Annual Report 01 02

a Growing understanding

foothills model *forest*
a growing understanding

Mission *Statement*

> We are a community of partners dedicated to providing practical solutions for stewardship and sustainability of our forest lands.

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Westview Health Authority Laboratory
Weyerhaeuser Canada Limited
Wood Buffalo National Park
World Wildlife Fund

PHASE II PARTNERS

The Foothills Model Forest graciously acknowledges the valuable support from the following organizations and institutions over the past five years:

Ainsworth Lumber Company Ltd.
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Alberta Economic Development
Alberta Environment
Alberta Forest Products Association
Alberta Innovation & Science
Alberta Newsprint Company
Alberta Registered Professional Foresters Association
Alberta-Pacific Forest Industries Inc.
Alberta Research Council
Alberta Sustainable Resource Development
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Message *from the President*

The Foothills Model Forest recently celebrated its tenth anniversary and completion of its second five-year phase – both landmark occasions. As we find our place in the new millennium, and the new-world order, Foothills Model Forest momentum is steadily building.

In Phase I of Canada's Model Forest program, the Foothills Model Forest focused primarily on conducting world-class research to improve our understanding of the ecological principles which are the foundation of sustainable forest management. Phase II continued this focus, but saw a major shift towards targeted research to meet the practical needs of forest practitioners and resource managers for "on the ground" tools to improve the practice of sustainable forest management in Alberta. Along with this shift came an emphasis on communicating the results of that research to practitioners as well as the public.

Some Foothills Model Forest endeavours such as the Grizzly Bear Research Program, while only in their infancy in Phase II, have been acknowledged as contributing to Alberta's leadership role in sustainable forest management, and on a broader scope, to the pressing need for science-based information to support sustainable development. Other areas of Foothills Model Forest research, such as the Social Science program, contribute to the increasing awareness and understanding of the economic as well as the social values represented in our forests, and play a key role in building understanding that we must all work together – industry, researchers, government officials and the public – to ensure the continuing health, the sustainability, and the social and economic contribution of these forests to our well-being.

As the Foothills Model Forest continues to shift its focus from research to application, it has evolved into an organization recognized provincially, nationally and internationally. By way of our highly credible scientific research programs (Grizzly Bear, Fisheries and Watershed, Natural Disturbance, Technical Forestry and more recently, the proposed Chisholm/Dogrib Fires Research Initiative), the Foothills Model Forest has emerged as a champion of sustainable forest management. These programs have direct links to improvements in forest management in many parts of Alberta, and are being directly linked to the development of the Northern East Slopes integrated resource management strategy.

We look forward to the third phase of the model forest program, which will reflect a new dynamism – continuing critical research, but increasing our emphasis on the demonstration and implementation of model forest learnings in improved sustainable forest management policies and practices in Alberta's forests.

The Foothills Model Forest continues to contribute to the vision and practice of sustainable forest management. Through our ongoing research, our progressive, forward thinking models, our practical on-the-ground tools, our continuing dialogue with Albertans, and our ever-evolving and expanding partnerships with governments, aboriginal peoples, industry, and other relevant organizations, we will continue to play a lead role in positioning both this province and this country as unrivalled leaders in the field of sustainable forest management.

Bob Udell, President
Foothills Model Forest

Who We Are

One touch of nature
makes the whole world kin

William Shakespeare

The Foothills Model Forest

Who We Are

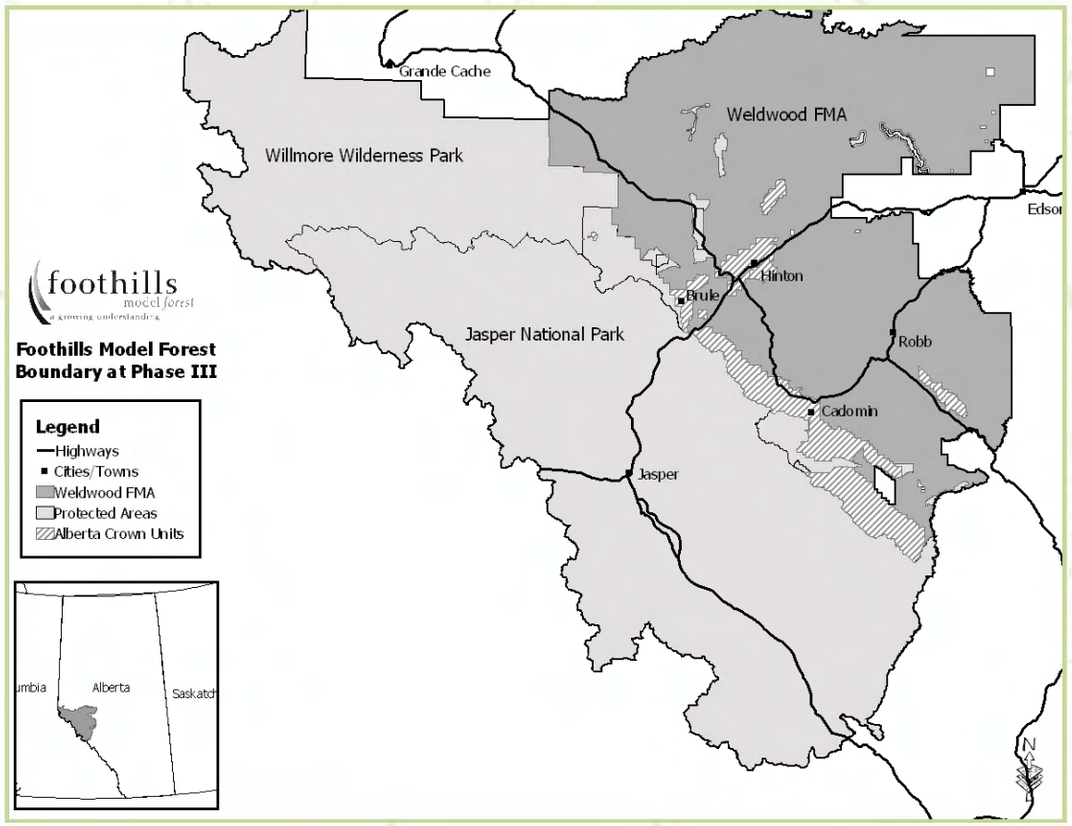
The Foothills Model Forest is one of eleven Model Forests across Canada that comprise the Canadian Model Forest Network. The Network is funded and administered by Natural Resources Canada and the Canadian Forest Service with other cash and in-kind contributions provided by program partners. The Foothills Model Forest has three principle partners/sponsors who represent the agencies with vested land management authority for the land base covered by the Model Forest. They include Weldwood of Canada Limited (Hinton Division), Alberta Sustainable Resource Development, and Parks Canada, Jasper National Park.

The Foothills Model Forest is located in west-central Alberta and covers an area of approximately 2.75 million hectares. Included in the land base are Weldwood of Canada Limited's Forest Management Agreement area, Jasper National Park, Willmore Wilderness Park and William A. Switzer Provincial Park, various provincial Crown Forest Management Units and the Environmental Training Centre's Cache Percotte Training Forest. The area itself lies within the foothills, montane, and sub-alpine forest regions of Canada. The Model Forest is centered in the town of Hinton, Alberta, a resource-based community of approximately 10,000 located 285 kilometers west of Edmonton and 85 kilometers east of Jasper town site.

Work carried out by the Foothills Model Forest, in cooperation with its sponsors and partners, will provide better information for land managers to base decisions on in the future.

As the Foothills Model Forest wraps up Phase II, and moves into Phase III, beginning in 2002, there will be an evolution towards demonstration and implementation of our knowledge, technology, tools and applications. This transition will serve us well as we continue to collaborate with all sustainable forest management stakeholders. In our journey forward, this progression from research to application will see continued reporting on leading edge research programs that address the trinity of forest values: ecological, economic and social elements. Our programs will incorporate wildlife, social science, natural disturbance, technical forestry, demonstration and Aboriginal elements. Through progressive research, practical “on-the-ground tools”, ever-expanding and diverse partnerships with governments, industry, organizations and communities, we will continue to play a key role in positioning Canada as an unrivalled leader in the field of sustainable forest management.

FOOTHILLS MODEL FOREST LANDBASE



Organizational Structure

Phase III of the Foothills Model Forest (FMF) program begins in 2002. While the general structure of the FMF will not change significantly for Phase III, there are some notable differences in the way it is administered.

The Board of Directors remains an active element of the FMF governance structure. Sixteen members, including the President and Chair, are from the various partners of the FMF. The President provides overall direction to the corporation, and exercises financial responsibility and authority. The Chair and the Board provide direction to the President, General Manager, staff and program leaders.

The Executive Committee is comprised of board members in the Hinton area, including the President and Chair of the model forest. The Executive Committee provides "real time" direction to the General Manager on timely issues and makes recommendations to the Board regarding direction.

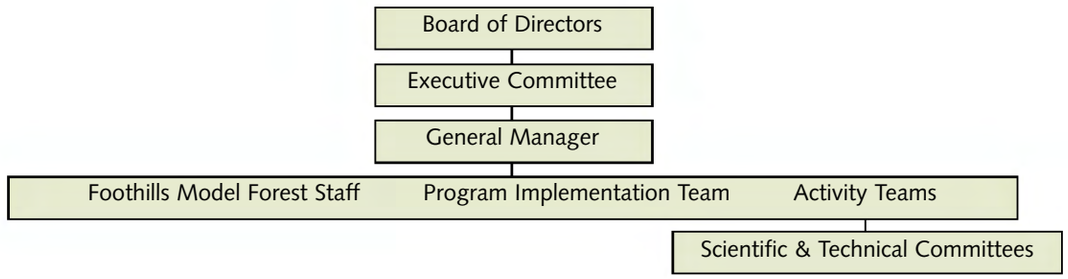
The FMF General Manager will continue to manage "day-to-day" operations of the programs, and ensure staff and programs follow proper procedural guidelines. The General Manager reports to the Board through the President, and works with and within the Canadian Model Forest Network.

A new addition for Phase III is the Program Implementation Team (PIT). This body is comprised of the General Manager, individuals from partners and sponsoring agencies and the Activity Team Leaders. The PIT makes recommendations to the Board through the PIT Chairman (the General Manager) regarding program initiatives, work plans and program integration.

All programs are led by a team leader. The Activity Team Leader works with identified individuals from the partners and sponsoring agencies that form Activity Teams. These teams develop the work plans for the programs and work with the Team Leader in meeting the deliverables of the program plan. These teams report through the General Manager to the Board of Directors.

Scientific and Technical Committees will be formed on an "ad-hoc" basis. They will report to the Activity Teams in providing resource knowledge and expertise in the implementation of the programs where required.

An illustration of the Foothills Model Forest organizational structure for Phase III follows:



Performance Measures For Phase II

2001-2002 was the final year of Phase II for the Foothills Model Forest (FMF). As we prepare to begin a new phase, a brief review of the last five years' accomplishments is timely and appropriate.

Phase II strategic goals were broad, generic statements related to the vision. Phase II objectives were presented as clear, specific statements of expected, quantifiable results, related to goals. Goals and objectives were designed to address the broader objectives of Canada's Model Forest Program as a whole, and those of its local partnership. In Phase II, the FMF proposed 14 Strategic Goals and 42 Objectives. The Phase II goals and (examples of) accomplishments related to the goals are listed below.

goal one

Continue development of improved resource information and information management systems.

ACCOMPLISHMENTS

- FMF now has a comprehensive Geographic Information Systems (GIS)-based management system that provides access to resource-based spatial and non-spatial information at a variety of scales for research and management purposes.
- The GIS unit of the FMF has worked with various complex, multi-scale, multi-disciplined program areas to establish data management protocols and frameworks that include data collection, storage and management.
- The FMF maintains an extensive data base on many of the key elements of sustainable forest management within the model forest land base – wildlife, fisheries, ecosystems, hydrology, etc.
- In collaboration with its partnership, the FMF has created a Data Sharing Framework which addresses access to, and timely sharing of, data.

goal two

Complete development of a common "regional" ecological land classification (ELC) system.

ACCOMPLISHMENTS

- The regional ELC was completed during the period of Phase II.

goal three

Develop co-operative management strategies for wildlife species that are of regional concern.

ACCOMPLISHMENTS

- FMF is currently in the third year of a multi-partner, multi-disciplined Grizzly Bear Research Program. This program focuses on management issues and questions by assessing grizzly bear populations, bear responses to human activities, and habitat conditions which provide land managers with tools to integrate grizzly bear "needs" into the land management decision making framework. These tools are now being applied by forestry and energy companies to improve practices in grizzly bear country.
- FMF has partnered with the West-Central Alberta Caribou Standing Committee to conduct research on caribou populations, predation, habitat supply and cumulative effects with the purpose of developing a regional caribou management strategy.
- FMF is conducting a multi-partner research program on harlequin ducks to provide land managers and regulators with improved status and distribution information for this species in the Northern Rockies and Foothills of Alberta. The major goal is to identify any potential problems with current management practices that may require changes, to ensure the sustainability of harlequin duck populations in this region.

goal four

Develop forest management strategies that are in concert with the concept of ecological management.

ACCOMPLISHMENTS

- The FMF multi-year, multi-scaled Natural Disturbance Research Program has contributed to the development of ecologically-based forest management strategies which are reflected in several Detailed Forest Management Plans in the region. There is considerable interest from across Canada and internationally in program results.

goal five

Evaluate the effects of various "enhanced silvicultural practices" on the broader range of forest values.

ACCOMPLISHMENTS

- FMF has facilitated creation of the Foothills Growth and Yield Association for co-operative research, monitoring and forecasting of managed stand growth and yield, particularly of lodgepole pine. Nine companies and the Alberta Government participate in the Association, with the FMF acting as the co-ordinating agency.

goal six

Develop co-operative management strategies for watershed, fish and aquatics ecosystems.

ACCOMPLISHMENTS

- FMF has implemented a comprehensive watershed, fish and aquatics program. This has included a large fisheries inventory program unprecedented in Alberta and now used daily in forest planning; a fish and fish habitat monitoring program which will be useful in assessing effects of management activities – feeding directly into the FMF Local Level Indicators project; inventories of problem stream crossings now being used in Weldwood's "stream crossing remediation program".

