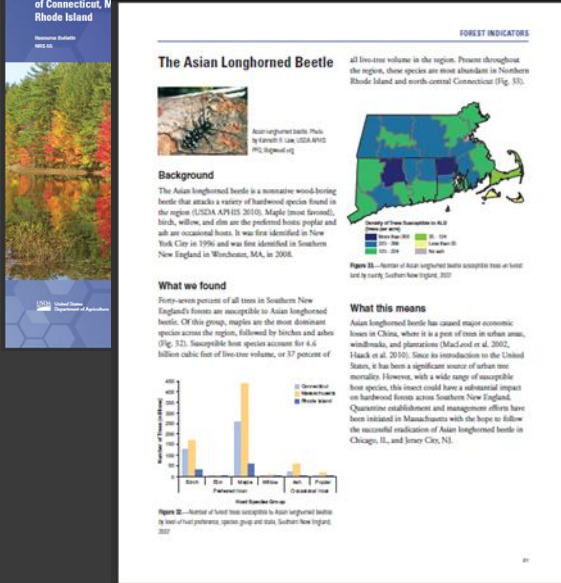


# Comprehensive 5yr reports



## Current state of 5yr reports Challenges

- Cost
  - Decreasing budgets
  - WO push to find efficiencies
  - \$20-25K per pub
- Analytical challenges to deliver timely reports (5 state reports/year)



## Regional reporting

- Do regional reports make sense?
- What would a regional report look like?
- How should states be grouped?
- Benefits:
  - Cost savings translated to more value-added reports



# Annual reports

## Long-term goals:

- Dynamic products/webpages/webtools
  - Similar to EVALIDator
    - Canned algorithms for trends
    - Output would include data interpretation (text)
  - E-books, apps, intelligent maps, etc
  - Other ideas?
- Do we need a report at all?
- Opportunities to contract analysis and reporting to states

[www.nrs.fs.fed.us/futures/](http://www.nrs.fs.fed.us/futures/)

### Current Conditions for Pennsylvania

This visualization lets you see each variable for Pennsylvania (and other states, etc.), ranked for the most detailed information about a statistic, including (All Land in State, Forest Land in State, etc.) states visually by selecting the "Compare Pennsylvania to..." dropdown menu. By hovering over any of the bars, you can see the value for that state. By clicking on a vertical bar, you can visit the state's profile page.

#### All Land in State

Pennsylvania: 28.7 Million Acres

#### Forest Land in State

Pennsylvania: 16.6 Million Acres

#### Timberland in State

Pennsylvania: 15.0 Million Acres

#### Percent Forest Land of all Land

Pennsylvania: 58%

#### Total Number of Trees

Pennsylvania: 8,244 Million Trees

#### Number of Trees per Person

Pennsylvania: 654 Trees

#### Number of Private Forest Land Owners

Pennsylvania: 497,468 Owners

- Compare Pennsylvania to...
- Connecticut
  - Delaware
  - Illinois
  - Indiana
  - Iowa
  - Maine
  - Maryland
  - Massachusetts
  - Michigan
  - Minnesota
  - Missouri
  - New Hampshire
  - New Jersey
  - New York
  - Ohio
  - Rhode Island
  - Vermont
  - West Virginia
  - Wisconsin

Legend:  
 - Forest Land (Excludes Soil)  
 - Private Forest Land (Excludes Soil)

Maps

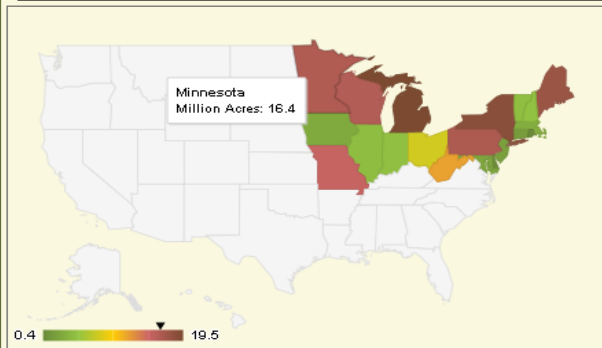
[Forest Service Home](#) | [About the Agency](#) | [Contact the National Office](#)

