Minnesota Forest Resources Council

2005 Annual Report to the Governor and Legislature

on the Implementation of the Sustainable Forest Resources Act

Thank You

Thank you to all the organizations that continue to help, organize, support, and participate in the programs of the Sustainable Forest Resources Act (SFRA) and the Minnesota Forest Resources Council (MFRC):

Associated Contract Loggers
Audubon Minnesota
Blandin Foundation
Cloquet Forestry Center
Institute for Agriculture and Trade Policy –
  Community Forestry Resource Center
Minnesota Association of County Land Commissioners
Minnesota Center for Environmental Advocacy
Minnesota Deer Hunters Association
Minnesota Department of Natural Resources
Minnesota Forest Industries
Minnesota Forest Resources Partnership
Minnesota Forestry Association
Minnesota Indian Affairs Council
Minnesota Logger Education Program
Minnesota Resort and Campground Association
Minnesota Ruffed Grouse Society
Minnesota Timber Producers Association
The Nature Conservancy
The Trust for Public Land
USDA Forest Service
  Chippewa National Forest
  Superior National Forest
  North Central Research Station
  State and Private Forestry
University of Minnesota-Duluth
  Natural Resources Research Institute
University of Minnesota
  College of Natural Resources:
    Sustainable Forests Education Cooperative
  Extension Service

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Respectfully submitted by the Minnesota Forest Resources Council

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A Message from the Chair

MFRC: An Expanding Advisory Role in Sustainable Forest Resource Policy

The Minnesota Forest Resources Council (MFRC) had a very successful year in 2005. Our work this past year has included an expanding role in providing advice to the Governor, several accomplishments from well-established programs, and new initiatives that will help chart our future course.

Over the past several years, the role of the Minnesota Forest Resources Council has evolved from a primary focus on core program development to an expanded focus on providing policy advice to the Governor and Minnesota Legislature.

The MFRC's diverse membership of public and private entities shares a common commitment to sustainable management of our state's forest resources through cooperation and collaboration.

Our commitment to meaningful partnerships continues to strengthen collaborative work on behalf of sustainable forest management. Council policy initiatives related to forest sustainability continue to serve as a catalyst for ongoing efforts to protect and manage our forestlands in a responsible manner.

Both within and beyond Minnesota, the MFRC is increasingly recognized as a leader in sustainable forest management, education, outreach, and policy initiatives.

Our significant accomplishments in a variety of areas have been made possible by the commitment of the Governor and the Legislature, whose priorities consistently reflect recognition of the valuable contributions that forestland and forest-based industries make to the economic, environmental, and social well-being of our state.

We thank you for the continuing opportunity to advise the State of Minnesota on critical issues related to forest resource management, and for the ongoing opportunity to help lay the groundwork for policy initiatives that can help assure the long-term sustainability and future of Minnesota forestland.

Alfred D. Sullivan
Chair

The role of the MFRC has evolved from a primary focus on core program development to an expanded focus on providing policy advice to the Governor and the Legislature.

Alfred D. Sullivan, Chair
Minnesota Forest Resources Council
Photo by Patrick O'Leary/ University of Minnesota

Both within and beyond Minnesota, the MFRC is increasingly recognized as a leader in sustainable forest management, education, outreach, and policy initiatives.

An Overview of MFRC Accomplishments in 2005

1. The MFRC provided advice to Governor Tim Pawlenty, at his request, regarding inventoried roadless areas in Minnesota national forests. The Governor asked the MFRC for advice on whether or not to petition the U.S. Secretary of Agriculture to undertake a state-specific rule-making process for management allocations of 32 inventoried roadless areas in the Superior and Chippewa national forests. The Council advised the Governor to not petition the Secretary of Agriculture. (See page 5.)

2. The Council delivered a Resolution of Support to Governor Pawlenty, state legislative leaders, and the Minnesota Congressional Delegation supporting state and federal funding focused on securing large-scale conservation easements on industrial forestlands. The MFRC and other public and private groups concerned about this issue subsequently formed the Minnesota Forest Legacy Partnership. The Partnership's goal is to secure large-scale conservation easements on up to 75,000 acres of industrial forestland by raising $26 million from private and public sources. Two private foundations have committed more than $7 million toward this goal, and a $10 million state bonding request has been submitted. (See page 8.)

3. We continued to be an active partner with the Blandin Foundation in its Vital Forests/Vital Communities Initiative. In 2005, this initiative pledged nearly $7 million in grants to maintain the forestland base, promote sustainable forest management, and promote forest-based economic development. Several Council members and staff serve on the advisory board to this initiative. (See page 6.)

4. We completed the East Central Landscape Region Plan. The East Central Landscape Plan is the result of 12 months of work by diverse forest interests in the landscape. It outlines landscape-level goals and strategies that provide a long-term context for public and private land managers to consider in their operational planning and management. (See pages 10-11.)

5. All six major forested landscape regions have begun to implement the plans approved by the Council over the past five years. All six major forested landscape regions have landowner coordination groups actively overseeing and promoting plan implementation. Forest landowners and land managers in all six landscape regions have begun to implement the goals that move their landscapes toward the desired future conditions stated in the plans. (See pages 11-12.)

6. The Council published the first revised version of Minnesota's timber harvesting guidelines. The MFRC released an updated version of the timber harvesting and forest management guidebook, originally published in 1999. The 2005 revision of *Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines* was completed in response to a legislative mandate to periodically review and revise the guidelines based on monitoring results and other information. The revised guidebook is being distributed statewide to resource managers, loggers, and forest landowners. (See pages 14-15.)

7. To continue to improve the site-level guidelines, a Riparian Science Technical Committee obtained the latest scientific findings related to timber harvesting and forest management impacts on riparian areas. Nine scientists have worked to identify scientific findings related to the impacts of forest management activities on critical functions in riparian areas.

In 2006, the MFRC will consider the scientists' findings and judgments related to various types of waterbodies in order to inform discussions about revising riparian aspects of the guidelines. (See page 16.)

8. We began preparing to develop biomass harvesting guidelines. The MFRC has been mandated by the Minnesota Legislature[1] to develop guidelines for sustainable removal of woody biomass from logging residue on timber harvest sites.

Forests help protect water quality and add to the aesthetic value and quality of life in Minnesota. *Photo by Dave Chura*

The MFRC concludes its tenth year of operation with a strong core of program accomplishments, as well as a fresh perspective on the challenges we face in the coming years to ensure forest sustainability in Minnesota.

In addition, the Minnesota Department of Natural Resources (DNR) has asked the Council to play a lead role in developing guidelines for sustainable removal of woody biomass from brushland. (See page 17.)

9. The MFRC participated in the Governor's Clean Water Initiative to promote high water quality in the state. MFRC staff participated as a member of the Technical Committee, providing technical information and recommendations to the Governor's Clean Water Initiative Task Force. The Technical Committee will produce a report documenting the information and recommendations presented to the Task Force. (See page 9.)

The MFRC concludes its tenth year of operation with a strong core of program accomplishments, as well as a fresh perspective on the challenges we face in the coming years to ensure forest sustainability in Minnesota.

[1]Minnesota Statutes 216B.2424

The Minnesota Forest Resources Council

What is the Minnesota Forest Resources Council?

The Minnesota Forest Resources Council (MFRC) is a 17-member organization working to promote long-term sustainable management of Minnesota's forests in two ways:

❒ By coordinating implementation of the Sustainable Forest Resources Act[2] (SFRA).

❒ By advising the Governor and federal, state, county, and local governments on sustainable forest resource policies and practices.

What is its purpose?

Created in 1995, the MFRC operates within the policy framework for sustainable forestry set forth in the SFRA, which is to:

❒ **Pursue the sustainable management, use, and protection** of the state's forest resources to achieve the state's economic, environmental, and social goals.

❒ **Encourage cooperation and collaboration** between public and private sectors in the management of the state's forest resources.