- Practical tools for forest managers have been, and continue to be developed. These include a fish habitat classification model in use since 1998; a watershed assessment model now regularly used by a number of agencies in planning and mitigating their impacts on streams and watersheds; and a new stream classification system in the late stages of development which will be an invaluable tool for agencies conducting work in the vicinity of, or crossing, streams.

goal seven

Integrate a broad range of forest uses into a sustainable forest management framework.

ACCOMPLISHMENTS

- FMF is currently supporting the Northern East Slopes (NES) Sustainable Resource and Environmental Management Strategy (NES Strategy) by providing technical advice, research results, and local level indicators of sustainable forest management. The large body of FMF SFM research was a major factor leading to the selection of the Northern East Slopes region as the location for this provincial pilot initiative. Research tools developed for FMF are now being applied to the NES Strategy.
- FMF research will also support Cumulative Effects Assessment (CEA), which is seen as a vital component of the development and implementation stages of the strategy.
- Several FMF program areas, including Grizzly Bear, Fish and Aquatics, and Natural Disturbance, incorporate CEA as a component of the research being conducted.

goal eight

Develop co-operative management strategies between the forest and energy sector to address the relationship between carbon fixation and carbon release from natural forests and forest products.

ACCOMPLISHMENTS

- Refinement of the FMF Carbon Budget Model in relation to ecological management parameters for fire origin versus regenerated stands is currently ongoing. This initiative has been expanded to include the Weyerhaeuser Forest Management Area in Saskatchewan through partnership with the Canadian Forest Service (CFS) and the Prairie Adaptation Research Centre.
- FMF is conducting a research program that examines Forest Management options relating to carbon credit incentives.

goal nine

Develop a common biodiversity monitoring program for the Boreal, Foothills, and Rocky Mountain natural regions of Alberta.

ACCOMPLISHMENTS

- FMF conceived, initiated and supported the development of the Alberta Forest Biodiversity Monitoring Program, which was developed with a strong scientific, government and forest industry partnership. Initial development was completed in 2001 and responsibility for the program has now been assumed by a provincial steering ommittee outside the model forest. The program is now entering a pilot project stage to assess its practicality and utility for forest and resource managers.

goal ten

Design and implement the demonstration of leading-edge sustainable forest management practices in the Cache Percotte Forest, including the incorporation of timber harvesting, various silviculture treatments, wildlife and aquatic considerations, and public information/education programs.

ACCOMPLISHMENTS

- Due to changes in Alberta Government priorities, the development and approval of a Forest Management Plan for the Cache Percotte Forest was not completed. In lieu of this, FMF became a major partner in the development of the Hinton Natural Resources Interpretive Park, which opened in the summer of 2001. The park includes management demonstration components outlined in Goal 10.
- FMF researchers regularly instruct and present their research findings to the Alberta Advanced Forest Management Institute, Northern Alberta Institute of Technology, and Environmental Training Centre Fire Management courses.

goal eleven

Incorporate "leading edge" social and economic information into the resource management planning and decision-making process for land managers in the FMF region.

ACCOMPLISHMENTS

- FMF participated in leading edge social science research throughout Phase II. This research is considered to be the best body of research of its kind in Canada. FMF social science research has figured prominently in FMF local level indicators development and the regional integrated resource management initiatives.
- The Social Science research program, and some of the models developed through it, such as the computable general equilibrium (CGE) economic model, were directly used in the development of the NES strategy.

goal twelve

Develop regional criteria and indicators of sustainable forest management in collaboration with National initiatives (CCFM Criteria and Indicators), International initiatives (Montreal Process), and FMF sponsors and partners.

ACCOMPLISHMENTS

- FMF has developed a comprehensive set of local level indicators in consultation with a broad range of stakeholders and is in the process of finalizing its Initial State of the Forest Report.
- FMF has actively participated in the Canadian Model Forest Network (CMFN) local level indicators strategic initiative through participation in Network sponsored local level indicators workshops.
- The NES strategy will use the FMF local level indicators set as a basis for determining the desired future state of the region and stewardship reporting on progress towards that state.

goal thirteen

Participate as a member of co-operative management planning teams in the development of the E4 Management Plan and Willmore Wilderness Management Plan.

ACCOMPLISHMENTS

- The FMF supported the inventory development analysis work, including the pilot study of integrating fire history analysis with forest inventory methods, for the Willmore Wilderness Management Plan.
- A FMF Natural Disturbance program has completed a stand origin map for the E4 Management Plan.
- With commencement of the NES strategy, management planning initiatives related to these two areas were put on hold pending completion of the strategy.

goal fourteen

Continue to build upon work conducted by the Yellowhead Ecosystem Working Group in an effort to foster partnerships and larger, landscape initiatives.

ACCOMPLISHMENTS

- With commencement of the NES strategy, the Yellowhead Ecosystem Working Group (YEWG) has been replaced by the Regional Steering Group (RSG). This is considered a success, as one of the main objectives of YEWG was to initiate larger landscape projects. Three members of the FMF Board of Directors currently sit on the RSG representing their respective organizations.

Enhanced Aboriginal Involvement

The creation of a thousand forests is in one acorn.

Ralph Waldo Emerson

Enhanced Aboriginal *Involvement*

The Enhanced Aboriginal Involvement Strategic Initiative of the Canadian Model Forest Network was designed to enhance First Nation, non-status Indian & Metis communities' participation in the development and accumulation of knowledge and tools associated with sustainable development and the management of forest resources, through model forests and socio-economic partnership initiatives, to meet the needs of present and future generations. Projects that specifically address the needs of Aboriginal communities include documenting traditional ecological knowledge, launching non-timber forest product ventures, and developing Aboriginal forest management plans.

The Foothills Model Forest is proceeding with its own aboriginal involvement initiative. This began in 1999 with identification of need for a Traditional Ecological Knowledge (TEK) study. In cooperation with Weldwood of Canada Limited (Hinton Division), an aboriginal round table was utilized to provide advice and guidance. This process resulted in the 2001 Foothills Model Forest initiative regarding TEK.

ACCOMPLISHMENTS

- In January of 2001 a full time TEK Coordinator was retained to identify and work with aboriginal communities to prepare a TEK protocol for the FMF area that would guide the gathering and managing of study information. The TEK established contacts and communication with the seventeen (17) aboriginal communities identified as traditional users of the FMF area. A number of elder meetings and community gatherings were held to discuss proceeding with a TEK. On October 19 & 20, 2001 an elders gathering of aboriginal communities was held in Hinton, where a Traditional and Cultural Study Protocol for the FMF area was presented. The protocol was endorsed by the following communities; Foothills Ojibway, Nackowinewak Nation, Sunchild First Nation, O'Chiese First Nation, Adams Lake, Aseniwuche Winewak Nation, and the Marlboro Metis Community.

  Following this endorsement, an expert in conducting traditional use studies was retained to prepare a proposal for undertaking a traditional cultural study (TCS) upon the FMF area in accordance with the established protocol. This proposal will be received at the beginning of the Phase III program.

- The program for 2002-2003 will see the TCS begin with four communities. A steering group with representation from each of these communities and the FMF has been established to oversee the project. A full time Aboriginal coordinator will be recruited to the FMF to champion this project and the incorporation of Aboriginal values into resource management in the FMF area.

Alberta Forest Biodiversity Monitoring Program

2001-2002 was the final year of the design phase for Alberta Forest Biodiversity Monitoring Program (AFBMP), with the completion of the last of 18 chapters outlining the recommended monitoring design. This document summarizes the AFBMP approach and philosophy and integrates the protocols recommended by chapter authors into a comprehensive field program, complete with an estimated cost of implementation. The report was recently posted on the Foothills Model Forest (FMF) website. The project has now been taken over by a provincial steering committee separate from the FMF.

At the encouragement of the Ministers of Alberta Sustainable Resource Development (SRD) and Alberta Environment (AENV), a Senior Advisory Committee (SAC) was formed to develop a recommended business model for implementation of the AFBMP. Members of the Committee include the deputy ministers of SRD and AENV, senior managers representing industrial interests (primarily the forestry and energy sectors), and a representative of the environmental organization community (Pembina Institute) and the research community (University of Alberta). Their task is to address issues of governance, infrastructure support, funding mechanisms, program design and implementation strategy. A Secretariat Working Group (SWG) has also been established to support the SAC by providing background analysis and options for consideration. The SWG members are primarily working level counterparts to the SAC members.

Funding was also committed by the Restoration Working Group of the Cumulative Environmental Management Association (CEMA), Alberta Pacific Forest Industries and the Alberta Research Council 35 undertake a trial of the integrated field protocols during summer 2002.

Canadian Wildland Fire Growth Model

Fire has been one of the primary agents of change in forest ecosystems within the Foothills Model Forest (FMF), and other parts of Canada. Historically, wildfire has played a significant role in creating and maintaining landscape structure, biodiversity, and forest health. Understanding the behaviour, propagation and effects of wildfires is essential if the approximation of natural disturbance is one of the considerations of sustainable forest management.

This Canadian Wildland Fire Growth Model is developing a process-based wild land fire growth model (WFGM) that will serve as the primary engine for numerous operational and strategic applications in fire and forest management. The purpose of this project is to create a state-of-the-art, physically based deterministic fire growth model that will allow for the operational and strategic assessments of spatial fire behaviour potential on the landscape.

This fire growth model is expected to have several operational and strategic applications. As part of the proposal, a pilot study will be conducted on the Foothills Model Forest (FMF) land base to demonstrate how the wildland fire growth model can be used to assess the potential threat that wildfire poses to important values-at-risk (e.g. communities, recreational facilities, primary wood supply areas) and the effectiveness of possible mitigative strategies (e.g. fuel management). The model will also provide insights about wildfire processes which can be integrated and/or linked to models of landscape disturbance, biodiversity, timber supply and carbon loss/gain, that are currently being developed or used within the FMF.

The WFGM will improve public safety and forest protection, enhance the ability to conduct sustainable forest management and increase the understanding of fire's ecological function at the stand and landscape level. It will be a valuable tool that can be integrated and/or linked to models of landscape disturbance, biodiversity, timber supply and carbon loss/gain.

ACCOMPLISHMENTS

- Work continued on Prometheus – the Canadian Wildland Fire Growth Model, during 2001-2002. As a result of using the model to support the fire behaviour documentation of the 2001 Chisholm Fire, in Alberta, and using the model in Ontario's East Fire Region, further modifications and enhancements were made resulting in five separate releases for Work Unit 5.
- Work Unit 6 began in October 2001. This Work Unit included software development to further enhance the functionality of the model. Specifically, this work entailed: overlaying of vector data (line and/or polygon geographic data such as roads and rivers); exporting of text based statistics, usage of Fire Behaviour Prediction (FBP) fuel type lookup tables, modifying of weather stream import and diurnal calculations; and vector fuel breaks.
- A Data I/O Standards Manual was completed in January 2002.
- A High Level Component Object Model (COM) was developed to provide a set of simpler interfaces to make it easier for programmers to access the Low Level COMs. This allows programmers to call any of the COMs from different development environments.
- A considerable amount of time was spent cleaning the code, fixing "bugs" and modifying and enhancing many of the functions that were included in the previous Work Units. The weather stream and the FBP lookup table in particular, required significant additional programming work.
- A Prometheus user-training course was held at the Environmental Training Centre, March 4 – 6, 2001. All collaborators across Canada who provided funding to the project were invited to this course. An early beta version of Prometheus was released during the course. Fire management agencies across Canada plan to use and test Prometheus during the 2002 fire season.

Geographic *Information Systems*

In Phase I of the Foothills Model Forest, Geographic Information Systems (GIS) was a key project area involved in developing a comprehensive data model, a decision support system for forest planning and assembling infrastructure for technology transfer in the form of hands-on training. Near the end of Phase I, and through much of Phase II, the demand for GIS products and support for various program initiatives grew tremendously, along with the quantity and quality of resource-based information stored on the system. As a result, the GIS program began to focus on a supporting role for other projects at the FMF. GIS technology has matured significantly, and this once very specialized area of computing is becoming an integrated part of information systems within most land management organizations. This progression has had several effects on the industry as a whole and the FMF specifically:

- Software and the hardware it uses have become extensible and therefore, affordable to many user levels.
- Software has merged with common programming architectures and standards (e.g. Windows) to make the tools much simpler to learn and use. This has enabled project participants to acquire the skill levels to perform many tasks once only achievable by GIS staff.
- This evolution has forced the GIS group to consider repositioning itself within the organization to maximize the benefits of the technology and the skill levels of the staff.

ACCOMPLISHMENTS

- During 2001-2002, the Geographic Information Systems (GIS) group increased its proactive role in working with Foothills Model Forest (FMF) program areas to improve data capture methods and manage both spatial (geo-spatial) and non-spatial data related to program research. This approach has increased data reliability, reduced data management costs, and better-integrated geo-spatial and non-spatial data. In the next fiscal year, the GIS team will continue with this approach, and attempt to broaden its scope to include new project areas such as the Fish and Watershed Program and the Local Level Indicators reporting process.

- The GIS metadata documentation was successfully converted from a word processing document to Extensible Markup Language (XML). This document describes all the geo-spatial (e.g. roads, vegetation, satellite imagery, Grizzly Bear GPS locations etc) data housed at the FMF. The description includes the owner, source, scale, and extent of the data, as well as many other attributes.

- FMF staff, project partners, and the general public use this "information about information" to learn which data are available for potential application using GIS software. New versions of GIS software enable the semi-automated capture of metadata, as well as thumbnail images of geo-spatial datasets.

  The resulting product allows users to browse and search metadata interactively using GIS software, or use a simple internet browser reading from a consolidated document built by amalgamating metadata for all the FMF geo-spatial datasets. This document will be posted to the FMF website in the coming year.

Rangeland Ecology & Rare Plant Monitoring

Like water, be gentle and strong.
Be gentle enough to follow
the natural paths of the earth,
and strong enough to rise up
and reshape the world.

