



Looking Back | Moving Forward

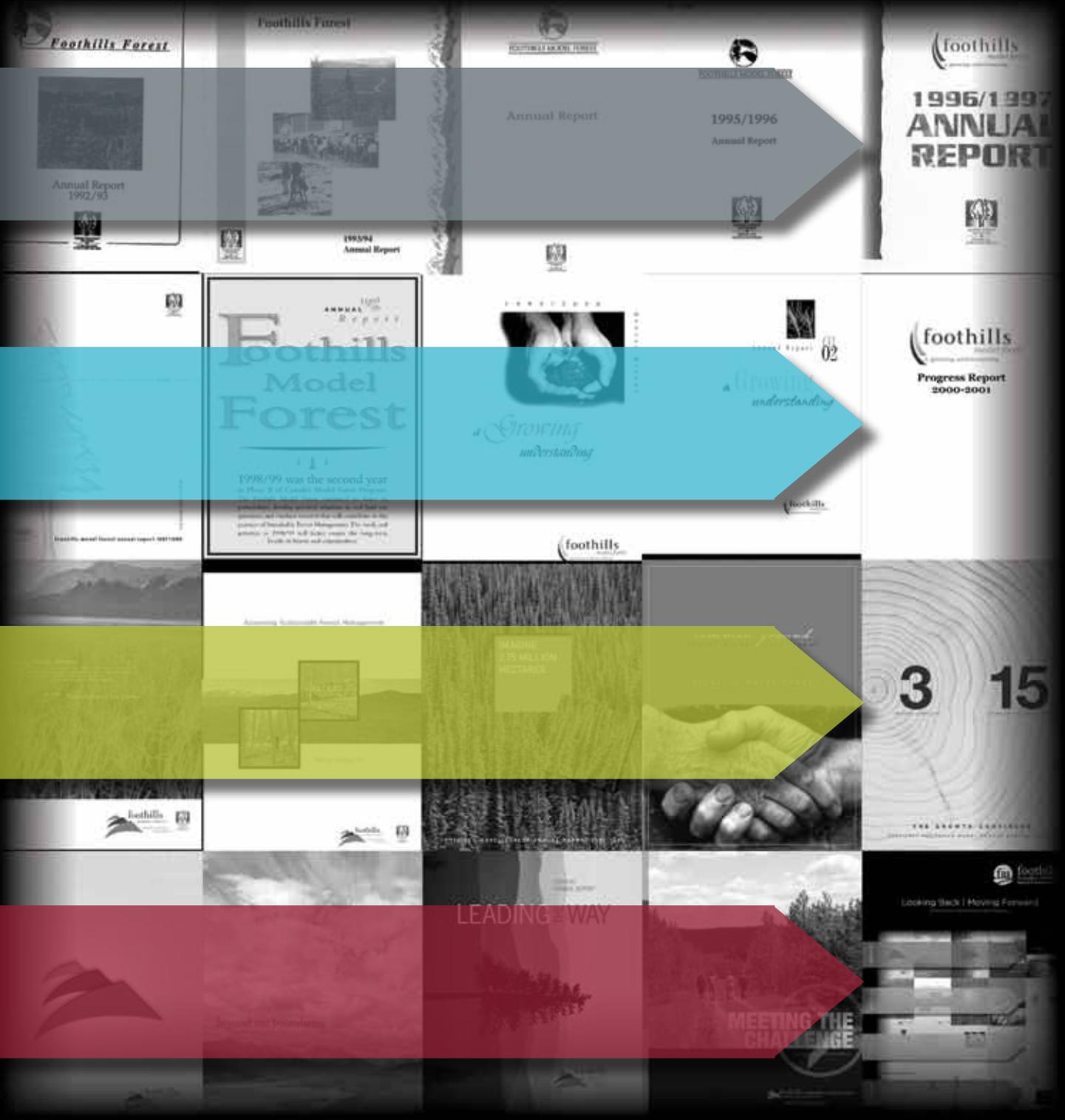
20 YEARS OF PARTNERSHIP AND RESEARCH

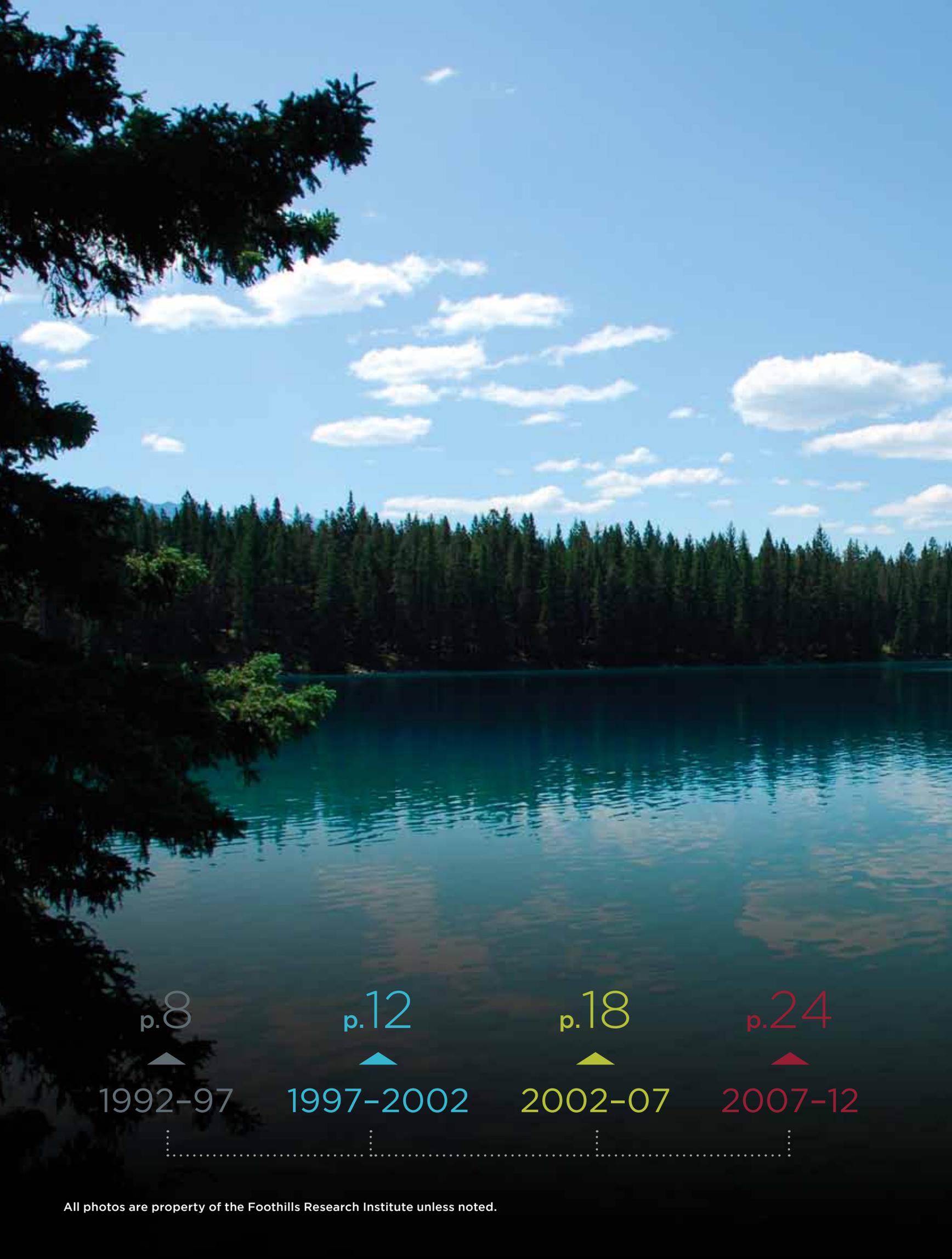
practice

into

growing

research





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MESSAGE FROM THE PRESIDENT

In 1992, a small group who shared a passion for forest management excellence met to brainstorm a proposal for the new Model Forest Program. The successful application would provide more funding for existing programs built on a foundation started in the 1950s. They decided the enterprise should be based on partnerships; managers would ask questions they needed answered to make decisions, and researchers would provide the knowledge.

Twenty years later, that original vision has more than stood the test of time. The Foothills Research Institute (FRI) has grown and spread in multiple ways: from a few partners to scores, from a modest annual budget to millions, from forest management to land and resource management, from a sizeable chunk of the Alberta foothills to the entire province and international partnerships, and so on. Today we have two full decades of knowledge and tools, and we have created a cycle that keeps the funding, questions, and better decisions going. What an outstanding achievement!

That's the FRI advantage. That's what keeps my interest and excitement going. As one of the founding architects of FRI, I'm proud to see the thriving partnerships, the growing body of

knowledge, and the bright prospects for the future. But most of all, it warms my heart to see our partners use FRI knowledge to further the original goal. Science excellence leads to management excellence, and we all benefit from that.

Please enjoy this journey through 20 years of partnership, knowledge, and support for managers and the decisions they make as stewards of our land and resources. Learn about FRI accomplishments and the innovation that will support FRI and our partners in the years ahead. With new programs in development and exciting new initiatives like the Alberta Land-use Knowledge Network, we look forward to continuing to lead the way in sustainable land management.



Dr. Rick Bonar | President, Foothills Research Institute
Chief Biologist, Hinton Wood Products, Woodlands
A Division of West Fraser Mills Ltd.

MESSAGE FROM THE GENERAL MANAGER

Over the past 20 years, FRI has grown from modest beginnings as one of the original model forests under the Canadian Model Forest Program, to a well-recognized and highly regarded research institute that continues its original vision of providing science-based knowledge and tools to our more than 100 partners.

FRI began in the fall of 1992 (as Foothills Forest) with a small group of initiators and supporters who saw the potential of the Canadian Model Forest Program. With the main focus on sustainable forest management, the Foothills Forest had three program areas: Resource Information Systems, Integrated Resource Management, and Technology Transfer/Public Awareness and Education. The research for these programs was conducted on a regional land base that was part of the model forest concept.

Today FRI remains committed to providing our partners with knowledge and tools that support sustainable management at a landscape level. It has grown to 12 active research programs and associations operating on a much larger

landscape with provincial, national, and international research interests that are reflected in this annual report. We are also continuing to expand with two new program areas coming on stream in the near future.

In our first annual report, our first president, Bob Udell, said: "We believe that we have built a strong foundation for future years." Bob's and the other founding members' passion and belief in providing partners with science-based research and knowledge did create a strong foundation for the future of the Foothills Research Institute, which is evident today.

Tom Archibald | General Manager



LOOKING BACK

Note to reader: The online version of this document links to all mentioned reports, media articles, references, and videos. The print version of the annual report includes QR codes that can be scanned using a smartphone or other device to link directly to feature content.



SCAN TO
VIEW VIDEO

RICK BONAR

President, Foothills Research Institute; Chief Biologist
Hinton Wood Products, Woodlands, A Division of West Fraser
Mills Ltd.



SCAN TO
VIEW VIDEO

BOB UDELL

Program Lead, Adaptive Forest
Management-History Program



SCAN TO
VIEW VIDEO

GORD STENHOUSE

Program Lead,
Grizzly Bear Program



SCAN TO
VIEW VIDEO

SHARON MEREDITH

Operations Director,
Foothills Growth and Yield Association



PARTNERS

Partnership is the lifeblood of FRI. Through our partners' contributions, our tools and knowledge are integrated into land and forest management policy, planning, and practice to advance forest and land management in Alberta. The strength of our organization would not be what it is today without our partners' commitment, and we are honoured to have contributions of all forms and sizes.