[2]Minnesota Statutes 89A

Inherent in sustainable forest management is the need to protect adjacent water resources. The Minnesota Forest Resources Council is working toward this objective. *Photo by Dave Chura*

❒ **Recognize and consider forest resource issues,** concerns, and impacts at the site and landscape levels.

❒ **Recognize the broad array of perspectives** regarding the management, use, and protection of the state's forest resources, and establish processes and mechanisms that seek these perspectives and incorporate them into planning and management.

Who is on the MFRC?

The Governor appoints a chair and 15 other members to the MFRC. Recognizing the sovereignty of Indian nations under federal law, the Minnesota Indian Affairs Council appoints one additional member. MFRC membership includes a chair plus individuals representing the following categories:

❒ Commercial logging contractors

❒ Conservation organizations

❒ County land departments

❒ Environmental organizations (two representatives)

❒ Forest products industry

❒ Game species management organizations

❒ Labor organizations

❒ Minnesota Department of Natural Resources

❒ Minnesota Indian Affairs Council

❒ Nonindustrial private forest landowners (two representatives)

❒ Research and higher education

❒ Resort and tourism industry

❒ Secondary wood products manufacturers

❒ USDA Forest Service

MFRC Forest Policy Initiatives and Collaboration

How did the MFRC advise the Governor about roadless areas?

In June, Governor Pawlenty asked the MFRC to provide advice to him on whether or not Minnesota should petition the U.S. Secretary of Agriculture to undertake a state-specific rule-making process for management allocations in federal "inventoried roadless areas"[3] in Minnesota.

There are 32 inventoried roadless areas (IRAs) in the Superior and Chippewa national forests, comprised of more than 66,000 acres. The MFRC worked to address the Governor's request by providing several opportunities for county and tribal governments and forest resources stakeholders to provide input.

In addition, to provide solid advice to the Governor, the MFRC analyzed what other states are doing, examined the pros and cons of petitioning, and reviewed the implications of both petitioning and state rule-making.

In November, the MFRC concluded that its recommendation to the Governor was to not petition. The MFRC's conclusion was based on several key factors, including the following:

❒ The MFRC's review of the USDA Forest Service's management plans did not surface material objections to the content related to roadless areas in these plans.

❒ Absent a compelling need for change, the lengthy and complex procedural steps involved in a petition process could pose a costly burden on Minnesota's budgetary resources. In addition, such expenditures, if made, could not guarantee the desired results.

MFRC members strongly believe that this request for advice from the Governor is a prime example of how the MFRC can best serve Minnesota and its citizens.

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[3]In May 2005, a federal Roadless Final Rule established a process for governors to propose locally supported regulations for conserving federally owned inventoried roadless areas within their states.

In what other ways did the MFRC advise the Governor in 2005?

The MFRC created two Resolutions of Support for the Governor and Legislature:

❒ **A Resolution of Support for state and federal funding focused on securing large-scale conservation easements on industrial forestlands** (see page 8 for more information).

❒ **A Resolution of Support for creation of a task force to evaluate the competitiveness of "secondary" sectors within Minnesota's forest products industry.** The MFRC recommended to the Governor that he establish a task force to evaluate the competitiveness of the following sectors of Minnesota's forest products industry: wood preservation, wood remanufacturing, crating, industrial use of high- and low-grade lumber, millwork, and window and door manufacturing.

Many secondary forest products businesses in Minnesota are facing trends that are causing immediate—as well as long-term—economic impacts. Several of the competitive factors examined in the *Governor's Advisory Task Force Report on the Competitiveness of Minnesota's Primary Forest Products Industry (July 2003)* also apply to this industry sector, and those factors would be reanalyzed by the task force, if the Governor chooses to create it.

How did the MFRC partner with the Blandin Foundation in 2005?

The MFRC continued to partner with the Blandin Foundation in its Vital Forests/Vital Communities Initiative, which strives to strengthen and diversify Minnesota's forest-based economy and promote the long-term health of the forest ecosystems that support it.

In 2005, the Blandin Foundation pledged nearly $7 million to grants and projects to maintain the forestland base, promote sustainable forest management, and promote forest-based economic development (see Forest Policy Topic #1 on page 8 for information on a $6 million pledge).

Two MFRC members, one former member, and one MFRC staff person serve on this initiative's advisory board. Membership on the board provides excellent opportunities to leverage state, federal, and private investments in sustainable forest use, management, and protection.

The MFRC's work in these three important areas during the past year is helping to increase public understanding and encourage broad-based discussion and development of forest resource policy.

What forest policy initiatives were under way this year?

The MFRC worked on three of the five policy topics related to sustainability of Minnesota's forestland as agreed to during the MFRC's 2004 strategic planning work.

The MFRC's work in these three important areas during the past year is helping to increase public understanding and encourage broad-based discussion and development of forest resource policy.

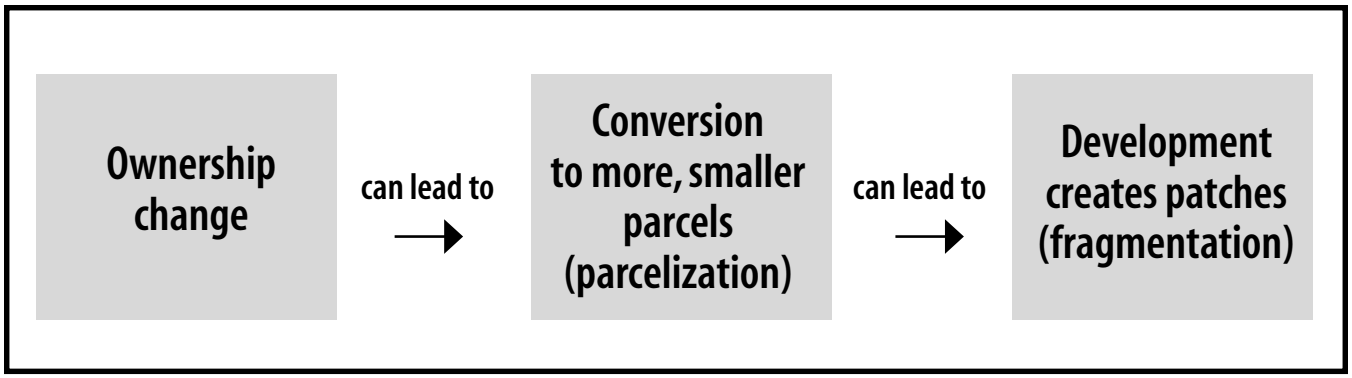


Figure 1. Relationship between ownership change, parcelization, and fragmentation.

Forest Policy Topic #1: Forestland ownership changes, parcelization, and fragmentation

The MFRC is working to improve Minnesota's understanding of the economic, ecological, and social impacts of forestland ownership changes, parcelization, and forestland loss, especially related to family forestlands (non-industrial private forestlands) and forest products industry lands.

Accurate statewide data about ownership changes affecting Minnesota's 6 million acres of private family forestland are difficult to obtain. It is widely understood, however, that when forestland is sold (ownership change), it can lead to the conversion of the holding into several smaller parcels (parcelization).

This conversion can in turn lead to eventual use of the land for housing or other development, which creates patches of forest adjacent to development (fragmentation), as demonstrated in Figure 1.

Specifically, *parcelization* refers to the degree to which the size of forestland parcels diminishes over time. See Figure 2.

Fragmentation refers to the degree to which forested areas are interspersed with nonforest areas. Research has shown that forest adjacent to nonforest is often warmer and drier, more likely to be affected by wind, and more likely to be invaded by non-native species.

The MFRC is working to improve Minnesota's understanding of the economic, ecological, and social impacts of forestland ownership change, parcelization, and forestland loss.

