State forest management plan summary

Introduction

A century ago, after the unregulated logging of Michigan's lumber baron era, there was basically one focus for Michigan's state forests: get trees into the ground. That effort worked.

Through the combination of concentrated planting efforts and natural regeneration, a sea of stumps regrew into thriving forests for the people of Michigan to use and enjoy.

Today, Michigan's nearly 4 million acres of state forest are sustainably managed to balance a host of activities. These include timber management, wildlife viewing and hunting, improving water quality for great fishing and clean drinking water, extracting minerals, camping, hiking, biking, off-road vehicle and horseback riding and other types of outdoor fun. State forest management also includes helping rare plant and animal species thrive as well as conserving and protecting unique places that have ecological, cultural and historical significance.

Forests are important to people in Michigan. A Department of Natural Resources survey conducted in 2017 shows an overwhelming majority of Michiganders feel Michigan's forests are integral to the state and its people – even if they never visit the forests themselves. But balancing the needs and desires of the forest's many different users can be difficult and requires considerable coordination of efforts.

Comanagement

Balancing all the forest uses happens through a commitment to comanagement of the state forest. While Forest Resources Division is the lead administrator of state forest lands, multiple DNR divisions work together to manage for all the uses the state forest provides.

Wildlife Division is recognized as having equal management and decision-making authority on the state forest, harkening back to a 1946 agreement when both divisions merged lands into a new state forest system. The importance of forest management that enhances wildlife habitat is recognized by statute and forest certification standards, and this interdependent relationship between the divisions is supported by numerous Tribes, stakeholders, and members of the public.

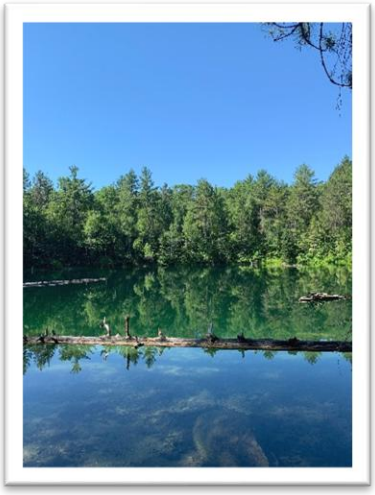
Parks and Recreation Division has management responsibility for the recreation system on the state forest, and staff between the two divisions work closely together to maintain it and adapt as needed. Staff from Fisheries Division work closely with FRD staff to enhance or minimize impacts to aquatic habitat. Finally, Law Enforcement Division works closely with all divisions to monitor for the safe and sustainable use of this vast and varied public resource.

Managing for multiple values

Taking into account the varied ways Michiganders use and value state forest land, the state forest management plan sets specific goals and objectives for the composition of the forest and how wildlife and biodiversity will be managed over the next decade (2025 - 2034). Although this plan will not provide programmatic objectives for cultural resources, rare species or uses such as recreation, it will consider these values in the context of forest management activities. The plan also considers goals and objectives from other DNR planning efforts, described in plan section 1, to better integrate and guide management of state forest land for many uses and values. This plan will help the DNR accomplish its timber and wildlife habitat management goals while taking other forest values into consideration over this 10-year planning period.

Sustainable Forest Planning

The DNR is mandated to manage the state forest "consistent with the principles of sustainable forestry" and requires the development of a management plan that describes how that will be achieved (part 525, Natural Resources and Environmental Protection Act, PA 451, as amended). Sustainable forest management includes sustainable harvest, or ensuring a steady timber supply, but it goes much further to include practices that balance economic, environmental and social values. The difficulty in fully realizing this, for land managers everywhere, has been the lack of a specific definition of what that means and the diversity of values, management objectives, and spatial and temporal scales at play. This, to large extent, has been addressed by the international 2015 Montreal Process that identified a set of criteria and indicators "for the conservation and sustainable management of temperate and boreal forests."



