USDA United States Department of Agriculture
Forest Service

Northern Research Station

# Michigan's Forest Resources, 2006

**Research Note NRS-6**

Revised Aug. 20, 2008

This publication provides an overview of forest resource attributes for Michigan based on an annual inventory conducted by the Forest Inventory and Analysis program at the Northern Research Station of the U.S. Forest Service. These annual estimates, along with web-posted core tables, will be updated annually. Note that changes in inventory design and definitions make it inappropriate to directly compare some previously published estimates with these current estimates. For more information regarding past inventory reports for this state, inventory program information, and sampling/estimation procedures, please refer to the citations at the end of this report or visit our website: http://www.fia.fs.fed.us/.

**Table 1 - Annual estimates, uncertainty, and change**

| | Estimate | Sampling error (%) | Change since 2005 (%) |
|---|---|---|---|
| **Forest Land Estimates** | | | |
| Area (1,000 acres) | 19,544.6 | 0.4 | 1.1 |
| Number of live trees 1-inch diameter or larger (million trees) | 13,982.9 | 0.9 | 1.0 |
| Dry biomass of live trees 1-inch diameter or larger (1,000 tons) | 815,481.3 | 0.7 | 1.7 |
| Net volume in live trees (1,000,000 $ft^3$) | 31,084.7 | 0.8 | 1.8 |
| Net volume of growing-stock trees (1,000,000 $ft^3$) | 28,905.6 | 0.8 | 1.8 |
| Annual net growth of live trees (1,000 $ft^3$/year) | 773,635.8 | 5.5 | 2.6 |
| Annual mortality of live trees (1,000 $ft^3$/year) | 342,891.6 | 5.6 | -1.9 |
| Annual removals of live trees (1,000 $ft^3$/year) | 353,977.6 | 11.6 | 4.6 |
| **Timberland Estimates** | | | |
| Area (1,000 acres) | 19,022.8 | 0.4 | 1.1 |
| Number of live trees 1-inch diameter or larger (million trees) | 13,623.0 | 1.0 | 1.0 |
| Biomass of live trees 1-inch diameter or larger (1,000 tons) | 792,449.0 | 0.7 | 1.8 |
| Net volume in live trees (1,000,000 $ft^3$) | 30,157.3 | 0.8 | 1.9 |
| Net volume of growing-stock trees (1,000,000 $ft^3$) | 28,029.5 | 0.8 | 1.8 |
| Annual net growth of growing-stock trees (1,000 $ft^3$/year) | 761,205.0 | 5.6 | -0.8 |
| Annual mortality of growing-stock trees (1,000 $ft^3$/year) | 282,415.9 | 6.1 | 0.9 |
| Annual removals of growing-stock trees (1,000 $ft^3$/year) | 333,014.7 | 11.4 | 6.0 |

