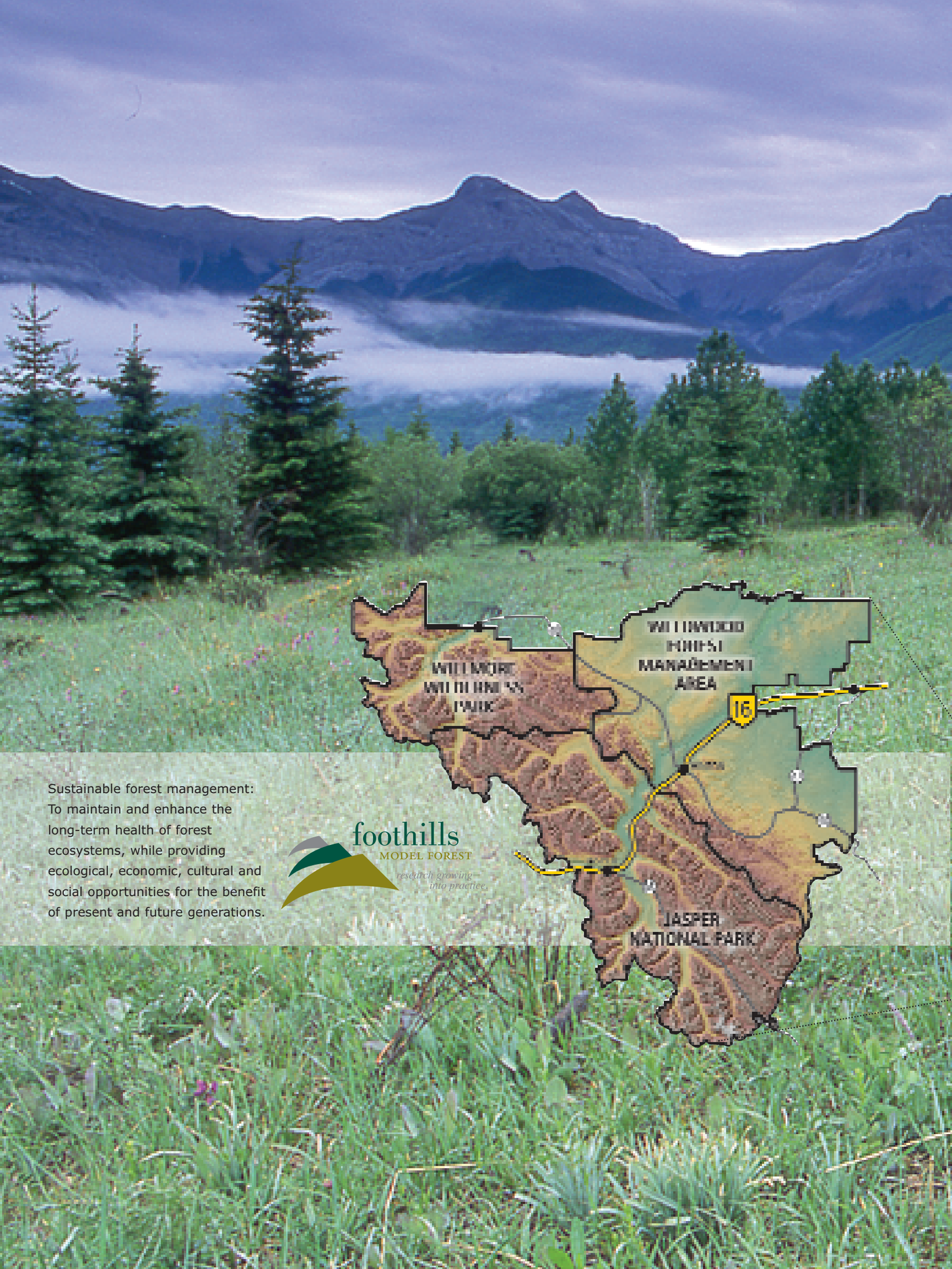
Advancing Sustainable Forest Management

We're Doing It!

foothills MODEL FOREST
research growing into practice.

MODEL FOREST NETWORK
RÉSEAU DE FORÊTS MODÈLES

Foothills Model Forest 2003/2004 Annual Report



Sustainable forest management: To maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, cultural and social opportunities for the benefit of present and future generations.

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Bringing Strategies to Life

The Foothills Model Forest and its partners are developing and implementing local strategies that reflect international sustainable forest management agreements. In 1992, at the United Nations Earth Summit, representatives agreed on the need for scientifically-based goals and measurements to track the achievement of sustainable forest management. Subsequently, the Canadian Council of Forest Ministers' 1995 report, *Defining Sustainable Forest Management: A Canadian Approach to Criteria and Indicators*, identified a set of six criteria that should be addressed in sustainable forest management. Since then the Canadian Model Forest Network has produced a comprehensive report on local level indicators of sustainable forest management. The Foothills Model Forest has conducted research within this framework to increase its understanding of the ecological, economic and social values of its forested land base – 2.75 million hectares along the northeast slopes and Rocky Mountains of Alberta.

Evolution of Criteria and Indicators for Sustainable Forest Management and the Foothills Model Forest

1992: United Nations Earth Summit agrees to pursue international accords on criteria and indicators.

1994: Montréal Process – International seminar in Montréal selects set of criteria and indicators for boreal and temperate forests.

1995: Canadian Council of Forest Ministers produces *Defining Sustainable Forest Management: A Canadian Approach to Criteria and Indicators*.

1998: Landscape level sustainable forest management goals developed and endorsed by Foothills Model Forest sponsoring partners Alberta Sustainable Resource Development, Jasper National Park and Weldwood of Canada Limited, Hinton Division.

1999: Weldwood of Canada Limited, Hinton Division's Forest Management Plan adapts criteria and indicators from model forest research.

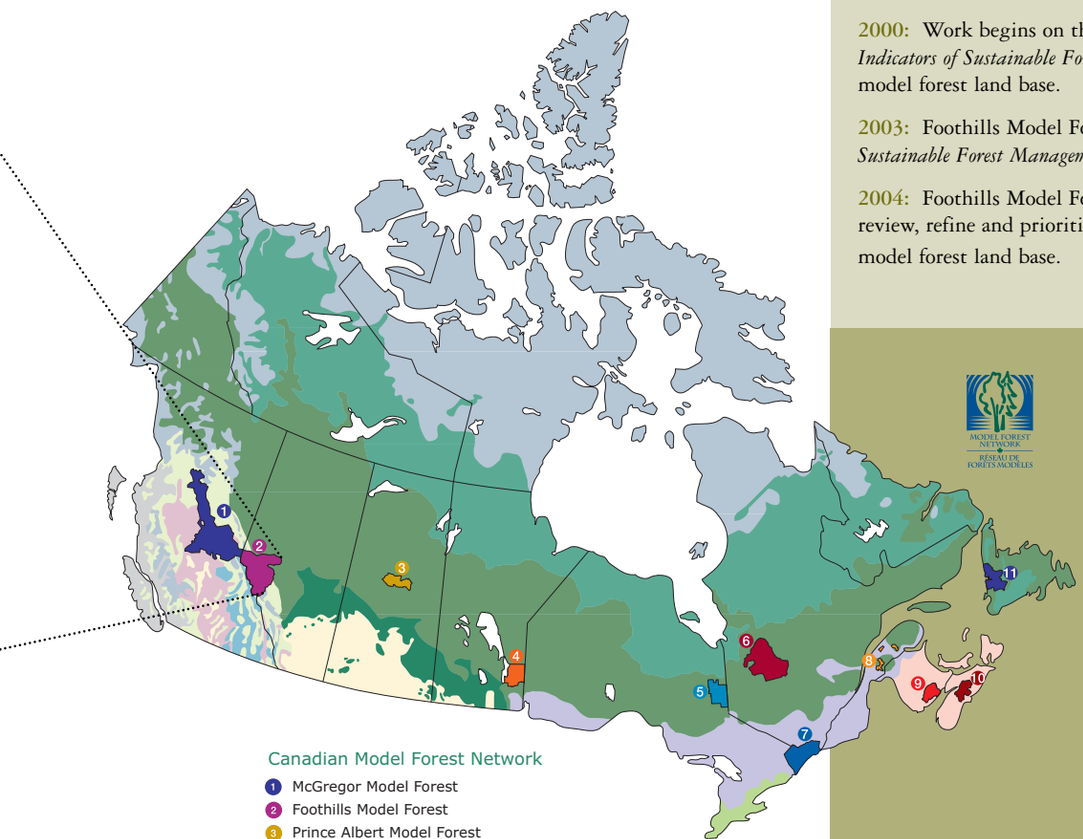
2000: Canadian Model Forest Network publishes *A User's Guide to Local Level Indicators of Sustainable Forest Management: Experiences from the Canadian Model Forest Network*.

2000: Jasper National Park's Management Plan adapts criteria and indicators from model forest research.

2000: Work begins on the Foothills Model Forest's *Local Level Indicators of Sustainable Forest Management Initial Status Report* for the model forest land base.

2003: Foothills Model Forest releases *Local Level Indicators of Sustainable Forest Management: Initial Status Report*.

2004: Foothills Model Forest researchers and partners meet to review, refine and prioritize existing local level indicators for the model forest land base.