SPONSORING PARTNERS

Alberta Sustainable Resource Development, ConocoPhillips Canada, Encana Corporation, Jasper National Park, Suncor Energy Inc., Talisman Energy Inc., and West Fraser Mills Ltd.

Government of Alberta ■
Sustainable Resource Development

ConocoPhillips



Parks
Canada

Parcs
Canada



West Fraser Mills Ltd.



TALISMAN
ENERGY

MANAGEMENT PARTNERS

Management Partners provide financial and in-kind support to FRI. They are also responsible for land, resource, or forest management, and are interested in using the institute's knowledge and tools in their businesses.

Ainsworth Engineered Canada LP
Alberta Energy
Alberta Newsprint Company
Alberta Pacific Forest Industries Inc.
Alberta Tourism, Parks and Recreation
Banff National Park of Canada
Blue Ridge Lumber Inc., a division of West Fraser Mills Ltd.
BP Canada Energy Company
Canadian Natural Resources Limited
Canfor Corporation
Daishowa-Marubeni International Ltd.
Devon Canada Corporation
Fisheries and Oceans Canada
Foothills Forest Products Inc.
Government of British Columbia
- Environment
- Forests, Lands and Natural Resource Operations
Government of Saskatchewan
- Environment
Grande Cache Coal Corporation
Husky Energy Inc.

Imperial Oil Limited
Manning Diversified Forest Products Ltd.
Millar Western Forest Products Ltd.
Nexen Inc.
Paramount Resources Ltd.
Shell Canada Limited
Sherritt International Corporation
- Coal Valley Resources Inc.
Slave Lake Pulp, a division of West Fraser Mills Ltd.
Spray Lake Sawmills
Sundance Forest Industries Ltd.
Sundre Forest Products, a division of West Fraser Mills Ltd.
Teck Coal Limited, Cardinal River Operations
Tolko Industries Ltd.
Tourmaline Oil Corp.
TransCanada Corporation
Waterton Lakes National Park of Canada
Weyerhaeuser Company Ltd.

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 Foothills Research Institute.

Alberta Aboriginal Relations
Alberta Conservation Association
Alberta Environment
Alberta Forest Extension Network (AFEX)
Alberta Forest Products Association
Alberta Infrastructure
Alberta Innovates – Bio Solutions
Alberta Transportation
Apache Canada Ltd.
Aseniwuche Winewak Nation of Canada
Bandaloop Landscape-Ecosystem Services
British Columbia Institute of Technology
Burning Ecologic
Canadian Association of Petroleum Producers
Canadian Cooperative Wildlife Health Centre
Defenders of Wildlife
Dennis Quintilio and Associates
Earth Systems Institute
Environment Canada, Canadian Wildlife Service
Foothills Ojibway Society
Forest History Association of Alberta
Forest Resource Improvement Association of Alberta
FP Innovations – FERIC
Fred Pollett
GeoConnections – Government of Canada
Hinton Training Centre
Laval University
Mistik Management Ltd.
Mixed Wood Management Association
Moose Mountain Environmental Fund
National Sciences and Engineering Research Council of Canada (NSERC)
Natural Resources Canada, Canadian Forest Service
- Northern Forestry Centre
- Pacific Forestry Centre
Nature Conservancy Canada
Northern Rockies Alliance
Norwegian University of Life Sciences
novaNait Boreal Research Institute
Peregrine Helicopters
Peter J. Murphy Forest Consulting Ltd.
Petroleum Technology Alliance Canada – Environmental Research Advisory Council
Pine Bungalows
Robert Stevenson
Scandinavian Brown Bear Project
Silvacom Consulting
Tay River Environmental Fund
TECO Natural Resource Group
The Forestry Corp.
Tom Moore
Tom Peterson
Tourism Jasper
Town of Grande Cache
Town of Hinton
Town of Edson
Trout Unlimited Canada
University of Alberta
University of British Columbia
University of Calgary
University of New Brunswick
University of Saskatchewan

University of Victoria
University of Waterloo
Vanderwall Contractors (1971) Ltd.
VIA Rail
Vilhelmina Model Forest
West Athabasca Watershed Bioregional Society
Wildlife Genetics International
Wilfred Laurier University
Yellowhead County
Yellowhead to Yukon Conservation Initiative

OTHER PARTNERS

The following associations, businesses, and communities support the vision and goals of Foothills Research Institute.

Alberta Caribou Committee
Alberta Chamber of Resources
Alberta Forest Genetic Resources Council
Alberta Provincial Biodiversity Monitoring Institute
Alberta Stewardship Network
Arctos Ecological Consulting
Athabasca Watershed Council
AVID Canada
Canada Centre for Remote Sensing
Canadian Institute of Forestry
Canadian Model Forest Network
Canadian Wood Fibre Centre
Climate Change Central
College of Alberta Professional Foresters
College of Alberta Professional Forest Technologists
Conservation Biology Institute
Council of Forest Industries
Cows and Fish Program
Ember Research Services Ltd.
Encompass Strategic Resources Inc.
Enform
EoS Management and Research
Forest History Society, Durham, N.C.
Forest Products Association of Canada
FORREX
Golder Associates
Grande Alberta Economic Region
Grande Yellowhead Public School Division
Greenlink Forestry Inc.
Hinton Fish and Game Association
Hinton Historical Tracks and Trails Society
Inside Education
Integrated Ecological Research
International Model Forest Network
Jasper-Yellowhead Museum and Archives
KBM Forestry Consultants
Municipality of Jasper
NatureServe Canada
Ontario Ministry of Natural Resources
Palisades Education Stewardship Centre
Telemetry Solutions
University of Montana
West Central Caribou Landscape Planning Team
Wildlife Habitat Canada
Woodlands Operation Learning Foundation
World Wildlife Fund Canada



THE BUILDING YEARS

1992-97

Foothills Forest was one of just 10 working models of sustainable forest management created under the federal Model Forest Program, a Green Plan initiative. Phase I was one of building partnerships, internal communications, and a strong sense of direction.

1992-93

CHARTING A COURSE



1992
Foothills Forest was incorporated in Hinton, Alberta.

The first year involved designing and implementing projects to address information gaps and hurdles facing forest resource managers. Work began in the areas of resource information and planning systems, and integrated resource management. The organization also focused on technology transfer, public awareness, and education.

A UNIQUE PARTNERSHIP

The initial partnership consisted of Weldwood of Canada (now West Fraser Ltd.), the Forest Technology School (now the Hinton Training Centre), and Alberta Forestry, Lands and Wildlife (now Environment and Sustainable Resource Development). "We recognized that each agency had different interests and different mandates on the landscape. By using consensus we could ensure that everyone's interests would be accommodated," says Bob Udell, who worked for Weldwood at the time and co-chaired the proposal development team along with Dennis Quintilio. Current FRI president Rick Bonar was a member of the project team.

The partners worked together to answer questions by conducting research on a land base of 1.2 million hectares.



**Land base:
1.2 million hectares**



BOB UDELL, PRESIDENT, 1992-2005

Provincial and federal regulators were represented on the Board, and because the model forest would

potentially be making recommendations to their agencies, they did not wish to be placed in conflict of interest by taking the chair or presidency. Industry Board members Bob Udell and Don Laishley of Weldwood were appointed, respectively, president and chair.

1994

A tour coordinator was brought on staff as a result of global interest from groups from places like Germany, Japan, Russia, Mexico, and China.

RESEARCH UNDER WAY

Woodland Caribou Distribution and Habitat Selection in Disturbed and Undisturbed Winter Range

Shelterwood Practices to Enhance and Protect Natural White Spruce Regeneration in Deciduous/Coniferous Mixedwoods

Ecotourism Opportunities in the Foothills Forest



1993

Fire swept through the Weldwood office complex, destroying GIS equipment and data as well as Foothills Forest's office space.



GLOBAL RESEARCH

Foothills Forest was asked to partner with one of Canada's international model forests located in Chihuahua, Mexico. This was an opportunity to exchange ideas and expertise.



SCAN TO PLAY INTERVIEWS



RICK BLACKWOOD, GENERAL MANAGER, 1992-99

The Government of Alberta saw the model forest as a great opportunity to round out the credentials of fast risers in the department, and volunteered to second a position to the model forest as general manager. Rick Blackwood, a mid-level Alberta Sustainable Resource Development (SRD) forester with strong credentials and a background in both provincial and national parks, was selected through a competitive process. "Rick was smart, personable and motivated, well regarded within the department as well as by its clients," says Udell.

1993-94

A NEW PLAN

By 1993, it became clear that the original model forest proposal was too ambitious for the funding granted. "We had to realign our program to match available resources and staffing," says Bonar.

The new business plan stayed true to the original intent of the proposal, but on a smaller scale.



FOREST ON A MISSION

The mission statement developed in 1993 encapsulated Foothills Forest's reason for being: "To develop and recommend an approach to sustainability and integrated resource management through research and technology developed by means of collaborative partnerships. This approach will achieve local, national, and international recognition."

1994-95

GROWTH BEGINS

In the second year of operation, the program experienced considerable growth with the addition of funds from Alberta's Wildlife Enhancement Trust Fund. The funding allowed for new wildlife-related projects to be implemented in the last half of 1994 and for more graduate students from across Canada to participate in the program.

"Right from the start, we looked at the federal funding through the Model Forest Program as seed funding and focused on building more partnerships and securing other funding sources," says Bonar.

1994-95

Testing of a carbon budget model over the entire model forest area showed that any positive effect from active management (i.e., more carbon stored than released) would be more than offset by catastrophic fires.



WATERSHED PROGRAM

This program developed a watershed assessment model and led to a better understanding of the potential impacts of resource use on fisheries and aquatic resources. Projects were already flowing with a regional hydrology study under way. A fisheries and stream inventory, a fisheries and aquatic habitat database, a sediment intrusion study, and a sedimentation impacts study were about to begin.

ACTIVITY AREAS



FORESTRY PROGRAM



SOCIAL AND ECONOMIC ISSUES



COMMUNICATIONS PROGRAM



ENVIRONMENTALLY SIGNIFICANT AREAS STUDY

1994-95

New emphasis was placed on communicating with partners through a partner liaison officer, more community outreach, and field tours.



1996

Natural Disturbance Program and Adaptive Forest Management-History Program began.

1995-96

The model forest partnered with Friends of Environment Education Society of Alberta (now "Inside Education") and participated in developing educational resources along with many of their forest tours.

1995-96 CHANGES, CHALLENGES, AND SUCCESSES

The addition of Jasper National Park made Foothills the largest model forest in the world, with a land base of about 2.3 million hectares (23,000 sq. km). The land base included several forest regions: subalpine, alpine, boreal, and montane.

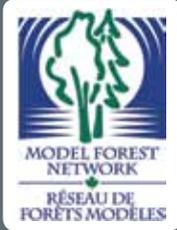
"We recognized that wildlife species like caribou didn't respect the boundaries between the protected area and the working forest," says Udell. "For the park to meet its mandate and to conserve the species represented on the park land base, they needed some of the amenities that we offered on the working forest side, and we benefited from the expertise brought to the table."



