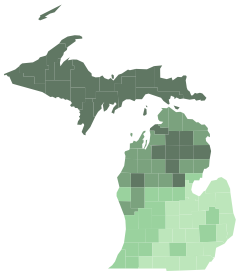
USDA Forest Service
U.S. DEPARTMENT OF AGRICULTURE

Resource Update FS-576 | November 2025

Forests of Michigan, 2022
FIA Annual Snapshot

The U.S. Department of Agriculture (USDA), Forest Service, Forest Inventory and Analysis (FIA) program provides this resource update annually as an overview of forest resources in Michigan. These estimates are derived from field data collected across a systematic network of fixed-radius forest monitoring plots located on both public and private land. New updates are provided annually as a subset of plots within the State are remeasured. Data used in this update were accessed from the FIA database on 29 January 2025.



Forest land area by county

- 0–25%
- 26–50%
- 51–75%
- 76–100%

Forest Inventory and Analysis Overview: Michigan, 2022

Each year, field crews visit and measure a subset of all FIA plots across the entire State (the size of the subset varies by State and year). Combining all of the subsets creates a full State inventory used in this snapshot. The last year of the most recent full inventory is the year shown in the title.

7,301 total plots in the full State inventory
4,266 of those plots contain forest land

Forest Area: Michigan, 2022

Sampled land area: 36,261,157 acres
↳ Forest land area: 20,035,782 acres (±0.61% SE*)
↳ Timberland area: 19,003,742 acres (±0.71% SE)

0% **55%** of sampled land area is covered by forest 100%

** SE is sampling error*

Forest Composition: Michigan, 2022

Sound total-stem bark and wood volume of live trees (≥5.0 in. diameter) on forest land:
55,475,661,545 cubic feet (±1.14% SE)

Top species by volume	% of total
sugar maple (*Acer saccharum*)	16.1%
red maple (*Acer rubrum*)	13.8%
northern white-cedar (*Thuja occidentalis*)	7.4%

Total number of live trees (≥1.0 in. diameter) on forest land:
14,050,396,933 trees (±1.39% SE)

Top species by count	% of total
balsam fir (*Abies balsamea*)	15.1%
red maple (*Acer rubrum*)	13.6%
sugar maple (*Acer saccharum*)	9.0%

Most common forest-type groups by stand-size class

Small Medium Large

Maple/beech/birch group
29.5% of forest land (5,920,566 acres)

Oak/hickory group
16.7% of forest land (3,348,566 acres)

Aspen/birch group
14.2% of forest land (2,838,090 acres)

Forest Land Carbon Storage: Michigan, 2022

Total carbon: 1,808,429,616 metric tons (±0.68% SE)
Total carbon by carbon pool (due to rounding, numbers may not total to 100%)

Live Aboveground	Live Belowground	Dead Wood	Forest Floor Litter	Soil
29%	5%	7%	5%	54%

Forest Land Ownership: Michigan, 2022

Private ownerships*	State and local governments	Federal Government
62%	23%	15%

** Private ownerships include lands owned by corporations, trusts, or individuals, as well as Tribal lands.*

Disturbance: Michigan, 2022

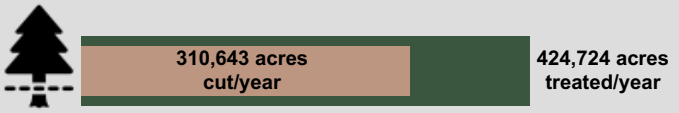
The most common forest disturbances by percentage of forest land affected on an average per year basis.

Insects	**2.6%** (529,961 acres/year)
Diseases	**0.9%** (180,621 acres/year)
Animals	**0.3%** (56,195 acres/year)

Management Activities: Michigan, 2022

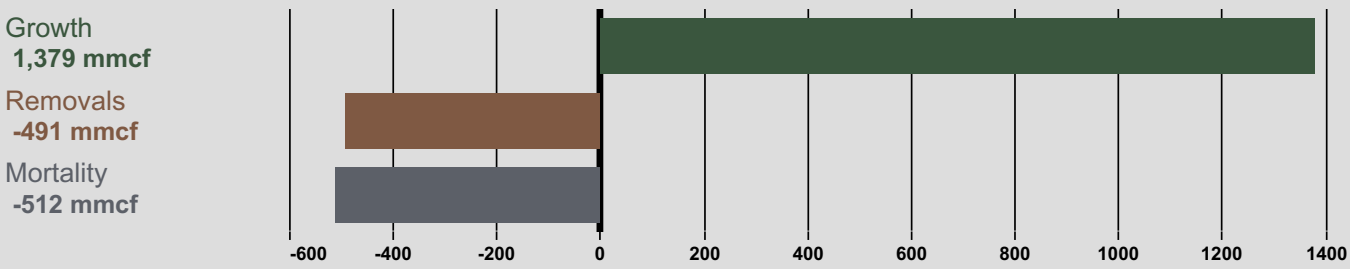
Includes cutting, site prepping for natural regeneration or planting, and other silvicultural treatments. Excludes prescribed fires. Wildfire and prescribed fire are recorded in Disturbance.

