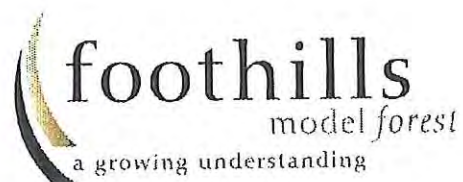


# 1997/98 Annual Work Plan



Submitted to the Canadian Forest  
Service by the Board of Directors of  
the Foothills Model Forest

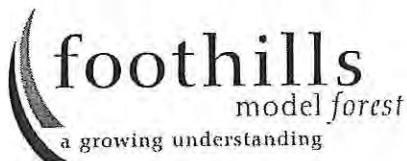
December 15, 1997





## DISCLAIMER

The views, statements and conclusions expressed and the recommendations made in this report are entirely those of the author(s) and should not be construed as statements or conclusions of, or as expressing the opinions of the Canadian Forest Service, the Foothills Model Forest, or the sponsors of the Foothills Model Forest.



Foothills Model Forest is one of eleven Model Forests that make up the Canadian Model Forest Network. As such, Foothills Model Forest is a non-profit organization representing a wide array of industrial, academic, government and non-government partners, and is located in Hinton, Alberta. The three principal partners representing the agencies with vested management authority for the lands that comprise the Foothills Model Forest, include Weldwood of Canada (Hinton Division), the Alberta Department of Environmental Protection and Jasper National Park. These lands encompass a combined area of more than 2.75 million hectares under active resource management.

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

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



December 20, 1997

Mr. Dan Welsh  
Director, Programs  
Canadian Forest Service  
580 Booth Street, 7th. Floor  
Ottawa, Ontario  
K1A 0E4

Dear Mr. Welsh:

The Foothills Model Forest is pleased to provide you with a copy of our completed 1997/98 Annual Work Plan as required under Section 3.3(b) of the Foothills Model Forest Phase II Contribution Agreement.

The work plan details the activities that the Foothills Model Forest currently has underway and the funding and resources that have been provided to each. We have also included a proposed five-year budget projection that outlines our program for the remainder of Phase II as requested in Mr. Case's transmittal letter of June 25, 1997. Please bear in mind that this budget may in fact change from year-to-year based on project performance and Board approvals.

We thank the Canadian Forest Service for its continued support of the Model Forest program and look forward to contributing in a meaningful way to its ongoing success over the next five years.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Udell", written in a cursive style.

Robert W. Udell  
President  
Foothills Model Forest



# Financial Information

## 1997/98 Budget Allocation

### Cost Centre

	Funding Source				
	CFS/ Sponsors	Weldwood (FRIP)	Alberta Env. Protection	Other	Total
<b>Administration and Project Management</b>					
Staff Costs/ CPP and EI Contributions	78650		48600		127250
Telephone	2000				2000
Office Supplies	5000				5000
Postage/Freight	2000				2000
Computer Network Charges (IBM)	4000				4000
Duplication/Copier Costs	7000				7000
Audit/Legal Expenses	6000				6000
Insurance (Equipment/Assets)	4000				4000
Staff Travel and Training	6000				6000
WCB Coverage	1500				1500
<b>Sub-total</b>	<b>116150</b>		<b>48600</b>		<b>164750</b>

	CFS/ Sponsors	Weldwood (FRIP)	Alberta Env. Protection	Other	Total
<b>Committees/Model Forest Network</b>					
Board of Directors	4000				4000
Directors and Officers Liability Insurance	3000				3000
Project Steering Committee	1000				1000
Activity Teams	1000				1000
Partners Association	1000				1000
Yellowhead Ecosystem Working Group/Land Managers Forum	2000				2000
Model Forest Network Expenses (primarily Network Travel)	4000				4000
<b>Sub-total</b>	<b>16000</b>				<b>16000</b>

	CFS/ Sponsors	Weldwood (FRIP)	Alberta Env. Protection	Other	Total
<b>Geographic Information Systems</b>					
Shared Staff Position with JNP	45000				45000
Arc Info Maintenance Fee	12500				12500
Sun Hardware Maintenance Fee	2500				2500
Plotter Equipment/Supplies	1000				1000
Training	3000				3000
<b>Sub-total</b>	<b>64000</b>				<b>64000</b>



Criteria and Indicators Development	CFS/ Sponsors	Weldwood (FRIP)	Alberta Env. Protection	Other	Total
Delphi Workshops for Identification of Local Indicators	25000	30000			55000
Implementation of Monitoring Programs (years 2-5)					
<b>Sub-total</b>	<b>25000</b>	<b>30000</b>			<b>55000</b>