Brenda Peterson

Rangeland Ecology & Rare Plant Monitoring

In Willmore Wilderness Park

Willmore Wilderness Park is a 4597 square kilometre area in west central Alberta located adjacent to the north side of Jasper National Park of Canada, and east of the British Columbia border. Established in 1959, it spans a transition zone from upper foothills forest to the Rocky Mountains.

As a wilderness park, the primary use of it is recreation. Motorized vehicle use is prohibited within the Park, however cross country skiers, hikers and back country horse users provide significant levels of traffic on the network of trails scattered throughout the park's valleys and mountain passes. The majority of use in the Park each year occurs during the summer and fall months. Rangelands use comes mostly from recreational horse use and commercial guides offering backcountry trail riding, camping in the summer, and hunting in the fall. Willmore Wilderness Park is a popular destination for many recreationalists, and the increasing level of horse use in Willmore Wilderness Park has created concern for the condition of native ranges found throughout the park, as well as for the introduction of non-native species into the park.

Interest in the rangeland ecology of Willmore Wilderness Park has resulted in the creation of a monitoring program to review range condition and the impacts of horse and human activity. The following have been produced from this study:

- A rangeland resource map of the Park identifying plant community types and designating horse use levels (determined by the amount of available forage);
- A report detailing the plant community types, campsites, and public surveys;
- An ArcView 3.2 project mapping the location of campsites and points of interest within the Park, and the vegetation for some of the heavily used valleys;
- Continued documentation and monitoring of rare plant populations throughout Willmore Wilderness Park, Jasper National Park of Canada, and Kakwa Wildland Park.

2001-2002 PROJECT OBJECTIVES

1. To classify and map the vegetation in each of the main valleys

AVI polygons for four of the highly used valleys were hand drawn onto air photo enlargements. Community types were assigned to each polygon based on site characteristics, shrub cover and known species. Communities were described following the Range Plant Community Types and Carrying Capacity guides for the Upper Foothills and Subalpine Subregions (Willoughby, 2001). The polygons have been digitized and overlaid onto rectified ortho-photos.

The four valleys that were digitized were identified as priority use areas. These areas encompass:

- The Wildhay River drainage through the Carson Creek and Thoreau Valleys and the Mountain Trail from Fault Creek to the Berland at the west end of Indian Pass;
- The Smoky River drainage from Davey Creek to Clark's Crossing;
- The South Sulphur River drainage in the Blue Grouse Pass area; and,
- The Rock Creek drainage from Eagle's Nest Pass to Zenda Creek.

2. To locate and map established campsites throughout Willmore Wilderness Park

This inventory included campsites, graves, forestry patrol cabins, trappers' cabins, and historic sites throughout the Park. At each site, digital photographs and the GPS location were recorded. A recreation site inventory, evaluation form and sketch of the campsite were also completed. The conditions of the adjacent rangelands were described and maintenance recommendations for the camps and trails were made.

The field data, including location, was entered into ArcView 3.2 and is displayed with IRS imagery of the Park. Digital photos, scanned sketches and additional information were combined and linked to each point within the project.

3. To calculate sustainable horse use within the high use areas of Willmore Wilderness Park

The rangelands surrounding the established campsites within the Park receive more grazing pressure than they can presently sustain. Consequently, the species composition and the productivity of these native ranges are changing in some areas. Managing shrub encroachment, reducing the invasion of non-native species on heavily used areas and retaining adequate supplies of winter forage for wildlife are additional concerns.

The purpose of this inventory is to assess sustainable horse use levels for the rangelands that are adjacent to established campsites. A safe use factor of 50 percent has already been accounted for in the grazing capacity. Available forage is reflected by the number of animal unit months (AUM) allotted to each rangeland.

ACCOMPLISHMENTS

2001-2002

- A survey of many of the highly used areas was conducted to locate campsites and "type" vegetation.
- Vegetation polygons were digitally mapped.
- An ArcView 3.2 project encompassing all of the information was completed.
- Forty-four rare plant taxa were found, including 37 vascular plants, and seven rare bryophytes.

1999-2002

- Establishment of Willmore Rangeland Reference Area long-term monitoring program.
- Developed baseline information and database on Willmore vegetation diversity and ecology based on:
    - Range plant community type descriptions
    - Ecological site descriptions for Tufted hairgrass community types
    - Rare plant community types locations and descriptions
    - Rare plants and bryophytes
    - Campsies surveys
    - Weeds surveys
    - Range plant community type digital polygons for main use valleys.
    - Completion of four annual report submissions describing these products and management implications.

Species of Concern

Harlequin Ducks and Woodland Caribou are two species that may require special management attention because of concern for their long-term health. To properly manage these species, an understanding of their habits and habitats is necessary.

Little is known about Harlequin Ducks. In response to the many questions that were asked at the Cheviot hearings, Foothills Model Forest partners surveyed rivers in the Eastern Slopes to determine abundance and distribution of Harlequin Ducks. These surveys, together with Cardinal River Coals' extensive studies in the McLeod River will help determine if there is a connection between harlequin duck habitat and use and human activities. The research suggests that Harlequin Ducks occupy numerous stream systems in the Foothills Model Forest.

Woodland Caribou and Harlequin Ducks are two of a number of wildlife species that the Foothills Model Forest has studied since its inception. In 2001-2002, work continued in both of these areas.

Harlequin Ducks

ACCOMPLISHMENTS

- During 2001-2002, the Foothills Model Forest worked towards completing Technical Report Number Six, a report discussing the status and distribution of Harlequin Ducks in the Northern Rockies and Foothills of Alberta. This report is the last in a series of six written to address the need for a regional perspective on harlequin ducks identified during the joint hearings for the proposed Cheviot Coal Mine development.

  The past year focused on compiling harlequin duck survey information from several sources. These data will be used to discuss distribution across the study area. The above referenced technical report is scheduled for completion in 2002-2003.

Woodland Caribou

Woodland caribou are considered sensitive to land use changes, and may require special management attention because of concern for their long-term health and survival. Understanding how human activities affect this species enables land and resource managers to properly manage wildlife and practice sustainable forest management. In Alberta, woodland caribou are designated "At Risk" (The General Status of Alberta Wild Species 2000, Alberta Environment). The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designates the woodland caribou as "threatened" in Alberta.

Woodland caribou demographics and habitat use continue to be monitored in three herds (Little Smoky, A La Peche, Redrock/Prairie Creek). Biologists and graduate students use leading-edge technologies such as global positioning system telemetry collars and more traditional techniques like snow tracking. Wolf populations in the northern portion of the Foothills Model Forest land base are also being studied. This is part of a predator-prey study that attempts to determine whether landscapes with greater resource development increase predator caused caribou mortality.

Research and monitoring to date suggest that managing for a sustainable population of caribou may require a more integrated approach to resource development. This approach supports Alberta's sustainable development strategy, Alberta's Commitment to Sustainable Resource Management, and the Integrated Resource Management program is being implemented in the North East Slopes Region (this area includes the Foothills Model Forest land base).

ACCOMPLISHMENTS

- A sample of 75 radio-collared females was maintained in three winter ranges to monitor survival, calf recruitment and distribution relative to land use pressures.
- In the spring of 2001, seven out of 12 of the radio-collared females in the Little Smoky herd had a calf that survived to June 4.
- Thirty-one radio-collared wolves within eight packs were monitored in the Redrock/Prairie Creek and Little Smoky caribou ranges. Wolf pack sizes varied and moose appear to be their main prey. Analysis of wolf travel distances in relation to ungulate kill sites and wolf use of timber cut blocks is currently ongoing.
- The A La Peche herd stayed in the mountains of Jasper National Park for the fifth straight year, and did not migrate out to forested winter range.
- Mountain caribou response to linear features (Redrock/Prairie Creek Range) indicated avoidance of active roads to a maximum of 500 metres, avoidance of inactive roads to a maximum of 250 metres and avoidance of streams to a maximum of 250 metres. Caribou were 26 percent more likely to be found around seismic lines greater than 23 years old (approximately 80 percent of lines were greater than 23 years old in the Redrock/Prairie Creek Range study area- Paula Oberg's M.Sc. Thesis, April 2001).
- A progress report based on the relationship of commercial thinning regimes in lodgepole pine dominated forests to lichen abundance, growth, establishment and species diversity was completed.
- A fourth M.Sc. program, Survival of female woodland caribou and calf recruitment relative to landscape change: Implications to population persistence in west central Alberta (Kirby Smith), is ongoing, and examines the relationship between the survival of adult female woodland caribou and changes in landscape condition resulting from industrial activity in west-central Alberta for the period 1981-2001.
- A Ph.D. program was initiated (Bob Lessard to create an empirical simulation model capable of capturing the effects of habitat alternation [possibly combinations of reduced habitat availability, limited spatial opportunities and increased predator encounters]) on caribou population dynamics. Results from this work have been incorporated into Detailed Forest Management Plans for Weldwood of Canada Limited, Weyerhaeuser Canada Limited, Alberta Newsprint Company and Canfor Corporation.
- The recently published "Status of woodland caribou in Alberta" (Dzus, 2001) relied exclusively on the work conducted by the West Central Alberta Caribou Standing Committee for the Eastern Slopes portion of Alberta.
- All the woodland caribou information collected through this program will be used in developing the Recovery Plan for the Little Smoky woodland caribou herd by September, 2003 as directed by the Minister of Alberta Sustainable Resource Development, and will be the sole-source for the plan. Cumulative effects will be a major factor in the development of this conservation strategy.
- The Northern East Slopes Integrated Resource Management Plan includes woodland caribou (and the information collected from this program) as a "measurable criteria of sustainable development".

Climate Change Impacts

on Forest Productivity in Western Canada

This study is part of a project called ECOLEAP-West that aims to assess the possible impacts of a warmer climate on the productivity of forests in the Alberta Foothills and Saskatchewan southern boreal regions. Currently, forest yield forecasting is normally based on traditional growth and yield (G&Y) models derived from statistical relationships between tree measurements at permanent growth sample plots (PGSP) and an empirical classification of site conditions. Because local climate is a major determinant of site conditions, yield forecasts based on G&Y models are likely to be inaccurate if appreciable changes in climate occur. A key objective of this project, therefore, is to develop and test process-based models to estimate forest productivity and to compare estimates with those obtained using local G&Y models.

A changing climate is likely to have both direct effects on the physiological processes contributing to wood production (i.e., photosynthesis and the allocation of photo-synthate to plant tissues) and on the regeneration and survival of the different species that make up natural forest vegetation. This study focuses on these effects, though it must be recognized that a warmer and drier climate is also likely to increase the risks of serious losses due to fires and pest and disease outbreaks.

The work of the last two years had two thrusts, the first one capitalizing on some of the work already invested in various process-based models with potential application at large spatial scales. The second focus area was the construction of a coherent set of spatial data sets that could be used, both to drive the models and, be made available as input data for other modeling work.

ACCOMPLISHMENTS

- Significant progress has been made in building, documenting and compiling data sets for the 2700 km2 Alberta Study Region, located in the centre of the Weldwood forest management area (FMA). Progress has been slower in the Saskatchewan region, due mainly to difficulties in obtaining local PGSP and inventory data sets. Considerable progress has been made in testing three different process models (StandLEAP, FORSKA-M and 4C) and applying them to the Alberta Study Region. This work culminated in the production of a first map of the distribution of Net Primary Productivity (NPP) across the study region.

- **Spatial Data Sets**
  Several sources of data have been mined. The layers include digital elevation, soils, climatology, Landsat imagery and Alberta Vegetation Inventory (AVI) cover types and densities. The original AVI coverage was classified into 12 species groups, which account for approximately 84 percent of the study area and 95 percent of the forested area.

- **Biomass and LAI**
  Biomass estimates and stem densities taken from PGSP data were aggregated to stand-level mean values for five species groups: lodgepole pine, Deciduous, white spruce/balsam fir, black spruce/tamarack, and Mixed. These estimates were found to be well correlated with crown closure and stand height, and PGSP-level relationships were applied to the AVI polygons, to generate a spatial coverage.

- **Fraction of incoming photo-synthetically active radiation (FPAR)**
  FPAR absorbed by the vegetation canopy is a critical input to the StandLEAP model. A map of FPAR for the study region was derived from Landsat5 image.

- **Soils**
  Both FORSKA-M and StandLEAP require a spatial coverage of surface soil texture (top 15cm) to estimate moisture availability, but the modal soil profile texture data for CanSIS polygons in this region do not provide adequate spatial resolution. Instead, soil codes were derived from the soil association and first variant attributes in CanSIS. A texture class was assigned to each association/variant combination based on profile descriptions found within the soil survey manual for the Hinton/Edson area.

- **Lodgepole pine physiology**
  Data was provided for parameterizing lodgepole pine. Additional work was funded by Foothills Model Forest in 2001-2002 to complete the data set for lodgepole pine. These data have been used to improve the representation of lodgepole pine physiology by the Laurentian Forestry Centre (LFC) group and to develop sapwood/leaf area relationships (used in leaf area mapping) for the Foothills study region.

- **Spatial Modeling**
  Most of the effort to date has been invested in FORSKA-M and StandLEAP. Work with 4C continues in collaboration with the Potsdam Institute for Climate Impacts Research (PIK) in Berlin.

FORSKA-M

FORSKA-M simulates competition between boreal species for water and light, and allows effects of climate and forest management on composition and productivity to be investigated.

Weldwood PSP data were carefully surveyed, and a set of 45 sites representative of the range of combinations of ecosystems and soil types selected. Eight of these sites were used to derive parameters for the model, which were then tested at the remaining 37 sites.

The overall results were very encouraging. The model was able to satisfactorily replicate both the species composition and height-over-diameter relationships observed at most of the test PSP sites, although aspen growth rates were generally overestimated. This work was presented at a modeling conference in Vancouver in August 2001. Further spatial modeling with FORSKA-M, based on site data estimated for approximately 1,000 PSP sites across the study region, is currently in progress.

StandLEAP

StandLEAP is based on Landsberg's 3PG model, but has been extensively modified by Raulier and Bernier of CFS LFC to simulate NPP in Canadian forests. The model is driven primarily by leaf area index and incoming radiation data, and by other climate factors influenced by topography data.

