# Proceedings of the Canadian Model Forest Network's Partnership Meeting

*Halifax, NS, September 8 - 9, 1999*


**May 2000**

Natural Resources Canada
Canadian Forest Service
Ressources naturelles Canada
Service canadien des forêts

Canada

## The Canadian Forest Service:

Mission: “To promote the sustainable development of Canada’s forests and competitiveness of the Canadian forest sector for the well-being of present and future generations of Canadians”.

The Canadian Forest Service of Natural Resources Canada is also a principal partner in each of the eleven model forest organizations and provides primary funding and administrative support to Canada’s Model Forest Program.

Canada has taken the lead in researching ways to sustain and enhance our forests. The Government of Canada, through the Canadian Forest Service, initiated the Model Forest Network in 1992. It introduced this system of 11 Canadian and a number of international research sites “dedicated to building partnerships locally, nationally, and internationally to generate new ideas and on-the-ground tools for sustainable forest management”. This process has brought together hundreds of partners including academia, industry, government, communities, aboriginal peoples, the public, and other stakeholders.

Web site: www.NRCan.gc.ca

## 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 having 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 -- logging 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 of the model forest suggestions.

Model Forest Network internet site: www.modelforest.net


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# Gauging Progress in Sustainable Forest Management: Model Forest Experiences in Integrating Science and Partnerships on Local Level Indicators

# Gauging Progress in Sustainable Forest Management: Model Forest Experiences in Integrating Science and Politics on Local Level Indicators[1]

**Peter N. Duinker, Ph.D.**[2]

## 1. Opening Remarks for the Session

Local level indicators (LLI) serve as our theme today mainly because the entire set of Canadian model forests has chosen to develop, test and apply LLI during Phase II of the Model Forest Program. Is this emphasis on LLI a response simply to the initiative of the Canadian Council of Forest Ministers a few years ago (CCFM, 1995) which established a common suite of criteria and indicators (C&I) of sustainable forest management (SFM)? Does it merely reflect the requirement in the CSA SFM Standard (CSA, 1996) to analyze at least one indicator for each of some twenty elements of SFM? No, we actually need LLI in any attempt to pursue SFM. As I have said before (Duinker, 1997), C&I are necessary components of SFM. We must use indicators to discover whether we are taking the right actions in the pursuit of SFM. Indicator use helps us reduce uncertainty as we move forward into a decidedly uncertain future. Actions are expensive, and major course correction is even more expensive (if possible at all). Adaptive management of forest ecosystems demands careful prediction and measurement of actions, system behaviour and outcomes. Indicators provide the links between people's values and the technical accomplishment of SFM.

The development, testing and use of LLI have both scientific and political dimensions. The scientific dimension entails the systematic forecasting (Duinker and Baskerville, 1986) and monitoring (Duinker, 1989) of the chosen indicators. We turn to science for its protocols and procedures for reducing uncertainty, and thus raising confidence, in our judgements about progress in SFM. On the scientific side, some key challenges include figuring out how to:

- choose among the myriad things that can be measured;
- deal with important values that are either difficult or downright impossible to measure;
- marshal the necessary resources to measure even a few indicators well;
- cope with very uncertain yet complex cause-effect relationships between actions and indicators;
- cope with influential driving forces that are virtually impossible to control (at least at the local level);
- refocus attention off the past (the empirical side) and onto the future (the decision-making side); and
- integrate what's technical feasible with what's decision-wise useful.

The political dimension is particularly evident in such institutions as Model Forests where myriad forest stakeholders and members of the public have been invited to participate in determining, charting and watchdogging efforts to pursue SFM. Indeed, to direct the science to shed light on questions society has posed (and therefore wants answered) demands firm setting of science in a positive political forum. Lee (1993) described such positive politics as principled negotiation, and that's what Model Forest

[1] Facilitator's Opening and Closing Remarks at a Meeting of the Canadian Model Forest Network, Halifax, September 8, 1999

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partnerships really are about – disciplined, collegial forums for drawing diverse interests together to plot the course for SFM. Challenges in the politics of gauging progress include determining how to:

- raise the technical understanding of lay partners whose initial knowledge is low;
- overcome our general unwillingness to be parsimonious in the indicator set, despite the need to have something for everybody;
- overcome our inability to set concrete benchmarks for many indicators (i.e., what's good or bad performance), and therefore problems in setting good objectives for them;
- make tradeoffs in indicator performance when the proverbial pie can't be expanded any more;
- deal with the lack of control over actions and indicator performance by partners; and
- prevent volunteer partners from burning out.

The main question for the session is: how are we doing with LLI after several years of trying? What are the experiences, successes, failures, progresses, regresses, triumphs, flops? What indeed are the early lessons that can be shared so that subsequent efforts can be directed more effectively and efficiently?

The session includes five stories centred on LLI. These are all Model Forest stories because this is a Model Forest forum. However, it does not mean that all interesting LLI stories come from Canada's Model Forests! Indeed, there are many other initiatives from which Canada's forest managers can take new understanding and inspiration (e.g., Williams et al., 1998). As we consider the experiences of the five Model Forests showcased here, we should be thinking about the following kinds of questions.

- How are Model Forest partners rising about the challenges?
- Which challenges are Model Forest partners finding most daunting? Which are relatively easy to handle?
- What partnership structures/activities have-been/will-be put in place and implemented to tackle the challenges?
- What is the degree of frustration among partners with LLI? If frustrated, why?
- Do the lay partners have ownership of the LLI processes, or are scientists/technicians in control?
- What kinds of new conflicts have LLI given rise to among partners? Are the conflicts healthy or debilitating? How are the conflicts being addressed?
- Have LLI processes strengthened or weakened the partnership?
- Have LLI raised understanding or confusion among partners?
- What's the LLI plan for the last half of Phase II, and what degree of optimism is there among partners for strong LLI achievements?
- Have any new partners come on board the Model Forest because of LLI?
- How have LLIs and BMPs been linked to each other?

These challenges and questions, and others, were communicated in advance to the speakers/ authors for today's session.

**2. Closing Remarks for the Session**

It is clear that strong progress has been made across Canada in developing, testing and using LLI to gauge progress in SFM. If the next couple of years of Model Forest efforts are as vigorous and rewarding on LLI as the first few, then Canada's forest community will have been well served by the LLI developments accomplished by the Model Forests in Phase II of the program. However, despite the strong progress, many challenges remain. Some of these challenges can be characterized as dichotomies as discussed below.

Science vs. politics – how should the Model Forests allocate their precious and limited resources of funding and time between scientific issues and political issues? Granted, much effort is still needed to figure out how to forecast and measure indicators reliably. However, much is also needed to help partners set reasonable objectives for the indicators and to make the necessary tradeoffs among them when it is discovered (as it surely will be) that it is impossible to meet everyone's desired

indicator levels in the forest in question.

Quantitative vs. qualitative indicators – technical people crave quantitative indicators, yet some key forest values defy sensible quantification. We must learn better how to forecast (i.e., explicitly develop alternative futures for) and measure (i.e., characterize in relatively unambiguous terms) qualitative variables for use in gauging progress in SFM. As I indicate below, there are promising possibilities.

Monitoring vs. forecasting – in my view, a big weakness in LLI work is people's reluctance to create and analyze explicit alternative future scenarios for indicator values. All the emphasis in some LLI programs is on characterizing past and present forest situations with monitoring programs. The presentations made in this session show that some Model Forest people are not afraid to make forecasts. Those folks realize that making explicit forecasts for indicators is essential in developing a sound information base for forest decision-making. A further positive development will be the creation of scenarios for qualitative indicators, in accord with recent advances in futures research (e.g., Schwartz, 1991; Duinker et al., 1993; May, 1996).

Stand vs. forest – most LLI experts would agree that landscape-scale indicators are vital in assessing progress in SFM. Not only are many forest values most meaningfully addressed at this regional scale, but many provincially owned industrial forests extend to and beyond the scale of forest landscapes. However, we have many situations within Canada's forests where there are many small private ownerships of forest land within a landscape. One challenge is how to motivate each owner to make choices for the small private holding that are consistent with sustainability of landscape-scale indicators. However, one can not expect such landowners to become excited about LLI if all the indicators are relevant only at the landscape scale. It is critical that some indicators within the total suite have direct relevance to the scale of a small woodlot, which may be roughly equivalent to the stand level in large industrial forests (Williams et al., 1998).

Simplicity vs. complexity – forest landscapes are complex systems, made even more complex when understood to include the wide range of human uses made of them and actions taken within them. Considering the future sustainability of such landscapes is yet again more complex. The complexity can be overwhelming even to scientists, let alone lay people involved as stakeholders in forest decision-making processes. The paradox here is that oversimplification can lead to incorrect characterizations of sustainability, yet complexity can thwart understanding. We must constantly be vigilant to simplify as strongly as possible without losing sight of the real nature of the systems of interest. The key is to find simple indicators that do a reasonable job of representing the complex forest system.

Actions vs. outcomes – our tendency is measure what is easy to measure, and possibly what is (casually) interesting to measure, not what is important to measure. In sustainability assessment, we are really interested in knowing about the evolving state of the forest system itself, and its many values to people. Unfortunately, indicators related to forest values are difficult and expensive to measure. Our fallback position is to measure what we do to and in forests, the presumption being that if we implement enough of what are popularly considered to be the correct actions, the desirable outcomes for all our forest values will ensue. This is extremely dangerous, for our basic understanding of the cause-effect linkages between actions and outcomes in the forest landscape is still so rudimentary and immature. Thus, it is necessary yet insufficient for gauging progress in SFM to have good data on our actions. We must also have reliable information on the state of the forest system and on the indicators that represent our core forest values. Let us redouble efforts to measure state and output variables, and not emphasize input variables simply because they are easy and interesting to measure.

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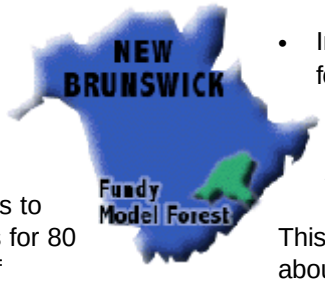
# Implementation of a Sustainable Management Planning Process in the Fundy Model Forest[1]

**David A. MacLean, Ph.D.**[2]

The Fundy Model Forest has developed and implemented a collaborative, multi-ownership, sustainable management planning process that is being implemented on an area more than three times the size of the Model Forest. Features that will be described as a Case Study include:

- The use of *scenario planning* to permit input of 31 partnership organizations into recommendations for management regimes of the four major landowning partners (woodlot owners, industry, provincial government, National Park);
- The process of reaching consensus on a *preferred* Fundy Model Forest management scenario;
- Linkage with criteria and indicators, and use of models to *project* a subset of indicators for 80 years in the future, as part of management plan formulation;
- Use of *forecasting models* to control treatments in a way that satisfies objectives for a broad range of values,
- the role of *ecological land classification* (vegetative communities within eco-districts) as the basis for yield and forest structure projections;
- Evaluation of *effects of scenarios on a broad range of values* including measures of forest structure, biodiversity, timber supply, wildlife habitat, and recreation;
- Reporting of indicators on an ecological basis (vegetative community by eco-district) for the *aggregate, multi-ownership landbase*;
- The Model Forest role in *facilitation* of multiple landowner's achieving common forest objectives; and
- Implementation of a Decision Support System for pest management, as part of an active *Integrated Pest Management* (IPM) program.




This Fundy Model Forest project has brought about significant change in how forest management is being conducted in New Brunswick. Emphasis will be placed on presenting the concepts and application of the management planning and IPM process, which are applicable to a range of values and to forest areas across Canada. Rather that emphasizing technology, the Fundy Model Forest has emphasized partnership input into decision making.

[1] This is an abstract of the paper presented at the Partnership Meeting in Halifax, NS, September 8, 1999.

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# A Practical Guide to the Development of Local Level Indicators of Sustainable Forest Management in Newfoundland and Labrador[1]

**Martin von Mirbach[2] and Len Moores[3]**

The Practical Guide to the Development of Criteria and Indicators of Sustainable Forest Management in Newfoundland and Labrador was a project of the Criteria and Indicators Working Group of the Western Newfoundland Model Forest: Ecosystem Health Division, Department of Forest Resources and Agrifoods; Department of Geography, Memorial University of Newfoundland; Abitibi-Consolidated; Gros Morne National Park; Department of Development and Rural Renewal; Department of Philosophy, Sir Wilfred Grenfell College; Corner Brook Pulp and Paper; and the Centre for Forest and Environmental Studies.


**RATIONALE**

This guide is intended to help resource managers and planners work with other interests so as to ensure that we maintain healthy forests that can support the broadest possible range of values. At the same time, it outlines a process for monitoring forest conditions and the impacts of forestry and other activities. This will allow resource managers, interested parties and society as a whole to more clearly see where progress is being made and where improvements are necessary.

**SCOPE OF PROJECT**

This Guide is a practical handbook that can be used right across the Province. Although it was developed by the Western Newfoundland Model Forest, the intent from the beginning was to develop something that would be relevant Province-wide. There are three distinct scales at which this Guide is intended to be used:

a) Forest Management District scale.
Each Forest Management District in the province requires a Forest Ecosystem Strategy document as well as Five-Year Forest Operating Plans, both for Crown lands as well as for company limits. In recent years the Department of Forest Resources and Agrifoods has been encouraging District Planning Teams to use a "Criteria and Indicators" approach, and this guide outlines a step-by-step way to do this.

a) Company limits.
The two pulp and paper companies operating on the Island, Corner Brook Pulp and Paper Ltd. and Abitibi-Consolidated Inc., have both indicated their commitment to developing and implementing a Sustainable Forest Management Plan that would apply across their entire limits, or "defined forest area." Such an SFM Plan can help to improve internal operations and to

[1] This is an abstract of the paper presented at the Partnership Meeting in Halifax, NS, September 8, 1999.

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promote greater public awareness and understanding of SFM. At the same time, an SFM Plan will be an important element of any voluntary initiatives undertaken by the companies to undergo independent certification or registration of their forest management systems.

b) Provincial scale.
The Department of Forest Resources and Agrifoods has responsibilities for provincial reporting on indicators of sustainable forest management, both as part of provincial planning requirements and to participate in the national reporting process. This guide outlines many of the indicators that are relevant at the provincial scale.

This Guide is intended to be read and used by forest managers, as well as by anyone involved in a public participation process established to help develop forest management plans; for example, the Planning Teams established to develop Forest Ecosystem Strategy documents and Five-Year Forest Operating Plans at the District level.

**METHODOLOGY BEING PROMOTED**

The guide explains in great detail the process needed for the adoption of the C & I framework. The methodology detailed in the guide is as follows:

Step One: **Form an effective public participation process**

There are many different forms of public participation, as well as different guides that go into this subject in more detail (One useful example is the Canadian Standards Association's *Guide to Public Involvement (Z764-96)*, which follows a workbook-style methodology that covers most relevant aspects of the CSA SFM standard.). Some of the key requirements for an effective forest management public participation process are included in the guide.

Step Two: **Decide on Values and Goals**

Every local-level C&I process should be founded on a set of values and goals that all stakeholders accept. The values and goals described in the Guide are a useful starting point, but it is important to ensure that everyone feels comfortable that their key values and organizational goals are reflected in the framework. If there are goals missing, then add them.

Step Three: **Select appropriate indicators**

The indicators listed in the Guide should be used as a checklist. These indicators have been drawn from a variety of different sources, including the national indicators approved by the Canadian Council of Forest Ministers. In developing the indicators used in this Guide we've tried at all times to focus on indicators that are meaningful and relevant in the context of forest management in Newfoundland and Labrador.

Step Four: **Develop Objectives and identify Practices**

The public participation process should be actively involved in setting objectives and practices, which is the all-important process of determining what will actually be done in order to meet the Goals and support the Values. In this case, however, the agency with ultimate timber management responsibility may wish to retain the "final say," and it's important to address this issue when determining the ground rules for the public participation process.

Step Five: **Implement the Sustainable Forest Management Plan**

There are many people who have key roles to play in implementing the plan, including representatives from various governmental agencies, managers, contractors and front-line forest workers. In many cases it is not really adequate to simply let people know that the plan exists or to give them a copy of it. There may have to be appropriate education and training programs, so that all of these key people know about the plan, are familiar with what's in it, understand why it's important, recognize the role their role in implementing the plan, and have the capacity to take effective action. It's usually preferable to build education and training right into the plan as an ongoing activity, rather than relying on a one-time program to bring everyone

up to speed.

Step Six: **Measure, monitor and report on indicators**

There must be a procedure in place to determine the status of each indicator. There should be a defined time frame for such status reports, and the results should be communicated to the public. The CSA SFM standard requires that an annual SFM System report be prepared and made publicly available, along with all external audit reports.

Step Seven: **Review, learn and improve**

This is the key step in the adaptive management process. Resource managers must always work with incomplete or imperfect information, and this means that things often don't turn out exactly as planned. The point isn't to avoid making any mistakes, but to try to make only "small" mistakes, and to learn from them.

**TIMELINE**

The Guide has been written and approved by the Criteria and Indicators Working Group. We will be printing our first round of copies during the summer of 1999. All district foresters and their planning teams will have a copy of the document before the fall of 1999.

Still active is the Data Acquisition Strategy for the indicators outline in the C & I framework. This data will be collected over the next year and, as a pilot, will feed into a SFM Plan for District 15.

**DELIVERABLES**

*A Practical Guide To Criteria and Indicators*, March 1999

**CHALLENGE**

The major challenge now that the document has been written is the implementation of this framework in each of the 24 districts.

# Demonstration Forests in the Eastern Ontario Model Forest

**Lynn McIntyre**[1]

**Introduction**
Good morning everyone. My name is Lynn McIntyre.

I'm here representing the Eastern Ontario Model Forest (EOMF) where I'm a project leader and past member of the Board of Directors. I'm also a director with the Ontario Woodlot Association. I've been involved in private land forestry in eastern Ontario for about 20 years.

**Description of the Eastern Ontario Model Forest**
As our name indicates, our Model Forest is in eastern Ontario. If you draw a line from the 1000 Islands in the St. Lawrence River near Brockville, north to the Ottawa River — the triangle that makes up the remainder of eastern Ontario is basically our region.


The EOMF contains more than one-and-a-half million hectares of land. Most of this land is privately owned. Productive forests occupy about 38 percent of the area or about 560,000 hectares. And 88 percent of these forests are privately owned.

Our region was shaped by two centuries of logging and agriculture which began with the arrival of the United Empire Loyalists in 1784. Just 40 years ago, forests occupied only 15 percent of the land.

More than a million people live in our region — the majority in Ottawa and its suburbs, as well as in the cities of Cornwall and Brockville. About 200,000 people live in the rural areas.

**Description of the Forests of Eastern Ontario**
The EOMF is in the Great Lakes-St. Lawrence Forest Region. We have mainly mixed-wood forests. About 70 different tree species have been found here. The most common are sugar maple, red maple, yellow birch, and white pine — they can be found across the entire region. Other common species include cedar, hemlock, spruce, oak, basswood, beech, ash, hickory, poplar, red pine and jack pine (which have been widely planted).

Hardwoods occupy 64 percent of the productive forest land while conifers account for 36 percent of the forests. However, due to our history of logging and agriculture, few original stands remain. The forest land is relatively young with the majority of stands less than 80 years old.

**The Evolution of Forestry Programs in Ontario**
Ontario's first *Tree planting Act* was passed in 1883. The purpose was to plant trees along the sides of roads. The remnants of roadside planting can still be seen today along many rural roads in southern Ontario. The majestic maples which line these roads were initially planted because of this *Act*.

Reforestation of abandoned farmlands was the focus of early 20th Century forestry programs. Areas depleted by agriculture, usually farms with sandy soils, were planted with red pine.

In the 1960s, the introduction of the *Woodland Improvement Act* resulted in what I call the "forest welfare state." By this I mean that the government

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did everything — planting, thinning, tending — and woodlot owners became very dependent. This approach lacked direction; it wasn't strategic.

Eventually we came to realize that government couldn't do it all and tax rebate programs became popular. The government tried to preserve woodlots by offering rebates to offset high property taxes. While such rebate programs filled a political need, they really didn't achieve much in terms of good forest management.

With the current government, the Managed Forest Tax Rebate Program gave way to the Managed Forest Tax Incentive Program. The intent is to promote environmental stewardship of private forest land. The incentive is the opportunity to have your property re-assessed and taxed at a rate similar to farms. And while a management plan is required, the downside is that government cutbacks have reduced or eliminated field services and technical support.

So, this is where we are today. The onus is on the landowner to manage their woodlot in a sustainable manner, and the reward is lower taxes.

You now have a basic understanding of the environment in which our Model Forest operates. The EOMF has been in existence since 1992. Now I'd like to take a closer look at the people we serve.

**Our Clients**

It's a basic rule of good customer service to know your client. Who are the landowners? Why do they own land? Are they managing woodlots? What do they plan to do with their land?