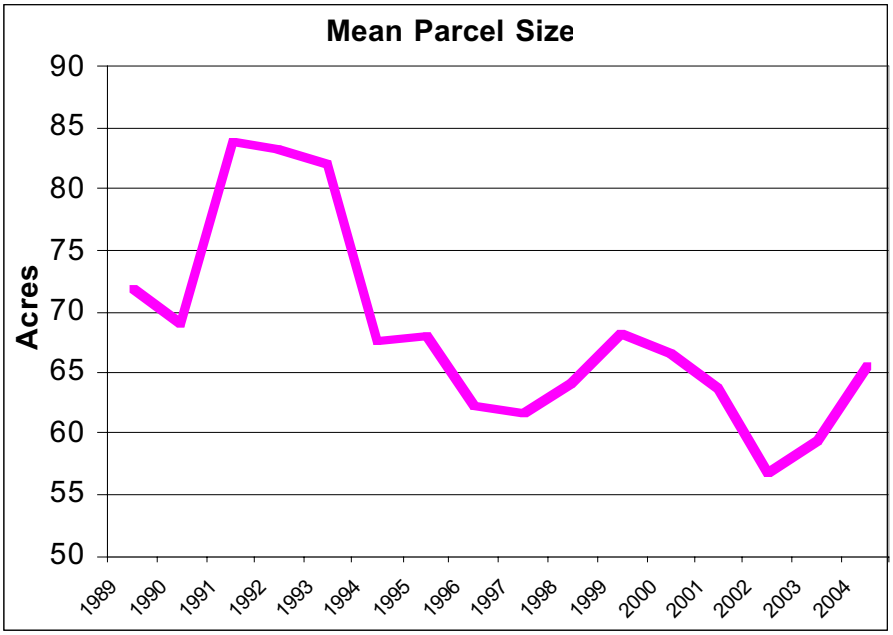


Figure 2. Mean parcel size for undeveloped forest tracts greater than 20 acres in size has declined from 1989 to 2004. *Source: Mike Kilgore, University of Minnesota Department of Forest Resources, September 2005*

The MFRC is concerned about rapid ownership changes in Minnesota's industrial forestlands and other corporate forestlands. Since 1998, about 400,000 acres of the nearly 1 million-acre industrial forestland base have been sold to owners who are more likely to develop the land. Most industrial and corporate ownerships are concentrated in a few large northern Minnesota counties (see Figure 3).

The era that favored extensive forestland holdings by industry is ending. Traditional forest industry owners are being replaced by out-of-state, investment-focused organizations (often called timber investment management organizations).[4] This trend adversely affects citizens' hunting and fishing access to industrial lands—a long-time and widespread practice in Minnesota.

[4]A timber investment management organization (TIMO) is similar to a mutual fund, except that it owns timberlands instead of stocks. Typical investors are large pension funds, endowments, banks, and individuals. The TIMO manages the timberland for a financial return for its investors. There is increased interest in having timberlands in investment portfolios because they yield steady, consistent returns over time. It is estimated that more than half of the 37 million acres of timberland owned by the forest industry was sold to TIMOs in the past five years.

New housing built in a forested setting contributes to fragmentation, as shown in the example above. *Photo courtesy of Minnesota DNR*

To address this issue, the MFRC has stated that Minnesota's goal should be to conserve large blocks of forestland important to wildlife, wood supply, and recreation.

To pursue this goal, the MFRC delivered a Resolution of Support to Governor Pawlenty, state legislative leaders, and the Minnesota Congressional Delegation supporting state and federal funding focused on securing large-scale conservation easements on industrial forestlands.

Along with other public and private groups concerned about this issue, the MFRC subsequently helped form the Minnesota Forest Legacy Partnership, whose goal is to secure large-scale conservation easements on up to 75,000 acres of industrial forestland by raising $26 million from private and public sources.

The Blandin Foundation and the Surdna Foundation have committed $6.25 million and $1 million, respectively, toward this goal, and the DNR has submitted a $10 million bonding request for forest conservation easements. If provided by the Legislature, a portion of of these funds, plus the private funds, would be used to leverage USDA Forest Service Forest Legacy funds.

Due to the work of the Forest Legacy Partnership and the MFRC, the topics of private forestland parcelization and fragmentation have been covered in major media in 2005. For example, in October, the *StarTribune* newspaper ran a six-article series about the changing face of the northern forests of Minnesota.

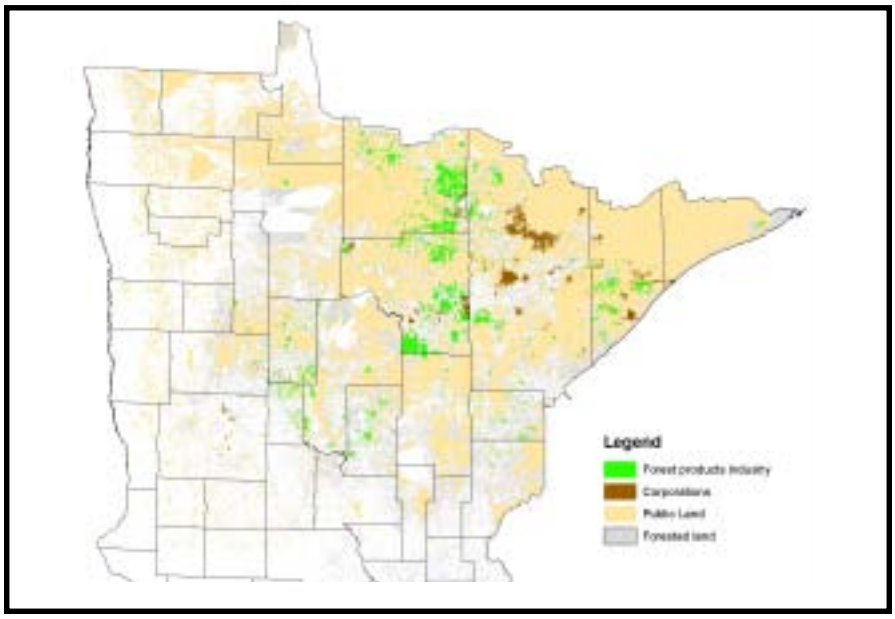


Figure 3. Location of forest industry and other corporate-owned forestland in northern Minnesota.

Policy Topic #2: Woody biomass harvesting

Several energy-generating projects have been proposed and are in development that utilize woody biomass.[5] Woody biomass is what remains after pulpwood and sawlogs are hauled from a logging site. Treetops are traditionally left in the woods after harvest. Typically, some merchantable and unmerchantable live and dead trees are also left onsite after harvest.

The MFRC has been mandated by the Legislature[6] to develop guidelines for sustainable removal of woody biomass from logging residue on timber harvest sites. In addition, the DNR has asked the Council to play a lead role in developing guidelines for sustainable removal of woody biomass from brushland, a mandate to the DNR from the Legislature.[7]

In addition to developing guidelines, the MFRC recognizes that the increasingly significant number of woody biomass projects across the state may at some time affect forest ecosystems and possibly create competition for sawlogs and pulpwood.

To better understand statewide sustainability of woody biomass harvesting, the MFRC will highlight possible trade-offs between the use of wood residue to produce biomass energy and the resulting impacts on wildlife habitat, stand biodiversity and regeneration, and soil productivity, including chemical, physical, and biological characteristics.

[5]Biomass is defined in Minnesota Statutes 216C.051 as "herbaceous crops, trees, agricultural waste, and aquatic plant matter, excluding municipal solid waste, used to generate electricity."

[6]Minnesota Statutes 216B.2424

[7]Minnesota Statutes 216B.2424

Policy Topic #3: Water quality improvement due to forest cover

It is widely accepted that forestland cover contributes positively to water quality. While work is under way in Minnesota to identify impaired waters in order to comply with the federal TMDL[8] program, The MFRC believes that the role of forests should be considered.

To that end, MFRC staff participated on the Governor's Clean Water Initiative's Technical Committee and provided information and recommendations to the Clean Water Initiative Task Force. The Technical Committee will produce a report documenting the information and recommendations presented to the Task Force.

[8]TMDL is the acronym for Total Maximum Daily Loads, which is the amount of a particular pollutant that a waterbody can "handle" without violating state water quality standards. Minnesota must establish TMDLs for priority waterbodies.