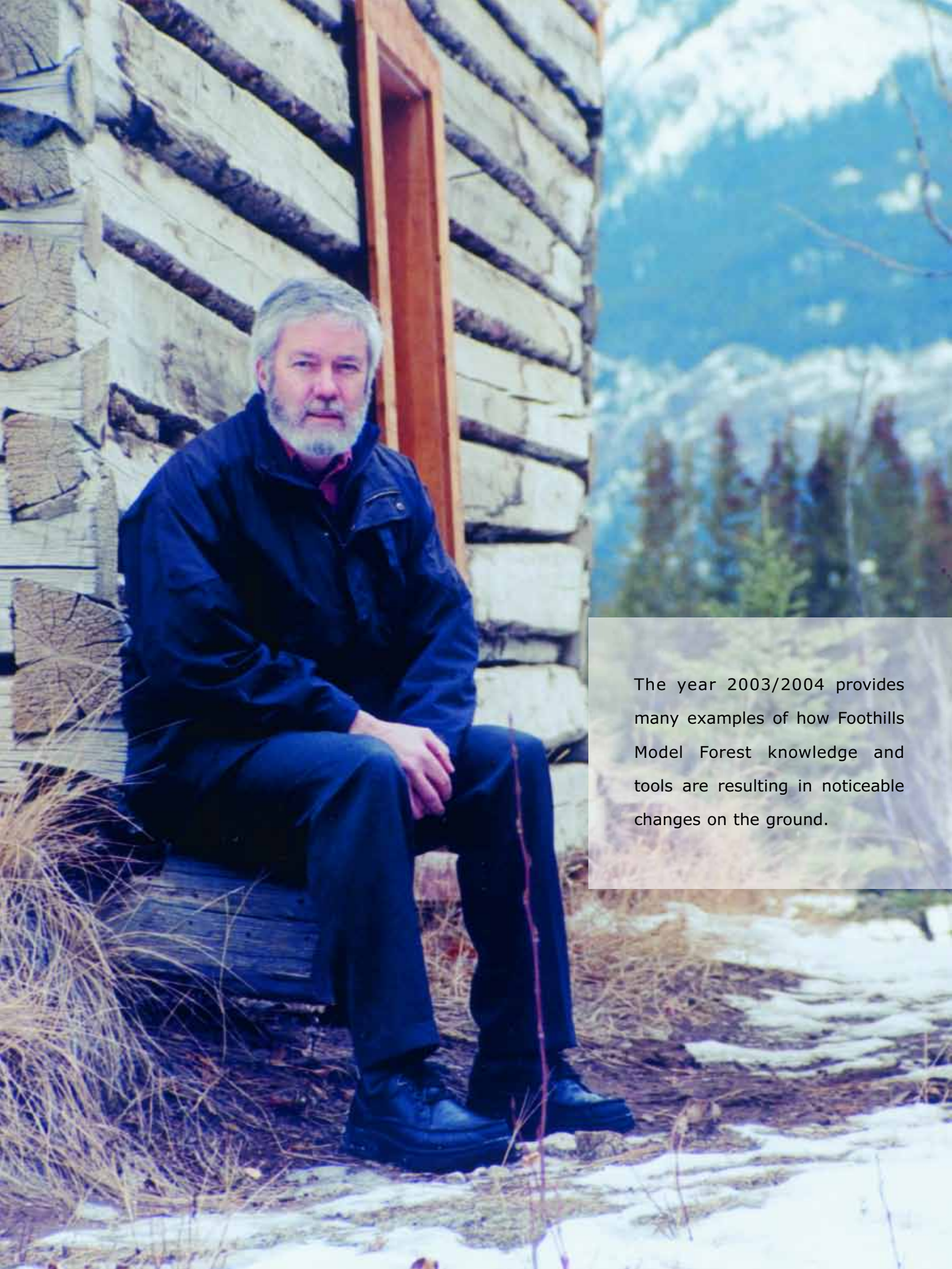


Canadian Model Forest Network

1. McGregor Model Forest
2. Foothills Model Forest
3. Prince Albert Model Forest
4. Manitoba Model Forest
5. Lake Abitibi Model Forest
6. Waswanipi Cree Model Forest
7. Eastern Ontario Model Forest
8. Bas-Saint-Laurent Model Forest
9. Fundy Model Forest
10. Nova Forest Alliance
11. Western Newfoundland Model Forest

The Government of Canada initiated Canada's Model Forest Program in 1992 as part of its *Green Plan*. Model Forests are grassroots organizations that develop sustainable forest management solutions specific to local environments and cultures, but the lessons learned and tools developed through the program are adaptable to other landscapes within and beyond Canada. To date, more than five hundred partners in the Canadian Model Forest Network have invested in and committed to the advancement of sustainable forest management.

Canada



The year 2003/2004 provides many examples of how Foothills Model Forest knowledge and tools are resulting in noticeable changes on the ground.

Message from the President

As I reflect on the achievements of the Foothills Model Forest over the past twelve years, I take pleasure in the many positive contributions that the organization has made. As in any organization, some achievements are more significant than others, but all have contributed to the advancement of sustainable forest management.

Over the last twenty years there has been significant shift in environmental theory and thought. Many of these musings are valuable and have improved management of the earth's resources. However, theory, if it is not to become advocacy, must be confirmed by research and scientific knowledge. When theory is advocacy, when science remains on shelves and knowledge is held in the minds of few, true advances are difficult, and society may lose potential benefits along with damage to other elements of sustainability.

Commitment and hard work are fundamental to the conversion of the theory of sustainable development into scientifically defensible improved practice. Society places great value on its forests and holds species such as grizzly bears in high regard. Forests are valuable and should be managed to sustain their economic contribution to society and forest-dependent communities. Wildlife is also dependent on forests, and must continue to thrive in them.

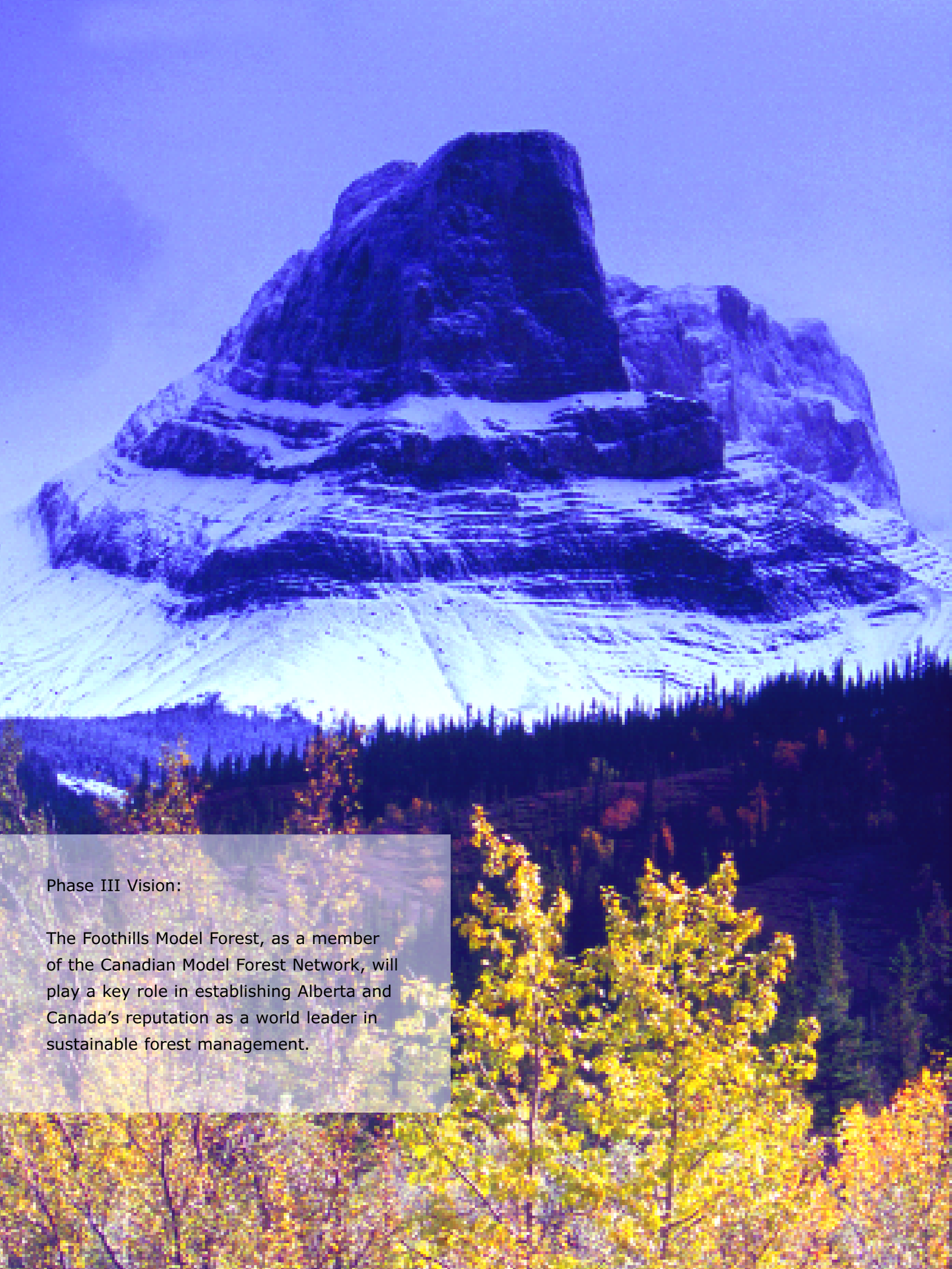
The challenge is that over the last twenty years, especially in North America, there has been a migration of people away from forests and rural settings into large urban centers where most people and jobs are not **directly** dependent upon natural resources. This migration has created a huge disconnect between the resources that fuel the economy and the luxuries that North Americans enjoy. This disconnect and loss of contact with agencies and people still involved in sustainable forest management can lead people to oversimplify and misinterpret the complexities of such management. For instance, it is widely believed and promoted that grizzly bears are unable to survive in forests managed for commercial timber production.

