

Minnesota Forest Resources Council

2017–2018

Report to the Minnesota Governor and Legislature on Implementation of the Sustainable Forest Resources Act

February 2019



Contents

A Letter from the MFRC Chair.....	2	MFRC Research Drives Science-based Forest Management for the Future	12
Sustainable Forest Resources Act	3	MFRC Research Advisory Committee Brings Together Minnesota’s Forest Science Experts	12
Innovative Site Management.....	3	MFRC Applied Research on the Frontline of Forest Challenges.....	14
Sustainable Landscape Management.....	3	Peer Reviewed Publications from the MFRC’s Research Program.....	15
Applied Forest Research and Monitoring	4	Participating in Sustainable Forestry.....	16
Advising State & Federal Leaders.....	4	Public Concerns Registration Process (M.S. § 89A.07 Subd.5)	16
2017 – 2018 Program Highlights.....	5	MFRC Staff	17
Policy Initiatives.....	5	Meet the MFRC.....	17
USDA Under Secretary praises MFRC’s role in Minnesota forest policy efforts	6		
Minnesota’s Site Level Guidelines and Monitoring – National Leader.....	7		
MFRC Landscape Program – Beyond Boundaries to Enhance Forest Sustainability	9		
MFRC Landscape Plans: Second Generation Planning Continues.....	10		
Landscape Coordination Supports 40 Collaborations	11		

A Letter from the MFRC Chair



Kathleen Preece, Chair

This 2018 “Chair’s Report” follows on the heels of noteworthy past chairs, and exceptional past work of the Minnesota Forest Resources Council (MFRC).

In 1999, MFRC Chair Gene Merriam was ‘pleased to submit’ that year’s report, noting major accomplishments including implementation of the timber harvesting and forest management guidelines, development of a monitoring program, and identification of desired future forest conditions for northeastern Minnesota.

Gene noted that 2001 was a “landmark year,” thus laying the groundwork for incoming Chair Al Sullivan to claim in 2003: “A successful year!” Dr. Sullivan served until 2011 when Bob Stine assumed the chair position. Bob noted: “Much has changed, but the Council remains a group of people with diverse opinions dedicated to maintaining and improving the health and productivity of Minnesota’s forests. I hope you take time to read about our accomplishments during the past year in the pages that follow.”

It is 2018 and, indeed, “much has changed,” including both the opportunities and challenges facing our woodlands; the composition of our legislative body, and the workforce charged with the stewardship of our natural resources.

One thing has not changed, however: The Council remains a group of people with diverse opinions dedicated to maintaining and improving the health and productivity of Minnesota’s forests. I, too, hope you will “take the time to read about our accomplishments during the past year, in the pages that follow.”

Respectfully,

Kathleen Preece

Sustainable Forest Resources Act

The Sustainable Forest Resources Act (SFRA) established sustainable forestry as the policy of the state, requiring: sustainable management and use of the state's forest resources, encouraging cooperation and collaboration between public and private sectors in managing the state's

forest resources, consideration of forest resource issues across a range of scales, and recognition and incorporation of diverse perspectives regarding the management and use of the state's forest resources. The SFRA also created the Minnesota Forest Resources Council (MFRC) to lead and coordinate

efforts related to implementation of the SFRA. The MFRC meets its statutory charge through work associated with its programs related to Site level management, Landscape Planning and Coordination, Applied Research and Monitoring, and Policy.

Innovative Site Management

We develop and update forest management guidelines to guide loggers, foresters, and landowners in using effective practices to sustain our forest resources. The MFRC's voluntary forest management guidelines are practical, science-based practices that work to protect wildlife habitat, soils, water quality, wetlands, aesthetics, and historic and cultural resources. These guidelines are widely used by loggers, managers and owners of private and public lands, to minimize impacts to forest resources during management activities.



Cover of the MFRC Site Level Guidelines book.

Sustainable Landscape Management

Landscape level planning and coordination is a way of assessing and promoting forest resource sustainability across large forested landscapes. The Landscape Program supports six regional landscape committees that serve as a

forum where forestland owners and stakeholders work together to address forest resource issues in their regions.