The most recent local insight comes from surveys conducted by two of EOMF's partners — the Ontario Woodlot Association and the LandOwner Resource Centre. Here's what they found.

**Landowner Profile**

Here's what our surveys told us about a typical eastern Ontario landowner:

Age — Although half of our respondents are 60 years of age or older, they are still very active in managing and maintaining their woodlots.

Education — Woodlot owners who responded to our survey are a well-educated group. Fifty-three percent have at least one university degree, and more than half of these people have post-graduate degrees.

Land ownership — Environmental concerns are the main reasons for owning and maintaining woodlots. The forest management objectives rated the highest were to: preserve the forest for future generations; preserve the forest for health and well-being; and, to preserve the forest to support plants and wildlife.

How do landowners prefer to get information? Seventy-six percent of respondents want information as print material, followed by workshops (34 percent), one-on-one contact (31 percent) and electronically (24 percent).

So we now have a composite profile of a typical woodlot owner in eastern Ontario. They are middle-aged, well-educated and environmentally aware. They're conservationists, not loggers. Based on our profile these people seem likely to embrace environmentally-sound forest management practices.

**Sustainable Forest Management**

We've been talking about sustainability for about a decade and depending on who you listen to or who you talk to you'll likely get a different definition or example each time.

And while it's difficult to define, we do know what it is not. It isn't clear-cutting a hardwood stand and it's not pasturing cattle in a woodlot.

From my personal point of view, sustainable forest management must relate directly to the needs of each individual woodlot owner. And this is why I'm such a strong proponent of demonstration sites. People can experience firsthand the successes achieved at these sites. They learn by example, and I believe it's the best way to educate them.

For members and partners of the EOMF, the concept of "a forest for seven generations" has come

to represent sustainable forest management. It emphasizes the need to take a long-term view of the forest by understanding the influence of the past. "A forest for seven generations" is based on the First Nations decision-making process. Each management decision must learn from the past and consider the future. This allows everyone with a stake in the forests to interact in shaping a sustainable future for those forests. The EOMF also incorporated the concept of sustainability into its new Code of Practice.

**Demonstration Forests**

How do we successfully promote sustainable forest management? This is something that we've all struggled with. A method with which the EOMF is having considerable success is the establishment of demonstration forests. We're simply showing people what works best through living examples.

I like the analogy of a "show home" which you often see at new housing subdivisions. People walk through, decide what they like and don't like, and you can really get them interested in the product. And the product in our case is sustainable forest management.

We now have a network of about three dozen demonstration sites that are visited by tens of thousands of people every year.

These demonstration sites typically fall under one of three categories. They are designed for landowner-to-landowner transfer of information, public education or scientific study. In a few cases a site will include all three categories.

Here are some examples of what we're demonstrating:

- cultivation of native fruit-producing shrubs for personal use and for wildlife
- cultivation of native plants with medicinal value
- sugar maple stand management
- sawlog production
- showcasing effective thinning of a red pine plantation
- old-growth forest management for recreation and education
- uneven-aged management to promote regeneration while maintaining old-growth characteristics
- replanting with a mix of conifers and hardwoods after clear-cutting
- using jack pine as a nurse crop for hardwoods to reclaim abandoned farmland
- tending young trees using mulch mats
- stand thinning and ice storm cleanup

As you can see, there is a lot of multiple-use involved here. We want to show landowners many different examples of what is sustainable in their woodlots.

If you have Internet access you can take a virtual tour of our "Cadillac" of demonstration sites. You'll see the "full package" when you visit the Fortune Farms Sugar Bush and Demonstration Forest in Lanark County. The Internet address is *www.eomf.on.ca..* Look under on-line tours.

The Fortune Farm features a large maple syrup operation, a network of interpretive trails and a number of forestry demonstrations with research applications.

Demonstration sites are just one tool to encourage landowners to act. But we're finding from experience that it's one of the better ways to convey information and educate people. Perhaps our success is linked to how people say they prefer to receive information. There's always plenty of written information available at our demonstration sites. They are excellent sites for workshops and displays. We can deal with people one-on-one. We have "on the ground" examples to show people. And we're also using the virtual world by reaching people electronically via the Internet.

**Next Steps for Demonstration Forests**

In the short term, we'll continue to work at expanding our network. In the future, we hope that the concept of demonstration sites will fade away because everyone will be practising sustainable forestry. It will be the norm, not the exception.

In simple terms, this is like working on a topographical puzzle of eastern Ontario where we

have to "connect the dots." We're working locally now by concentrating on individual properties and showing people by examples. It's a targetted, strategic approach to land management.

Our next tasks will be to encourage sustainable practices on a broader "landscape" scale — which could be regionally, provincially and perhaps internationally.

A good example of a regional project within EOMF can be found just west of Ottawa. There is a major wetland area along the Ottawa River at Shirley's Bay. But it's isolated from the NCC Greenbelt, a band of forested land which surrounds Ottawa. Both of these sites are public land and both have been closely managed. Yet there is no link between the two areas and urban housing pressures threaten to devour the remaining woodlots which could form the basis of such a forested corridor.

Some people are already talking about very big international projects. An example is the proposed *Algonquin to Adirondack* project or *A2A Initiative*. The EOMF could be the connecting link between these two similar geographic regions by providing a forested wildlife corridor similar to what was in existence prior to European settlement.

Only time will tell where our demonstration forests will take us. Thank you.

# *Local Level Indicator Monitoring Protocols in the Prince Albert Model Forest: Aquatic, Avian, and Terrestrial Examples*[1]

**Duane Hiebert**[2]

The Local Level Indicators Working Group (LLIWG) of the Prince Albert Model Forest (PAMF) is setting up a long-term monitoring program for the PAMF area. The program is based on the monitoring program being proposed for the province as a whole. Projects are currently underway which will test the sampling procedures being proposed for the provincial program. The results of these projects will contribute to the fine-tuning of the sampling procedures.

Long term monitoring is essential to the success of ecosystem management for the simple reason that we need to make sure we are on track with the implementation of our management decisions. By monitoring the responses of the ecosystem to natural and man-caused disturbances, we will be able to tell what the differences between them are and then make the effort to determine what has caused these differences. Over the long term, this will provide much needed information in order to predict changes which would occur from the implementation of new management strategies.

The summer field season is the most active time for testing indicator protocols. The LLIWG has three main projects which are taking place this season. The group has contracted individuals to test the newly patented microphone, which was designed in Prince Albert. The second project involves the testing of the rapid bio-assessment (aquatic) sampling procedures for macro-invertebrates (stream bottom dwelling insects) developed for Saskatchewan. The third project is designed to test the establishment procedures for the permanent ecological sample plots developed for use in the provincial forestry monitoring program.


The first project involves the testing of the sampling procedures developed for the establishment of permanent ecological sample plots (PESPs). The PESPs are intended to provide long term sampling of matched sites in order to track post fire and post harvesting stand development. Understanding these two stand development (secessional) pathways is the basis for the ecosystem management system which, is being implemented in Saskatchewan. Sites have detailed inventory taken of trees, shrubs, ground vegetation, and soils as well as slope location and past history. This is the first year for this program, the intent is to re-sample the plots in five years.

The second field project is to test the proposed modifications for sampling mud bottom, low gradient streams. The rapid bio-assessment sampling procedures developed for Saskatchewan are based on existing protocols which focus heavily on sampling macro-invertebrates in the riffle areas of streams. The streams in Saskatchewan are generally low-gradient streams with mud-bottoms i.e. they lack riffle areas. This poses some challenges requiring modifications to the proposed sampling procedures.

[1] This is an abstract of the paper presented at the partnership Meeting in Halifax, NS, September 8, 1999.

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The third project involves testing an innovative microphone designed by Prince Albert Electronics Technician, Brian Turnbull. Mr. Turnbull was looking for a microphone design which would capture more sound from all directions at the same time. His new microphone is able to receive sound from much greater distances than even the best directional microphones used in research today. The working group is interested in using this microphone for recording bird calls (to monitor bird populations) and perhaps for monitoring amphibian populations based on their calls. The technology will allow the sampling of a greater number of sites by non-experienced birders. The recorded calls could then be interpreted by experienced birders at a later date.

Over the past few months, the LLIWG has seen the completion of three projects:

1) A project with Golder Associates to develop a set of the criteria and indicators (C&I) of sustainable forest management for use by the Prince Albert Model Forest has been completed. A copy of the report is available from the PAMF office.

2) A project with Alberta Research Council and the Foothills Model Forest to identify and provide sampling procedures for aquatic health indicators has been completed. A copy of the report is available from the PAMF office.

3) A project with Jeji Varghese, a private contractor, to determine C&I to monitor our public participation efforts has just been completed. A copy of the report is available from the PAMF office. (The report offers a unique look at the PAMF - I would highly recommend it as worth reading by anyone involved or interested in the model forest.)

In addition to the field projects, the working group has two other projects in progress. They are:

1) A project with the Canadian Forest Service to develop a set of C&I associated with community sustainability specific to the communities in the Model Forest. This project will be completed by the end of December 1999.

2) The working group is also involved in administering a national level project to develop a set of C&I for sustainable forest management based on Naturalized / Traditional Knowledge. This project should be completed by the fall of 1999 and include a national workshop to review the results.

# Scenario Planning within the McGregor Approach to Sustainable Forest Management

**Bill Wade**[1]

This presentation documents the development of a Scenario Planning Project (SPP) for Tree Farm Licence 30 (TFL 30). Scenario Planning is a component of the McGregor Approach to Sustainable Forest Management. The Managing Partners in the McGregor Model Forest Association (Northwood Inc. (Canfor Corporation), Ministry of Forests, Ministry of Environment, Lands and Parks, and Fisheries & Oceans Canada) provided resources and expertise to complete this project. In association with managing agencies, this Scenario Planning Project developed, analyzed and reported on various management scenarios for resource objectives on TFL 30. Outputs of these scenarios were expressed through a number of local level indicator values.


TFL 30 is located 30 kilometres northeast of Prince George, BC, covering 180,000 hectares on the western edge of the Rocky Mountains. With the many other values (such as recreation, wildlife and biodiversity) that must be managed for in support of SFM, current forest management techniques are significantly challenged. The link between TFL 30 and the MMFA allows the managing partners access to extensive information about how the forest is shaped by both nature and man.

This project used scenario planning to develop, demonstrate and document an implementable, objective-driven, and results-oriented Management Plan for TFL 30. Specific ground rules and supporting rationale were developed that satisfied the intent of the Forest Practices Code for TFL 30 and considered objectives from an approved Land and Resource Management Plan (LRMP). This project described possible future scenarios for TFL 30 including management strategy descriptions and analysis of strategies by indicator. Twenty-five resource management objectives were identified across eleven resource management themes. The resource management themes were: timber management, recreation, crown revenue, access, protection, landscape biodiversity, stand-level biodiversity, caribou, bull trout, LRMP species (grizzly, moose, martin), and water.

This project provided Northwood Inc. with all the information and analysis required to begin preparing Management Plan #9. This project was a capacity-building exercise for the McGregor Approach to Sustainable Forest Management (Figure 1). The project results are now being reviewed by Northwood Inc. with respect to the utility of proceeding to a SFM Case Study involving monitoring of indicators within an adaptive management framework.

Spatially explicit modelling, forecasting and reporting was achieved for a variety of key performance indicators. Coarse filter analysis of resource management objectives and strategies was undertaken, not just sensitivities around status-quo resource management. The McGregor Approach to SFM has been shown, through this case study and others, to be applicable anywhere across the Canadian Model Forest Network. The McGregor Approach is stakeholder-driven and designed to provide implementable solutions to resource management challenges based on locally-

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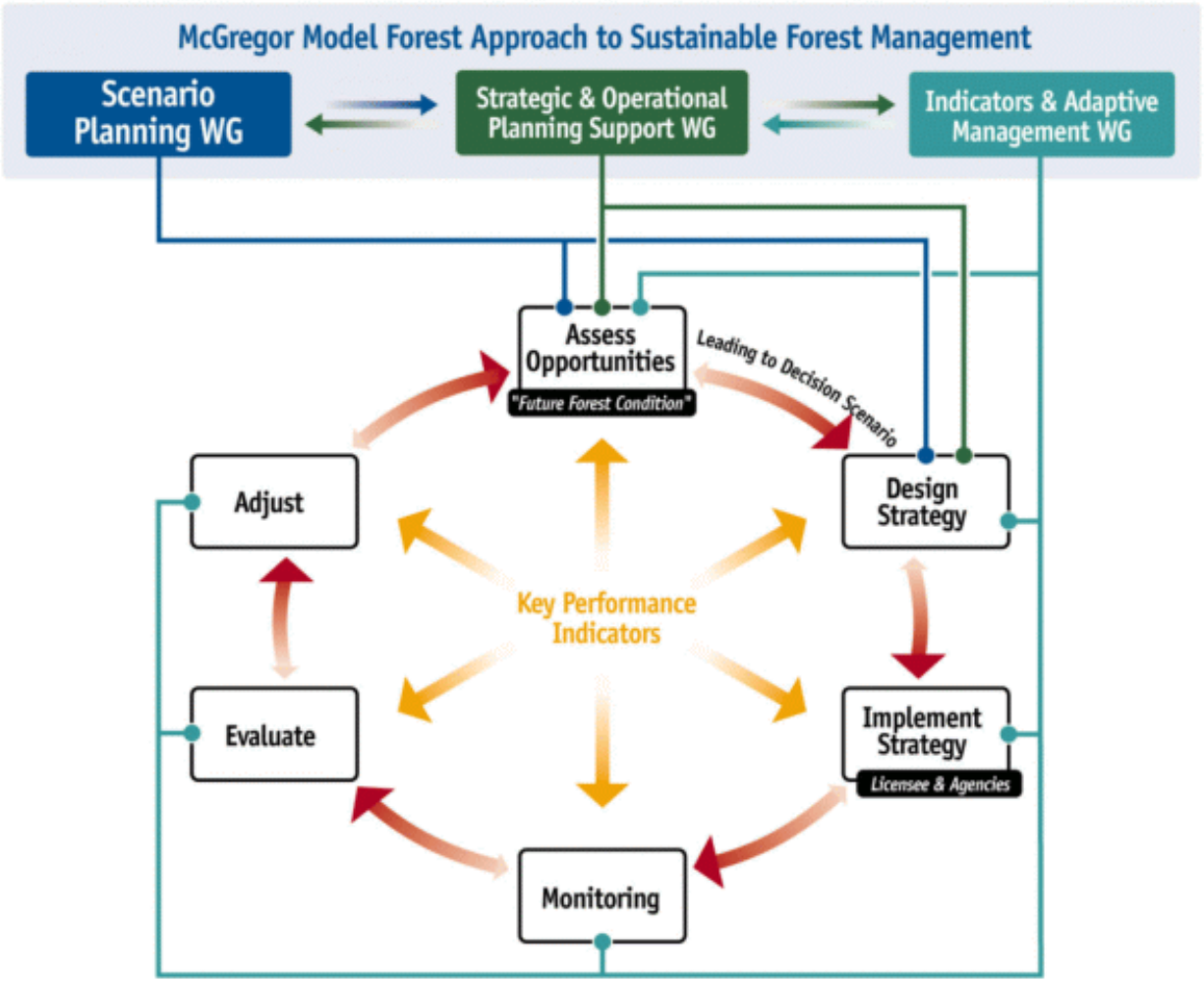


Figure 1. The McGregor Approach to Sustainable Forest Management

defined, objectives, strategies, criteria and indicators.

The managing partners jointly developed specific management objectives that are implementable and related indicators that can be monitored. Provincial reviewing agency staff were involved in each step of the project in order to make the most efficient use of growth potential on TFL 30 while considering in the plan a practical array of social, economic and ecological objectives. Another key component of the project was the need to identify business efficiencies between and within each organization in regard to development and application of scenario planning in support of the management planning process.

The results of this project included sixteen social, economic and ecological key performance indicators that were identified and forecast for each scenario. The initial list of eleven resource management themes was consolidated into five. These indicators were distributed across the five resource management themes. The themes were: economics, biodiversity, watershed, recreation and protection. Recommendations for evaluating and reporting on each key performance indicator were provided for operational consideration by Northwood

Inc. and the managing agencies.

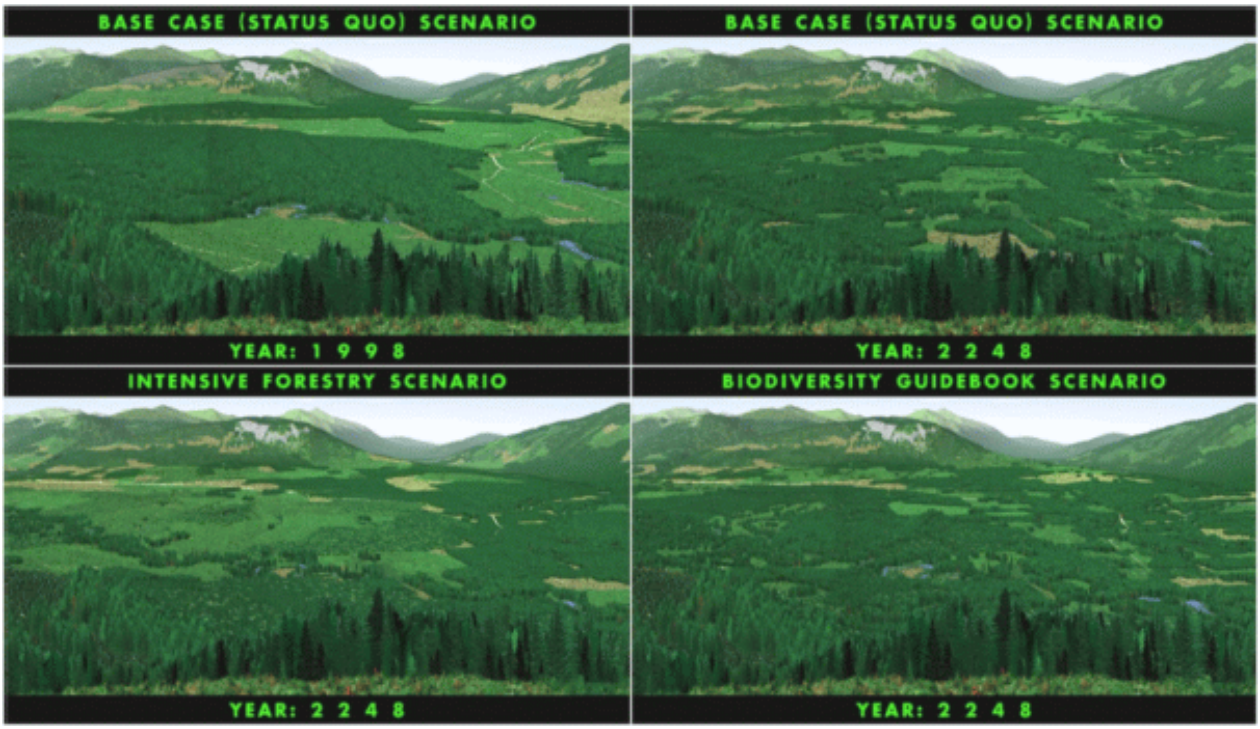


Figure 2. Visualizations of different scenarios showing possible landscape conditions in the future

## SESSION 2:

## Leading Change Through Example:
## Model Forest Success Stories

# A Sustainable Formula? Measure and Interpretation of Socio-economic Indicators[1]

**Sylvain Masse[2], For. Eng., M.Sc.**

## Introduction

In fall 1997, the Canadian Forest Service (CFS) and the Forêt modèle du Bas-Saint-Laurent (FMBSL) management agreed to evaluate, by March 2002, the socio-economic viability of the two management formulas tested since 1994. This evaluation study therefore deals with tenant forestry and an improved version of forestry grouping.


I am in charge of this study, assisted by Jamal Kazi. In addition to the model forest and its partners, I have help from Bill White and Tom Beckley, of the CFS's socio-economic research network, and Oleg Stanek, of the Université du Québec à Rimouski.

Forest management models are evaluated on the following four criteria:

- the viability of private operations;
- the cost of general supervision and technical support;
- local spinoffs;
- the potential for applying the models.

To date, we have conducted three main studies. The first deals with the rights and responsibilities of those involved in the management models, and enabled us to better understand the framework within which the various stakeholders interact. This information will be used to analyze and interpret certain results.

The second study looks at the cost of general supervision and technical support for four forest management models: the two models being tested by the Forêt modèle du Bas-Saint-Laurent, timber supply and forest management agreements (TSFMA) used for forests in the public domain, and the management of large private woodlots by forest companies. The study has two specific objectives:

1) To define the nature of the supervisory and technical support activities under the management models.
2) To compare the cost of these activities. Among the ratios developed for this purpose are the cost of general supervision per dollar of forest operations, the cost of technical support per dollar of non-commercial silvicultural activities, and the cost of technical support per cubic metre of timber harvested.

The study is exploratory in nature, and its preliminary findings should be available soon.