Coarse Filter Biodiversity (Natural Disturbance Program)	CFS/ Sponsors	Weldwood (FRIP)	Alberta Env. Protection	Other	Total
Forest Ecologist Position/Support Costs (Vehicle)	73500				73500
Landscape Disturbance Regimes/Upper Foothills/Montane Disturbance Dynamics	110000	120000	40000	20000	290000
<b>Sub-total</b>	<b>183500</b>	<b>120000</b>	<b>40000</b>	<b>20000</b>	<b>363500</b>

Fine Filter Biodiversity	CFS/ Sponsors	Weldwood (FRIP)	Alberta Env. Protection	Other	Total
Woodland Caribou Research* (represents only FMF/Weldwood cost components)	50000	100000			150000
Large Carnivore Research (Grizzly Bear) (as above)	50000	50000			100000
<b>Sub-total (approved in-principal*)</b>	<b>100000</b>	<b>150000</b>			<b>250000</b>

Enhanced Forest Management Practices +	CFS/ Sponsors	Weldwood (FRIP)	Alberta Env. Protection	Other	Total
Intensive Plantation Establishment		72000			72000
Accelerating stand differentiation and growth by N fertilization (fire-origin)		15000			15000
Accelerating stand differentiation and growth by N fertilization (2nd growth)		10000			10000
Precommercial thinning of dense 2nd growth lodgepole pine		15000			15000
Fertilization of planted or precommercial thinned lodgepole pine		65000			65000
Fertilization of mid to late rotation pure lodgepole pine, research trial with thinning		72000			72000
Commercial thinning in mid-rotation lodgepole pine		24000			24000
Commercial thinning in mixed conifer stands		5000			5000
Alternative Silviculture systems in riparian zones		35000			35000
<b>Sub-total (funded by Coop)</b>		<b>313000</b>			<b>313000</b>



<b>Cumulative Effects Research Program</b>	<b>CFS/ Sponsors</b>	<b>Weldwood (FRIP)</b>	<b>Alberta Env. Protection</b>	<b>Other</b>	<b>Total</b>
Workshops for project definition and proposal TOR development	40000				40000
<b>Sub-total</b>	<b>40000</b>				<b>40000</b>

<b>Cooperative Management Planning</b>	<b>CFS/ Sponsors</b>	<b>Weldwood (FRIP)</b>	<b>Alberta Env. Protection</b>	<b>Other</b>	<b>Total</b>
E4 AVI Inventory Program			100000		100000
Willmore Inventory Program				50000	50000
Integration of Knowledge/Technology Transfer*	35000				35000
<b>Sub-total (approved in principal*)</b>	<b>35000</b>		<b>100000</b>	<b>50000</b>	<b>185000</b>

<b>Fisheries/Aquatics Inventory/Research</b>	<b>CFS/ Sponsors</b>	<b>Weldwood (FRIP)</b>	<b>Alberta Env. Protection</b>	<b>Other</b>	<b>Total</b>
Fisheries Biologist support costs (vehicle)	12000				12000
Operational Fish and Stream Inventory Program		200000			200000
Fisheries and Aquatic Habitat Inventory			40000		40000
Development of a visual classification guide for Lotic systems	8000		10000		18000
<b>Sub-total</b>	<b>20000</b>	<b>200000</b>	<b>50000</b>		<b>270000</b>

<b>Socio-Economic Research</b>	<b>CFS/ Sponsors</b>	<b>Weldwood (FRIP)</b>	<b>Alberta Env. Protection</b>	<b>Other</b>	<b>Total</b>
<b><i>Socio-Economic Impact Analysis</i></b>					
Indicators of Community Sustainability	36500				36500
Economic Impacts of Resource Sectors on FMF Regional Economy	40500				40500
Economic Importance of Tourism in the FMF	27000				27000
Economic Importance of Energy Sector in the FMF	17500				17500
Consumer Expenditure Survey of the FMF (ongoing)					
Socio-demographic Profile of the FMF (ongoing)					
<b><i>Public Involvement, Attitudes and Values, and Decision Making</i></b>					
Sustainable Development of Natural Resources: Value Measures	20700				20700
Sustainable Development of Natural Resources: Community Views (ongoing)					



Value of Wilderness Wilderness User Preferences (gap analysis)*	10000				10000
Public Involvement in Natural Resource Development in Hinton (ongoing)					
<b>Non-Timber Valuation of Land Use</b>					
Criteria and Indicators of Non-timber Values (moved \$ to C&I)					
An Overview and Economic Valuation of Non-timber Use (ongoing)					
<b>Sub-total (approved in principal*)</b>	<b>152200</b>				<b>152200</b>