West Central Landscape Committee members tour a pine thinning demonstration site.



Applied Forest Research and Monitoring

We conduct and support key research that improves forest management and the sustainable use of forest resources. These efforts include work conducted by the MFRC's Research Advisory Committee (RAC) and its Applied Research and Monitoring Program. Some recent work includes:

- Identification of priority forest resource research needs by the RAC
- Assessing guideline effectiveness related to wildlife, soils, and water
- Assessing relationships between forest management and water quality

- Identifying optimal soil conditions for forest harvesting
- Determining impacts of EAB on forests and the development of mitigation strategies

The MFRC also provides oversight and program direction to monitoring programs administered by the DNR, including implementation of the forest management guidelines at harvest sites in forested watersheds of the state.

Advising State and Federal Leaders

We advise the Governor, State and Federal policy makers, and public agencies on sustainable forest policies and practices across all landownership.

mn.gov/frc

Who We Are:

The Minnesota Forest Resources Council (MFRC) is a 17-member board created under MN Statute 89A to develop recommendations on sustainable forest management policies and practices. Council members are appointed by the governor and represent a wide range of forest resource interests.

Representing:

Commercial Logging Contractors
Conservation Organizations
County Land Commissioners
Department of Natural Resources
Environmental Organizations
Forest Products Industry
Games Species Management
Indian Affairs Council
Labor Organizations
Nonindustrial Forest Landowners
Research and Higher Education
Resort and Tourism Industry
Secondary Manufacturing
USDA – Forest Service

2017 – 2018 Program Highlights

Policy Initiatives

The MFRC routinely develops a strategic forest plan to assess existing and emerging policy initiatives. Current policy highlights are:

- Competitiveness of the forest products industry
- Water quality and forests
- Terrestrial invasive species
- Climate change adaptation

Clean water is one of the most important resources provided by forests. The MFRC spent considerable time over the past year evaluating policy options to promote recognition of the critical role that forests play in clean water supply, and efforts needed to maintain clean water from managed forests in the future. This evaluation culminated with the adoption of a five point plan to address existing and emerging issues related to water quality and forests, which MFRC and DNR staff are currently implementing. The Council also recognizes the important role that forest industry plays in

natural resources management and the maintenance of forest-dependent communities. The MFRC is currently updating a report on the factors influencing the global competitiveness of Minnesota's forest industry including forest conditions, wood fiber availability and cost, energy and transportation costs, and tax policies. The report will be completed in 2019, providing recommendations on policy options to maintain the competitiveness of Minnesota's forest industry in the future.

Clean water is one of the most important resources provided from our forests. The MFRC continuously works to develop policy recommendations targeted towards maintaining the supply of high quality water that forests provide.



USDA Under Secretary praises MFRC's role in Minnesota forest policy efforts

On November 29, 2018, Jim Hubbard, USDA's Under Secretary for Natural Resources and Environment, met with leaders from the Minnesota forestry community to review an array of collaborative efforts that have developed over the past twenty-four years in Minnesota through the coordination work of the MFRC. The full day session included participation from a broad swath of forestry and natural resources leaders in the state and at the University of Minnesota.

The first session focused on the work by the Council's Research Advisory Committee and its efforts related to applied forest research prioritization, identifying commonalities

and opportunities for collaboration, and discussion on the development of a regional Lake States research cooperative. The research session was very productive and clearly conveyed the unique and innovative way Minnesota goes about addressing forest resource information needs in Minnesota.

The second session focused on collaborative forest planning amongst public land agencies, with emphasis on highlighting linkages and opportunities related to the USDA's Shared Stewardship initiative. This meeting was very productive, and the Under Secretary remarked on the great progress that the Minnesota forestry community has made over the past two decades on developing and

implementing landscape scale approaches. Overall, the day-long event with Under Secretary Hubbard was a great success, resulting in an increased awareness about the work of the Council and its programs at the federal level. It has also brought attention and momentum towards the Arrowhead Project. The project is the Council's recent collaborative of a 500,000 acre project area in northeast Minnesota, focused on high priority vegetative management. This DNR, USFS, county, tribal, and Council effort will continue to advance collaborative planning and coordination approaches at the landscape level in the state.