SCAN TO PLAY INTERVIEW

Foothills Forest exited its first phase on a high note, with the federal government pledging \$40 million over the next five years.

"We recognize that model forests are not only a valuable research tool, but a living laboratory that can help us demonstrate to the world how we continue to lead and innovate with new and unique sustainable forestry practices," said the Honourable Anne McLellan, federal Minister of Natural Resources, at a conference in Jasper.



EARLY 1997

The Watershed Assessment Model was presented for adoption by aquatic programs around Alberta.

NEW LOGO AND TAGLINE

This year marked the conclusion of the first business planning cycle, and a new logo and tagline were developed. The tagline became "A growing understanding."



MID-1997

Socio-demographic Profile of Foothills Communities described the composition of the foothills communities, especially Hinton.

THE SOCIAL ASPECT

Socio-economics was an early focus. "It arose from discussions around sustainable development and the three pillars of sustainability—economical, environmental, and social," says Udell.

By this year, eight projects were under way in the Social Science Group. Researchers were exploring what local residents were spending their money on and where they were spending it, attitudes toward sustainable development, public involvement in natural resource decision making, and the economic impacts of changes in the forestry, mining, and oil and gas sectors of the model forest's land base.

PROGRAMS AND ACTIVITIES

WILDLIFE RESEARCH

Concerns about the impact of harvesting and silviculture on wildlife species led to research on species and their habitats. Projects included:



- Long-toed Salamander Study
- Barred Owl Habitat Use and Distribution
- Northern Goshawk Habitat Characterization
- Red Squirrel Habitat Use
- Pileated Woodpecker Study (Habitat supporting pileated woodpeckers supported many other species. Research into nest location and home range was under way.)

FOREST WILDLIFE AND ECOLOGY PROGRAM



Eleven projects were under way, including the Landscape Patterns of Disturbance in the Rocky Mountains and Foothills of Alberta project. It led to a better understanding of natural variability in disturbance in these regions to help set objectives for the size and arrangement of cutblocks and prescribed burns. Research in this area would increase and result in the creation of the Natural Disturbance Program.

CULVERT PROJECT



New under the Fish and Aquatic Research Program, the Culvert Project involved the evaluation of culverts as fish barriers. In cooperation with Weldwood and Alberta Natural Resources Services, researchers examined different techniques to evaluate fish passage through hanging culverts as well as the potential effects that culverts have on fish populations.

HABITAT MANUAL PROJECT



Also under the Fish and Aquatic Research Program, this project developed a fish habitat manual with photographs to describe different habitat types. It was jointly funded by the Alberta Conservation Association and the model forest.

A man in a plaid shirt and cap is pointing towards a forest. A group of people, some wearing yellow hats, are gathered around him, listening. The background is a dense forest of tall evergreen trees under a clear blue sky.

THEORY IN ACTION 1997–2002

In Phase II, the model forest's vision shifted to doing targeted research that met the practical needs of forest practitioners and resource managers, providing tools that could be used on the ground. This shift was accompanied by an emphasis on communicating results to practitioners and the public.

1997-98

THE TRANSITION

The first full year of Phase II was a transition year, moving toward a new focus on putting research findings into practice. "Everybody supports the idea of basic research for the long term, but the agencies involved in the partnership wanted to spend their money on projects that would give them information in the short term that they could use to improve their practices and stewardship," says Udell.

CUMULATIVE EFFECTS

Understanding the collective impact of all human activities on the landscape was necessary for partners so they could set landscape-level objectives for managing human activities. This project linked to other model forest research areas in order to gain a more complete understanding about the impact human activities have on the ecological, economic, and social health of the region.



NEW MISSION

Foothills Model Forest's mission became: "We are a unique community of partners dedicated to providing practical solutions for stewardship and sustainability of our forest lands."

ALBERTA FOREST BIODIVERSITY MONITORING PROJECT

In partnership with the Alberta Conservation Association, Alberta Environmental Protection, Alberta Research Council, Canadian Forest Service, Parks Canada, and several forestry companies, the model forest created an integrated suite of scientifically sound monitoring procedures to keep track of forest biodiversity.

1997-98

The Socio-economics Project studied camping and hunting in the model forest.

1998

Foothills Model Forest received \$3.2 million in provincial funding from the Environmental Enhancement Fund.

NEW INITIATIVES

Increasing political pressures from stakeholders demonstrated the importance of having a clear understanding of sustainable development. Foothills Model Forest supported four new initiatives that would provide a better understanding about the impact land users have on the forest and communities. The new initiatives were Cumulative Effects, Local Level Indicators of Sustainable Forest Management, the Grizzly Bear Program, and the Alberta Forest Biodiversity Monitoring Project.

LOCAL LEVEL INDICATORS OF SUSTAINABLE FOREST MANAGEMENT

Developing local level indicators allowed land base partners to measure their performance in implementing sustainable forest management. To ensure the indicators were relevant, representatives from Alberta Environmental Protection, the Canadian Forest Service, Jasper National Park, and Weldwood participated in a goal-setting exercise and developed shared goals. This exercise gave all parties a greater understanding of the values, mandate, policies, and practices of each partner.

GRIZZLY BEAR PROGRAM

The Cheviot mine hearings held in 1997 concluded that conserving grizzly bears was a regional issue and that federal and provincial governments, as well as industry and other stakeholders, must be involved if conservation was to be effective. The Grizzly Bear Program was created to develop a better understanding about grizzly bear populations in the Yellowhead region and to provide data that would give land managers an increased understanding about the implications of current and future land use on grizzly bear habitat and populations.



1998-99

STEADY PROGRESS

Foothills Model Forest continued to make progress in research and to see results adopted into practice by forest managers. This year saw increased focus on communicating with partners, stakeholders, and the public, with high-profile projects, innovative ad campaigns, and a website that received overwhelming traffic in the first year.

1998-99
Weldwood's 1999 forest management plan applies the findings of the Natural Disturbance Program to an industrial forest landscape.

IMPROVED FORESTRY EDUCATION, TECHNOLOGY, AND BUSINESS PRACTICES
Funding from the Provincial Environmental Enhancement Fund was used for a diverse set of projects focused on the development of technology in wood processing and transportation as well as education, wildlife research, wildfire management, forest inventory and classification, and establishment of the Foothills Growth and Yield Association.

PROJECTS AND THE CRITERIA SUPPORTED (SEE CRITERIA ON NEXT PAGE)

- Alberta Forest Biodiversity Monitoring Program: 1 and 5
- Grizzly Bear Program: 1 and 5
- Natural Disturbance Program: 1, 2, and 5
- Fish and Aquatics Program: 1, 3, and 5
- Caribou Project: 1 and 5
- Socio-economics Project: 5

1998-99
54 caribou are collared for a total of 75 from 3 different herds. Information about caribou movement from the GPS collars will provide insight into the forest management activities that may help conserve caribou and its habitat.

1999-2000

LEADING SUSTAINABLE FOREST MANAGEMENT RESEARCH

Foothills Model Forest had become a leader in research supporting sustainable forest management as well as a national leader in socio-economic research. As Bill White, senior economist, Canadian Forest Service, said in that year's annual report: "Socio-economic research can't be left out of decisions regarding managing for the variety of values provided by the forest. We have to know how important these factors and features are to people, because they have a definite say in how government and industry proceed with development and protection in the future."

The Public Involvement, Attitudes and Values, and Natural Resources Decision-Making study was one example of the model forest's leading-edge socio-economic research.

FOOTHILLS MODEL FOREST IN ACTION!

Foothills Model Forest's wildlife research had, by this year, led to the development of 35 habitat suitability models. Weldwood used some of the models when developing its forest management plan to ensure its forest management area would continue to provide habitat to 284 terrestrial wildlife species.

Jasper National Park used the model forest information in natural and cultural resource interpretation.

Jasper National Park used the results of the Natural Disturbance Program as a basis for introducing a prescribed fire program.

Weldwood used the Natural Disturbance Program research in its forest management plan to ensure its forest management area is a mosaic of young, pole-stage, mature, and old forests.

Weldwood used a Foothills Model Forest computer model developed to help predict the impact of proposed forest management practices on annual water yield.

HARLEQUIN DUCKS

This year, a six-part project studying harlequin ducks began. "Harlequin ducks were felt to be sensitive to disturbance and there was little known about their regional distribution," says Beth MacCallum, who led the study. MacCallum adds that one of the most important things about the study was that it was over a large area and involved the cooperation of a number of agencies.

WOODLAND CARIBOU

The model forest had studied woodland caribou since the organization's inception. Bonar says that partners were interested in learning more about woodland caribou because it was considered to be a species in trouble and they wanted to promote and support recovery programs.

In 1999-2000, the Little Smoky, À la Pêche, and Redrock/Prairie Creek caribou herds continued to be monitored using leading-edge technologies such as GPS collars as well as more traditional techniques like snowtracking.

1999-2000

The Foothills Growth and Yield Association was established.

GRIZZLY BEAR PROGRAM ON DISCOVERY CHANNEL

Featuring the Grizzly Bear Research Program on the Discovery Channel was important in spreading the model forest's message. As a result of the show and coverage in the *Edmonton Journal* and *Edmonton Sun*, Foothills Model Forest received three times more media coverage this year than in the previous year.

1999-2000

Fish were inventoried by the Fish and Aquatics Program at 232 sites in six watersheds, bringing the total of sites inventoried to 1,007.

SOCIO-ECONOMIC ACCOMPLISHMENTS THIS YEAR

A computable general equilibrium model was completed to measure impacts of economic and policy changes to the model forest land base.

Over 6,000 backcountry permits from Jasper National Park and Willmore Wilderness Park were entered into a database to provide a better understanding of the forest values important to the over one million people who visit the model forest land base each year.

Foothills Model Forest completed a report on focus groups to examine perceptions of biodiversity, wilderness, and protected areas.

Foothills Model Forest completed a report on the academic definitions of ecotourism.

1999-2000

The Natural Disturbance Program completed the first in a series of research reports: *Applying Forest Age Data in Foothills Model Forest and Mountain Landscapes of Alberta*.

THE TRANSITION



PUTTING RESEARCH INTO PRACTICE

The shift toward putting research findings into practice was already taking place with many examples of research being used:

- Information from wildlife studies was incorporated into Weldwood's Forest Management Plan.
- Governments used the carbon budget project to make decisions about CO₂ emissions and global warming.
- Weldwood used the inventory database created through the Fish and Aquatics Program to support the planning of harvest areas and roads.
- Weldwood, Weyerhaeuser Company Ltd., Alberta Newsprint Company, and Canadian Forest Products used caribou research to design and implement forest management activities.
- Jasper National Park used the Watershed Work Model to define bear management units.
- The long-toed salamander was downlisted on the provincial species status listings from red to yellow as a result of model forest research.
- Weldwood used initial results from the Landscape Disturbance Project for its forest management plan.
- Weldwood used the revised *Field Guide to Ecosites of West-Central Alberta* for harvest and silvicultural planning.
- New prescriptives for disposal and spreading of chipper residue were created as a result of ongoing measurements of the effects of chipper residue on new tree establishment and growth.
- Weldwood used the *Environmentally Significant Areas* report to contribute to the provincial protected areas program. The report also led to formal nomination of sites to the Alberta's Special Places 2000 program.
- Jasper National Park used research such as that into cumulative effects assessment in its park management plan.



