

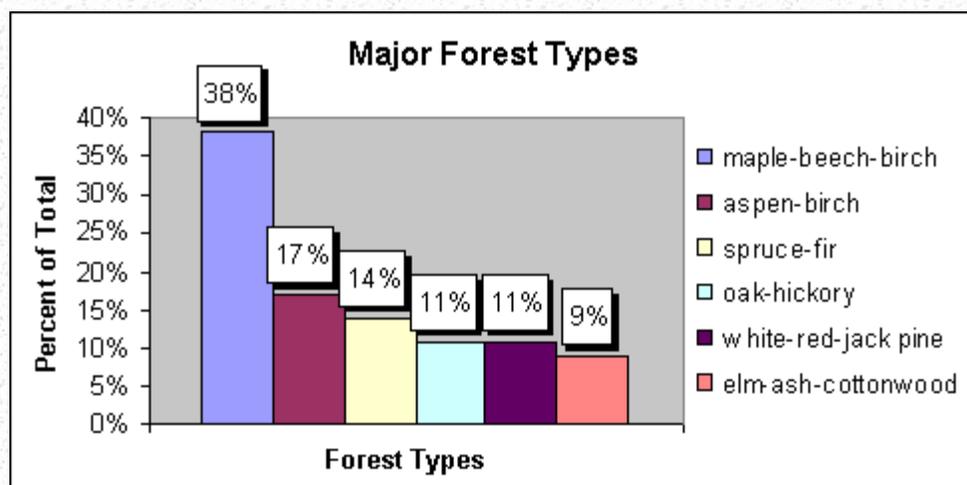
1996 Forest Health Highlights

Michigan

The Resource

Forests comprise 53% of the land area of the state, or about 19.3 million acres. Since 1980, the area of forest land increased by 5%. More than one-half million acres are reserved forest land on which harvesting is prohibited. Private individuals own 46% of the forest land, the State manages 20%, the National Forest 14%. All other ownerships (county, industry, private corporate) control the remaining 20% of the State's forest land.

Forestry related industries and manufacturing employ about 150,000 people. Annual wages and salaries of primary processors totals \$395 million. The secondary processors (furniture and fixtures manufacturing, pulp and paper) employ 38,500 people and contribute \$3.3 billion of value added, with an annual payroll of \$1.7 billion. Forest related tourism adds 50,000 jobs and \$43 million to Michigan's economy. The overall contribution of the forest resource to the State's economy exceeds \$9 billion.



Special Issues

Generally, Michigan's forests are quite healthy and productive. Problem areas do occur in forest types that are beyond pathological rotation age. This is especially true in "even aged" stands. Foresters are now attempting to mitigate age class distributions to reduce risk. Forest stressors add to declines sometimes exacerbating an already difficult situation to manage.

What is a Healthy forest? This is a very difficult question to answer because it depends upon the values that you place upon the forest. In order to simplify our assessment of forest health, the National Forest Health Monitoring Program developed the following measures to describe the health of the forest:

Ecosystem sustainability is the ability to maintain the desired condition. This could be described as the resiliency to stress. How well does the forest "spring back" from a pest outbreak?

Productivity, or the physical output per unit of time for commodity and non-commodity products is another measure of health. Board feet of timber, wildlife demographics or the ability of a stand to sequester carbon are all examples of productivity.

Biodiversity, or species richness and species abundance are indicators of forest health. Habitat suitability index would one way to measure biodiversity.

Aesthetics is an important consideration, big trees and hardwoods are more desirable. People like to look at big trees while saplings are often viewed negatively by the public.

Other Issues

The gypsy moth caused defoliation on 3230.6 acres in only 2 counties, Eaton and Wayne, in 1996, compared to 85,907 acres in 16 counties in 1995.

The Michigan Forestry division is charged to report on all aspects of forest health. The current focus is on ecosystem sustainability, although all aspects and values are considered. Forest stressors such as **drought, storms, late spring frosts**, diseases and insects coupled with the **age** of various forest types have played a significant role in shaping Michigan's forests. Some forest types show significant signs of decline while others appear healthy and productive.

Increased risk of mortality occurs when stands become over mature. This is especially true when large contiguous areas become over mature at the same time. Forest stressors add to declines, sometimes aggravating an already difficult situation to manage. Foresters are attempting to diversify the age class distribution to reduce this risk.

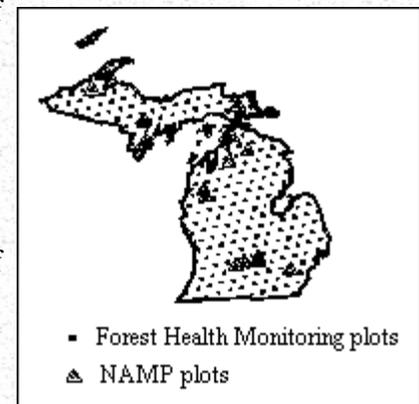
Some forest types show significant signs of decline, while most appear healthy and productive. Northern pin oak in the northern lower peninsula is experiencing mortality and dieback due to the combined effects of the drought of the late 1980's and old age. These symptoms first began to appear in the early 1990's. Oaks growing on the better sites are, for the most part, healthy and vigorous.

The late 1980's drought also resulted in large amounts of mortality and dieback in white birch. Surviving trees are showing significant signs of recovery, especially on richer, less disturbed sites. However, birch continues to be a very difficult species to regenerate.

On the other hand, northern hardwood, a type dominated by sugar maple, continues to grow, is very healthy, and contributes significantly to Michigan's overall forest health.

Regional Surveys

Forest Health Monitoring - Plots were established 1994 and are a part of a nationwide Forest Health Monitoring Program in partnership with the US Forest Service and the University of Michigan. The motivation to monitor the health of forested ecosystems grew out of the concern over the potential effects of air pollutants, insects, diseases, and other stressors. Also concern over the potential effects of global climate changes to the composition and stability of forests was a motivating factor. The monitoring program includes a network of permanent plots and surveys of forest pests and other stressors. In Michigan there are 247 plots, of which 133 are forested. In addition, many surveys are conducted to supplement this information. This monitoring will be most useful to measure change over an extended period.



The North American Maple Project - Michigan continues to participate in this international project designed to evaluate the health of sugar maple forests in North America. Results from the 18 plots in Michigan, and those from other participating states and Canada, indicate that regionally, sugar maple health has been improving since the program's inception in 1988. This is based primarily on crown condition of measured trees.

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