Using the data sets described above, a simulation of NPP was performed for approximately 1000 AVI polygons distributed across the Alberta Study Region, using the two "modes" available for the model. These representative NPP sub-samples were averaged for each of 36 strata. Mean values for each stratum were applied across the study area, allowing for a first approximation for the spatial distribution of productivity derived directly from physically-based inputs (climate, soil conditions, topography) and remote sensing data (estimates of leaf area and species composition). Program staff believe this map illustrates this approach's potential to predict productivity at the regional scale from physical data and biological principles.

Fish *and Watershed*

Water is an important part of the sustainable forest management equation. Forests play a key role in capturing and cleaning fresh water supplies critical to human and wildlife populations alike. The Foothills Model Forest Fish and Watershed (formerly called Fish and Aquatics Program) Program began in 1995 as part of the Watershed Assessment Program. Numerous fish and aquatics projects have been completed since the inception of the program, including: operational inventory, culverts and road-stream crossing assessments, development of a manual to classify fish habitats, monitoring, and stream channel classification.

Watershed Assessment Program

After consultation with stakeholders and aquatics professionals, the Foothills Model Forest initiated a Watershed Assessment Program in 1994. Significant progress was made, and several tools have been developed, including a regional hydrology study. Wrnsfmf97 was a particularly noteworthy product developed from the program. A modification of the WRNS procedure developed in the late 1970s, this program uses formulas to estimate change in water yield resulting from forest harvesting were adapted to a Microsoft Access database, making the procedure very simple to use relative to the original process.

Another significant achievement is the HAGGIS program — a GIS tool that enables users to generate and report attributes specific to a particular point. Parameters like flow, flood volume, and peak flows can be calculated automatically using HAGGIS. Forest harvest plans can also be formatted for input directly into Wrnsfmf97 using this tool. HAGGIS outputs attributes specific to a point on the landscape including stream order, gradient, sinuosity, upstream watershed area, and point and line densities (e.g. road-stream crossings) above a point. This is a continually evolving Foothills Model Forest product.

Operational Inventory

The sole focus of the Fish and Aquatics program from 1995 to 1996 was to develop and implement an inventory of fish and streams within the Weldwood of Canada Limited (Hinton Division) forest management area. Although operational inventory has remained a component, the focus has shifted in recent years with the addition of other objectives. The main objectives of the program have been to collect and provide fish and fish habitat data for use in forest planning and for those areas where operational concerns exist. The Foothills Model Forest has worked closely with Weldwood foresters and biologists throughout the project. Products include summary reports, maps, and an electronic database of data. To date, data has been collected from more than 1000 locations.

Monitoring

The monitoring project was initiated in 1998 to determine how land management activities affect fish and fish habitats. Although this project initially comprised a small part of the overall program, it now requires a significant amount of research time. This project began with a description of the present status of fish and fish habitat in selected watersheds. These 14 watersheds are distributed across the industrial portion of the Foothills Model Forest and represent different natural sub-regions and fish communities. Each of these watersheds also varies in the present level of human use including recreation (angling) and industrial (forestry, roads, etc.). Data have been collected from several sites in each of these watersheds, and some historical sites have been re-sampled in an attempt to describe change. Summary reports will be prepared describing the present status of fish and human-use for each watershed. Several pieces of data collected during the course of this project were incorporated into the Foothills Model Forest Local Level Indicators of Sustainable Forest Management in the Foothills Model Forest report. Recommendations will be made for changes or alterations to those indicators as analysis proceeds.

Stream channel classification

The stream channel classification project was initiated in 1999 as one component of Weldwood's Aquatic Ecosystem and Watershed Conservation Program. This program recognized that an integrated approach to the management of timber and aquatic values was required in order to achieve sustainable use of our forests. The development of an ecologically based stream classification system was intended to assist this effort and provide a useful planning tool for foresters and aquatic biologists.

Rather than invent a new classification, researchers sought to utilize the principles from existing systems that best apply to the boreal and foothills streams. During three field seasons, researchers selected the field procedures from the Rosgen classification. These methods describe a stream based on floodplain width, channel shape, stream slope and substrate size. Researchers also added a basic description of the floodplain vegetation (i.e. black spruce wetland, shrub wetland, forested), and are in the process of developing a Foothills Model Forest naming convention based on these characteristics.

To date, researchers have developed a system that will allow technicians to consistently delineate floodplain boundaries and describe stream characteristics. Now that these ecological units can be effectively described, researchers will proceed to the development of management options for a particular floodplain unit and its accompanying stream.

The classification system will also provide information at a variety of scales. A GIS based classification of all streams within Weldwood's forest management area has been completed and the Foothills Model Forest intends to use this information to assist in the development of management options based on watershed characteristics.

ACCOMPLISHMENTS

- In 2001-2002, the Fish and Watershed program made considerable progress in two main areas. Development continued in riparian management tools intended to assist both harvest planning within streamside forests and stream crossing assessment. The program also moved forward with the development of indicators of healthy and sustainable aquatic habitats. Continued effort in these two areas will be consistent with the four strategic objectives identified for Phase III. The success of these projects to date has been contingent upon two elements: regular feedback from land managers and incorporation of current scientific knowledge from other jurisdictions.

The development of riparian management tools increased understanding of the ecological structure and function of streams and riparian areas. The main component of this part of the Fish and Watershed program was the development of a watershed and stream classification system referenced above. The system utilizes a hierarchical approach, and provides information from the landscape or watershed scale to the site or stream reach scale. The system includes both a map-based component, which was developed through GIS technology, and a field-based component. The map-based component provides a description of the physical environment of the watershed, stream and riparian area, along with an indication of the types of fish species that are likely to be encountered at this site. The field component supplements the existing ecological classification: Eco-sites of West-Central Alberta.

The stream classification system has two applications: riparian area management and stream crossing assessment. Riparian area protection is essential to protect aquatic habitats during proposed logging. The classification provides a framework to evaluate the effects of proposed harvest activities on the structure and function of riparian areas. Currently, Foothills Model Forest land managers are conducting assessments of upstream fish migration potential at stream crossings. These assessments are required because culverts that were historically installed in streams may not have been designed to accommodate upstream fish passage. The classification system is useful for determining the habitat value in upstream areas, and may be useful for identification of priority sites for stream crossing remediation. Continued development of these two applications of the watershed and stream classification will continue in Phase III.

Work in the second area - development of indicators of healthy and sustainable aquatic habitats – was initiated in 1998. The objectives were to determine the status of fish populations in a historical context and to improve understanding of how industrial activities and angling have effected both fish populations and their habitats. In addition to increasing understanding of the effects of human activities on aquatic systems, the Fish and Watershed program is also developing a set of useful indicators to be utilized in long-term studies.

Grizzly Bear Research Program

When one tugs at a single thing in nature,
he finds it attached to the rest of the world.

John Muir

Grizzly Bear Research Program

The FMF Grizzly Bear Research Program focuses on management issues and questions by assessing grizzly bear populations, bear response to human activities, and habitat conditions to provide land managers with tools to integrate grizzly bear "needs" into the land management decision making framework.

The study area is approximately 9900 km2 and covers a portion of both mountainous and foothills habitats. A strong gradient in land-use activities and human disturbance exists across the study area. Currently, oil and gas exploration and development, forestry, mining, hunting, settlement, tourism, and recreation dominate the human land use practices and activities.

ACCOMPLISHMENTS

In 2001, 29 grizzly bears were handled, 23 of which were fitted with Global Positioning System (GPS) radio collars. Seventeen bears (collared during the first two years of this program) were recaptured and re-collared. The capture sample of bears included 21 adult and eight sub-adult bears.

*Analysis of 1999-2000 findings continued into 2001-2002, and is included below with other 2001 accomplishments.

1. The influence of habitat quality and human activity on grizzly bear home range selection and size

Resource Selection Function (RSF) models and multiple regression analysis were used to explore the effects of habitat quality, topography and human access densities on home range selection and size of 10 female grizzly bears. High values of greenness derived from Landsat TM imagery corresponded well with grizzly bear home range selection during spring and fall seasons. This supports the general belief that bears seek out the most productive habitats. The proportion of high greenness was also inversely related to home range size in the fall but not in spring. Topography and human access density did not influence either home range selection or home range size.

2. Resource selection functions (RSF) and population viability analyses

Spatially explicit RSF models and maps that describe grizzly bear habitat (relative probability of occurrence) were developed. The specific research objectives are to:

1) describe habitat selection;

2) identify key grizzly bear habitats;

3) examine impacts of human development;

4) search for mechanistic links and appropriate scales of selection; and finally,

5) develop a habitat-based population viability (PVA) model for the Yellowhead Ecosystem.

Accounting for GPS Collar Bias

To overcome biases within habitat-selection models, the study team evaluated the use of weighted logistic regression and multiple-imputation on a known animal. Results indicate that weighted logistic regression was more efficient than multiple-imputation (a more stochastic approach) for correctly detecting selection and making appropriate inferences.

RSF Modeling for Individuals and Populations

The study team focused on third order resource selection during two seasons (pre-berry and post-berry) during 1999 using variables previously identified as important for predicting grizzly bear occurrence.

Individual-level RSF Models

Results indicate that selection for habitats was variable, depending on the bear and the season. Avoidance during the spring was evident for non-vegetated areas and young regenerating forests. The influence of forest management (cut-blocks) varied considerably. Model strength and prediction was greater during the post-berry season. During this period, the importance of greenness for predicting bears was evident, as all bears responded significantly.

Population-level RSF Models

During the pre-berry season, grizzly bears selected areas of high greenness. Alpine habitats were selected, while both non-vegetated areas and young (three to 44 years old) regenerating forests were strongly avoided when compared to the reference category of closed forest stands. No significant pattern of selection was detected for cut-blocks, although there was a tendency for recent cut-block classes (zero to 12 years old) to be avoided. Access density, elevation and hill shade all failed to affect distributions of grizzly bears during this season. During the post-berry season, variables contributing to the grizzly bear model included alpine, recent burn, cut-blocks 22 to 44 years old, open forests, young regenerating forests, shrub/wetlands, greenness, major streams, perennial streams, and both high and moderate impact access density. High values of greenness were again strong predictors of grizzly bear occurrence. Furthermore, bears tended to be found along major streams, with only a slight preference for habitats along perennial streams. Habitat classes where selection occurred included alpine, recent burn, cut-blocks 22 to 44 years old, herbaceous, open forests, and shrub/wetland habitats.

Habitat Index Models and RSF

The study team tested the ability of current habitat index models (index one to10 in grizzly bear habitat quality) to predict grizzly bear occurrence, using an RSF approach (e.g., using the habitat index model as an independent variable).

3. Food phenology models for grizzly bear predictions

The use of three habitat models was compared for estimating the relative probability of occurrence of grizzly bears in eastern Jasper National Park of Canada (JNP). These models included, 1) the IDTA habitat map (Franklin et al. 2001); 2) food index models generated from the predicted occurrence of plant foods and assigned monthly importance values; and 3) probabilistic food models representing the occurrence of each plant bear food.

Grizzly bear food resources in JNP were principally related to elevation, hill shade, age of stand, soil drainage, and the interaction of vegetation and age. Food index maps produced from the predicted presence of each species and monthly food values (Kansas and Riddell 1995) proved poor predictors of grizzly bear occurrence.

4. Pre-berry and Post-berry RSF models

Using similar methods as those outlined in previous modeling, RSF models developed at the population-level across all three years of GPS radio-telemetry data (1999 to 2001, inclusive) are described here. In comparison with the reference habitat category (closed conifer), model two pre-berry estimates for habitat selection were positive for alpine, cuts greater than 12 years old, deciduous forests, non-vegetated areas, open conifer, recent burn, regenerating forests, and shrub-bog-wetlands. Negative selection (avoidance) occurred for cuts zero-12 years old, herbaceous areas, and mixed forests.

Changes in selection during the post-berry season included avoidance of old cut-blocks and selection for young cut-blocks. Open conifer, non-vegetated habitats, and regenerating forests switched from positive to negative selection. Interpretations of such results are based purely on the reference to selection for closed conifer stands. Both greenness and habitat diversity were highly significant and positive during the pre- and post-berry seasons. Access density varied by type, with only motorized low use linear features being negative. The overall cumulative effect on selection however, was negative, as this class made up the majority of the linear features with the other classes being uncommon to rare.

5. Micro-site Habitat Selection

In total, 231 use plots were completed on four sub-adult and adult female grizzly bears. From May to June, it appears that Hedysarum digging dominated the feeding activity. In early July through to early August, the grizzly bears began to focus on herbaceous species, such as clover, cow parsnip and equisetum. By August 1, through to the end of September, the bears were primarily feeding on Sherperdia canadensis. Hedysarum digging continued into September, although this type of activity diminished considerably from July onwards. It appears that bears in the study area did not significantly utilize any of the Vaccinium species. “Anting” behavior remained fairly constant throughout the active season.

6. Animal Health

Assessment and monitoring of the health of individual grizzly bears has been a major focus of the Foothills Model Forest Grizzly Bear Research Program. Over the years, the comparison of health data among individual animals has allowed the study team to: (1) evaluate and improve the safety of different drug combinations used to anesthetize grizzly bears; and (2) evaluate the stress and potential health consequences of different methods of capturing grizzly bears. Further, through the measurement of the total body weight and length of captured bears, it has been possible to adopt a practical and reliable body condition index that was originally developed for use with polar and black bears. Overall, capture and physical restraint by leg-hold snare caused a greater degree of physiological disturbance than did chemical immobilization of free-ranging bears by remote injection from a helicopter.

7. Scat Detection Dog Studies

Specially trained scenting dogs were used to detect fecal samples over large, remote geographic areas. Stress and reproductive hormones extracted from feces will be used to indicate physiological condition of the animal. DNA extracted from feces is used to confirm the species, gender and individual identity of the animals. The genetic data are also used to estimate species-specific abundance and distributions in relation to location-specific environmental disturbances.