CRITERIA FOR SUSTAINABLE RESOURCE MANAGEMENT

In 1995, the Canadian Council of Forest Ministers developed a Canadian approach to criteria and indicators for sustainable forest management. The six criteria were those that experts, industry, non-governmental organizations, and the public felt were necessary for achieving sustainable forest management. These criteria, along with local indicators developed by the model forest, could be used by land managers to measure the performance of sustainable forest management on the ground.

1. Conservation of biological diversity: Do management practices retain the full range of biological variety?
2. Maintenance and enhancement of forest ecosystem condition and productivity: Are the forests and the ecosystems they contain still healthy?
3. Conservation of soil and water resources: Are the water and soil resources in good condition?
4. Forest ecosystem contributions to global ecological cycles: Do the forests continue to store carbon and produce clean air?
5. Multiple benefits to society: Is there a continuing flow of social benefits for current and future generations?
6. Accepting society's responsibility for sustainable development: Does society at large share responsibility for the sustainable use of forest lands?



2000-01 A CONTINUING EVOLUTION

Well into Phase II, Foothills Model Forest continued to produce knowledge and tools that were of practical application to its partners. As always, new challenges were constantly emerging, like climate change and carbon trading, and the organization continued to evolve, this year incorporating a new general manager, new initiatives, and a new association.

2000-01

The Socio-economics Program completed the Computer-Generated Equilibrium Model and *Measuring the Economic Value of the Visitor Sector of a Regional Economy: A Case Study of the Foothills Model Forest.*

2000-01

The Natural Disturbance Program completed *Landscape-Level Fire Activity on Foothills and Mountain Landscapes of Alberta.*

2000-01

1,000 people received *Footnotes* newsletter to learn about Foothills Model Forest initiatives.

NATURAL DISTURBANCE RESEARCH SYMPOSIUM

Co-hosted by Foothills Model Forest and the Sustainable Forest Management Network, this symposium was one of the first to focus entirely on the idea of using natural disturbance patterns as forest management guides.

Speakers from across Canada shared leading-edge research as well as applications and results from experiments with managers, academics, students, regulators, and people from the energy sector, among others.

"I think it was successful because at that point we were just getting our feet wet with natural range of variation. Purely from an information-gathering perspective, it was the right list of talks at the right time," says David Andison, program lead, Natural Disturbance Program, and one of the organizers of the event.



MARK STORIE, GENERAL MANAGER, 2000-02

Storie brought almost 20 years of well-rounded forest management experience with what would become SRD

when he took on the GM role. "We had very successful programs going on and I wanted to help the program managers be successful, develop the partnership, and assist in developing our proposal for Phase III," says Storie.

2000

Foothills Model Forest received a Premier's Award of Excellence, presented by Premier Ralph Klein.

2000-01

The GIS Program completed storage of all data for the Grizzly Bear Program in one location, integrating the data with spatial components.

2001-02 PARTNERS IN RESEARCH

As the model forest wrapped up its second five-year phase and celebrated its 10th anniversary, it had evolved into an organization recognized provincially, nationally, and internationally. Credible research generated by the Grizzly Bear, Fisheries and Watershed, Natural Disturbance, Technical Forestry, and Social Science Programs had led to the organization emerging as a champion of sustainable forest management.

"There were 10 model forests across the country and ours had the biggest program with the most partners and largest budget," remembers Storie. "We were developing world-class programs that were producing research that was being used across the country and around the world. We were having a lot of impact in terms of things happening on the ground."

NEW INITIATIVES



RANGELAND ECOLOGY AND RARE PLANT MONITORING IN WILLMORE WILDERNESS PARK

Part of developing a management plan for Willmore Wilderness Park, this project began documenting locations of rare vascular plants and mosses and the plant communities of restricted distribution. It will lead to a better understanding of ecological functions and a definition of biodiversity in and around the park.

In this first year, researchers found 33 rare plant taxa, including 27 vascular plants and 6 rare bryophytes. Another 15 vascular plants and 6 mosses were reported but not confirmed. Program staff worked on developing a detailed map of the park's valleys, designating plant community types, campsites, and rare plant locations.

PROGRAM IMPLEMENTATION TEAM (PIT)

The model forest's organizational structure had been working well, but the growth of the organization and its programs combined with a larger, more diverse Board called for a change.

"Board members didn't have time to delve into project proposals. We needed a smaller group that could examine programs and projects in an in-depth way and report back to the Board with their recommendations," says Udell.

Composed of the GM, individuals from partners and sponsoring agencies, and the Activity Team leaders, the team made recommendations to the Board through the PIT chairman about program initiatives, work plans, and program integration.



2001-02

A full-time traditional ecological knowledge coordinator was hired to work with Aboriginal communities as part of the new Aboriginal Involvement Program.



FOOTHILLS GROWTH AND YIELD ASSOCIATION

Created as a response to interest by industry and government, and supported by funding from the model forest, the Foothills Growth and Yield Association (FGYA) brought together nine FMA holders with major lodgepole pine land bases who saw a critical need for cooperative forecasting and monitoring of managed stand growth and yield, particularly for lodgepole pine. The nine were voting members while the Land and Forest Division of SRD and the model forest were non-voting members. The model forest acted as coordinating agency.

A first act of the association was to initiate a comprehensive Lodgepole Pine Regeneration Project. "While many other aspects of the work of Foothills Model Forest were germane to the management of the forest, the bottom line is that if you cannot forecast how the forest will grow in response to various management interventions and techniques, then you have no basis upon which to calculate a sustainable level of harvest," says Udell, explaining the importance of the project.



CLIMATE CHANGE IMPACTS ON FOREST PRODUCTIVITY

By 2000, it became obvious that sustainable forest management in the future would need to address changes in climate. Through this project, researchers attempted to assess the potential impacts on species growth rates, competition, and survival in western boreal forest ecosystems using simulation models. (This work continues today with the FGYA.)

2001-02

The last of six reports on harlequin ducks was almost complete. The series addressed the need for a regional perspective on harlequin ducks identified during joint hearings for the proposed Cheviot Coal Mine development.

2001-02

The model forest continued to support the Northern East Slopes Sustainable Resource and Environmental Management Strategy through research in key areas.



GRIZZLY BEAR PROGRAM MODELS

Resource Selection Function (RSF) models of grizzly bear probability and occurrence and mortality risk models and maps that describe grizzly bear habitat were developed for the model forest area in order to:

- Describe habitat selection
- Identify key grizzly bear habitats
- Examine impacts of human development
- Search for mechanistic links and appropriate scales of selection
- Develop a habitat-based population viability model for Yellowhead Ecosystem

This work was part of Dr. Scott Nielsen's PhD dissertation at the University of Alberta.



SCAN TO PLAY INTERVIEWS

CARBON SEQUESTRATION

Widespread discussion about the potential for forest companies to sell carbon credits to large emitters led Weldwood to take part in a project that included carbon sequestration and economic variables into its forest planning model. The goal was to determine whether Weldwood should be involved in carbon credit trading.

Researchers from Weldwood, the Canadian Forest Service, and the University of Alberta examined the relationship between Weldwood's carbon budget and the economic benefits of the carbon trading market. They looked at price, risk, and policy considerations.

EVOLUTION OF GIS PROGRAM

Initially, GIS was key to developing a decision support system for forest planning, training researchers and partner agencies in GIS technology, and pushing the technology's limits in forestry. In Phase II, the demand for GIS products and support for various program initiatives grew tremendously, as did the quantity and quality of resource-based information stored on the system. The GIS Program began to focus on supporting other projects.

"GIS was more focused as a service to researchers," says Christian Weik, GIS coordinator from 1999 to 2006. "Our service was to perform complex spatial analysis—how do ecological variables relate to one another geographically—and modelling, which is critical to forestry, ecology, and wildlife research. We also played a key role in managing the enormous amounts of data that were a significant part of the research projects."



DEMONSTRATING
SUSTAINABLE FOREST
MANAGEMENT

2002-07

Having developed a comprehensive collection of scientific data and research from which to develop management tools in the first two phases, Foothills Model Forest expanded its focus in Phase III to the demonstration of sustainable forest management. This focus was distilled into a new vision: To play a key role in establishing Alberta's and Canada's reputation as world leaders in sustainable forest management.



2002-03 AN EXPANDED FOCUS

The first year of the new business plan was another transition year in which Foothills Model Forest began to direct increased attention to demonstrating and implementing knowledge, technology, tools, and applications. "It was the next logical progression of the program," says Udell. "We started doing workshops on how to apply the tools. The researchers were taking people out to the field and showing them how some of this stuff was working."

2002-03

The Adaptive Forest Management-History Program prepared to adapt two reports into books scheduled for publication the following year: *Learning from the Forest: A Fifty-Year Journey towards Sustainable Forest Management* and *A Hard Road to Travel*.

HIGHWAY 40 NORTH DEMONSTRATION PROJECT

The Highway 40 North Demonstration Project, an initiative of the Natural Disturbance Program, was fully planned by this year. Once implemented, the project exemplified theory in action, applying the model forest's natural disturbance research to 70,000 hectares of land that was of great economic, ecological, and social importance. The objective was to demonstrate the application of a variety of natural range of variation concepts to support and integrate with other values, and to inform policy and resource management planning.

"It was one of the first multi-partner demonstrations that Foothills Model Forest entered into," remembers Andison.

About the demonstration area:

- Includes parts of Alberta Newsprint Company, Hinton Wood Products, and Foothills Forest Products management areas, as well as active oil and gas well sites and exploration and a portion of Willmore Wilderness Park
- Has important caribou, grizzly bear, and bull trout habitat
- Is at high risk of wildfire and mountain pine beetle infestation
- Includes a well-travelled public corridor used for recreation

2002-03

Local Level Indicators of Sustainable Forest Management for the Foothills Model Forest was published. It provided initial benchmark reporting on a starter set of 39 indicators to help Albertans make informed decisions about forestlands.

OBJECTIVES FOR PHASE III

- Demonstrate sustainable forest management.
- Develop and implement mechanisms that result in a wider understanding and application of accrued knowledge and technology for sustainable forest management.
- Deliver communications and outreach programs that improve understanding of and support for sustainable forest management.
- Support and inform policy that improves the practice of sustainable forest management.



DON PODLUBNY, GENERAL MANAGER, 2003-07

Don Podlubny brought seven years' experience as a senior manager with SRD as well as experience as chair of Foothills Model Forest for six months and as chair of the Program Implementation Team to the role of GM.

"I wanted to expand the programs, increase funding being brought in, increase the partnership, and focus on applying the completed and ongoing research," says Podlubny of his goals for the organization.



CHISHOLM/DOGRIB FIRE RESEARCH

In 2001, there were two intense forest fires in Alberta, the Chisholm and Dogrib fires. They had significant community and ecological impacts. SRD designated both fires as research areas.

"Although large wildland fires are pervasive in Alberta on an annual basis, very little post-fire research is conducted," says Dennis Quintilio, project lead at the time. "Contributions from the research included ecological responses to severe fires, quantification of fire intensity, wildlife response to severe fires, social response to evacuations, fire spread spatial modelling, and public involvement in support of FireSmart."

