

CANADA'S MODEL FOREST PROGRAM

ADVANCING SUSTAINABLE FOREST MANAGEMENT FROM THE GROUND UP



Natural Resources
Canada

Ressources naturelles
Canada

Canada

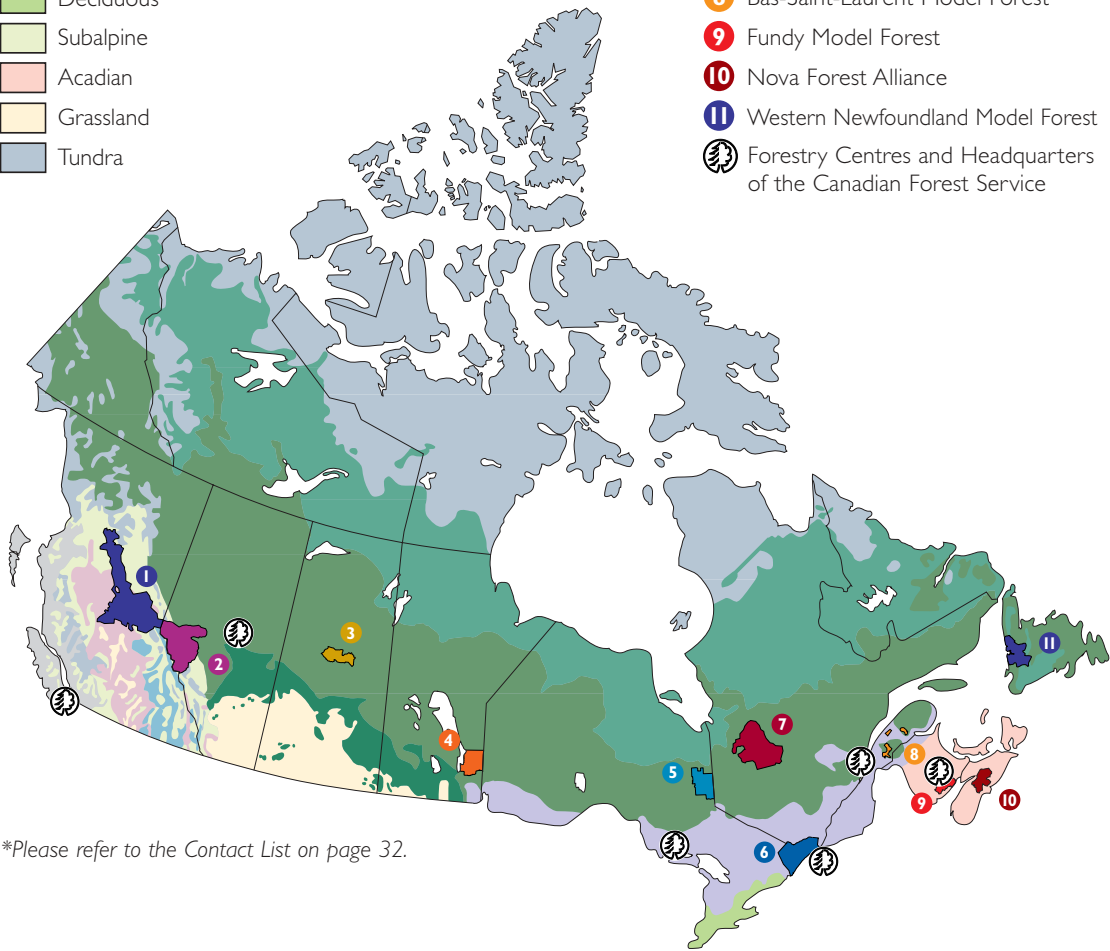
CANADIAN MODEL FOREST NETWORK

Forest Regions of Canada

- Boreal — Predominantly Forest
- Boreal — Forest and Grassland
- Boreal — Forest and Barren
- Great Lakes — St. Lawrence
- Montane
- Coast
- Columbia
- Deciduous
- Subalpine
- Acadian
- Grassland
- Tundra

Canadian Model Forest Network*

- 1 McGregor Model Forest
- 2 Foothills Model Forest
- 3 Prince Albert Model Forest
- 4 Manitoba Model Forest
- 5 Lake Abitibi Model Forest
- 6 Eastern Ontario Model Forest
- 7 Waswanipi Cree Model Forest
- 8 Bas-Saint-Laurent Model Forest
- 9 Fundy Model Forest
- 10 Nova Forest Alliance
- 11 Western Newfoundland Model Forest
- ☐ Forestry Centres and Headquarters of the Canadian Forest Service



*Please refer to the Contact List on page 32.

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MODEL FORESTS MAKE IDEAL LABORATORIES

Model forests are ideal laboratories for conducting research on sustainable forest management.

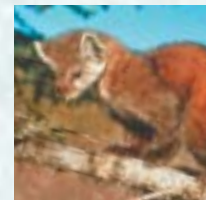
What is a Model Forest?

A model forest is a place where the best sustainable forest management practices are developed, tested and shared across the country. Each model forest is run by a not-for-profit organization, and, except for a small administrative staff, all those involved in the model forest not only donate their time and expertise, but usually bring additional financial support.

At the heart of each model forest is a group of partners who have different perspectives on the social, economic and environmental dynamics within their forest — perspectives that are necessary to make more informed and fair decisions about how to manage the forest. The real “model” in these forests is the way the different partners — forestry companies, Aboriginal communities, maple syrup producers, woodlot owners, parks, environmentalists, universities, government agencies, recreational groups, community associations, hunters, trappers — have integrated their own interests into their common goal of developing approaches to sustainable forest management that do not sacrifice one interest for another.

Although the model forest organization itself does not have jurisdiction over the land it uses as a testing ground, those who do have jurisdiction are participants. By being involved from the outset in developing new, on-the-ground approaches and solutions for sustainable forest management, those with land management responsibilities are increasingly adopting many model forest innovations.

