INNOVATIONS

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RÉSEAU DE FORÊTS MODÈLES

Canadian Model Forest Network Secretariat
580 Booth St., 7th Floor
Ottawa, Ontario K1A 0E4

Telephone: **(613) 992-5874**
Fax: (613) 992-5390
E-mail: modelforest@nrcan.gc.ca

www.modelforest.net

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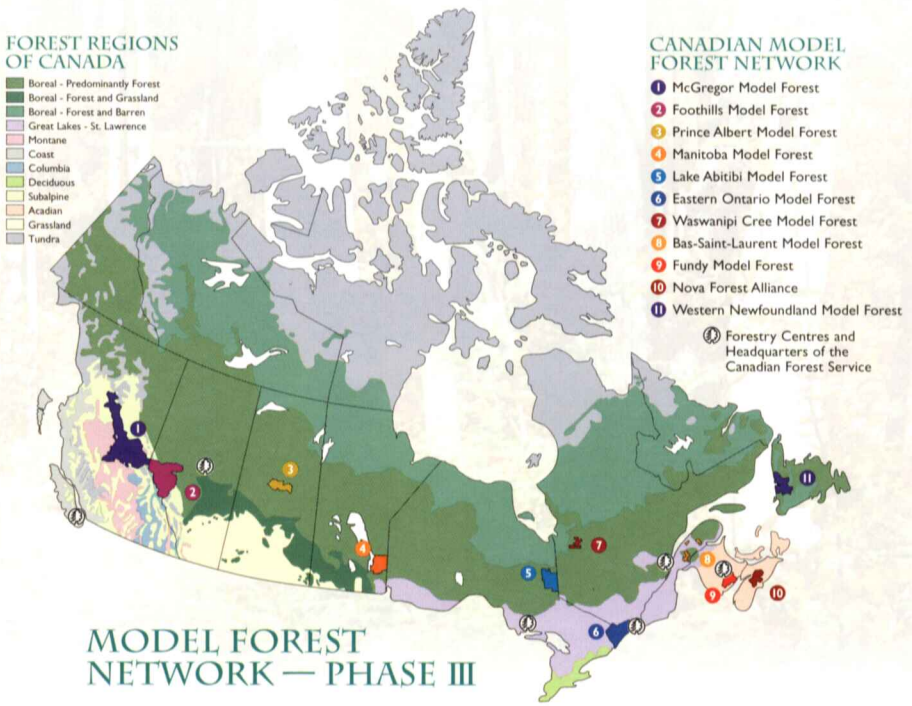
BEYOND THE BOUNDARIES

This issue of Innovations *takes a look at what kind of influence Canada's model forests are having outside their boundaries. Is the model forest experiment — the bringing together of diverse partners to develop new approaches to sustainable forest management that can be adopted across the country — bearing fruit?*

There are some very encouraging signs that it is. The widespread application of the HARP harvesting system to Abitibi-Consolidated Inc.'s operations is one (see page 8). So is Saskatchewan's adoption of a novel integrated forest management planning process (page 5). As is the integration of model forest knowledge into the curriculum at Université Laval (page 6).

This issue highlights these and other ways that model forests are helping Canadians to understand and preserve ecological integrity; develop new, more sustainable practices; create new tools for sustainable forest management; influence forest policy; and become informed participants in forest management planning.

Unless otherwise noted, all publications mentioned in this issue can be ordered or downloaded by visiting the Model Forest Network's online catalogue at www2.clicshop.com/stores/modelforest or by calling (613) 992-5874.



MODEL FOREST NETWORK — PHASE III

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UNDERSTANDING ECOLOGICAL INTEGRITY

Ecosystems know no borders; to understand and protect them, we have to look beyond our boundaries. A model forest is one place where the mix of people who own; who live, work and play in; and who study parts of a particular forest ecosystem can come together to learn about and safeguard its ecological integrity.

Model Forests and National Parks: Protecting Ecological Integrity

Four national parks are part of Canada's model forest network: Gros Morne in Newfoundland and Labrador, Fundy in New Brunswick, Prince Albert in Saskatchewan, and Jasper in Alberta. That's good news for parks striving to maintain the integrity of ecosystems that extend beyond their boundaries.