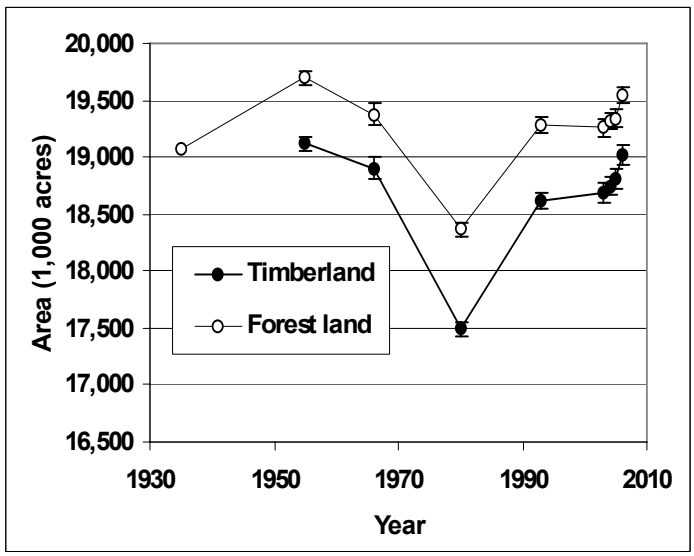



**Figure 1 – Area of timberland and forest land by year**

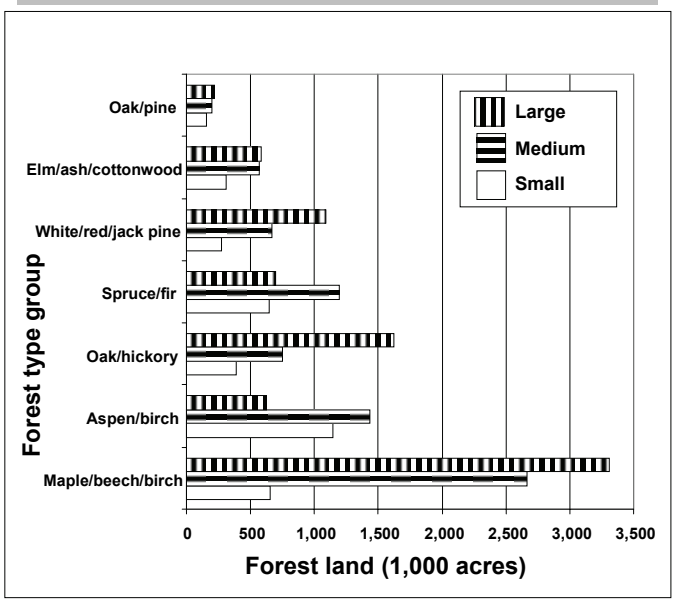



**Figure 2 – Area of forest land for top seven forest type groups by stand-size class**

**Table 2 - Top 10 species by statewide volume estimates**

| Rank | Species | Volume of live trees on timberland (1,000,000 $ft^3$) | Sampling error (%) | Change since 2005 (%) | Volume of sawtimber trees on timberland (1,000,000 board feet) | Sampling error (%) | Change since 2005 (%) |
|---|---|---|---|---|---|---|---|
| 1 | Sugar maple | 4,463.1 | 2.4 | 0.4 | 10,538.0 | 3.2 | 1.5 |
| 2 | Red maple | 3,729.6 | 2.3 | 2.9 | 7,645.6 | 3.5 | 3.6 |
| 3 | Northern white-cedar | 2,584.9 | 3.5 | 2.7 | 7,485.5 | 4.3 | 3.4 |
| 4 | Red pine | 1,943.1 | 4.6 | 0.5 | 7,445.8 | 5.0 | 1.3 |
| 5 | Quaking aspen | 1,548.3 | 3.3 | -0.8 | 3,322.7 | 4.6 | -1.0 |
| 6 | Northern red oak | 1,450.6 | 4.2 | 1.9 | 4,903.0 | 4.9 | 1.5 |
| 7 | Eastern white pine | 1,267.7 | 4.9 | 1.1 | 5,468.5 | 5.5 | 0.8 |
| 8 | Bigtooth aspen | 1,227.8 | 4.7 | 0.4 | 3,239.3 | 6.1 | 2.6 |
| 9 | American basswood | 838.5 | 4.6 | 0.9 | 2,436.6 | 5.8 | 0.9 |
| 10 | Eastern hemlock | 837.7 | 5.2 | 4.4 | 3,924.0 | 5.6 | 4.7 |
| | Other softwoods | 2,634.1 | 2.4 | 0.5 | 6,016.2 | 3.2 | 1.9 |
| | Other hardwoods | 7,631.8 | 1.7 | 3.6 | 19,595.7 | 2.4 | 4.9 |
| | **All Species** | **30,157.3** | **0.8** | **1.9** | **82,020.9** | **1.2** | **2.7** |