The third study consists of a survey of tenant farmers and their employees. The questionnaires used for the survey were designed to supplement the data already gathered by the model forest,

[1] Paper originally presented at "The Forest Tenant Farm: Assessment, Perspectives and Issues at Stake", Symposium, Rimouski, QC, April 29-30, 1999.

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specifically on the following five themes:

1) Who are these individuals and what is their relationship with their community?
2) What are their working conditions?
3) What are their revenues and expenditures?
4) What is their perception of the model forest and those involved in the program?
5) What are their expectations and medium- and long-term vision?

In February/March 1999, Jamal Kazi and I met with each of the model forest's 25 tenant farmers. These interviews lasted about 1 hour 45 minutes. We will be meeting with their employees in the coming months.

I would like to use my time today to present some of the highlights of our tenant farmer survey. Note that these are preliminary results in that over a third of the survey data has yet to be analyzed.

**Demographic and community-related data**
To begin with, the FMBSL's 25 tenant farmers are all males aged between 27 and 53, with the average age being 39.

Eleven of them were born in the municipality in which they currently reside. Of the 14 tenant farmers who were born elsewhere, 6 moved there because of the tenant forestry project.

Twenty of the tenant farmers are married or living common law. They have an average of two children, whose average age is nine. The other five tenant farmers are single and live alone.

Six of the tenant farmers have not completed high school, nine hold a high school diploma, eight a college degree and two a university degree.

Before becoming tenant farmers, two thirds of these men were already working in the area of forest management, as silviculture workers, entrepreneurs, maple product producers, or trainers. Two thirds of these future tenant farmers were employees; the others were self-employed.

In the 2 years before becoming tenant farmers, 22 of the 25 drew employment insurance benefits for an average of 23 weeks per year. None of the respondents received social assistance during that time.

Generally speaking, eight out of ten tenant farmers are very or quite satisfied with their municipality in terms of quality of life. When asked to cite the advantages of living there, 64% stated living in the country and 56%, the natural environment. More than half of them consider the lack of services to be the main disadvantage of living in their municipality.

**Working conditions**
In 1998, the tenant farmers worked an average of 36 weeks on the project. During this time, they worked an average of 10 hours a day, 5 days a week. Of the 25 tenant farmers, 21 said that they were very pleased or quite pleased with the amount of time they spent working on their forest farm.

Three quarters of them feel that being tenant farmers offers intangible, non-monetary advantages. Many of them use model forest lands for personal and family purposes, such as hunting, fishing, trapping and hiking. Some indicated that they enjoyed working in the forest, producing their own firewood or talking with fellow tenant farmers.

However, 11 tenant farmers felt that some of their forest operations entail excessive physical effort or poor working conditions, for themselves and their employees. Logging was the main such operation cited. Many would like to solve this problem by mechanizing part of their logging operations.

Eight out of ten tenant farmers are very satisfied or quite satisfied with their employees. However, the vast majority feel it is difficult to hire good workers. During the interviews, they remarked that there is a shortage of motivated, skilled workers and pointed out the fact that there seems to be no younger generation of forest workers in their region.

**Perception of the model forest and relations with its stakeholders**

We asked the tenant farmers to state their degree of satisfaction with various elements related to tenant forestry. The following is an overview of their responses:

- On the whole, they are **very satisfied** with the model forest's objectives and the technical support they receive.
- Most are **quite satisfied** with the model forest's board of directors, multiresource management plan (including the code of ethics and management restrictions) and their contractual responsibilities (including the annual management plan). They also stated that they were generally quite satisfied with their tenant farmer cooperative or corporation, work funding, stumpage fees and compensation fund.
- Half stated that they were **dissatisfied** with the restrictions imposed by the model forest on the use of mechanized harvesting.
- Most felt it was **advantageous** to belong to a group of tenants when it came to their relations with the model forest. The others saw the group aspect as neither advantageous nor disadvantageous.
- Of the 25 tenant farmers, 21 found the administrative and technical supervision provided by the model forest **reassuring**.

In the same vein, when asked if they and their fellow tenant farmers could operate without the supervision provided by the model forest, 18 answered "definitely yes" or "probably yes". The tenant farmers specified the following:

- Most felt that some form of supervision is necessary, especially to guarantee sound forest management practices or to play the role of intermediary and mediator with the landowner.
- Some stated that supervision was more necessary at the beginning of the project than now, particularly with regard to tenant farmer training and support for the establishment of their farms and cooperatives (or corporations).
- Among those who felt they could do without a supervisory structure, some said that this would require them to devote considerable time to activities currently covered by the model forest. These additional responsibilities would affect the profitability of their tenant farm.

**Income**

We asked the tenant farmers what percentage of their gross income they thought they would be able to earn, within the next 5 years, from multiresource activities (other than silviculture). Of the 25 tenant farmers, 18 replied 0-10%, 4 replied 11-20%, 1 replied 21-30%, and 2 felt they could derive more than 30% of their gross income from multiresource activities. When they became tenant farmers (5 years ago for most of them), 80% of the tenant farmers thought that a greater proportion of their income would be derived from multiresource management activities.

Two thirds of the tenant farmers felt that the agreement with Abitibi-Consolidated on the destination of the timber harvested on the seigneuries affected their farm's profitability. Of these 16 farmers, 14 deemed the effect negative in that it reduced their gross income from timber sales by an average of 7% compared with a free market situation. However, it is unclear if this percentage corresponds to their total income from timber sales or simply their income from softwood saw timber (the category covered by the agreement).

We asked the tenant farmers to estimate their net earnings before taxes for the past year. Their estimates, which they generally consider very reliable, vary from $10 000 to $60 000, with the average farmer earning around $30 000. Their degree of satisfaction with these earnings was as follows: 22% said they were very satisfied, 42%, quite satisfied, 22%, quite dissatisfied, and 14%, very dissatisfied. Note that there was not necessarily a direct correlation between the degree of satisfaction and the amount earned. It was a function of the

tenant farmers' expectations. We will take a look at these expectations a little further on.

When asked for their outlook as to their net earnings from forest tenant farming in 5 years, 28% answered that they would be substantially higher, 60%, somewhat higher, and 12%, steady. The tenant farmers cited four main reasons for the anticipated increase in their earnings: greater effectiveness and efficiency over time, reduction of their debt for initial investments, maple product projects, and the expected increase in their allowable cut based on a recent forest inventory.

Furthermore, in 1998, eight out of ten tenant farmers had other sources of income. In two thirds of these cases, these additional earnings were under $15 000.

In 80% of cases, their total income from all sources was higher than (68%) or similar to (12%) the income they earned before becoming tenant farmers. Close to 90% of the tenant farmers felt that their overall household earnings were sufficient to provide a suitable standard of living.

**Expectations and vision**

Most of the tenant farmers had specific expectations when they applied to the model forest:

- Sixty percent wanted to earn a decent living from the forest by working year-round. Fourteen of these 15 farmers felt that they had achieved this goal.
- Half of the respondents wanted to be self-employed. They also felt that their goal had been reached.
- Engaging in multiresource management or recreational tourism activities was the third most common initial expectation. None of the six tenant farmers who had anticipated recreational tourism had achieved this goal. While two felt that they could still do so while working as a tenant farmer, the other four had given up on the idea. Among the initial six who were aiming at multiresource management, three stated that they had achieved their goal, and two of the remaining three think that they could still achieve it.

When asked if they would be sorry to change their tenant farm for another, if forced to, more than three quarters answered in the affirmative. This result seems to indicate a feeling of belonging to the territory even if the tenant farmers do not own the land.

When asked whether they thought most of the model forest's tenant farms would be viable operations within 5 years, 24 of the 25 tenant farmers answered "yes," citing two main reasons:

- According to ten respondents, most of the tenant farms are already viable, and some foresee profitability increasing over the years for the same reasons as given for individual farms. However, five respondents answered that benefits are vulnerable to potential lower timber prices.
- Six other tenant farmers felt that the current allowable cut for most tenant farms is sufficient to ensure their viability. In the few cases where commercial volumes might be insufficient, viability would also depend on silviculture subsidies.

We also asked them if they wished to remain tenant farmers in the medium and long terms. They all answered in the affirmative as concerns the medium term, that is, the next 5 years. Twenty of them also hoped to remain tenant farmers for the next 15 years, two were undecided, and three do not plan to continue. Among the latter, one wanted to retire, another intended to hand his forest farm over to one of his children, and the third was planning to develop a forest-based enterprise outside the model forest.

According to the tenant farmers, there are four main conditions for their remaining tenant farmers in the medium and long terms:

1) health (five responses), given the job's physical requirements;
2) small-scale mechanization for harvesting (four responses); many see this as a means of improving their working conditions and offsetting the problem of finding good workers;
3) less supervision of activities by the model forest (four responses); these tenant farmers seek

more latitude, particularly in terms of the orientations of their operation;
4) renewal of the tenant farmer partnership agreement with the landowner (four responses).

When asked if, knowing what they know now and having the chance to do it again, would they reapply to become a tenant farmer, 18 answered "yes, definitely," six, "yes, probably" and one "definitely not." This latter tenant farmer found his first years very difficult, since he did not have much practical forestry experience. He said he now wants to remain a tenant farmer for at least another 5 years.

**Conclusion**

Various conclusions can be drawn from the analysis of these survey results. Before becoming tenant farmers, most of these individuals were employees and derived a significant part of their income from employment insurance benefits. Today, they work over a much longer period, do not draw employment insurance and are generally satisfied with the earnings from their tenant farm. The vast majority expect their earnings to increase in the next 5 years. Their tenant farmer status also offers them non-monetary advantages. Finally, their intention to remain tenant farmers in the medium term and, for most of them, in the long term, is, in itself, an overall indication of their satisfaction.

However, the survey also revealed certain areas that require further attention. One is the uneasiness many feel with regard to the balance that should exist between supervision and freedom to act. Another is the sensitivity of their earnings to market fluctuations in timber prices, which raises the question of income diversification. In the same vein, it is important to specify the reasons why a majority of tenant farmers derive income from sources other than tenant farming. Finally, we must study possible solutions to the difficult working conditions related to certain forestry operations.

# Forest Tenant Farming in Practice[1]

**André Hupé[2], For. Eng.**

## Principle

Forest tenant farms came into being 5 years ago, in 1994. 1999 marks their sixth year of operation.

The forest tenant farming model consists in *entrusting units of land to individuals, called forest tenant farmers, who agree to manage and operate the land in a sustainable manner. In return, the tenant farmers pay the landowner royalties on the timber harvested and sold.*

The model is essentially based on a system of land rental.

## Entrusting units of land to forest tenant farmers...

*Forest tenant farm territory*

The model is currently being tested on two seigneuries (large tracts of private forest) owned by Abitibi-Consolidated. The seigneuries are situated entirely on forested land, with no agriculture. Abitibi-Consolidated contracted the Forêt modèle du Bas-Saint-Laurent to manage all forest resources in the context of its trials.

The Lac-Métis seigneury encompasses an area of 33 933 ha in the balsam fir-white birch and balsam fir-yellow birch domains 75 km southeast of Rimouski. The main entrance to the seigneury is next to the municipalities of Saint-Charles-Garnier and La Rédemption.

The Nicolas Riou seigneury covers an area of 13 687 ha in the sugar maple-yellow birch and balsam fir-yellow birch domains 40 km southwest of Rimouski. The main entrance to the seigneury is right next to the municipality of Saint-Eugène-de-Ladrière.

There are currently 16 forest tenant farms in the Lac-Métis seigneury and 9 in the Nicolas Riou seigneury.

The average farm comprises 1000 ha of productive, accessible forest. Both seigneuries include common areas or backlogs which have not been leased to tenant farmers because they have been clearcut within the past two decades.

Before the arrival of tenant farmers, the model forest simulated the profitability of each forest farm.

*Profitability simulation*

At the outset, it was important to determine whether tenant farmers could earn a decent living from silvicultural work on the targeted land units. Simulation therefore focused solely on timber harvesting. The basic assumptions used were the

[1] Paper originally presented at "The Forest Tenant Farm: Assessment, Perspectives and Issues at Stake", Symposium, Rimouski, QC, April 29-30, 1999.

[2] Bas-Saint-Laurent Model Forest, Université du Québec à Rimouski, 300, allée des Ursulines, bureau J-463, Rimouski (Québec), G5L 3A1

following:

- Self-employed worker

  Based on average productivity, tenant farmers work approximately 125 days and are considered self-employed workers.

- Conservative allowable cut

  The allowable cut for each forest tenant farm corresponds to the annual productivity of the commercial forest, or the percentage of annual growth multiplied by the standing merchantable volume (growth of young stands and plantations is not considered in the calculation).

- Zero marketing problems

  Tenant farmers are able to sell their entire timber production locally and at the market price. In real life, tenant farmers experience a number of problems marketing softwood pulp.

- Private forest silvicultural work and rates

  Tenant farmers perform the same silvicultural work as under private woodlot development programs and for the same rate (assistance to individuals).

- No chemical herbicides

  At the time of the simulation, the Forêt modèle du Bas-Saint-Laurent had already adopted an environmental code of ethics banning the use of chemical herbicides in stand tending. Release is to be carried out manually starting 3 years after planting.

- Lump sum for hauling

  It was assumed that tenant farmers do not own hauling equipment and would therefore have to contract this work out at a flat rate. The basic equipment required is a chain saw and brush cutter (minimum investment for business start-up). For all intents and purposes, this assumption no longer applies, since 16 of the 25 tenant farmers own or co-own a hauling machine.

- Same stumpage fees as for the public forest

  The stumpage fees applicable to the public forest in 1993-1994 were used for simulation purposes.

The first 10 years were simulated to assess the long-term viability of the forest tenant farming management model.

The forest farms were delimited based on the analysis of simulation results and subsequent adjustments.

At the same time as the simulation, the model forest selected tenant farmers based on nine criteria:

- Entrepreneurship;
- Leadership;
- Attitude towards innovation;
- Education;
- Learning capacity;
- Team work;
- Social involvement;
- Forestry experience;
- Other relevant experience.

These criteria were weighted according to the profile sought.

The successful candidates were each assigned a forest farm and asked to sign a contract with the model forest.

**Tenant farmers agree to manage and operate their forest farms in a sustainable manner...**

To ensure forest farms are managed in a sustainable manner, the contracts commit tenant farmers to complying with the multiresource management plan developed for each of the model forest territories.

*Multiresource management plan*
The multiresource management plan is designed to help the technical staff make the best decisions regarding sustainable forest resource development.

The two seigneuries were divided into four land-use areas to ensure that forest operations respect the individual resource potential in each area and are compatible with the ecological components of the forest and the associated activities.

For example, no forestry activities may be carried out in the resource conservation area, and the maximum size of clearcuts in the forest management area with light recreation is 4 ha.

Tenant farmers apply the practices recommended in the multiresource management plan directly through their annual management plans.

*Responsibilities of tenant farmers*
In terms of general responsibilities, tenant farmers must conform, both individually and collectively, to the multiresource management plan applicable to their territory.

- Individual responsibilities

  Tenant farmers are responsible for managing the timber resource on their respective farms through appropriate silvicultural treatments and for selling the harvested timber.

  Each tenant farmer is required to prepare an annual management plan describing the planned activities related to each resource. The plan also includes the program of silvicultural work based on the allowable cut for the forest farm and the available funding.

  Tenant farmers must also prepare 5-year management plans describing the activities they intend to carry out for each of the 5 years covered by the plan. Both annual and 5-year plans must include fiscal projections. All plans are approved by the model forest and must be consistent with the multiresource management plan. The parties' signing of the annual management plan is the go-ahead for tenant farmers to commence their activities.

- Collective responsibilities

  The tenant farmers on each seigneury have formed either a cooperative or corporation for the primary purpose of managing hunting, fishing and vacation activities. Collectively, the tenant farmers are also responsible for managing common areas (land not included in a forest farm). Like individual tenant farms, the cooperative or corporation is required to prepare annual and 5-year management plans as well as fiscal projections that are consistent with the multiresource management plan. All must be approved by the model forest.

**In return, the tenant farmers pay the landowner royalties on the timber harvested and sold.**
Forest tenant farming is a system of land rental in which the rent corresponds to stumpage dues payable on each cubic metre of wood sold. The rate varies according to the species' commercial value. The sums collected are managed by the Forêt modèle du Bas-Saint-Laurent and used for the following purposes:

*Use of cutting rights*
- Payment of property tax and forest protection costs

  Because the seigneuries are located on vast tracts of privately owned forested land, both property tax and forest protection costs (SOPFIM and SOPFEU) must be paid.

- Compensation fund, fixed assets fund and investment in the territory

  Once these fees have been paid, the landowner could rightfully decide to keep the balance of the

sums collected. However, given the singularity of the forest tenant farming management model and the current state of the forest (young forest), Abitibi-Consolidated agreed to reinvest part of the stumpage fees in the following three items:

- Compensation fund

  The Forêt modèle du Bas-Saint-Laurent created a special compensation fund in order to compensate tenant farmers financially for improving someone else's land. Every year, the model forest deposits an interest-bearing sum on behalf of each tenant farmer who has respected his contract in full and is still operating. Every 5 years, the tenant farmer may withdraw part of these funds for his personal investment. When he withdraws from the project, he is entitled to any remaining funds.

- Fixed assets fund

  This fund is intended to reassure tenant farmers that any investments in the erection of infrastructures on model forest territory will be taken into account when their contract ends. For example, if a tenant farmer builds a cottage for rental purposes, when he withdraws from the project he will be compensated for the losses incurred for moving the cottage and for the installations (septic tank and disposal field) left behind. Compensation takes depreciation into account.

- Investment in the territory

  The balance of the stumpage fees is reinvested in the territory, primarily in the form of roads (main road) and silvicultural work.

- Return for landowner

  In rental systems, owners normally receive dividends on their immovables. Currently, the revenue generated by stumpage fees covers the cost of the above-mentioned uses. Since the project's inception, Abitibi-Consolidated has reinvested 100% of the stumpage fees in the model forest territory.

  In the event of a surplus, the company may receive a return.

# Bas-Saint-Laurent Model Forest: Results After Five Years of Experimentation[1]

**Pierre Belleau[2], For. Eng., M.Sc.**

## Introduction

In 1998, the Forêt modèle du Bas-Saint-Laurent forest tenant farmers completed their fifth year of operation. This is a good point at which to assess the management model and identify the main factors influencing forest farm performance.

The results of the tenant forestry trials are monitored on a yearly basis. This paper describes the monitoring process and its objectives, the analysis approach used and the main results to date in terms of the forest farms' activities and financial position.

## Monitoring objectives

Annual monitoring of the tenant forestry management model is aimed at:

- assessing its viability;
- improving individual performance;
- perfecting the model.

## Method

*Monitoring mechanisms*

Annual monitoring is carried out in-house. Various information sources are used to examine all aspects of forest tenant farming.

First, the model forest adopted a financial auditing method tailored to its own needs. For reasons of cost, this method does not involve the standard preparation of complete financial statements for each forest farm. Instead, the tenant farmers agreed to disclose this information for the purposes of the trial.

The model forest also relies on data derived from the tests written during the tenant farmer selection process, monitoring activities, inventories and ecoforestry maps. In addition, each tenant farmer was evaluated by the model forest's technical staff according to various criteria: productivity, effort, motivation, diligence, obligations, personal problems, individualism and forest-related knowledge.

## Analysis

The standard approach for establishing a company's financial profile relies on the concept of earnings, the calculation of which takes into account inventory value. However, this approach does not provide a fair representation of an individual's year-end financial position, particularly when depreciation is accounted for. For the purposes of our analysis, then, the book value expressed by "excess of revenue over expenditure" will be referred to as "performance" (dependent variable).

In so-called “irregular” cases, that is, farms that did not comply with every provision of the original agreement or that did not operate for the entire period covered by the current balance sheet, were not included in the analysis.

These criteria resulted in a consistent core of 20 forest farms. The financial performances we will be discussing are based on four fiscal years--the most recent audit not yet being completed--but 5 years of operation.

The forest tenant farm trials are not necessarily

[1] Paper originally presented at “The Forest Tenant Farm: Assessment, Perspectives and Issues at Stake”, Symposium, Rimouski, QC, April 29-30, 1999.

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subject to consistent or controlled conditions. For example, certain parameters, such as the boundaries of forest farms and allowable cuts, have been revised periodically, complicating analysis somewhat.

The factors which likely contributed to the differences in farm performance have been grouped into three categories:

1) Economic: market conditions;
   management skills.

2) Human: attitude;
   knowledge.

3) Biophysical: resource availability;
   quality of the resource;
   access to the resource.

**Results**

*Balance sheet*
Between 1994 and 1998, forest operations covered an area of over 2600 ha, with stand tending accounting for the majority, or 24.2%, of activities. Regeneration was the fifth largest activity, which bears eloquent witness to the state of the forest and explains the importance of site preparation, reforestation and maintenance, which together represent 40% of all forest operations. The average size of clearcuts is 1.25 ha.