<b>Regional Ecological Land Classification Development</b>	<b>CFS/ Sponsors</b>	<b>Weldwood (FRIP)</b>	<b>Alberta Env. Protection</b>	<b>Other</b>	<b>Total</b>
Development of a common ELC for the FMF			30000		30000
<b>Sub-total</b>			<b>30000</b>		<b>30000</b>

<b>Carbon Budget Study</b>	<b>CFS/ Sponsors</b>	<b>Weldwood (FRIP)</b>	<b>Alberta Env. Protection</b>	<b>Other</b>	<b>Total</b>
No funding designated, will deal with communication of Phase I results					
<b>Sub-total</b>					

<b>Communications</b>	<b>CFS/ Sponsors</b>	<b>Weldwood (FRIP)</b>	<b>Alberta Env. Protection</b>	<b>Other</b>	<b>Total</b>
Communications Manager position/logistical support costs	60000				60000
Educational Relations	35000				35000
Community Relations	112000				112000
Media Relations	1000				1000
Partner Relations	28000				28000
Technology Transfer	20000				20000
Government/Network Relations	5000				5000
General Expense	24000				24000
Technology Transfer/Network Mgmt.	12000				12000
Adaptive Management Case Study (Peter Murphy)		90000			90000
<b>Sub-total</b>	<b>297000</b>	<b>90000</b>			<b>387000</b>

<b>Grand-total</b>	<b>1048650</b>	<b>903000</b>	<b>268600</b>	<b>70000</b>	<b>2290250</b>
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+ Activities in this subject area are subject to the formation of a lodgepole pine growth and yield cooperative, hosted by the Foothills Model Forest and collaborative partners.



**Foothills Model Forest**

**1997/98 Budget Allocation and Proposed 5 Year Budget Projection\***

**Cost Centre**

	Funding Source					2000/01	2001/02	WW (FRIP)	DLEP in-kind	Other
	1997/98	1998/99	1999/00	2000/01	2001/02					
	CFS/Sponsors									
<b>Administration and Project Management</b>										
Staff Costs/PPP and EI Contributions/Chamber benefits	\$ 127,250	\$ 80,167	\$ 82,200	\$ 84,310	\$ 86,491				\$ 48,600	
Telephone	\$ 2,000	\$ 2,000	\$ 4,000	\$ 4,000	\$ 4,000					
Office Supplies	\$ 5,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000					
Postage/Freight	\$ 2,000	\$ 2,000	\$ 4,000	\$ 4,000	\$ 4,000					
Computer Accounting Support/Upgrades	\$ 4,000	\$ 4,000	\$ 7,000	\$ 7,000	\$ 7,000					
Duplication/Copier Costs	\$ 7,000	\$ 7,000	\$ 6,000	\$ 6,000	\$ 6,000					
Audit/Legal Expenses	\$ 6,000	\$ 6,000	\$ 4,000	\$ 4,000	\$ 4,000					
Insurance (Equipment/Assets)	\$ 4,000	\$ 4,000	\$ 3,000	\$ 3,000	\$ 3,000					
Staff Travel and Training	\$ 1,500	\$ 1,500	\$ 400	\$ 400	\$ 400					
Sub-total	\$ 164,750	\$ 112,567	\$ 114,600	\$ 116,710	\$ 118,891				\$ 48,600	
<b>Committees/Model Forest Network</b>										
Board of Directors	\$ 4,000	\$ 4,000	\$ 5,000	\$ 5,000	\$ 5,000					
Directors and Officers Liability Insurance	\$ 3,000	\$ 3,000	\$ 3,250	\$ 3,250	\$ 3,500					
Project Steering Committee	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000					
Activity Teams	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000					
Partners Association	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000					
Yellowhead Ecosystem Working Group/Land Managers Forum	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000					
Model Forest Network Expenses (primarily Network Travel)	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000					
Sub-total	\$ 16,000	\$ 17,000	\$ 17,250	\$ 17,250	\$ 17,500					
<b>Geographic Information Systems</b>										
Shared Staff Position with JNP	\$ 45,000	\$ 45,000	\$ 46,575	\$ 48,205	\$ 49,892					
Arc Info Maintenance Fee	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500					
Sun Hardware Maintenance Fee	\$ 2,500	\$ 2,500	\$ 1,300	\$ 1,300	\$ 1,300					
Plotter Equipment/Supplies/Support	\$ 1,000	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500					
Travel/Training	\$ 3,000	\$ 3,000	\$ 5,000	\$ 5,000	\$ 5,000					
Sub-total	\$ 64,000	\$ 66,300	\$ 67,875	\$ 69,505	\$ 71,192					
<b>Criteria and Indicators Development</b>										
Delphi Workshops for Identification of Local Indicators	\$ 55,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000					
Implementation of Monitoring Programs (years 2-5)	\$ -	\$ -	\$ -	\$ -	\$ -					
Sub-total	\$ 55,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000					
<b>Coarse Filter Biodiversity (Natural Disturbance Program)</b>										
Forest Ecologist Position/Support Costs (Vehicle)	\$ 73,500	\$ 73,500	\$ 74,550	\$ 74,550	\$ 74,550					
Landscape Disturbance Regimes/Upper Foothills/Montane Disturbance Dynamics	\$ 690,000	\$ 110,000	\$ 100,000	\$ 100,000	\$ 100,000					
Sub-total	\$ 763,500	\$ 183,500	\$ 174,550	\$ 174,550	\$ 174,550					
<b>Fine Filter Biodiversity</b>										
Woodland Caribou Research* (represents only FMF/Weldwood cost components)	\$ 150,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000					
Large Carnivore Research (Gizzily Bear) (as above)	\$ 100,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000					
Sub-total (approved in-principal*)	\$ 250,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000					
<b>Enhance Forest Management Practices</b>										
Intensive Plantation Establishment	\$ 72,000	\$ -	\$ -	\$ -	\$ -					
Accelerating stand differentiation and growth by N fertilization (fire-origin)	\$ 15,000	\$ -	\$ -	\$ -	\$ -					
Accelerating stand differentiation and growth by N fertilization (2nd growth)	\$ 10,000	\$ -	\$ -	\$ -	\$ -					
Precommercial thinning of dense 2nd growth lodgepole pine	\$ 15,000	\$ -	\$ -	\$ -	\$ -					
Fertilization of planted or precommercial thinned lodgepole pine	\$ 65,000	\$ -	\$ -	\$ -	\$ -					
Fertilization of mid to late rotation pure lodgepole pine, research trial with thinning	\$ 72,000	\$ -	\$ -	\$ -	\$ -					
Commercial thinning in mid-rotation lodgepole pine	\$ 24,000	\$ -	\$ -	\$ -	\$ -					
Commercial thinning in mixed conifer stands	\$ 5,000	\$ -	\$ -	\$ -	\$ -					
Alternative Silviculture systems in riparian zones	\$ 35,000	\$ -	\$ -	\$ -	\$ -					
Sub-total (program self funded by Coop)	\$ 313,000	\$ -	\$ -	\$ -	\$ -					