8. Graph Theoretic Methods for Examining Landscape Connectivity and Spatial Movement Patterns: Application to the Foothills Model Forest Grizzly Bear Research Program

New approaches to measuring and understanding connectivity based on Graph Theory have been introduced, and while promising, have yet to be thoroughly tested and established. The graph theoretic model provides empirical measurements for landscape connectivity and may aid in understanding the movement patterns of associated grizzly bear populations. Specific research objectives are: 1) To modify and apply a graph theoretic model for the analysis of movement and connectivity patterns associated with female grizzly bear populations; 2) To validate the graph theory model with real movement data and 3) To compare the graph theoretic based model to existing approaches modeling connectivity (e.g. Linkage Zone Model).

9. Habitat Fragmentation by Seismic Cut lines Mapped from Indian Remote Sensing (IRS) Imagery

The purpose of this study was to identify and map seismic lines on the landscape using five-metre resolution panchromatic Indian Remote Sensing (IRS) satellite imagery. As well, the relationship between landscape structure and grizzly bear landscape use will be explored. Mapping seismic lines from IRS images proves to be a successful method, which slightly underestimates cut lines. This initial assessment of landscape metrics lead to the conclusion that seismic cut lines of both types, explorative and exploitative, were a major fragmentation causes for the grizzly habitat in 1999, when investigating from a strictly landscape structural perspective. The objective for 2002 will be to further explore the meaning of these fragmentation levels, in relation to grizzly bear landscape use.

10. Mapping and Quantification of Change in Landscape Structure in Grizzly Bear Habitat

The research to be completed and described here will aid resource managers in understanding landscape changes in the Foothills Model Forest Grizzly Bear Research Program area over the past 50 years. Deliverables include:

(1) a methodology for determining past landscapes based on historical aerial photos which then resemble satellite image products of more recent vintage;

(2) a series of map products documenting previous landscape and showing landscape change up to the present (including greenness maps and classification maps); and,

(3) an estimation of landscape use for alternative landscapes by grizzly bears. The data compiled will also allow for the modeling of future scenarios of landscape change in addition to being inputs in RSF modeling activities.

The projected completion date for this research is February 2003.

11. Habitat Structure and Fragmentation of Grizzly Bear Management Units and Home Ranges in the Alberta Yellowhead Ecosystem

This thesis research looked at the degree of grizzly bear habitat fragmentation present in the Foothills Model Forest Grizzly Bear Research Program study area. A baseline of landscape structure was established that will be useful for evaluating change and making future land management decisions. Structural differences among Bear Management Units (BMUs) and Minimum Convex Polygon (MCP) home ranges were assessed.

Foothills Growth and Yield Association

In response to interest by industry and government, the Foothills Model Forest has encouraged and supported collaboration among a number of softwood producers to create the Foothills Growth and Yield Association. The Association was formed in April 2000.

The mandate of the Association is to:

- forecast and monitor managed stand growth and yield in the foothills natural sub-regions of Alberta, particularly of lodgepole pine, the predominant commercial tree species of the foothills;
- promote co-operation, knowledge, shared responsibility and continuous improvement in sustainable management of lodgepole pine; and,
- facilitate the scientific development and validation of yield forecasts used by members in the development of forest management plans.

The following nine companies, all holders of major forest tenures, participate as voting members and sponsors:

- Alberta Newsprint Company
- Blue Ridge Lumber
- Canfor
- Millar Western Forest Products
- Spray Lake Sawmills
- Sundance Forest Industries Ltd.
- Sunpine Forest Products Ltd.
- Weldwood of Canada Ltd.
- Weyerhaeuser Canada Ltd.

The Land and Forest Division of Alberta Sustainable Resource Development and the Foothills Model Forest participate as non-voting members, with the Foothills Model Forest acting as the co-ordinating agency. The Association has developed, and is strengthening, ties with other agencies having shared interests, including the Canadian Forest Service, Alberta Research Council, University of Alberta, B.C. Ministry of Forests, and various industrial co-operatives.

The partnerships already established in the development of the Association will result in the program exhibiting demonstrable influence on sustainable forest management well beyond the boundaries of the Foothills Model Forest. The main activities of the Association are:

1. Establishment of the Lodgepole Pine Regeneration Project;

2. Planning for the comparison of pre-harvest and post-harvest site indices;

3. An expert review of forest nutrition and density management;

4. Development of new project proposals; and,

5. Dissemination of information and education of members.

1. Lodgepole Pine Regeneration Project

The following table reports the establishment status of the Project as of March 31, 2002. Note that 10 installations remain to be established, and that one installation is lacking sponsorship.

Establishment Report for Regeneration Trial

Ecosite	Group	Sponsor	Tenure	# of Installations* Identified	Completed
1	1	SLS	SLS	6	6
1	2	WEY	WEY (G.Pr.)	6	6
1	3	SPI	SPI	6	6
2	1	WWC	WWC	6	6
2	2	ANC	ANC	5	5
2	2	BRL	ANC	1	1
2	3	WEY	WEY (G.Pr.)	6	6
3	1	WEY	WEY (G.Pr.)	6	6
3	2	SPI	SPI	6	6
3	3	SDA	SDA	6	6
3	4	WEY	WEY (D.Va.)	6	6
3	5	WEY	WEY (Edson)	6	6
4	1	WWC	WWC	6	6
4	2	WWC	WWC	6	6
4	3	CFP	CFP	6	6
5	1	MWF	MWF	5	5
5	1	BRL	MWF	1	1
5	2	BRL	BRL	6	0
5	3	SPI	SPI	2	2
5	3	WWC	WWC	3	0
5	3		WWC	1	0
Total				102	92

Sponsor	# of Installations Committed	Completed
ANC	5	5
BRL	8	2
CFP	6	6
MWF	5	5
SLS	6	6
SDA	6	6
SPI	14	14
WWC	21	18
WEY	30	30
Total	101	92

ANC = Alberta Newsprint
BRL = Blue Ridge Lumber
CFP = Canfor
MWF = Millar Western
SLS = Spray Lake Sawmills
SDA = Sundance
SPI = Sunpine
WWC = Weldwood
WEY = Weyerhaeuser

* 6 installations are required in each ecosite / group combination; total number of installations planned = 102

Auditing and verification of fieldwork was completed in October 2001. Data has been received for established installations, but data verification and editing was not completed as of March 31, 2002.

2. Comparison of Pre-harvest and Post-harvest Site Indices

This project was approved for implementation by the Steering Committee in March 2001, but was deferred to the 2002 field season due to limited contractor availability and other considerations. The Project Proposal, developed in 2001, was modified in February 2002 to reflect proposed data and effort-sharing policies. Requests were issued in February 2002 to 12 consultants for fieldwork proposals. A shortlist and recommended selection was approved by the Steering Committee in March 2002.

The Business Plan and Project Proposal contain details for acquiring existing PSP information and new paired-data, and for cost and data sharing. The work is scheduled for completion in 2002-03. Results will be incorporated into the yield forecasts required for the final Establishment Report of the Lodgepole Pine Regeneration Project.

3. Nutrition and Density Management

The Association contracted the Alberta Research Council to provide an "expert review" identifying the knowledge gaps and feasibility of operational fertilization of lodgepole pine in Alberta. Dr. Barry White was the principle investigator, assisted by Dr. David McNabb and fellow scientists at the University of Alberta, Drs. Scott Chang and Vic Lieffers.

A draft report by Drs. White and Chang was submitted January 16, 2002, but upon review by the Director, the authors, and Drs. McNabb and Lieffers, it was decided to remedy deficiencies in the report before distribution to Association members. The revised report was completed on March 29, 2002. The Technical Committee will review it during the next quarter.

While a detailed project proposal or experimental design has not yet been developed, tentative recommendations, incorporating those of the expert reviewers and the original conceptual design (presented at the Second Steering Committee Meeting), are included in the Business Plan.

4. Other Project Proposals

Two additional projects were included in the Business Plan, for implementation in the 2002-03 fiscal year.

1. Cooperative management of historic research trials

In August 2001, representatives of the Association, the Canadian Forest Service (CFS) and Alberta Sustainable Resource Development (SRD) visited historic CFS lodgepole pine trials.

They concluded that these trials were invaluable resources for forecasting. Links should be forged to ensure their ongoing protection, measurement and interpretation. A detailed project proposal was developed and approved by the Steering Committee for implementation (subject to a collaborative research agreement being developed between the Association, CFS, and SRD).

2. Regional Yield Estimates

As follow-up to discussion at the Second Steering Committee Meeting, the Executive Director of the SRD Forest Management Branch submitted a request to the Association for support in the development of natural and managed stand yield curves. No detailed project proposal or design has been developed yet, but preliminary recommendations were approved and amended by the Steering Committee and included in the Business Plan.

5. Dissemination of Information and Education of Members

The Association communicated with its members in the following ways:

- Field tour of historic lodgepole pine research trials, organized jointly with the Foothills Model Forest, Weldwood of Canada and the Canadian Forest Service;
- Mid-year information update meeting (held in association with field tour);
- Development and distribution of the Regeneration Project field manual, including data models, measurement and treatment protocols;
- Field visits and mentoring audits held by the Field Coordinator with technical representatives and contractors;
- Creation of an interim internet web site, with home page, news, publications, and contacts sections; and,
- Organization of Annual General Meeting (program included one international and six national expert speakers).

6. Work Planning and Budgeting

The original work plan for the 2001-02 fiscal year, presented in March 2001, was updated to reflect direction of the Steering Committee. The original Forest Resources Improvement Association of Alberta (FRIAA) proposal and contract (July 25, 2000) were updated in September 2001, extending the term to five years (April 1, 2000 to March 31, 2005).

A Business Plan was developed to rationalize and define the Association's mission, strategies, projects, income and expenditures for the next five years. It includes estimated direct income and expenditures of the Association by year and indicative cost estimates of members' project contributions by year-end and by project component.

Project component plans were developed for site index comparison (see 4.2 above) and cooperative management of historic research trials (see 4.4 above).

ACCOMPLISHMENTS

(From April 2000)

Seven criteria are used by the Association to determine whether it is achieving its mission and performing its mandate:

1. Forecasts: stand-level timber yield forecasts are defensible and accepted by the scientific and regulatory communities.
2. Validation: recognized scientific, regulatory and certification standards for validation and monitoring of sustainable forest management practices are met.
3. Knowledge: managers' knowledge, and their abilities to predict responses to management practices, are improved, facilitating management by objectives rather than by arbitrary prescription.
4. Awareness: stakeholders influencing forest management decisions understand the probable effects of management interventions on stand development.
5. Cost effectiveness: investments in growth and yield assessment are cost effective, and there is no unnecessary duplication of effort.
6. Equitable participation: participants remain committed to the program, and share costs equitably.
7. Relevance: work is user-driven, results-focused, and directly applicable to management and crop planning.

Although the program is inherently long-term, the following accomplishments since its inception in April 2000 suggest that the Association is performing its mandate well:

- A regeneration trial for monitoring and validation of managed stand performance was designed and endorsed by scientists and regulators. Installation is 90 percent complete, and initial yield forecasts utilizing the best growth and yield models available to the scientific and regulatory community are scheduled for March 2003.
- Knowledge transfer was achieved through two conferences and one field tour. Members and guests rated the events as successful and valuable.
- Improved awareness of other stakeholders has been facilitated by the development of a public website, and participation by non-members in the conferences and field tour.
- Industrial participation has been enthusiastic, equitable and supportive, with approximately $670,000 invested to date, $460,000 committed for 2002, and over $1,500,000 budgeted for the period 2002-2006.
- A consensus-based business plan has been developed and approved by the members, representing unanimous agreement and support for a total of 6 user-driven results-focused projects to be conducted during the period 2002-2006.

Natural Disturbance

Natural disturbance, primarily wildfire, is a frequent and natural agent of change and renewal in the forests and mountains of west-central Alberta. In fact, natural disturbance is the key to understanding how dynamic forest landscapes have been sustained in Alberta for thousands of years. It logically follows that using natural patterns to guide forest management is one of the best means of conserving biodiversity. However, before natural disturbance can be emulated and incorporated into forest management policy and practice, it is critical that historical disturbances are understood.

Since 1995 the Foothills Model Forest natural disturbance project has been analyzing and interpreting how disturbances (fire, wind, disease) affect the landscape and forests. Foothills Model Forest's research produces world-class data and knowledge.

The Foothills Model Forest is proud to say that partners are already integrating the findings into management practice. This program has contributed to the development of forest management strategies, in concert with the concept of ecological management through its incorporation in several Detailed Forest Management Plans in the region. There is also considerable interest from across Canada in program results. And, with a strong emphasis on demonstration during Phase III, this trend is expected to continue.

ACCOMPLISHMENTS

- A research report series continued: Disturbance in Riparian Zones on Foothills and Mountain landscapes of Alberta - was completed.
- Six Natural Disturbance Program Quick Notes were distributed to an estimated audience of 500 people across Canada:

1. Are all edges created equal? (May 2001)
2. The mystery of patch shape. (July 2001)
3. Morphology of a fire. (September 2001)
4. Do riparian zones influence landscape burning patterns? (November 2001)
5. Do riparian zones influence local burning patterns? (January 2002)
6. Don't forget the wee ones. (March 2002)

- A report - Topographic characteristics and plant community structure of fire island remnants in Virginia Hills, Alberta – was completed through the University of Alberta, Department of Biological Sciences to investigate stand level characteristics of island remnants from the Virginia Hills Fire.
- Field research was completed in the Virginia Hills Fire. Data from a total of 42 transects was collected to establish where fires stop, and 41 installed to identify residual material left within burnt areas. The data has been entered and validated.
- Research continued on fire effects and grazing in the Montane natural sub-region of Jasper National Park. This study examines the effects of fire in the Montane natural sub-region on plant communities, and the interaction of fire and grazing by animals.
- Analysis continued on disturbances and island remnant patterns at the meso-scale and stand level disturbances in riparian areas.
- Communication efforts included presentations at several different venues, which included public meetings, scientific conferences, meetings with industry and government; and assorted workshops.

Social Science

We've all heard the expression, "A forest is more than just trees." A forest is made up of the wildlife that make it their home, the streams and rivers that can be found trickling through it, and the many plant species that can be found living on the ground, high up in the canopy, and elsewhere in a forest environment. One most commonly associates the forest industry with forests, but other sectors, such as tourism and recreation, also rely on our forests for economic sustainability. And finally, other "non-timber" values of the forest must include the environmental considerations necessary to ensure the continued sustainability of the forest and its ecosystems. It is clear today that to truly practice sustainable forest management, this trilogy of values - the economic, the ecological and the social - must be addressed. To that end, Social Science research is becoming increasingly important for integrated resource management planning and implementation and the broader movement towards sustainable development.