Research focused on fuel characteristics, wildlife impact, coarse woody debris, moss succession, saproxylic beetle populations, and fire behaviour modelling. In this first year, researchers found the following:

- Fire behaviour in aspen stands is very dependent on age and coarse woody debris.
- Coarse woody debris, moss succession, and nutrient pools are significantly different in the burns and adjacent forest harvest areas.
- Elk migration is influenced by vegetation response to fire.
- Calibration of Prometheus, a fire spread model, has improved fire behaviour forecasting.



2003-04
BRINGING STRATEGIES TO LIFE

The local strategies Foothills Model Forest and its partners were developing and implementing brought international sustainable forest management agreements to life. This year included many examples of science-based conservation and forest management advancements based on the model forest's research, including the continuation of the Highway 40 North Demonstration Project, which linked to five of the six Canadian Council of Forest Ministers' criteria for sustainable forest management and the corresponding goals from the model forest's report on local level indicators.

2003-04

Communications and Extension shared Foothills Model Forest research with over 1,300 professionals involved in managing and protecting forests.

2003-04

Foothills Model Forest and Fifth House published the first book in the Adaptive Forest Management/History series—*Learning from the Forest*.

2003-04

Weyerhaeuser Company Ltd. adapted the stream classification database to its Edson and Drayton Valley forest management areas.

CONNECTING WITH THE PUBLIC

FireSmart – ForestWise was a unique, proactive project that combined knowledge of fire behaviour, forest ecology, and wildlife to restore a more natural forest structure, thus maintaining ecological integrity while simultaneously protecting people, communities, and infrastructure from wildfires. It involved public outreach, research and monitoring, operational-scale forest thinning, and prescribed burning.

The project was an example of how the community can be directly involved in project decisions and implementation, working together toward common goals.



GRIZZLY BEAR PROGRAM TURNS FIVE

Five years of research, 46,000 grizzly bear location points, and remote sensing technologies culminated in RSF models for a 100,000 sq. km area that includes and extends beyond the model forest area south to the U.S./

Canadian border. The RSF models incorporate many factors to illustrate how grizzly bears use the landscape to show where bears are most likely to be found. These powerful tools enable industry to plan activities to avoid or minimize their impact on prime grizzly bear habitat.

Weldwood, an original funding partner of the program, was one of the first industrial partners to use knowledge developed by the program. The company's access plan for the Athabasca West area considered all values with particular priority given to avoidance of grizzly bear habitat. Doing so benefited fish and their habitat, bringing the notion of umbrella species to life.

2004-05
PRACTICAL STEPS TO PRESSING PROBLEMS

Foothills Model Forest had always been a forward-looking organization, constantly reviewing and adjusting to align with emerging issues and challenges. This year it continued to remain relevant, identifying partner needs, applying research, and delivering effective tools. One example was the expansion of the Aboriginal Involvement Program, which helps to ensure that government and industry managers could respect Aboriginal interests on the land.



GRIZZLY BEAR RESEARCH WINS EMERALD AWARD

In June 2004, the Grizzly Bear Research Program won an Emerald Award for Research and Innovation from the Alberta Foundation for Environmental Excellence. The

award recognizes best practices in environmental excellence.

"This was truly a team award recognizing the outstanding contributions of our dedicated multi-disciplinary team of research scientists working on this project," says Gordon Stenhouse.

2004

The Montreal Process Working Group toured the model forest land base to see how criteria and indicators for sustainable forest management are implemented.

2004-05

The Fish and Watershed Program and its partners continued to take steps to support the province's Water for Life Strategy through the Hardisty

Creek Restoration Project and other joint projects with the Foothills Stream Crossing Program.

JIM LELACHEUR, PRESIDENT, 2005-10



West Fraser Mills' chief forester in Alberta, LeLacheur brought 28 years of forest industry experience in progressively senior management roles. "While there was certainly a history of success to maintain, there was excitement to add to the excellence that came before me," says LeLacheur of stepping into the role.



THINKING GLOBALLY, ACTING LOCALLY

An example of how locals can take action, using collaboration and a solutions-oriented approach to create positive change, the Hardisty Creek Restoration Project was designed to address how the area's watersheds were managed and educate the citizens of Hinton and area to be more aware of their relationship to water and the greater ecosystem.

As a result of industrial and residential development, stream crossings and other infrastructure damaged fish habitat and impeded passage. Bull trout and other species no longer inhabited the stream. Two of this project's goals were to restore fish habitat and extend fish passage connectivity.

With the Fish and Watershed Program as technical lead, the project used knowledge and tools developed by Foothills Model Forest, including fish inventory data, fish probability mapping, and stream crossing assessments.



ABORIGINAL INVOLVEMENT PROGRAM

From 2002 to 2009, Foothills Model Forest worked with Aboriginal communities, resource-based industry, and the province to involve Aboriginal communities in land management decisions. Through Traditional Cultural Studies funded by model forest partners, communities documented sites of social, cultural, and spiritual importance. In 2005, five communities were conducting or were planning to conduct studies.

"One of the most valuable things that came out of this program was the relationships that were developed," says Aaron Jones, stewardship, public and aboriginal affairs coordinator, Hinton Wood Products (West Fraser). "Industry developed an understanding of the Aboriginal communities and their values, and the communities discovered that these companies weren't just out to extract resources; they were concerned about their impact on the land and on traditional rights."

The program was unique because communities owned the data collected and multiple communities could store their data in a central database housed by the model forest. "We didn't have access to that information; they did, and that was very important to them," says Jones.



NEW PARTNERSHIPS WITH INDUSTRY

Foothills Stream Crossing Program

A partnership between Hinton Wood Products, several energy companies, and the model forest, this initiative was designed to develop a common approach to assess and fix stream crossings to ensure fish passage across the model forest's land base—a challenging task involving 2.75 million hectares, 208 watersheds, more than 2,500 stream crossings, and over 30 stream crossing owners.

The unique approach involved crossing owners working together, strategically investing resources to maximize the benefits to the environment and to transportation infrastructure.

"Many of these crossings are more than 20 years old and the standards were different when they were installed. The owners recognize the problem, but a managed approach is required to fix and upgrade these crossings over time. By working together and with the regulators, the problems can be identified and resources allocated for remediation in a managed way and to help get the most gain for fish and fish habitat for the dollars spent," says Jerry Bauer, program lead.

The approach also allows owners to set priorities for remediation by looking at the entire watershed.



Caribou Landscape Management Association

Made up of forestry and oil and gas companies that operate in the Little Smoky and À la Pêche caribou ranges, this association was formed to allow members to work together and pool resources to achieve integrated land management between the industrial operators. The plan was for companies to reduce their industrial footprint on the home ranges of the herds, restore existing industrial footprint to improve caribou habitat, work with the Alberta government to recover the Little Smoky caribou population, and contribute funds to caribou monitoring and research. This is now the Foothills Landscape Management Forum.



2005-06 WORKING ON COMMON GROUND

In this last year of Phase III, Foothills Model Forest completed the achievement of the vision and objectives laid out five years before. The Highway 40 North Demonstration Project had resulted in a single forest management plan that demonstrated sustainable forest management and spanned jurisdictional boundaries. Forest companies were using the Grizzly Bear Program's RFS models. Interpretive programs were reaching more and more people, and the model forest was influencing sustainable forest management practice and policies across Canada.

2006-07 A NEW VISION, A NEW MISSION

As the Foothills Model Forest prepared to enter its fourth phase, it celebrated 15 years of accomplishments and established a new vision and new mission. The last year of Phase III saw the organization providing government, the public, and partners with useful data, tools, and processes. The model forest's work was extending far beyond the boundaries of the land base and attracting new and important partners.



SMITHSONIAN FOLKLIFE FESTIVAL DISPLAY IN WASHINGTON, D.C.

Foothills Model Forest proudly partnered with the Government of Alberta on the Alberta's Forests exhibit at this high-profile event.

"The role of the model forest was to promote Alberta's forests and the Alberta forest industry in very broad terms," says Podlubny of the organization's participation. "The event was important due to the international exposure and the focus of ENGOs on Alberta's tar sands at that time."

VISION

Foothills Model Forest is a leader in developing innovative science and knowledge for integrated resource management on the forest landscape through diverse and actively engaged partnerships.

MISSION

Foothills Model Forest is a unique community of partners tied to the land and its people through a common concern for the welfare of the land and its resources.

2005-06

The GIS Program worked with the Caribou Landscape Management Association to develop an internet mapping website for association users. It displays overview maps relating to access and other features. Similar websites have been developed for other programs.

2005-06

The Aboriginal Involvement Initiative's Referral Process database continued to grow, with over 800 cultural sites catalogued. The program was also featured as a best practice by Alberta Aboriginal and Northern Affairs.

REPORT CREATES AWARENESS OF POTENTIAL CRISIS

The Social Sciences Program delivered the final report on research into the socio-economic dimensions of community vulnerability to mountain pine beetle this year. Studies had examined exposure and adaptive capacity from biophysical, social, economic, and political perspectives and compared results to communities in B.C.

"The report's value was in creating awareness of a potential natural crisis that would impact Alberta," says Podlubny. "It provided information that allowed us to focus on the factors of the mountain pine beetle that would have an impact on Alberta's pine forests, Alberta's economy, and, most importantly, Alberta's forest ecosystems and their sustainability after infestation."

APRIL 2007

Foothills Model Forest won the first-ever Syncrude Award for Excellence in Sustainability Development. The award recognized the model forest and the Grizzly Bear Research Program.





AN EMERGING ISSUE

The emerging infestation of mountain pine beetles raised questions about the potential impacts of mountain pine beetle on fire susceptibility and risk, fire start potentials, and fire spread and intensity. The new and unprecedented challenges facing fire and forest managers pointed to the need for a Mountain Pine Beetle Fire Ecology Program.

"The concern among the partnership was moderate to high as predictions of the mountain pine beetle moving into Alberta gave us some time, with a slow increase of population over three to six years. We were not expecting the 2006 in-flight from B.C., which hastened all projections of ingress into Alberta. This changed the concern to very high and generated interest among resource managers, politicians, the general public, and the media," says Podlubny.

The new program identified key current and emerging issues surrounding fire management and forest ecology related to mountain pine beetle infestations.

2007-08

This year marked the delivery of interpretive programs to more than 12,000 people through the Communications and Extension Program in partnership with Jasper National Park and William A. Switzer Provincial Park.

INTEGRATED INDUSTRIAL ACCESS PLAN ENDORSED

The Foothills Landscape Management Forum (FLMF) developed an integrated industrial access plan to minimize the go-forward footprint of roads in the ranges of two caribou herds.

The government endorsed the plan in 2008 as a guiding tool, reinforcing the need to integrate and coordinate access requirements of the forest and oil and gas sectors, and to develop a monitoring and reclamation plan.

"What it meant for the companies in the association was that it would be easier to get government approvals provided they followed the plan," says Wayne Thorp. "We would also be reducing the amount of roads built, which is better for all other values while at the same time providing an increased level of certainty for industrial activity."



SETTING A NEW DIRECTION

After 14 years, the model forest had a stable and strong relationship with its primary partners, and the flexibility to work with over 80 other partners to develop solutions to very specific questions, such as growth and yield, the regeneration of forest stands, maintaining water quality and quantity, emulating natural disturbance in management plans, and minimizing the industrial footprint on wildlife habitat.

This year, strategic planning sessions were held to develop the business plan that would guide the next five years. Partners, peers, staff, and researchers provided input on what the focus should be moving forward.