## **Foothills Model Forest/Forest Resource Improvement Program Natural Disturbance Program**

### **1997/98 Work Plan**

**April 24, 1997**

#### **Program Team**

Dan Farr, Foothills Model Forest  
Hugh Lougheed, Weldwood of Canada  
Don Harrison, Land and Forest Service  
Luigi Morgantini, Weyerhaeuser Canada Ltd. (Island Remnants Project)  
Alan Westhaver, Jasper National Park

#### **Introduction**

The Foothills Model Forest Natural Disturbance Program was identified as a key program element in the Foothills Model Forest (FMF) Phase II Proposal, under the heading "Coarse Filter Biodiversity". The projects outlined in this work plan are designed to deliver research, communication and implementation initiatives that are consistent with both the 1997 FMF Phase II Proposal, and the 1996 Proposal Guidelines for Phase II of Canada's Model Forest Program. This is a collaborative program involving industry and government, and builds on work initiated in 1996.

#### **Program Objective**

The objective of the Natural Disturbance Program is to describe and summarise the patterns caused by historical disturbance (primarily wildfire, but also other agents such as insects, disease, flooding and wind) at a range of scales, from landscapes to individual forest stands. The assumption driving the work is that, in the absence of more specific data on alternatives, emulating natural disturbance patterns is the best possible means of achieving ecological sustainability. To that end, in the future the program will also include demonstrations of how management planning and operations can more closely emulate natural disturbance processes.

#### **Relationship to FMF Phase II Proposal**

The goal of the FMF Coarse Filter Biodiversity program element is to "develop forest management strategies that are in concert with the concept of ecological management" (FMF Phase II Proposal, p. 22). The four objectives of this program element, as described in the FMF Phase II Proposal (p. 22) are:

1. Continue research in the area of natural disturbance at the landscape and stand level, and to expand efforts into areas such as Willmore Wilderness Park and Crown FMUs.
2. Develop forest management strategies that are in concert with the "coarse filter" approach to forest management and that more closely approximate the range of natural variability and seral stage representation over the larger landscape.
3. Evaluate "stand-level" requirements of ecological management for managed forest based on comparisons between natural "fire-origin" stands and those created by man-made disturbances.
4. Provide better information to managers of protected areas on natural disturbance that can be used in vegetation management and fire suppression planning."