"It is obvious that you cannot draw a boundary around a national park and contain all the ecological processes that make up an ecosystem," explains Stephen Woodley, Chief Scientist at the Parks Canada Agency. "No matter where you draw the boundary, no matter how large the park is, you will always have transboundary issues. Model forests give national parks an opportunity to integrate with surrounding land uses for the overall goal of conserving ecological integrity."

The grizzly bears that frequent Jasper National Park often roam beyond the park boundaries in search of food, mates and den sites. To ensure the long-term conservation of the grizzly bear in west-central Alberta, Jasper is working with the Foothills Model Forest and 39 Foothills Model Forest partners from industry, government and the private sector, on a ground-breaking five-year study of grizzly bear habits and habitat throughout the 9700 km^2 study area. Because the grizzly bear is considered an umbrella species, gauging the health and population status of the grizzly population will also help the researchers understand how other species are faring.

National parks and other protected areas are also invaluable as controls in sustainable forest management experiments. "They're benchmarks that we can use to experiment with our forest management to see if we're getting it right," says Woodley. "How would you ever know, for example, if you're emulating a natural fire regime with your cutting unless you had a natural fire regime operating within a large protected area?"

Woodley hopes the partnerships between parks and model forests will be long term. "Ecosystems can't be managed as a series of short-term projects — they have processes that occur over centuries. Long-term partnerships are the way to learn and do better forest management in Canada."

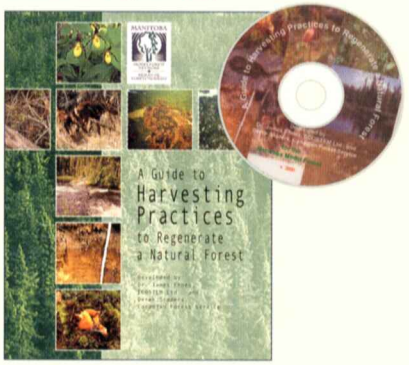
Natural Disturbances

Theory has it that one of the best ways to preserve biological diversity in the managed boreal forest is to design harvesting and silvicultural operations that emulate natural disturbances. Several model forests are putting this controversial hypothesis to the test.

One is the Foothillls Model Forest in west-central Alberta, which has brought together a multidisciplinary team to study how fire, wind and disease affect the forests of the model forest land base. Experiments have been undertaken to determine whether some natural disturbances can be emulated through prescribed burns, harvesting and reforestation. Jasper National Park is using the results to see whether reintroducing prescribed burns will reduce the risk of wildfires and, by restoring a more historical vegetation pattern to the landscape, help to conserve biodiversity in the park.

Similarly, the Manitoba Model Forest is testing site preparation and harvesting prescriptions based on an analysis of the aftermath of six large wildfires that burned 75,000 hectares of boreal forest in eastern Manitoba between 1955 and 1983. The prescriptions are documented in *A Guide to Harvesting Practices to Regenerate the Natural Forest*, which doubles as a how-to manual for operators.

Available in English only.



NEW PRACTICES

A forest tenant farm in Quebec, private woodlots in Ontario, and an industrial operation in Newfoundland and Labrador are some of the places where new practices developed by Canada's model forests are advancing sustainable forest management.

Industries Maibec Adopts Métayage

Inspired by the Bas-Saint-Laurent Model Forest, a Quebec forestry company has adopted forest tenant farming on just over 2000 hectares of its private land.

Intensive salvage logging during a spruce budworm epidemic left very little harvesting and silviculture work on the land, says Charles Tardif, Procurement Manager for Industries Maibec, who felt that more could be done with such a "beautiful resource." He knew about the Bas-Saint-Laurent Model Forest and the *métayage* system, and thought that the many possibilities for income generation made the land a perfect test site for *métayage*.

What is métayage?

Métayage, or *tenant farming*, is a land-use model in which tenants cultivate land in exchange for providing the landowner with a share of the harvest.