While model forest research has discounted this myth, the misleading message continues to be communicated, placing forests and their ecosystems, companies, governments and forest-based communities at risk.

But all is not doom and gloom. In the corner of the world that I have called home for decades, there is a dedicated and innovative team of sharp minds who want future generations to inherit a healthy forest and a high quality of life. Over the last twelve years tens of millions of dollars have been invested by the Foothills Model Forest in understanding this landscape's ecology, quantifying its economic worth, and attempting to understand the value society places on wildlife, nature, and recreation. **These are the underpinnings of sustainable forest management.** Researchers are constantly reminded that their work must be relevant, understandable, practical, and adaptable to the larger forest community of Alberta. The year 2003/2004 provides many examples of how Foothills Model Forest knowledge and tools are resulting in noticeable changes on the ground within and beyond the model forest. This has always been our focus. Through our partners' actions, environmental theory is translating into positive action or, as the practical-minded say, "the rubber is hitting the road."

Sincerely,

Bob Udell
President



Phase III Vision:

The Foothills Model Forest, as a member of the Canadian Model Forest Network, will play a key role in establishing Alberta and Canada's reputation as a world leader in sustainable forest management.

Foothills Model Forest Board of Directors

Dr. Jim Beck
Professor, Department of Renewable Resources, University of Alberta

Bob Demulder
Director, Forestry and Transportation, Alberta Forest Products Association*

Alex Galbraith
Mayor, Town of Hinton

Patrick Guidera
Regional Executive Director, Southwest Region, Integrated Regional Services, Alberta Sustainable Resource Development†

Dennis Hawksworth
Vice President, Manufacturing Excellence, Wood Products, Weldwood of Canada Limited

Cliff Henderson
Assistant Deputy Minister, Forest Protection Division, Alberta Sustainable Resource Development

Ron Hooper
Superintendent, Jasper National Park, Parks Canada

John Kerkhoven
Manager, Stakeholder Relations, Petro-Canada Ltd.

John Kristensen
Assistant Deputy Minister, Parks and Protected Areas, Alberta Community Development

Jim LeLacheur
General Manager, Alberta Woodlands, Weldwood of Canada Limited, Hinton Division+

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Vice President, Environment & Operations, Canadian Association of Petroleum Producers†

Keith McClain
Director, Science Policy and Strategy, Policy and Planning, Alberta Sustainable Resource Development◇

Rachelle McDonald
Manager of Operations, Aseniwuche Winewak Nation†

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General Manager, Cardinal River Coals Ltd*

Shira Mulloy
Manager, Stewardship, Canadian Association of Petroleum Producers◇

Dan Rollert
Forest Resources Manager, Weldwood of Canada Ltd., Hinton Division□

Al Sanderson
Senior Manager, Special Projects and Climate Change, Alberta Environment

Neil Shelly
Executive Director, Alberta Forest Products Association†

Jim Skrenek
Executive Director, Wildlife Management Branch, Fish and Wildlife Division, Alberta Sustainable Resource Development◇

Jerry Sunderland
Executive Director, Economics and Trade, Strategic Forestry Initiatives Division, Alberta Sustainable Resource Development†

Kevin Van Tighem
Chairman of the Board, Foothills Model Forest; Manager, Resource Conservation, Jasper National Park, Parks Canada

Brian Wallace
Manager, Warden Service, Jasper National Park, Parks Canada

Lorne West
Forestry Liaison Manager, Canadian Forest Service, Natural Resources Canada

+ Term started June 2003
□ Resigned June 2003
* Resigned October 2003
† Term started October 2003
◇ Term started February 2004
† Resigned February 2004

Foothills Model Forest Officers

Mr. Jim Bouthillier
Legal Counsel, Foothills Model Forest; Lawyer, Shtabsky & Tussman, Barristers and Solicitors

Curtis Philippon
Treasurer, Foothills Model Forest and Woodlands Controller, Forest Resources Department, Weldwood of Canada Limited, Hinton Division

Marsha Spearin
Secretary, Foothills Model Forest Board of Directors; Administrative Coordinator, Hinton Forest Resources, Weldwood of Canada Limited, Hinton Division

Robert Udell
President, Foothills Model Forest and Manager, Forest Policy and Government Affairs Manager, Weldwood of Canada Limited, Hinton Division

Program Implementation Team

The Program Implementation Team is comprised of Program Leads and partners. It provides recommendations to the Board of Directors on annual work plans and the activities of Foothills Model Forest Programs.

David Andison, Program Leader, Natural Disturbance Program

Kyle Clifford, Area Manager, Parks and Protected Areas, Alberta Community Development

Dick Dempster, Ph.D., Director, Foothills Growth and Yield Association

Brenda Dobson, M.Sc., Conservation Biologist, Jasper National Park, Parks Canada

Lisa Jones, Communications and Extension Manager, Foothills Model Forest

Rich McCleary, M.Sc., Program Manager, Fish and Watershed Research Program

Sharon Meredith, M.Sc., Forest Management Coordinator, Weldwood of Canada Limited, Hinton Division

Don Podlubny, General Manager, Foothills Model Forest

Dennis Quintilio, Program Lead, Chisholm, Dogrib and Lost Creek Fire Research

Kirby Smith, M.Sc., Program Lead, Woodland Caribou Program

Gordon Stenhouse, M Sc., Wildlife Carnivore Biologist, Grizzly Bear Research Program

Mark Storie, Program Lead, Local Level Indicators

Christian Weik, GIS Coordinator, Foothills Model Forest

Lorne West, Forestry Liaison Manager, Natural Resources Canada, Canadian Forest Service

Bill White, Ph.D., Program Lead, Social Sciences

Research Growing Into Practice

In 2003/2004 there were many positive stories about research being used to improve forest management planning and practice. The following are just a few examples of science-based conservation and forest management advancements based on Foothills Model Forest research. These efforts better ensure that the forest provides clean air and water, habitat for grizzly bears, and jobs and wealth to support social services such as public education and universal healthcare.

The Highway 40 North Demonstration Project

Mother Nature as a Guide

The Natural Disturbance Program is a cornerstone of the Foothills Model Forest. Since 1996, industry and government have invested significant resources to understand how natural disturbances, primarily forest fires, shaped the Foothills Model Forest landscape. Underlying this research is the belief that practices that emulate natural disturbances are a fundamental step in conserving biodiversity. Focus within the Natural Disturbance Program is now shifting from high-quality research to the integration of this new knowledge into forest and land management decisions.

