USDA Forest Service, US Department of Agriculture
Northern Research Station

# South Dakota's Forest Resources, 2012

Research Note NRS-164

This publication provides an overview of forest resource attributes for South Dakota based on an annual inventory conducted by the Forest Inventory and Analysis (FIA) program of the U.S. Forest Service, Northern Research Station. These estimates, along with Web-posted core tables, will be updated annually. For more information regarding past inventory reports for South Dakota, inventory program information, and sampling/estimation procedures, please refer to the citations on page 4 of this report. For definitions of terms used in this report, see 'Glossary of Terms' at: http://nrs.fs.fed.us/fia/data-tools/state-reports/SD/.

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

| | Estimate 2012 | Sampling error (percent) | Change since 2007 (percent) |
|---|---|---|---|
| **Forest Land Estimates** | | | |
| Area (1,000 acres) | 1,902.2 | 2.8 | 6.3 |
| Number of live trees 1-inch diameter or larger (million trees) | 558.4 | 6.3 | 3.8 |
| Dry biomass of live trees 1-inch diameter or larger (1,000 tons) | 44,541.5 | 4.5 | -0.9 |
| Net volume in live trees (million $ft^3$) | 2,225.6 | 4.5 | -1.7 |
| Annual net growth of live trees (1,000 ft3/year) | 30,711.2 | 24.6 | -31.6 |
| Annual mortality of live trees (1,000 $ft^3$/year) | 33,894.8 | 15.2 | 17.8 |
| Annual harvest removals of live trees (1,000 ft3/year) | 37,988.7 | 20.2 | 64.8 |
| Annual other removals of live trees (1,000 $ft^3$/year) | 0.0 | 0.0 | NA |
| **Timberland Estimates** | | | |
| Area (1,000 acres) | 1,780.3 | 3.0 | 7.2 |
| Number of live trees 1-inch diameter or larger (million trees) | 530.6 | 6.5 | 5.0 |
| Dry biomass of live trees 1-inch diameter or larger (1,000 tons) | 42,403.4 | 4.6 | 1.2 |
| Net volume in live trees (million $ft^3$) | 2,140.4 | 4.6 | 0.4 |
| Net volume of growing-stock trees (million $ft^3$) | 1,801.4 | 4.9 | -7.3 |
| Annual net growth of growing-stock trees (1,000 $ft^3$) | 31,593.8 | 23.9 | -24.4 |
| Annual mortality of growing-stock trees (1,000 $ft^3$/year) | 23,691.6 | 17.6 | 7.7 |
| Annual harvest removals of growing-stock trees (1,000 $ft^3$/year) | 36,631.7 | 20.7 | 60.1 |
| Annual other removals of growing-stock trees (1,000 ft3/year) | 0.0 | 0.0 | NA |

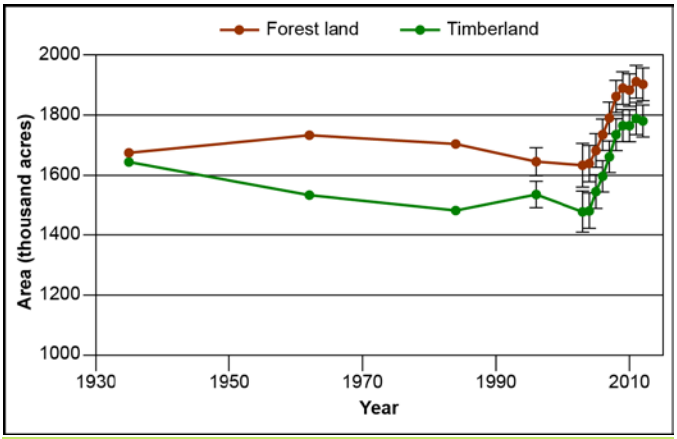


Figure 1. – Area of timberland and forest land by year, South Dakota.