Minnesota's guidelines related to timber harvest practices in riparian areas also contribute to improving water quality. An interdisciplinary team of nine scientists comprise the Riparian Science Technical Committee, which is helping to compile the science that links water quality to the existence of riparian management zones (see page 16 for more information).

MFRC staff participated on the Governor's Clean Water Initiative's Technical Committee and provided information and recommendations to the Clean Water Initiative Task Force.

Biomass harvesting includes collecting bundles of slash for use in generating energy. *Photo by Dave Chura*

Landscape-Level Forest Resource Planning and Coordination

How does the MFRC's landscape program address geographically unique resource issues?

The MFRC's landscape program provides a forum that allows landowners and stakeholders to work together over broad regions to address resource issues that generate geographically unique solutions to sustainability challenges.

In six major forested regions (see Figure 4: all except the Metro and Prairie regions), residents and stakeholder representatives have worked cooperatively to:

❒ **Develop sustainable forest resource plans** stating desired future forest conditions and goals to achieve them in the long term.

❒ **Establish coordination groups of landowners and managers** in each landscape region to implement and coordinate landscape goals in each plan.

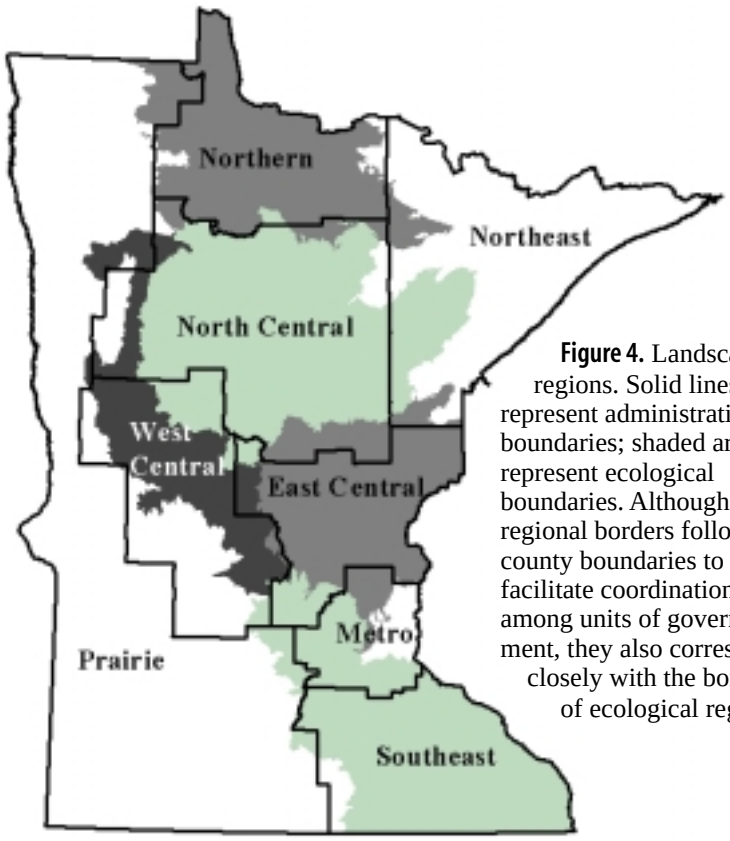


Figure 4. Landscape regions. Solid lines represent administrative boundaries; shaded areas represent ecological boundaries. Although the regional borders follow county boundaries to facilitate coordination among units of government, they also correspond closely with the borders of ecological regions.

What forest resource plans were completed in 2005?

During 2005, the East Central Regional Committee completed its plan for the East Central Landscape Region. Representing the final plan to be completed among the state's six major forested landscapes, the East Central Plan outlines landscape-level goals and desired future conditions for the region's forests, and then suggests multiple strategies for consideration by public and private land managers.

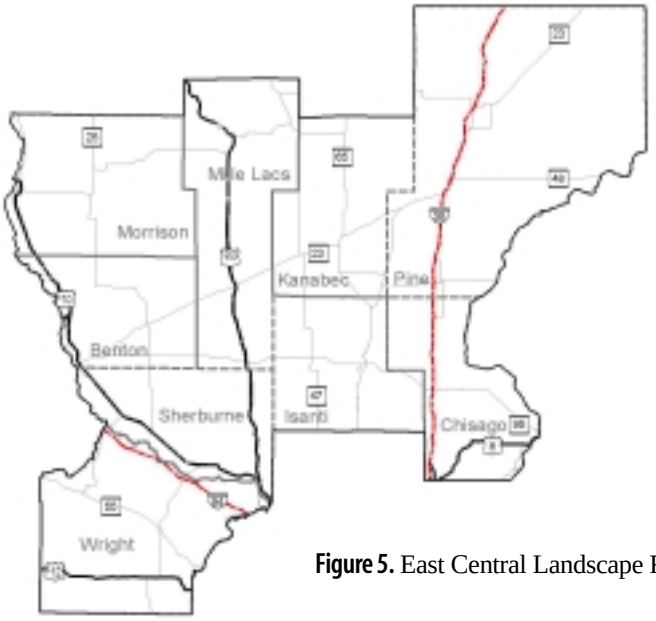


Figure 5. East Central Landscape Region.

With planning completed in all six major forested landscapes, the MFRC's landscape program has shifted its emphasis to implementation and coordination of the plans.

The East Central Plan[9]

Four of the six fasted-growing counties in the state are located in the East Central Region (Figure 5). This region is close to the Twin Cities metropolitan area, and approximately 90% is privately owned. The East Central Regional Committee envisions a landscape that:

❒ Moves toward the range of variability for plant communities naturally living and reproducing in the landscape.

❒ Has spatial patterns, including the size and location of openings, that are consistent with the ecology of the region.

❒ Provides diverse habitat to maintain natural communities and viable populations of plant and animal species.

❒ Supports a full range of forest products and recreational activities in a sustained manner.

To achieve this vision, the East Central Plan urges managers to:

❒ Identify and assess forest resources.

❒ Increase public awareness of sustainable forestry.

❒ Promote timber productivity and utilization.

How is implementation of regional plans occurring?

With planning completed in all six major forested landscapes, the MFRC's landscape program has shifted its emphasis to implementation and coordination of the plans. Coordination groups, made up of both public and private land managers, meet on a quarterly basis to implement the landscape plans.

The MFRC is working with the Minnesota Forest Resources Partnership in providing staff assistance and support to the three northern landscapes. Highlights of the plan implementation and coordination work in 2005 follow for each of the six landscape regions.

Northeast Regional Landscape

The Northeast Regional Landscape Coordination Group:

❒ Divided the landscape into three management areas and formed an implementation team of the principal landowners and managers to develop specific implementation strategies to achieve the goals in the plan.

❒ Is proceeding with implementation work in the three management areas to maintain large forestland patch sizes, develop a common resource base of information, coordinate existing projects, and identify parcels of land for consolidation of ownership.

❒ Completed an update using the new 2000 Forest Inventory and Analysis (FIA) data. A trend analysis was completed, demonstrating forest changes based on the old 1986 data and new 2000 data.

With this analysis, land managers can see whether trends are moving toward or away from the desired future conditions stated in the plan. This information will help land managers determine the areas to emphasize in implementation.

[9]The title of the plan is *Forest Resource Management Plan: East Central Region, March 2005.*

North Central Regional Landscape

The North Central Regional Landscape Coordination Group:

❒ Is developing information indicating each landowner's ownership in the ecological units as defined by the Ecological Classification System used by the DNR. This information will be used to identify coordination opportunities among landowners in each ecological unit.

❒ Developed a plan for a workshop (to be held in early 2006) to unveil the regional landscape plan, and to build understanding for landowners and managers in the region.

❒ Completed an update using the new 2000 FIA data. A trend analysis was completed, demonstrating forest changes based on the old 1986 data and new 2000 data.

With this analysis, land managers can see whether trends are moving toward or away from the desired future conditions stated in the plan. This information will help land managers determine the areas of emphasis in implementation.