- Model forests range in size from 113,000 hectares to 7.7 million hectares, covering the typical scales at which district-level forest management decisions are made.
- Model forests exist in most major forest regions of Canada.
- Model forests have broad partnership bases, that bring diverse perspectives and a full range of forest values to the table, allowing for the development of acceptable, comprehensive and credible processes.



THE WINDS OF CHANGE

It was an idea whose time had come. Sustainable forest management (SFM) had long been on the minds of world leaders and members of the global community concerned about the maintenance and protection of our environment.

The early 1990s saw a groundswell of movement on SFM from international leaders, national and provincial governments, and grassroots activists. On the international level, the 1992 Rio Summit provided the context and a program of action to help governments balance the competing objectives of economic growth, social stability and environmental integrity. Out of the Summit emerged the “Forest Principles” document — a plan to guide the management of conservation and sustainable development of all types of forests in the world.

Canada, with 10 percent of the world’s forests and as the largest exporter of wood and paper products in the world, has always had a particular interest in, and responsibility to, manage its forests in a sustainable manner. In 1992, Canada unveiled its third National Forest Strategy and the first ever Canada Forest Accord. At the same time, new legislation and regulations were developed in some provinces to protect sensitive areas, ban harmful pesticides, regulate the size of timber harvests and ensure that the forest industry sought input from relevant stakeholders in preparing their long-range plans.

It was clear, however, that legislative and regulatory tools alone would not bring about the fundamental changes needed for sustainable forest management. In an era driven by environmental awareness and social change at the grassroots level, two other elements needed to be taken into account — the people, whose daily lives are affected by the operation of a forest management system, had to be included in the decision-making; and second, the acceptance that no one single universal formula would work in all situations.

What was needed was a way to find local solutions to global challenges. The new model would also need to gather and apply the knowledge, perspectives and resources of all forest stakeholders in a community. The Canadian Forest Service of Natural Resources Canada envisioned a living laboratory where people who had a direct interest in the forest, supported by the latest science and technology, would become partners in sustainable forest management decisions.

Society is Indeed a Contract...

*It is a partnership in all science;
a partnership in all art;
a partnership in every virtue,
and in all perfection.
As the ends of such a
partnership cannot be obtained
in many generations, it becomes
a partnership not only between
those who are living,
but those who are dead, and
those who are yet to be born.*

— Edmund Burke (1729–1797),
Irish philosopher, statesman.

From the Ground Up — Canada's Model Forest Program Takes Root

With this vision of partnership and participation clear in their minds, the Government of Canada set to work to make the vision a reality. In 1991, the National Advisory Committee on Model Forests issued a call for proposals that would lead to the selection of a network of model forest sites. More than 50 applications were received. Ten forests were chosen, representing Canada's major forest regions and a diversity of people who wanted to be involved in this exciting challenge.

Equipped with substantial federal funding, staff and access to the latest science and technology, each model forest began the first five-year phase of the program. At the beginning, the major challenge was to overcome significant historical differences in ideas and approaches to managing forest resources. Each model forest included local partners from the forest industry, environmental groups, private landowners, all levels of government, academics, recreationalists, Aboriginal communities and local citizens — all with their own ideas on forest management. It was a formidable task to bring them together. During this early stage, most model forests went through difficult transitions as people who had been at odds for years had to find ways to reach consensus on sustainable forest management approaches. This period was characterized by ground-breaking work — developing local partnerships, solidifying working relationships, and enhancing knowledge of local conditions. What has emerged is a commitment from all stakeholders to work together towards a common goal.

Transitions — New Growth and Strong Branches

The successful development of partnerships at the local level led the way to an extremely productive second phase which saw the implementation of information sharing arrangements between model forests on a national and international level. During this second five-year phase the Canadian Forest Service became a full member of the board of directors of each model forest. This helped to strengthen alliances between model forests and other SFM initiatives and bring model forests to the nation's attention. Two new initiatives were established during this phase that addressed topics relevant to all model forests from a Network level — enhanced Aboriginal involvement in model forests and the development of local level indicators.

Aboriginal Involvement in SFM

Since the beginning of the Canadian Model Forest Network (CMFN), many successful collaborations have developed between Aboriginal and non-Aboriginal partners. Aboriginal partners bring a unique and instinctive understanding of the forest ecosystem, developed over centuries of life experience and historical understanding. With these traditional and contemporary forest experiences, Aboriginal peoples are well-positioned to contribute to today's sustainable forest management practices for the benefit of their communities and all Canadians.

More than 80 percent of Aboriginal communities lie within Canada's productive forest zones, and many communities are developing their own forest-based enterprises such as sawmills, logging companies, eco-tourism activities, and non-timber forest products ventures.

Canada's Model Forest Program offers opportunities for Aboriginal communities to participate in sustainable forest management decision-making. These opportunities are provided through three main mechanisms: the model forest partnership; an Aboriginal Strategic Initiative; and an Aboriginal-led model forest.

Aboriginal involvement is significant and a key element of the Network's success. Whether it's the creation of the Waswanipi Cree Model Forest, the only Aboriginal-led model forest; the sharing of experience and capacity building being led by the Prince Albert Model Forest in Saskatchewan; or the sustained participation and leadership of Aboriginal peoples in the Manitoba Model Forest, the role of the Aboriginal community in the Model Forest Network continues to grow.

Local Level Indicators

Since 1997, each model forest has been involved in selecting, measuring and reporting on local level indicators of SFM. Local level indicators (LLI), developed to suit the local and regional conditions of each model forest, provide a framework for monitoring changes and assessing the influence of many components of sustainable forest management. The Canadian Model Forest Network published a User's Guide to Local Level Indicators so other organizations could benefit from their experience. This publication continues to be distributed to countries around the world and serves as a demonstration of Canada's leadership and vision in this field. A public database was developed so model forests can continue to update their progress. The CMFN continues its leading-edge LLI work through its Carbon Budget Accounting Project.