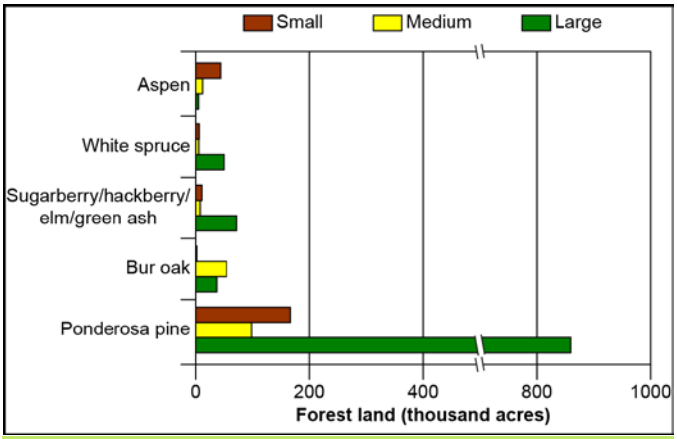


Figure 2. – Area of forest land by five most common forest types and stand-size class, 2008-2012.

Note: Large diameter trees are at least 11.0 inches diameter for hardwoods and at least 9.0 inches diameter for softwoods. Medium diameter trees are at least 5.0 inches diameter but not as large as large diameter trees. Small diameter trees are less than 5.0 inches diameter.

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

**Table 2. – Top 10 tree species by statewide volume estimates, 2008-2012**

| Rank | Species | Volume of live trees on forest land (1,000,000 ft$^3$) | Sampling error (%) | Change since 2007 (%) | Volume of sawtimber trees on timberland (1,000,000 bdft) | Sampling error (%) | Change since 2007 (%) |
|---|---|---|---|---|---|---|---|
| 1 | Ponderosa pine | 1,648.4 | 5.1 | -4.8 | 5,812.3 | 6.6 | -1.0 |
| 2 | Bur oak | 112.1 | 22.6 | 1.5 | 58.8 | 35.9 | -52.6 |
| 3 | Cottonwood | 108.8 | 30.0 | 23.4 | 324.6 | 36.5 | -12.0 |
| 4 | Green ash | 84.3 | 18.6 | 1.6 | 86.7 | 32.6 | -24.7 |
| 5 | White spruce | 79.3 | 24.5 | -3.8 | 235.4 | 27.5 | -18.2 |
| 6 | American elm | 44.8 | 27.1 | -13.3 | 62.5 | 45.9 | 87.1 |
| 7 | Boxelder | 31.9 | 34.3 | 8.1 | 0.0 | 0.0 | -100.0 |
| 8 | Rocky Mountain juniper | 28.3 | 27.4 | 10.1 | 0.0 | 0.0 | 0.0 |
| 9 | Eastern redcedar | 19.0 | 31.7 | 50.8 | 33.9 | 64.9 | -4.8 |
| 10 | Quaking aspen | 17.8 | 29.3 | -16.8 | 2.1 | 106.9 | -76.4 |
| | Other softwoods | 4.6 | 88.1 | 0.0 | 1.3 | 85.0 | 0.0 |
| | Other hardwoods | 46.3 | 20.7 | 69.6 | 17.9 | 46.7 | -27.2 |
| | **All Species** | **2,225.6** | **4.5** | **-1.7** | **6,635.5** | **6.1** | **-3.5** |

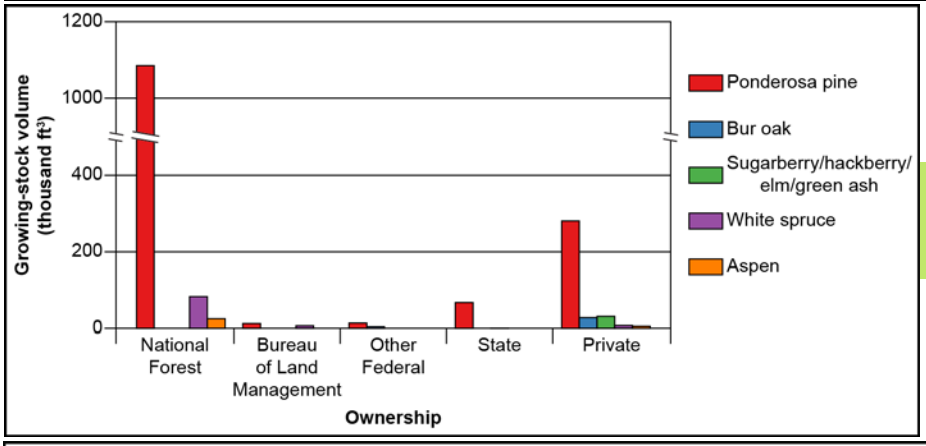


Figure 3. – Growing-stock volume by five most common forest types and ownership, 2008-2012.