Northern Regional Landscape

The Northern Regional Landscape Coordination Group:

❒ Developed a proposal to obtain ecological data for the landscape. The objective of the study is to create a native plant community classification for the Northern Regional Landscape, and to quantify current forest conditions and landscape potential for sustainable forest management.

❒ Is exploring ways to enhance the forest products industry economy in the landscape through achieving the landscape goals.

Southeast Regional Landscape

The Southeast Regional Landscape Committee:

❒ Completed an Outreach Survey Report listing all agencies and organizations involved with environmental programs and outreach activities. This report will allow the Southeast Regional Landscape Committee to avoid duplication and enhance coordination of outreach programs.

❒ Established a small working group to explore the development of a 2006 workshop designed to build understanding of MFRC site-level guidelines, forest certification, and landscape goals.

West Central Regional Landscape

The West Central Regional Landscape Coordination Group:

❒ Facilitated a meeting with representatives of Todd and Wadena counties to identify areas of mutual interest between the counties and the West Central Landscape Plan.

❒ Is exploring additional funding opportunities for implementing landscape projects with the Initiative Foundation, The Nature Conservancy, and other organizations in the West Central Landscape Region.

❒ Developed a PowerPoint presentation that committee members can use for outreach activities.

East Central Regional Landscape

The East Central Regional Landscape Coordination Group:

❒ Formed two working groups to develop priorities and recommendations for project and outreach activities in the landscape.

❒ Conducted outreach activities to promote understanding of the East Central Landscape Plan, including press releases, presentations to key groups, and contacts with key stakeholders.

What are the next steps for the landscape program?

In 2006, the landscape program will:

❒ Continue to facilitate the efforts of landowners and managers to coordinate their activities in all major forested landscapes.

❒ Increase public awareness of landscape goals and strategies by developing workshops for targeted audiences.

❒ Improve our ability to monitor progress toward landscape goals via monitoring. Particular focus will be placed on working with the Superior and Chippewa national forests on joint monitoring efforts in the Northeast and North Central landscape regions.

How will the impact of landscape plans be monitored over time?

Documenting the impact of the landscape plans will be guided by three general questions:

1. How are selected ecological, social, and economic characteristics of the landscape changing over time?

Initial landscape assessments for each landscape identified most of the information useful in sustainable forestry decision-making. Subsequent monitoring will periodically update that information.

The forest floor typically contains a diverse mix of vegetation, including jack-in-the-pulpit and ferns, as pictured above. *Photo courtesy of University of Minnesota Agricultural Experiment Station*

For example, all completed landscape plans set goals for forest species and age composition, using information on current forest composition from the USDA Forest Service's FIA as a baseline. Updated FIA data will help document changes brought about by implementing the landscape plan.

2. How will progress in implementing the strategies be measured?

It will be essential to document the activities of partners as they implement MFRC landscape plans. Measurable effects of many of the strategies identified in the plans may take years to accumulate. In the interim, documenting the effort expended to implement the plans will help provide insight into the energy needed to sustain the effort.

In 2006, the landscape program will continue to facilitate the efforts of landowners and managers to coordinate activities in all major forested landscapes.

3. Can monitoring be flexible enough to monitor evolving needs of landscape partners?

As landscape plans are implemented, unanticipated opportunities may arise or creative solutions to new problems may be needed. Landscape partners will need information that may not have been anticipated in initial monitoring designs. Monitoring must be flexible enough to provide for those needs.

Guideline Review and Revision

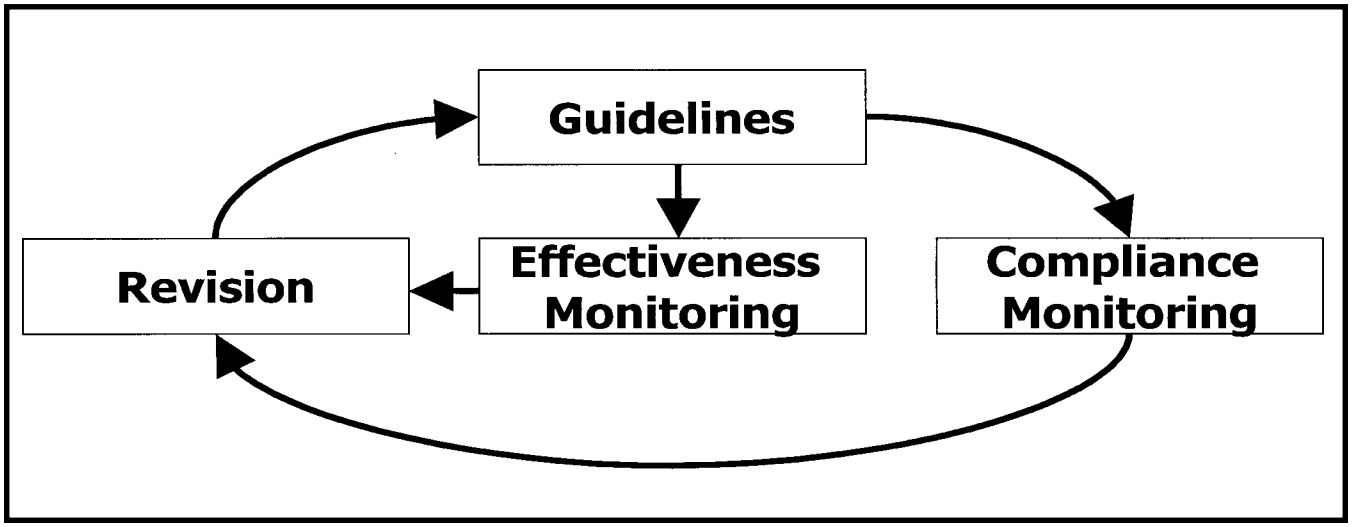


Figure 6. The MFRC's process of monitoring voluntary guidelines, along with feedback obtained from training programs, provides input in making guideline revisions.

Were the forest management guidelines revised in 2005 as planned?

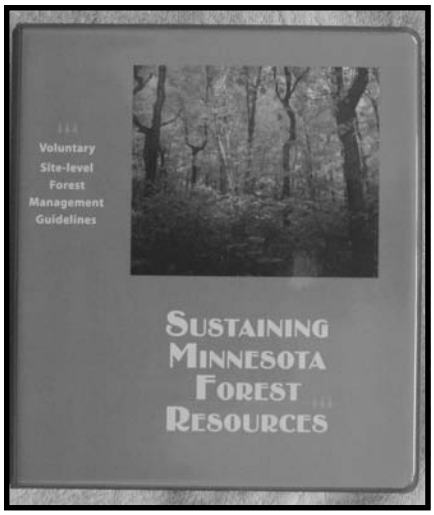
Yes. The MFRC published 4,000 copies of a revised timber harvesting and forest management guidebook titled *Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines.* The guidebook was revised based on legislative mandate directing the MFRC to periodically review and revise these guidelines, based, in part, on results from compliance and effectiveness monitoring (Figure 6).

The guidebook was revised based on legislative mandate directing the MFRC to periodically review and revise these guidelines, based, in part, on results from compliance and effectiveness monitoring.

Specifically, Minnesota Statutes, Chapter 89A.05, Subd. 1, states:

"...By June 30, 2003, the Council shall review the guidelines and identify potential revisions. If deemed necessary, the Council shall update the guidelines by June 30, 2005..."

The revised guidebook is being distributed to resource managers, loggers, and forest landowners to assist in the sustainable management of forestland.



A revised forest management guidebook was published by the MFRC in June 2005. *Photo by Mike Phillips/Minnesota Forest Resources Council*

Changes to the guideline recommendations contained in the guidebook include the following:

❒ An additional section regarding the importance of identifying goals and objectives for management of forestland. The new section includes examples of landscape-level considerations to consider in planning.

❒ An additional recommendation to provide for 5% leave tree patches adjacent to perennial streams that are at least 3 feet wide.