Indeed, the company determined that the land could support maple syrup production and hunting, in addition to 3500 cubic metres of harvesting and 14 weeks of precommercial thinning per year — "enough work for an entrepreneur to be working all year round," says Tardif.

Two years ago, a family selected by a panel that included the manager of the Bas-Saint-Laurent Model Forest signed a 10-year contract to manage the land. The tenant farmers pay Maibec a share of their revenues from maple syrup production, a hunting operation, and the operation of a small inn and restaurant built by the company. Standard contractor's prices are paid for thinning and harvesting.

The entire five-member family works on the farm, with the three school-age children helping out on weekends and during the summer. The tenant farmers hire additional help during the hunting, maple syrup and harvesting seasons, and when large groups visit the inn.

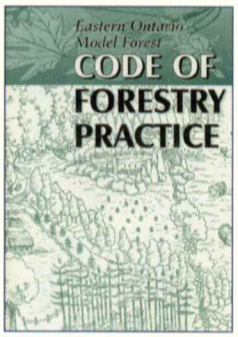
Although Maibec owns the land and the buildings, the family owns everything else

(Continued on page 8)

For private woodlots only ...

Two model forests have published manuals to help owners and operators plan, implement and monitor sustainable forest management on private woodlots.

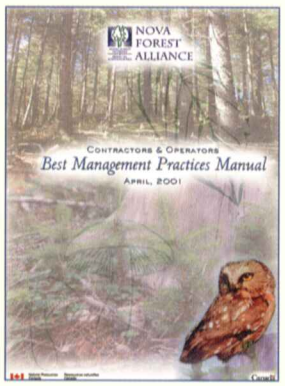
The Eastern Ontario Model Forest's *Code of Forestry Practice* is an easy-to-use, illustrated introduction to the concepts and practice of sustainable forest management that's helping to open up the lines of communication between landowners and forest resource professionals. It's also a good first step toward meeting some certification standards, and for that reason has been distributed to the approximately 60 woodlot owners within the model forest working to obtain group certification by the Forest Stewardship Council.



Available in English and French.

A similar manual produced by the Nova Forest Alliance is a must for Nova Scotia, where more than 60 per cent of all timber harvested in 1998 came from small private lands.

The *Contractors and Operators Best Management Practices Manual* is part of a larger training and monitoring program that aims to work with contractors to improve forest management practices. The first training session, held last September, covered topics such as protecting waterways, creating a diversity of wildlife habitat in forest operations, and selecting the best harvesting methods. A field training session was held in October 2001.



Available in English and French.

The *Groupement forestier de l'Est du Lac Témiscouata*, one of the sponsors of the Bas-Saint-Laurent Model Forest, has obtained Forest Stewardship Council (FSC) certification for its member woodlot owners. The certificate was awarded in spring 2002. Having achieved certification, the model forest will produce a manual to help other woodlot owners adapt to the FSC and other certification processes. For more information, please contact the Bas-Saint-Laurent Model Forest, at (418) 722-7211 or foretmodele@fmodbsl.qc.ca.

NEW TOOLS FOR SFM

Here are just a few of the model forests' new tools for sustainable forest management. For others, visit www.modelforest.net.

Prince Albert: New Microphone Records Bird Calls

The Prince Albert Model Forest has assisted in the development of a highly sensitive microphone to record bird calls in the forest. A Prince Albert-based company developed the technology and tested it with support from the model forest.

Songbirds, along with small mammals such as mice and voles, are considered "sensitive" indicators for assessing forest biodiversity. There aren't enough experts to hear all the birds "live." With the microphone, the model forest records all the bird songs and experts can later listen to them and interpret them at their convenience.

The microphone is also being used by the Lake Abitibi Model Forest and the Ontario Ministry of Natural Resources (OMNR). Lake Abitibi's work is part of a larger OMNR project testing the use of microphone recordings and GIS technology as a cost-effective method of monitoring songbird populations.

For more information, please contact the Prince Albert Model Forest at (306) 922-1944, or the microphone's developers, River Forks Research Corp., 2557 MacDonald Ave., Prince Albert, SK S6V 2V8, (306) 764-3711.