The current plan is different from its predecessors in that it: 1) Has a sustainable forest management framework based on the 2015 Montreal Process Criteria and Indicators; 2) Is based on an industry-standard forest harvest planning model to generate better informed harvest targets; 3) Integrates wildlife habitat into forest harvest targets for the first time; and, 4) Integrates climate change predictions and adaptive strategies in a novel way. Additionally, this plan incorporates both statewide and regional strategic direction as well as management area operational guidance.

To create this plan, representatives from Forest Resources, Wildlife, Parks and Recreation and Fisheries divisions were involved with modeling, planning, writing, and stakeholder and public engagement. Together, this multi-divisional planning team established seven core principles upon which the state forest should be managed. These seven principles and their associated goals and strategies are based on the criteria and indicators developed under the 2015 Montreal Process for sustainable forest management. The state forest principles are:

- Principle 1. The state forest is managed to conserve or enhance biological diversity.
- Principle 2. The state forest is managed for net positive growth.

- Principle 3. The state forest is managed to promote ecosystem health and vitality.
- Principle 4. The state forest is managed to conserve and protect soil and aquatic resources.
- Principle 5. The state forest is managed to provide opportunities for social and economic benefits.
- Principle 6. The state forest is managed to respond to a changing climate.
- Principle 7. The state forest is managed to steward significant cultural resources.

A total of 59 management priorities were chosen to represent the collective set of principles, goals and strategies. These management priorities are the state forest resources identified as the means to both manage for and monitor progress toward sustainable forest management. All together, the collective set of principles, goals, strategies, and management priorities establish the state forest sustainability planning framework. The entire framework is laid out in plan section 1.

Current conditions and trends, desired future conditions, and objectives and actions are provided for each management priority at statewide and regional scales in plan section 3. They were developed in consultation with subject matter experts and field staff as needed. These integrate climate change adaptation strategies based on predicted impacts and include components of sustainable forest management. Metrics were identified for management priorities based on available data, feasibility of assessment, and what would best inform progress toward desired future conditions.

Achievement of management priority objectives and actions during this planning period will set each on the path toward forest sustainability, and tracking their respective metrics over time will gauge success along the way. Implementation and effectiveness monitoring is described in plan section 7.

Sustainable harvest modeling

To better address the scope, scale and complexity of managing the almost 4 million acres of state forest land for this plan iteration, the decision was made to invest in the Remsoft Woodstock Optimization Studio®, an industry-standard forest harvest modeling platform. It uses a linear programming model that strives to find an optimal solution given a set of parameters.

To prepare for this added capacity in harvest planning, the need for programmatic updates was recognized by both the Forest Resources and Wildlife divisions.

Forest Resources Division staff:

- Conducted a wall-to-wall assessment of management availability to ensure the land base used in the model was as accurate as possible.
- Reduced the number of management areas down to thirty based on Cleland's Sub-Subsections to right-size the scale of forest planning and analysis and align with the ecological framework used by the U.S. Forest Service.
- Leveraged Forest Inventory Analysis data on the state forest to develop the growth and yield tables used in the model.
- Developed a pilot model with just two management areas to test the efficacy of the model in representing state forest management, and to identify and troubleshoot potential issues.

Wildlife Division staff:

- Revised the northern Lower and Upper Peninsula featured species to focus on those that could be integrated into the model and monitored over time.
- Developed a “wildlife habitat diversity matrix” that identified the stand inventory variables that best described either the primary or most limiting habitat for each featured species to use in the model.
- Developed a “forest diversity matrix” between landscape position (upland/lowland), management availability, age category (successional stage) and shade tolerance as a model output to provide landscape context for decision making.
- Identified Landscape Habitat Conditions to track broad geographic habitat trends associated with featured species over time using stand inventory data in the model and MiFI.

Finally, members of the planning team facilitated meetings with field staff from both Forest Resources and Wildlife divisions to determine desired future conditions for the major cover types in each management area, with consideration for featured species habitat.