❒ More specific language about minimizing streambank disturbance. New language recommends that logging equipment be operated as far as practical from streambanks.

Additional language focuses on avoidance of rutting in non-open water wetlands and seasonal ponds, and states that it is important not to bisect wetlands.

❒ An additional guideline for roads and skid trails that focuses on avoiding driving equipment over streambanks for all intermittent and perennial streams except where there are improved crossings.

Additional guidelines are also provided on proper culvert sizing, placement, and installation.

❒ Revised information on work activities that do not require a DNR Public Waters Work Permit.

❒ Additional information clarifying that regulations on designated trout streams are more restrictive when crossing these waterbodies. Information is provided on obtaining permits and contacting appropriate agencies.

❒ Establishment of 12 inches in diameter as the minimum size for temporary or permanent culverts.

❒ Additional language stating that winter alone does not ensure frozen ground, and that, to prevent rutting and compaction, frozen conditions should be specified, rather than an arbitrary season. The use of low-ground pressure equipment or slash mats is also recommended.

❒ New forest practice guideline recommendations for managing dry washes in southeastern Minnesota.

❒ Expanded discussion on using a progressive harvesting technique, including a description of a back-to-front harvesting technique and the advantages of this technique in protecting soil productivity.

❒ A recommendation to concentrate skidding on a set of well-developed skid trails on upland sites with mineral soils, and a recommendation to avoid concentrating well-developed skid trails on shallow and deep organic soils.

Recommendations emphasize that operation on organic soils should only occur when these soils are adequately frozen.

❒ Definition of the residual basal area of a leave tree clump necessary to maintain its function as a clump. Retention of leave trees in clumps is the preferred strategy over their retention as scattered leave trees.

These individuals are monitoring a road crossing through a wetland to a timber harvest that took place during the winter. *Photo by Mike Phillips/Minnesota Forest Resources Council*

How are the guidelines utilized in certification?

Minnesota is promoting and encouraging the continued development of sustainable forest management programs through forestland certification (including the Sustainable Forestry Initiative and the Forest Stewardship Council), as well as implementation of a Master Logger program.

Central to these programs is the adoption and use of the MFRC's timber harvesting and forest management guidelines. Certification programs and Master Logger programs encourage sustainable forestry practices that are scientifically sound and economically, environmentally, and socially responsible.

MFRC guidelines are a core component of these programs, and use of the guidelines is required to help sustain, maintain, and protect critical resources, including long-term forest and soil productivity, waterbodies and riparian zones, a diversity of wildlife habitats, and cultural and aesthetic resources.

What are future planned directions for guideline revisions in future years?

The two main areas of future guideline revisions will be riparian management zones and biomass harvesting.

What work is under way to revise guidelines related to riparian management zones?

❒ In 2004, the MFRC appointed an interdisciplinary Riparian Science Technical Committee (RSTC) of nine scientists to thoroughly review the science related to evaluating impacts of managing forested riparian areas.

The information from this review will inform discussions within the MFRC on proposed revisions to the guidelines for incorporation into the next revision of the guidebook.

❒ In 2005, the RSTC identified key response indicators for evaluating the impacts of forest management activities on critical functions in riparian areas. It is anticipated that the RSTC will complete its analysis by March 2006.

❒ The MFRC is mandated by statute[10] to conduct an economic analysis of possible revisions to guidelines. To begin that work, what is first needed is a thorough understanding of the key measurable costs and benefits that accrue from implementing various sustainable management practices in riparian forests.

To better understand what methods exist to evaluate the economic impacts of riparian forest management, the MFRC contracted with an internationally recognized economic consulting firm to provide a literature review and advisory report. In 2006, a team of nationally recognized economists will be convened to complete an economic analysis.

❒ Both the work of the RSTC and the MFRC's planned economic analysis are drawing interest from the Wisconsin Department of Natural Resources, the University of Minnesota, and others.

[10]Minnesota Statutes, Chapter 89A.05, Subd. 2

Riparian areas include forested areas adjacent to rivers. *Photo by Dave Chura*

Monitoring

What work is under way to revise guidelines related to biomass harvesting?

In 2005, the Legislature mandated the development of guidelines for the sustainable harvest of biomass for energy from wood residues on timber harvest sites and from the management of brushlands.[11]

The MFRC has been given the responsibility of developing guidelines for removal of woody biomass and logging slash from timber harvest sites, and the DNR has the responsibility for developing similar guidelines for brushlands.

The MFRC and the DNR have agreed to consolidate the guideline development effort into one process under the direction of the MFRC. A committee of 10 scientists and resource managers is being convened to develop these guidelines by June 30, 2007.

The new woody biomass and brushland guidelines will focus on protecting forest soil productivity, biological diversity, and wildlife habitat, while providing for the economic harvest of biomass residues. These guidelines are meant to complement existing site-level forest management guidelines.

[11]Minnesota Statutes 216B.2424

Why do we monitor?

The DNR, in consultation with the MFRC, continues to carry out its obligations under the SFRA[12] with regard to four monitoring mandates:

❒ Monitor the application of the guidelines contained in *Sustaining Minnesota's Forest Resources: Voluntary Site-Level Forest Management Guidelines* on public and private forestland. This is referred to as **compliance monitoring.**

❒ Evaluate the effectiveness of these guidelines in protecting specific resource functions. This is referred to as **effectiveness monitoring.**

❒ Monitor broad trends and conditions of Minnesota's forests at statewide, landscape, and site levels. This is referred to as **future resource monitoring.** (See page 19. Also, see page 13 for a summary of landscape monitoring activities.)

❒ Monitor and respond to citizen concerns regarding negligent timber harvesting or forest management practices. This is referred to as the **Public Concerns Registration Process.**

[12]Minnesota Statutes 89A.07

Timber harvesting is often done via expensive mechanized forestry harvesters like this one. Trees are delimbed and cut to length directly at the stump area. *Photo by Dave Chura*

Why an emphasis on compliance monitoring?

Compliance monitoring is a core program that complements efforts to promote the adoption and use of the voluntary site-level forest management guidelines by loggers, landowners, and resource managers on public and private forestland. A compliance monitoring program is a natural by-product of the development of voluntary guidelines.

A team evaluates compliance with forest road recommendations contained in MFRC's site-level forest management guidelines. *Photo by Mike Phillips/Minnesota Forest Resources Council*

To ensure that a program promoting the voluntary use of guidelines is credible and successful, organizations with an interest in ensuring guideline use need to evaluate the application and use of those guidelines. Compliance monitoring provides that necessary accountability and will also assist the forestry community in obtaining information that will be used to:

❒ Identify deficiencies in guideline application.

❒ Target future education efforts and technical assistance.

❒ Report to the Legislature and forestry interests on the extent of guideline use.

❒ Identify trends in guideline use to determine if the stated goal of continuous improvement is being met.

❒ Identify necessary modifications to the guidelines.

What is the status of compliance monitoring in 2005?

Compliance monitoring of MFRC's guidelines, which began in 2004, continued in 2005. Data collected from 2004-06 will be analyzed together and statistically compared to results of the 2000-02 baseline compliance monitoring of timber sales completed prior to implementation of the MFRC's guidelines.

In 2005, 89 sites were monitored. A continuing difficulty for compliance monitoring is getting an adequate representative sample of non-industrial private forest (NIPF) landowners (also known as family forest landowners). Identifying, locating, and contacting NIPF landowners is a primary difficulty that limits the number of NIPF sites monitored.

Of the 89 total sites monitored in 2005, 27 of the sites (30%) were NIPF harvests, while 48% of timber harvesting occurs on NIPF forestland.

In 2006, additional efforts will be made to increase the number of NIPF landowners in the pool of monitoring sites.

What work has occurred in effectiveness monitoring and research?

The MFRC supported several research projects in 2005 that evaluate the effectiveness of the timber harvesting and forest management guidelines in protecting specific resource functions and ensuring continued sustainable management of the forest.