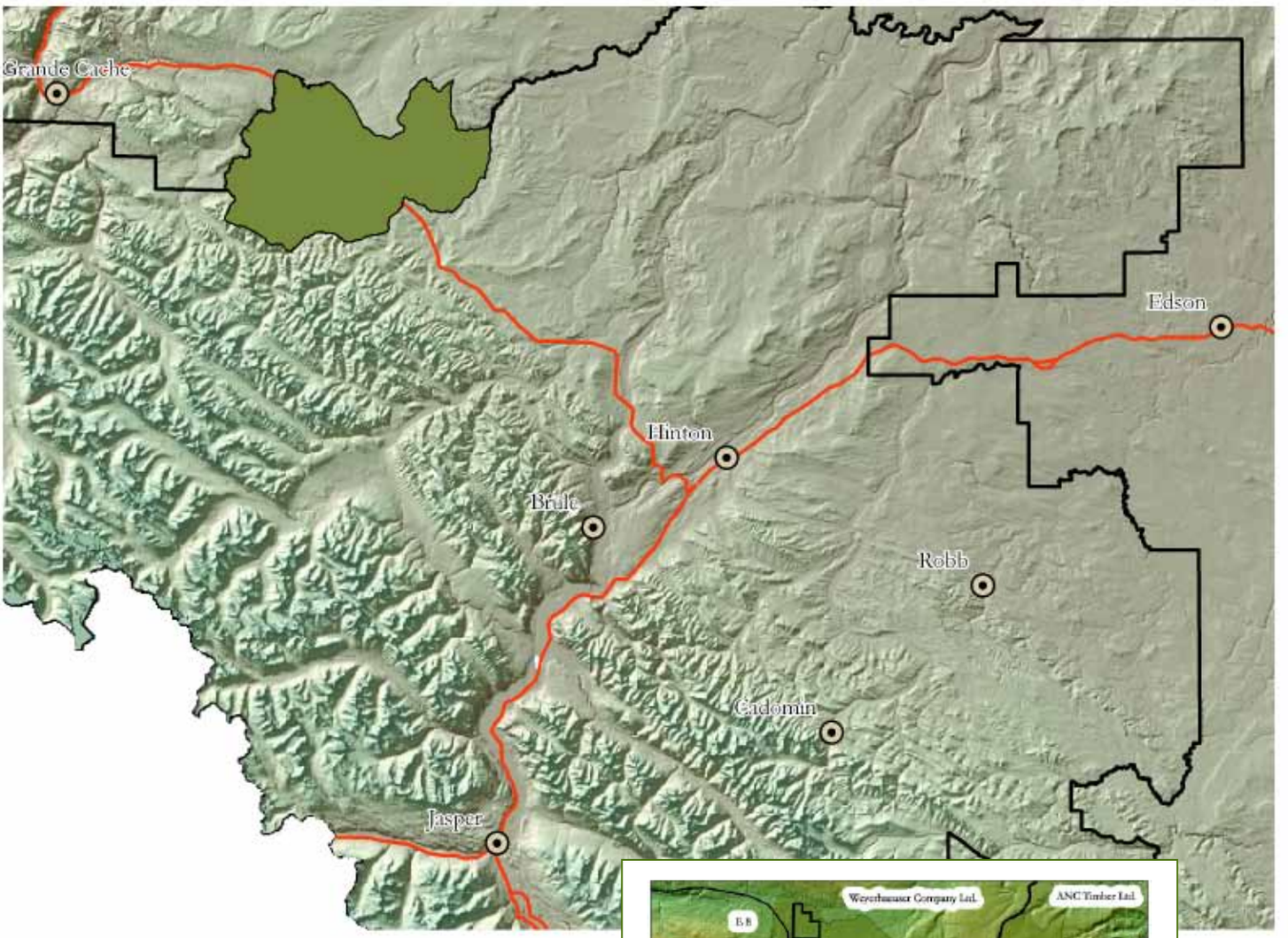
A Rich Landscape

The Highway 40 North Demonstration Project spans 70 000 hectares and includes portions of three forest management areas and one protected area – the Willmore Wilderness Park. It is an area rich in ecological, economic and social values. As one of the largest contiguous areas of older forest in the Alberta foothills, it represents critical habitat for caribou, grizzly bear, and bull trout. The area is also highly valued for its recreational opportunities and is rich in natural resources, both timber and natural gas. It is also extremely susceptible to wildfire, which poses a real threat to many of these values in addition to private property, human life, and similar values within adjacent, more densely populated landscapes. It is unlikely that this contiguous area of old forest (and the values therein) would exist today were it not for aggressive fire control efforts over the last several decades.

The Natural Approach to Sustainable Forest Management

The Foothills Model Forest and its partners are working together to conserve the values of the area today and into the future. Together, project partners are developing, implementing, and monitoring a ten-year (2004–2014) *disturbance plan*.

What is a disturbance plan? In simple terms, it is a plan that uses natural disturbance research and knowledge to guide operational activities. Operational decisions will be grounded in defensible, ecology-based science. The project area crosses into a protected area; therefore tools used to execute the plan may include harvesting, prescribed burns or coordinating the location and timing of road building. Although it is not always possible to emulate the patterns of natural disturbance, decisions will be based on an ecological foundation. In Canada, this is the first known attempt to integrate a full suite of natural pattern elements into a single operational plan.



The Highway 40 North Demonstration Project spans 70 000 hectares. It is an area rich in ecological, economic and social values.

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Integrating Science Into Practice

In 2003/2004 work focused on creating the *disturbance plan*. Lively and thought-provoking discussions ensued among different people representing different disciplines and interests.

> A biologist advised on how operations could minimize the impacts on caribou habitat.

> Planners from gas companies and wildfire experts exchanged ideas on how gas pipelines may serve as fire barriers or fire lines.

> Foresters and planners from the energy sector recognized the need to collaborate on access in an effort to minimize roads in the project area.

All of these discussions took place with the understanding that human activity would attempt to emulate Mother Nature.

Ecosystem-Based Management: From the Classroom to the Ecosystem

This project is an ambitious, forward-looking exercise. It points to the opportunities and challenges of using ecologically relevant science to guide forest management planning and practices, a major tenet of ecosystem-based management theory.

One thing is certain: collaboratively creating a single *disturbance plan* for a large landscape is worth the effort and energy invested. At a minimum, the project will begin to answer the question: Does the natural disturbance approach to forest management conserve the ecological values of the forest while sustaining economic and social opportunities? The answer to this question is critical to advancing sustainable forest management.

Project partners:

> Alberta Community Development, Parks and Protected Areas

> Alberta Newsprint Company

> Alberta Sustainable Resource Development

> Weldwood of Canada Limited, Hinton Division

> Weyerhaeuser Company Limited

Bringing Strategies to Life

The Highway 40 North Demonstration Project links to the following criteria of sustainable forest management from the Canadian Council of Forest Ministers (CCFM) and the corresponding goals from *Local Level Indicators of Sustainable Forest Management for the Foothills Model Forest: Initial Status Report*:

CCFM Criterion One:
Conservation of Biological Diversity

Goal 1.1 Maintain viable populations of all currently occurring native species.

Goal 1.2 Maintain genetic diversity.

Goal 1.3 Protect rare ecological sites and special landscape features.

Goal 1.4 Maintain natural diversity, pattern and stages of forest ecosystems over time.

CCFM Criterion Two:
Maintenance/Enhancement of Forest Ecosystem Condition and Productivity

Goal 2.2 Maintain natural ecological processes.

Goal 2.3 Conserve forest land base.

CCFM Criterion Three:
Conservation of Soil and Water Resources

Goal 3.1 Protect water quality.

Goal 3.2 Conserve quantity and timing of water yields.

Goal 3.3 Conserve soil productivity.

Goal 3.4 Minimize erosion and soil losses resulting from human activities.

CCFM Criterion Five: Multiple Benefits to Society

Goal 5.1 Achieve sustainable use of biological resources.

Goal 5.2 Assure opportunities for consumptive and non-consumptive use.

Goal 5.3 Contribute to the social and economic health of the region.

Goal 5.5 Optimize benefits through integration of land and resource use.

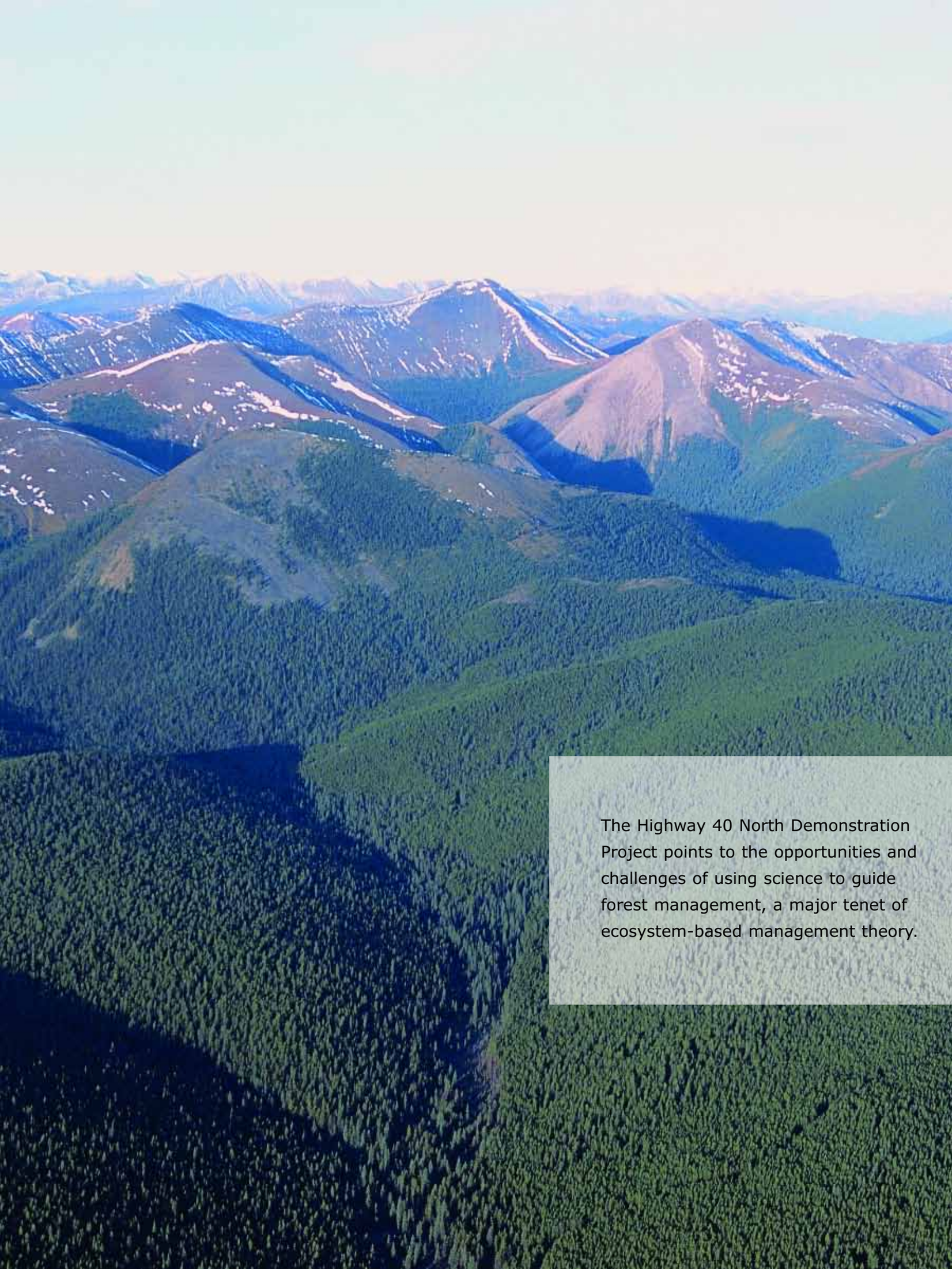
Goal 5.6 Minimize threats resulting from large-scale disturbances.