#### **This Work Plan**

The format of the remainder of this work plan follows the specifications of the Forest Resource Improvement Program (FRIP) *Interpretation of Program Details*.



**Foothills Model Forest/Forest Resource Improvement Program  
Detailed Proposal**

**EXECUTIVE SUMMARY FORM**

**Project Title**

Foothills Model Forest Natural Disturbance Program

Includes three linked projects:

1. Landscape Disturbance Regimes
2. Detailed Disturbance History of the Montane
3. Island Remnants Project

**Project Location**

Forest Management Units E4 and E9

Jasper National Park

Weldwood's Hinton FMA area

Weyerhaeuser's Grande Prairie FMA area

Willmore Wilderness Park (possible)

**Name of Company**

Foothills Model Forest/Weldwood of Canada Limited (Hinton Division)

**Other Companies Involved**

Weyerhaeuser Canada Limited

**Duration of Project Being Proposed**

Ongoing (January 1997 – December 1997 relative to FRIP funding component)

**Cost of the Project Being Proposed**

\$378,491, (FRIP share \$120,000)

**Consent of other Companies Involved**

Signature page at the end of this application.

**Contact Person(s) for this Foothills Model Forest/FRIP proposal**

Dan Farr, Foothills Model Forest, ph. 865-8385

Hugh Lougheed, Weldwood of Canada, Hinton Division, ph. 865-8191

# **Foothills Model Forest/Forest Resource Improvement Program Detailed Proposal**

## **RESEARCH PROJECT**

### **Natural Disturbance Program**

#### **1. Proposal Prepared By:**

Dan Farr (ph 865-8385), on behalf of the Foothills Model Forest Natural Disturbance Program Team:

- Dan Farr, Foothills Model Forest
- Hugh Lougheed, Weldwood of Canada Ltd.
- Don Harrison, Land and Forest Service
- Luigi Morgantini, Weyerhaeuser Canada Ltd. (Island Remnants Project)
- Alan Westhaver, Jasper National Park

#### **2. Introduction**

The Foothills Model Forest (FMF) and partner organisations initiated a program in 1996 to study and describe natural and cultural disturbance across over two million hectares in the Rocky Mountain and Foothills natural regions. Results during the first year identified many specific areas of disturbance-related research that are worthy of continued effort during Phase II of the Foothills Model Forest program, 1997 – 2002.

This proposal outlines a course of action to continue research under three linked project areas:

1. Landscape Disturbance Regimes
2. Detailed Disturbance History of the Montane and Upper Foothills
3. Island Remnants Project

This is a co-operative program involving Weldwood of Canada, Alberta Environmental Protection, Jasper National Park, and Weyerhaeuser Canada. Levels of participation vary, with the first three organisations involved in all projects, and Weyerhaeuser involved in the Island Remnants Project.

#### **3. Background Information**

##### **3.1 Landscape Disturbance Regimes Project**

This work will describe the natural disturbance regime across the Foothills Model Forest, including Jasper National Park and provincial lands east of the front range, an area of approximately two million hectares. Components of the disturbance regime that are considered include frequency, size, and spatial arrangement of stand-replacing wildfires. The work is intended to assist ecologically-based land management planning on lands designated for timber production by guiding harvest scheduling across large landscapes such as Weldwood's Hinton FMA area. The work is also intended to assist ecologically-based planning in protected areas such as Jasper National Park and Willmore Wilderness Park with respect to fire suppression and vegetation management. In both jurisdictions, the goal is to conserve biological diversity by maintaining future seral stage representation and spatial arrangement within the range of natural variability.

##### **3.2 Detailed Disturbance History of the Montane Ecoregion**

Previous studies (Tande 1979, Andison 1997) suggest that certain areas in the Foothills Model Forest exhibit a complex disturbance regime that includes surface (stand-maintaining) fires, insects, disease and windfall. This complex disturbance history requires more detailed information for interpretation than is provided by stand-origin mapping alone. Both the Montane Ecoregion in Jasper National Park and the Upper Foothills Natural Subregion, have evidence of such a complex disturbance history.