These projects focused on two areas: assessing the effectiveness of riparian guidelines, and assessing the economic costs of applying guidelines.

These research projects are important efforts to ensure that the guidelines are both practical and based on sound science, and that decisions are made with an understanding of the economic impacts.

Slash water bars are installed to divert the volume, velocity, and direction of water flow, thus reducing the amount of sediment eroding on the skid trail. *Photo by Mike Phillips/ Minnesota Forest Resources Council*

Assessing the effectiveness of riparian guidelines

Work continues on the long-term riparian study titled "Evaluating the Sustainability of Timber Harvesting and Forest Management Practices in Riparian Areas."[13] Eight study sites were identified, and seven were harvested in the winter of 2003/2004.

Immediate post-harvest data were collected for the harvested sites. The last site was harvested during the winter of 2004/2005. Post-harvest monitoring continues at all sites. The Legislative Commission on Minnesota Resources provided an additional $333,000 for the three-year period from July 1, 2005, to June 30, 2008, to continue post-harvest monitoring.

Assessing the economic costs of applying the guidelines

A study titled "An Empirical Cost Assessment of the Timber Harvesting and Forest Management Guidelines in Minnesota" was initiated in 2005 to improve our understanding of the financial trade-offs associated with application of the MFRC's forest management guidelines in Minnesota.

Forest management guidelines have been developed to protect ecological functions and values while harvesting timber, particularly in ecologically important areas such as riparian forests. The guidelines also have the potential to adversely affect the profitability of forest landowners and timber harvesters.

Using activity motion recorders, GPS data loggers, aerial photography, and field evaluations, the study will empirically measure the difference in operational harvesting time with and without guidelines.

Statistical models describing the relationship between production time and explanatory variables of interest will be developed to track and evaluate the actual marginal change in harvesting costs.

This information will enhance the ability of policymakers to design effective strategies for promoting the use of forest management guidelines, while minimizing potential adverse impacts on landowner or logger profitability. Work on this study will continue into 2006.

What work has occurred in monitoring forestland uses?

Future resource monitoring by the MFRC is conducted by examining current forestland uses and the trends that change forestland to other land uses (such as increases in the extent of housing, pasture and cropland where forests once grew).

During 2005, land use changes were monitored using satellite-based detection methods to estimate the rate at which forestlands are being converted to other uses.

The results based on data for two periods of time (July 2001-September 2003 and July 2002-August 2004) are indicated below.

Conversion of forestland to...	Number of acres per year
Housing, other buildings	2,600 acres/year
Roads, utility corridors	1,700 acres/year
Agricultural uses	400 acres/year

Activity motion recorder systems are being used to empirically measure the difference in timber harvesting time with and without guidelines. *Photo by Charlie Blinn*

This information will enhance the ability of policymakers to design effective strategies for promoting the use of forest management guidelines, while minimizing potential adverse impacts on landowner or logger profitability.

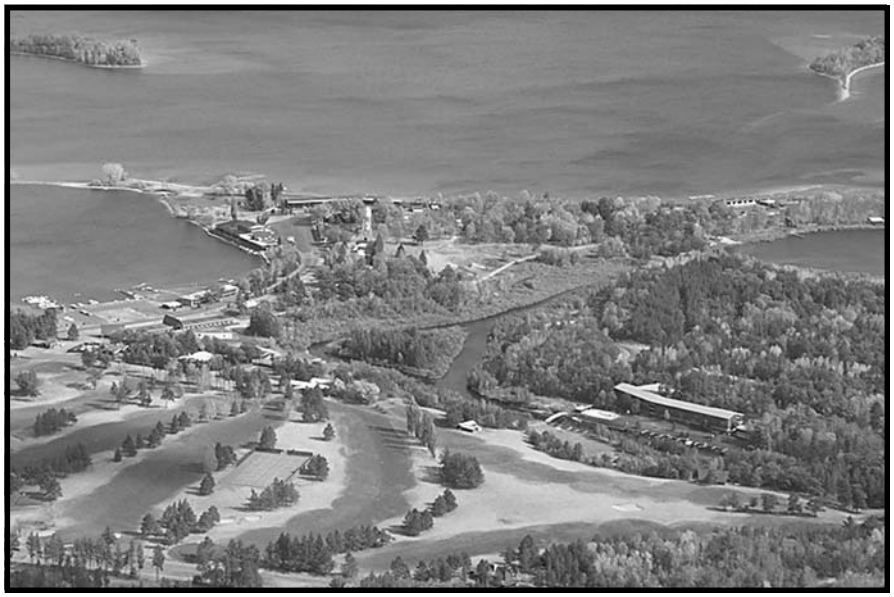
[13]This project received funding in 2001 from the Minnesota Legislature.

While rates of forestland conversion were very low (slightly more than 0.1% of all state forestland per year) in most counties:

❒ Higher rates of **conversion of forestland to development** occurred near the Twin Cities (Anoka, Dakota, Hennepin, Scott, and Sherburne counties had conversion rates of 0.21% to 0.39% per year) and in Olmsted County (with a conversion rate for development of 0.39% per year).

❒ The highest rates of **conversion of forestland to roads and utility corridors** (0.13% to 0.18% per year) occurred in Dakota, Ramsey, and Sherburne counties.

❒ Higher rates of **conversion of forestland to agricultural uses** (0.11% to 0.17% per year) occurred in Freeborn, Lincoln, Lyon, and Swift counties.



Conversion of forestland to development occurs adjacent to lakes, as shown here on Gull Lake, and is also increasingly occurring in interior forests. *Photo courtesy of Minnesota Agricultural Experiment Station*

How do citizen concerns regarding negligent timber harvesting or forest management practices serve as ongoing monitoring?

The Public Concerns Registration Process (PCRP) provides a way for citizens to inform landowners, foresters, and loggers of specific concerns about timber harvesting and forest management practices that they see in Minnesota.

Although it is not a regulatory or punitive program to stop timber harvests or resolve disputes over contractual issues or forest management activities, the PCRP does encourage sustainable management of Minnesota's forests by emphasizing education of those involved:

❒ Citizens benefit because the PCRP allows citizens to be a catalyst for mitigation of any problems on a site, and to learn more about forest management and sustainable forestry.

❒ Landowners, loggers, and foresters benefit by becoming more aware of public concerns regarding forest management, and by learning more about guidelines for sustainable forest management.

❒ The MFRC benefits from receiving summaries of concerns registered through the PCRP. These summaries help the MFRC understand citizens' expectations for how Minnesota's forests should be managed.

The MFRC can use these insights to decide which, if any, additional guidelines are needed and to identify continuing education programs needed for forest managers, forest owners, loggers, and citizens.

What citizen concerns did the MFRC investigate in 2005?

In 2005, although there were several inquiries about the program, no citizen concerns were filed and investigated. Since the program's inception in 1998, the PCRP has addressed a total of 20 concerns.

Education

What is the Minnesota Logger Education Program?

The Minnesota Logger Education Program (MLEP) is a logger-initiated program established in 1995 to promote high operational standards, enhance logger professionalism, and respond to the SFRA.

MLEP provides training for logging business owners, employees, and other resource managers in the areas of sustainable forest resource management, workplace safety, business management, and transportation. (For more information, visit **www.mlep.org**)

In 2005, MLEP achieved a membership of 429 logging business owners. Membership is voluntary and reflects the commitment of logging business owners to safe, productive, and environmentally responsible timber harvesting.

Independent research has determined that MLEP's membership currently represents more than 90% of Minnesota's annual timber harvesting activities.

Logger Doug Popham attended training provided by the Minnesota Logger Education Program. *Photo by Dave Chura*

What continuing education did loggers receive in 2005?

In an ongoing effort to improve implementation of sustainable forest management practices, MLEP offered a variety of training opportunities for logging and natural resource professionals.

Training was offered throughout the state, including in Aitkin, Bemidji, Biwabik, Cannon Falls, Cloquet, Duluth, Grand Rapids, International Falls, Ironton, and Two Harbors.