2.1% of forest land treated on average per year
↳ **73.1%** of treatments were cuttings



Growth, Removals, and Mortality: Michigan, 2022

Average change per year in sound volume (trees ≥5.0 in. diameter) on forest land.*

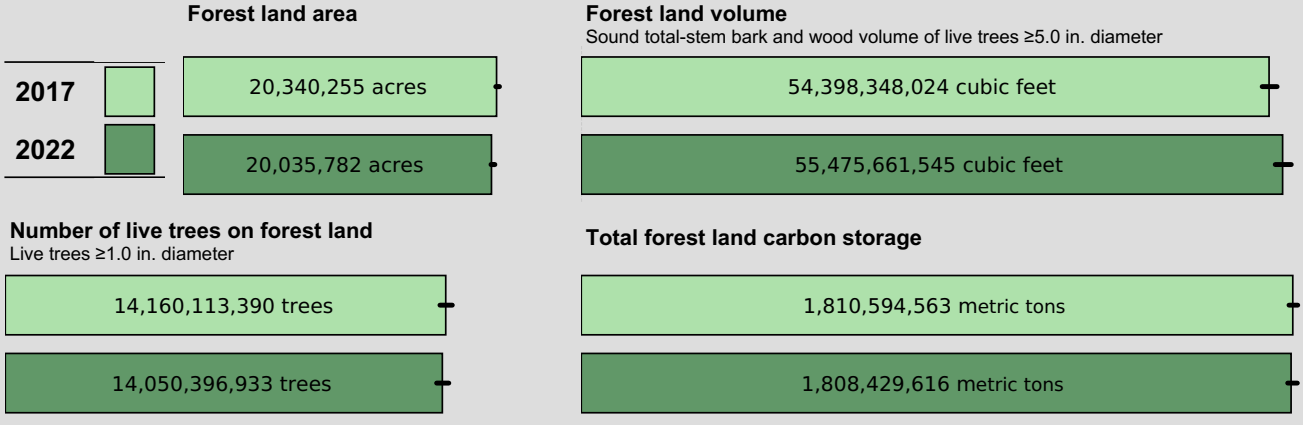


Net change: 376 million cubic feet

** Removals include physical changes (cutting), land-use change, and change in protocol.*

Snapshot Comparison: Michigan, 2017 and 2022

These values are estimates for the year(s) shown. If a full set of remeasured tree data are available for this State, the graph will depict the difference from time 1 to time 2.* The black horizontal line at the end of each bar represents sampling error range of estimate.



** Differences between estimates includes physical changes (cutting/growth), land-use change, and change in protocol.*

Terms Explained

Additional terminology can be found in the FIA Glossary.

Cutting—A type of silvicultural treatment involving removal of trees from a stand (e.g., shelterwood cutting, seed tree cutting, overstory removal, selection cutting, thinning smaller diameter trees, salvaging trees from a natural disturbance such as fire or insect infestation).

Disturbance—A temporary change in environmental conditions that causes a pronounced change in an ecosystem. Disturbance can connote positive or negative effects and can be natural or human caused. Types of disturbance recorded by FIA include the following: insects, disease, fire (prescribed and natural), animals (wild and domestic), weather (subdivided and reported here as ice, wind, flooding, or drought), vegetation (suppression, competition, and vines), human caused, and geological.

Field crew—A crew containing at least one individual certified in forest inventory plot installation and remeasurement.

Forest land—Forest land has at least 10 percent canopy cover of trees of any size, or has had at least 10 percent canopy cover of trees in the past, based on the presence of stumps, snags, or other evidence, and that will be naturally or artificially regenerated. Additionally, the land is not subject to nonforest use(s) that prevent normal tree regeneration and succession, such as regular mowing, intensive grazing, or recreation activities. Forest land includes transition zones, such as areas between heavily forested and nonforested lands that are at least 10 percent canopy cover with trees and forest areas adjacent to urban and built-up lands. Also included are pinyon-juniper and chaparral areas in the West and afforested areas. The minimum area for classification of forest land is 1 acre (0.4 ha) in size and 120 feet (36.6 m) wide measured stem to stem from the outermost edge. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if less than 120 feet wide. This is a domestic reporting definition. The definition used for international reporting is different; it includes a minimum tree canopy height criterion.