CCFM Criterion Six: Accepting Society's Responsibility for Sustainable Development

Goal 6.3 Promote cooperation, partnership, and shared responsibility.

Goal 6.4 Foster mutual understanding on the concepts and benefits of sustainable forest management among policy makers, practitioners, researchers, and the public.

Goal 6.5 Continual improvement of sustainable forest management practices.



The Highway 40 North Demonstration Project points to the opportunities and challenges of using science to guide forest management, a major tenet of ecosystem-based management theory.

The FireSmart – ForestWise Project in Jasper National Park

An Un"*naturally*" Old Forest Landscape

Forest fires have shaped the Foothills Model Forest landscape and are an agent of forest renewal and ecosystem health. However, since the 1930s wildfire has been almost completely excluded from the landscape through effective fire suppression. This has resulted in a forest landscape that is unnaturally old, thus reducing biodiversity and increasing the risk of a large, catastrophic wildfire.

Artificially old forests caused by decades of fire suppression are not unique to the Foothills Model Forest land base. Not surprisingly, such landscapes across North America are very susceptible to extreme wildfires. This situation has sparked interest and efforts to reduce the risk to people, communities, and infrastructure from severe wildfire by returning forests to a more natural age-class distribution, and by taking special measures in the immediate vicinity of values and lives at risk. Consequently, a nationwide initiative called *FireSmart* was developed to respond to this need. Building on this initiative, the Foothills Model Forest has combined knowledge of fire behavior, forest ecology and wildlife to begin a unique and proactive project in Jasper National Park to restore a more natural forest structure, thus maintaining ecological integrity while simultaneously protecting people, communities, and infrastructure from severe wildfires. Thus the name: *FireSmart – ForestWise*.

The *FireSmart – ForestWise* Project has four major components:

- Public outreach and involvement
- Research and monitoring to develop new knowledge and technology
- Operational scale forest thinning (manual and mechanical)
- Prescribed burning

Getting the Public On Board

Achieving sustainable forest management involves engaging the public in decision making about how the forest and its values should be managed. The *FireSmart – ForestWise* Project is an excellent example of how the community can be directly involved in project decisions and implementation, thereby working together towards common goals that benefit the forest and the community it supports.

FireSmart – ForestWise work began in 2002/2003. In neighborhood work bees, citizens removed trees and vegetation that posed a serious fire risk and clogged the forest floor. These small demonstration sites and the formation of collaborative management boards generated strong public support. In winter 2003/04, light-impact logging equipment was used to thin larger areas, providing further protection to residential areas. Prescribed burns will be also used, where appropriate, to restore and maintain thinned forests in the future.

The Foothills Model Forest is joined by many partners in the *FireSmart – ForestWise* Project. It is yet another example of how partners who focus on developing practical solutions can make positive, on-the-ground changes.

Creating understanding about the rationale and mechanics of the *FireSmart – ForestWise* initiative resulted in the community rallying behind and becoming actively involved in fire protection and ecosystem restoration efforts.

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Project partners:

- Alberta Junior Forest Rangers
- Alberta Sustainable Resource Development
- ATCO Electric Ltd.
- Jasper Chamber of Tourism
- Jasper National Park
- Katimavik
- Lake Edith Cottage Association/ Fire Prevention Committee
- Members of Jasper Infrastructure Steering Team
- Métis Nation of Alberta
- Municipality of Jasper
- University of Calgary

Bringing Strategies to Life

The *ForestWise-FireSmart* links to the following criteria of sustainable forest management from the Canadian Council of Forest Ministers (CCFM), and the corresponding goals from *Local Level Indicators of Sustainable Forest Management for the Foothills Model Forest: Initial Status Report*:

CCFM Criterion Two: Maintenance/Enhancement of Forest Ecosystem Condition and Productivity

Goal 2.2 Maintain natural ecological processes.

CCFM Criterion Five: Multiple Benefits to Society

Goal 5.4 Maintain a competitive, profitable, and sustainable local economy.

Goal 5.6 Minimize threats resulting from large-scale disturbances.

CCFM Criterion Six: Accepting Society's Responsibility for Sustainable Development

Goal 6.1 Ensure land use management and planning processes include timely, fair, open and equitable public involvement.

Goal 6.3 Promote cooperation, partnership and shared responsibility.

Goal 6.4 Foster mutual understanding of the concepts and benefits of sustainable forest management among policy makers, practitioners, researchers, and the public.

The Hardisty Creek Restoration Project

THINK GLOBALLY, ACT LOCALLY

Think global, act local is a powerful adage. Its power grows exponentially when locals take action. Such is the case with the Hardisty Creek Restoration Project. This Project is yet another example of how collaboration and a solutions-oriented approach result in significant, positive change. Local environmental group Athabasca Bioregional Society conceived and championed the Project. The two primary goals of the project are to

1. Address the way in which the area's watersheds are managed;
2. Educate the citizens of Hinton and area to be more aware of their relationship to water and the greater ecosystem.

A logical focus for this group is the restoration of the Hardisty Creek watershed.

A Community's Creek

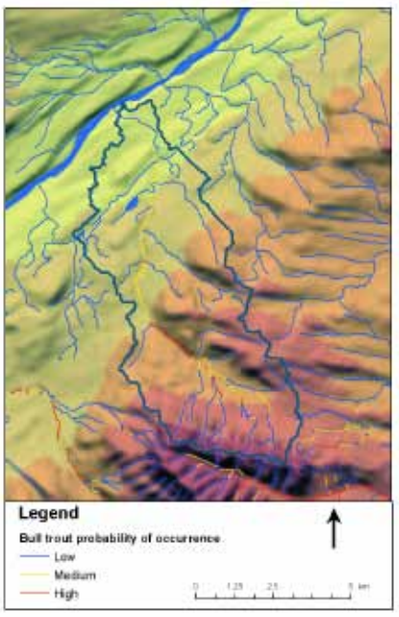
The Hardisty Creek watershed includes a section of creek that runs through the Town of Hinton. Over the years, Hardisty Creek has provided recreational opportunities to the people of Hinton. Fifty years ago it was a favourite fishing spot. Today it is part of a well-travelled walking trail and offers the simple joy of being near water. Over time and as the area experienced industrial and residential developments, stream crossings and other infrastructure damaged fish habitat and passage. One result of these changes is that bull trout no longer inhabit the stream. Therefore, two goals of the Hardisty Creek Restoration Project are to

1. Restore fish habitat;
2. Extend fish passage connectivity.

Working towards these goals should create conditions for bull trout to re-colonize the stream thus maintaining biodiversity.

Science-Based Conservation

The Foothills Model Forest Fish and Watershed Program is the technical lead in the Project. Partnership in this initiative is logical because of the Model Forest's accrued knowledge and tools, including comprehensive fish inventory data, fish probability mapping, and stream-crossing assessments. The Project is an example of science-based conservation and management.



A fish probability map is one of the Foothills Model Forest tools being used in the Hardisty Creek Restoration Project.

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Putting Their Money Where Their Mouths Are

In 1927 Canadian National Railway (CN) installed a cement culvert at the Hardisty Creek crossing. Over the last seventy years, erosion at the culvert outlet created a vertical drop two-metres high that blocked upstream fish migration. In the fall of 2003, CN completed a project to restore fish passage at this location, with a price tag of $115 000. CN removed the waterfall and constructed a long rapid with large boulders to create resting places for fish. This is the first of many planned actions in the effort to restore this watershed. Weldwood of Canada Limited, Hinton Division and the Town of Hinton have committed to fix three different stream crossings and create fish habitat in the adjacent areas. The ultimate outcome of a functioning and healthy watershed can best be achieved by working together.

V V In 2003 Canadian National Railway restored fish passage at its 77-year old culvert. This is the first of many planned actions through the Hardisty Creek Restoration Project.

Before

After

Project partners:

- Alberta Conservation Association
- Alberta EcoTrust Foundation
- Alberta Sustainable Resource Development
- Alberta Transportation
- Athabasca BioRegional Society
- Canadian National Railway
- Cows and Fish Program
- Department of Fisheries and Oceans
- Hinton Fish and Game Association
- Town of Hinton
- UNESCO's Wonder of Water Initiative
- Weldwood of Canada Limited, Hinton Division

Bringing Strategies to Life

The Hardisty Creek Restoration Project links to the following criteria of sustainable forest management from the Canadian Council of Forest Ministers (CCFM), and the corresponding goals from *Local Level Indicators of Sustainable Forest Management for the Foothills Model Forest: Initial Status Report*:

CCFM Criterion One:
Conservation of Biological Diversity

Goal 1.1 Maintain viable populations of all currently occurring native species.

CCFM Criterion Three:
Conservation of Soil and Water Resources

Goal 3.1 Protect water quality.

CCFM Criterion Six: Accepting Society's Responsibility for Sustainable Development

Goal 6.3 Promote cooperation, partnership and shared responsibility.

Goal 6.4 Foster mutual understanding on the concepts and benefits of sustainable forest management among policy makers, practitioners, researchers and the public.

Goal 6.5 Continual improvement of sustainable forest management practices.