"This was the first time strategic planning was conducted in such an extensive, inclusive, and robust manner," says LeLacheur. "Given our goal to expand the partnership and the demonstration land base, and change the name at the same time, it was imperative to ensure we heard from the broadest stakeholder base possible and secure staff buy-in to such robust change. Committee partnerships were the end goal and the large stakeholder group accomplished this."



WHAT PARTNERS SAID AFTER 15 YEARS OF ACCOMPLISHMENTS

"A number of the Foothills Model Forest programs are clearly aligned with the premise of integrated landscape management, and the benefits to the oil and gas industry are readily evident." – John Kerkhoven, manager, Stakeholder Relations, North American Natural Gas, Petro-Canada

"Foothills Model Forest is an influential body in resource management in Alberta and will continue to be effective and innovative through its supporting partnership and those that are developed to undertake research. Foothills Model Forest is destined for continued success in influencing resource management on an Alberta landscape that is becoming increasingly complex and challenging." – Keith McClain, director, Science Policy and Strategy, SRD

"Foothills Model Forest provides the ideal environment for conducting applied environmental research. It gives us the opportunity to work on projects that matter, and the ability to interact with stakeholders in industry, government, and universities." – Greg McDermid, Department of Geography, University of Calgary



GIS DAY

Foothills Model Forest held its first GIS Day, an international grassroots initiative to promote geographic literacy in schools, communities, and organizations, in 2003. The event is celebrated around the world every year on the third Wednesday in November during National Geography Awareness week.

Foothills Model Forest's GIS Day exposes junior high students in Hinton to GIS technology and how it can be used as a tool to understand the forested lands that surround their community. Students discover how the model forest uses GIS to track grizzly bear use of the landscape, map points of historical importance and interest, and map streams and tributaries in a watershed.

A woman with long brown hair, wearing a grey button-down shirt, is smiling and looking down at something in her hands. She is standing in a forest with tall, thin trees. In the foreground, a large brown bear is visible, looking towards the camera. To the right, there is a white vehicle with a metal mesh structure on top. A sign on the vehicle reads "DO NOT ENTER".

GOING
BEYOND
BOUNDARIES

2007-12

By the beginning of Phase IV, what was now known as Foothills Research Institute (FRI) had more than 100 partners, including forest companies, three levels of government, oil and gas companies, Aboriginal communities, universities, environmental groups, and not-for-profit organizations. The next five years would see the organization extend practical research into new areas to manage new challenges as it continued to respond to the needs of partners and share knowledge with the global community.

2007-08

ACCOMPLISHING OBJECTIVES

In the first year of Phase IV, the organization was renamed Foothills Research Institute and a new website was created to assist with communication and extension as well as expand information and networking capabilities. The objectives of the new five-year business strategy were already being met with the addition of new partners, collaborative research agreements, and staff.

2007-08

The Highway 40 North Demonstration Project came to a close. "We learned that terms like 'integration' and 'cumulative effects' are far more complicated and involved than anyone realized. On the other hand, the partners involved entered into a long-term dialogue in terms of natural patterns, their value, and how to use them together," says Andison.

2007-08

The Foothills Growth and Yield Association acquired funds through the Forest Resource Improvement Association of Alberta and FRI for a project designed to provide information and options for post-mountain pine beetle stand management.



TOM ARCHIBALD, GENERAL MANAGER, 2008 TO PRESENT

Archibald had many years of experience with the Government of Alberta before joining FRI. "Tom brought his managerial expertise, his outgoing personality, and a passion to work with a diverse and dynamic group of employees, consultants, and partners. This platform really helped in establishing Foothills Research Institute as a dynamic and open research institution," says outgoing GM Podlubny.

OIL AND GAS JOINS THE PARTNERSHIP

The Foothills Energy Partners had been exposed to the model forest's partnership base at the project and association level as well as at a strategic planning session, and their need to continue to develop tools that enabled them to practise sustainable resource management on an integrated landscape led them to join the organization. "They shared so much in common—the need for management tools and policy influence—with the model forest's partners that their joining provided them with value," says LeLacheur.

The new partners were significant. "The oil and gas industry has been involved with the model forest for many years at the program and project level but when the five oil and gas companies became shareholders, it gave a sense of recognition that Foothills Model Forest was providing science-based research, knowledge, and tools to a much broader partnership than just one resource sector," says Archibald. These new partners led the organization to rebrand as FRI.



DISSEMINATING KNOWLEDGE

With networking and extension being critical tools for getting research results into the hands of decision makers, FRI continued to focus on knowledge dissemination. Activities this year included:

Anderson Creek Crossing interpretive signage: Three signs were installed at the crossing 20 km southwest of Hinton to explain the benefits of the unique stream channel simulation bridge that replaced a conventional culvert.

A Hard Road to Travel: Published by FRI and the Forest History Society of Durham, North Carolina, in 2007, this is widely considered to be the definitive book on the history of man's relationship to the environment and the landscapes of the upper Athabasca region from early times to the beginnings of the modern forest industry. The Adaptive Forest Management-History Program also published two other books and five reports over the years.

Natural Disturbance Short Course: Catering to government and industry land managers, the course explores the various options for how to integrate natural disturbance knowledge with planning activities at operational, strategic, and land-use scales.



2008-09

BROADER HORIZONS

This year saw a surge in demand for FRI knowledge, tools, and involvement. Several examples of knowledge sharing took place, such as the International Model Forest Network's Global Forum, which FRI hosted in Hinton. More than 150 delegates from 31 countries attended the forum. The sharing of information benefited partners and stakeholders by increasing collaboration, leveraging research resources, and building confidence in FRI tools and products.

KICKSTART OF THE NORTHERN ROCKIES ECOTOUR PROJECT

The Northern Rockies Ecotour project began. The Ecotour focuses on the landscapes, ecology, culture, people, and history of the Northern Rockies Region of Alberta. It is the basis of a widely acclaimed highway guide, one of a series of books published by the Adaptive Forest Management-History Program.

"The value to FRI is that it provides an opportunity to reach the public and educators and school groups as people would use the book to enhance their travel experience and learn about the institute as well as about issues facing resource managers," says Udell. "Those are people who might never have known about these things otherwise."

2009-10

Foothills Stream Crossing Program staff conducted 15 stream crossing inspections for new partner Imperial Oil.

2008-09

Brazilian journalist toured FRI land base.

2008-09

The Fish and Watershed Program created a field classification manual.

2008-09

The Alberta Forest Growth Organization partnered with FRI.

SCANDINAVIAN BROWN BEAR PROJECT

Through the International Bear Research and Management Conference, the FRI Grizzly Bear Program began a dialogue for collaboration with the Scandinavian Brown Bear Project. The Brown Bear Project is a long-term research project focused on the grizzly population in Sweden.

The two research teams shared common goals but had different unique data sets and approaches that the team members felt could be useful to pursue and understand many issues related to grizzly bear conservation and management. A formal collaboration agreement was signed in 2009, and a number of important research efforts have been completed and are ongoing.

HEALTHY LANDSCAPES

The Healthy Landscapes approach to land management represents a fundamental change to how we think about the landscape and create land-use plans. Rather than initiating strategic dialogue between partners based on individual stakeholders' needs, it starts with a universal set of benchmarks that establish the historical range of patterns and structures on that land base, representing the health or integrity of the landscape ecosystem. Planning proceeds using these indicators as relative measures of ecosystem sustainability.

Thirty FRI partners agreed to adopt the Healthy Landscapes approach to land management as an add-on to Alberta's land-use planning process in the Upper Athabasca area.

WEBSITE LAUNCH

Since the 2009 launch, the website has had over 30,000 unique visitors.

2009-10 LEADING THE WAY

Tough economic times led to interesting questions about how FRI could reassure partners that the institute remained a good investment and would continue to lead the way. Even with reduced funding, new opportunities surfaced, like Alberta's Land-use Framework and the Canadian Boreal Forest Agreement. The strong business model paid off as partners continued to see relevant research and practical tools for use on the ground.

NEW PREDICTIVE MODELLING SYSTEM TO CLASSIFY AND MAP WATERCOURSES

The system, which identified and classified all watercourses on the 10,000 sq. km forest management area operated by Hinton Wood Products, took six years to develop. It is based on LiDAR remote-sensing technology backed up by exhaustive field checks.

Traditional classifications based on flow and width were replaced with internationally recognized divisions based more on the characteristics of the stream's banks and bed at any given point, allowing the production of more useful maps for forest management and operating plans, and the prediction of how proposed roads and logging activities might affect water resources.

"The ability to layer the new stream classification maps on top of fish habitat maps opens up new opportunities for foresters to further reduce the impacts of roads and timber harvest on small streams," says Rich McCleary, program lead, Fish and Watershed Program.

RICK BONAR, PRESIDENT, 2010 TO PRESENT

Bonar was no stranger to FRI when he took the role of president this year. He'd been involved since the beginning, helping to draft the original proposal. As president, he looked forward to furthering the organization's mandate.

"I hope to grow the partnership, grow the research and knowledge and its application, and generally improve resource management," says Bonar.

2009-10

The Aboriginal Involvement Program completed electronic protection technology that delineates traditional Aboriginal use sites that can be layered into development plans.

NEW WEB-BASED COMPENDIUM FOR MOUNTAIN PINE BEETLE RESEARCH CREATED

The Mountain Pine Beetle Research Compendium allowed researchers and resource managers to review past research work and identify current knowledge gaps by searching the meta data on the 357 projects from across North America that were listed.

"This provided FRI and its partners with base information on relevant research done and being worked on, and helped the reviewers understand the complexity of the mountain pine beetle in Alberta," says Podlubny.

The Mountain Pine Beetle Ecology Program also completed a survey about public and expert understanding of mountain pine beetle threat this year. Podlubny says the research provided partners and the public with a greater understanding of how the problem was being viewed and what areas of communications needed to be focused on to ensure an accurate depiction of what was happening and what actions, both control and ecosystem restoration, were being implemented.

2009-10

Fish and Watershed Program uses night snorkelling to estimate the number of Arctic Grayling in mid-size streams.



SCIENCE-BASED TOOLS

Grizzly Bear Program Habitat Maps: These comprehensive habitat maps covered the entire grizzly bear range in Alberta. Partners now had a seamless map product showing the areas most likely to serve as important bear habitat. "We had now created maps with these products for all grizzly bear range in Alberta, which had never been done," says Stenhouse. "These maps allow, for the first time, land and resource managers to understand grizzly bear habitat across broad landscapes and not be reliant on other data files from other jurisdictions."

NEPTUNE: Ten years of research and development in the Natural Disturbance Program culminated with NEPTUNE, a groundbreaking software program that allows users across western boreal Canada to compare past or future disturbance patterns to those of the pre-industrial era based on FRI research. This decision-support tool ultimately helps land managers identify and potentially avoid practices that might be detrimental to landscape health.

Fish habitat mapping tool: Developed by the Fish and Watershed Program, this tool identifies, with 96% accuracy, the streams in the region that contain fish. It was the first of its kind in Alberta to map fish habitat at a regional scale and has proved very helpful for setting priorities for road remediation across the region.

"Such activities are essential for long-term conservation of native fish species including the Athabasca rainbow trout, a species that has been rated 'may be at risk' in Alberta," says McCleary.