The fir-spruce group (saw timber) accounts for 55% of the annual marketed volume, followed by hardwood sold for pulp, at 26%. Hardwood sold for saw timber makes up only 6% of the marketed volume, due to the rarity of the species concerned.

*Financial position*
Timber sales are tenant farmers' main source of income (75%), followed by management subsidies (14%), which are crucial to the viability of the forest tenant farming model. The item "other subsidies" (7%) represents financial assistance for business start-ups received under programs such as Self-Employment Assistance (SEA). However, this proportion is not entirely representative, since this assistance actually covers a single year. In reality, this item accounted for 28% and 14% of revenues in 1994 and 1995, respectively, and as of 1996, no tenant farmers received this type of assistance. Finally, the share of non-timber resources is currently just 2%. Tenant farmers derive no direct income from the model forest's operating budget.

*Average revenues (1994-1997): $80 827*
Activities directly related to forest exploitation and management represent nearly 60% of expenditures, not including employee salaries, which account for another 24%. The remaining 16% corresponds to administrative and financial expenses.

*Average expenditures (1994-1997): $54 573*
Hiring by the forest tenant farms results in substantial local employment. In 4 years, these farms provided 1900 weeks of work to approximately 200 people (not including the time worked by the managing tenant farmer).

The financial performance for the period 1994-1997 is as follows:

| | |
|---|---|
| *Average performance:* | *$26 254* |
| *Average earnings (before depreciation):* | *$27 209* |
| *Average net earnings:* | *$24 656* |

Inventory is accounted for in earnings.

The performance values for the 20 forest farms covered by our analysis for the first 4 years can be broken down as follows:

| Category | Proportion |
|---|---|
| $0 to $10 000 | 6% |
| $10 001 to $20 000 | 30% |
| $20 001 to $30 000 | 33% |
| $30 001 to $40 000 | 17% |
| $40 001 to $50 000 | 8% |
| $50 001 to $60 000 | 6% |

Two thirds of forest farms posted a performance of between $10 001 and $30 000.

*Yearly performance fluctuations*

The performance of forest farms, individually or as a group, varies from one year to the next. Farm operations are affected by market supply and demand as well as by climatic conditions.

With the exception of 1996, the performance of forest tenant farms has been relatively steady. Serious marketing problems were experienced that year, as confirmed by the volumes in inventory, including nearly 50% pulpwood, 28% fir-spruce (FS) (saw timber) and 12.5% other softwoods. Given the current state of the forest, we can state with some assurance that pulp-market difficulties adversely affected forest management on the tenant farms.

The price obtained for fir-spruce (saw timber)--a vital sector of production--had very little effect on forest farm performance, which was up slightly from 1995.

*Inter-farm performance disparities*

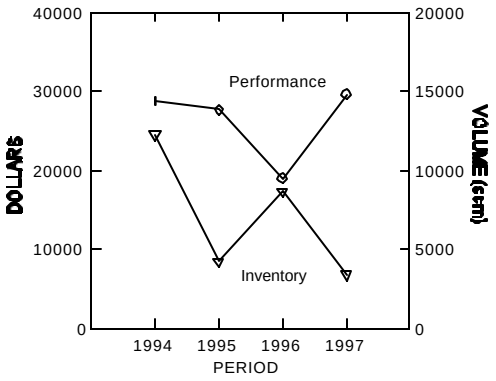
Disparities in performance from one farm to the next are generally caused by human or biophysical factors.

A general relationship between some of these factors and performances can be observed, although to varying degrees:

| | |
|---|---|
| Individual productivity | r = 0.80 |
| Degree of program achievement | r = 0.72 |
| Experience (forestry) | r = 0.72 |
| Allowable cut | r = 0.64 |
| Allowable FS cut | r = 0.58 |

The correlation coefficient (r) expresses the similarity in attitudes between two variables. A closer look shows a certain degree of consistency in the relative performance of farms, in good years and bad. Of the 20 farms analyzed, 7 (cluster 1) ranked above the annual average at least 3 years out of 4, while 8 (cluster 2) ranked below the annual average. A comparative analysis of these two statistically separate clusters will help illustrate the above conclusions while providing supplementary information. Clusters 1 and 2 posted average performances of $33 410 and $17 891 between 1994 and 1997.

Despite similar surface areas, forest tenant farms in cluster 1 have a 28% higher allowable cut than farms in cluster 2. The most significant difference is in the allowable cut for FS species (44%), which, if you recall, account for half the annual marketed volume. The dollar value of this difference alone




could explain the disparity in farm performance, provided, that is, that tenant farmers devote the same energy to their operations.

The higher results obtained by tenant farmers in cluster 1 for certain attitudinal criteria are more than revealing. Productivity, effort, motivation and diligence were respectively 69%, 34%, 28% and 23% higher for these farmers than for farmers in cluster 1. The different attitudes may very well be related to the fact that the tenant farmers in cluster 1 had almost twice as much forestry experience coming into the project. As a result, they are also more active in the field, which is why they succeeded in achieving 46% more of the annual management program than the tenant farmers in cluster 2.

Clearly, the disparity in farm performances cannot be blamed solely on the availability and quality of the timber resource, since cluster 1 tenant farmers harvested nearly 100% of their allowable cut, compared with only 66% (79% for FS) for cluster 2 farmers. Access to the resource was comparable for both clusters.

Revenue from subsidies accounted for 13% of sales posted by cluster 2 forest farms, compared with 7% for cluster 1; revenue from other sources represented 4.2%, compared with only 0.4%, respectively.

**Conclusion**

Verification of the potential for forest tenant farms showed that these farms do not all have similar performances but that inter-farm differences are not a major factor in the disparities posted. The widely varying performances are overridingly a result of the different attitudes and expectations of individual tenant farmers.

After 5 years of testing, the best indicator we have that tenant forestry is a viable management model is clearly the number of forest farms still operating.

*Comparative table, farm clusters **

| Description | # 1 | # 2 |
|---|---|---|
| Performance | $33 410 | $17 891 |
| Rev. other resources / sales | 0.4% | 4.2% |
| Rev. subsidies / sales | 7.0% | 13.0% |
| Expenditure / sales | 65% | 68% |
| Allowable cut | 1 751 $sm^3$ | 1 367 $sm^3$ |
| Distribution of cut | 1.54 $sm^3$/ha | 1.21 $sm^3$/ha |
| Allowable cut (FS) | 935 $sm^3$/ha | 648 $sm^3$/ha |
| Distribution of cut (FS) | 0.81 $sm^3$/ha | 0.57 $sm^3$/ha |
| Experience (forestry) | 9.0 years | 4.6 years |
| Productivity | 4.1 | 2.4 |
| Degree of achievement of annual program | 85% | 58% |

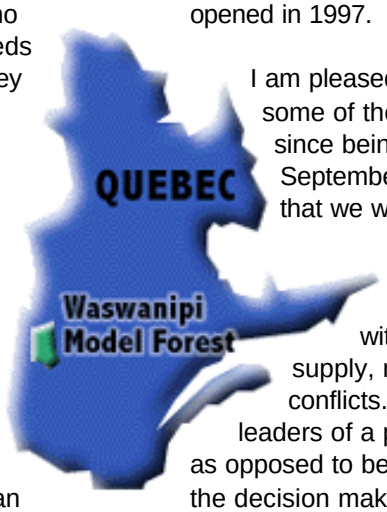
* Mean values

# The Waswanipi Cree Model Forest: Demonstrating Aboriginal Leadership in Sustainable Forest Management

**Alfred Jolly**[1]

*Wachya,*

Before I make the presentation on behalf of the Waswanipi Cree Model Forest, I would like to introduce you to the members of our delegation. Philip Grant is a forestry technicians who work with me at Mishtuk. Our newly weds Diane Cooper and Jonathan Kitchen (they got married two weeks ago!) have been very involved with the model forest in various capacities. Diane was a researcher on our partners needs assessment and perception study, while Jonathan developed the Waswanipi Cree Model Forest web site. Abraham Dixon is an active member of the community participation coordinating committee, when he is not on the land trapping and fishing. Derek Neeposh works for the band run Trapline/Forestry project, an initiative I will talk about later. And finally, Steve Morel is the forestry coordinator for the Waswanipi Cree Model Forest.




Please feel free to discuss our projects with any members of the delegation, because they all have their own perspective and views on the project, which represent the strength of our Model Forest and partnership.

My name is Alfred Jolly, and as the introduction stated, I am the General Manager of Mishtuk, the community owned forestry company. I have been with the company since 1981, and have seen many changes as we deal with the challenges of creating a sustainable economic development for the Cree Nation of Waswanipi. The community has been undertaking forestry activities on its land base of 64,000 hectares, and we were awarded a provincial timber management license for an additional 136,000 hectares in order to supply our sawmill opened in 1997.

I am pleased to be here in Halifax, to share some of the experiences Waswanipi has had since being named the 11th model forest in September of 1997. It was with great pride that we were awarded the first Aboriginal led model forest in Canada. It is one thing to talk about forestry, and it is another to carry it out, and deal with the day to day realities of wood supply, road construction, and land use conflicts. It is also very different being the leaders of a project such as the Model Forest, as opposed to being one of many stakeholders at the decision making table.

First Nations in Canada have a long legacy of government programs which have told us what to do. This is how you should build your houses, this is what you should teach in your schools, this is how you should manage your lands.

The Model Forest is one of the first opportunities the people of Waswanipi have had to provide leadership and decision-making authority related to land management issues. Yes, we work in collaboration with our partnership, which include representatives from major industrial forestry companies such as Domtar and Donohue, as well as the provincial and federal governments. But the Cree lead the Waswanipi Cree Model Forest, and it is up to us to

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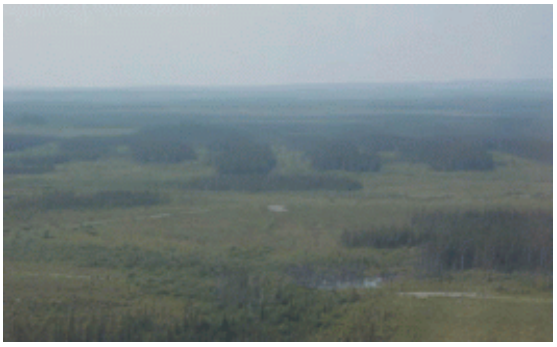
set the priorities and provide the tone for this project.

The Waswanipi Cree Model Forest presents the Cree Nation of Waswanipi with some unique opportunities. At last we can tackle the issue of our land in a holistic manner, looking at all aspects of how the land sustains us: Spiritually, economically as well as culturally. We can put forward our own ideas, as opposed to reacting to situations, something we would not have been able to do without the Model Forest.

But let me give you a better understanding of where we come from, and some of the issues we have had to deal to get to the point we are at today.

Waswanipi is the southernmost community of the Eastern James Bay Cree. We have lived on this land since time immemorial, and we continue to use the land to hunt, fish and trap.



Waswanipi itself has been on the frontlines of natural resource development for the last 40 years. We have seen many sawmills come and go (often offering low paying jobs to our people). We have seen numerous mining explorations camps established, only to disappear after a few years. Resource development has always been done by outsiders, and when they make their cash they return back south. It is we the Cree who have had to live with the permanent legacy of their activities.

Waswanipi land base extends over 35,000 km2. The land is divided into 52 family hunting territories, called traplines. The trapline management system has been in place for as long as we can remember, but became formalized with the Hudson's Bay company, and later by Indian Northern Affairs. Each trapline has a designated custodian, the ouchimow, or tallyman, who is responsible to ensure wildlife is harvested sustainably.

Life is organized around the trapline, as extended families relocate for various lengths of time to different sectors of the trapline. Whenever wage employment was available (at a fish plant, brush cutting, or line cutting) the families would relocate to earn some cash. The purpose of employment was to return to the bush, with sufficient materials and supplies to last the hunting and trapping season.

By the time the hydro-electric megaprojects were announced for all of the James Bay Cree rivers in the early 1970's, the Waswanipi Cree had already been dealing with forestry and mining development for over twenty years. But it took the large scale and immediate impact of hydro project to be able to settle our land claims. Although the James Bay and Northern Quebec agreement was signed under duress. There was no ability to stop the hydro projects as the courts ruled in favour of balance of convenience – that the hydro projects would benefit more people than it would disrupt the 10,000 Cree living on the land. But this Agreement did bring a new era to the James Bay Cree.

Signed in 1974, the JBNQA provides for a clear role for the Cree to manage their schools, health, and the land. Different land categories were created, some under the exclusive management of the Cree (Category l), while others created co-management mechanisms with restricted use. Many committees were established as a forum to co-manage the issues. On land issues alone, there are six committees, with equal representation from Quebec, Canada and the Cree. But it is a constant struggle to have the governments' respect the terms of the agreement. Most of the co-management committees are chronically under funded, and whenever they do make recommendations, they are often overturned at the political level.

The word partnership did not exist in 1974, but that is what the Crees expected when they signed the agreement. That they would have a meaningful role

in decisions that impacted their future.

Waswanipi today is a growing community of about 1000 people. We have modern houses, a clinic with doctors, an arena for sports and a school which goes to Secondary five. The language of instruction at the school is in Cree until grade four, and then there is a choice of whether you pursue your education in French or in English. Half of the population is under the age of 25. Employment opportunities are limited to administration or labourer.

In the early eighties, there was a growing concern about the rate and extent of forestry activities occurring on our land base. Why should others benefit from our natural heritage, while we the Cree were made to suffer the impacts. Very few opportunities existed for the Cree to become involved in forestry development. Collective agreements limited the amount of Cree who could work in the bush, language barriers were another issue, and as mechanization of the industry progressed, few Cree possessed the financial resources to purchase equipment.

In order to address some of these issues, the Cree Nation of Waswanipi created two corporations to benefit from forestry economic development activities. The first, Mishtuk, began harvesting on community controlled lands. The second, Apit-See-Win was a cooperative, which could contract for silvicultural work in the region. The goal of both these companies is to ensure that the Cree strike a balance between forestry development, and ensure long-term benefits accrue to the community. Unlike other forestry companies in the area, the land is our home, and we need to protect it for future generations. In 1997, we built a small sawmill, Nabakatuk with Domtar, and were awarded a timber management license on lands adjacent to our community controlled lands.

However, it has not always been easy. Like every other forestry company, we are required to provide a set volume of timber to the sawmill. This volume requires us to cut at a rate determined by the province of Quebec – the same volume in the south as for the northern boreal forest. We are now wrestling on how to strike a better balance, and how we can ensure that we have a healthy forest for future generations.

The land and the choices we make on its use affect my children, grandchildren and eventually my great-grandchildren. It's fine to have wage employment, but the Cree are taught about our values and culture when we are on the land. It's hard to go on the land when logging activities has extensively impacted it. We know the trees will grow back, but at our latitude, trees grow very slowly, and by the time the land is productive enough for wildlife, it will be too late for me to teach my grandson. What will he be able to teach his children?

You need to understand this to place the Waswanipi Cree Model Forest into proper context. The Cree have had too many experiences with government programs and naïve researchers who offer definitive answers. We are looking for innovative approaches on managing our resources for future generations, which can be applied and managed by our people. Yes this will take time, but if we Cree are to be the leaders in our Model forest, we must educate and sensitize our partners, so that they respect our knowledge and our values about the land.

White man (whampstougoushui) science and Cree science are both about organizing experiences into meaningful patterns. Both these sciences require the same type of thought, but differ in events which are observed, and how these observations are then used. White mans science has focussed on how humans can control our environment, while Cree science focuses on humans role within the

environment. The natural environment is real – and the Cree have a closer relationship with this place in our lives: the land, the lakes, rivers, and wildlife. We Cree see natural processes (land, water, animals) as an essential and key component of our society.

Our partnership is currently dealing with the role Cree science will have in the Waswanipi Cree Model Forest.

Will Cree science have a place in research proposals submitted by partners? Can Cree science be the driving force of our Model Forest? Can western science be used to support and explain Cree concepts and understanding of the land, and the need to develop innovative aboriginal resource management systems? If Cree knowledge is to guide the activities of the Waswanipi Cree Model Forest, how do we apply this information in our forestry company's day to day decision-making and long term planning? Is it possible to do this with the economic constraints of our small company, and the legal requirements of the Forestry Act?

These are some of the questions we are tackling, and we have decided that it is best to do this by carrying out projects, and then evaluating the merits and drawbacks of the various approaches.

Like all new partnerships, we are learning about one another through projects and activities. However, we have some unique challenges to contend with. The Cree language remains the dominant language used in the community, but our partners first language is usually French. Added to this are the complex terms associated with forestry, which are impossible to translate.

Our partnership, researchers, and community members are learning to understand one another. We are building our relationship with all the partners of the Waswanipi Cree Model Forest brick by brick, and the vocabulary is the basement. We need to understand one another, and coming from two very distinct cultures, and in three languages this can be very hard.

When the Cree language gets translated, sometimes the meaning gets lost. This occurs because often there is no easy way to literally translate the meaning into a language that does not share the same conventions and rules as the Cree language. Due to the increase use of French and English in the Cree administration, translators often take short cuts to simplify the exchange of information so that the non-Cree speaker can understand what is being said. This unfortunately diminishes the non-Cree speakers understanding of the Cree perception and knowledge. As an example, when the Cree speak about their environment, they will often mention the patterns of wildlife abundance, and in translation the non-Cree speaker will understand that the Cree are only concerned about the quantity and quality of wildlife harvested.

We continue to work hard on making sure the concepts and terms we use are understood by the non-Cree, but this often requires a great deal of human and financial resources, unfortunately not available to the Waswanipi Cree Model Forest.

Where there are opportunities there are also challenges. This is certainly the case for the Waswanipi Cree Model Forest.

Despite the fact that there has been commercial forestry activity in the area for over 40 years, there is a real shortage of basic ecological information available. The Model Forest intends to increase the

information base with which we develop our forest management choices.

The Waswinipi Cree Model Forest is already helping Mishtuk prepare its 25 year forest management which it must submit for government approval by October of this year. Over time, we will begin to add to the forest management planning process, such as the results from an ecological mapping project undertaken in partnership with the Quebec Ministry of Environment. Eventually, Cree forest management plans will go beyond simple timber volume and annual allowable cut estimates, and include many different uses and needs of the forest. However, I need to stress again that Misthuk is a small company with only 200,000 hectares of forest, a 1/3 of which was burned in 1986. The sawmill must process 80,000 m3 a year. There is little economic or geographic room to experiment or try new sylvicultural approaches.

Because of this, we depend a great deal on our partners who hold large timber management licenses on the Waswanipi land base. Thanks to their willingness, we will able to try many things in a shorter period of time.

The WCMF is providing support and helping to improve an already established Waswanipi band council program to mitigate negative effects of forestry operations occurring on our traplines. The trapline/forestry project was created to help mediate conflicts between trappers and the nine forestry companies with timber management licenses on Waswanipi lands. Established in 1997, the project collects land use and occupancy information in order to protect sensitive areas needed to maintain the hunting, fishing and trapping way of life which is guaranteed the Cree by the JBNQA. The trapline/forestry project has been restricted to crisis management (dealing with annual cutting plans only) due to limited financial and human resources. The community has clearly indicated that the Waswanipi Cree Model Forest should work closely with this program in order to avoid duplicating efforts, and to ensure that research initiatives target issues which are critical to the maintaining the Cree way of life.

One of the major initiatives identified by this project for the Waswanipi Cree Model Forest is the trapline pilot project. This community led project will compile and create new sources of information which can be used in the forest management planning process. Firstly, historical land use and resource information will be compiled. This will include integrating Cree place names previously collected. Data will need to be collected on the past cutting history, as well as observations related to wildlife species. Special note will be given to observations related to the forest regeneration from both natural (fire) and man-made (forestry activities) disturbances. Information will be collected and organized related to wildlife, such as historical harvest data, moose management information, in addition to beaver management history. We are fortunate in Waswanipi that we have access to many historical sources of information related to wildlife dating back to the early 1800's.

Next, a current state of the trapline will be produced. This information will include both land use and occupancy information, in addition to any pertinent ecological, forest inventory data which can be acquired. Community members have numerous concerns related to water resources, and this will be explored as well.

Finally, with both historical and current trapline information, management objectives will be identified by the tallyman and his extended family. General zoning criteria will be established, to ensure that all uses of the trapline are included, such as community use, the family and extended families, non-native (both recreational and forestry activities), in addition to non-timber uses of the forest such as ecotourism. To ensure that management objectives identified by the tallyman are respected, this project will develop indicators and monitoring mechanisms to ensure that the trapline management goals are being met.

The trapline pilot project will begin with three families to prepare a trapline management plan. Identifying historical and current land use information, the families will be asked to determine what is needed in order to maintain basic subsistence harvesting activities. Our industrial

forestry partners, Domtar and Donohue, have agreed to assist in this project, as most of the 52 traplines are being logged by more than one company. However, the challenge remains that while this project is proceeding, large scale harvesting activity is continuing.