Using this new Woodstock modeling software, for the first time the DNR was able to:

- Model management complexity across the state forest to determine a long-term sustainable level of harvest.
- Run multiple model scenarios to assess management alternatives, resolve management challenges, and choose a preferred solution.
- Integrate wildlife habitat goals into forest harvest targets.
- Track wildlife habitat availability over time from forest management actions.

The preferred solution described in this plan was chosen because it best represented staff-informed desired future conditions, met prescribed wildlife habitat goals, and ensured a sustainable level of harvest far into the future. Sustainable harvest is one component of sustainable forest management.

Projected statewide, management area, and special analysis unit harvest levels from the preferred solution are included in plan sections 3, 4 and 5. How the harvest projections for the current planning period will be implemented is described in plan section 6.

Draft plan review and the 2025 ice storm

In late 2024, a draft state forest management plan was released for review by Tribes, stakeholders, and members of the public. That version included a long-term average decadal harvest goal of approximately 500,000 acres from the model, and the projected harvest levels for the current planning period were described in the statewide, management area, and special analysis unit sections of the plan. By the end of the draft plan comment period, four Tribes, 21 stakeholders, and 55 members of the public had provided comments. In January 2025, the planning team began the process of reviewing, sorting, and responding to those comments.

Then, in March 2025, a generational ice storm event occurred in the northeastern Lower Peninsula affecting approximately 790,000 acres of DNR-managed lands with varying levels of severity. This ranged from almost 100% of the trees snapped in half or tipped over in the most severely impacted stands, to a combination of snapped trees and standing trees with numerous broken branches in moderately impacted stands, to some amount of standing trees with broken branches in the lighter damaged stands. The most severely impacted stands were 50- to 60-year-old planted red pine, but northern hardwoods, aspen, and other cover types were impacted to lesser degrees as well.

The impacts from the ice storm were of sufficient magnitude to necessitate a modification to the model and the resultant model projections in the plan. Though these changes only affect the northeastern Lower Peninsula, the difference in projected harvest levels also necessitates a second internal, Tribal and public review of the draft plan. This current plan version includes changes in response to DNR staff, Tribal and public comments from the 2024 draft plan review, but this second review will be focused solely on the changes made in response to the ice storm.

After the storm: long-term harvest sustainability

Model modifications were made to silvicultural regimes, actions, and growth and yield tables to represent ice storm damage. Two treatment types were added to capture ongoing and projected future salvage efforts. An action was created to reset ages to the 0-9 age class for stands with severe damage that were not eligible for harvest this planning period. And the growth of highly impacted cover types was slowed by 25% this planning period to represent the time it'll take for the remaining trees in stands to recover from open wounds and regrowing branches.

The combination of these changes resulted in a new decadal harvest projection of 472,452 acres, a decrease of approximately 30,000 acres (-6%) from the 2024 version of the draft plan.

The number of acres for harvest is projected to increase to about 50,000 acres annually over the next few decades (Figure 1). It is projected that harvested volume will stabilize in about 40 years (Period 4 in Figure 1) at about 1 million cords per year following recovery from trees killed by the emerald ash borer, beech bark disease and the 2025 ice storm.