Local Level Indicators

Other activities and tools developed by the Canadian Model Forest Network to build on the experiences of individual model forests in developing and applying local level indicators are:

- **A User's Guide to Local Level Indicators of Sustainable Forest Management: Experiences from the Canadian Model Forest Network.** *A comprehensive how-to guide summarizing the experiences of each model forest in the development and application of local level indicators.*
- **Local Level Indicators Database.** *The Network has developed a web-based database of indicators in use by model forests.*
- **Socio-Economic Indicators for the Model Forest Network (SIMFOR).** *The Network sponsored a project in collaboration with the Canadian Forest Service to develop protocols for identifying socio-economic indicators common across the Network and measuring them based on Statistics Canada census data. An associated, interactive website was also developed.*



Carbon Budget Accounting Project

With increasing concerns about climate change, carbon accounting is a significant environmental issue. Carbon-based greenhouse gas (GHG) emissions into the atmosphere are changing the global climate. Forests play two roles. Compounds such as carbon dioxide and methane are released by burning various fossil fuels, but deforestation also contributes to elevated GHG concentrations. Forests store carbon in living and dead biomass and in soils. Removing carbon from the atmosphere by storing it in forests is seen as a potential strategy for reducing GHG emissions in the atmosphere.

The CMFN is taking steps to learn how forest management activities can contribute to the reduction of carbon accumulation in the atmosphere. A joint project between the Canadian Model Forest Network and the Carbon Accounting Team of the Canadian Forest Service will result in a computer model showing the amount of carbon stored in forests, as well as the impact forest operations have on carbon stocks. Western Newfoundland and Lake Abitibi model forests have been chosen as pilot sites to develop and test a carbon accounting prototype and are studying how the amount of carbon in the forest changes with different activity levels and forest management procedures

SFM and Canada's Private Woodlots

In Canada, privately owned woodlands make up more than 12 percent of commercially productive forest land and provide an annual harvest equal to 21 percent of the national yield of commercial timber.¹ These woodlands provide habitat and biodiversity, spiritual and recreational opportunities, and contribute to our supply of clean water. There are an estimated 425,000 woodlot owners in Canada who collectively own more than 18 million hectares of commercial productive forest land. This land makes up a significant portion of the SFM equation in Canada.

The Canadian Model Forest Network has always recognized the importance of private woodlots in the quest for sustainable forest management. Of the 11 model forest sites, four — Fundy, Nova Forest Alliance, Bas-Saint-Laurent, and Eastern Ontario — have very significant private ownership components. These model forest sites have developed comprehensive projects and programs which integrate and promote SFM initiatives on private lands.

To address many of the SFM challenges and opportunities existing in the private woodlot sector, the CMFN has created a strategic national initiative focussing on issues specific to private woodlots and highlighting the multi-faceted work which has taken place in the private woodlot sector within model forests. This initiative will facilitate the sharing of experience and information with other organizations, and benefit all who take part.

¹ National Forest Strategy 1998–2003

On the Ground — From Seed to Sapling the CMFN Continues to Grow

The Canadian Model Forest Network, which started with a ground up approach has matured into a sophisticated model of innovative concepts and practical solutions that work. From the creation of individual model forests which represent the social and economic diversity, as well as the breadth and scope of Canada's major forest regions, a network was formed which consolidated and enhanced the very concept of partnership. Now, with each model forest operating both as an individual entity and as a member of the Network, the Model Forest Program is moving forward, exploring, experimenting and testing new concepts and ideas in sustainable forest management.



THE POWER OF PARTNERSHIP IN SUSTAINABLE FOREST MANAGEMENT

When people from different cultures, regions and economies join together in a common cause, amazing things happen...

A fact that's clearly demonstrated in Canada's Model Forest Program. From partners working together at the level of individual model forests to a national network stretching all across this vast country, the effect is remarkable.

Everyone in the Network shares a vast wealth of information — from traditional and contemporary skills and knowledge to the latest in scientific and technological discoveries. New ideas, concepts and innovations are created and tested in model forests that are, in essence, living laboratories. Here the brightest and best ideas are implemented as intellectual and creative capital meets human and financial resources.

Beyond the Boundaries

Since its earliest days, Canada's Model Forest Program has been on the cutting edge of innovation. With the successful development of a partnership model where the knowledge, skills and resources from all partners combine to achieve best practices for sustainable forest management, the Model Forest Program is now taking all it has learned "beyond the boundaries."

Model forests are expanding their sphere of influence in sustainable forest management regionally, provincially, nationally and internationally by sharing their experiences and knowledge with other organizations, agencies and regions outside of their traditional geographic boundaries. This expansion may include the development of new partnerships with organizations, communities and agencies; the support of projects, and effective communications and outreach activities.



The International Model Forest Network

At the 1992 Earth Summit in Rio de Janeiro, the Prime Minister of Canada made a commitment to extend the concept of model forests internationally. Three years later, the International Model Forest Network (IMFN) was created to identify opportunities, and offer hands-on assistance, to establish model forest partnerships around the world. While international model forests are similar in scope and purpose to those in Canada, each is unique in its context and application.

As part of the IMFN, model forests share a common vision of establishing working models of sustainable forest management (SFM), and agree to communicate their experiences to all Network partners. In other words, their local and regional approaches to tackling the challenges of SFM enrich the diversity of the Network internationally.

The primary goal of the IMFN is to establish a global network of working models of SFM through model forests that will represent most of the major forest ecosystems of the world. The IMFN also strives to ensure that all partners,

regardless of political or economic status, can contribute to, and share in the benefits of the Network as they work toward the sustainable management of forest ecosystems.

As a long-term goal, the Network will serve as a basis for international cooperation on sustainable development of forest resources. Participating model forests will produce the knowledge and incentive for large parts of the world's forested areas to undertake management and conservation methods that ensure continuous benefits for humanity.

To this end, the IMFN has identified three critical objectives:

- to foster international cooperation and exchange of ideas relating to the working concept of sustainable forestry*
- to support international cooperation in critical aspects of forest science and social science that underlie the search for new models of forest management*
- to support ongoing international discussions on the criteria and principles of sustainable development*

For more information, please go to www.imfn.net



WESTERN NEWFOUNDLAND MODEL FOREST

Stream Crossing Inventory Project

Paper companies, government agencies and the general public have extensively used forest access roads in Newfoundland for many years. This traffic has degraded the roads and as a result, stream crossings have been directly affected. Surveying stream crossings and their condition determines which structures require upgrading or repair. Over the past five years, the Western Newfoundland Model Forest partnership has completed a stream crossing inventory and characterization project, covering a total of 5,484 stream crossings in western, central and eastern Newfoundland and Labrador — well beyond the boundaries of the model forest.