Forest-type group—A forest-type group is a combination of forest types that share closely associated species or site requirements. Forest type is derived from an algorithm that applies a hierarchical procedure based on the tree species that were sampled in the forest area. For more details on FIA forest types, refer to Appendix D of the FIA Database User Guide. Note: This user guide was formerly called "The Forest Inventory and Analysis Database: Database Description and User Guide for Phase 2."

Growth—Average annual gross growth of sound total-stem bark and wood volume of trees (woodland species at least 5 inches diameter measured at root collar) and sound bole wood volume of trees (timber species at least 5 inches diameter measured at breast height), in cubic feet, on forest land.

Mortality—Average annual mortality of sound total-stem bark and wood volume of trees (woodland species at least 5 inches diameter measured at root collar) and sound bole wood volume of trees (timber species at least 5 inches diameter measured at breast height), in cubic feet, on forest land.

Net Change—Average annual net change of sound total-stem bark and wood volume of trees (woodland species at least 5 inches diameter measured at root collar) and sound bole wood volume of trees (timber species at least 5 inches diameter measured at breast height), in cubic feet, on forest land.

Removals—Average annual removals of sound total-stem bark and wood volume of trees (woodland species at least 5 inches diameter measured at root collar) and sound bole wood volume of trees (timber species at least 5 inches diameter measured at breast height), in cubic feet, on forest land.

Reserved land—Land withdrawn from management for production of wood products through statute or administrative designation. Examples include designated Federal wilderness areas, national parks and monuments, and most State parks.

Sampled land area—Area of land, with bodies of water (≥1 acre) excluded, based on the FIA sample. This number may not match area from other agencies.

Sampling error (SE)—A statistical term used to describe the accuracy of the inventory estimates. Expressed on a percentage basis to enable comparisons between the precision of different estimates.

Stand-size class—A classification of forest land based on the diameter size of live trees presently forming the live-tree stocking.

- **Large** diameter trees are at least 11.0 inches diameter for hardwoods and 9.0 inches in diameter for softwoods.
- **Medium** diameter trees are at least 5.0 inches diameter and smaller than larger diameter trees.
- **Small** diameter trees are less than 5 inches in diameter.

Timberland—Forest land that is not reserved and that is capable of producing 20 cubic feet per acre per year of wood from trees classified as timber species and designated as a timber forest type.

Volume—Amount of space in cubic feet that a tree occupies. Sound volume excludes rotten and missing portions of the tree.

Total-stem bark and wood volume—For timber species (diameter measured at breast height), total volume includes all wood and bark from ground line to the tree tip. For woodland species (diameter measured at root collar), total volume includes all wood and bark from ground line to 1.5-inch branch diameters.

Additional Information

The FIA One-Click State Snapshot application was developed using data from the USDA Forest Service, Forest Inventory and Analysis database. The application and database can be found at Forest Inventory and Analysis Data and Tools.

FIA DataMart allows users to download raw FIA data.

FIA Database User Guide provides documentation of the database structure along with codes and definitions.

EVALIDATOR and FIADB-API allows users to produce a variety of population estimates and sampling errors from a list of user selected parameters.

Questions: Direct any questions about data presented in this application to the regional programs for the State of interest. Regional organization and contact information can be found at the bottom of the FIA Data and Tools page, under data consultations and requests.

Archived Versions

This annual snapshot and archived past versions can be found on the USDA Forest Service publication database, Treesearch, using keywords "Forest Inventory" and "Michigan" and "One-Click."

Estimation Methodology References

Bechtold, W.A.; Patterson, P.L., eds. 2005. The enhanced Forest Inventory and Analysis program—national sampling design and estimation procedures. Gen. Tech. Rep. SRS-80. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 85 p. https://doi.org/10.2737/SRS-GTR-80.

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Westfall, J.A.; Coulston, J.W.; Moisen, G.G.; Andersen, H.-E., comps. 2022. Sampling and estimation documentation for the enhanced Forest Inventory and Analysis program: 2022.Gen.Tech. Rep. NRS-207. Madison, WI: U.S. Department of Agriculture, Forest Service, Northern Research Station. 129 p. https://doi.org/10.2737/NRS-GTR-207.

Disclaimers

The estimates presented are based on data retrieved from the FIA database (version FIADB_1.9.2.00) on 29 January 2025 and may not reflect the most recent data available from the FIA program.

This publication includes, where appropriate, estimates of uncertainty referred to as sampling error (SE), presented as a percent of the estimate or as confidence intervals.

The URLs in this document may become invalid over time; however, items may still be able to be found using web search tools.

How to Cite This Publication

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