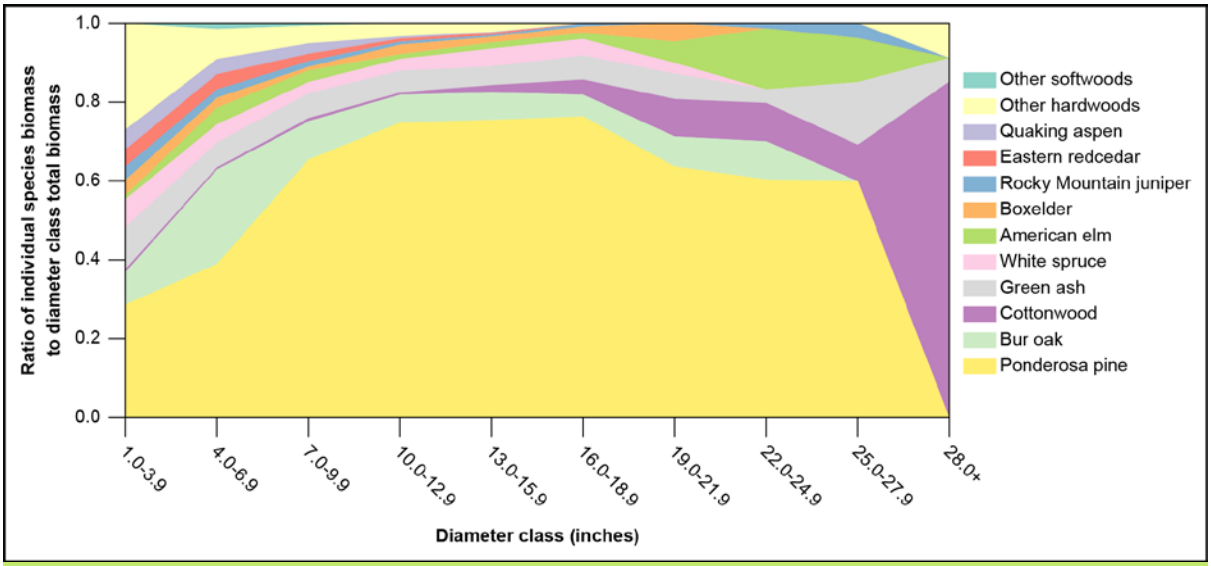


Figure 4. – Ratio of individual species biomass to total biomass by diameter class, 2008-2012.

# Mountain Pine Beetle, 2012

The current mountain pine beetle (MPB) epidemic has been ongoing in the Black Hills since 1996, affecting 30,000 acres of forest in 2012 (Fig. 5). Historically, insect and disease damage reports were conducted by Region 2 of the Forest Service using annual aerial surveys with an analyst in the plane estimating affected area. The method of estimation changed in 2012; instead of an aerial survey, 1-foot resolution digital aerial photos of the Black Hills were purchased and polygons digitized around areas affected by MPB. This method greatly increased accuracy over the aerial survey method. Thus, the dramatic drop in acres affected from 2011 to 2012 is not necessarily due to a drop in MPB activity, but because of a more accurate estimation method (Fig. 6). Mortality of ponderosa pine trees due to insect damage continued to increase in 2012, despite the "decrease" in affected acres (Fig. 7). While the exact insect causing death is not recorded by FIA measurements, it is safe to assume that much of that mortality is caused by MPB.