Social Science research serves a two-way communication role. Armed with this information, forest managers and policy makers are better prepared to consider a broader public. Factoring the broader public into the sustainable forest management equation can help identify potential communications strategies aimed at better informing the public about forest management practices. These kinds of studies are useful to both industry and government as this kind of research assists in the determination of a more inclusive strategy for public involvement. Useful beyond the Foothills Model Forest land base, this information can be applied to all forest management areas in Alberta.

ACCOMPLISHMENTS

The Foothills Model Forest (FMF) has worked collaboratively with the Canadian Forest Service (CFS) Social Science Research Group in Edmonton to deliver a social science research program unique within the Canadian Model Forest Network. Studies have led to the development of a regional economic impact model that has been used to estimate the potential impact of recent coal mine closures. The development of this model included studies that measured oil and gas, and visitor sectors of the economy and provided information pertaining to the spending habits of FMF residents. The non-timber values in the FMF and attitudes and values of local citizens compared to other provincial residents were also investigated. This led to the completion of studies that focused on camping, hunting and back-country wilderness use. CFS sociologists have reported on social indicators of community sustainability, sense of place and public advisory groups and effective public advisory mechanisms.

The FMF social science research program has been recognized as highly credible in peer reviews. Results of this work have been presented in Europe, the United States and across Canada. It is consistently praised and recognized as a unique opportunity to carry out a set of coordinated social science studies on a single land base.

Foothills Model Forest social science research is also being conducted in other regions in British Columbia, Alberta and Saskatchewan, and as national studies under the auspices of the Canadian Model Forest Network. All of this work originated in research with the FMF.

The focus of the Social Science program in 2001-02 was to complete studies already underway. Activities of each of the social science sub-programs are reported below.

Economic and community sustainability

Reports were completed on visitor sector employment. Several peer-reviewed articles also focused on the Computable General Equilibrium (CGE) model. Data entry and analysis continued on the Sense of Place study. This study will continue in Phase III of the Foothills Model Forest program, in cooperation with the Sustainable Forest Management (SFM) Network at the University of Alberta. Reports published during 2001-2002 include:

1 Wellstead, A., R. Stedman and J. Parkins. Forthcoming. Understanding the concept of representation within the Context of local forest management decision making. Canadian Journal of Forest Research.

2 Parkins, J.R. 2002. Forest Management and Advisory Groups in Alberta: An Empirical Critique of an Emergent Public Sphere. The Canadian Journal of Sociology, Vol. 27, Issue 2.

3 Patriquin, M., J. Alavalapati, A. Wellstead, and W. White. 2002. A Comparison of Impact Measures from Hybrid and Synthetic Techniques: A Case Study of the Foothills Model Forest. Annals of Regional Science (in press).

4 Patriquin, M., J. Alavalapati, A. Wellstead, S. Young, W. Adamowicz, and W. White. 2002. Estimating Impacts of Resource Management Policies in the Foothills Model Forest. Canadian Journal of Forest Research (under review).

5 Parkins, J.R. and T.M. Beckley. 2001. Monitoring Community Sustainability in the Foothills Model Forest. A Social Indicators Approach. Information Report AFC M-X-211. Atlantic Forestry Centre, Fredericton, NB.

Non-timber values
Continuing the study of Jasper National Park of Canada (JNP) backcountry use was the focus of the non-timber program in 2001-2002. Data entry for the permits between 1998-2000 was completed, and a draft report was written. Analysis of this data will continue as an in-kind contribution. Presentations of previously completed work were also delivered.
In 2001-2002, the following report was published:

1. McFarlane, B., D. Watson, and P. Boxall. 2001. Getting more from what we have: The case of backcountry permits. Research Links. Vol. 9. Number 3.

Public Involvement
The ongoing evaluation of Weldwood's Forest Resource Advisory Group (FRAG) was the key activity in this group for 2001-02. A wider study on public involvement in Alberta was also completed.

The following report was published this year:
1. Parkins, J.R, R.C. Stedman, and B.L. McFarlane. 2001. Public involvement in forest management and planning: Do advisory groups represent the general public? Northern Forestry Centre Information Report NOR-X-382. Edmonton, AB: Canadian Forest Service.

Phase III Social Science Program
Phase III three will see the continuation of Phase II projects, and the initiation of new studies. The CGE model developed in Phase II will be maintained in recognition of changing economic conditions within the FMF land base. The Social Science Program will also continue to contribute to the local level indicators initiative. The release of data from the 2000 census will allow the update of the social indicators. The non-timber program will link with the Fish and Watershed and Grizzly Bear Research programs to investigate the human dimensions of angling and biodiversity respectively. A natural resource account will also be developed for the region.

Northern East Slopes

Go out, go out I beg of you.
And taste the beauty of the wild.
Behold the miracle of the earth.
With all the wonder of a child.

Enda Jaques

Northern East Slopes

Sustainable Resource & Environmental Management Strategy

In March of 1999, the Alberta Government stated its commitment to the wise management of Alberta's natural resources and environment for the benefit of all of Alberta's present and future generations. The vision of sustainable development for Alberta as expressed in the March 1999 Commitment to Sustainable Resource and Environmental Management states; "Alberta, a member of the global community, is a leader in sustainable development, ensuring a healthy environment, a healthy economy, and a high quality of life in the present and the future."

This vision mirrors the mandate of the Foothills Model Forest (FMF). It was to be first tested through the Northern East Slopes Sustainable Resource and Environmental Management Strategy. In addressing the strategy, then Deputy Minister of Alberta Environment, Doug Radke, said "To effectively integrate resource management, we need to look at large areas … and deal with large-scale issues such as biodiversity, airsheds, forest fire regimes and the resource dependence of a regional economy."

The FMF has already conducted studies in several of these areas, and the FMF has subsequently agreed to support the strategy by:

- providing research data and technical input on the criteria and indicators for use in the Strategy; and,
- reviewing, influencing, critiquing and supporting the interim and final products of the planning process.

Since February 2000, the FMF has provided support to the strategy by providing scientific and technical advice and FMF knowledge, applications and products to several teams, created support strategy development through the following research areas:

- Local Level Indicators
- Natural Disturbance
- Social Science
- Communications support for Aboriginal components of the Strategy
- Grizzly Bear Research

This support continues.

Local Level Indicators of Sustainable Forest Management

The Foothills Model Forest and its partners have developed region-specific, or local-level, indicators to measure performance against six criteria of sustainable forest management set out by the Canadian Council of Forest Ministers (CCFM).

The report, Local Level Indicators of Sustainable Forest Management in the Foothills Model Forest, was undertaken to provide information on the state of the forest and on forestland uses. When viewed in conjunction with a local set of goals and the national criteria, this information will enable Albertans to make informed decisions about our forestlands.

This report provides initial benchmark reporting on a "starter" set of 39 indicators, including data collected up to and during the year 2000. It is expected that more indicators will be reported upon in the future.

This indicator set was used in the Northern East Slopes Integrated Resource Management strategy, and assisted Weldwood in its development of indicators for its successful Canadian Standards Association bid.

The report has been completed, and is now in the design stages. Publication and distribution is expected by late Fall 2002.

Communications and Outreach

The Foothills Model Forest (FMF) Public Affairs and Communications Program was identified as a key program element in the FMF Phase II Proposal, and in the 1996 Proposal Guidelines for Phase II of Canada's Model Forest Program. The mandate of the FMF Public Affairs and Communications Program has been to plan, prepare, and deliver a communication program that involves two separate components of the communications program; public relations and technology transfer.

Since May 1998, the FMF communications program has disseminated research results and application to the "general public" and to technical audiences across Alberta. The program has depended upon core communication vehicles such as regular newsletter installments, a web site, an annual report, involvement with FEESA (an environmental education society) and print advertisements to communicate its message. More recent initiatives have included a student ambassador program, media briefings, open houses and research series.

Phase I of the Canadian Model Forest program, and the FMF could be characterized by a focus on the local partnerships, the development of effective working relationships and frameworks, the enhancement of knowledge of local conditions, and a commitment to work together towards a common goal. Phase II focused on the sharing of model forest experiences, demonstrating model forest innovations, and establishing an eleventh model forest managed by Aboriginal peoples. As preparations for Phase III gear up, some directional change is expected. Emphasis of the program during Phase III will focus on exhibiting demonstrable influence on sustainable forest management both within and beyond the model forest boundaries, placing a stronger emphasis on technology and knowledge transfer, and on strengthening model forest network activities. A strong communications program supports each of the four strategic goals, and clearly underscores the need to continue distinguishing this area as a key FMF program initiative for Phase III.

As the second phase of the FMF came to a close, the Communications Program focused its efforts on identifying new opportunities for fresh, innovative projects and proposals for the next five-year phase. The Communications Program also played a key role in the writing and development of the FMF Phase III Proposal, which was submitted to the Canadian Forest Service Headquarters in Ottawa for review and approval to move forth with a third five-year phase.

ACCOMPLISHMENTS

- Planning and development begun for an exclusive FMF grizzly bear museum exhibit. This collaborative project between the FMF, Jasper National Park and the Jasper Yellowhead Museum and Archives was produced in support of the Year of the Great Bear Legacy Celebrations. The exhibit will be displayed from July 15 to October 31 2002, in Jasper. In Spring 2003, crates will be constructed for the exhibit to travel across Alberta, Canada, and North America.

- Over 3000 people were exposed to FMF messages through regularly scheduled Woods Tours, Sixth Grade Woods Tours and through Grizzly Bear and Fish and Watershed interpretive programs delivered throughout the summer.

- Once again, the FMF collaborated with Weldwood of Canada during National Forest Week. Using newly converted classroom presentations, the FMF reached approximately 200 students during National Forest Week.

- Advertising in regional newspapers from July through September resulted in 39,839 points of contact. This does not include a special profile of the Hinton Natural Resources Interpretive Park (of which the FMF is a significant partner) in the Travel Alberta Vacation Planner, which is distributed at Visitor Information Centres across Alberta.

- The FMF continued to receive local, national and international media coverage. Media coverage for 2001-2002 included:

1. Print coverage in the following outlets:
   - The Forestry Chronicle (special Model Forest edition)
   - The Edge Magazine
   - The Rocky Mountain Elk Foundation's Bugle (published in Missoula, Montana)
   - Weldwood of Canada's Treebune Newsletter
   - The Forest Resource Improvement Association of Alberta Magazine
   - The Hinton Parklander (ongoing interviews and coverage of events)
   - The Edson Anchor (ongoing interviews and coverage of events)
   - The Edmonton Journal
   - The Jasper Booster
   - The Foothills Model Forest newsletter, Footnotes.

2. Broadcast coverage was received from the following:
   - CBC Television (Summer Interpretive programs)
   - The Model Forest Network (participation in a Model Forest documentary)
   - Global News (Edmonton)
   - A-Channel (Edmonton)
   - CBC Radio (Edmonton)
   - Yellowhead Radio (ongoing interviews and coverage of events)
   - The Tabi Channel (Taiwan)

- Approximately 350 annual reports and the same number of newsletters were issued in 2001-2002.

- The FMF also continued to receive requests for information from Albertans, Canadians, and other Model Forests. In 2001-2002, the Foothills Model Forest received over 100 requests for information. Nearly 70 percent of these requests originated outside the Foothills Model Forest boundaries. The FMF also received 22 requests from the Canadian Model Forest Network Catalogue for Foothills Model Forest publications.

- The FMF continued its tradition of trade show participation in 2001-2002. During the year, the FMF directly reached nearly 2000 people in this fashion.

- Albertans, Canadians and other international visitors continued to use the Foothills Model Forest website as a source of information. In 2001-2002, the website received:
  - 547, 969 website hits;
  - 168, 924 page views; and,
  - 45,121 visits

- Work also continued on the Hinton Natural Resources Interpretive Park, an initiative in which the Foothills Model Forest is proud to be involved. During 2001-2002, the arboretum was completed, the signage was added and interpretive media were placed in carefully selected locations throughout the Park. Picnic tables were constructed and placed, and the mine truck from Cardinal River Coals is expected to arrive in Fall 2002.

- In support of various other communications and knowledge transfer efforts, the FMF also hosted several Research Forums in 2001-2002:
  1. Grizzly Bear Research Program Media Briefing, Research Forum and Partner Recognition Forum;
  2. The Alberta Chamber of Resources Research Forum;
  3. Hinton Research Forum; and,
  4. FMF Partner recognition Evening and Research Forum.

- During 2001-2002, the FMF continued its partnership with FEESA, An Environmental Education Society.

FEESA's role as education-partner with the FMF began in 1995 with FEESA providing general information and delivering FMF promotional material to Alberta educators during their Teacher's Conventions. Today, the partnership has grown to see FEESA provide access to a very important public - the formal education audience.

2001 – 2002 FEESA ACCOMPLISHMENTS

1. 35 classroom presentations (reach: 1550 Students, 35 teachers)
2. Participation in six provincial teachers conventions
3. Forest Education Leadership Institute (reach: 28 educators)
4. Three Forest Ecotours (reach: 77 teachers, 90 students)
5. 2001 Global, Environmental And Outdoor Education Conference: more than 500 educators from across Alberta, Canada and the world attended. Participation included web links, logos in program guides and booth displays for the Foothills Model Forest and FEESA. FMF information was distributed and the FEESA education program was presented at the conference.