Foothills Model Forest Grizzly Bear Research Program

The achievement of sustainable forest management is intricately linked to the population status and health of grizzly bears. The Foothills Model Forest and its partners have demonstrated leadership by taking discussions surrounding grizzly bear conservation to the next step. Since 1999, over forty-five partners invested over four million dollars into grizzly bear research, resulting in a greater understanding about grizzly bear movement, habitat use, animal health, and risks. Data were collected to better understand this species and to develop land and resource management planning tools that are now being applied by some of the Program's partners.

Resource Selection Function Models: Illustrating the Bear Necessities

The year 2003/2004 saw five years of research (1999 – 2003), 46 000 grizzly bear location points, and remote sensing technologies culminate in resource selection function models for a 100 000-square kilometre area including and extending beyond the Foothills Model Forest. Resource selection function models incorporate many factors (grizzly bear location points, vegetation, industrial activity, roads, topography) to illustrate how grizzly bears use the landscape and to show where bears are most likely to be found. These are powerful tools that enable industry to plan their activities to avoid or minimize their impact on prime grizzly bear habitat.

Research Growing Into Practice

Is this knowledge being applied? Yes, and it is anticipated through communications and training the application of this knowledge will accelerate.

Weldwood of Canada Limited, Hinton Division is an original funding partner for the Grizzly Bear Research Program; therefore it is appropriate that they are one of the first industrial partners to use this knowledge. An example is the company's access plan for the Athabasca West area, which is in the northwest portion of its forest management area. The access plan considered all values with particular priority given to avoidance of good grizzly bear habitat. Doing so benefited fish and their habitat, bringing the notion of umbrella species to life. High points of the access plan are:

- The reduction in the permanent road footprint by about 30% over traditional road planning and building;
- Permanent roads avoiding high quality grizzly bear habitat;
- Roads not built parallel to creeks, a change in practice and results in fewer stream crossings.

Bears and Humans – Do They Mix?

The Foothills Model Forest Grizzly Bear Research Program has concluded that grizzly bears, mining, and forestry activity have and continue to coexist in the study area. This finding is somewhat contrary to popular belief. It suggests that landscape change that has occurred as a result of these activities has not resulted in habitat loss detrimental to grizzly bear populations. Unfortunately, the illegal killing of grizzly bears is the biggest threat to the region's population. Over a five-year period, from 1999 to 2003, seven bears were illegally killed; most incidents were within 100 metres of a road.

Biologists and program partners are taking this finding seriously. One of the Program's resource selection function maps quantifies the risk of human-caused mortality to bears. This tool will be valuable as a guide to road development and access management. Currently, within Weldwood's forest management area, 63% of new roads or pipelines are able to follow an existing right-of-way. Sharing rights-of-way such as roads is good news from an ecological and economic perspective. In the Foothills Model Forest land base, Alberta Sustainable Resource Development is asking that access to some roads be restricted by installing gates or putting up rock barriers. The illegal killing of bears is the regrettable action of a small number of individuals. But Foothills Model Forest partners are committed to doing their part in conservation, such as reducing the number of roads on the landscape, thus reducing the risk of grizzly poaching.

In the Foothills Model Forest area from 1999 to 2003, seven bears were illegally killed; most incidents were within 100 metres of a road.

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Resource selection function models incorporate many different variables (location points, vegetation, topography, forest cover) into a single model. The model, through a series of calculations, quantifies and illustrates how grizzly bears use the Foothills Model Forest landscape.

Foothills Model Forest Grizzly Bear Research Program Partners

Ainsworth Lumber Company Ltd.
Alberta Community Development, Parks and Protected Areas
Alberta Conservation Association
Alberta Environment
Alberta Newsprint Company
Alberta Sustainable Resource Development
BC Oil and Gas Commission Environmental Fund
Blue Ridge Lumber (1981 Ltd.)
BP Canada Energy Company
Burlington Resources Canada Ltd.
Canadian Association of Petroleum Producers
Canfor Corporation
ConocoPhillips Canada Resources Ltd.
Elk Valley Coal – Cardinal River Operations
Environment Canada
Forest Resource Improvement Association of Alberta (FRIAA)
G&A Petroleum Services
GeoAnalytic Ltd. – Canada
Hinton Fish & Game Association
Hinton General Hospital Laboratory
Hinton Training Centre
Jasper National Park, Parks Canada
Jasper Yellowhead Museum and Archives
Komex International Ltd.
Lehigh Inland Cement Limited
Luscar Limited
Manning Diversified Forest Products
Millar Western Forest Products Ltd.
Natural Resources Canada, Canadian Forest Service
Northrock Resources Ltd.
Peregrine Helicopters
Petro-Canada Ltd.
Petroleum Technology Alliance of Canada (PTAC)
Rocky Mountain Elk Foundation – Canada
Spray Lake Sawmills
Suncor Energy Inc.
Sundance Forest Industries Ltd.
Sunpine Forest Products Ltd.
Talisman Energy Inc.
Telemetry Solutions
TransCanada Pipelines Limited
University of Alberta
University of Calgary
University of Lethbridge, Department of Geography
University of Saskatchewan
University of Washington, Centre for Wildlife Conservation (USA)
Veritas DGC Inc.
Weldwood of Canada Ltd., Hinton Division
Weyerhaeuser Canada Ltd.
World Wildlife Fund – Canada

Bringing Strategies to Life

The Foothills Model Forest Grizzly Bear Research Program links to the following criteria of sustainable forest management from the Canadian Council of Forest Ministers (CCFM), and the corresponding goals from *Local Level Indicators of Sustainable Forest Management for the Foothills Model Forest: Initial Status Report*:

CCFM Criterion One: Conservation of Biological Diversity

Goal 1.1 Maintain viable populations of all currently occurring native species.

Goal 1.2 Maintain genetic diversity.

CCFM Criterion Five: Multiple Benefits to Society

Goal 5.1 Achieve sustainable use of biological resources.

CCFM Criterion Six: Accepting Society's Responsibility for Sustainable Development

Goal 6.3 Promote cooperation, partnership and shared responsibility.

Goal 6.4 Foster mutual understanding on the concepts and benefits of sustainable forest management among policy makers, practitioners, researchers and the public.

Goal 6.5 Continually improve sustainable forest management practices.

Program Achievements

2003/2004

Program Achievements: 2003/2004

Sustainable forest management involves more than grizzly bears and fire. The Canadian Council of Forest Ministers identifies six criteria to measure government, industry, and society's ability to manage forests in a sustainable manner. The Foothills Model Forest diligently commits to this lofty goal. In 2003/2004, thirteen programs were funded in this pursuit, all of which are important for advancing sustainable forest management. By no means is the work done, but it can be asserted with confidence that forests and communities along the northeast slopes of Alberta and the Canadian Rockies are managed thoughtfully using sound science. Program highlights demonstrate this point.

Adaptive Forest Management

Learning from the Forest: A Fifty Year Journey Towards Sustainable Forest Management has been published. This book is a positive and productive chronicle of forest management from its early beginnings to the present-day in the Foothills Model Forest land base.

Aboriginal Involvement

Sustainable forest management involves Aboriginal communities and respects their traditional use of the land. In 2003/2004 the relationships between local Aboriginal communities, the Foothills Model Forest, and its partners were strengthened. A milestone was the appointment of Rachelle McDonald from Aseniwuche Winewak Nation to the Board of Directors.

Chisholm, Dogrib and Lost Creek Fires

Large, catastrophic wildfires are becoming a reality for many communities. Documenting and understanding wildfires is of great ecological, economic and social benefit. For example, current fire model Prometheus (another Foothills Model Forest Project) has one input for aspen stands. However, research on the Chisholm fire found that aspen behaves in three distinct manners. Therefore, the fire model will be refined to include three inputs for aspen stands. Recalibrating the model may influence how aspen stands are treated both before and during a wildfire, potentially saving lives, homes, and communities.

Communications & Extension

Communicating softly yet clearly, Foothills Model Forest shares its research and development, recognizing that this is critical to the advancement of sustainable forest management. Foothills Model Forest staff has met and talked to over 4 600 people – average, everyday people who are interested in how the forest and its resources are managed. Through media an additional 1.2 million people became better informed about sustainable forest management research and application.

But that's not all. Over 1 300 professionals involved in the management and protection of forests listened to and learned about Foothills Model Forest research. And they are using it. A single example: Weyerhaeuser Company Limited is adapting the stream classification database to its Edson and Drayton Valley forest management areas and may use this tool when developing their detailed forest management plans.

FireSmart-ForestWise in Jasper National Park

Jasper National Park is using *FireSmart – ForestWise* techniques to help protect the people, communities and infrastructure from severe wildfires. Over a three-year period, the project will thin 350 hectares of forest using specialized logging equipment. In 2003/2004, 115 of the 350 hectares were treated.

Fish and Watershed

The Fish and Watershed Program is developing tools to help industry meet high environmental standards at stream crossings. Repairing stream crossings can be an expensive business and determining maintenance priorities among several thousand crossings installed over several decades presents unique challenges. By coupling Foothills Model Forest fish probability maps and stream crossing assessments, industry and government can focus resources in a strategic manner. This approach will optimize the benefits for important fish species such as bull trout.