Under Secretary Hubbard visit.



Minnesota's Site Level Guidelines and Monitoring – National Leader

One of the greatest early accomplishments of the MFRC was the development of Site-level Forest Management Guidelines in 1995. The guidelines are a set of science-based, cost effective practices designed to mitigate impacts to forest resources during management activities such as timber harvesting. The guidelines address all forest

resources including water, wildlife, timber, soils, biodiversity, and aesthetics. Application and use of the guidelines is broadly embraced by foresters, managers, and loggers, and is a point of pride of the forestry community in showing its commitment to sustain forest resources for the long-term benefit of all Minnesotans. The MFRC continuously

works to assess guideline effectiveness and periodically updates the guidelines as new information and conditions evolve. Some recent assessments on guideline effectiveness include work related to biomass removal, leave tree retention, and erosion control.

The MFRC collaborates on effectiveness studies to determine the suitability of guidelines such as the retention of live trees following harvest for wildlife benefits. Here, a clump of trees has been left following harvesting for wildlife benefits.

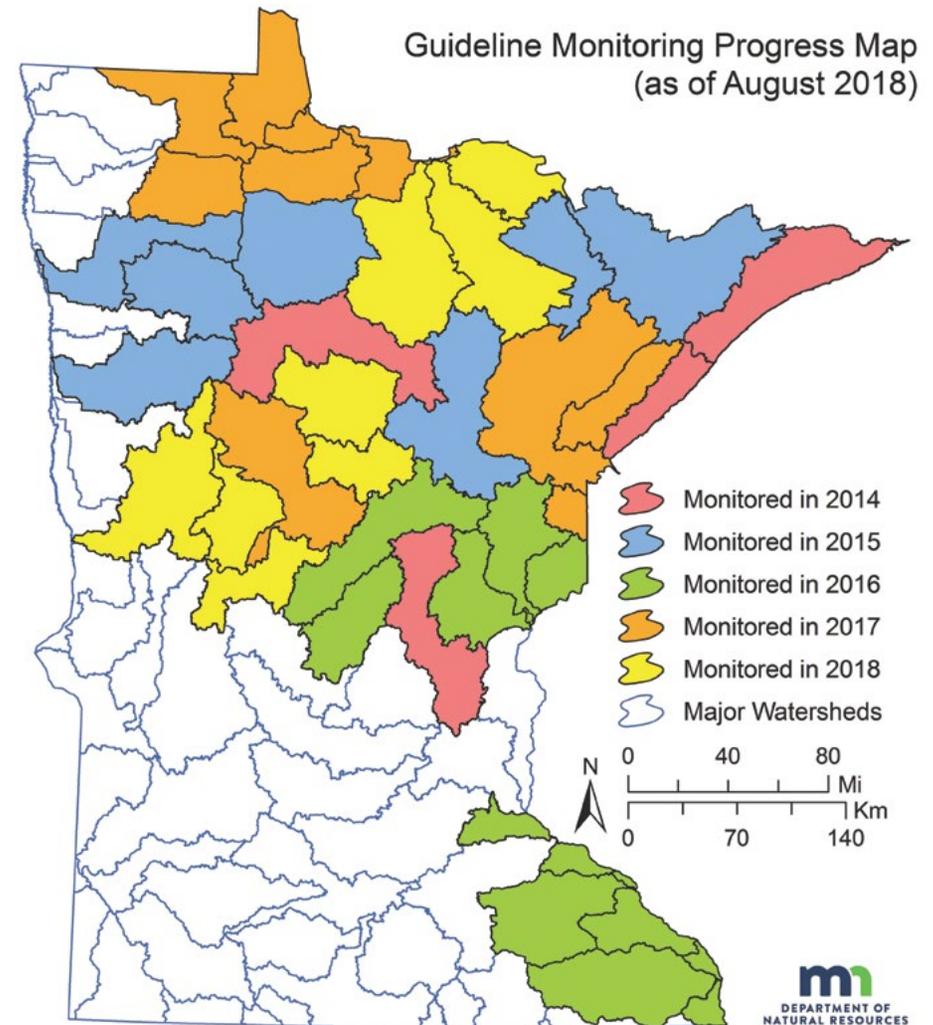


Since the guidelines are voluntarily implemented by loggers, foresters, and practitioners, monitoring of guideline implementation is critically important to demonstrate that guidelines are applied across a range of ownerships and geographies. The DNR conducts this monitoring in coordination with, and under guidance from, the MFRC. Starting in 2014, guideline monitoring has been conducted at the major watershed scale to more closely align with ongoing statewide efforts focused on water quality and watershed health. A summary of the program and its unique approach to monitoring was recently published in the *Journal of Forestry*, providing national recognition of Minnesota's efforts to maintain water quality in working forested landscapes. Some recent activities include:

- Over 160 sites were monitored in 2017 and 2018 across all land ownerships and encompassing 17 watersheds.

- All forested watersheds in Minnesota have now been monitored for guideline implementation and assessment of forest disturbance patterns. In general, utilization of guidelines during harvesting is very high across the state.