1997-2002 ACCOMPLISHMENTS

1. Three-Ecotours: one institute annually since 1998 (reach: approximately 540 teachers; potential to reach over 30,000 students across Alberta).
2. Six of the FEESA programs during the five-year period were held within the FMF land base.
3. Support of FEESA staff direct delivery of forest education programs to classrooms in the Grande Yellowhead School District and to urban schools across Alberta.
   - Average number students visited across Alberta – 4800 annually
   - Average number students in Grand Yellowhead – 450 annually
4. FMF name recognition was one of the focus areas for Alberta-wide presentations.
5. Annual National Forest Week activities in cooperation with FMF researchers for Hinton Grade six students – phenomenal success, unique in Alberta.
6. Partnership with Alberta Environment to introduce FMF to Japanese youth.
7. Participation in Alberta teachers' conventions since the inception of the partnership. Not only have thousands of information, promotional and education packages been distributed, but workshops at numerous conventions have brought forward the FMF name and research issues. Five Teachers' Conventions per year were attended, reaching approximately 10,000 teachers.
8. For each of FEESA's more than 20 forest education programs and services, FMF research information and expertise is incorporated into program planning. This is especially true of FEESA's field programs in Kananaskis Country (Jumpingpound Demonstration Forest), Rocky Mountain House (Des Crossley Demonstration Forest) and our Edmonton River Valley Education Program.

Provincial *Enhancement Funds*

In 2001-2002, Provincial Environmental Enhancement Funds (PEF) contributed to the following Foothills Model Forest projects:

Foothills Growth and Yield Association
Trees need water, sunlight, nutrient-rich soil and space to grow well. Understanding the forest conditions for optimal tree growth is an important requirement for sustainability. If forest companies can access more timber (and therefore, realize increased associated economic spin-offs) from a smaller area and in a shorter timeframe, more of the forest is available to support its many other values.

The Foothills Growth and Yield Association is a partnership between nine companies whose objective is to develop forestry treatments that increase tree growth and performance. The original work plan for the 2001-02 fiscal year, presented in March 2001, was updated to reflect direction of the Steering Committee. The original Forest Resources Improvement Association of Alberta (FRIAA) proposal and contract were updated in September 2001, extending the term to March 31, 2005. A Business Plan was developed to rationalize and define the Association's mission, strategies, projects, income and expenditures for the next five years. It includes estimated direct income and expenditures of the Association by year and indicative cost estimates of members' project contributions by year-end and by project component.

Two additional projects were included in the Business Plan, for implementation in the 2002-03 fiscal year (Cooperative management of historic research trials and Regional Yield Estimates).

Utilization of Burnt Wood
This study examines the ways in which burnt wood and harvesting delays after a forest fire affect the quality of two different pulping processes. This program was delayed by the inability to implement critical prescribed burns. Due to this postponement, the Foothills Model Forest consulted with forest product companies in Alberta to determine whether there was a need to continue this research. Following this consultation, the Foothills Model Forest decided to discontinue the Burnt Wood Project.

Ongoing work related to the project will be completed and unspent PEF funds will be reallocated to other appropriate program areas and new projects that meet with the Foothills Model Forest funds mandate.

Sustainability of Resource-Based Communities
Over the past four years rural, resource-based communities have developed a strong and clear voice to support their position in both provincial and federal government discussions. Municipal representatives in many of Alberta's forestry and coal mining communities have united in efforts to represent 175,000 coal-mining families, and over 350 forest-based communities.

During 2001-2002, the Foothills Model Forest wrapped up its official role in the sustainable communities initiative, but will continue to play a role in this very important endeavour by providing municipal decision makers with accurate, timely information to communicate with all levels of government.

Canadian Wildfire Growth Model

Prometheus, the Canadian Wildfire Growth Model, is a computer model that uses state-of-the-art technology to predict fire behaviour. The model can be used operationally, to model the behaviour of an already burning fire, or in forest management to determine where and how a forest fire would naturally burn. In 2001-2002, work continued on the development of the model. The Model was beta-tested on two significant fires in the province of Alberta with promising results.

Social Science
Forests are not only important components of the environment, but have significant economic and social value as well. In 2001-2002, the Foothills Model Forest social science program continued work in the following areas:

- socio-economic impact analysis;
- economic and community sustainability;
- public involvement, attitudes, values, and decision-making;
- the non-timber valuation research stream; and,
- the study on sense of place.

Eco-site Chronosequence
The purpose of this multi-partner project was to develop a predictive field guide of post harvest stand and understory vegetation development by eco-site. The project also examines associated productivity levels using growth intercept and total height, by eco-site and seral age class, and provides a database for temporal and spatial modeling of biodiversity and wildlife habitat. Work continued on this project in 2001-2002, with completion scheduled for 2002-2003.

Natural Disturbance Program
Provincial Enhancement Funds were used to support this integrated, multi-year, multi-scale, long-term research program, which continues to address questions of how natural disturbance processes shape and define our forest. This program continues to provide valuable information to forestry companies and government on how to manage the forest to more closely correspond to those of the (pre-industrial) past in an effort to sustain all biological values on the landscape.

Grizzly Bear Research Program
In 2001-2002, Provincial Enhancement Funds contributed funding to a portion of the field research program, and to the purchase of Global Positioning System (GPS) Collars, which provide vital information regarding grizzly bear habitat use and interactions. These funds also contributed to a portion of the field research program. Results from this program continue to be used by the Regional Carnivore Management Group to address land use and conservation issues.

Foothills Model Forest Officers

Marsha Spearin, Secretary, Foothills Model Forest & Administrative Coordinator, Weldwood of Canada Limited (Hinton Division)

Jim Bouthillier, Partner, Shtabsky & Tussman

Brad King, Treasurer, Foothills Model Forest & Controller, Hi-Atha and Forest Resources, Weldwood of Canada Limited (Hinton Division)

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Dennis Hawksworth, Vice-President, Hinton Forest & Wood Products, Weldwood of Canada Limited (Hinton Division)

Cliff Henderson, Assistant Deputy Minister, Forest Protection Division, Alberta Sustainable Resource Development [1]

Ron Hooper, Superintendent, Jasper National Park

John Kerkhoven, Surface Land Supervisor, Control and Management, Petro-Canada Limited

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

Rick Ksiezopolski, Forest Resource Manager, Weldwood of Canada Limited (Hinton Division) [2]

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Lloyd Metz, General Manager, Cardinal River Coals Limited

Robert Newstead, Regional Coordinator, Model Forest Program, Canadian Forest Service, Edmonton [3]

Mike Poscente, Regional Director, Northern East Slopes Region, Land and Forest Service, Alberta Sustainable Resource Development [4]

Don Podlubny, Director, Environmental Training Centre [5]

Dennis Quintilio, Executive Director, Ecological Landscape Division, Land and Forest Service, Alberta Sustainable Resource Development [6]

Ross Risvold, Mayor, Town of Hinton [7]

Al Sanderson, Executive Director, Integrated Resource Management Division, Alberta Environment

Jim Skrenek, Director, Fish and Wildlife Division, Alberta Sustainable Resource Development [8]

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Jerry Sunderland, Director, Land and Forest Division,
Alberta Sustainable Resource Development

Robert W. Udell, Manager, Forest Policy and Government Affairs,
Weldwood of Canada Limited (Hinton Division)

Kevin Van Tighem, Manager, Ecosystem Secretariat, Jasper National Park

Brian Wallace, Manager, Warden Service, Jasper National Park

Mel Williams, General Manager, Cardinal River Coals Limited [10]

[1] Term started June 2001
[2] Term started February 2002
[3] Term started February 2002
[4] Term started February 2002
[5] Resigned June 2001
[6] Resigned October 2001
[7] Term Started February 2002
[8] Resigned July 2001
[9] Term started October 2001
[10] Term started February 2001, resigned December 2001

Financial Statements

AUDITORS' REPORT

Kingston Ross Pasnak LLP
Chartered Accountants KRP

June 17, 2002
Hinton, Alberta

Auditors' Report

To the Board of Directors of the Foothills Model Forest:

We have audited the statement of financial position of the Foothills Model Forest as at March 31, 2002 and the statements of operations and changes in fund balances and cash flow for the year then ended. These financial statements are the responsibility of the organization's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Foothills Model Forest as at March 31, 2002 and the results of its operations and cash flow for the year then ended in accordance with Canadian generally accepted accounting principles.

Kingston Ross Pasnak LLP
Kingston Ross Pasnak LLP
Chartered Accountants

DFK

Phone: 780.865.5801 Fax: 780.865.3454 www.krpgroup.com | 542 Carmichael Lane, Hinton, Alberta T7V 1S8

STATEMENT OF OPERATIONS AND CHANGES IN FUND BALANCES

Year Ended March 31, 2002

	CFS Fund 2002 $	Provincial Enhancement Fund 2002 $	Contribution Fund 2002 $	Capital Fund 2002 $	Total 2002 $	Total 2001 $
REVENUES						
Contributions:						
Canadian Forest Service	500,000	-	-	-	500,000	500,000
Canadian Forest Service - other	-	-	-	-	0	12,800
Government Agencies	-	-	532,030	-	532,030	391,700
Corporate contributions	-	-	746,891	-	746,891	1,310,765
Contributions In-Kind	-	-	-	-	0	36,878
Other contributions	-	-	137,460	-	137,460	99,000
Interest income	-	7,616	51,634	-	59,250	134,044
Other income	-	-	6,484	-	6,484	58,433
	500,000	7,616	1,474,499	0	1,982,115	2,543,620
EXPENSES						
Advertising and promotion	8,673	-	24,359	-	33,032	52,856
Amortization	-	-	-	23,087	23,087	76,891
Bank charges and interest	126	-	947	-	1,073	99
Computer expense	22,969	-	11,613	-	34,582	28,245
Freight	1,423	-	7,260	-	8,683	7,437
General expense	510	-	9,890	-	10,400	2,965
GST expense	-	-	-	-	0	0
Insurance	5,127	-	3,950	-	9,077	6,072
Meeting expense	11,806	566	12,182	-	24,554	25,395
Office	14,911	26	8,498	-	23,435	25,145
Photo finishing	220	-	1,313	-	1,533	2,365
Printing and binding	2,179	-	7,437	-	9,616	18,338
Professional fees	2,930	-	24,005	-	26,935	29,706
Publications	-	-	-	-	0	0
Public relations	9,778	-	28,157	-	37,935	12,363
Licensing	1,406	-	685	-	2,091	1,066
Recovery of expenses	(2,143)	(450)	(58,268)	-	(60,861)	(135,434)
Rentals and field supplies	10,280	-	141,753	-	152,033	183,915
Sub-contracts	77,326	191,851	793,778	-	1,062,955	1,516,524
Subscriptions	380	-	-	-	380	1,340
Telephone and utilities	5,758	204	17,720	-	23,682	19,446
Travel and training	23,620	1,138	350,056	-	374,814	420,793
Vehicle expense	30,044	-	62,498	-	92,542	103,681
Wages and employee benefits	273,641	-	494,725	-	768,366	652,347
	500,964	193,335	1,942,558	23,087	2,659,944	3,051,555
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENSES	(964)	(185,719)	(468,059)	(23,087)	(677,829)	(507,935)
INTER-FUND TRANSFERS						
Capital purchases (disposals)	(1,740)	0	(16,119)	17,859	0	0
Cash	2,410	(7,616)	5,471	-	265	(89,530)
	670	(7,616)	(10,648)	17,859	265	(89,530)
CHANGE IN FUND BALANCE FOR THE YEAR	(294)	(193,335)	(478,707)	(5,228)	(677,564)	(597,465)
FUND BALANCES, BEGINNING OF YEAR	294	645,094	1,656,654	30,025	2,332,067	2,929,532
FUND BALANCES, END OF YEAR	0	451,759	1,177,947	24,797	1,654,503	2,332,067
			1177947		1629706	
			-0.20		-24797	
					0	

STATEMENT OF FINANCIAL POSITION

As of March 31, 2002

ASSETS

	CFS Fund 2002 $	Provincial Enhancement Fund 2002 $	Contribution Fund 2002 $	Capital Fund 2002 $	Total 2002 $	Total 2001 $
CURRENT ASSETS						
Bank	16,707	484,749	872,802	-	1,374,258	2,252,670
Term deposits	-	-	-	-	0	0
Accounts receivable	902	-	46,955	-	47,857	121,887
Inter-fund receivables	10,259	-	1,329	-	11,588	55,762
Amounts due from related parties	-	-	558,387	-	558,387	345,686
Prepaid expenses	17,578	-	70	-	17,648	19,661
	45,446	484,749	1,479,543	0	2,009,738	2,795,666
CAPITAL ASSETS (Note 3)	0	0	0	24,797	24,797	30,025
OTHER ASSET						
Deposits	1,700	0	750	0	2,450	2,450
TOTAL ASSETS	47,146	484,749	1,480,293	24,797	2,036,985	2,828,141
CURRENT LIABILITIES						
Accounts payable & accrued liabilities	45,817	32,990	192,087	-	270,894	299,312
Inter-fund payables	1,329	-	10,259	-	11,588	46,762
Deferred revenue	-	-	50,000	-	50,000	50,000
	47,146	32,990	252,346	0	332,482	396,074
LONG-TERM LIABILITY						
Deferred revenue	-	-	50,000	-	50,000	100,000
	47,146	32,990	302,346	0	382,482	496,074
FUND BALANCES						
FUND BALANCES						
Invested in capital assets	-	-	-	24,797	24,797	30,025
Internally allocated	-	451,759	1,177,947	-	1,629,706	2,302,042
	0	451,759	1,177,947	24,797	1,654,503	2,332,067
TOTAL LIABILITIES AND FUND BALANCES	47,146	484,749	1,480,293	24,797	2,036,985	2,828,141

STATEMENT OF CASH FLOW

As of March 31, 2002

	Operating Activities					Financing and Investing Activities	
	CFS Fund 2002 $	Provincial Enhancement Fund 2002 $	Contribution Fund 2002 $	Total 2002 $	Total 2001 $	Capital Fund 2002 $	Capital Fund 2001 $
SOURCES OF CASH							
Government contributions	500,000	-	500,430	1,000,430	784,491	-	-
Corporate contributions	-	-	559,156	559,156	988,089	-	-
Other contributions	-	-	131,960	131,960	518,885	-	-
Interest income	-	7,616	55,838	63,454	131,318	-	-
Other income	6,302	-	76,315	82,617	87,948	-	-
Contributions In-Kind	-	-	-	0	36,878	-	-
	506,302	7,616	1,323,699	1,837,617	2,547,609	0	0
USES OF CASH							
Wages and benefits	278,977	-	488,935	767,912	648,701	-	-
Materials and services	220,645	267,190	1,442,423	1,930,258	2,366,593	-	-
Purchase of capital assets	-	-	-	0	0	17,859	19,809
	499,622	267,190	1,931,358	2,698,170	3,015,294	17,859	19,809
NET INCREASE (DECREASE) IN CASH POSITION	6,680	(259,574)	(607,659)	(860,553)	(467,685)	(17,859)	(19,809)
CASH (DEFICIENCY) BEGINNING OF YEAR	(3,663)	751,939	1,504,394	2,252,670	2,740,164	-	-
INTER-FUND TRANSFERS	13,690	(7,616)	(23,933)	(17,859)	(19,809)	17,859	19,809
CASH END OF YEAR	16,707	484,749	872,802	1,374,258	2,252,670	0	0
CASH COMPRISED OF:							
Cash - CFS Fund	16,707	-	-	16,707	(3,663)	-	-
Cash - Provincial Enhancement Fund	-	484,749	-	484,749	751,939	-	-
Cash - Contribution Fund	-	-	872,802	872,802	1,504,394	-	-
Term Deposits - Contribution Fund	-	-	-	0	0	-	-
	16,707	484,749	872,802	1,374,258	2,252,670	0	0

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED MARCH 31, 2002

1. PURPOSE OF THE ORGANIZATION

Foothills Model Forest was incorporated in Alberta as a not-for-profit organization under Part 9 of the Companies Act of Alberta. The organization is owned equally by Weldwood of Canada Limited (Hinton Division), Jasper National Park and the Government of Alberta. Each shareholder owns one common voting share issued for one dollar, without nominal or par value. As a not-for-profit organization, Foothills Model Forest is not subject to income taxes and the assets of the organization cannot be distributed to the shareholders.