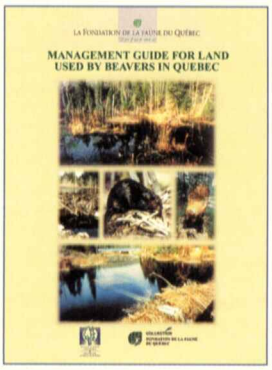
Bas-Saint-Laurent: Guide to Beaver Management

The new *Management guide for the land used by beavers in Quebec* gives forest managers and woodlot owners much-needed help in dealing with beavers, whose persistent dam- and pond-building can flood roads and drown forests.

The guide covers topics such as basic beaver ecology, the animal's positive and negative impacts, population management, legislation, approaches for minimizing the risks and costs of management actions, a description of intervention techniques including their advantages and disadvantages, and a series of forms for characterizing sites and evaluating the degree of risk.

One technique in the guide is a "beaver baffler" — basically a tube that allows water to flow through a culvert even when beavers attempt to block it. Another is to put wire mesh around valuable trees.

The 100-page guide was produced by the *Fondation de la faune du Québec*, with funding and technical support from the Bas-Saint-Laurent Model Forest and other partners.



Available in English and French.

Modelling Community Development

The Moose Cree First Nation is using new computer software, developed in partnership with the Lake Abitibi Model Forest, to model the economic impact of a proposed forestry business on the community.

The software, called the Aboriginal Community Development Impact Model: Moose Cree 2000 (ACDIM), was designed as a decision support tool for the First Nation.

"This software has been an effective tool in forecasting what benefits project development would have on the community, taking into account various spin-offs for local businesses selling gas, food and other items," says George Beasley, general manager of the Moose Band Development Corporation.

One question the model has helped to answer is the impact the forestry project would have on provincial and federal tax revenues.

The development of the model involved data collection and a detailed analysis of the Moose Cree First Nation's economy. The results of this work were then used to calibrate an economic impact model specifically for the characteristics of this community. The fact that many families depend on hunting, for example, was included in the model.

One question the model has helped to answer is the impact the forestry project would have on provincial and federal tax revenues. "The cost of developing the

(Continued on page 8)

MODEL FORESTS AND FOREST POLICY

From protecting an endangered species to democratizing forest planning, provincial governments are making use of the science and innovation developed in Canada's model forests.

Western Newfoundland: Protecting the Pine Marten

The Government of Newfoundland and Labrador is greatly concerned about the future of the Newfoundland pine marten, an endangered species since 1996, with a population of about 300 in the province.

The concern stems from the fact that the cat-sized member of the weasel family is an indicator species: its ability to flourish or fail mirrors the ability of a vast spectrum of plant and animal life in the same ecosystem to survive.

The pine marten lives mainly in the core of the Western Newfoundland Model Forest. The findings of the model forest's extensive, long-term pine marten research program have driven new policies to protect this endangered species.

The recovery plan for the Newfoundland pine marten involves designating areas as reserves where core populations of at least 50 animals each have been identified. The province also prohibits activities in these areas, such as snaring and trapping, which may be harmful to the survival of the species, while permitting other activities, like mining and big game hunting.

"We want to establish populations, and let them grow from there," says Allan Masters, deputy minister of Newfoundland and Labrador's Department of Forest Resources and Agrifoods.

"The main shift in provincial policy involves setting annual harvesting levels for timber," says Masters. "The original thinking was that older forests were needed for pine marten to survive. More recently, we're finding pine marten in much younger stands." So there's been a change from solely protecting old-growth forests, which focus on the age of a stand, to developing guidelines that also focus on height and density, Masters explains.

"As long as a stand is a certain height and density, it can also be a habitat for pine marten. Work is ongoing. What is unique is that the plan involves academia, industry, and federal and provincial governments. We're all working in partnership to try and find solutions."

So how does the future of pine marten look?

"We would hope very rosy," says Masters. "We're committed to making it a viable species, and we're on the right track. We hope our results justify all of our hard work and resources."

Prince Albert: A New Model for Management Planning

When six levels of government can come to agreement to cooperatively manage 370,000 hectares of forest, anyone involved in land-use development has to take notice.