By analyzing the impacts of access roads and stream crossings on the landscape, focusing on such things as water quality and fish habitat, a management plan can be developed which will help users in reusing existing roads and to encourage them to share, rather than develop new roads. If a new road is necessary, information gained by this project will help companies minimize the impacts it may have on the landscape.

Creating a Stream Crossing Database

The Western Newfoundland Model Forest initiated this project at the request of Corner Brook Pulp and Paper Ltd. when the company identified a need for stream crossing data. Since the beginning of the project in 1998, crews have traveled throughout the province to survey the locations and inspect the condition of stream crossings. Field data sheets were compiled noting fish habitat classification, pollution levels, road and stream bank erosion and siltation, diversions of natural stream beds due to road development, water velocity, incline of crossing structure, and debris due to washouts that affect water flow and fish movement. This field data was entered into a stream-crossing database. In later field studies, digital photographs were recorded and added to the database.

Technology such as Global Positioning Systems (GPS) allowed the precise location of stream crossing coordinates to be mapped. Using Geographic Information System (GIS) technology specifically developed for this project, the Western Newfoundland Model Forest developed the complete stream crossing inventory database and manual for application in the forest sector.

To complement the database, the model forest developed an inventory manual providing step-by-step instructions on how to survey a stream crossing (including how to gather field and GPS data), a description of the spatial editing-production process and how to query the database.

Beyond the Boundaries

The potential uses for the database are many. The Department of Fisheries and Oceans may use the database to identify problem areas associated with fish habitat management; paper companies may use the information to project costs associated with extracting wood from certain areas; and photographs and physical site information available via GIS technology help show the accessibility of harvest areas and maintenance required on the crossings. The information is also available for educational uses.

The stream crossing inventory database will be housed at the Newfoundland Forest Service — Department of Forest Resources and Agrifoods for use by professionals in the forest sector. Users will update future data on new crossings or the condition of existing structures. Along with the partners, other companies across Canada, as well as the Government of Turkey, have expressed interest in using this database and the framework to develop their own inventories.

Western Newfoundland Model Forest

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NOVA FOREST ALLIANCE

The Woodlot Info Shop Information Initiative (WISh)

The Canadian Model Forest Network has long recognized the importance of private woodlots in achieving sustainable forest management in Canada. Over the last decade there have been significant changes in policies and programs developed for private woodlots. The Canadian Model Forest Network continues to work in partnership to address issues and opportunities facing private woodlots.

Need for Woodlot Information

Private woodlots make up a large part of Nova Scotia's landbase. In fact, Nova Scotia currently has more than 33,000 private landowners who own an average of 50 hectares each. Across the province, there are many organizations related to woodlot ownership, but they lack common membership, mandates and objectives. Perhaps even more critical to the achievement of sustainable forest management on private woodlands is the fact that the majority of Nova Scotia's landowners do not belong to any organization and have very little connection to ongoing information and expertise about private woodland management. A commonly heard concern from woodlot owners has been the lack of a central location to access information and current events. The WISh project addresses this concern.



The Solution

In November 2002, the Nova Forest Alliance announced the Woodlot Info Shop (WISh), a new pilot project designed to link woodlot owners to information about managing their woodlots responsibly with sustainable forest management in mind.

WISh will be a one-stop shop for current and evolving woodlot information. It is designed to provide the link between Nova Scotia's vast population of woodlot owners and helpful information and services. An extensive working group of mostly private woodland owners has been established to guide the project. Initial information priorities have included forest management planning, marketing, silviculture programming, woodlot owner support organizations, and a glossary of common terms.

While the primary information source will be an interactive web site, the project clearly recognizes the need to have local service points where woodlot owners will be able to access information in hard copy and/or with assistance in navigating the web. The project will provide training for forest industry front desk, community access site and local library staff on the site contents and how to use it, so they can assist in connecting woodland owners to the information highway. Hard copy packages will also be available through these service points to provide landowners with a base level of information necessary to begin to carry out a forest management program.

Beyond the Boundaries

This innovative product truly takes the model forest beyond the boundaries via the information highway.

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FUNDY MODEL FOREST

Remote Sensing

Canada's model forests have put an emphasis on defining criteria and indicators (C&I) to monitor their success in implementing sustainable forest management on the ground; the Fundy Model Forest (FMF) in southeastern New Brunswick is no exception. Many of the indicators selected for use in the Model Forest require the monitoring of both landscape level changes to the forest cover and land use changes.

The Challenge

The forest land base in New Brunswick is equally divided between provincial crown lands and privately owned lands. Of the privately owned lands, approximately 30% is made up of small private woodlots with the remainder being large industrial freehold lands. New Brunswick's Provincial Department of Natural Resources and Energy conducts province wide forest inventory updates on a ten-year cycle through the use of aerial photography and photo interpretation. On provincial crown lands and large industrial freehold lands, annual changes in forest inventories, both man made (through harvesting and silviculture) and natural (by fire and insect defoliation) are monitored with the use of targeted aerial photography and mapping.

Currently, there is no mechanism in place in New Brunswick to monitor harvesting or other activities on private lands. A new system is being introduced to track wood being transported

back to the source but this still does not indicate which stands were harvested or how they were harvested (clear cut, selection harvest, etc). Since private woodlots make up 30% of the wood supply for the province, it is important to be able to accurately monitor change in these areas.

The Fundy Model Forest land base is owned primarily by small private woodlot owners (62%). In order to monitor progress towards achieving sustainable forest management objectives, remote sensing can be a valuable tool to monitor stand level and landscape level change.

What is Remote Sensing?