As I think you are beginning to see, the trapline is the Cree management unit for the land. However, this is not taken into consideration when the province allocates timber management licenses, or other administrative boundaries related to resource management. The Waswanipi Cree Model Forest is faced with the daunting challenge of trying to collect information from many various sources so that we have a complete picture of each trapline. This necessitates a great deal of willingness and efforts with our partners, as information sharing between forestry companies has never been done before in the province of Quebec.

Another challenged faced is that the rate and extent of cutting continues on all the Waswanipi traplines. By the end of the first five years of the Waswanipi Cree Model Forest in 2002, one trapline will have 85% of its timber harvested. There is little incentive for the families to work with the Model Forest if it cannot influence the current course of events. The Model Forest and our forestry company are under constant pressure to change the way things are being done immediately. Unfortunately, there is not much we can do about this.

Finally, it is important not to forget that we face a big challenge in catching up with the rest of the Model Forest. You have a 5 year head start, and although we are working on local level indicators, a communications strategy and all the other network level obligations, we have a lot on our plate. We are a small community, with very talented people who will make this model forest a truly aboriginal led project…a first in Canada.

Thank you for the opportunity to share some of our issues, and we look forward to hosting an upcoming meeting of the national model forest network in Waswanipi in the near future.

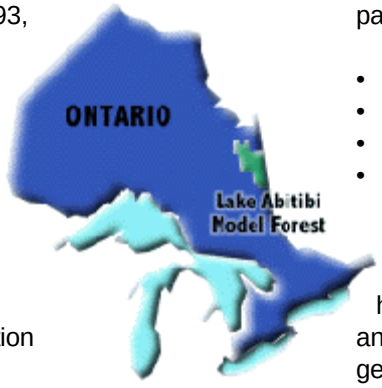
*Meegwecth*

# Harvesting with Regeneration Protection (HARP): An Alternative Silvicultural System for Black Spruce Forests – Developed Through the Lake Abitibi Model Forest

**Richard Moore**[1]

## Introduction

The Lake Abitibi Model Forest (LAMF) is located in Northern Ontario, in the boreal forest region of Canada. The LAMF is 1.1 million hectares (2.7 million acres) in size and has the distinction of having 51% of its productive forest landbase comprised of peatland black spruce sites. (Forested peatlands are wetland forests containing greater than 40 centimetres of organic material over mineral soil.) Historically, forest harvesting and regeneration on these peatland sites has been an issue, and in 1993, the LAMF identified the development of a harvest method that maintained existing advance growth on peatland black spruce sites, as a priority.




## HARP as a Case Study

Harvesting with regeneration protection, or HARP, is a unique harvesting method that protects the advance growth present on site. HARP is a harvesting methodology that was developed over the past seven years, and is a culmination of eight separate projects. The LAMF suite of HARP studies are:

- Uneven-aged Silviculture for Peatland Black Spruce
- The Effect of Harvesting Systems on Advance Growth
- The Effects of Harvesting Systems on the Nutritional Status of Peatland Black Spruce
- The Impact of Logging Practices on Small Mammals
- The Long-term Effects of Timber Harvest on the Sustainability of Peatland Forestry
- Stand Growth Model for Uneven-aged Black Spruce Stands
- The HARP Operators Instruction Video
- The HARP Planning and Operating Manual

The method was developed and refined through partnerships between:

- Lake Abitibi Model Forest;
- Abitibi-Consolidated Inc.;
- Canadian Forest Service; and
- Laurentian University.

## HARP: What is it?

HARP is a combination of two traditional types of harvesting systems: alternate strip-clearcutting and selection cutting. Alternate strip-clearcutting is generally used in even-aged forest stands to encourage regeneration and/or to protect fragile sites. Trees are removed by alternating cut and leave strips. Selection cutting is used in uneven-aged forest stands and when adequate levels of advance growth are present before harvest. Trees are removed individually, or in-groups, to improve the forest composition, or to encourage the already established advance growth.

HARP produces an uneven-aged forest. The method emulates and takes advantage of natural processes in older lowland black spruce stands (i.e.: the release of “stored advance growth” through wind-

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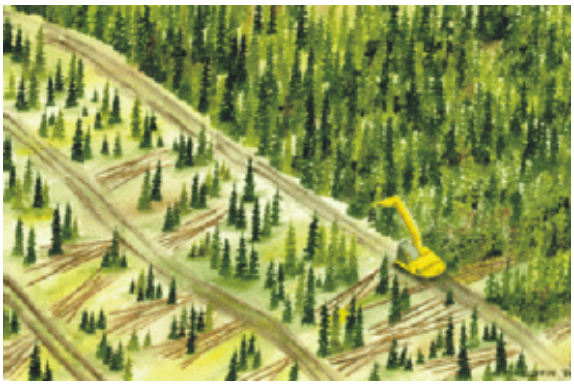
throw and single-tree replacement). The method also emulates the past practice of horse logging, a harvesting method that resulted in low site impact and good natural regeneration success.

**HARP: The Process**

The HARP process specifically maintains advance growth present on lowland black spruce (*Picea mariana*) sites. Restricting harvesting equipment to specific trails/travel corridors protects the existing advance growth, or immature trees. During harvesting, only trees above a pre-determined diameter are removed. Remaining younger trees, or advance growth, respond favorably to release and the resulting stand is uneven-aged and uneven-sized. The feller-buncher (the harvesting machine used on the LAMF) travels only in selected corridors cutting all the trees in its path, creating a corridor equal to the width of the machine. This cut-clear corridor is generally 5 meters (5.5 yards) wide. The feller-buncher boom is extended to each side of the machine, selectively cutting the larger sized trees. All advance regeneration present in these selectively cut corridors is left, resulting in a "leave" corridor of 6 to 9 metres (6.6 to 9.8 yards) in width.



HARP technique

There are two levels of intensity of HARP:

1) heavy intensity – removes trees 12 centimetres (4.7 inches) in diameter at breast height, and greater; and
2) medium intensity – removes trees 15 centimetres (5.9 inches) in diameter at breast height, and greater.

The heavy intensity harvest is presently the standard that is used on the Lake Abitibi Model Forest, while the medium intensity is applied in areas of concern which require additional residual cover.

**HARP: Regeneration**

The factors that affect regeneration levels on HARP treated sites, and that must be taken into account when planning are:

- abundance of advance growth prior to harvest
- distribution of advance growth prior to harvest
- harvest method
- harvest pattern
- harvest intensity
- logging equipment
- site conditions
- season of harvest

Abitibi-Consolidated Inc.'s historical regeneration levels on the LAMF following harvest, have been 70% artificial and 30% natural. Presently, with the widespread use of HARP, the numbers are reversed – 70% natural and 30% artificial.

**HARP: Regeneration Results**

The feller-buncher travel corridors, that have been cut-clear, regenerate from black spruce seed and smaller black spruce layering. The leave strips between the travel corridors contain various sizes of advance growth, as well as residual spruce with diameters up to 15 centimeters (5.9 inches). Successful maintenance of advance growth is greater in winter operations than summer, because snow cover protects the seedlings. The advance growth varies from 10 – 40 years in age, while the residuals can be 70 years or older.

The condition and survival rates of the advance growth after harvesting are very good on the LAMF. Mortality generally occurs within the first year after harvest. The advance growth stems typically respond to release after 5 to 10 years, with these second growth stems producing good stand volumes in a shortened rotation period. These sites usually do not require herbicide treatment to release the black spruce to a "free-to-grow" state. Only those sites on which alder (*Alnus)* is present tend to

require herbicide release.

**HARP: Timber Benefits**

One of the major benefits of HARP is the reduction of the harvest rotation period from the traditional 120 years to 60 – 80 years. This is due to the remaining advance growth following harvesting. Overall regeneration costs are also reduced because less sites require artificial regeneration. Furthermore, nutrient poor sites, such as the forested peatland sites which comprise 51% of the forested productive landbase of the Lake Abitibi Model Forest, and which have traditionally been difficult to regenerate following harvest, respond well to HARP. Operationally speaking, HARP has been proven to be a viable system of protective logging for peatland sites in the boreal forest.

The application of medium intensity HARP within areas of concern and between harvest-blocks, has resulted in the recovery of a portion of the merchantable fiber, by Abitibi-Consolidated Inc., that would traditionally have been a no harvest buffer. The visible and structural diversity of the initial forest stand is also maintained in these buffers, through the use of HARP.

**HARP: Non-Timber Benefits**

The utilization of HARP results in the provision of effective moose and small mammal habitat and travel corridors in harvested areas. The method also maintains biodiversity in several ways. The advance growth remaining after harvest has a variety of heights which offers protection for a variety of small mammal habitats. Bird, moose and small mammals all depend on remaining vegetation for food, habitat and shelter. The gene pool of the trees is also preserved through the layering regeneration of the black spruce.

The HARP harvesting method also tends to be more aesthetically pleasing to the public than the traditional clearcut methods.

**HARP: Implementation**

HARP has become an integral part of the silvicultural and sustainability strategies for Abitibi-Consolidated Inc. As such, the adoption of this harvest method has had a large impact on the company's forest management plans. The HARP implementation process was fast-tracked for inclusion into the Forest Management Plan for the period 1995 – 2000 for the Lake Abitibi Model Forest. HARP has now been further refined and is integrally woven throughout the new 2000 – 2005 Forest Management Plan.

Since 1995, HARP has been utilized by Abitibi-Consolidated Inc. as the dominant harvest method on the Lake Abitibi Model Forest. It is prescribed for all peatland black spruce sites, which have acceptable levels of advance growth. A number of other forest companies operating on black spruce peatland sites within northern Ontario, have also implemented the HARP methodology.

The Ontario Ministry of Natural Resources officially recognized HARP as a harvest method, and included the method, including definitions and standards, in Provincial silvicultural guidelines published in 1997.

**HARP: Future Development**

There are still areas associated with the HARP harvesting methodology that the Lake Abitibi Model Forest wishes to explore in the future. Some aspects that are being reviewed for possible exploration are:

- advances in site selection and stand specific harvest intensity;
- equipment improvements and logging methodology revisions;
- silvicultural prescription improvements;
- development of black spruce peatland management standards; and
- growth and yield projections for uneven-aged black spruce stands.

# Collaborative Partnership Building in the Manitoba Model Forest using Leading-edge Technology in Caribou Management[1]

**Doug Schindler**[2]

## The Challenge Addressed

For a number of years before the Model Forest Program in Manitoba was initiated, the Province, Pine Falls Paper Company (PFPC), and environmentalists were at odds over proposed plans by PFPC to conduct forest operations in an area known to be inhabited by the southern most herd of Woodland Caribou in Manitoba. Knowledge and guidelines about the caribous range, habitat needs and reaction to forest operations was lacking. Due to gaps in this knowledge the proposed forest operations had been postponed indefinitely. Friction was building between the Province, the PFPC and the environmentalists. Answers that would satisfy all concerned were needed.


## The Solution

With the arrival of Canada's Model Forest Program, an opportunity was presented to bring resources to bear on the problem. The Manitoba Model Forest (MbMF) partnered first with the integrated Forest-Wildlife Working Group (an organization of government both provincial and federal wildlife biologists and provincial government and industry foresters) to aid in the development of a first approximation Caribou Habitat Suitability Index (HSI) Model. Next, the MbMF established a working group of government and industry biologists and foresters, policy people and environmentalists charged with developing a strategy that would allow the conduct of forest operations in the range of the caribou. At the same time, the MbMF partnered with Manitoba Hydro, the provincial government, and University of Manitoba to test the application of new GPS technology for use in tracking caribou movement for range establishment and impact of lineal features such as roads and hydro lines and determination of habitat needs.

Using the HSI model, old radio collar data and preliminary data obtained from the GPS collars the integrated caribou management committee researched the range and habitat use of the caribou and developed a strategy and harvest design that would allow for the conduct of forest operations within the caribou range. The harvest design was then conducted by PFPC.

Continued information on caribou use and reaction within the experimental cuts using the GPS tracking system was gathered. Next steps include analysis of the new data and presumably adapting and revising the initial strategy based on this new information. As well, through the criteria and indicator program which will form the backbone of the forest industries approach to management planning , the caribou will be monitored and reported on as an indicator of biodiversity.

## The Elements of Success

The work and projects centred around the concerns

[1] This is an abstract of the paper presented at the partnership Meeting in Halifax, NS, September 8, 1999.

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for the protection of Woodland Caribou brought together a number of elements crucial to the success of a **Sustainable Forest Management Approach**. The elements demonstrated by this case study include:

1) **Partnering and Collaboration** with governments, forest industry, academia , ENGO's and other developers (including Manitoba Hydro) to pool resources, information and expertise to bring to bear on a common concern.

2) Providing a **Forum** in which interested parties can work together in an **open and transparent process** to address and **resolve differences**.

3) Developing and using **leading-edge technology** (GPS tracking and GIS systems) to provide decision makers and NGO's with the solid information they need to arrive at consensus.

4) Using the results and processes by incorporating them into **on-the-ground changes** in operations and into **management planning** through the criteria and indicators approach.

5) Applying the **Adaptive Management Approach** by monitoring the impact and results of new approaches.

**Collaborators**
Manitoba Natural Resources – Forests and Wildlife Branches (Head Office and Eastern Region), Pine Falls Paper Company, Manitoba Environment, Manitoba Hydro, TREE (Time to Respect Earths Ecosystems), various wildlife biologists from CWS, Tolko and Louisiana Pacific, and the University of Manitoba

**Projects Involved**
Production of a Woodland Caribou Habitat Suitability Index, Development and Application of Animal Borne GPS Technology on Woodland Caribou, Development of a Woodland Caribou Strategy , Development of an Experimental Forestry Practice Design, and On-the -Ground Implementation of the Forestry Practice Design.

# The Foothills Model Forest Natural Disturbance Program: Practical Science

**D.W. Andison[1] and H. Lougheed[2]**

## Introduction

In 1995, the Foothills Model Forest (FtMF) of Hinton, Alberta launched an ambitious research and development program to study disturbance patterns in the foothills and mountains of eastern Alberta. The Natural Disturbance Program was designed to meet specific partners' needs in a cooperative, focused, and scientifically rigorous framework. This was largely achieved through a team approach to setting priorities and managing results. Now in its 4th year, the Natural Disturbance Program is producing results which are being integrated into various levels of planning and policy-making in the foothills area and beyond. This paper describes the background of the research program, and demonstrates how the program is addressing practical questions of sustainability by partners in a direct and effective manner.

## The Foothills Model Forest

The Foothills Model Forest covers over 2.7 million hectares of foothills and mountain landscape in east-central Alberta. The land-management partners of the FtMF are Weldwood of Canada Ltd, Hinton Division, Jasper National Park, and Alberta Lands and Forests (Provincial Government).


Weldwood covers most of the eastern foothills of the FtMF (about 1 million hectares). The eastern slopes area also includes another 100,000 ha of land including the Hinton town site, Switzer Provincial Park, a large strip of sub-alpine land managed by the Provincial Government, and a large coal mine. To the west lies Jasper National Park (1.1 million ha) and to the north the Willmore Wilderness Area (about 500,000 ha) also managed by the Provincial Government.

Ecologically, the FtMF is diverse. Over half of the Park is non-forested alpine land. The spruce/fir sub-alpine forests in the Park are somewhat spatially fragmented, largely limited to high-altitude valleys. Jasper also has a single montane corridor running along the low elevation floodplain forest of pine, Douglas fir and aspen. The eastern foothills (most of which is the FMA) are a mixture of sub-alpine, upper foothills, and lower foothills forests, from high to low elevation respectively. The forests of the eastern slopes are dominated by lodgepole pine, white and black spruce and sub-alpine fir, with hardwoods more dominant in the lower elevation areas.

The landforms of the FtMF are equally diverse, from steep mountain slopes to the west, to gently rolling terrain on the eastern edge.

## Why Study Disturbance?

Conducting disturbance regime research has recently become fashionable. The rationale for doing so is often the desire to maintain ecological sustainability through emulating natural patterns. However, it is worth looking at why disturbance is the specific focus of our interest.

Forest "patterns" occur at many different scales as a result of the combined forces of four main

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influences: geomorphology, climate, tree species characteristics, and disturbance. Of the four, the first three are by comparison stable and predictable influences over a period of 2-300 years. One could argue that in the absence of disturbance, patterns of forest types and structures would be much more predictable or deterministic. Only disturbance is stochastic by nature, and is thus the main *cause* of variability in forest pattern. Understanding the dynamics of natural disturbance is therefore fundamental to understanding the variation in forest patterns over space and time. This dynamic attribute of landscapes is often referred to as the "natural range of variation".

Forest systems are naturally, historically variable on many different scales. Over millions of hectares and over a period of decades, the distribution of age-class is in constant motion. This phenomenon is even more pronounced in a spatial context, and the shifts in mosaic patterns can be clearly seen in an aerial photographic time series. Within that larger context, each individual disturbance is as unique as a fingerprint, never creating the same size, shape, or severity of disturbance twice. Even at very fine scales, disturbance impacts on a given hectare can differ significantly from neighbouring parcels of land. Yet, none of it is random. There are very specific ranges within which disturbance operates. The species that inhabit the land are both ecologically and evolutionarily adapted to these ranges. The danger of management practices that create patterns outside of those ranges is that the land may no longer be suitable to their needs, leading to expatriation, or worse, extinction. In other words, we are assuming that by learning about, and using natural patterns as templates for management, we are more likely to be conserving natural levels of biodiversity.

Understanding and defining natural ranges of variation is a potentially valuable strategic and operational tool for forest managers and planners. Theoretically, as discussed, it is recognized as one means by which to conserve biodiversity. From a practical point of view, forest management strategies can be developed and defended based on historical precedent. The beauty of this is that in many cases historical precedent allows for a wide range of management options, so planning can be both flexible and practical, and still be ecologically sustainable. The final advantage of using natural ranges of variation is that they can be easily quantified, which means they can be translated into targets for planning and monitoring. Since natural ranges are wide targets, this is potentially a non-threatening exercise, unlike many of the monitoring attempts of the past in Canada.

**The FtMF Natural Disturbance Program**

Weldwood, Jasper National Park, and the Alberta Lands and Forest Service all embrace the goal of maintaining biological diversity on the lands they manage. Natural disturbance research was an attractive means to that end for each of the partners for the reasons given above. This common bond brought representatives from each of the land partner agencies together to devise a strategy for a Natural Disturbance Project together with Dr. David Andison as the lead scientist. This "team" forms the core of the FtMF Natural Disturbance Program to this day.

One of the advantages to the team approach to this research was that it put the science in direct and constant contact with representatives from each organization that had the power to make decisions and affect change. Research was thus being directed by, and not in isolation of, the "real world". The team members had the responsibility of asking questions and directing resources towards those issues of greatest concern for their organization. It was the lead scientist's responsibility to make sure that the science was sound, and that it addressed the practical questions being asked. It was the combined responsibility of the group to work together to facilitate the development of management translations that were practical.

The strategy of the FtMF Natural Disturbance Program was to develop a multi-year research program driven by the greatest operational needs. Furthermore, we recognized that the question of natural patterns actually involves many questions, at many different scales. For instance, the most immediate need for the team members was for coarse-scale, strategic, and often non-spatial knowledge of forest age distributions and the

frequency of disturbance. The case study described below is an example of such a project. We are now beginning to deal more with more operational, spatial questions such as patch sizes, shapes, and island remnants. However, it is no single question, but rather the entire package of questions taken together that is the "natural pattern". Accordingly, we allowed ourselves to think of the research over the long term, on many different levels to address the package, rather than individual questions of disturbance.

To be practical, we used scale as a means of defining individual projects for study, united by a long-term research plan. The long-term research plan defines over 25 research project possibilities, stratified into several program areas. Each project outline includes the relevant practical question, research hypothesis, data requirements, and possible methods. What will be described here is only one project in one of five program areas.

The long-term plan document also forms the foundation for the establishment of annual workplans. It helps to clearly define the scientific possibilities, which, in combination with the partners' needs, current research results, and the findings from other related research, defines the work to be accomplished each year. As already pointed out, we have generally found it to be convenient to work from coarse to fine scale issues. We often find that the results of coarse-scale work define new, finer-scale questions.

Work towards communicating the research findings and implications has begun, and we already have some management integration successes at several different levels. For instance, Provincially, we held a natural pattern workshop last March facilitated by Dr. Gordon Baskerville. Locally, decision-makers are beginning to use specific findings in plans. The remainder of this paper discusses an example of one such project.

**Seral-stage Management on the Weldwood FMA**

One of the questions Weldwood faced when it initiated its' Forest Management Plan revision 1995 was that of how much "old growth" forest to maintain in order to satisfy the requirements of ecological sustainability. This strategic question of what "natural" level of old-growth forest to maintain has captured the interest of many land management organizations of late. The problem is that Weldwood had no empirical data to defend any number they chose to use. Accordingly, the scientific question that we generated in cooperation with Weldwood was, what are the natural, historical levels of seral-stage retention on the FMA historically? This more technical question expanded on the original issue, yet turned it into something that could be answered with the right tools. (Note that Weldwood originally supported this part of the project as an extension of the empirical research from the FtMF. It has since become one of the foundations of subsequent FtMF natural disturbance research).