And they have. Currently, the Saskatchewan government has six projects under way in which the process used to manage the Prince Albert Model Forest (PAMF) has been adopted.

"It's a model of issue identification, discussion, resolution, consensus. That's the process we're following," says Doug Mazur, Director of Sustainable Land Management Branch, Saskatchewan Environment.

One thing that sets the PAMF's planning process apart from others is the conscious decision to solicit public input right from the beginning, before the arduous task of collecting, sharing and analyzing information begins. With most planning models, much of the legwork is done before the public is invited to join the process.

The PAMF's ecosystem-based management plan was completed in 2000. The interests of First Nations, industry, government, interest groups, area residents and others were weighed over a two-year period, starting in 1998. The plan has been endorsed by three levels of Aboriginal government and three levels of non-Aboriginal government.

"It was the first time in Canada that an integrated land-use plan was adopted by six levels of government. All people involved with the plan are extremely proud of it. Through the process of working together, helping each other, we can in fact agree on a course of development for long-term sustainable development," says Mazur. Ma Maw Wechehetowin, Cree for "working together, helping each other" is the motto of the PAMF.

Mazur recalls how people overcame their differences for the land's best interest during the Prince Albert Model Forest process.

"At first, there was a difference of opinion, opposing stances. That changed to compromise and recognizing other interests."

Mazur is certain the harmony achieved by the PAMF led to the recent endorsement of a road development in the Athabasca Basin, in Saskatchewan's far north, by the Prince Albert Grand Council, the regional government for First Nations.

"I'm convinced we couldn't do it without the success of the PAMF," says Mazur.

A MODEL EDUCATION

Forest management isn't the sole territory of government agencies and forestry companies anymore. Public participation and community forestry are becoming the norm as people insist on their rights as citizens to have a say in what happens in Canada's public forests.

Effective participation depends on knowledge. The following are a few examples of how model forests are helping Canadians of all ages — including future forest managers — gain the knowledge they need to become stewards of their forests.

Fundy: Lessons for budding foresters

Youngsters in New Brunswick are getting an early start on their forest education, thanks to a forest studies curriculum developed by the Fundy Model Forest.

In 1997/98, *Fundy Global Foresters* — a four- to six-week language arts unit for kindergarten to grade 5 — was delivered to every K to 5 teacher in school districts #4 and #6, which are also Fundy partners. The kit has since been adopted by teachers in other New Brunswick school districts.

"Through activities such as reading, writing, spelling, group and individual projects, the students become much more aware of biodiversity, and how everything interrelates," says Lynn Rector, a teacher at Lakefield Elementary School in Quispamsis who, with teacher Sandra Stockall, led the Fundy curriculum project.

Field trips to the Fundy Model Forest give students, especially those who have spent most of their time in towns or cities, a real-world perspective on what they learn in the classroom, adds Rector. "Sometimes in our urban areas you don't really realize how important it is, for example, for a forester to leave buffer zones near streams and riverbeds and how that affects your swimming in the river further down."

Designed to be as teacher-friendly as possible, the lessons conform to the requirements of the province's board of education. And the kit's comprehensiveness saves teachers from scrounging for extra material. In addition to lesson plans, activity sheets and a guide to additional resources, each kit contains resource materials such as tree identification kits, endangered species posters and pamphlets on biodiversity. Students are encouraged to e-mail questions to experts at the model forest office and other agencies, and local resource people are available to accompany students on field trips.

The hands-on learning offered by the model forest is not limited to students. "Every fall we invite one teacher from each school for a day at the Fundy Model Forest," says Rector. "We review the kits, hand out updates of Web sites and partners, and usually do a couple of activities from the kit, such as visit a woodlot or sawmill run by one of the Fundy partners."

Rector says the curriculum project has sparked a kind of chain reaction when it comes to learning. "I grew up in a city. The curriculum project has expanded my knowledge, which I in turn pass on to the children, and which they then share with their parents."

Teachers interested in getting a free copy of the curriculum can contact the Fundy Model Forest at (506) 432-7575 or at info@fundymodelforest.net. There is a small charge for shipping and handling.