A simple definition of remote sensing for forest management is the use of images, taken by satellite, to determine the state of the forest. Remote sensing can show areas of forest disturbance — both natural and human — such as insect and disease, forest fire and intensive harvesting. It uses different passive sensor platforms to measure the reflectance value over various wavelengths of light. A passive sensor platform is an instrument similar to a digital camera that records the reflectance, or bounce back, of wavelengths of energy from a surface.

The concept behind the procedure is that different features on the earth's landscape will have unique reflectance values. For example, a conifer tree will have a different reflectance value than a hardwood tree. Using this procedure, the

forested and non-forested areas of the landscape can be mapped, measured and monitored over time.

Working with Experts from Around the Country

When the Model Forest first explored the use of remote sensing technologies to monitor land use change, it became apparent that the technique was not capable of detecting some of the less intensive stand level changes such as selective harvesting and partial cuts which are common practices on private woodlots.

Researchers from the University of Calgary, and Natural Resources Canada – Canadian Forest Service, undertook a remote sensing project in collaboration with the Model Forest to refine the remote sensing techniques in change detection so these more subtle changes could be monitored.

Beyond the Boundaries

During 2001, a pilot study was undertaken in conjunction with the Department of Natural Resources and Energy and St. Mary's University in Nova Scotia to test the refinements made to the remote sensing techniques on an operational land base in northern New Brunswick. As a result of this project, a remote sensing tool with the capabilities to monitor land use changes across multiple land ownerships is a reality.

The pilot study was so successful that the Department of Natural Resources and Energy is interested in continuing to collaborate with the Model Forest to apply this technique province wide. This initiative will update forest inventories across the province and track land use patterns in New Brunswick using techniques developed and perfected in the Fundy Model Forest.

Fundy Model Forest

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BAS-SAINT-LAURENT MODEL FOREST

Beaver Project

The beaver has played a founding role in the history of Canada. The early fur trade established its importance in the growth of the Canadian nation so much so that today it is the country's national symbol and its image appears in many places, including on the back of Canada's five-cent coin.

The beaver's impact on the nation's history is matched by the large effect it has on its natural environment. The dams these animals build play a key role in shaping the structure and dynamics of surrounding habitat, and the wetlands they create evolve into complex ecosystems. However, the beaver's dam-building activities are often perceived as a nuisance, especially when the result is damage to the foundations of roads and railways.

Although once threatened with extinction, there has been a significant increase in Québec's beaver population in recent years. In some regions, the cost of repairing and maintaining damaged structures has risen considerably due to beaver activity.



Addressing the Issue Through Partnership

Recognizing the need for information on the impacts of beavers on forest lands, the Bas-Saint-Laurent Model Forest was instrumental in the creation of a beaver habitat enhancement and management handbook for Québec. The handbook, produced by the *Fondation de la faune du Québec*, the model forest, the Canadian Forest Service and others, is now being shared throughout the Canadian Model Forest Network.

A beaver management pilot project was conducted within the model forest. The project implemented, tested and analysed a variety of management techniques outlined in the handbook, and developed an implementation strategy for private forest land. The results were made available to interested parties including landowners and biologists.

The model forest then partnered with the *Agence régionale de mise en valeur des forêts privées du Bas-Saint-Laurent*, a regional private forest development agency, to transfer the knowledge to all private woodlot owners served by the agency. Forest technicians and biologists working in private forests in the Bas-Saint-Laurent region and private woodlot owners received hands-on training. A training video was also produced.

With the help of landowners, problem sites were investigated, and corrective actions suggested and priorities established. A number of beaver control structures were installed throughout the Bas-Saint-Laurent region.

Thanks to the commitment of the Bas-Saint-Laurent Model Forest and its partners, the project is enjoying an increase in landowner participation. Management and enhancement activities are also being carried out in several areas and a network of demonstration sites has been set up in partnership with the *Agence régionale de mise en valeur des forêts privées du Bas-Saint-Laurent*.

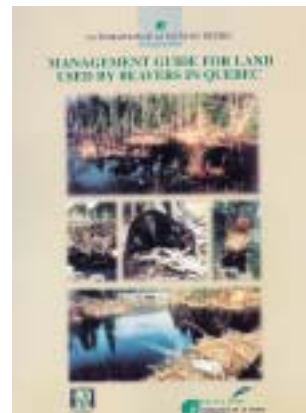


Beyond the Boundaries

Currently, the Bas-Saint-Laurent Model Forest continues to implement beaver management activities in its three territories; the Nicolas Riou and Lac-Metis seigneuries, and the Est du lac Temiscouata area. They are also able to transfer the knowledge acquired to program delivery agents in the eight private forest management units in the region.

Bas-Saint-Laurent Model Forest

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WASWANAPI CREE MODEL FOREST

Moose Habitat Project

The Waswanipi Cree Model Forest is the only model forest in Canada led by Aboriginal people. It is made up of 3.3 million hectares of boreal forest, located about eight hours north of Montréal in the James Bay area. The goal of this model forest is to maintain and enhance the quality of the area, which is known as Eeyou Istchee (native land), to benefit Aboriginal and other users and to ensure the economic, social and cultural development of the Waswanipi Cree First Nation. All activities of the Waswanipi Cree Model Forest reflect and address Cree interests and concerns with respect to the sharing of resources.

Moose has a profound value to the Cree way of life and to the revenues generated by sport hunting. The alteration of habitats by forestry operations and natural disturbances, have had an adverse and notable impact on the moose population and therefore on sport hunters, outfitters and the Cree way of life.

For more than 15 years, the Cree and the Québec government have been negotiating on management issues for the moose population and habitat. Despite their rights regarding hunting activities as recognized by the James Bay and Northern Québec Agreement, the Cree have had little influence in management policies regarding moose. However, the new Agreement between Québec and the Crees, signed in February 2002, has created a structure where Cree needs and knowledge are considered in a way that enhances forest management. And, more and more, scientists are

recognizing that Cree knowledge reflects established scientific facts about moose in the region.

But human understanding of the moose, its habitats, and the impacts of harvesting and hunting alone won't ensure the protection and sustainable management of this northern species. Although research projects relating to moose are available for southern regions of Québec, none tackle the management of moose habitats in northern black spruce forests, a unique and fragile ecosystem.