The eastern slopes of the FtMF are dominated by large, intense, stand-replacing forest fires, which create an even-aged mosaic of ages. After considerable effort and cost, a map was constructed of the exact dates since the last stand-replacing fire event for the entire eastern foothills portion of the FtMF. Since Weldwood had the foresight to begin such an undertaking in 1960, and the remainder of the sample area was largely untouched by cultural activities, it was possible to re-construct the landscape pattern from 1950. In other words, it was a "natural" age-class mosaic.

From this map, age-class distributions were constructed which gave us fundamental, valuable information on the nature of fire frequency on the FtMF. For instance, it was at this point that we first had hard evidence that the Lower Foothills area burnt much more often than either the Upper Foothills or Sub-Alpine landscapes.

These same distributions could have been used directly to define percentages of older forest for the three major landscapes on the FMA to answer Weldwood's question. For instance, one can observe that the Sub-alpine areas had far greater percentages of forest older than 300 years of age than the either of the other two ecological zones. However, despite the high quality and quantity of age data, these numbers only represent a single

snapshot in time. In other words, they are based on a sample size of only one, and therefore should be highly suspect in such a dynamic environment.

We know that fire activity over decades is highly variable, but giving that variation a number has been beyond our grasp until recently. We expanded our sample size on the FMA by creating more landscape mosaic "possibilities" through computer simulation. The elements required to accomplish this task included:

- an equation describing the historical rate of disturbance,
- an equation describing the historical sizes of disturbance,
- a random number generator
- initial conditions (the 1950 landscape), and
- a spatially-explicit, stochastic landscape disturbance model (LANDMINE)

The model essentially used historical information to generate multiple possible age-class mosaics over time, under the identical probabilistic conditions that created the 1950 age-class mosaic.

The model was run 100 times, and the percentages of each seral-stage in each of the three landscapes on the FMA summarized as frequency distributions. This showed the probabilities of a given percentage of any particular seral-stage occurring. For instance, in 1950, the amount of forest greater than 200 years of age in the Upper Foothills landscape was 4% according to the raw age data. The simulation results suggest that the probability of the Upper Foothills having 0-5% of the forest greater than 200 years of age is somewhere around 30%. In other words, chances are pretty good that the 4% figure is well within the historical range.

The same comparison using the 1995 percent of older forest in the Lower Foothills leads to a different conclusion. The managed landscape of 1995 shows about 48% of the Lower Foothills forest is greater than 100 years of age. According to the simulation results, the greatest amount of 100 year+ forest produced in the Lower Foothills was only 35%, and even then only rarely. In other words, the current amount of older forest in the Lower Foothills landscape of the Weldwood FMA is quite likely beyond the "natural range of variation". This conclusion was consistent with other circumstantial evidence. For instance, much of the Lower Foothills has not been actively logged for some time, yet fire control has been very effective over the last 40 years. Furthermore, stand deterioration is commonly noted in this area, suggesting that fire commonly replaces older stands with younger mixedwood stands.

Simulations are far from reality, and many factors may influence the outcome, but Weldwood deliberately kept both the exercise and the interpretation simple. They used the simulation results as rough guides for not only current conditions on the FMA, but also for long-term projections. They created summaries from the simulation results such as ranges and confidence intervals as a check on projected conditions based on one or another scenario. These checks in the plan are no different than the ones already being used for habitat supply or ecologically sensitive areas. At the very least it allows Weldwood to be able to identify situations like the excess of old forest in the Lower Foothills area.

Returning to the original concept of the Natural Disturbance Program, the research has already served Weldwood well by adding a new, and ecologically defendable dimension to their management planning process. The exercise resulted in two subtle, but significant changes to the way Weldwood operates. The most obvious change is the replacement of single number targets with a range, making the task of setting, and meeting targets simpler, and more in keeping with the nature of the resource in question. Second, the exercise began the process of a shift in thinking for Weldwood. Saying that landscapes are dynamic or that natural patterns should be respected is one thing, but having numbers make it real. Forest management has a long history of managing for stability, and this was a valuable first step in thinking in terms of managing for change.

This same strategy is now being adopted at least in part, by one other company in Alberta, with the support of the Provincial Government. This is not

surprising; from a company perspective it offers a solution that is the best of all worlds:

- The research is sound and based on good empirical data and simulations that have straightforward assumptions.
- The results are simple to interpret and monitor.
- The results allow for a wide range of management possibilities.
- Naturally occurring fire, if and when it occurs, will not necessarily require a new plan for seral-stage patterns.
- In the end, an ecologically defendable long-term strategy.

**The Future**

The age-class range example is only one of what we hope are many successes in the Natural Disturbance Program. It worked largely because we maintained a steady link between the science and the practical need throughout the simulation exercise, facilitated by the project guidelines and the team environment. Although the rest of the program research is only partially complete, we already have begun other integration work. Weldwood has one set of experimental harvest blocks based on a project that looks at how, where, why, and how often unburnt island remnants are left after fire. Jasper National Park has begun to use the results in their burn plans to set realistic, "natural" targets of sizes and shapes of prescribed burns, as well as the amount, type, and spatial arrangement of unburnt areas. These are both more operational-scale projects than the example used above, and will require substantive collaboration between the scientists and planners to interpret and integrate to the best advantage. However, precedents have already been established, and the project team are the "right people" in terms of involvement at the planning levels.

In a way, the science has become the easy part of the program. We are making sure that the individual projects are peer-reviewed and that manuscripts are submitted to journals, but the challenge of passing the information on to the people who can use it is perhaps even greater. Nor do we rely on any single medium. Both formal and informal workshops will become more common, as will brief, user-oriented presentations of research findings. Internal reports, executive summaries, and journal manuscripts will each serve to inform different audiences. As we move into more experimentation, we will be requiring the services and cooperation of other scientists and managers. We are also in the process of attempting to link the natural pattern research with Canadian Council of Forest Ministers criterion and indicators. Perhaps the most important tool of all will end up being one-on-one meetings between scientists and the planners to exchange knowledge and ideas.

The potential changes that may result from the research are many, and affect all levels of planning. The comfort that the partners have with the program at this stage largely comes from the understanding that whether or not they use the knowledge that results from the research, they can make more informed choices. The point of the FtMF Natural Disturbance Program is not to tell land managers and planners how to change their practices, but rather to provide a solid foundation for decision-making. No matter how you look at it, understanding natural disturbance as an ecological process is always a wise investment.

# Community Capacity Building Toward Sustainable Forest Management in the Long Beach Model Forest

**Matthew Lucas[1] and Dan Paradis[2]**

> *"an informed, aware and participatory public is important in promoting sustainable forest management"* Canadian Council of Forest Ministers (CCFM)

Long Beach Model Forest (LBMF) fosters the sustainable use of forest resources by using cooperative joint problem solving processes which involve all who value the use of forests, and which integrate social, environmental, economic and cultural values in the activities of LBMF. Long Beach Model Forest started in 1995 with their communities in conflict. Directors came to the table representing the broad spectrum of stakeholders in the Clayoquot Sound controversies over land use.


Challenged with identifying projects that met the model forest's goals and objectives, LBMF's Board soon found consensual agreement in their program focus on research, education and training that is linked directly to the region's communities.

**Building Community Capacity**

LBMF focuses on the communities within the 400,000 hectare area, recognizing that community involvement is a prerequisite to sustainability in any area. Through community consultations, directions in research, education and training were identified. A formal LBMF Community Protocol Document was agreed upon, that outlines the necessity to train, employ and educate members of the community on scientific research, baseline inventories, forest practices and LBMF projects within their region.

The Long Beach Model Forest program has offered internship opportunities to approximately 125 individuals, including many youth and First Nations. These positions have led to permanent placements for area residents in the area's GIS offices, Parks Canada, local research and inventory projects, value-added industries, tourism, as well as return to universities, and focus in science fields.

Within the local context, individuals who were unable to work with their colleagues and neighbors because of conflicting positions over resource management, are now working in collaboration on many projects in the region. The Model Forest program has fostered an environment of respect and understanding that makes room for many values in a vision of sustainability.

**LBMF's Community Internship Program**

A project internship program has been a component of LBMF's program that includes local people, including youth, trained and employed as research and project apprentices. The internship program builds capacity and strengthens the understanding of resource management issues in the forest dependent communities of LBMF. Through on-the-job training, local people become aware of careers

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[2] Ma-Mook Development Corporation, Tofino, BC

in science-related fields which have been overlooked in isolated forest dependent communities until recently. As well, these apprentices have acquired scientific research skills and locally-relevant ecological knowledge.

LBMF Research Internship: The LBMF Research Program to date has trained 43 research apprentices with 24 positions in an ongoing Hydroriparian Management Project, and 19 positions in the Amphibian Inventory of Clayoquot Sound. These positions provide opportunities to gain skills and participate in field work, data analyses and reporting of inventory results to the communities.

**LBMF's GIS Users Network**

A GIS (Geographic Information Systems) network was established in each community with model forest support in the form of training, expertise, exchange, equipment and facilities. The GIS Users Network functions to link the communities by building bridges of information and exchange, as well as collecting and distributing data.

GIS Internship: There have been 12 training positions with the GIS programs since its start in 1995, with a majority in the five First Nations communities.

**LBMF Youth Program**

When Long Beach Model Forest initiated their program in 1995, First Nations specifically requested that Youth participate in the Board structure with an equal vote in the consensus process. In the Phase II program the LBMF Board of Directors redefined themselves, not as stakeholders, but now as Partners representing a number of community organizations as well as members at large. The reorganization ensured that Youth would maintain a seat at the table, thereby identifying youth as a full Model Forest Partner.

The LBMF youth focus is a component in our research, interpretive, GIS programs and model forest working groups. By mentoring youth we have influenced a number of agencies & organizations to consider a youth program or to include a youth shadow in their activities. In the June 1999 First Nations' TEK conference, as well as other regional activities, youth were involved in the program's design and implementation. Youth held active seats at the table, and they were involved in the information dissemination that followed. The LBMF TEK Working Group is committed to youth involvement in all its activities.

Youth are now welcomed members at round tables, working groups, forums and in many occasions, are a part of the design and delivery of regional programs on sustainable resource management. Youth have stated that through their work in these programs, *they can see their future today*.

Youth Internship Program: Approximately 65 First Nations youth internships positions have been filled during the past five years of the LBMF program, with 15 non-First Nations positions working as LBMF research interns, community GIS interns, Forestry assistants, Natural Resource assistants, interpreters-in- training, library assistants, youth educators, stream restoration interns, and salmon enhancement programs are a few of the positions that have been available through the LBMF.

**LBMF' Rainforest Interpretive Centre**

The Rainforest Interpretive Centre (RIC) provides the strongest public interface of the Long Beach Model Forest (LBMF) program by hosting 20,000 visitors, residents and students *annually.* The RIC provides community programs that are designed to engage people on issues, and increase interest and awareness about sustainability and resource management.

The Rainforest Interpretive Centre was the first visible achievement of the Long Beach Model Forest and has been operating as a community facility since 1995. The LBMF worked with local community members in the design, fabrication and installation of RIC exhibits, hand-crafted displays, and educational materials. The RIC also serves as a venue for community events related to sustainability topics and Model Forest events, lectures and workshops.

An on-going guest speaker series at the RIC provides visitors and community members with the

opportunity to learn more about local research, elements of sustainable forest management, First Nations' perspectives and rainforest ecology. These programs are developed in partnership with local schools, community and youth groups, and regional organizations.

Interpretive programs are delivered to schools, youth groups, and community events in the area. These hands-on, innovative programs explore topics such as rainforest and marine ecosystems, forest values, sustainability topics and current forest issues. Working within the seven communities for five years has shown an increased interest by the students and teachers in identifying and understanding the biodiversity of the region, as well as understanding the strategic directions and goals of sustainability concepts.

The RIC provides a growing resource library that is available to public and community groups. Publications include educators' resources, local research results, maps, field guides, newsletters, videos of guest speakers, traditional ecological knowledge, and children's games. LBMF provides a library resource site at their offices in Ucluelet, ensuring the region has ready access to information about sustainable forest management.

RIC Internship Program: The RIC delivers an interpretive training program to residents and youth, and has trained 14 interns since the beginning of its operations in 1995.

Annual figures from 1998/1999 RIC program:

- Centre open 207 days with 18,000 visitors
- Trained three summer students and 1 interpreter full-time
- hosted 35 guest speakers to over 700 audience members
- provided 37 community programs
- hosted 36 meetings with 298 participants
- provided 43 school and college programs to 745 students

First Nations communities have acknowledged the important role the RIC plays in familiarizing non-aboriginal communities with FN perspectives, values & relationships. At the same time, the RIC's educational programs are welcomed in First Nations' village schools on a regular basis, developing themes of rainforest & marine ecology as well as elements on SFM.

The LBMF Community Protocol Document identifies how presentations and open houses to local communities can explain the research goals and foster a better understanding of the role of science and the adaptive management approach in developing sustainable forest management practices.

**Model Forest Program Impacts**

The seven communities of this model forest are the partners in this region who work together towards a new forest management regime. The unique context of Clayoquot Sound involves several key agreements that have resulted in an unprecedented opportunity for the five First Nations communities and the two non-aboriginal communities of Ucluelet and Tofino to play a leadership role in changing the face of forest management in Clayoquot. These agreements, specifically the Interim Measures Extended Agreement and the Implementation of the Scientific Panels Recommendations are fully endorsed by the Province, industry and First Nations. The newly formed Iisaak Forest Resources - a First Nations owned company in partnership with McMillan Bloedel also have strong partnerships with the national and international environmental community. With the announcement of the recent tenure transfer and the upcoming announcement of the UNESCO Biosphere Designation of Clayoquot Sound, a new "political space" is created for model forest communities to steward and lead in sustainable forest management strategies.

**Model Forest Partnerships, Roles And Opportunities**

With the emergence of these new institutions, the Long Beach Model Forest plays a significant role as a regional organization. The model forest's goals, programs and 'ways of doing business' are being modeled by many, and collective directions are being created. By building regional capacities, as opposed to building individual capacities, organizations can share resources.

The challenge is to build a collective capacity in the region through Partnerships, as these emerging institutions are defining their own roles. However its becoming clearer that relationships in the region are still young. LBMF has the opportunity and ability to bring partners together. By promoting and providing transparency between communities, forest companies and institutions, a collective vision of sustainable forest management is being forged.

# Partnerships: The Foundation for Model Forest Success[1]

**A. John Sinclair[2], Ph.D.**

As part of the Halifax partnership meeting I was asked to observe the two days of presentations, and to speak with meeting delegates, in order to present an overview of the role of partnerships in model forests. The following is a synopsis of the speaking notes that I developed over the two day conference and presented to delegates.

**Introduction**

The empowerment of local people, self-reliance and social justice are all key aspects of sustainable development. One way to achieve these is to move away from the traditional forms of forest management, that have been dominated by professional experts in government and the private sector, to approaches which combine the experience, knowledge and understanding of various publics.

The words "partnerships" and "stakeholders" are often used to characterize an approach that includes both organized interest groups and the general public in decision making (Mitchell 1997). As Martin von Mirbach pointed out yesterday, the inclusion of various interests in forest management decision making is important for at least three reasons: the new knowledge and ideas that people bring to the table; their right to participate given that most forestry in Canada takes place on crown land; and, improving the political acceptability of the decisions taken by resource managers.

We have recently moved into a period where Canadian authorities also recognize that the "public has a vital interest in the way forests are managed" and a right to a "more direct say, particularly in setting objectives, developing policies and planning forest management" (CCFM 1992:23).

The involvement of a variety of stakeholders/partners working together in the development and implementation of forest management decision making is, however, still very much in its infancy in Canada. There is a long history, especially in the pulp and paper sector, of the paper industry working in close collaboration with provincial governments (Beckley and Korber 1995), creating, in Grant's (1990) words "company states" that have been provided with very favorable working environments as a result. This relationship has helped to extend policies leaning toward the old management paradigm of "multiple-use sustained-yield".

In my view, Natural Resources Canada proposed the Model Forest Program in Canada in an attempt to promote new ideas and policy directions for achieving sustainable forest management and to identify new ways for stakeholders to work together to reach consensus on management issues.

In describing the Model Forest Program, Natural Resources Canada has gone to some length to promote the fact that a range of interests are reflected in the management and operation of each model forest. The following excerpt is taken from an information publication on the program:

> Partnership is an integral principle of sustainable development. The Model Forest Network is already demonstrating how partnerships can

[1] Speaking Notes - CMFN Partnership Meeting, Halifax, NS.

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> integrate social, environmental and economic values. Potential conflict between key interest groups can be channeled into frank discussion on the goals of forest management and into consensus-building. Providing support for this process is at the heart of the Model Forest Program (Natural Resources Canada 1994: 7).

The Model Forest Program, therefore, provides the opportunity to test non-traditional approaches to the development and implementation of forest management policies and programs in Canada. Conceptually, it is situated on the leading edge of the paradigm shift from traditional to contemporary forest management decision making approaches. Integral in the transition to sustainable forest management is the identified need to bring more stakeholders into the planning process, while also incorporating a broader range of values into decision making. As Dr. David MacLean pointed out yesterday involving a broader range of partners in the Model Forest Program is essential since the individual model forests have no land management authority.

Over the last two days the various presenters have revealed to us that "partnership" in the Canadian Model Forest Program is operating at least at two distinct levels: 1) the partnership management boards that oversee the day to day operations at each model forest site, and, 2) the broader partnerships that are formed when organizations and people from outside the management board are either engaged or volunteer to work on the projects undertaken in each model forest. In other words the range of interest that the Board tries to partner with for the various programs and projects they undertake.

In regards to the first point Natural Resources Canada highlights to interested groups that each model forest has a partnership management board that:

- represents input from several organizations and agencies including government, academia, environmental groups and other interested stakeholders;
- is administered by a Partnership Committee consisting of the principal interested parties and representing a wide range of views about forests;
- incorporates public consultation and involvement in its ongoing decision-making processes;
- will support new programs of research and technology transfer, and will share the results with other forest managers and stakeholders (Natural Resources Canada 1993: 4).

In a recent survey of board members of four model forests in the Canadian Network almost all respondents indicated that while they felt there was a good range of partners around the table, there were "stakeholder interests" or "voices" that were still missing. Very notable voices in some cases, including First Nation and Environmental interests (Sinclair and Smith, 1999)

The role of these management boards was highlighted nicely by Duane Hiebert in his presentation. He noted that in the case of Prince Albert Model Forest the partnership management board works together to develop the goals and objectives of the program, establishes a yearly work plan to achieve the goals and works with various partners from outside the board to ensure the projects outlined in the work plan are initiated. From my experience most of the management boards operate in this fashion.

In regard to the second point - the range of interest that the Board tries to partner with for the various programs and projects they undertake - we have been provided with numerous examples of how model forest management boards have drawn in new partners to work on specific projects and the importance of partnership to the success of those projects. Each of the presentations has attempted to highlight this and we have had some particularly good examples today.

It is important to initially point out in this regard that the presentations at this meeting have largely been given by partners from outside the model forest board structure, such as Bill Wade in the case of the McGregor Model Forest. In other cases board members have presented findings of projects in

areas where they have personally put in the effort to understand the work that has been undertaken. Richard Moore provided a great example of this in his presentation "Harvesting with regeneration activity". I know that Richard did not go into the Model Forest Program with an in-depth understanding of silvicultural systems but through his presentation he has provided us with an important example of how the partnerships are in fact learning organizations.

Other presenters have also highlighted the importance of bringing various partners into the fold to the success of the project they presented here. Richard Moore outlined the core partners critical to the success of the HARP project. Doug Schindler took this a step further by highlighting the core and individual partners critical to the success of Manitoba's Caribou management project. Their papers contained in this conference proceedings document highlight the details of these cases.

**Elements Critical to Partnership Success**

All of the presentations made underscore the fact that the model forest's as a network and individually are starting down the road of highlighting case successes – successes that have resulted from working together. I feel, however, that we are still missing stories about the techniques that have been used to work together to achieve these successes. I would like to try to provide some thoughts on this, based on what I have heard here, by establishing some of the elements that seem critical to successful partnerships.

**Shared Benefits/A Sense of Utility Among Partners**

I feel that a number of presenters have highlighted this point over the two days. The following quotes underscore the point: "Don't force partnership – if you can get a benefit from what we are doing just come" (Richard Savard); "It is important to consider what is in it for all parties" (Don Laishley); "The model forest needs to have a number of things that are useful for all parties" (Len Moores); "Each partner must have a sense of utility – that their contribution matters" (Louis LaPierre). There needs to be real benefits for all parties around the table and/or they need to have a sense of utility regarding their involvement in the projects that are being undertaken to energize the partnership.