The objects for which the organization was established are:

a) To accelerate and expand new and existing initiatives in sustainable forest operations innovation, integrated resource management, decision support systems research, technology transfer and public involvement in the Foothills Model Forest;

b) To support the development of multi-jurisdictional resource management strategies and programs, particularly regarding transboundary resources;

c) To test and demonstrate on the Foothills Model Forest advanced technology and integrated resource management practices consistent with the principles of sustainable development;

d) To use the expertise and facilities of the Environmental Training Centre to assist in the knowledge base development and transfer the knowledge gained in the Foothills Model Forest program to local, national and international resource managers and various publics;

e) To develop an integrated resource management strategy for the Foothills Model Forest, representing a balance of integrated resource management objectives, using consensus development techniques, with the participation of representative stakeholders; and

f) To support the Foothills Model Forest in the delivery of the 5-year, Phase II, Model Forest Plan and the Annual Work Plan. These financial statements reflect operations of the fifth year in the 5-year, Phase II, Model Forest Plan. Each phase has a life span of five years. The first year in the 5-year, Phase III, Model Forest Plan commences April 1, 2002.

2. SIGNIFICANT ACCOUNTING POLICIES

a) Fund accounting

The Foothills Model Forest follows the restricted fund method of accounting for contributions.

The CFS Fund accounts for funding received from the Canadian Forest Service for the organization's program delivery and administrative activities as well as restricted resources that are to be used for specified projects of interest to the Canadian Forest Service.

The Provincial Enhancement Fund reports only restricted resources that are to be directed toward project areas of interest to Alberta's forest sector.

The Contribution Fund reports only restricted resources that are to be used for specified projects.

The Capital Fund reports the assets, liabilities, revenues and expenses related to the Foothills Model Forest's capital assets.

b) Capital assets

Purchased capital assets are stated at cost. Contributed capital assets are recorded at fair value at the date of contribution. Amortization of capital assets is provided on a straight-line basis using the following annual rates:

Computer equipment	33 1/3%
Field equipment	20%
Office equipment	20%

c) Investments

Investments are recorded at the lower of cost and fair market value.

d) Revenue recognition

All restricted contributions are recognized as revenue of the appropriate restricted fund in the year earned. Deferred revenue is recorded as earned in the period designated by the contributor. Investment income earned on all funds' resources is recognized as revenue of the Contribution Fund when earned.

e) Contributed services

The General Manager's services and rent of premises are contributed through agreements with Alberta Sustainable Resource Development. These services are not recognized in the financial statements.

Significant other services are provided to the Foothills Model Forest by the Provincial Government, Weldwood of Canada (Hinton Division) and other volunteers. Because of the difficulty in determining fair value, these other contributed services are not recognized in the financial statements.

Where an estimate of the value of materials contributed is available the amount has been recognized as a Contribution In-Kind.

f) Financial instruments

The organization's financial instruments consist of cash, accounts receivable, amounts due from related parties and accounts payable. Unless otherwise noted, it is management's opinion that the organization is not exposed to significant interest, currency or credit risks arising from these financial instruments. The fair value of these financial instruments approximate their carrying values, unless otherwise noted.

g) Measurement uncertainty

The preparation of financial statements in conformity with generally accepted accounting principals requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

3. CAPITAL ASSETS

	2002 Cost	**2001** Accumulated Amortization	Net	Net
Computer equipment	258,963	240,454	18,509	17,803
Field equipment	73,876	67,588	6,288	12,222
Office equipment	8,073	8,073	0	0
	340,912	**316,115**	**24,797**	**30,025**

Amortization provided for in the year in the capital fund is $23,087; (2001-$76,891)

4. RELATED PARTY TRANSACTIONS

During the year revenue was earned from the shareholders of Foothills Model Forest in the following amounts; $439,320 from Weldwood of Canada, $115,000 from Jasper National Park, and $150,000 from the Government of Alberta.

5. COMMITMENT

The organization leases automobiles. Minimum lease payments on the automobiles in future years are as follows:

	$
2003	27,610.64
2004	5,290.55
	32,901.19

6. COMPARATIVE FIGURES

Certain of the comparative figures have been reclassified to conform to the current year's presentation.

SCHEDULE OF PROJECT FUNDS

Schedule I

YEAR ENDED MARCH 31, 2002

	Project Codes	April 1, 2001 Fund Balance $	Inter fund Transfers $	Current Year Revenue $	Current Year Expenses $	March 31, 2002 Fund Balances $
Information, Research and Knowledge						
GIS Project Management	100	(3,682)	58,740	85,541	142,795	(2,196)
Landscape Disturbance	128	8,874	22,413	181,566	244,556	(31,703)
Aboriginal Involvement	131	49,825	-	2,320	52,145	0
Watershed Assessment Model - Development	141	4,289	-	-	4,289	0
Fish Inventory	146	(9,881)	-	72,460	69,520	(6,940)
Fisheries Project	150	(3,013)	1,370	70,000	68,357	0
Successional Model Development	171	13,000	(13,000)	-	-	0
		59,413	69,523	411,887	581,662	(40,839)
Integrated Resource Management						
Woodland Caribou Study	202	(11,946)	50,000	-	37,893	161
Ecosystem Monitoring Program	203	(1,777)	20,000	30,000	40,674	7,549
Carnivore Conservation	204	324,953	(89,543)	360,830	646,802	(50,562)
Bears and Roads	204.1	4,719	-	-	-	4,719
RCMG - Strategic Framework	204.2	-	15,000	11,600	3,472	23,128
Seismic Study	204.3	-	-	4,000	-	4,000
Criteria and Indicators	205	21,415	2,269	2,731	11,464	14,951
Cache Percotte Management Plan	210	16,780	-	2,073	8,888	9,965
Harlequin Ducks	212	19,764	(340)	5,000	4,674	19,750
Integrated Research Management	213	220,305	(20,000)	274,500	83,950	390,855
Wildland Fire Growth Model Devel.	214	77,826	-	20,000	97,776	50
Willmore Grazing Inventory	215	687	10,000	-	10,540	147
Economic Incentives	223	-	42,276	9,474	51,750	0
Socio-economic Study	224	-	-	109,000	109,000	0
Forest Carbon Budget Study	225	-	10,000	32,490	38,894	3,596
NAIT/Forintek Wood Proc. Program	231	16,068	-	-	-	16,068
Sustainability of Resource Communities	234	80,295	(2,507)	-	77,788	0
Growth & Yield Research	235	145,962	-	90,000	142,554	93,408
Western Canada Forest Industry Partnership	237	-	116,000	-	23,134	92,866
Ecological Chronosequence Study	238	24,598	-	42,940	39,777	27,761
Burnt Wood Utilization	239	477,767	(467,000)	-	-	10,767
Mountain Pine Beetle	240	-	34,000	21,000	-	55,000
Chisholm Fire Research Initiative	241	-	70,000	-	21,900	48,100
		1,417,416	(209,846)	1,015,638	1,450,929	772,279

. . . continued SCHEDULE OF PROJECT FUNDS

Schedule I

YEAR ENDED MARCH 31, 2002

	Project Codes	April 1, 2001 Fund Balance $	Inter fund Transfers $	Current Year Revenue $	Current Year Expenses $	March 31, 2002 Fund Balances $	
Administration Projects							
Project Management	390	157,950	(2,463)	-	71,433	84,054	
Finance	400		(139,044)	89,750	(49,294)	0	444025.54
Administration/Accounting	401	(2,147)	46,744	107,184	147,487	4,294	444025.39
RRSP Matching	402	-	87,766	-	14,526	73,240	
Risk Management Fund	405	100,000	150,000	-	-	250,000	
Board of Directors	410	-	(1,277)	8,250	6,973	0	
Model Forest Network	411	-	(2,851)	4,000	1,149	0	
Project Steering Committee	412	-	(677)	1,000	323	0	
Partners' Association	413	-	(1,000)	1,000	-	0	
Activity Teams	415	-	(760)	1,000	240	0	
		255,803	136,437	212,184	192,836	411,588	
Forest Resource Improvement Project							
Pileated Woodpecker	603	5,300	-	-	-	5,300	
Adaptive Forest Management	612	12,051	90,000	-	12,051	90,000	
Fish and Stream Inventory	643	13,178	-	125,715	131,159	7,734	
		30,529	90,000	125,715	143,210	103,034	
Communications							
Co-ordination	300	-	21,196	85,820	107,016	0	
Educational Relations	320	10,515	(3,279)	40,000	47,236	0	
Community Relations	321	24,200	46,650	28,871	75,103	24,618	
Media Relations	322	-	(866)	1,000	134	0	
Partner Relations	323	4,319	964	16,000	21,283	0	
Technology Transfer	324	7,500	(18,303)	29,000	3,197	15,000	
Government/Network	325	-	(1,000)	1,000	-	0	
Tool Development	326	5,000	(5,750)	15,000	14,250	0	
		51,534	39,613	216,691	268,220	39,618	1285680.26
							1729706.21
Capital Fund		30,025	17,859		23,087	24,797	-444025.95
Unallocated		487,346	(143,320)			344,026	344025.54
							0.02
		2,332,067	265	1,982,115	2,659,944	1,654,503	1285680.26
			265.36	1982115.76	2659944.62	1654503.00	
			-0.33	-0.72	-0.76	-0.15	

SCHEDULE OF COMPARATIVE OPERATIONS AND CHANGES IN FUND BALANCES

Schedule II

YEAR ENDED MARCH 31, 2001

	CFS Fund 2001 $	Provincial Enhancement Fund 2001 $	Contribution Fund 2001 $	Capital Fund 2001 $	Total 2001 $
REVENUES					
Contributions					
Canadian Forest Service	500,000	-	-	-	500,000
Canadian Forest Service - other	10,800	-	2,000	-	12,800
Government Agencies	-	-	391,700	-	391,700
Corporate contributions	-	-	1,310,765	-	1,310,765
Contributions In-Kind			36,878		36,878
Other contributions	-	-	99,000	-	99,000
Interest income	-	-	134,044	-	134,044
Other income	70	-	58,363	-	58,433
	510,870	0	2,032,750	0	2,543,620
EXPENSES					
Advertising and promotion	20,355	-	32,501	-	52,856
Amortization	-	-	-	76,891	76,891
Bank charges and interest	23	-	76	-	99
Computer expense	19,728	-	8,517	-	28,245
Freight	1,643	-	5,794	-	7,437
General expense	1,970	-	995	-	2,965
GST expense	-	-	-	-	0
Insurance	3,001	-	3,071	-	6,072
Meeting Expense	15,994	-	9,401	-	25,395
Office	16,549	-	8,596	-	25,145
Photo finishing	699	-	1,666	-	2,365
Printing and binding	10,534	-	7,804	-	18,338
Professional fees	10,600	-	19,106	-	29,706
Publications	-	-	-	-	0
Public relations	6,982	-	5,381	-	12,363
Licensing	721	-	345	-	1,066
Recovery of expenses	(7,277)	-	(128,157)	-	(135,434)
Rentals and field supplies	10,445	-	173,470	-	183,915
Sub-contracts	74,425	465,687	976,412	-	1,516,524
Subscriptions	875	-	465	-	1,340
Telephone and utilities	8,468	-	10,978	-	19,446
Travel and training	38,227	-	382,566	-	420,793
Vehicle expense	31,447	-	72,234	-	103,681
Wages and employee benefits	282,736	-	369,611	-	652,347
	548,145	465,687	1,960,832	76,891	3,051,555
EXCESS (DEFICIENCY) OF REVENUE OVER EXPENSES	(37,275)	(465,687)	71,918	(76,891)	(507,935)
INTER-FUND TRANSFERS					
Capital purchases (disposals)	(1,451)	0	(18,358)	19,809	0
Cash	10,053	(154,312)	54,730	-	(89,530)
	8,602	(154,312)	36,372	19,809	(89,530)
EXCESS (DEFICIENCY) OF REVENUE OVER EXPENSES AFTER TRANSFERS	(28,673)	(619,999)	108,289	(57,082)	(597,465)
FUND BALANCES, BEGINNING OF YEAR	28,967	1,265,093	1,548,365	87,107	2,929,532
FUND BALANCES, END OF YEAR	294	645,094	1,656,654	30,025	2,332,067

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The photos are courtesy of the Canadian Model Forest Network,
Alberta Economic Development and the Foothills Model Forest.

foothills
model *forest*
a growing understanding

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