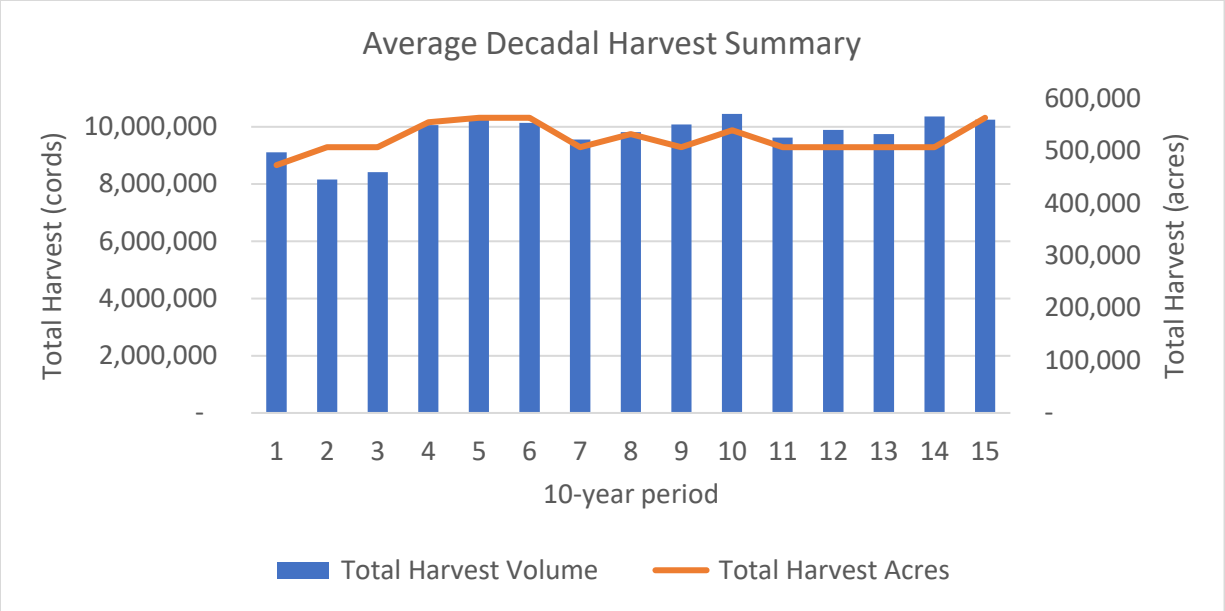


Figure 1. 150-year state forest harvest projection (acres and cords), updated to reflect ice storm impacts.

Annual harvest projections and implementation

A significant part of implementation work is focused on commercial timber harvest to shape wildlife habitat and a healthy future forest. The model was created to help ensure that management of state forest land in Michigan creates a long-term, sustainable supply of forest products and wildlife habitat while providing recreation opportunities and protecting natural and cultural resources for the people of Michigan. The projected harvests derived from the SFMP model inform the yearly harvest objectives, which are determined through the process of allocating resources to the annual harvest plan of work. Resources are allocated to prepare harvest treatments for sale that are available and unconstrained by factors such as access or operability.

Table 1. Annual harvest projections by silvicultural regime, updated to reflect ice storm impacts.

Year of Entry	Clearcut	Selection	Thinning	Shelterwood	Group Selection	Salvage Clearcut	Salvage Thinning	Total
2025	26,733	10,336	6,249	1,589	987	11,238	2,611	**59,743**
2026	26,699	12,035	6,317	1,442	296	7,492	2,611	**56,892**
2027	24,597	11,972	8,083	1,596	684	2,341	2,611	**51,884**
2028	21,992	12,516	6,425	1,255	495	936	2,089	**45,709**
2029	21,880	9,287	5,920	1,202	624	468	2,089	**41,470**
2030	21,021	8,038	6,493	1,513	294	234	3,655	**41,248**
2031	22,460	6,187	4,578	1,291	798	234	4,700	**40,249**
2032	19,024	8,732	5,662	1,388	769	234	4,439	**40,249**
2033	22,030	7,707	6,492	1,388	1,138	234	1,305	**40,295**
2034	30,226	14,065	7,419	1,567	1,438	-	-	**54,715**
Total	**236,663**	**100,876**	**63,637**	**14,231**	**7,524**	**23,412**	**26,109**	**472,452**