In his presentation this morning Pierre Belleau showed the importance of collective shared benefits to the success of sustainable forest management when a series of individual land managers are involved. Richard Moore told us that he personally wants to ensure that serious concern is being given to seeing the forest protected. If this were not happening in his model forest he would question the utility of his participation.

**Reflect Local Interests**

Broader input to the partnership management board requires that attention be paid to local interests. Lynn McIntyre yesterday and Pierre Belleau today, established in their presentations the importance of determining local interests to the projects undertaken. In both cases the model forests undertook surveys to determine the needs and interests of local people before initiating projects. As was pointed out, "the model forest need to develop programs that fit the broader partnership" and "the partners and local interests need to determine issues and approaches not scientists".

In addition, Doug Schindler noted the importance of finding ways to establish a sense of ownership in the local community to the work that is being undertaken. In his case local people were taken out into the field to participate in the caribou research project undertaken by the Manitoba Model Forest.

**Democratic Decision Making/ Information out and in**

David Anderson said yesterday that partnership input to the decision process is critical. He noted that some form of consensus is important so that no one group carries the process. It seems fair to say that information must be shared out among the broader partnership but the decision makers must also obtain and reflect on information back in from the partners before they make a decision.

There was also some discussion yesterday after a couple of the talks about consensus decision making and Len Moores pointed out that consensus can help with the problem of any one party running

the show. Over the years there has been some concern clearly expressed that certain partners are running the show at some model forests. The model forests need to operate democratically to have successful and broad based partnerships. Doing this provides the Model Forest Network with the opportunity to showcase different approaches to consensus decision making. Long Beach Model Forest has long worked on this principle and we have much to learn from their initiative as outlined in their presentations here.

**Communication**

A number of presentations including the keynote addresses from Dan Welch and Don Laishley, have highlighted the importance of communication. Of course for any network to function, model forest or otherwise, communication among partners is the essential element. As well, the network must find innovative ways to communicate their work to a broader audience. While some speakers have laid down a challenge in this regard to the model forests, I think we are well on our way and have lots of good examples of innovative communication to build on – especially communication with groups outside of the partnership or network.

Lots of good examples have been provided in even this short meeting, such as: The room next to us, which is full of well thought out and slick communication materials – clearly one piece of the puzzle; Martin von Mirbach went out to groups and individuals one on one to share experiences; Lynn McIntyre provided a very interesting example of how the Eastern Ontario Model Forest is trying to establish communication links between private woodlot landowners. He also detailed the private woodlot demonstration sites that have been a very successful communication technique for the model forest; Dan Paradis described the central role that the Long Beach Rainforest Interpretive centre has played in their program delivery – clearly a success story judging by the number of visitors to the centre and programs facilitated from the centre; Richard Moore and Martin von Mirbach both told us about video's and guidebooks that had been created for more general consumption.

**Time**

Building lasting and meaningful partnerships takes time. A number of speakers have identified this as an element important to successful partnerships. Lynn McIntyre noted "that things just do not happen quickly and we must recognize this fact". Martin von Mirbach pointed out this morning that it is going to take time for partnership to build and make decisions about resources for the future. Richard Moore pointed out that it will also take time for the partners to adopt change. Partnership decisions cannot be forced.

As an aside, I think there is an important message here for the model forests to communicate. In the current climate we are operating in it is typical for decisions to be made about forest resource allocations in as short a time as possible. Provincial governments are under great pressure to push decisions through the environmental assessment process for example. Model forest are showing that the partnership approach while taking time may lead to better and more sustainable decisions.

**Toolkit of Involvement Techniques**

This last point is not one I heard directly presented over the course of the meetings, but I feel that it did come out and is important to building successful partnerships. Each model forest must develop a toolkit of involvement techniques because no one technique is going to draw in the range of partners we may be interested in involving in any one project to be successful. Martin noted in his talk that there are a number of techniques available for involving different interests in model forest work. Keith Chaytor and Rick Blackwood indicated that both their model forests have undertaken studies regarding their public involvement processes. The Model Forest Network should highlight the innovative involvement techniques being used in each model forest so that a toolkit can be developed that each might draw on.

**Outstanding Issues of Partnership**

I feel that there are a number of issues, cautions - I am not sure that one word describes them all – but they are things that I have heard during the last two days that each model forest should consider in terms of their partnership.

**Measures of Partnership Success**

Over the course of the meetings a number of people have questioned how we should measure partnership success. Should we look to quantitative measures or qualitative measures. As Duane Hiebert noted, the Prince Albert Model Forest keeps track, in a quantitative sense, of the amount of volunteer time different partners contribute to the program. I think that all the model forests in the Canadian Network are doing this and it is a good quantitative measure. Clearly though, we should be looking at additional qualitative measures of success. As Martin von Mirbach said, "qualitative indicators such as reports of change in forest management activity" would be welcome additions to the quantitative indicators we currently use. Agreement on some more robust measures will be important to the network as a whole when we showcase our partnership activities.

**Shopping for Labels**

In our zeal to forge broad partnerships we must be cautious that we are not just shopping for labels to appease certain interests. I am the first to agree that partnership management boards should reflect a broad range of interests. I am not convinced that this same range of interests needs to be reflected in the projects that are undertaken by the partnership board. The presentations by Richard Moore, Doug Schindler and others, outline why certain partners were asked to join into the projects. Each was brought in for a clear reason and all had an interest and could see some benefit, in the project being proposed.

**Variable Partnership**

We should all recognize and respect this eventuality. Not all partnerships across the network are going to be the same, nor are they going to be the same within an individual model forest. Dan Paradis did an excellent job of underscoring this point in the last presentation, so I will not belabour the point. I will just emphasize that there will be differences and that as a network we should encourage this and revel in the results.

**Conflict of Interest**

The first two people I talked to individually at this conference requesting their thoughts on partnership questioned the inherent conflict of interest that is part of each model forest partnership. As noted above, each model forest wants to carry out activities that are in the interest of local people and partners on the management boards. Such an approach not only keeps people at the table but is also reflective of the values of those partners. There is an inherent issue of conflict though. Model forests should reveal how they are attempting to deal with conflict of interest within the partnership. Lessons learned in this regard will have great utility both within and outside of the Model Forest Program.

**Generalizing Partnership**

This last point was not raised during the conference but I think it is very important. Avoiding overarching generalizations about the model forest partnerships is very important to our success. It makes some of our critics angry when we talk about "partnership" without defining the type of partnership we are talking about. It will be important in the coming years for the Model Forest Network to establish some models or frameworks of partnership that we can all use to highlight our experiences.

There are some available already that we could modify and improve on as we wish. For example, Table 1 outlines a model of alliances used by the Ontario Ministry of Natural Resources to describe their work with different partners. The point is, that in our work we do not all have to strive for one type of partnership, such as "collaborative" noted in the Ontario Ministry of Natural Resources (OMNR) table. Instead we should be providing examples to others of the various experiences we have had with different models of partnerships. A sound framework, such as that established by the OMNR will help us with this task.

I will stop with that point given that I have already gone overtime. Thank you for your interest and attention.

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**TABLE 1 TYPES OF ALLIANCES**

| Type of strategic alliance | Purpose | Extent of power sharing |
|---|---|---|
| (1) Contributory Support sharing | to leverage new resources or funds for program/service delivery | Government retains control, but contributors may propose or agree to the objectives of the strategic alliance |
| (2) Operational Working sharing | to permit participants to share resources and work, and exchange information for program/service delivery | Government retains control. Participants can influence decision making through their practical involvement |
| (3) Consultative Advisory | to obtain relevant input for developing policies and strategies, and for program/service design, delivery, evaluation and adjustment | Government retains control, ownership and risk, but is open to input from clients and stakeholders: the latter may also play a role in legitimizing government decisions |
| (4) Collaborative Decision making | to encourage joint decision making with regard to policy development, strategic planning, and program/service design, delivery evaluation and adjustment | Power, ownership and risk are shared |

Ontario Ministry of Natural Resources (1995)

# SESSION 3:

# Future Directions

# Future Directions: Overview of Initial Work of Canadian Model Forest Network - Strategic Directions Committee

**John K. Naysmith[1], Ph.D., R.P.F.**

I am pleased to be reporting on behalf of the Strategic Directions Committee and to have the opportunity to address in particular **all** of the eleven Canadian Model Forests. As a member of the Phase I evaluation team I had the opportunity to meet with many of you at that time on a "forest by forest" basis but today, in this particular forum, is for me a singular pleasure.

First let me extend my congratulations to you, the members of Canada's 11 Model Forests. You know you are a special group. Collectively you number some three to four hundred people across the country. But when you compare that with the several hundred thousand Canadians who depend on the forest sector for all or part of their livelihood or the millions of Canadians who are interested in what goes on in the forest you are indeed a **select group**.

You are **select** too in the fact that your 11 Model Forests were chosen from some 65 submissions generated from across the country. That is to say for each Model Forest represented here today there were five others that didn't make it. That puts you in the top 16 percent. Compare that with the National Hockey League where it seems if your team is in the top 80 percent you make it into the play-offs. Or as with most horse-races where, on average, the top 30 percent of the entries are money winners. Sixteen percent, as in your case, looks very good.

By the way I happened to be associated with two of those 55 submissions that didn't make the Model Forest cut back there in 1991/92. Both from Northwestern Ontario - beautiful things they were - truly works of art. I still recall the day we sent them off with visions of congratulatory letters and appropriate sums of money rolling in, and eloquent press releases rolling out. But alas the Selection Committee - who were they anyway? - didn't see it that way. Obviously it wasn't works of art they were looking for. By the way in my opinion they made good choices.

Canada's Model Forest initiative is now reaching the mid-point of Phase II - I think you will agree with me both phases have been well funded. But now it is time to give serious thought to where the Program should be going. Hence the Strategic Directions exercise.

1) today we have heard under the banner "Leading Change Through Example" several success stories from various Model Forests across the country. It is important to reflect on such successes so that we can build on them in the future. It also doesn't hurt to recognize instances where we have not been successful so that they also can be addressed

2) such analyses should also include stepping back to examine a broader view of what the Model Forests have done thus far; to carefully consider what their potential might be, and to examine ways and means of closing the gap.

In my view the Model Forest initiative in Canada and internationally has **immense** potential. In spite of the success achieved to date I believe we have only scratched the surface. A point to which I will later return.

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Turning now to the initial work of the Strategic Directions Committee at its meeting - which was its first meeting - in July of this year.

The Strategic Directions exercise now needs your ideas and input so that by the Spring of 2001, just 18 months from now, the Canadian Forest Service can go forward with a Memorandum to Cabinet that will make the strongest possible case for a new Contribution Agreement and mandate to launch Phase III in April 2002.

First the Committee reviewed the Objectives of Phase I and how those Objectives were refined for Phase II. You are familiar with all of those and they need not be reiterated here.

Then the Committee identified several **opportunities for Model Forests** in terms of key needs of client and stakeholder groups. They include:

1) the need to show the public that a broad range of forest values is considered and accounted for
2) the trend toward certification of working forests
3) the trend toward non-government delivery of forest management
4) focus on climate change
5) the National Forest Strategy - 2003 will require a demonstration of its values. The Model Forest Program can perform this demonstration
6) the Model Forest Program can play a role in demonstrating appropriate Canadian practices and policies vis-à-vis trade issues
7) increasing demand for practical demonstration in terms of Sustainable Forest Management.

In addition to potential opportunities the Committee also identified some perceived "**threats**". These include for example:

1) jurisdictional splits in government
2) public credibility problem - lack of understanding about what Sustainable Forest Management really is
3) some stakeholders don't embrace the SFM concepts and are reluctant to move toward certification.

The Committee identified where Model Forests have proven themselves to have **distinct competencies**. That is competencies that do not exist in other entities. They are:

1) the forging of cooperative management approaches which over time have gained trust among groups where such trust did not necessarily exist before
2) Model Forests have been able to integrate divergent values into forest management decision- making, a cornerstone of sustainable development strategies.

In spite of those valuable and effective "distinct competencies", weaknesses were also identified and references to two in particular recurred throughout the deliberations. They were:

1) ineffective communication with a wide-ranging audience beyond the Model Forests *per se*, and
2) policy makers and senior managers both in and out of government have not been well served by the Model Forest process.

In the Committee's view there are two **key challenges** yet to be overcome by the Model Forest initiative as we enter the second half of Phase II.

1) while significant technical and management progress has been made there still remains a need to fully integrate non-timber values
2) groups outside the Model Forest Program remain largely uninformed about both the significant SFM progress being achieved and the potential for testing new ideas and policies that the Model Forest Program provides.

Based on the Committee's analysis of the Model Forest Program in terms of its successes, competencies, strengths, weaknesses, challenges and opportunities it went on to develop an **initial proposal for future strategic directions for the Program's Phase III** as follows:

1) Demonstrate Sustainable Forest Management. There will be a continuing, possibly growing need for a set of practical test and demonstration sites

and a collaborative management model to integrate forest values. The result of this would be a representative group of Model Forests, not necessarily eleven, with particular emphasis on the integration of forest values. Under this particular option Model Forests would show **certified** leadership in Sustainable Forest Management

2) **Policy Support and Test Sites**. Model Forests should move beyond being testing grounds for innovative technical and management practices alone to also encompass a key role as a tester of policy proposals. By doing so Model Forests could be in the vanguard of practical policy development with respect to the management of Canadian Forests. Policy makers in the federal and provincial government, including the Canadian Council of Forest Ministers, individual companies, industrial associations and non-government organizations would become instrumental in the two-way flow of information with the Model Forest Program

3) **Extension and Application - Progeny.** The application of Sustainable Forest Management approaches "on-the-ground" in forest communities that are not currently associated with the Model Forest Network. Such an extension effort would create associate partners and help to build a critical mass of Sustainable Forest Management within the Canadian forest community as a whole. In the process the Model Forests comprising the Phase III Program would benefit from the sharing of SFM experiences with the associate forest communities

4) **SFM Networking with Policy Makers and Resource Managers**. The Model Forest Program must be structured so that it can show to policy makers the practical application of key ideas, and to resource managers the results of specific forest management practices. The outcome of this option would be the acquisition of an effective mechanism for testing new policy initiatives and management practices at the development stage to assist in their refinement prior to large-scale implementation

5) **Achievement Recognition**. The rationale underlying this option is the need for the Canadian public to be made aware of the success of Canadian forest communities in achieving Sustainable Forest Management. The Model Forest Program would sponsor and/or support a recognition program, possibly in conjunction with the certification process referred to in Option I which would result in those forest communities that have implemented effective forest practices being recognized and in turn the public would be apprised of such practices

6) **Formal Associations.** The Model Forest Program should consider developing formal associations with selected related groups working in areas such as bio-diversity and climate change which in turn relate to other not-for-profit associations and entities. Emphasis would be put on activities that would result in projects of joint interest from which more formal information sharing, project work and eventually funding agreements would develop.

In addition to developing the initial six options just described the Committee also prepared a draft schedule for the completion of the Strategic Directions exercise. One which provides for substantial input from Model Forest Boards and the Network Strategic and Operations Committee. This is considered essential by the Strategic Directions Committee.

Earlier I said that the Model Forest initiative begun by the Government of Canada in 1992 has enormous potential.

The Model Forest Program if it is now carefully focused, refined in some cases, and judiciously built upon its successes to date could have far-reaching positive implications for Canada's forest sector. What's more I believe that the Model Forest Program could prove to be an effective model for other sectors of society where the integration of apparently conflicting policies is a desired but unfulfilled objective. I think for example of issues related to water, climate and agriculture production.

In Phase I of the Model Forest Program one objective referred to the implementation of Sustainable Development in the practice of forestry. By Phase II Information and Technology Transfer had become central to the Program and is intended to provide forest managers with, and I quote, "ecologically, socially and economically sound forest management practices to support Sustainable Forest Management in our forests".

The interdependence of ecological, social and economic values has frequently been recognized over the past 30 years including the U.N. Stockholm Conference on the Environment in 1972, the IUCN World Conservation Strategy of 1980, the Brundtland Report - the World Commission on the Environment and Development in 1988 and Canada's 1998-2003 National Forest Strategy.

Recognizing the inherent interdependence of these values is one thing. Doing something to integrate the policy initiatives that emanate from each value is quite another. Particularly at this time of increase in the non-government delivery of forest resource management.

If we are not convinced of the challenge in integrating policies of this nature from our own practical, on the ground experience a check of the appropriate **current** literature will surely confirm it. References can be found to the "limitations of existing analytical tools and the need for better analytical frameworks". Discussions among researchers take place as to whether "policy integration is a process-related goal or a substantive goal". And there are calls for the "need to experiment with practical ways of bringing a more comprehensive view to bear on policies and decisions" and "to make decision-making processes more inclusive".

Well, need I remind you, your eleven Model Forests have been designed to do just that. Of course there is learning involved - as we are well aware anything worthwhile usually does. It is important to provide room for human ingenuity and spirit and the innate desire of all of us - society - to be successful. You are moving in the right direction. Developing and implementing practical mechanisms for the integration of forest-sector policies that encompass ecological, social and economic values can be your legacy to the 21st century. Step right up - you are already at the head of the line.

# Agenda

Simultaneous translation will be available in English, French and Spanish.

Each case study will consist of a 30-minute presentation and a 5-minute question period for clarification of points. Time for more in-depth discussions has been provided at the end of each session.

## Wednesday, September 8

**9:00 am**
*Introduction and welcome*
Day 1 Chair: Don Laishley, Executive Director, Forcast

**9:30 am** ***SESSION 1:*** *Gauging Progress in Sustainable Forest Management: Model Forest Experiences in Integrating Science and Partnerships on Local Level Indicators*

*Introduction to Local Level Indicators of Sustainable Forest Management*
Moderator: Dr. Peter Duinker, Director, School for Resource and Environmental Studies, Dalhousie University

Dr. Duinker will introduce the session by providing an overview of use of local level indicators in sustainable forest management.

**9:45 am**
*Implementation of a Sustainable Management Planning Process in the Fundy Model Forest*
Dr. David A. MacLean, Dean, Faculty of Forestry and Environmental Management, University of New Brunswick

The Fundy Model Forest has developed a collaborative, multi-ownership, sustainable management planning process that is being implemented on an area more than three times the size of the Model Forest. Features to be described include: use of scenario planning; consensus process; linkages with criteria and indicators; use of forecasting models; role of ecological land classification; evaluation of effects of scenarios on a broad range of values; and implementation of a Decision Support System for pest management.

**10:20 am** *BREAK*

**10:50 am**
*A Practical Guide to the Development of Local Level Indicators of Sustainable Forest Management in Newfoundland and Labrador*
Martin von Mirbach, Sustainable Development Chair with the Centre for Forest and Environmental Studies
Len Moores, Ecosystem Health Supervisor, Newfoundland Forest Service

The Western Newfoundland Model Forest, in collaboration with its partners, has developed “A Practical Guide to Criteria and Indicators of Sustainable Forest Management”. This guide is intended to help resource managers and planners with other interests so as to ensure that healthy forests are maintained that can support the broadest possible range of values. The Guide is designed to be used throughout the Province at three distinct scales: the Forest Management District; Company limits; and at a Provincial scale.

**11:25 am**
*The Promotion of Sustainable Forest Management Practices for Landowners Through Demonstration Forests in the Eastern Ontario Model Forest*
Lynn McIntyre, Ontario Woodlot Association

The Eastern Ontario Model Forest has facilitated the development of a network of sites demonstrating a wide range of forest management techniques in a broad range of forest types throughout eastern Ontario. The sites range from small, informal sites on individual landowner property to large formal partnerships with establishment organizations with dedicated staff. This project acknowledges that people learn better and retain more through direct experience. Best management practices are communicated directly to landowners.

**12:00 pm** *LUNCH*

**1:00 pm**
*Local Level Indicator Monitoring Protocols in the Prince Albert Model Forest: Aquatic, Avian, and Terrestrial Examples*
Duane Hiebert, Forestry Coordinator, Prince Albert Grand Council

Effective long-term monitoring will provide information required for predicting changes occurring from the implementation of new management strategies. The PAMF has three main LLI projects to aid in developing monitoring protocols: testing a newly patented microphone for use in avian monitoring; testing rapid bio-assessment (aquatic) sampling procedures for macro-invertebrates (stream bottom-dwelling insects); and testing procedures for permanent ecological sample plots developed for the provincial forestry monitoring program.

**1:35 pm**
*Sustainable Forest Management Scenario Planning within the McGregor Model Forest*
Bill Wade, Planning Forester, Northwood Inc.

The McGregor Model Forest used scenario planning to develop, demonstrate and document an implementable, objective-driven, and results-oriented Management Plan for Tree Farm License 30 near Prince George, BC. Outputs of these scenarios were expressed through a number of local level indicator values. The McGregor Approach is stakeholder-driven and designed to provide implementable solutions to resource management challenges based on locally-defined, objectives, strategies, criteria and indicators.