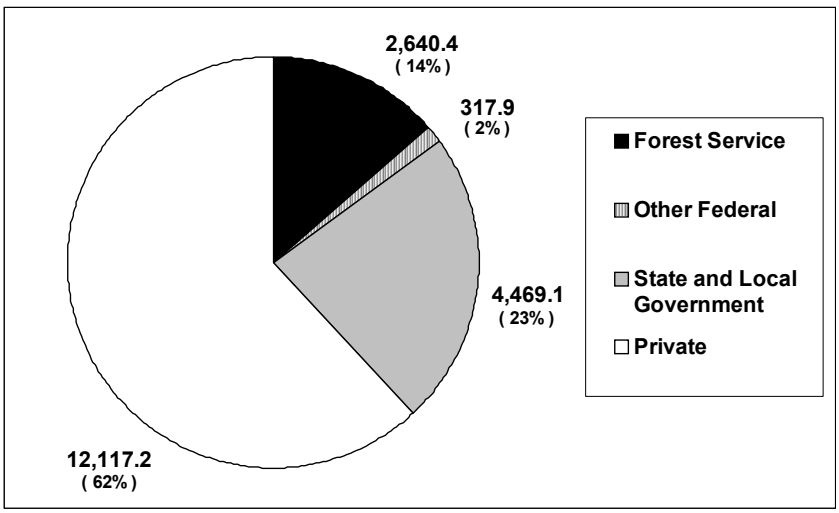



**Figure 3 – Area of forest land (1,000 acres) by ownership group**

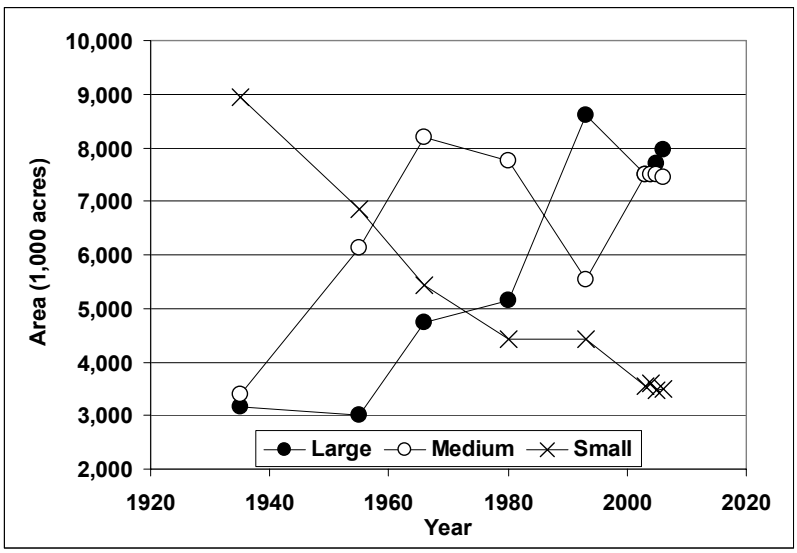
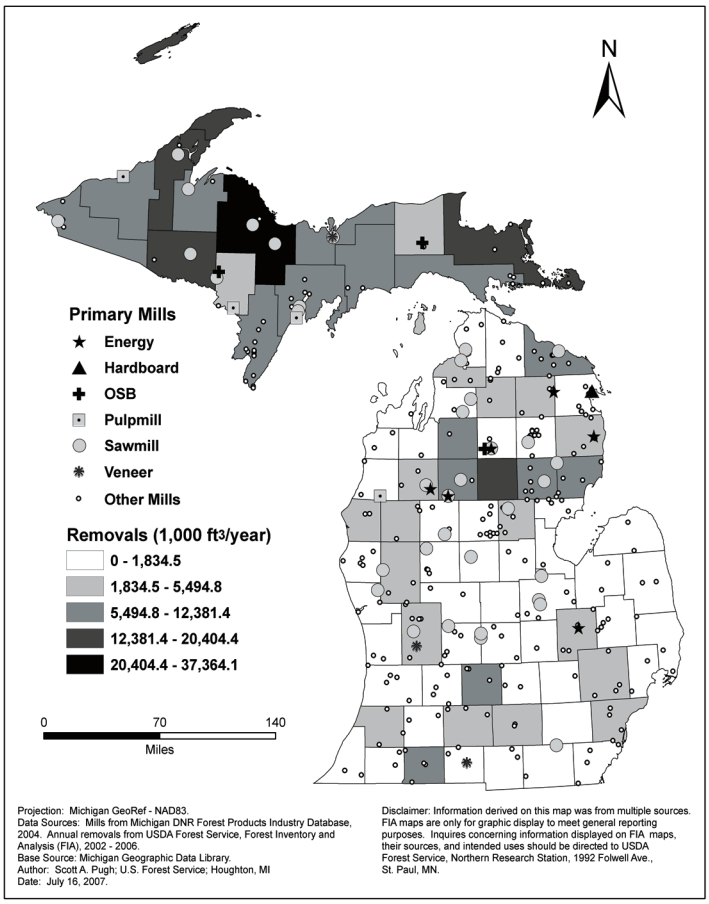



**Figure 4 - Area of timberland by stand size class and year**

# Michigan Issue Update – Sustainable Forest Resource




Michigan's temperate forests are an abundant, diverse, healthy, productive, and expanding asset providing a multitude of benefits to its citizens. These benefits include habitat for flora and fauna, recreational and sightseeing opportunities, filtration for air and water quality, and timber for societal consumption. Economic benefits are significant with over $12 billion contributed to Michigan's economy and 150,000 jobs statewide annually through forest-based industries, recreation, and tourism. Michigan's forests contribute significantly towards quality of life values shared by both residents and nonresidents (Fig. 5).