Model Forests Part of University Curricula

On the west coast, CD-ROMs from the McGregor Model Forest demonstrate the complex concept of computerized scenario planning to graduate students in the Faculty of Forestry at the University of British Columbia. In Northern Ontario, model forest concepts and processes are put to the test by students in Lakehead University's Faculty of Forestry and the Forest Environment.

These are just a few examples of model forest knowledge making its way into the curricula of forestry programs in universities throughout the country.

Another can be found in Quebec, where Dr. Louis Bélanger, a professor in the Faculté de foresterie et de géomatique at Université Laval, is using model forest material to teach approximately 50 undergraduate students. Bélanger's students continually refer to *A User's Guide to Local Level Indicators of Sustainable Forest Management* during their fourth-year forest management class.

> *"This (User's Guide to Local Level Indicators) is relevant, it is available. Even if you try to find other examples, there aren't many out there," says Bélanger.*

Bélanger gives his students a case study: they must develop local level indicators for an assigned forest. Local level indicators provide a method to measure a forest's

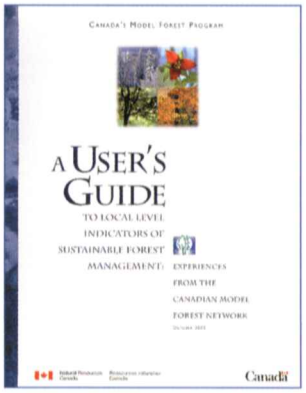
progress toward sustainability, assessing, for example, factors such as soil quality and water conservation.

"At first, the students are overwhelmed with their task. It is not easy to determine pertinent local indicators. That requires a good level of experience. They have to take complex situations and put them into a simple format," says Bélanger.

But the students find the user manual extremely helpful because it contains comprehensive examples of local level indicators for 11 model forests, says Bélanger.

"They need these examples. That is why the manual is interesting. It is a very useful document because it is based on Canadian experiences."

"The students learn this is something they can relate to, something they can adapt to their region. They aren't starting from scratch," says the professor.



Available in English and French.

Before the manual's publication in 2000, relevant local material to teach from was scarce, says Bélanger. Either it was national or international in scope, or it was outdated.

"This manual is relevant, it is available. Even if you try to find other examples, there aren't many out there," says Bélanger.

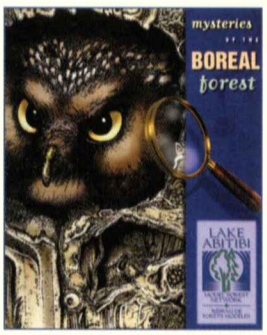
"Model forests are among the first to have done serious work on local issues," he adds.

- High school students in Manitoba are taking a closer look at sustainable development and Canada's boreal forests thanks to an educational video and companion teacher's guide developed by the Manitoba Model Forest. The video and guide are designed to be used in the grade 10 geography unit "The North." (To order a copy, call the Manitoba Model Forest at 204-367-5232.)

- In Ontario, the Lake Abitibi Model Forest has put together a 65-lesson curriculum for grades 1 to 8. Lessons on fur-bearing animals, forest harvesting, bacteria and soils, and other topics culminate in a simulated public consultation in which students adopt the roles of loggers, naturalists, Aboriginal trappers and other stakeholders. The lessons were updated in 2000 to reflect the new Ontario school curriculum. (To order a copy, call the Lake Abitibi Model Forest at 705-272-7800.)

- For the past five years, elementary and high school teachers from across the country have been heading to the Western Newfoundland Model Forest for an intensive six-day environmental training program. Held annually at the beautiful Killdevil Camp and Conference Centre, the Summer Institute in Environmental Education uses innovative methods to foster awareness of forest ecology and forest management issues in Newfoundland and Labrador. The Institute receives strong financial and in-kind support from the model forest. (For more information, contact the Western Newfoundland Model Forest at 709-637-7300.)