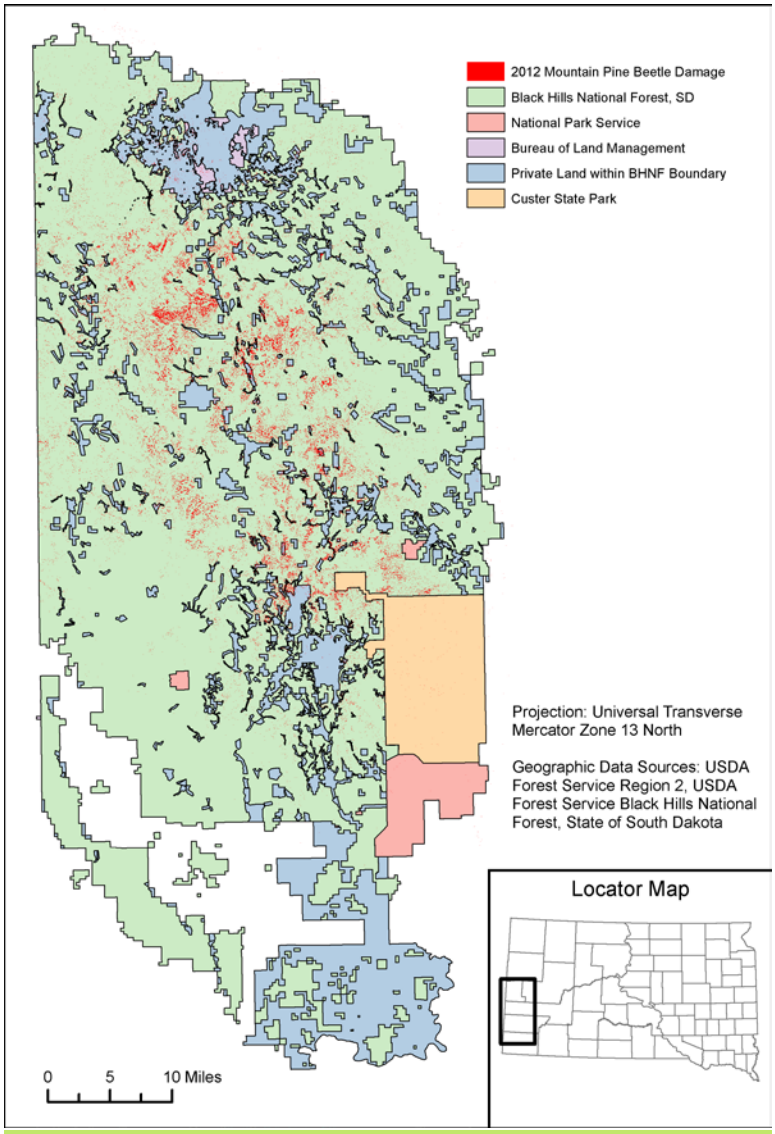


Figure 5. – Areas identified as MPB damage in the Black Hills region, 2012.

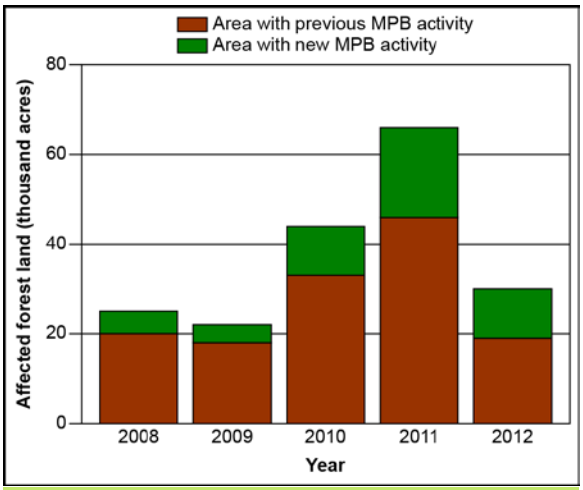


Figure 6. – Area of forest land affected by MPB, 2008-2012.

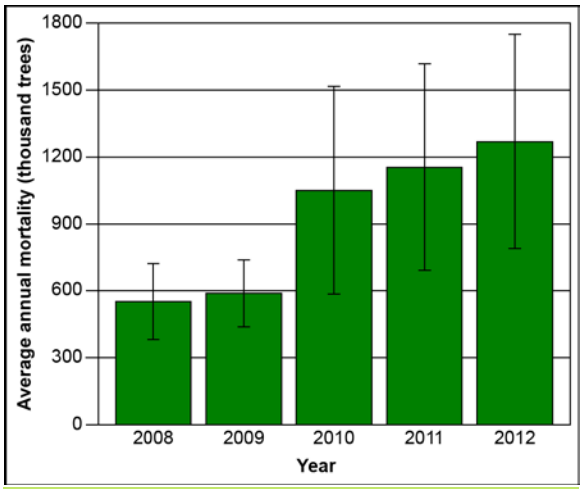


Figure 7. – Average annual mortality of ponderosa pine trees caused by insect damage, 2008-2012.


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## FIA Program Information

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