You are here: [NRS Home](#) / [Northern Forest Futures Project](#) / [Current Conditions](#) / [Northern Forest Futures Project Data Dashboard](#) / [Forest Land in State](#)

## Northern Forest Futures Project Data Dashboard

Forest Land in State Select Another Variable:

### Forest Land in State Map



### Forest Land in State Data

Average: 8.615 Million Acres | Total for Northern States: 172.3 Million Acres

State	Million Acres	State Profile
Michigan	19.5	<a href="#">MI Profile</a>
New York	18.7	<a href="#">NY Profile</a>
Maine	17.7	<a href="#">ME Profile</a>
Pennsylvania	16.6	<a href="#">PA Profile</a>
Minnesota	16.4	<a href="#">MN Profile</a>
Wisconsin	16.3	<a href="#">WI Profile</a>
Missouri	15.1	<a href="#">MO Profile</a>
West Virginia	12.0	<a href="#">WV Profile</a>
Ohio	7.9	<a href="#">OH Profile</a>
New Hampshire	4.9	<a href="#">NH Profile</a>
Indiana	4.7	<a href="#">IN Profile</a>
Vermont	4.6	<a href="#">VT Profile</a>
Illinois	4.5	<a href="#">IL Profile</a>
Massachusetts	3.2	<a href="#">MA Profile</a>
Iowa	2.9	<a href="#">IA Profile</a>
Maryland	2.6	<a href="#">MD Profile</a>
New Jersey	2.1	<a href="#">NJ Profile</a>
Connecticut	1.8	<a href="#">CT Profile</a>
Delaware	0.4	<a href="#">DE Profile</a>

### State Information

#### Michigan Forest Facts

Source: 2007 Forest Inventory & Analysis

All MI Land	100%	36.3 million ac
MI Forest Land	54%	19.5 million ac
MI Timberland*	52%	19 million ac
Number of Trees		
Total # Trees		13.716 million
Trees per person**		1,355
Timberland Owners		
Number of private forest land owners		497,966
Mean size of private forest land holding		24 ac
Mean age of private forest land owners		58
Forest Land Area by Owners		
Private owners		62%
State (including municipal)		22%
National Forest		14%
Other Federal		2%
Age of Timberland		
More than 100 yrs		5%
81-100 years old		11%
61-80 years old		36%
41-60 years old		31%
21-40 years old		16%
1-20 years old		5%
Volume, Annual Growth, Removal, and Mortality:		
Volume		23029.4 million ft <sup>3</sup>
Growth		702.8 million ft <sup>3</sup>
Removal		339.2 million ft <sup>3</sup>
Mortality		271.7 million ft <sup>3</sup>
Growth to removal ratio		2.1
Forest Fragmentation and Urbanization		
Hotspot Density > 16.5 mi <sup>2</sup>		29%
Forestland < 295 feet from an Edge		34%
Forestland < 1,310 ft from a Road		66%
Parcels < 100 acres in size		11%
Michigan Wood Consumption		
Total Consumption		7.14 million ft <sup>3</sup>
Carbon Stored in Forest (excludes soil)		
Total		2,147 million metric tons
Per person**		214 metric tons
Major Forest Ingredients		
Maple, Beech, Birch; Spruce, Fir; Oak, Hickory		
Minor Forest Ingredients		
Spruce, Fir; White Red Spruce; Elm, Sugar Maple		

(\*On the basis of other forest land)  
 (\*\*Based on US Census - 2007 est.)