- Lake Abitibi has also produced *Mysteries of the Boreal*, a series of 74 leading questions on sustainable forest management and forestry issues. Following each question is a general discussion of the associated topic, helpful tips and a list of references — but no answers. The intent is to get elementary school students interested in the stewardship of their forest resources while giving them a broad understanding of the issues involved in sustainable forest management. (To order a copy call the Lake Abitibi Model Forest at (705) 272-7800.)



Available as a combined English and French volume.

(New Practices: Continued from page 3)

(equipment, furniture, etc.) and has invested more than $250,000 in the project.

So far, the experiment is going well. Tardif says that if the success continues, Industries Maibec may expand the model to other areas.

Abitibi-Consolidated and Canada's Model Forests: A "Test Case for Sustainability"

Abitibi-Consolidated Inc. is a partner in the Bas-Saint-Laurent, Lake Abitibi, Waswanipi Cree and Western Newfoundland model forests. "We have a commitment to sustainable forest management. A model forest is a tool to achieve that. It's what we call our 'test case for sustainability,' " says Francine Dorion, Manager, Sustainable Forest Management, for the forest products company.

The experimentation made possible by the model forests has led to some significant changes to Abitibi's operations. One example is HARP (Harvest with Advanced Regeneration Protection), a harvesting system developed with the Lake Abitibi Model Forest that protects advanced growth by minimizing disturbances on lowland black spruce sites. HARP has been implemented in Abitibi's operations in the Iroquois Falls Division of Ontario, and is one of the best management practices that won high praise in the company's most recent third-party audit.

Another change on the ground can be found on the east coast, where the company has adapted the local level indicators developed by the Western Newfoundland Model Forest as part of its ISO 14001 environmental management system.

Participating in model forests has also enriched the company's relationships with other forest stakeholders. In northern Quebec, Abitibi's work with the Waswanipi Cree Model Forest is helping the company bridge cultures and learn "to work in a proper way with First Nations," says Dorion, while the forest tenant farming project in the Bas-Saint-Laurent Model Forest is testing new ways for the company to manage private forests and contribute to community sustainability.

What does the company add to the model forest partnerships? The industrial perspective and some funding, obviously, says Dorion, but also valuable links to the various research organizations with which the company collaborates. "We also add our own view of sustainability."

But appreciating that the company's view is just one of many equally important perspectives is another reason for participating in the model forests. Working from the principle that "people make the difference," Dorion believes that Abitibi-Consolidated must encourage its employees to "see the real issues, and not just from an industrial perspective. The model forest table provides this opportunity."

(New Tools for SFM: Continued from page 4)

project is in the vicinity of $7 million," says Beasley. "The impact on the federal and provincial governments in the first year alone is just under $3 million." The federal and provincial governments have recently committed this amount to the project.

Beasley said other First Nation leaders throughout Canada are showing an interest in the software, particularly if it can be used to help stimulate the economies of their respective communities.

The model forest has previously been a partner in developing similar technology for the non-Aboriginal communities of Iroquois Falls and Cochrane.

To find out more about the ACDIM, please contact the Lake Abitibi Model Forest at (705) 272-7800.

CANADA'S MODEL FOREST PROGRAM

The Government of Canada, through the Canadian Forest Service, launched Canada's model forest program in 1992 to address the challenge of balancing the extensive range of demands we place on our forests today with the needs of tomorrow's generations. A network of model forests representative of Canada's diverse forest ecosystems has since been established to bring together individuals and organizations striving to make the goal of sustainable forest management a reality.

Each model forest in the Canadian Model Forest Network provides a unique forum where partners can gain an understanding of other stakeholders' views, share their knowledge, and combine their expertise and resources to develop innovative techniques, tools and approaches to sustainable forest management. Model forests act as giant, hands-on laboratories in which leading-edge techniques are researched, developed, applied and monitored. The network also has the mandate to transfer the knowledge and techniques it develops so the benefits derived from its work can be shared with other forest stakeholders.

This bulletin contains just a small sampling of the activities undertaken by Canada's model forests. For more information:

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or contact:
Canadian Model Forest Network Secretariat
580 Booth St., 7-C4
Ottawa, Ontario
K1A 0E4

Telephone: **(613) 992-5874**
Fax: (613) 992-5390
E-mail: modelforest@nrcan.gc.ca