Foothills Growth and Yield Association

The scientific assessment of forest productivity is essential for effective management of Alberta's timber resources. The Foothills Growth and Yield Association is helping managers better assess the productive capacity of ecosystems, the sustainable level of timber use, and the selection of enhanced forest management practices. It is successfully promoting co-operation, partnership, and shared responsibility in sustainable forest management. The mandate of the Association is to continually improve the assessment of lodgepole pine growth and yield in managed stands. Accomplishments during the last year included

- Providing forestry practitioners, managers, and researchers with an improved understanding and new insights regarding the development and productivity of forest stands regenerated after harvesting;
- Continued measurement and experimental treatment of field trials designed to improve the basis for regeneration standards and silvicultural practice;
- Awarding of funding by the Forest Resource Improvement Association of Alberta for a major new project to enhance management of lodgepole pine.

Foothills Model Forest Grizzly Bear Research Program

A goal of the Foothills Model Forest is to inform policy. Grizzly bear biologist and program lead Gordon Stenhouse is a scientific advisor on the Grizzly Bear Recovery Team who is drafting the Alberta Provincial Grizzly Bear Recovery Plan. This plan provides insights and recommendations to the management of Alberta's grizzly bears.

Geographic Information Systems

Geographic information systems (GIS) and data management play key roles in supporting research undertaken at the Foothills Model Forest. Practically all model forest projects and knowledge creation is dependent upon this Program. The Fish and Watershed Program together with the GIS Program developed a stream classification and watershed dataset that is being used by sponsoring partners Alberta Sustainable Resource Development, Jasper National Park, and Weldwood of Canada Limited, Hinton Division.

Local Level Indicators for Sustainable Forest Management

As a follow-up to the *Local Level Indicators of Sustainable Forest Management Initial Status Report*, scientists and partners met to critically review current local level indicators. Meetings involved discussions surrounding how indicators should be monitored and reported. These efforts will contribute to the delivery of the *State of the Foothills Model Forest* report scheduled for 2007.

Mountain Pine Beetle

Under what conditions could a mountain pine beetle outbreak occur in the Foothills Model Forest area? This is an important question considering that mountain pine beetles have been found in the protected portions of the Foothills Model Forest (Willmore Wilderness Area and Jasper National Park) and adjacent Mount Robson Provincial Park. A model has been developed to answer this question and to quantify the risk and susceptibility of a mountain pine beetle outbreak in the Foothills Model Forest. One conclusion of the model is that an outbreak is unlikely to reach the working forest within a decade. The model also indicated that it was essential to continue monitoring and controlling infested trees, and that management actions that reduce susceptibility should be considered.

Natural Disturbance Program

The Natural Disturbance Program's methodologies have contributed to the documentation of fire history in the Foothills Model Forest land base and beyond. The research quantifies the percentage of young, pole, mature, and old forests that would naturally occur across a landscape. Forest companies Alberta Newsprint Company, Alberta Pacific Forest Industries Ltd., Sunpine Forest Products, and Weldwood of Canada Limited, Hinton Division, use this knowledge in their *Old Growth Forest* strategies. *Old Growth Forest* strategies commit to maintaining the amount of old growth forest on a company's forest management area within the range that would naturally occur. This approach contributes to the conservation of biodiversity.

Woodland Caribou

The Little Smoky herd of caribou is in decline. Why? In an effort to better understand this population trend the Foothills Model Forest provided financial support to testing this research question: Do resource selection patterns of wolves and caribou provide insights into the mechanisms behind the caribou decline in the Little Smoky herd? In an attempt to answer this question eighteen caribou and five wolf packs for a total of fourteen wolves were collared. In addition to further research, the caribou biologist participated in the Highway 40 North Demonstration Project. His involvement enabled existing knowledge to guide the development of a ten-year (2004–2014) operational plan for the area that includes the habitat of the adjacent A La Peche herd.

The Well-Being of Communities

Social Sciences: Social Indicators of Community Sustainability

Social indicators of community sustainability are a less understood element of sustainable forest management. Yet monitoring and reporting the effects of resource management decisions on communities is critical to advancing sustainable forest management. Achieving sustainable forest management contributes to communities that provide a high quality of life for their citizens.

The first report on well-being for the Foothills Model Forest communities was released in 2001. This report was based on the 1996 Statistics Canada census. In 2003/2004 a follow-up report was issued using 2001 Statistics Canada census data. **What is significant and interesting is that between 1996 and 2001 there were several mine closures in the area.** Analyzing and comparing data provides insights into a community's social health when industries experience downturns. Communities included in this report are Jasper, Hinton, and Yellowhead County. The Yellowhead County boundaries extend beyond the Foothills Model Forest land base. The most recent social indicators report is summarized below.

Six Indicators of Community Wellness

1. Population and migration
   - > Over the last twenty years there has been a 400% increase in residents aged 65 to 74 in Hinton. The community is faced with providing the housing, recreational and medical resources necessary to provide services to this population, which represents an important asset.
2. Employment
   - > The unemployment rates for males and females in Hinton significantly increased between 1996 and 2001, with more than half the female workforce working part-time. If these trends continue there may be a continued decline in town population and an increase in demand for social assistance.
3. Income distribution
   - > Residents of the Foothills Model Forest, on average, have higher incomes than the rest of the province. However, there is a growing disparity in household incomes, or a "hollowing out" of middle-class families in the community. This trend is not unique to Hinton but represents a serious challenge to community well-being when divisions between rich and poor families are increasingly acute. Note also that Jasper's median income is below provincial averages.
4. Poverty
   - > The Foothills Model Forest region has a much lower incidence of low income than the provincial average, although the incidence of low income in Jasper increased between 1996 and 2001. In fact, poverty rates for individuals and families in Jasper started to climb in the last five years. These rates reflect a growing number of residents who may need to leave the community or become dependent on social services.
5. Human capital
   - > Educational attainment levels are an important indicator of the capacity of a community to adapt to changing social and economic conditions. Educational attainment in the Foothills Model Forest is fairly low, with the exception of Jasper, when compared to the rest of the province. However, nearly half of the population of the Foothills Model Forest between the ages of 15 and 24 years of age were enrolled in full-time education. This is on par with the provincial average.
6. Real estate
   - > Jasper is the most expensive community in which to buy a house. Jasper has the highest payments on housing and rent, and housing expenses are highest as a proportion of median income. Throughout the rest of the Foothills Model Forest, these payments decreased, suggesting housing expenses are becoming increasingly affordable.

Partners: Part of the Solution

Partners: Part of the Solution

Long-term, sustained commitment and collaboration lead to the integration of research into forest management practice and policy. The Foothills Model Forest partnership demonstrates a commitment from many to the advancement of sustainable forest management.

Sponsoring Partners

Sponsoring partners Alberta Sustainable Resource Development, Jasper National Park, Natural Resources Canada and Weldwood of Canada Limited, Hinton make a five-year commitment to the Foothills Model Forest. In 2003/2004 the four sponsoring partners' combined contribution exceeded 1.6 million dollars.

Alberta
SUSTAINABLE RESOURCE DEVELOPMENT

Government of Canada / Gouvernement du Canada

Weldwood

Partners

Management Partners

Management partners provide financial and in-kind support to the Foothills Model Forest. They are also responsible for land, resource, or forest management, and are interested in using model forest knowledge and tools in their businesses.

Ainsworth Lumber Company Ltd.
Alberta Community Development
Parks and Protected Areas
Alberta Newsprint Company
Alberta Pacific Forest Industries Inc.
Blue Ridge Lumber (1981) Ltd.
BP Canada Energy Company
Burlington Resources Canada Ltd.
Canfor Corporation
ConocoPhillips Canada Resources Ltd.
Devon Canada Corporation
Elk Valley Coal – Cardinal River Operations
Komex International Ltd.
Lehigh Inland Cement Limited
Luscar Limited
Millar Western Forest Products Ltd.
Petro-Canada Ltd.
Slave Lake Pulp
Spray Lake Sawmills
Suncor Energy Inc.
Sundance Forest Industries Ltd.
Sunpine Forest Products Ltd.
Talisman Energy Inc.
TransCanada Pipelines Limited
Veritas DGC Inc.
Waterton National Park
Weyerhaeuser Company Limited

Program and Project Partners

Program and project partners provide financial and in-kind support to specific programs or projects. These organizations believe in and support the Foothills Model Forest.