By working with local groups and the forest industry, the Waswanipi Cree Model Forest is trying to integrate the needs of the moose and the Crees in forest management planning and harvesting practices. Partners in this project include Waswanipi Cree Model Forest, Université Laval, agencies of the governments of Québec and Canada, private industry partners and private funding organizations.

In 2001, the model forest conducted the Ecozone Research Project which aimed to understand and document Cree visions and needs regarding sensitive wildlife habitats, identified as "ecozones." The first step of the moose project will be to confirm results gained in the Ecozone Research Project and further investigate the needs of the Cree regarding suitable wildlife habitats in time and space. Cree knowledge and observations about the relationship between the moose and its habitats and the impact of intensive forestry practices will also be gathered during the consultation process.

Step two of the project will combine several biological surveys on habitat needs and the condition of the moose population. The project will also undertake a three-year Global Positioning System (GPS) survey to define and understand critical habitats of the moose and the importance of connectivity between these habitats and particular forest stands.

Using Cree knowledge and visions, and new information learned from biological studies, a new landscape management strategy will be proposed. The goal will be to protect moose habitat and populations and enable the Cree to continue to hunt and trap. Collaboration with the forest industry will allow the assessment of other management propositions and possibly improve landscape management and silvicultural methods. Results of this project will contribute to the criteria and indicators initiative of aboriginal peoples and their social and economic development in sustainable forest management.

Beyond the Boundaries

The findings from this project will be useful for the moose management plan of the province of Québec and the potential outcomes will certainly be applicable to a larger area with the new adapted forest regime of the Cree-Quebec Agreement.

The results will ensure better protection of the traplines affected by forest harvesting, and add to the sustainable management of the northern moose population and ultimately northern communities. Understanding of the relationship between the Cree and non-native hunters and forest managers will also be improved as a result of this collaboration.

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EASTERN ONTARIO MODEL FOREST

Certification of Private Forest Lands

In 1999, several large retailers publicly stated plans to sell wood and wood products from sustainably managed forests. These announcements, coupled with expressions of interest in certification by many Eastern Ontario Model Forest members and partners, resulted in certification emerging as an important topic in eastern Ontario.

Certification is designed to encourage sustainable forest management by prompting owners, practitioners and operators to comply with established forestry standards. Certification assures both landowners and consumers that harvest methods do not damage the health of the forest nor the stability and livelihoods of local communities.

In eastern Ontario, private landowners are stewards of more than three-quarters of the land — 34 percent of which is forested. These owners face several challenges, including how to manage their woodlots sustainably and market their wood. The increasing demand for products from certified woodlots, along with a desire to promote good forestry practices, prompted the Eastern Ontario Model Forest to examine certification.



The Process

Following a comprehensive review of several certification schemes, the system developed by the Forest Stewardship Council (FSC) was chosen. The FSC is an international, independent, non-profit, non-governmental organization which had already developed draft standards for the Great Lakes–St. Lawrence Forest Region.

A partnership between the Eastern Ontario Model Forest and FSC Canada led to the implementation of a pilot project to assess the feasibility of forest certification for owners of small, private woodlots in eastern Ontario.

The Working Group

Early in the project, a broad-based working group was established to oversee activities and provide critical advice and guidance to the process. The Eastern Ontario Model Forest Certification Working Group includes representatives from landowners, industry, the Ontario Ministry of Natural Resources, the provincial woodlot association, the federal government, First Nations, the model forest and the FSC.

The working group acts as an umbrella organization which has developed a policy and procedures manual. This manual provides systems and guidelines for implementing certification in the Eastern Ontario Model Forest area.

Interest in certification is growing. A significant number of landowners representing several thousand hectares in the Lanark County area, along with members of the Domtar (Cornwall) private woodlot program, worked to obtain FSC certification.

The Landowner Connection

Landowner participation has been instrumental in providing expert knowledge and input into the development of the policy and procedures manual. The landowner connection has been further strengthened by hands-on assistance from the Model Forest in the form of extension, property mapping and forest management planning.

Following an intensive 24-month period of project activity, the landowner group was successful in obtaining SmartWood Resource Manager Certification in accordance with the FSC guidelines. The Model Forest, through the working group, will have the ultimate responsibility for managing the certificate and ensuring operations meet those specified in the Great Lakes–St. Lawrence Forest Region standards.

Beyond the Boundaries

For the immediate future, the focus of this partnership project will be to increase the numbers of participating landowners both within and beyond the Model Forest.

The results of this project, among the first of its kind in North America, will be transferred to other interested individuals and to groups both inside and outside eastern Ontario. Already, a considerable exchange of information and experiences has been undertaken with others pursuing certification in Canada and the United States.

While certification continues to grow internationally, on a local level the Eastern Ontario Model Forest has initiated a project which holds the promise of significantly shaping the way private forest holdings are viewed and managed. While forest certification is not an end in itself, it could be an important means towards the goal of achieving sustainable forestry.

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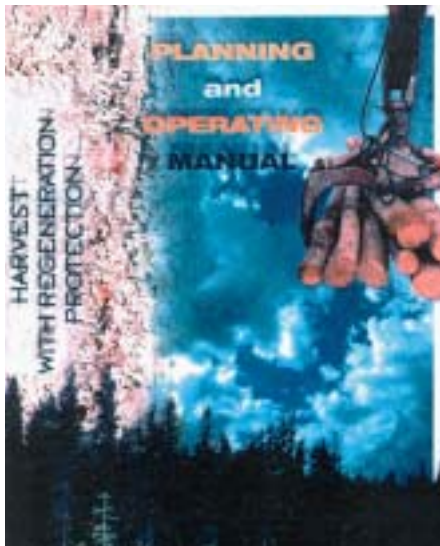
LAKE ABITIBI MODEL FOREST

Harvesting with Advance Regeneration Protection

With a landbase of 1.2 million hectares, the Lake Abitibi Model Forest is located in the boreal forest of Northeastern Ontario, bordering the Province of Québec. Abitibi-Consolidated Company of Canada, one of the founding partners of this model forest, holds the license for this landbase. Tembec Industries Inc., a more recent partner to the Model Forest, manages the adjacent 4.5 million hectares. Both companies apply the knowledge and techniques learned through participation in the Lake Abitibi Model Forest.