- A comprehensive report on statewide status and trends will be released in early 2020.

Much progress has been made on guideline development, use, and evaluation in the past two decades. The MFRC is committed to improving the forest management guidelines and future efforts related to their evaluation and use.



Status of guideline monitoring across major forested watersheds in Minnesota. Guideline monitoring is conducted at the major watershed scale over a 5 year cycle.

MFRC Landscape Program – Beyond Boundaries to Enhance Forest Sustainability

The SFRA laid the foundation for large-scale forest management by establishing the Landscape Program. This MFRC program supports broad perspectives and approaches to sustainable forest management. The program is a voluntary, grassroots effort that builds relationships, strengthens partnerships, and supports collaborative forest management projects that address

local and regional needs. In 2017, partners on the regional committees contributed over 4,800 hours of time to support landscape level efforts through the Landscape Program.

Volunteer, citizen-based regional landscape committees are central to carrying out landscape management processes. The

committees provide a public forum for diverse interests to cooperatively promote long-term sustainability. The Landscape Program fulfills the charge of the SFRA to “encourage cooperation and collaboration between public and private sectors in the management of the state’s forest resources.”

Tour of the Potlatch mill near Bemidji, Minnesota.



MFRC Landscape Plans: Second Generation Planning Continues

In September 2017, the MFRC approved the revised North Central Landscape Plan. Over 30 people representing a broad range of interests developed the regional forest resource plan for the 9.1 million acre landscape region. The revised plan incorporated economic, ecological, and social research by the University of Minnesota and USDA Forest Service and integrated input from a diverse array of stakeholders. Particular emphasis was placed on adding economic

and social goals to the landscape plan. The North Central Landscape Committee reconvened in September 2017 to initiate the second generation of landscape level coordination efforts over the next ten years. The North Central Landscape Plan is the third of six landscape plans to be revised in Minnesota.

North Central Landscape Committee meeting.