Aboriginal Affairs and Northern
Development
Alberta Conservation Association
Alberta Environment
Alberta Forest Products Association
Aseniwuche Winewak Nation
Athabasca Bioregional Society
Bandaloop Landscape-Ecosystem Services
Big Horn First Nation
Canadian Association of Petroleum
Producers
Canadian National Railway
Canadian Wildlife Service
Environment Canada
Foothills Ojibway Society
FOREM Technologies Ltd.
Forest Resource Improvement Association
of Alberta (FRIAA)
The Forestry Corp.
G & A Petroleum Services
Geoanalytic Inc. – Calgary
Hinton Fish & Game Association
Hinton General Hospital Laboratory
Hinton Training Centre
Natural Resources Canada
O'Chiese First Nation
Peregrine Helicopters
Petroleum Technology Alliance Canada
Rocky Mountain Elk Foundation Canada
Sunchild First Nation
TJG Consulting
Town of Hinton
Town of Jasper
Trout Unlimited
University of Alberta
University of British Columbia
University of Calgary
University of Lethbridge
University of Saskatchewan
University of Washington
World Wildlife Fund Canada

Other Partners

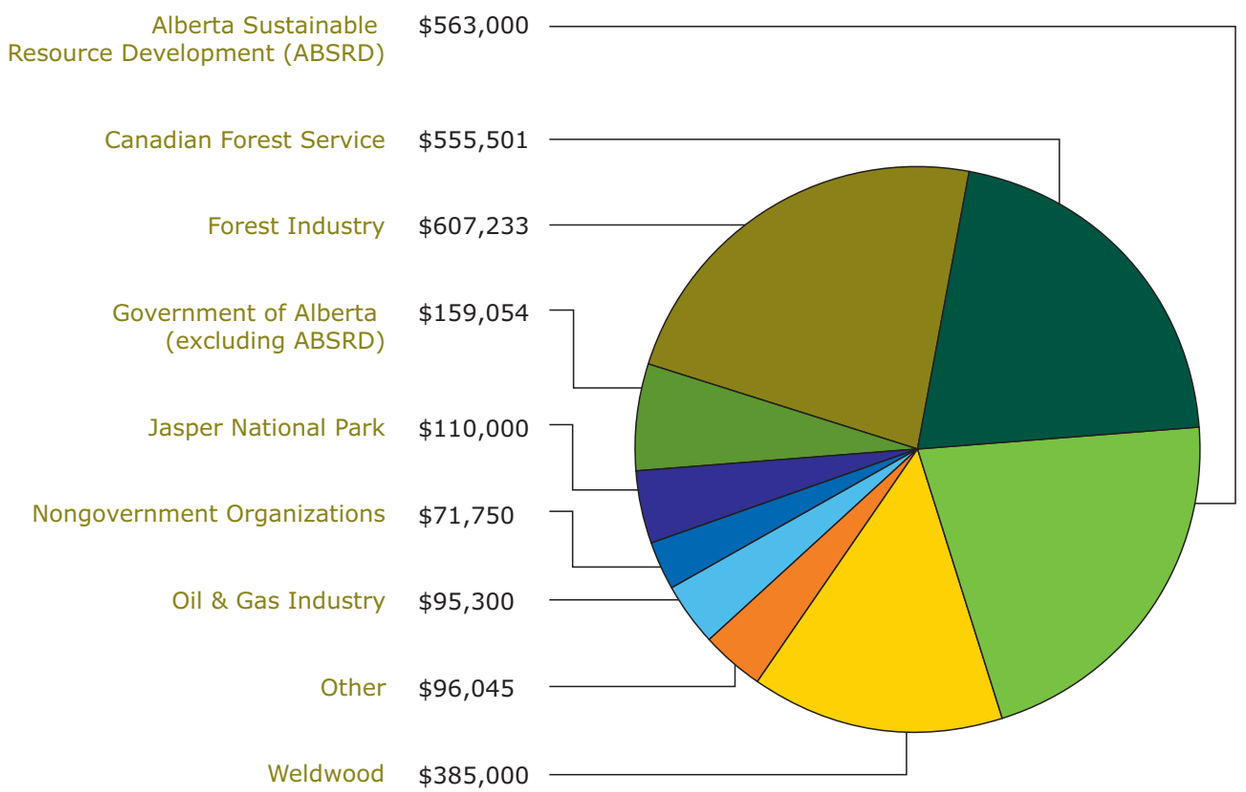
The following associations, businesses, and communities support the vision and goals of the Foothills Model Forest organization.

Alberta Chamber of Resources
Alberta Research Council
AVID Canada
Canadian Centre for Remote Sensing
Canadian Institute of Forestry
Council of Forest Industries
College of Alberta Professional Foresters
Ember Research Services Ltd.
The fishin' hole
Forest Engineering Research Institute of
Canada (FERIC)
Forest History Society, Durham NC
Forest Renewal BC
Golder & Associates
Inside Education
Jasper Yellowhead Museum and Archives
Linnet – The Land Systems Company
NSERC
Pulp and Paper Research Institute Canada
(Paprican)
Sustainable Forest Management Network
Telemetry Solutions
UBC Press

Summary of Financial Statements

Summary of Financial Statements

Foothills Model Forest / Revenue (Year ending March 31, 2004)



In 2003/2004, the Foothills Model Forest received $2,642,883 in funding to support its research, extension and communications programs. A breakdown of its funding sources is as follows:

> Alberta Sustainable Resource Development (ABSRD) contributes 21% of total funds.

> Canadian Forest Service contributes 21% of total funds.

> Jasper National Park, Parks Canada contributes 4% of total funds.

> Weldwood of Canada Limited, Hinton Division contributes 15% of total funds.

> The forest industry contributes 23% of total funds.

> The oil and gas industry contributes 4% of total funds.

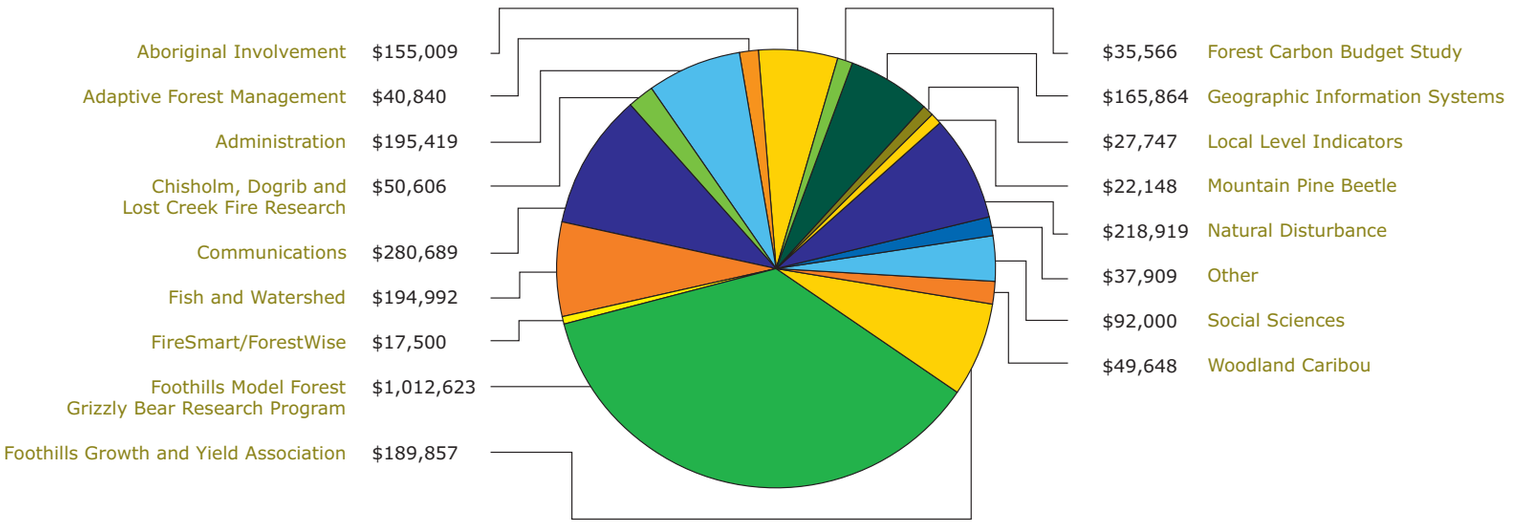
> Non-government organizations contribute 3% of total funds.

> Government of Alberta (excluding ABSRD) contributes 6% of total funds.

> Additional sources of funding include items such as interest and Canadian National Railway's contribution to the Hardisty Creek Restoration Program and amount to 3% of total.

> The Foothills Model Forest receives additional in-kind support from its partners. During 2003/04 this amounted to $801,640.

Foothills Model Forest / Expenses (Year ending March 31, 2004)



In 2003/2004, the Foothills Model Forest's expenses totaled $2,787,335. Upon approval from the Foothills Model Forest Board of Directors, each project area is responsible for its own budget and expenditures. In 2003/2004 expenses were paid using funds from the prior year's fund balances.

> Other Projects include Cache Percotte Management Plan, Harlequin Ducks, Integrated Research Management, Pileated Woodpecker and Capital Fund.

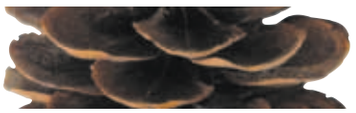
Foothills Model Forest / Statement of Financial Position

(Year ending March 31, 2004)

Assets

Capital Assets $2,022

Prepaid Expenses $20,915



Accounts Receivable $386,914

Bank/Cash $943,814

Liabilities

Deferred Revenue $80,000

Accounts Payable $189,511

Fund Balances

Unrestricted Funds $271,208

Internally Restricted Funds $810,924

Capital Assets $2,022

The Foothills Model Forest is committed to securing funding for the sustainability of its research, extension and communications programs. As of March 31, 2004, Foothills Model Forest's assets totalled $1,353,665. The majority of these funds $810,294 or 60% have been allocated for future research.

For the Foothills Model Forest Audited Financial Statements please contact Foothills Model Forest at 780-865-8330 or visit www.fmf.ab.ca.

Evaluation Framework

The Foothills Model Forest has built a reputation for being a fully accountable and fiscally responsible organization with a sound governance structure. One process that the organization uses to help track progress, ensure the accountability of its actions, and provide for continuous improvement is the Foothills Model Forest Evaluation Framework. The Evaluation Framework was developed as part of the requirements of the agreement with the Canadian Forest Service, and is used to set performance criteria, gauge progress, and identify gaps. In 2003/2004 the Board of Directors reviewed and approved the Evaluation Framework document after input from key partners. For copies of the Evaluation Framework visit www.fmf.ab.ca.

Photo: Stan Navratil

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