GEOCONNECTIONS

A national initiative to put together location-based information to help various sectors do their work, GeoConnections provided funding for a user needs workshop in 2008, which led to the creation of FRImap, an open-source online mapping application. FRImap would provide a mapping framework so partners and the public could access spatial information related to the foothills and Jasper regions. Layers include geo-administrative boundaries, access, ecological and vegetation, hydrology, and disturbance, with certain layers downloadable to partners and the public.

"FRImap is an exciting step forward in helping to provide simple and collaborative access to spatial information in the foothills and Jasper areas," says Debbie Mucha, lead, GIS Program.

NEPTUNE, the FLMF mapping tool, and other decision-support tools are using FRImap as the framework for future development.



FGYA PURSUES A FIRST

Regeneration of lodgepole pine, Alberta's provincial tree, following harvest, fire, and other disturbances is crucial to maintenance of the Foothills Forest. Without it, most of the values and benefits enjoyed from the forest, such as timber, water, fisheries, grizzly bears, and caribou, would be substantially reduced or lost. To help land managers make more informed decisions related to reforestation practice, the FGYA set out to build the first comprehensive mathematical model for lodgepole pine regeneration.

"The objective is to forecast regeneration performance, such as stocking, survival of planted seedlings, amount of natural regeneration, and growth rates—to 12 years and beyond—based on information provided by the user about the site, stand history, and actual or proposed treatments," says Dick Dempster, research and development associate for the association.

As of 2012, the model is still a work in progress. Additional data collected in 2011 is being incorporated and the model is being tested.



2010-11 MEETING THE CHALLENGE

This was the year of meeting the challenge, responding to new questions raised by partners with innovative programs designed to unearth solutions and generate knowledge, tools, and more questions. Four new initiatives were launched that connected the questions partners were asking with FRI research so that partners can get the information they need to achieve success.

2010-11

The Mountain Pine Beetle Ecology Program developed an innovative decision-support tool to help resource managers mitigate or manage various infestation scenarios and project outcomes.



2011

Berland Smoky regional access development plan receives conditional approval from the province. FLMF wins an Emerald Award (Shared Footprint) for advancing integrated land management in Alberta.

YELLOWHEAD ECOSYSTEM GROUP

In existence since the 1990s, the Yellowhead Ecosystem Group partnered with FRI to receive administrative, communications, and GIS support. An executive-mandated, locally implemented landscape partnership working to identify opportunities for cross-jurisdictional bodies to meet common goals such as caribou management, the group identified access management as a common issue and initiated two projects: the Grizzly Bear and Park Users Project to look at the effect of human use on grizzly bears, and a policy review and analysis of cross-jurisdictional issues, looking at the gaps in policies and determining what needs to be done to fill the gaps. FRI also began managing a mapping database that allows for more effective collaboration when it comes to access management for the group.

2010-11

FLMF developed a regional access development plan to improve integrated land management.

2010-11

A five-year project focusing on understanding the links between environmental conditions, grizzly bear health, and landscape change was completed.

2010-11

FGYA released a report summarizing 10 years of research, knowledge, and the application of knowledge to management decision making.

2011-12

Keith McClain became the new lead of the Mountain Pine Beetle Ecology Program.

ALBERTA LAND-USE KNOWLEDGE NETWORK

With partners facing complex challenges, they require collaboration and knowledge sharing to find solutions. The Alberta Land-use Knowledge Network was launched to start the conversation and move knowledge related to land-use planning into practice.

"The idea for the network is that researchers, policy makers, practitioners, and organizations will be able to access leading-edge information and best practices for issues that affect policy formation and decisions," says program lead Kirby Wright.

The network includes an online presence with a library as well as opportunities for getting together through workshops and other settings.

2011-12 MOVING FORWARD

This year wrapped up FRI's first 20 years, and by all accounts the past two decades have been successful. With new programs in development and a new business plan that will include measurable goals to allow the institute to better track its progress, the organization is primed to deliver ever more value to its partners and stakeholders.

GRIZZLY BEAR PROGRAM

Understanding more about when and where grizzly bears den could lead to tools that will help land managers make decisions that reduce the impact of human activity on bear habitat. After four years, the denning study being led by Laval University PhD student Karine Pigeon is in the analysis phase and important information is coming to light.

"We've found that while the main driver of den entry and den emergence is sex and reproductive status, temperature and amount of precipitation also play an important role," says Pigeon. She explains that pregnant females go into dens earlier and come out of hibernation later than other individuals but if it is a warm and dry winter, all individuals will come out earlier than in cold, snowy winters. Pigeon and her team have also found that grizzlies den away from well sites and roads and always select steep slopes to dig their dens.

APRIL 2012

The online version of NEPTUNE was launched.

WATER PROGRAM

In its first full year, the Water Program built a five-year strategy, integrated with components of the Fish and Watershed Program, which has wrapped up, and began work on the Cumulative Effects Assessment of the Eastern Slopes project. "This project was a direct response to what we heard in the workshop we held in 2011," says Axel Anderson, program lead. "Alberta needs effective cumulative effects assessment procedures tailored to each watershed, and the Water Program will be developing those over the next several years for many of the natural regions of the province, beginning with the Eastern Slopes."

The program has also contributed a series of articles to the journal *Streamline*. Two upcoming issues of *Streamline* will highlight Alberta watershed issues.



CLIMATE PROJECT

Future of Alberta's Forests: Impacts of Climate and Landscape on Forest Resources Project was created in response to partner and FRI board member interest in a project that could integrate the results of existing research initiatives. The goal was to better understand potential future landscape conditions as they related to forest and resource management.

In this first year, a research team focused on future forest conditions using current and new data from the newly created Water Program, the Grizzly Bear Program, and the Mountain Pine Beetle Ecology Program.

The Mountain Pine Beetle Ecology Program would look at the productivity of mountain pine beetle in novel pine forests, predicting impacts in a warming climate. The Water Program would examine potential impacts of climate change and vegetation dynamics on monthly and annual water budgets, and the Grizzly Bear Program would explore what future temperature regimes and climate patterns might mean to bear foods on the landscape.



NEW CARIBOU PROGRAM

"A lot of the knowledge generation has been to determine what the problem is," says Bonar. "Now the recovery actions are being designed and are going to be implemented, and so the research questions are going to shift to 'is it working?'"

To help inform decisions as the program is set up, FRI hosted a workshop on January 12 and 13, 2012. More than 90 participants from the governments of Alberta, B.C., and Canada as well as from academia, industry, consultants, and NGOs gathered to provide insight on what had happened, what was happening, and what needs to happen in the future. Researchers shared what had been learned in the past and what they were working on, while government and industry partners discussed what they need to know to support caribou recovery.

A list of priorities has been developed and some funding is in place. The new program lead will take the results from the workshop and, working with partners, develop projects that will ultimately assist in testing caribou recovery initiatives as they are implemented.

Results from the workshop are available on the Alberta Land-use Knowledge Network at landusekn.ca.

INTRODUCING THE HEALTHY LANDSCAPES PROGRAM



In 2008-09, FRI developed and tested the Healthy Landscapes approach, which takes a broad perspective on landscape ecosystems and how they are managed. After a recent evaluation of the mission, vision, and objectives of the Natural Disturbance Program, the decision was made to expand the program mandate and change the name to the Healthy Landscapes Program.

"With the Healthy Landscapes approach, we integrated grizzly bear indicators and tools, as well as caribou and water values. Some of that work wasn't really ready for us," says Anderson, who will continue as program lead. "Furthermore, there wasn't a unifying theme for all the good research and tool development going on, and I believe this program focus will potentially provide a new home for that sort of integration."

The Fire, Water, and Climate Change project that recently began is, says Anderson, a good example of a Healthy Landscapes project.

In one element of the project, researchers are looking at historical fire regimes. The project will also link periods of high- and low-intensity fire to the climate record and examine the relationship between the frequency, size, and severity of fires and the turbidity in water.

"This project will tell us how Mother Nature managed the landscape in the past, and how that links to the goods and services that we value today," says Anderson. "If there is a big difference from what we're doing now, there may be value in talking about how we would manage a piece of land differently to start to get the kind of landscape conditions we think occurred here in the past."

GROWING THE KNOWLEDGE NETWORK

"We've always been in two businesses: knowledge creation and knowledge transfer. The Knowledge Network is helping us get the knowledge that we have out there and, more importantly, get it into use," says Bonar.

The network's website, landusekn.ca, has had 5,113 unique visitors, with over 21,000 page views, since November 2011. The repository of information housed on the site has grown to 460 unique resources, events, and articles, and a series of unique and ever-changing videos is drawing interest.

"We're working with the wide variety of associations and organizations involved with land use, and we've identified that many of them hold conferences and workshops where they bring in speakers to talk about leading-edge practices," says Wright. "We offer to videotape those keynotes for free and the videos go on the site so that a wider range of people have access to that knowledge." To date, 72 videos of conference presentations / keynote speakers are on the site.

The network added the capability to create newsletters with content customized to the reader's interests this year. The system is being tested, and the newsletters, which will also contain a customized RSS news feed, will be available in the coming year.

2011-12

The Northern Rockies Ecotour is released. A smartphone application and an e-book are in development. ecotour.foothillsri.ca

NEW CARIBOU PROGRAM

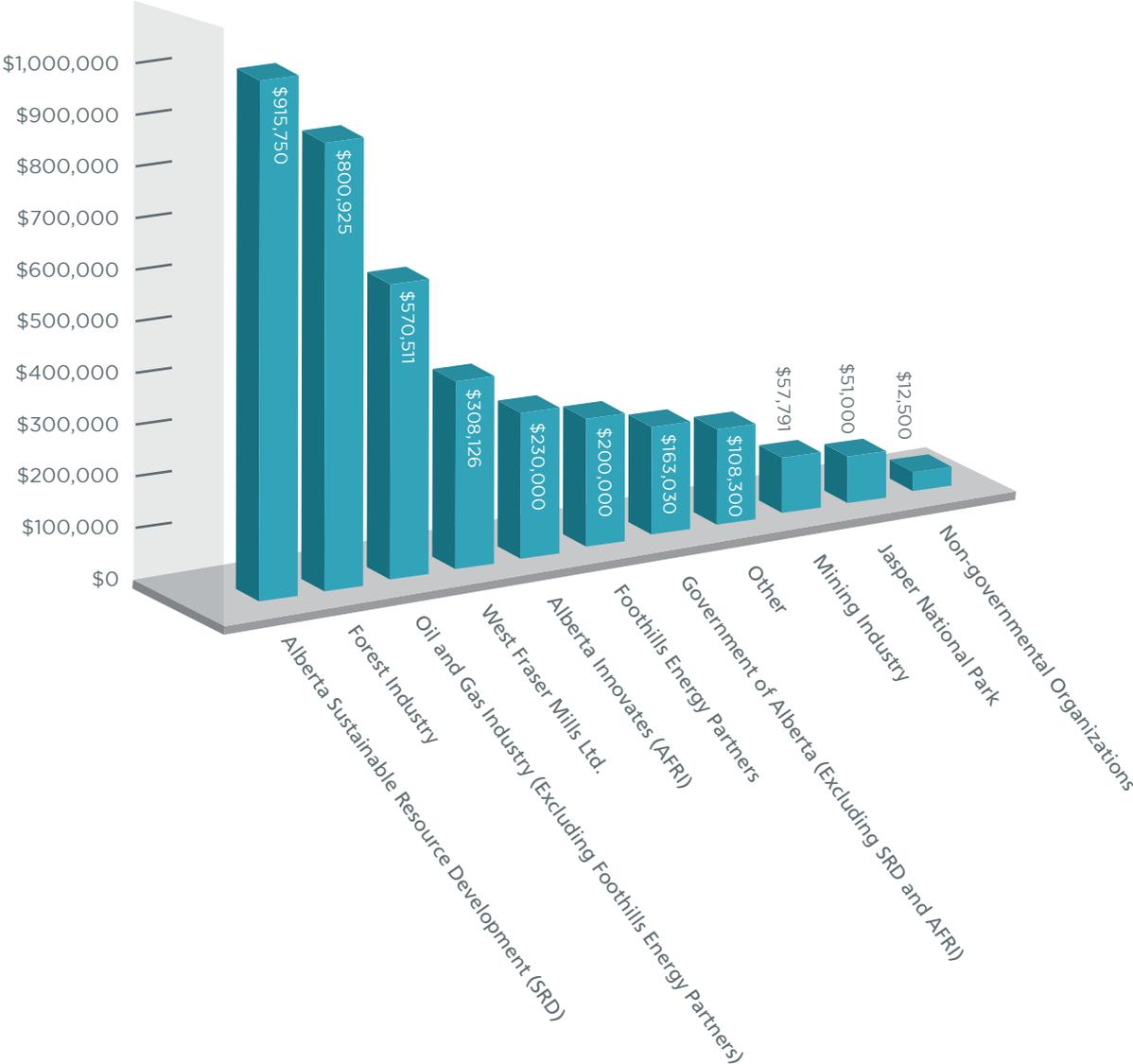
Understanding woodland caribou was an interest for FRI and its partners from day one. Now, with a wealth of information about caribou, there's a new need for solutions-oriented caribou-related research that partners can use to begin to recover the species.