Efforts this year will focus on the detailed disturbance history of Montane Ecoregion, through co-operation with the Culture, Ecology and Restoration (CER) Project in Jasper National Park. The goal of the CER Project is "to develop knowledge appropriate to, and effective procedures for, the restoration



of sites and processes in the montane ecoregion" (Higgs 1997). The working assumption is that "detailed knowledge of the past, both cultural and ecological, is necessary in formulating effective goals and plans for restoration and management" (Higgs 1997). The CER project is focussing on a pilot area within the Montane ecoregion in the Jasper townsite.

Areas to be pursued this year will include a study of historical vegetation change (Jeanine Rhemtulla), and a detailed description of disturbance history in the CER study area. This latter area will include the extension of a detailed fire history map prepared by Tande (1979) to encompass the entire CER study area (currently covers around half), and the development of a sampling methodology for future use in areas with a complex disturbance history, specifically the Montane and Upper Foothills in the Foothills Model Forest.

Practical application of this work in the Montane of Jasper National Park is in the area of ecological restoration, as described above. Application in the Upper Foothills potentially includes the future implementation of stand-maintaining harvest methods (*e.g.*, partial cutting) in selected areas with evidence of frequent stand-maintaining disturbances (*e.g.*, surface fires).

### **3.3 Island Remnants Project**

The pattern of residuals that remain after individual wildfires (Eberhardt and Woodard 1987) offers a potentially useful template for land managers attempting to maintain "meso-scale" patterns of forest age classes within the range of natural variability (DeLong and Tanner 1996), and preliminary evidence suggests species-specific responses to this pattern (Kessler and Parker 1996). This spatial scale is a bridge between landscape disturbance regimes and structural patterns within individual forest stands. Relevant spatial attributes include the size, number, and arrangement of residual patches remaining after fire, and the relationship of these attributes to fire size and topographic features such as streams, which have not yet been clearly described in the Rocky Mountains and Foothills. This information could be incorporated, along with other criteria, into the setting of objectives for future patterns that meet ecologically-based management objectives. Potential applications include compartment harvest design and planning of prescribed fires. Both Weldwood of Canada and Weyerhaeuser Canada are supporting this project this year.

## **4. Research Objectives**

### **4.1 Landscape Disturbance Regimes**

- Complete a 1:50,000 stand origin map for FMU E4, where mapping is incomplete, and three areas of old forest in the Weldwood FMA area, using time-since-fire methods.
- Determine the status of gaps in Weldwood's age class map, built by Jack Wright around 1960, as either forested or non-forested, and attempt to determine the age of stands classified as forested through field sampling.
- Complete air photo interpretation for a preliminary 1:50,000 stand origin map (no field sampling) for a selected region of the Willmore Wilderness Park, tentatively the region adjacent to FMU E4.
- Complete the analysis of landscape patterns of wildfire in the Rocky Mountains and Foothills of west-central Alberta and submit manuscript for publication in a refereed journal.

### **4.2 Detailed Disturbance History of the Montane**

- Assist in the description of historical vegetation change in the Montane subregion of Jasper National Park, in co-operation with the Culture, Ecology and Restoration Project (CER).
- Conduct a detailed study of disturbance history in the CER study area in the Jasper Montane, including the extension of Tande's (1979) fire history map, and the develop a methodology for quantifying the extent and importance of non-stand replacing disturbances that can be applied in the Montane and Upper Foothills of the FMF.

### **4.3 Island Remnants Project**

- Describe the sizes, distribution, structure, and composition of residual patches of unburned forest remaining after recent wildfires in the Foothills Natural Region. This is considered a pilot year in which methodologies are refined based on preliminary sampling and analysis.

## 5. Potential Application of Results

The general application of these results is to assist in the conservation of biological diversity in the Rocky Mountains and Foothills of Alberta through an improved understanding of natural disturbance processes at a range of spatial scales. With such understanding it will be possible to assess the effects of planned cultural disturbances such as forest harvesting and prescribed fire in relation to natural ranges of variability. Additional applications for each project are also listed in section 3. Background Information.