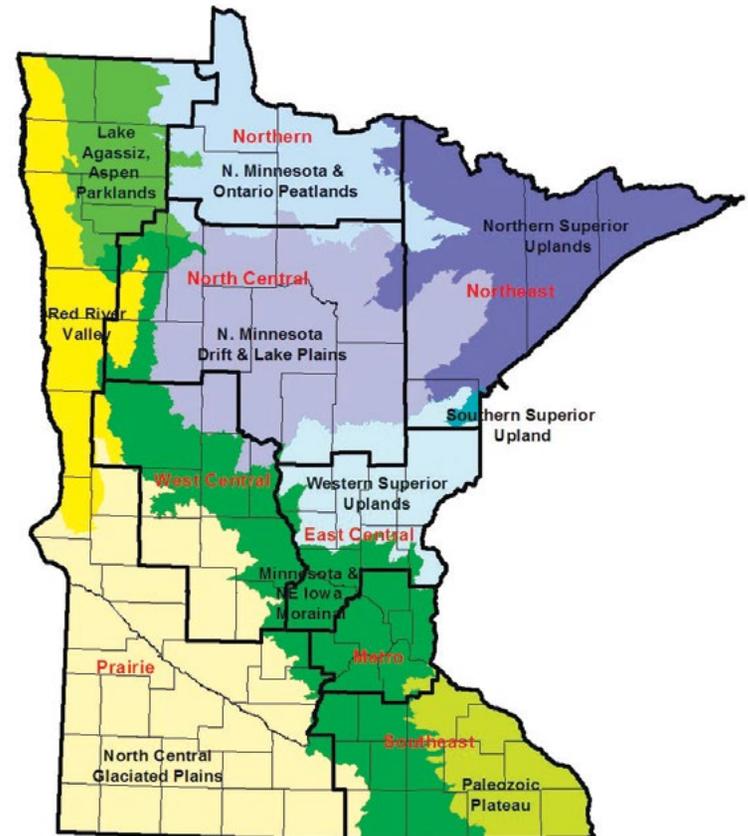
Landscape Coordination Supports 40 Collaborations

With MFRC assistance, local partners are shaping future forests by coordinating their forest management efforts through the MFRC regional landscape committees. They work to sustain forested landscapes and forest benefits, recognizing the importance of both biodiversity and forest-based economies and communities. The six committees have supported over 40 multi-owner collaborative projects in various stages of development.

- Supporting the Arrowhead Pilot Project, a 545,385 acres collaborative project being developed through the USDA's Shared Stewardship Initiative. The project will showcase the collaboration among regional natural resource managers, stakeholders, and land owners to address urgent forest landscape risks associated with an aging forest, including wildlife habitat loss, catastrophic wildfire threats, and invasive species. Forest management treatments will address identified landscape-wide natural resource priority objectives across multiple land ownership acreages.
- The regional committees, in partnership with the DNR Private Forest Management (PFM) Program, continue to work with federal, state, and local entities towards collaborative projects while at the same time helping to enhance delivery of services to private woodland owners.

Through an array of collaborative “cross boundary” management projects the regional landscape committees are demonstrating effective ways to address landscape level forest resource issues that promote the implementation of the MFRC's landscape plans and the values of the SFRA.

MFRC Landscape Regions. The MFRC divided the state into six major forested regions plus two other (metro and prairie) regions. Solid lines represent administrative boundaries; shaded areas represent ecological boundaries. Although regional borders follow county boundaries (represented by bolded regional lines) to facilitate coordination among units of government, they also correspond closely with the borders of ecological regions.



MFRC Research Drives Science-Based Forest Management for the Future

Since its inception, research, and its role in providing information to guide science-based decision making, has served as a foundation for the work conducted by the MFRC. Research efforts are largely associated

with the MFRC's Research Advisory Committee (RAC) and its Applied Research and Monitoring Program.

MFRC Research Advisory Committee Brings Together Minnesota's Forest Science Experts

The RAC is composed of primary research institutions and land management organizations in Minnesota, broadly serving to identify and support important forest resources research needs in the state. Current tasks of the RAC include:

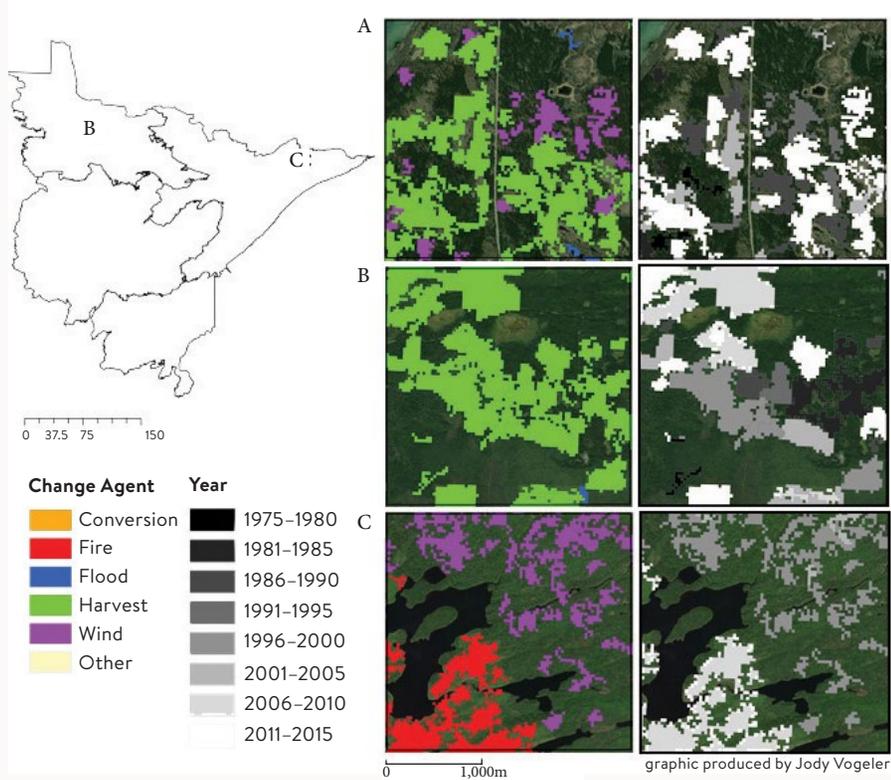
- Identify priority forest resources research needs in Minnesota
- Promote collaboration among research entities and diverse disciplines
- Facilitate the use and application of research in real-world situations

The RAC conducted a thorough evaluation of research priorities throughout 2018 that utilized a panel of 26 forest resource research experts over many days of meetings. The priorities are grouped into three themes:

- Theme 1: Enhancing Forest Economies
- Theme 2: Forest management for the 21st century
- Theme 3: Maintaining Forest Health and Function

Research priorities and examples are associated with each of these themes. Examples provide additional context for the research priorities and include things such as determining new techniques for forest inventory and the development of advanced biomaterials from trees. A final report on the RAC's recommendations will be available in 2019. MFRC's research program is now exploring opportunities to achieve greater research, collaboration, and support in the Lake States region.

Most Recent Fast Disturbance Map Laurentian Mixed Forest Province



Forest disturbance patterns have large influence on the sustainable supply of forest resources including wood fiber and clean water. The MFRC's Applied Research and Monitoring Program has collaborated on the development of remote sensing techniques to determine the amount, type, and location of forest disturbance from 1975 to present in Minnesota.



Soil operability is an important factor influencing when forest harvesting can occur. Our research is determining how the amount and timing of precipitation influences soil operability to provide managers and loggers with more information to plan harvest operations.

MFRC Applied Research on the Frontline of Forest Challenges

The MFRC's Applied Research Program conducts research to provide information and guidance in support of the SFRA, the MFRC, and the broader forestry community. Our research focuses on the most pressing forest resource issues with application to practical forest resource management. Projects currently being worked on include:

1. **EAB and black ash** – evaluating the impacts of EAB on black ash wetland plant communities, hydrology, soils, and wildlife. A key objective is to develop management strategies to maintain these unique wetlands as forests following EAB.
2. **Forest disturbance assessment** – determining disturbance rates and drivers across Minnesota forests from 1974-present. A key objective is to make this dataset available to guide forest management planning including incorporation into statewide forest inventory and wildlife assessments
3. **Watersheds, forest management, and water** – determining if there are threshold levels of forest disturbance where water quality is impacted and the scale at which it is greatest. A key objective is to determine if such thresholds exist and if they are influenced by forest management.
4. **Soil operability during harvesting** – evaluating when harvest operations can occur that will minimize potential impacts to soil under future conditions associated with climate change. A key objective is to increase site access during winter and summer harvests by providing managers with more information on suitable soil conditions.
5. **Forest management and peatlands** –evaluating changes in wildlife habitat, plant communities, and hydrology during stand development following harvesting in lowland conifer forests. A key objective is to determine how these key forest resources change over time to guide management planning and adaptation strategies for climate change.