**Figure 5 – Forest product primary mills and annual removals of growing-stock on timberland**

Michigan's vibrant forest condition is a product of decades of sustainable forest management. Management requires an outlet for materials harvested from the forest and thus relies on stable forest product markets. Yet, these markets are evolving in response to global competition and increased interest in production of energy from renewable resources. Michigan is currently home to more than 254 primary manufacturing operations that are well distributed across the state, producing pulp, sawn and engineered wood products, and energy. More than 1,000 secondary manufacturers are involved in processing forest products in Michigan; they are located primarily in the southern Lower Peninsula.

Reliable statewide forest inventory data and information are imperative to support informed decisions for economic and ecological sustainability. Michigan's forest resource has great potential to continue to support a strong forest sector and sustainable forest management (Figs. 5 and 6).

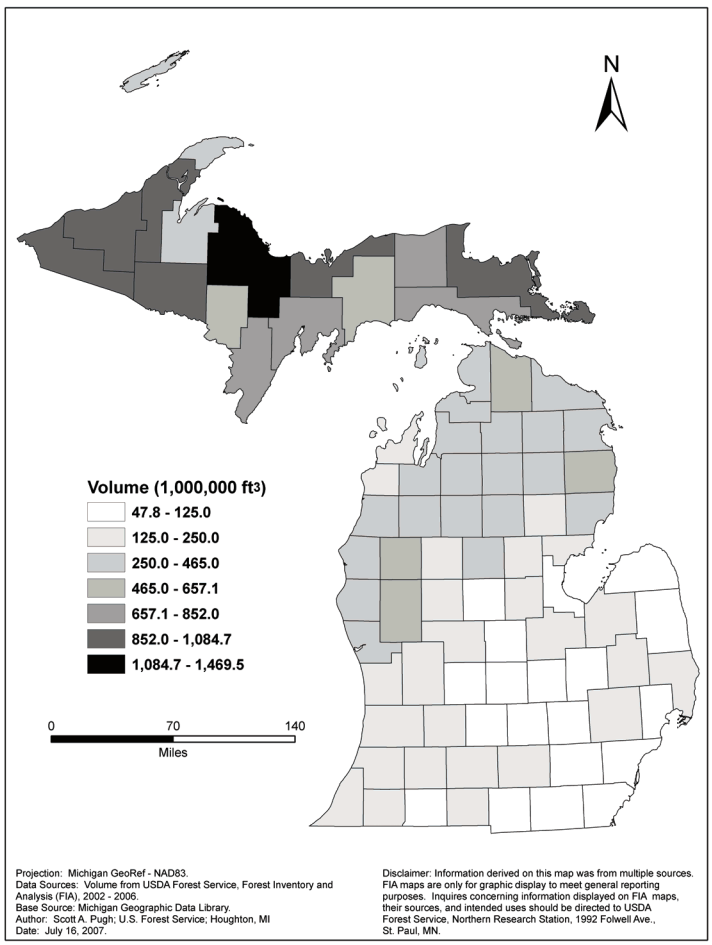



**Figure 6 – Volume of growing-stock on timberland**

## Citation for this Publication

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## FIA Program Information

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

Smith, W.B. 2002. Forest inventory and analysis: a national inventory and monitoring program. Environmental Pollution. 116: 233-242.

USDA Forest Service, 2004. Forest inventory and analysis national core field guide, Vol. 1: field data collection procedures for phase 2 plots, Ver. 3.0. [Online] Available: http://www.fia.fs.fed.us/library/field-guides-methods-proc/. (Accessed July 9, 2006.)

## Additional Michigan Inventory Information

Hansen, M.H.; Brand, G.J. 2006. Michigan's forest resources in 2004. Resour. Bull. NC-255. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 41 p.

Haugen, D.E.; Weatherspoon, A. 2002. Michigan timber industry-an assessment of timber product output and use, 1998. Resour. Bull. NC-212. St.Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 83 p.

Leatherberry, E.C.; Spencer, J.S., Jr. 1996. Michigan forest statistics, 1993. Resour. Bull. NC-170. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 144 p.

Leatherberry, E.C.; Kingsley, N.P.; Birch, T.W. 1998. Private timberland owners of Michigan, 1994. Resour. Bull. NC-191. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 84 p.

Michigan Department of Natural Resources, 2006. 2006 Michigan forest health highlights. 19 p. [Online] Available: http://fhm.fs.fed.us/fhh/fhh_06/mi/mi_06.pdf. (Accessed July 9, 2006.)

Raile, Gerhard K.; Smith, W. B. 1983. Michigan forest statistics, 1980. Resour. Bull. NC-67. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 101 p.

Schmidt, T.L.; Spencer, J.S., Jr.; Bertsch, R. 1997. Michigan's forests 1993: an analysis. Resour. Bull. NC-179. St.Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 96 p.

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