The Landscape of the Model Forest

The majority of The Lake Abitibi Model Forest's productive forest landbase is made up of peatland black spruce sites which have always been problematic for forest operations. Harvesting often resulted in unacceptable levels of site disturbance. As well, successful regeneration was difficult because of limited accessibility and wet site conditions. To address these operating issues, the Model Forest, in partnership with Abitibi-Consolidated Company of Canada, the Canadian Forest Service and Laurentian University, developed a unique harvesting system.



Harvesting using HARP

Harvesting with Advance Regeneration Protection (HARP), also known as corridor selection harvesting, combines two types of harvesting systems: selection cutting and strip clearcutting. HARP emulates the way the forests were modified in the days of horse logging by producing the same kind of uneven-aged forests. While the benefits of HARP include the maintenance of biodiversity and minimal visual impact, the most important benefit is forest regeneration through the layering of black spruce.

Since 1995, HARP has been the dominant harvesting method used by Abitibi-Consolidated in this Model Forest, and has become an important part of the company's silvicultural and sustainability efforts. As a result, the adoption of HARP has had a large impact on the company's forest management plans. Other forest companies operating on black spruce peatland sites in northern Ontario have also adopted the HARP method.

Beyond the Boundaries

The Lake Abitibi Model Forest's work in this area has helped expand harvesting and silvicultural techniques beyond the Model Forest. It has also made an impact on forestry policy in the Province of Ontario. The Ontario Ministry of Natural Resources officially recognizes HARP as a harvest method, and included the method in provincial silvicultural guidelines published in 1997. The Lake Abitibi Model Forest has a proven track record in bringing change to the practices of sustainable forest management.

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MANITOBA MODEL FOREST

Manitoba Ecosystem Classification Project

In Canada, there have been attempts over the past 30 years to develop a uniform, nationally applied ecological approach to ecosystem classification and mapping, and a sound application of an ecological approach to sustainable forest management and planning. The Manitoba Model Forest is currently involved in the development of a forest eco-site classification system for all of Manitoba, and in creating a program that develops computer models to examine future forest conditions.

Upon completion of the project, an Eco-site Classification System will be available that will serve as a decision support system for sustainable forest management and planning. This system will integrate a broad range of forest values into a common database for ease of use and application. For the first time, such a system will be operational and usable by the forest industry in Canada.



Ecosites Defined

An “Ecosite” is a spatial unit of area at a scale which is most relevant to resource-use decision making because it corresponds with wildlife habitat, vegetation succession, recreational and other land uses — including forestry. These units are established by the Canada Committee on Ecological Land Classification as part of a hierarchical geographic land division system.

In response to a need for a spatially recognized ecosystem-based classification unit in Canada, eco-sites are being developed in various jurisdictions. Ideally, eco-sites should represent the foundation upon which SFM, including ecological, socio-cultural and economic elements are based, however, such a comprehensive use of eco-sites has not yet been developed.

The Eco-Site Based Decision Support System project is the first attempt at bringing these respective elements together into a common framework. This framework builds upon the Manitoba provincial forest plan, the Canadian Council of Forest Ministers criteria and indicators framework and current scientific literature.

The project is meant to develop an integrated eco-site level classification and sustainable forest management decision support system that incorporates conservation of biological diversity and nature-based outdoor recreation/tourism, with the conservation of spiritual, cultural and aesthetic resources.

The establishment of a comprehensive database that reflects the variety of eco-sites the forest has to offer is critical to the success of this project.



Because of this, the research team has been gathering data from all available sources. The most critical factor identified is enhancement of soil-ecosite/soil-vegetation relationships. As land form and soils represent the most enduring features, they are fundamental components for site classification.

Recognition Beyond Model Forest Boundaries

The ground breaking work done by the Manitoba Model Forest has been noticed beyond the model forest boundaries and outside the province of Manitoba. The University of Manitoba research team was asked to provide a presentation to the Canadian Forest Service, in Ottawa, which included a meeting with past members of the Ecological Stratification Working Group, the group primarily responsible for the evolution of the framework for Ecological Land Classification of Canada.

A Common Understanding

The success of every initiative of the Model Forest depends on equal recognition of stakeholder values. Similarly, awareness and respect for diverse values, and public comprehension are part of the understanding needed to ensure a sustainable forest future. With improved understanding of forest ecosystems and the tools to develop new approaches to sustainable forest plans, the Manitoba Model Forest and its partners are helping to drive forest planning innovation in Manitoba and other Canadian jurisdictions.

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PRINCE ALBERT MODEL FOREST

A Partner in Elk Re-establishment

Elk have always been an important resource for the northern Saskatchewan Cree. However, dwindling elk herds in traditional hunting areas have become a cause of concern and the catalyst for the Wapus Lake Elk Re-establishment Project, begun in 1998.

The combination of hunting, new logging road access, predation and changes in habitat structure has taken its toll on elk numbers. But partnership is a powerful thing as is evidenced by the Prince Albert Model Forest, Montreal Lake Cree Nation and Saskatchewan Environment who teamed up to propose a solution. Using traditional Aboriginal knowledge, advanced scientific technology and research, the Wapus Lake project to restore the elk by translocation has succeeded.

The Project

The Wapus Lake Project has involved collection of the traditional knowledge of elders from the surrounding communities and sharing this knowledge about where the elk herds used to be, as well as their movement and habitat needs. Techniques used to manage the elk herds include integrating traditional knowledge with practical natural resources management skills.

Already, hundreds of elk have been relocated from Elk Island National Park in Alberta and Cypress Hills Provincial Park in Saskatchewan to the Model Forest area, and radio tracking is providing valuable information on the survival of relocated elk.