# Annual reports

## Mid-term goals:

- Go electric and paperless
- Go pub-less (e-books, etc)
- Moving away from standard stuff

Should FIA spend time telling stories vs. showing the same graphs, etc. each year





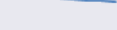

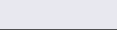


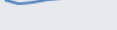

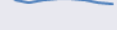

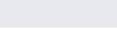

- FIA analytical products provide data, produce trends and graphs
  - While analysts dive into the data to pull out interesting trends and tell stories with the data

# Short term goals for 2012 annual reports

## Revitalize the current report

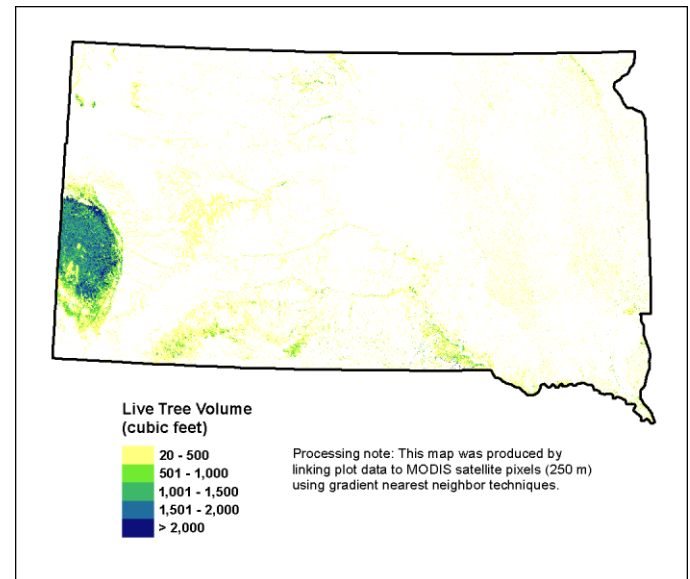
- Keeping in mind:
  - Purpose
  - Releasing data (i.e. report) in a timely fashion – rapid turn around for analysts to release report

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

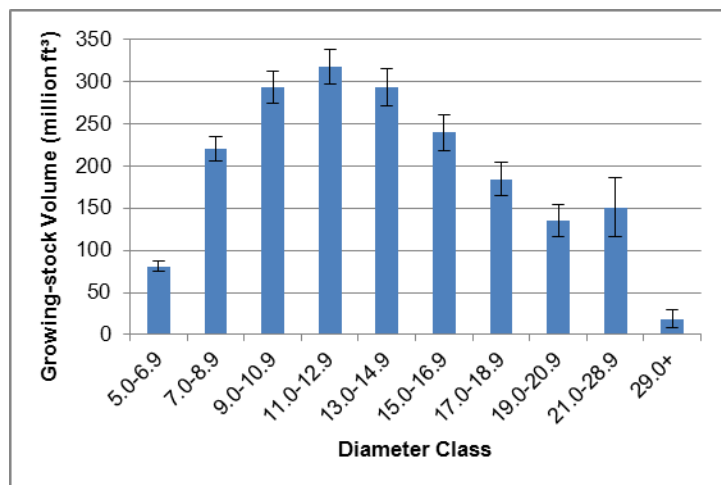
	Estimate 2011	Sampling error (percent)	Trends
<b>Forest Land Estimates</b>			
Area (thousand acres)	1,910.9	2.9	
Number of live trees and saplings (million)	549.9	6.0	
Dry biomass of live trees and saplings (thousand tons)	45,717.7	4.3	
Net volume in live trees (million ft <sup>3</sup> )	2,290.4	4.2	
Annual net growth of live trees (thousand ft <sup>3</sup> /year)	33,460.4	21.6	
Annual mortality of live trees (thousand ft <sup>3</sup> /year)	31,040.0	15.2	
Annual removals of live trees (thousand ft <sup>3</sup> /year)	34,730.3	21.2	
<b>Timberland Estimates</b>			
Area (thousand acres)	1,788.5	3.0	
Number of live trees and saplings (million)	520.0	6.1	
Dry biomass of live trees and saplings (thousand tons)	43,422.8	4.4	
Net volume in live trees (million ft <sup>3</sup> )	2,196.9	4.4	
Net volume in growing-stock trees (million ft <sup>3</sup> )	1,878.3	4.6	
Annual net growth of growing-stock trees (thousand ft <sup>3</sup> /year)	33,119.5	23.0	
Annual mortality of growing-stock trees (thousand ft <sup>3</sup> /year)	22,603.4	17.7	
Annual removals of growing-stock trees (thousand ft <sup>3</sup> /year)	33,480.5	21.7	

This publication provides an overview of forest resource attributes for South Dakota based on an annual inventory conducted by the Forest Inventory and Analysis program of the U.S. Forest Service, Northern Research Station. These estimates, along with web-posted core tables, will be updated annually. For further information on annual inventories conducted by the Northern Research Station see <http://www.nrs.fs.fed.us/fia/data-tools/state-reports/default.asp>.