## 6. Deliverables

### 6.1 Landscape Disturbance Regimes

- Digital stand origin map for FMU E4 (where no such map exists).
- Digital stand origin map for three areas of old forest in the Weldwood FMA area.
- Updated labels for all non-merchantable "gaps" in the Weldwood FMA area stand origin map (also a digital GIS product) for all gaps aged through field sampling.
- Preliminary stand origin maps (no field sampling) for a selected region of the Willmore Wilderness area, if time and resources permit.
- Assembled, compiled digital datasets for the Foothills Model Forest used for analysis, including stand origin, forest or vegetation inventory, lightning density, soils, and elevation models.
- *Landscape disturbance project, 1997 stand origin mapping (FMF Report).*
- *Landscape patterns of wildfire in the Rocky Mountains and Foothills of west-central Alberta (manuscript for journal submission; incorporates 1996 and 1997 data and analyses).*

### 6.2 Detailed Disturbance History of the Montane

- Digital stand origin map for the Culture, Ecology and Restoration project study area in the montane ecoregion of Jasper National Park.
- *Vegetation changes in the Montane ecoregion of Jasper National Park, 1910 – 1990 (CER / FMF Report).*
- *Sampling methodologies for describing the history of stands disturbed by wildfire, insects, and other disturbance agents in the Foothills Model Forest, including the Montane and Upper Foothills natural subregions (CER / FMF report).*

### 6.3 Island Remnants Project

- *Ranges of variability in the size, distribution, and composition of unburned remnant islands in the Rocky Mountains and Foothills of west-central Alberta (FMF report, possible journal submission; also less technical report for operations personnel).*

## 7. Research Methods and Design

### 7.1 Landscape Disturbance Regimes

#### 7.1.1 Stand Origin Mapping

A detailed description of the methods used to map historical stand-replacing fire boundaries in E4 and older areas in Weldwood's FMA area is contained in Rogeau (1996). The technique is based on time-since-fire methods described by Johnson and Gutsell (1994). The resulting map represents a mosaic of forest stand ages that are believed to have originated from stand-replacing fire, although some stands have no evidence of fire origin. Briefly, the methods used are as follows:

- Air photos are used to identify stand boundaries, defined by a change in texture and tone on the image (Heinselman 1973, Johnson *et al.* 1990). The series used is the 1949 provincial b/w 1:40,000, with boundaries transferred to 1:50,000 topographic maps.
- Stand ages are determined by field sampling of trees on either side of photo-interpreted stand boundaries. Evidence of past fires includes scars and releases, as identified on tree cross-sections or cores. The number of sampling sites increases with stand size, increasing the probability that multiple burn histories within stands are detected. When a stand appears to be heterogeneous on the air photos, but no definite fire boundaries are visible, additional plots are taken.



- Sample trees are selected not only among the survivors that might carry evidence of fire, but also among the trees that had regenerated after the fire (Arno *et al.* 1993). An average of four trees per stand is collected. In stands with several tree species, tree samples are usually taken from dominant and subdominant species.
- Cross-sections and cores are prepared, and annual growth rings are counted, following the methods of Arno and Sneek (1977).
- The final stand origin map, which incorporates the photo-interpreted fire boundaries and dates obtained by ground sampling, is transferred to mylar and digitised to create an Arc/Info coverage.
- Foothills Model Forest summer staff will be responsible for field sampling in most plots, but provincial HAC crews will also provide manpower and helicopter resources, depending on their availability. Co-ordination of HAC crew involvement will be done through the Lands and Forest Service office in Hinton.

### 7.1.2 Status of non-merchantable forest gaps in Weldwood's FMA area

The ages of some 1,200 km<sup>2</sup> of stands in Weldwood's FMA are not currently identified in their existing stand origin map. These stands frequently occur in open wetlands, meadows and muskegs that are considered non-merchantable. Air photo-interpretation (and GIS overlays of AVI information if available) will be used in combination with field sampling to assign dates of origin to as many such stands as possible.

### 7.1.3 Analysis of landscape disturbance regimes

The analysis of landscape disturbance regimes will be done using the approaches outlined in Andison (1996). Digital stand origin maps for the Foothills Model Forest, including Jasper National Park and provincial lands east of the front range including Weldwood's FMA area, are used to estimate the range of fire frequency and fire size for each natural subregion. These maps are also combined with other digital layers, specifically forest cover, soils, lightning strikes, watercourses, and a digital elevation model, to determine the relationship between these attributes and patterns of stand origin. This analysis will include a "meso-scale" analysis of stand origin patterns in relation to topography for up to four UTM mapsheets, following up on previous analyses for one mapsheet done in 1996 (Andison 1997).

## 7.2 Detailed Disturbance History of the Montane

Historical vegetation change in the CER study area in the Montane will be described through analysis of historical photographs from 1910, 1949 and 1990. Photo-interpretation of stand boundaries is supplemented by ground-truthing, following the specifications of the Alberta Vegetation Inventory where possible. A digital file containing polygons and attributes is then produced. Jeanine Rhemtulla, of the University of Alberta (co-supervisors Ellen MacDonald and Eric Higgs), is conducting this work, with the assistance of a half-time Foothills Model Forest summer staff.