MLEP coordinated a total of 17 workshops and two logger conferences. Specific topics included guideline implementation issues, improved marketing and utilization, invasive species prevention and management, opportunities in biomass harvesting, utilizing GPS, and truck weight compliance training.

In addition, MLEP maintains a database that tracks training completed by logging business owners and employees. To maintain membership status, MLEP members are required to attend 16 hours of continuing education on an annual basis.

MLEP also documents certain legal and business requirements, such as federal and state tax identification numbers, unemployment and workers' compensation insurance, workplace accident and injury reduction programs, and company policies on substance abuse.

What is logger certification?

MLEP is implementing a Master Logger Certification Program. Logger certification provides an independent, third-party audit of a logging company's harvesting, safety, and business practices against specific standards.

Logger certification provides clients, customers, and the general public with assurances that 1) the person or company performing the job has the education, training, skill level, and experience to do the job correctly, and 2) appropriate practices are being implemented. In addition, loggers who become certified are able to provide certified wood to the marketplace.

What is the Sustainable Forests Education Cooperative?

The Sustainable Forests Education Cooperative, part of the University of Minnesota's College of Natural Resources, was established in response to the Minnesota Sustainable Forest Resources Act of 1995.

Its purpose is to provide innovative education programs for natural resource professionals by providing training on current research findings, new technologies, and state-of-the-art practices. (For more information, visit **www.cnr.umn.edu/sfec**)

The Cooperative continues to promote excellence in natural resource management by offering a range of technical and professional education programs for practicing natural resource managers in all sectors of forestland management professions, including wildlife management. The Cooperative has also been a co-leader in the planning and implementation of the MFRC's forest management guideline education programs since 1999.

Its purpose is to provide innovative education programs for natural resource professionals by providing training on current research findings, new technologies, and state-of-the-art practices.

What continuing education did natural resources professionals receive in 2005?

As in previous years, educational programming for natural resource professionals in 2005 addressed a variety of topics, including insect and disease threats to Minnesota's forests, forest landscape goals, understory plant identification skills for using ecological classification systems, GPS and GIS training, timber sale design and appraisal, and the biology and ecology of non-native European earthworms.

❒ A highlight of 2005 was the first training group for a new certificate course in Ecosystem Silviculture. This multi-day, intensive short course is the first indepth, multi-agency training program to use the relatively new forest site classification system in field skill practice and in management applications.

Divided into six modules, the course took place over 9 1/2 class days from late July 2004 to early June 2005, with 20 participants completing this new certificate course. In July 2006 the second and third groups will begin the course, which will be completed in June 2007. (See **www.cnr.umn.edu/CCE/featured.html**)

❒ In March 2005, the Cooperative held the fourth Forest and Wildlife Research Review Symposium. This program included research presentations on wildlife, the Great Lakes ecosystem, forest ecology and management, long-term soil productivity, and insects. The 2005 symposium attracted approximately 150 participants. The MFRC continues to be a financial sponsor of this symposium.

❒ The Cooperative coordinated 11 workshops and conferences during 2005, including the annual winter meeting of the Minnesota Society of American Foresters.

❒ In addition to workshops and conferences, the Cooperative continues to manage a database that tracks continuing education credits for the Minnesota Forest Stewardship Program.

Forest Information-Sharing

How is information shared among forest resource agencies?

The Interagency Information Co-operative (IIC), mandated by the SFRA, was established to increase information-sharing among forest resource agencies, landowners, managers, and the general public.

The IIC website, established in 1998, continues to provide information about Minnesota's forest resources (**www.iic.gis.umn.edu**).

How has the Interagency Information Cooperative changed?

The IIC was created in the late 1990s to enhance the access and use of forest resources data in Minnesota. In 2004, the Minnesota Legislature moved responsibility for the IIC to the University of Minnesota's College of Natural Resources (CNR).[14] In taking on this responsibility, the CNR is working to update, expand, and improve the databases and information the IIC provides.

In 2005, the CNR implemented a new web design for the site to make it more user-friendly, and added new information to the site, including the following:

❒ Minnesota Timber Harvesting GEIS: An Assessment of the First 10 Years

❒ The latest annual forest inventory and monitoring data produced by the Minnesota Forest Resources Information Cooperative.

❒ Minnesota DNR Forest Resources (2004 report)

In addition, the MFRC helped the CNR convene scientists, resource analysts, key stakeholders, and user groups to identify priorities and forest information needs for the IIC. Three information-gathering sessions were held, and ideas for how to improve information sources have been identified. Implementation will occur in 2006.

When beaver populations are overabundant, beaver dams can result in adverse impacts to forested systems by increased flooding and reduction of shoreline vegetation in riparian areas. *Photo by Dave Chura*

[14]Minnesota Statutes 89A.09

Outreach

How is information about the MFRC and its activities made available to the public?

❒ The MFRC website continues to serve as an integral source for information. The MFRC regularly posts new reports and information at **www.frc.state.mn.us.**

❒ Information about the MFRC periodically appears in the press. For example, in November and December 2005, stories about the MFRC's advice to the Governor regarding inventoried roadless areas in Minnesota national forests appeared in the *StarTribune*, the *St. Paul Pioneer Press*, the *Duluth News Tribune*, and on Minnesota Public Radio.

How is the public encouraged to participate in forest resources programs?

MFRC and SFRA programs all require participation of individuals interested in forest resources in Minnesota.

There are many ways for interested individuals to become involved:

❒ **Attend MFRC meetings.** Scheduled meetings are posted on the MFRC website at **www.frc.state.mn.us/Info/calendar.htm**, or call 651-603-0109 for meeting dates.

❒ **Participate in landscape regional committees.** For more information, contact Cynthia Osmundson at 218-726-6408 or **osmun024@tc.umn.edu**

❒ **Use the timber harvesting/forest management guidelines.** They are available on the MFRC website at **www.frc.state.mn.us/FMgdline/Guidebook.html**, or contact the MFRC at 651-603-0109 for a paper copy.

❒ **Notify the MFRC of specific timber harvesting or forest management activities that concern you.** Call toll-free 1-888-234-3702, or register your concern online at **www.frc.state.mn.us**

❒ **Attend forest resources educational programs.** For additional information, contact:

Sustainable Forests Education Cooperative
218-726-6404
www.cnr.umn.edu/CCE/

Minnesota Logger Education Program
218-722-5442
www.mlep.org/

❒ **Access information regarding Minnesota's forest resources** from the Interagency Information Cooperative website at **http://iic.gis.umn.edu/**

MFRC Documents Produced in 2005

All MFRC documents are available on the MFRC's website:
www.frc.state.mn.us/Info/MFRCdocs.html

MFRC Annual Report

2004 Annual Report to the Governor and Legislature on the Implementation of the Sustainable Forest Resources Act (January 2005)

Landscape Program

Forest Resource Management Plan: East Central Region (March 2005)

Guideline Program

Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines (2005)

Monitoring Program

A GIS Approach for Delineating Variable-Width Riparian Buffers Based on Hydrological Function (January 2005)

Evaluating Riparian Timber Harvesting Guidelines: 2005 Bridge Funding Report (August 2005)

Results of Monitoring Forestland Change (in production)

Research

Minnesota Timber Harvesting GEIS: An Assessment of the First 10 Years; Staff Paper Series No. 182, Department of Forest Resources, University of Minnesota (August 2005)

Acronyms

CNR	University of Minnesota College of Natural Resources
DNR	Department of Natural Resources
FIA	Forest Inventory and Analysis
IIC	Interagency Information Cooperative
MLEP	Minnesota Logger Education Program
MFRC	Minnesota Forest Resources Council
NIPF	Non-industrial private forest
PCRP	Public Concerns Registration Process
RSTC	Riparian Science Technical Committee
SFRA	Sustainable Forest Resources Act
TMDL	Total Maximum Daily Loads

Minnesota Forest Resources Council 2005 Annual Report to the Governor and Legislature on the Implementation of the Sustainable Forest Resources Act

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