**Figure 1. – Distribution of live tree volume on forest land. (Rotating map element)**



**Figure 2. – Growing-stock volume by diameter class. (Rotating graph element)**



Smaller header for more space on each page

**Figure 3. – Map using GNN or county choropleth or ownership, etc.**

**Figure 4. – Graph that shows data using the same variable as the map to the left.**

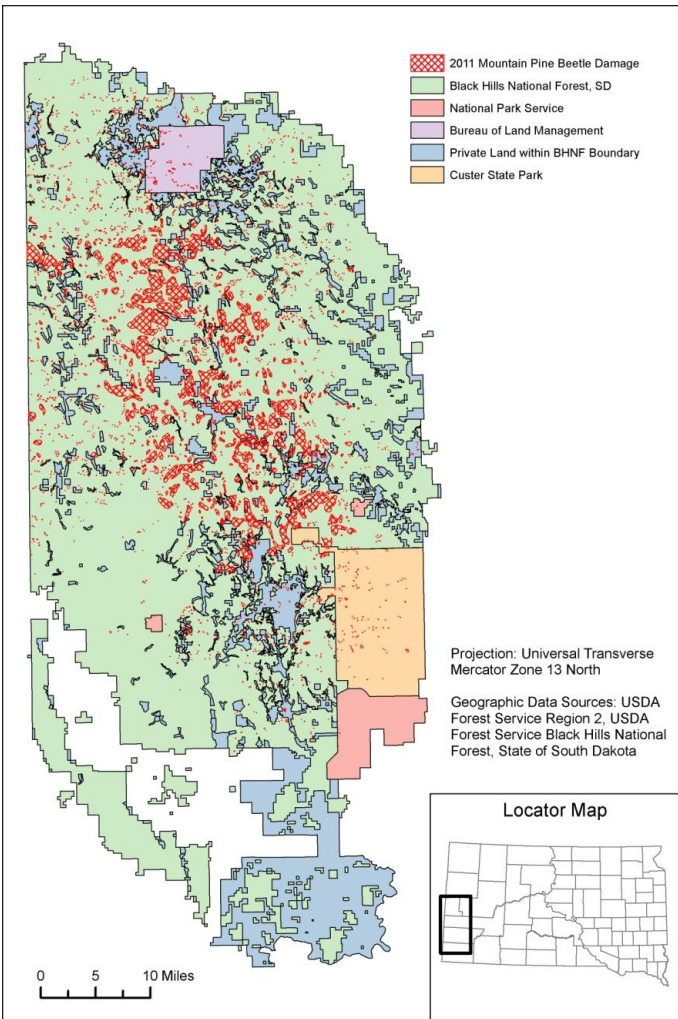
Extra space for larger graphs/maps or optional narrative text.

**Figure 5. – Graph.**

**Figure 6. – Corresponding figure.**

Extra space for larger graphs/maps or optional narrative text.