As part of a collaborative project with the USDA Forest Service and UMN, we have girdled black ash trees in northern Minnesota to simulate the effect that EAB will have on black ash wetlands. Simulated EAB mortality has altered the forest vegetation as can be seen with the dense brush growth in the picture above.

Peer Reviewed Publications from the MFRC's Research Program

McEachran, Z.P, R.A. Slesak, and D.L. Karwan. 2018. From skid trail to landscapes: vegetation is the dominant factor influencing erosion after forest harvest in a low relief glaciated landscape. *Forest Ecology and Management* 430:299-311.

D'Amato, A.W., B.J. Palik, R.A. Slesak, G. Edge, C. Matula, and D.R. Bronson. 2018. Evaluating adaptive management options for black ash forests in the face of emerald ash borer invasion. *Forests* 9(6): 348. DOI:10.3390/f9060348

Diamond, J.S, D. McLaughlin, R.A. Slesak, T.D. D'Amato, and B.J. Palik. 2018. Forested vs. herbaceous wetlands: can management mitigate ecohydrologic regime shifts from invasive emerald ash borer? *Journal of Environmental Management* 222:436-446.

Kolka, R.K., A.W. D'Amato, J.W. Wagenbrenner, R.A. Slesak, T.G. Pypker, M.B. Youngquist, A.R. Grinde, and B.J. Palik. 2018. Review of Ecosystem Level Impacts of Emerald Ash Borer on Black Ash Wetlands: What Does the Future Hold? *Forests*. 9, 179. DOI:10.3390/f9040179

Vogeler, J., J.D. Braaten, R.A. Slesak, and M.J. Falkowski. 2018. Extracting the full value of the Landsat archive: Inter-sensor harmonization for the mapping of Minnesota forest canopy cover (1973-2015). *Remote Sensing of Environment*. 209:363-374.

Slesak, R.A., J. Corcoran, and R. Rossman. 2018. A holistic monitoring approach for water quality BMP and forest watershed risk assessment. *Journal of Forestry* 116(3): 283-290.

Youngquist, M.B., S.L. Eggert, A.W. D'Amato, B.J. Palik, and R.A. Slesak. 2017. Potential effects of foundation species loss on wetland communities: a case study of black ash wetlands threatened by emerald ash borer. *Wetlands*. DOI:10.1007/s13157-017-0908-2

Slesak, R.A., B.J. Palik, A.W. D'Amato, and V.J. Kurth. 2017. Changes in soil physical and chemical properties following organic matter removal and compaction: 20-year response of the aspen Lake-States LTSP installations. *Forest Ecology and Management* 392:68-77.

Looney, C.E., A.W. D'Amato, B.J. Palik, R.A. Slesak, and M.A. Slater. 2017. The response of *Fraxinus nigra* forest ground-layer vegetation to emulated emerald ash borer mortality and management strategies in northern Minnesota, USA. *Forest Ecology and Management* 389:352-363.

Participating in Sustainable Forestry

MFRC programs rely on individuals interested in forest resources in Minnesota. Their participation assures that a “broad array of perspectives regarding the management,

use, and protection of the state’s forest resources (M.S. § 89A.02)” guide forest resource planning and management.

Public Concerns Registration Process (M.S. § 89A.07 Subd.5)

The Public Concerns Registration Process (PCRP) allows citizens to inform landowners, foresters, and loggers of specific concerns regarding timber harvesting and forest management practices they see in Minnesota and learn more about forest management.

citizens learn about guidelines for sustainable forest management.

Concerns registered with the Public Concerns Registration Process are confidential. To register a concern, call 1-888-234-3702 or submit one online at <http://mn.gov/frc/public-concerns-registration.html>.

PCRP encourages sustainable management of Minnesota’s forests through education. It is not a regulatory or dispute resolution program. Instead, landowners, loggers, and foresters become more aware of public concerns regarding forest management, and

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Thank You!

Thank you to all the individuals and organizations who support and participate in the programs of the SFRA and the MFRC.



Meet the MFRC

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