FUNDS

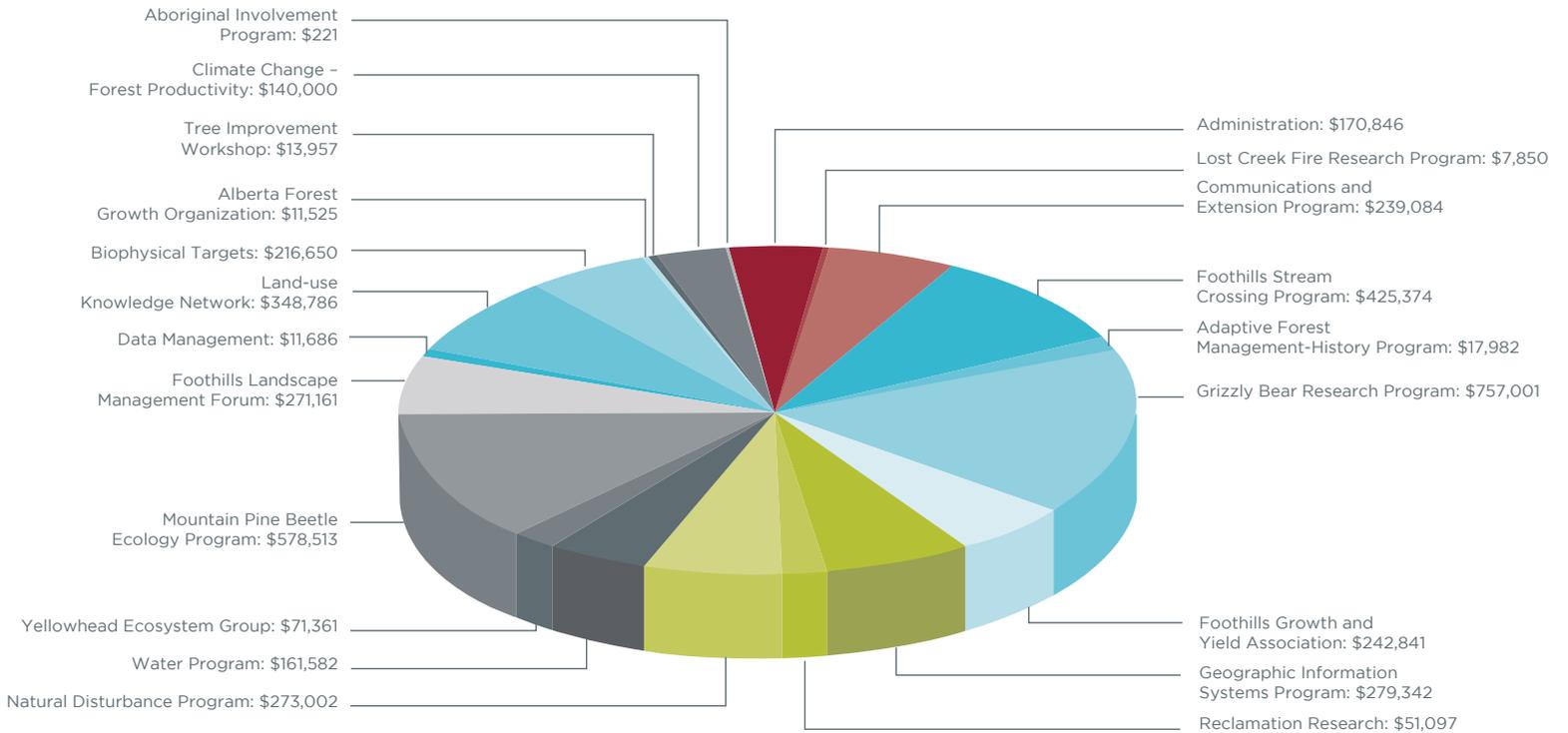
SUMMARY OF FINANCIAL STATEMENTS

REVENUE \$3,417,932.44

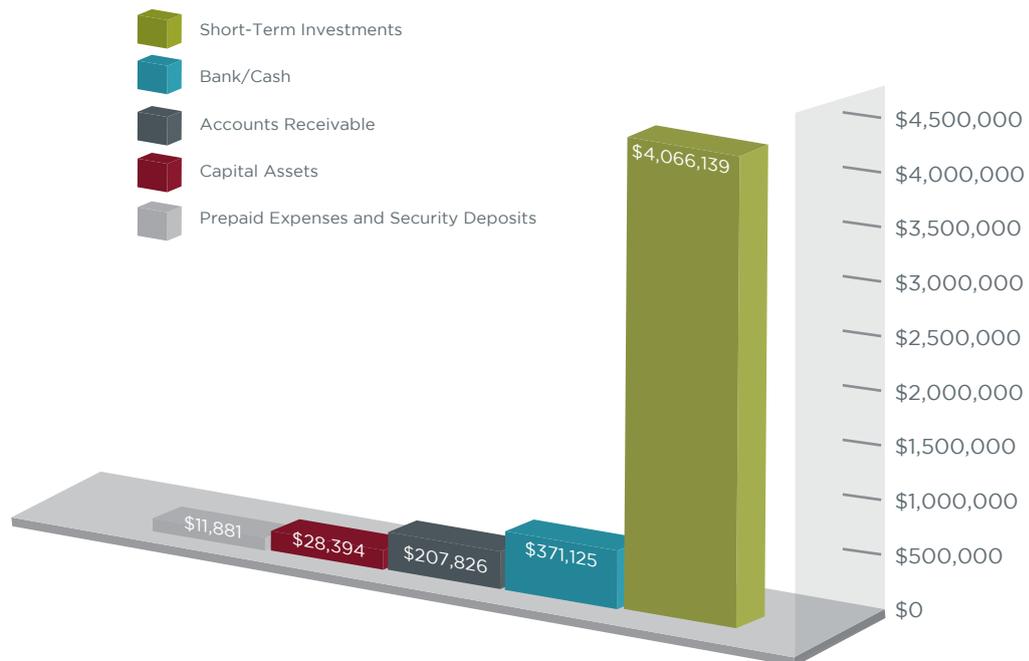


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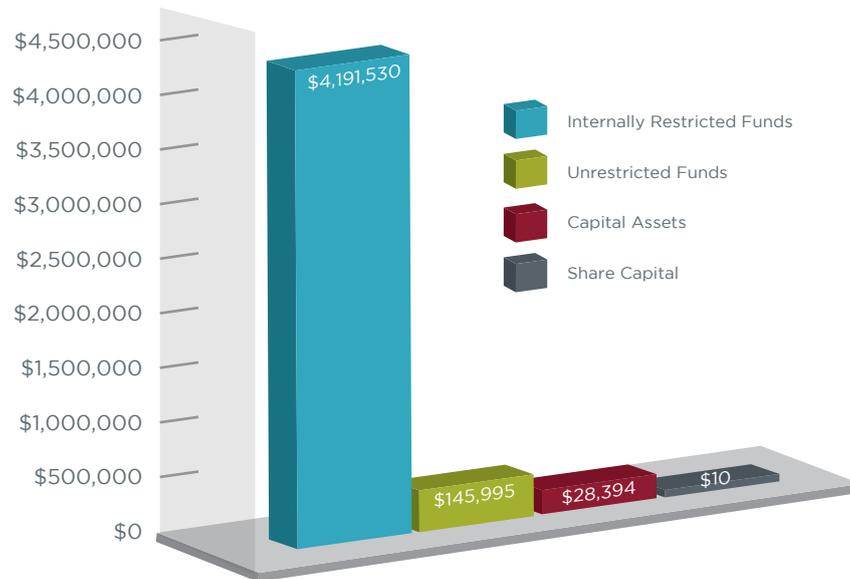
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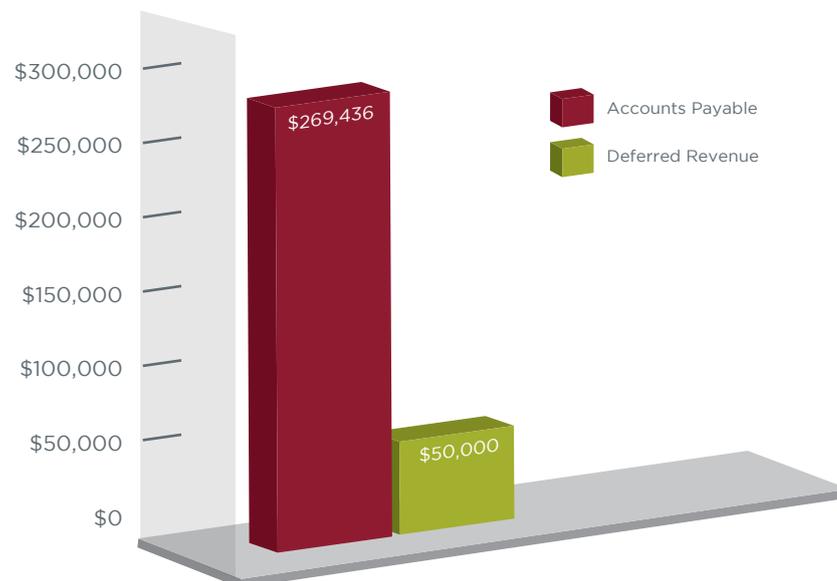
ASSETS



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¹Resigned October 2011

²Resigned May 2011

³Appointed March 2012

⁴Resigned May 2011

⁵Appointed October 2011

⁶Appointed March 2012

⁷Resigned December 2011

⁸Resigned March 2012

⁹Resigned June 2011

¹⁰Resigned December 2011



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