## Mountain Pine Beetle

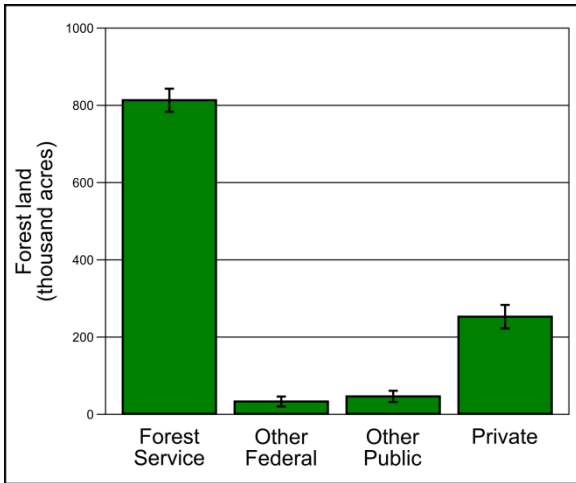


The current mountain pine beetle (MPB) epidemic has been ongoing in the Black Hills since 1996. The U.S. Forest Service conducts annual aerial surveys to assess areas damaged by insects and disease, including the mountain pine beetle. It is estimated that MPB has led to ponderosa pine mortality on 369,000 acres of forest land between 1996 and 2010. The 2011 aerial survey estimated that 67,000 acres had been affected (Fig. 5). Most of the area affected has been in the Black Hills National Forest; however, there are concerns of MPB damage increasing on private land. The ponderosa pine forest type amounts to over 250,000 acres of private forest land in South Dakota (Fig. 6), which contains over 60 million ponderosa pine trees (Fig. 7). Efforts at MPB suppression continue to be carried out by the state of South Dakota and the Black Hills National Forest. For more information on the mountain pine beetle and guidance for landowners in the Black Hills region, see South Dakota's MPB website at <http://beatthebeetles.com>.

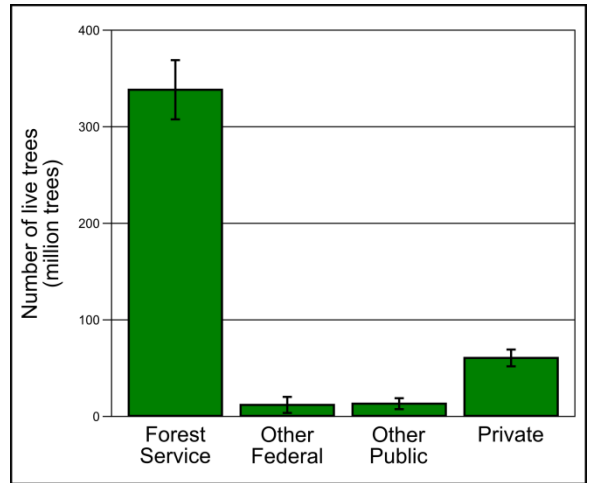
Issue section split between Page 3 and 4

**Figure 5. – Areas identified as MPB damage in the Black Hills region.**

## Mountain Pine Beetle (continued)



**Figure 6. – Area of forest land in the ponderosa pine forest type by ownership group.**



**Figure 7. – Number of live ponderosa pine trees (dbh ≥ 1 in.) by ownership group.**

### References

Harris, J.L. (comp.); R2 FHP staff. 2011. **Forest health conditions, 2009 – 2010, in (R2) Rocky Mountain Region.** R2-11-RO-31. Golden, CO: U.S. Department of Agriculture, Forest Service, Renewable Resources, Forest Health Protection. 108 p. Available at [http://www.fs.usda.gov/detail/r2/forest-grasslandhealth/?cid=fsbdev3\\_041663](http://www.fs.usda.gov/detail/r2/forest-grasslandhealth/?cid=fsbdev3_041663).

### Citation for this Publication

Walters, Brian F. 2012. **South Dakota's forest resources, 2011.** Res. Note. NRS-132. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 4 p.

### Contact Information

Lead Analyst: Brian F. Walters, (651) 649-5135, [bfwalters@fs.fed.us](mailto:bfwalters@fs.fed.us)

Data processing/access: Mark Hatfield, (651) 649-5169, [mahatfield@fs.fed.us](mailto:mahatfield@fs.fed.us)

Estimates, tabular data, and maps from this report may be generated at <http://www.fia.fs.fed.us/tools-data>

Cover image credit: Terry L Spivey, Terry Spivey Photography, Bugwood.org

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternate means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410, or call (800)795-3272 (voice) or (202)720-6382 (TDD). USDA is an equal opportunity provider and employer.



WE WANT



YOUR FEEDBACK!