**2:10 pm** *BREAK*

**2:40 pm** *Discussion Period: Local Level Indicators in Model Forests*

**4:10 pm**
*Summary on Local Level Indicators*
Moderator: Dr. Peter Duinker

**4:25 pm** *Model Forest Network Local Level Indicators Strategic Advisory Committee Update*
Dr. Louis LaPierre, Chair, LLI Strategic Advisory Committee

**4:35 pm** *Wrap-Up*
Don Laishley, Executive Director, Forcast

**5:30 pm** *Partnership Banquet* (Boat departs at 5:30 pm sharp)

# Thursday, September 9

**9:00 am**
*Introduction and welcome*
Day 2 Chair: Edouard Daigle, Manager of Heritage Protection, Fundy National Park

**9:10 am** ***SESSION 2:*** *Leading Change Through Example: Model Forest Success Stories*

*Introduction to Model Forests as Leaders in Sustainable Forest Management*
Dr. Luc Bouthillier, Université Laval

Dr. Bouthillier will introduce the session by providing an overview of how partnerships have played a critical role in helping model forests become leaders in sustainable forest management.

**9:25 am**
*The Forest Tenant Farm Approach to Sustainable Forest Management in the Bas-Saint-Laurent Model Forest*
Pierre Belleau, Research Coordinator, Bas-Saint-Laurent Model Forest

The objective of the Bas-Saint-Laurent Model Forest is to demonstrate the viability of forest tenant farming in order to eventually transfer it to publicly owned lands. Forest tenant farming is becoming a leasing model whereby the lessee undertakes to manage a portion of land in keeping with sustainable development principles and to share the outputs with the owner. A follow-up mechanism has been set up to integrate financial auditing, operations monitoring and evaluation of the entrepreneur's profile based on established criteria.

**10:00 am**
*The Waswanipi Cree Model Forest: Demonstrating Aboriginal Leadership in Sustainable Forest Management*
Sam W. Gull, Chair, Community Participation Coordinating Committee, Waswanipi Cree Model Forest

The Waswanipi Cree Model Forest represents the first opportunity for the community of Waswanipi to define and express what it is they want with respect to forest management. The Model Forest presents the community with a forum to express their needs, goals and objectives for the future. The reality of an aboriginal model forest also presents some unique challenges. At the centre of the issue is the ability to develop forums so that the entire partnership can meaningfully participate in the decisions and directions of the WCMF.

**10:35 am** *BREAK*

**11:05 am**
*Harvesting with Regeneration Protection (HARP): An Alternative Silvicultural System for Black Spruce Forests Developed Through the Lake Abitibi Model Forest*
Richard Moore, President, Lake Abitibi Model Forest

Harvesting with regeneration protection (HARP) is a unique harvesting method that protects the advance growth present on site. It is a combination of two traditional types of harvesting systems: alternate strip-clearcutting and selection cutting. The method emulates and takes advantage of natural processes in older lowland black spruce stands. The system has reduced rotation periods and regeneration costs and has resulted in the provision of effective habitat for moose and small mammals.

**11:40 am**

*Collaborative Partnership Building in the Manitoba Model Forest Using Leading-Edge Technology in Caribou Management*

Doug Schindler, Regional Wildlife Biologist, Manitoba Natural Resources

The projects centring around the concerns for the protection of Woodland Caribou in the Manitoba Model Forest demonstrated partnering and collaboration with governments, forest industry, academia , ENGO's and other developers to pool resources, information and expertise on a common concern. The project also used leading-edge technology to increase the knowledge base on caribou. Research results were used to make on-the-ground operational changes and an adaptive management approach to management planning was implemented.

**12:15 pm** *LUNCH*

**1:15 pm**

*Mimicking Natural Disturbance Processes in the Foothills Model Forest for Improved Sustainable Forest Management Planning*

David Andison, Bandaloop Landscape-Ecosystem Services

Foothills Model Forest's Natural Disturbance project analyzes and interprets how disturbances (fire, wind, disease) affected the landscape and the forests. By clearly understanding natural disturbance in the region, recommendations can be made to the landbase partners on how to more closely mimic natural disturbance processes, whether it be used in harvest design, prescribed burns or other fuel management strategies. Research results are being utilized by Weldwood of Canada, Jasper National Park, and Alberta Environment.

**1:50 pm**

*Community Capacity Building for Sustainable Forest Management in the Long Beach Model Forest*

Norma Dryden, Asistant General Manager, Long Beach Model Forest
Dan Paradis, MaMook Development Corporation
Matthew Lucas, Nuu-chah-nulth Central Region First Nations Technical Committee

The Long Beach Model Forest maintains a community focus through broad community involvement on its Board of Directors, by ongoing community consultations, and with a growing partnership of community members and organizations. Community capacity building for sustainable forest management in increased through such initiatives as the Rainforest Interpretive Centre, maintenance of a resource library, GIS and mapping activities, youth and internship programs, and many others.

**2:25 pm** *Discussion Period: Model Forests as Leaders in Sustainable Forest Management*

**3:00 pm**

*Partnerships: The Foundation for Model Forest Successes*

Dr. John Sinclair, Natural Resources Institute

Dr. Sinclair will be providing a succinct overview of the role of partnerships in model forests as expressed during the case study presentations and discussions.

**3:20 pm** *BREAK*

**3:50 pm**

*Sustainable Forest Management Network (Network Centres of Excellence)*

Dr. Vic Adamowicz, Program Leader, Sustainable Forest Management Network

**4:10 pm** ***SESSION 3:*** *Future Directions*

*Canadian Model Forest Network - Options for the Future*
Dr. John Naysmith, Former Dean of Forestry, Lakehead University

Dr. Naysmith will present an overview of the initial work of the Canadian Model Forest Network's Strategic Directions Committee.

**4:30 pm** *Discussion Period: Future Directions*

**5:00 pm** *Wrap-up*
Edouard Daigle, Manager of Heritage Protection, Fundy National Park

**5:00 - 7:00 pm** *Poster and Social Session*

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**ADDITIONAL EVENTS**

September 7, 1999: Nova Forest Alliance Field Tour

September 10, 1999: International Model Forest Forum

September 10 - 12, 1999: International Conference on Sustainable Development

September 13, 1999: Fundy Model Forest Field Tour

# Presenters

## David Andison

B.Sc. Forestry, U. of Toronto, 1982; Ph.D. Landscape Ecology, U. of British Columbia, 1996; Adjunct Professor, Forest Sciences Dept., University of BC.

Work experience (Ontario and BC) includes mensuration, ecology, forest fire behaviour, teaching, programming, disturbance ecology and even an Architectural draftsperson.

For the past 4 years, the owner / operator of Bandaloop Landscape-Ecosystem Services, providing mostly research and development services to land management organizations. Main areas of expertise are disturbance ecology, fire behaviour, computer modelling, research integration, decision-support, and biodiversity conservation. Currently working in BC, Alberta, and Saskatchewan. The Foothills Model Forest natural disturbance program is one of two such research programs that he is responsible for in Canada.

## Pierre Belleau

A graduate of Laval University, Pierre received an undergraduate degree in forestry in 1982 and a Master's in forest hydrology in 1989. He then focussed his efforts on the Lower St. Lawrence region, where he conducted several research projects, specifically on forest drainage and alternatives to chemical herbicides. His work has been the subject of several publications and presentations within the regional and national forestry community.

A member of the Bas-Saint-Laurent Model Forest team since its creation, he is currently its research coordinator.

In this capacity, he has been responsible for several studies and research projects in areas ranging from hardwood silviculture to the economic analysis of the forest tenant farming formula.

Since the start-up of the second phase of the Model Forest Program, he has also been in charge of developing criteria and indicators for sustainable forest management in the territory of the Model Forest and is actively involved in the Model Forest Network's efforts in this area.

Pierre, who tied the knot just a few weeks ago, cut his honeymoon short to come and speak to us about the application of forest tenant farming to sustainable forest management in the Bas-Saint-Laurent Model Forest.

## Dr. Luc Bouthillier

Luc is a professor of forest economics with the Faculty of Forestry and Geomatics at Laval University, from which he received a BSc in forest engineering in 1978, a Master's in 1985 and a PhD in 1991.

Luc is recognized for his knowledge and activities in "social forestry" in Canada and abroad, and is often invited to take part in conferences, committees and working groups. He is among that special group of speakers whose resumé is sometimes longer than their presentations.

Luc has been a partner and collaborator with the Bas-Saint-Laurent Model Forest since its inception, particularly the socioeconomic situation of communities that depend on the forest. He is also a precious collaborator with the Waswanipi Cree Model Forest, which joined the network in 1997.

## Edouard Daigle

Manager Heritage Protection - Gestionnaire Protection du patrimoine
Parc national FUNDY National Park, Parc Canada - Parks Canada

*Education:*
Graduate of UNB's Maritime Forest Rangers School - 1980

*Work Experience & Fundy Model Forest Association:*
Joined Parks Canada's family of parks in 1978 as Forest Fire Tower operator and have held various Park Warden positions in four locations, Fundy, Kouchibouguac, Gros Morne, Kejimkujik National Parks. Since 1996, Edouard is the manager responsible for Law Enforcement, Public Safety & Ecosystem Integrity Management for Fundy National Park.

Edouard has worked with the Fundy Model Forest

(FMF) since 1992, initially on the research side, in association with the Greater Fundy Research Group, working on the American black bear studies. Since 1996, he has served as Fundy National Parks representative on the Partnership committee & the Management Committee. In 1998, Edouard was asked to chair one of the FMF's six working groups as well as to act as the FMF representative on the National Local Level Indicators working group.

## Dr. Peter Duinker

Peter Duinker (PhD) is Professor and Director of Dalhousie University's School for Resource and Environmental Studies. He has been involved in Model Forest activities since the inception of the program. Peter has undertaken research under the sponsorship of the Lake Abitibi Model Forest (LAMF) on the following topics: integrated modelling of moose population and habitat management; indicators of sustainable forest management; and landscape ecological analysis based on edge metrics. He has designed and facilitated workshops on a variety of topics for the Manitoba Model Forest, the LAMF, the Fundy Model Forest (FMF), the Nova Forest Alliance (NFA, associated with FMF), and the Western Newfoundland Model Forest (WNMF). He is a member of the LAMF Advisory Committee, and chairs the Decision Support System Working Group of the WNMF.

Peter is quite active in the work of the NFA. He represents Dalhousie University on the NFA Partnership Committee, and frequently attends meetings of the NFA Management Committee. Additionally, he was a member of the Baseline Research Committee, and is currently a member of the Criteria and Indicators Steering Committee. Sponsored by the Baseline Research Committee , Peter designed and facilitated a series of six focus-group workshops for NFA woodlot owners during March/April 1999. The workshops were part of a larger program of determining the values, attitudes and preferences of a variety of stakeholders and the public in the NFA area. At the national level, Peter is a member of the recently created Network Strategic Directions Group.

## Duane Hiebert

Mr. Duane Hiebert is Forestry Coordinator for the Prince Albert Grand Council. The Prince Albert Grand Council is one of the founding members of the Prince Albert Model Forest. Mr. Hiebert has been involved since 1997. Mr. Hiebert has served in the position of Treasurer, is active on several working groups and most recently has been elected Vice-President of the Prince Albert Model Forest Association Inc.

Mr. Hiebert brings a strong background of forestry activities and works extensively with Bands throughout North Central Saskatchewan. He been instrumental in the establishment of several programs which particularly assist aboriginal people in the forest sector employment training. The assistance has been valuable in guiding the establishment of sound workplan, which consider all partners.

Mr. Hiebert has been a member of the Local Level Indicators working group since the group was established in 1997, and he will be speaking about the work of that group over the pass year.

## Alfred Jolly

Alfred Jolly has been a member of the Waswanipi Cree Model Forest Board of Directors since the project was announced in 1997. He represents the community owned forestry company, Mishtuk, where he works as the General Manager.

Alfred was born in the bush, and was raised on the land until he was sent to residential school in Ontario. He has worked as line cutter, heavy equipment operator as well a police officer in Waswanipi. Alfred has strong ties with the land and the trappers who still practice their subsistence hunting, fishing and trapping activities.

## Dr. Louis LaPierre

Louis LaPierre is a professor of Wildlife and Environmental Ecology at the Université de Moncton since 1970, where he currently holds the K.C. Irving Chair in Sustainable Development and is Director of the Master in Environmental Studies program. He has also been director of the Environmental Science Research Centre at this same university between

1990 and 1994.

As a concerned citizen and active member of several environmental groups, he has dedicated the past 30 years to the protection of the environment at the provincial, national and international levels. He was chairman of the Environmental Council of New Brunswick between 1981 and 1990, and in 1989 was named chairman of the Sustainable Development Task Force for the Premier's Round Table on Environment and Economy. In April 1997, Dr. LaPierre was invited, by the Minister of Natural Resources and Energy, to develop an integrated strategy for the protection of natural areas in New Brunswick.

Dr. LaPierre received the Governor General's 125th Anniversary Medal in 1993, as well as Environment Canada's Environmental Citizenship Award in 1992, and the Lifetime Achievement award in 1991. Rotary International/Dieppe Club presented him in 1994 with the Paul Harris Fellow award. He was also recognized as the Alumnus of the Year for 1994 by the Université de Moncton. In December 1992, he became a member of National Defence's Environmental Protection Task Force. He is presently chairman of the Fundy Model Forest. He is also a member of the scientific team reviewing PEI's fixed link impact on the environment.

In 1996, he was awarded the Tree of Life Award from the Canadian Institute of Forestry for his work on forest ecosystems. He served as a member of the National Round Table on Environment and the Economy Private Woodlot Task Force. In May 1996, Dr. LaPierre was appointed by the Minister of National Defence, the honourable David Collenette, chair of the Institute for Environmental Monitoring and Research associated with the low-level flying program in Labrador and northeastern Québec. He was the recipient of the 1997 Greater Moncton Excellence Award in Environment and the Town of Dieppe honoured him with the New Brunswick Heritage Day Outstanding Citizen Award in August 1997.

In 1998, Dr. LaPierre was awarded the British Airways Eco-tourism Award for his work in the development of the Bouctouche Dune Eco-tourism project. He was the recipient of two Professional Service Awards, one from Jacques Whitford Environmental Limited for his contributions on the Fixed Link Environmental Review Committee and the other from the Canadian Environmental Assessment Agency for his work on the Nuclear Waste Disposal panel. Dr. LaPierre was also awarded the Environmental Professional Award from the Greater Moncton Chamber of Commerce.

## Matthew Lucas

Matthew Lucas held the position of First Nations Liaison during phase one of the Long Beach Model Forest. During this time, Mr. Lucas initiated the Model Forest program and projects in the five First Nations communities and contributed in the development of Ma-Mook Corporation and Iisaak Forest Resources.

Mr. Lucas is currently Co-chair of the Clayoquot Sound Planning Committee, a member of the Central Region Board, and a councillor for the Hesquiaht First Nation. Mr. Lucas is Chair of Long Beach Model Forest's (LBMF) Traditional Ecological Knowledge (TEK) Working Group.

## Dr. David A. MacLean

Dr. David MacLean received a PhD in forest ecology from the University of New Brunswick in 1978. For 21 years, he researched effects of spruce budworm outbreaks on forest ecology and management with the Canadian Forest Service. From 1992-98, Dave coordinated two Canada-wide research networks to (1) develop GIS-based decision support systems for four of Canada's major insect pests, and (2) determine silvicultural approaches to integrated insect management. Dave has been active in the Fundy Model Forest, serving as Chair of the Management Planning Committee and of the Forest Ecosystem Condition and Productivity Criteria and Indicators (C&I) Group. In July of this year, Dave took up the position of Dean of the Faculty of Forestry and Environmental Management at the University of New Brunswick.

## Lynn McIntyre

Lynn is a graduate of the University of Guelph, Algonquin College, and the Nova Scotia College of Geographical Science. He is a native of eastern Ontario and has been involved in various aspects of

forest management for over 10 years. Some of Lynn's past activities include community forestry, municipal forest management planning, aerial spraying, and forest policy. Lynn has also been involved with the formation of the Ontario Woodlot Association. Lynn is a member and partner of the Eastern Ontario Model Forest (EOMF). "It is the value of partnerships and networking that has inspired me to become involved with the EOMF. I believe that all the partners and members of the EOMF have benefited from multiple points of view in promoting the concept of sustainable forestry."

## Richard Moore

Richard has been a long-time recreational user of the Lake Abitibi Model Forest (LAMF), and has been employed there with the Ontario Ministry of Natural Resources. Working as a pulp-cutter helped put him through school, but it was his teaching position which brought him into the Model Forest organization.

He has served on various committees of the LAMF, and as President for three terms. He is currently retired, but enjoys the opportunities that the Model Forest Program gives him to speak, write and work towards managing our particular forest for the benefit of all its users.

## Len Moores

Len Moores (B.Sc. Forestry U.N.B. 1981) is Ecosystem Sustainability Supervisor with the Department of Forest Resources and Agrifoods in Corner Brook. He has been involved with the Western Newfoundland Model Forest since its inaugural meeting in 1991. Len's current involvement includes:

- Newfoundland Forest Service alternate on the Management Committee
- Chair of the Pine Marten Working Group
- Chair of Criteria and Indicator Steering Committee
- Member of Public Awareness and Involvement Working Group
- Member of Frontline Worker Training Committee

## Dr. John Naysmith

- Founding Dean and Professor, Faculty of Forestry, Lakehead University
- Chair, Forestry Futures Trust Fund of Ontario
- Active in International Forestry projects in Nepal and Ghana
- Member of Model Forest Phase II Proposal Review Team
- Member of the Model Forest Network Evaluation Framework Development Sub-Committee

## Dan Paradis

Ma-Mook Development Corporation is a not-for-profit organization established by the five Central Region Nuu-chah-nulth First Nations to address economic development and livelihood opportunities for the five Tribes in the Long Beach Model Forest (LBMF) region. Ma-Mook is also owner of Iisaak Forest Resources, a new forest company owned 51% by Ma-Mook and 49% by MacMillan Bloedel. Dan Paradis has been working for Ma-Mook for 2.5 years as the Natural Resources Advisor on a variety of forest-based initiatives.

Ma-Mook has formed partnerships with the Long Beach Model Forest Society(LBMFS) to address the exploration of management options for Non-Timber Forest Products, developing guidelines for harvesting red cedar salvage and a number of other initiatives.

Mr. Paradis was also a previous director on the LBMFS and is currently the researcher/writer for LBMF's Traditional Ecological Knowledge (TEK) Working Group.

## Doug Schindler

Doug Schindler has been actively involved with the Manitoba Model Forest (MMF) since its inception in 1992. At that time and up the end of 1998, Doug was the principal of Terrestrial and Aquatic Ecosystems Managers a consulting firm based out of Selkirk, Manitoba. Doug and the services of his company were employed by the MMF for work on moose and caribou projects as well as Private Land Forestry. In 1999, Doug sold his company and took the position of Eastern Region Wildlife Manager with Manitoba Natural Resources. Now working on the provincial government side Doug continues his work with moose and caribou in partnership with the Manitoba Model Forest.

## Dr. John Sinclair

John Sinclair represented the University of Manitoba in the partnership meetings that lead up to the establishment of the Manitoba Model Forest and has been a board representative since its establishment. He has worked actively on the Board and has acted in the capacity of both Vice-president and President. John has also carried out studies with a number of model forests in Canada regarding their partnership arrangements.

## Martin von Mirbach

- Sustainable Development Chair with the Centre for Forest and Environmental Studies
- Grew up in Ottawa; received a Masters Degree in Philosophy from York University
- Has lived in Corner Brook, Newfoundland since 1990; active as an environmentalist, educator and facilitator
- Served as environmental advisor to the Canadian delegation throughout the life of the United Nations Intergovernmental Panel on Forests, from 1995-97, when the concept of criteria and indicators became especially prominent in international forest policy discussions
- Has worked as project leader, facilitator or resource person on initiatives to develop local level indicators at five different Model Forests across Canada
- Is currently chair of the Management Group of the Western Newfoundland Model Forest

## Bill Wade

Bill Wade is a Registered Professional Forester, who is employed by Northwood Inc, as a Planning Forester, in Prince George, British Columbia. He is responsible for the Management Plan and 20 Year Plan on Northwood's Tree Farm Licence; and Five Year Forest Development Plans on the Tree Farm Licence and various other Forest Licence areas.

Northwood Inc. is a partner of the McGregor Model Forest Association (MMFA) and has management tenure over Tree Farm Licence 30, an area that is also known as the "McGregor Model Forest". Bill is a member of the MMFA's Program Advisory Committee; and is Northwood's' woodlands operations representative on all MMFA issues. Bill is also responsible for the coordination of the contract between the MMFA and Northwood to complete the Scenario Planning Project (a case study using the MMFA's planning & management approach) which is designed to support the next Management Plan for Tree Farm Licence 30.