Aerial survey of elk is planned in the future to determine whether the herd is increasing and whether there are enough elk to allow limited hunting. In the meantime, the Montreal Lake Cree Nation has agreed to suspend hunting until there is confirmation the elk herd has surplus numbers. A management plan will be established to help ensure the long-term sustainable management of the elk herd.



The contribution of First Nations communities to the management of the elk herd will benefit current and future generations. Reintroducing elk into the traditional area near Wapus Lake means the return of an important part of the culture of local Cree communities. The project will also provide training to members of the community in the fields of information technology, resource consulting and sustainable natural resources management.

Beyond the Boundaries

The Prince Albert Model Forest has played an important role in getting this project off the ground. As well, through its partnerships with Aboriginal groups, natural resource agencies, and the provincial and federal governments, the influence of this initiative will reach far beyond the model forest's boundaries.

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FOOTHILLS MODEL FOREST

Grizzly Bear Research Program

The Foothills Model Forest Grizzly Bear Research Program, a major five-year research program initiated in 1999, will allow resource managers to gain a better understanding of grizzly bear ecosystems, their response to human activities, and to implement actions designed to conserve the grizzly bear population in west-central Alberta. Results will assist land managers in integrating the animals' needs into the land management decision-making framework.



Why the Grizzly?

While working toward the advancement of sustainable forestry, the Foothills Model Forest chose to study the grizzly bear. The long-term persistence and health of the grizzly bear population is a barometer against which the effects of land use practices and changing landscapes can be measured. The grizzly bear is an “indicator” species, its presence is indicative of a healthy, functioning ecosystem. The grizzly is also considered an “umbrella” species meaning that where a population is found to be in relatively good health, it can be generally assumed other species within the same ecosystem are healthy and adjusting well to pressures on the landscape.

The program team for this remarkable project includes scientists, biologists, veterinarians and conservation officers from across North America and other program partners who have direct input into program direction.

Partnership support and involvement is crucial to its continuance and success. Partners range from oil and gas and forest industry companies, to conservation organizations and all levels of government.

Using Research Results

The study's results have had a direct impact on private sector planning and implementation activities. For example, Conoco-Phillips of Canada changed a pipeline route after learning, through the study that its proposed pipeline would have cut through prime grizzly bear territory. Cardinal River Coals, Weldwood of Canada – Hinton Division, and others have incorporated the project's findings in developing new roads, mining locations and other activities involving grizzly bear habitat. Each of these decisions may have significantly decreased the deterioration of the habitat and the impact on the bears.

Beyond the Boundaries

In the future, the Foothills Model Forest intends to take its research findings and models beyond the boundaries of the Model Forest to promote sustainable forest management practices throughout Alberta and beyond. As part of an overall provincial strategy, Alberta Sustainable Resource Development – Fish and Wildlife Division, plans to link and coordinate grizzly bear research activities in Alberta through the Model Forest Grizzly Bear Program. Results from the program will be useful for successful grizzly bear management throughout Alberta and North America as they will provide tools and techniques to address landscape level conservation issues.

Through the continued support of the partnership, the Foothills Model Forest is making great strides towards the conservation of this majestic animal.

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McGREGOR MODEL FOREST

The McGregor Approach: Morice and Lakes Innovative Forest Practices Agreement

When the provincial Minister of Forests signed an Innovative Forest Practices Agreement (IFPA) for two timber supply areas — Morice and Lakes in British Columbia in November 1999, the McGregor Model Forest was called upon to share its expertise and help put sustainable forest management plans in place for the designated 2.6 million hectare landbase.

IFPAs are initiatives of the British Columbia Ministry of Forests designed to increase forest productivity by encouraging designated licensees to carry out new and innovative forestry practices. Reciprocally, licensees can apply for an increase to their allocated harvest levels, thereby maintaining and enhancing employment opportunities in the forest sector.

The McGregor Model Forest Association's involvement in the IFPA consisted of supporting participants through the steps of the unique "McGregor Approach" to sustainable forest management (SFM). The intent was to provide a balanced SFM platform for forest productivity and employment-related activities to the IFPA project.

The McGregor Approach

The "McGregor Approach" is an innovative system which develops forest management plans through cooperation and consensus. Created by partners within the McGregor Model Forest, it brings all the stakeholders together at the beginning of the planning process. The approach uses three inter-connected components: participative scenario planning sessions with interested parties, strategic and operational planning support, and collaborative SFM indicator selection.

Though similar to other model forest SFM approaches, the McGregor Approach is unique in that it incorporates computer modelling to project and visualize future forest conditions expected from implementing management scenarios. After entering all the relevant values and factors, participants see the projected long-term effects of their planning. Using the Model Forest's methods and tools, residents are able to try out a variety of management approaches and model the expected results of each to develop optimal forest solutions.



Stakeholder Involvement

Local residents affected by the Morice and Lakes IFPA were invited to identify their values and the resource management objectives they considered important. Other groups, including First Nations, government and forest companies also offered input. Groups were invited to become active participants in developing the SFM plan and monitoring its implementation.

Results

The Morice and Lakes IFPA holders have put in place a sustainable forest management system, incorporating continual improvement through an adaptive management framework. It is based on sound ecological principles and strives to balance environmental, social, and economic needs by managing for multiple resources simultaneously. Measurable targets for management performance were set, and spending and activities prioritised.

McGregor Model Forest planning tools and expertise played an integral part in the successful planning and implementation of the IFPA and the technology developed by the Model Forest continues to support the now independent SFM planning, analysis and management framework.

Beyond the Boundaries

The Government of British Columbia has recognized the McGregor Approach to SFM as a useful application and the McGregor model has been approved for use in timber supply analysis by the province for the purpose of determining allowable annual cut. SFM planning at the management unit level is now a fundamental building block of British Columbia's forest policy and the McGregor Approach has been used in four provincial timber supply areas so far.

The work done by the McGregor Model Forest has also influenced forest management in the province of Alberta. The provincial government now requires its forest management agreement holders to produce forest management plans incorporating desired future landscapes, public involvement, ecological integrity, spatial and temporal scales and adaptive management.

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Please refer to the Canadian Model Forest Network map on the inside cover.