

MICHIGAN'S GROWING AND EXPANDING 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 both flora and fauna, recreational and sightseeing opportunities, filtration for air and water quality, and timber for societal consumption. Economic benefits to our state's economy are significant. Over \$8 billion of value-added and 178,000 jobs are annually supported statewide through forest-based industries and tourism/recreation. These forests contribute significantly towards quality of life values shared by both residents and non-residents of our state.

The 1993 completion of Michigan's fifth statewide forest inventory since 1935, conducted in collaboration with the United States Forest Service-North Central Forest Experiment Station, provides essential data to assess statewide forest conditions. Forest stewardship policy alternatives are currently being discussed by broad representative interests to continue to improve forest health. These collective efforts will help ensure Michigan's forests continue to be healthy and productive while providing a multitude of sustainable benefits.

Forest Acreage Increases

Michigan's forest are extensive, covering more than half of its land base. They are located predominantly in the northern two-thirds of the state. Forestland acreage totals 19.3 million acres, a 10% increase since 1980. Forestland classified as timberland must meet minimum timber productivity standards. This timberland acreage (18.6 million acres) is the fifth largest in the United States, exceeded only by the states of Georgia, Oregon, Alabama, and North Carolina. Timberland acreage has increased 7% since 1980.

Active forest management and protection activities have resulted in a maturing forest resource, increasing in both tree size and age. Sawtimber sized tree stands now comprise 46% of the timberland acreage; poletimber and seedling/sapling tree stands comprise 30% and 24%, respectively, of the timberland acreage.

The temperate forests of Michigan contain a rich and diverse mix of tree species in an equally diverse forest type mix. The hardwood (broadleaf deciduous) forest types that comprise 75% of the total timberland acreage base include maple-beech-birch, aspen-birch, oak-hickory, and elm-ash-soft maple. Principal softwood (coniferous) forest types include red-white-jack pine, spruce-fir, and northern white cedar.

Ownership patterns of the forests within our state reflect the healthy and diverse cultural value systems of the individuals and institutions involved in the stewardship of these properties. The forest resource is owned predominantly by the private sector (65%). The non-industrial private owner and farmer categories collectively control 57% of the total timberland acres, while forest industry has 8% of the ownership. The remaining 35% is controlled by the public sector (21% state-owned; 14% federally owned). Active forest management and protection activities provide a basis for enhanced forest stewardship on each of these ownerships.

Timber Volume Increases

The timber volume associated with Michigan's forest acreage has demonstrated a remarkable ability to positively respond to both active forest management and protection programs. Growing stock (5" diameter and larger trees) inventory volume was 26.8 billion cubic feet in 1993 a 42% increase since 1980. The largest expansion of inventory volume is concentrated in the

sawtimber size trees. Sawtimber (9" or 11" diameter and larger trees, depending on softwood or hardwood classification) inventory volume was 72 billion board feet in 1993, a 66% increase since 1980.

Annual changes in tree species growth and harvests, and the relationships between these changes, permits analysis of current and future forest condition. Net growth rates (reduced by natural mortality estimates) for growing stock and sawtimber are 831 million cubic feet and 3.1 billion board feet, respectively, in 1993 (increasing 38% and 77% since 1980). Growing stock and sawtimber harvests in 1990 were 324 million cubic feet and 1 billion board feet, respectively, (reflecting increases of 35% and 22% since 1978). Annual forest growth is estimated to exceed annual forest harvests by over 150% (507 million cubic feet) for growing stock, and by 210% (2.1 billion board feet) for sawtimber. This situation bodes well for the forests of Michigan; these excess volumes of annual forest growth will be added to the inventory to further accumulate for the future needs of our citizens and society.

Timber Productivity Gains Possible

Opportunity to improve timber management and increase timber volumes within Michigan is significant. Relatively flat terrain, productive soil structure, and a good transportation network provide access to the majority of these forest lands. The potential to increase current forest growth by over 50% (to 1.3 billion cubic feet annually) is possible through full stocking of all timberland acres. The annual growth potential can be enhanced further through manipulative stand improvements, tree species conversion, and/or the use of genetically improved tree species. Red pine, a native species, has the potential to produce as much wood volume per acre as slash and loblolly pine in the South. Use of genetically improved tree strains developed cooperatively by Michigan universities, industries, and government have shown productivity potentials in excess of 214 cubic feet per acre per year. The state-owned forests are postured to take advantage of an investment account, "Forest Development Fund", established to improve timber growth and yields on a portion of their forest lands.

Forest Protection: Cooperative Effort

A cooperative effort between local, state, and federal fire agencies plays a major role in the protection of Michigan's forest lands. Active fire prevention programs, the use of aerial detection techniques, highly specialized equipment development and use, and progressive ideas have brought recognition to Michigan as a leader in the protection of its natural resources. Prescribed burning is readily employed to reduce fire risk as well as improve silvicultural and wildlife habitat objectives.

Forest health protection is an integral part of resource protection. Insect and disease outbreaks as well as other stressors, such as climate and air pollution, are detected through ground and aerial surveys. Biological and socio-economic factors are evaluated; then silvicultural, biological, and chemical management alternatives are considered; and finally the most appropriate alleviatory methods are implemented.

Prepared by Robin Bertsch, Forest Management Division, Michigan Department of Natural Resources, June 24, 1994.