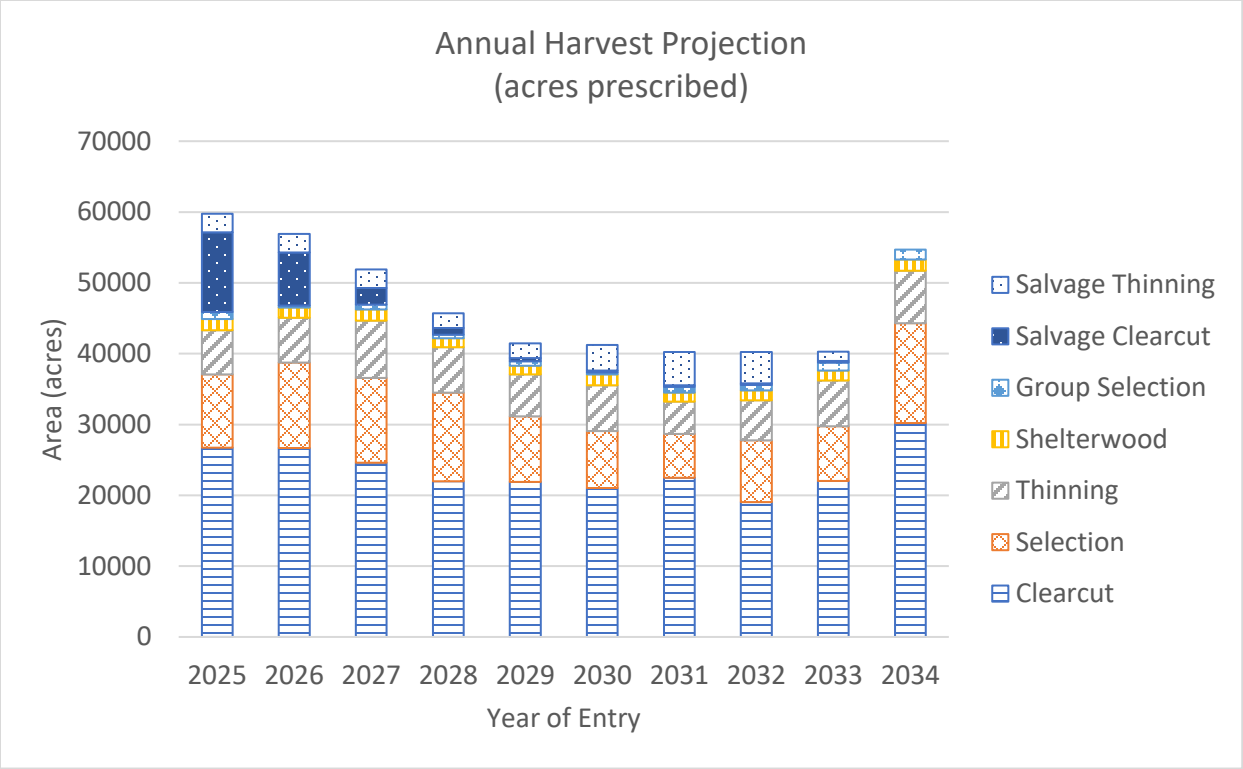


Figure 2. Annual Harvest Projection by method of harvest for this ten-year planning period.

Planning for a sustainable future

The Michigan DNR strives to be a nationally recognized leader in protecting natural and cultural resources, ensuring sustainable recreation use and enjoyment, enabling strong natural resource-based economies, improving and building strong relationships and partnerships, and fostering effective business practices and good governance.

Managing nearly 4 million acres of state forest land for a variety of forest types and conditions, monitoring forest health and vitality, and fighting invasive insects and diseases are all important tasks that will have a big impact on Michigan's future. Our state's wildlife is a remarkable resource that belongs to all of us, and the habitat it depends on must be carefully managed for a variety of species, from iconic game species including deer, turkey and elk to nongame species such as osprey, moose and Kirtland's warbler.

Michigan's diverse forests provide not only wildlife habitat but also cleaner air, cleaner water and a multitude of recreation opportunities that help boost people's physical, psychological and social well-being.

This plan provides essential guidance for the DNR to sustainably manage the state forest on behalf of the people of Michigan, ensuring the conservation, protection, management, use and enjoyment of the state forest for current and future generations.