The detailed disturbance history of the CER study area in the Montane will be described by completing the stand origin map prepared by Tande (1979), which is currently completed for approximately half the CER study area. This will be supplemented by preliminary development of methodologies to describe disturbance dynamics within stands, using the dendrochronological approaches described by Veblen *et al.* (1994). A site visit by Henri Grissoni-Maier from the Arizona Tree Ring Lab is planned for the summer of 1997. The intent of these methodologies is for continued future application in other areas of the Foothills Model Forest, including the Upper Foothills, where previous work has also identified a complex disturbance history (Andison 1997, Rogeau 1996).

## 7.3 Island Remnants Project

Air photo interpretation using recent and historical photos will be used to identify island remnants within recent burns in the Upper Foothills and Subalpine natural subregions. Manual interpretation will be the primary approach, but the use of computer-assisted classification will be explored. Preferred photo scale is 1:15,000 or less, and preferred resolution is 1.0 ha. Ground truthing will be used to assess site characteristics and ages of trees within a sample of remnants. Once digitized, the island remnant coverages will be analysed in context with other available spatial data, including slope, aspect, elevation and streams.

## 8. Research Schedule

As identified in plan.

## 9. Site Information

This work will take place in the following areas:

- Weldwood's Hinton FMA area
- Forest Management Units E4 and E9 (E9 for crew training only)
- Jasper National Park
- Weyerhaeuser Canada's Grand Prairie FMA area
- Willmore Wilderness Park (possible)

## 10. Financial Information by Cost Categories

As identified in plan.

## 11. References

- Andison, D.W. 1997. *Foothills Model Forest Disturbance Dynamics Research Plan. FMF Technical Report.*
- Andison, D.W. 1997 *Landscape fire behaviour patterns in the Foothills Model Forest of Alberta FMF Technical Report.*
- DeLong, S.C. and D. Tanner. 1996. Managing the pattern of forest harvest: Lessons from wildfire. *Biodiversity and Conservation.*
- Eberhart, K.E. and P.M. Woodard. 1987. Distribution of residual vegetation associated with large fires in Alberta. *Can. J. Forestry Research* 17:1207-1212.
- Kessler, W. and K. Parker. 1996. Ecological significance of remnant forest patches within SBS plateau landscapes: diversity, abundance, and habitat relationships of forest birds. Unpublished report submitted to Science Council of British Columbia.
- Rogeau, M.P. 1996. *Landscape disturbance project, stand origin mapping 1996. FMF Technical Report.*
- Tande, G.F. 1979. Fire history and vegetation patterns of coniferous forests in Jasper National Park, Alberta. *Canadian Journal of Botany.* 1979; 57:1912-1931.
- Veblen, T.T., K.S. Hadley, E.M. Nel, T. Kitzberger, M. Reid and R. Villalba, 1994. Disturbance regime and disturbance interactions in a Rocky Mountain subalpine forest. *Journal of Ecology* 82:125-135.

## 12. Scientific Review

Dr Bill Baker of the University of Wyoming has reviewed the research plan (Andison 1997) on which much of this work plan is based, and has reviewed related proposals prepared in 1996. Independent reviews will be obtained for all manuscripts submitted for publication in refereed journals.

## 13. Improvements to the Forest Resource

The Natural Disturbance Program contributes to the development of management strategies that are in concert with the concept of ecological management, which is "an evolving approach that focuses on ecological processes and ecosystem structures and functions, while sustaining the types of benefits that people derive from the forest" (Alberta Forest Conservation Strategy, draft July 8, 1996).

"The unmanaged forest, even without human influence, is subject to a variety of natural processes and disturbance such as succession, nutrient cycling, fire, flood, blowdown, insect attack and disease. These processes vary in duration, frequency of occurrences, size of affected area and severity. For each type of process, there will be a particular range of variability. The result is a mosaic of natural communities representing the range of natural variability in forest ecosystems. Each of these communities plays an integral role in maintaining the diversity and function of the forest ecosystem. An understanding of "natural variability" is fundamental to the implementation of ecological management.

To varying degrees, natural disturbances have been reduced in intensity, scale and frequency through a variety of means such as fire and insect/disease suppression and abatement programs and flood control measures. As these disturbances declined, they were gradually replaced by human activities such as



commercial logging, oil and gas exploration programs and agricultural activities. This trend has the potential to simplify the diversity of the forest and, over the next several decades, may push it beyond the historic range of natural variability. Ecological management proposes that we use human activities to maintain that range of natural variability." (Excerpted from Alberta Forest Conservation Strategy, draft July 8, 1996).

**14. Amount of Money Requested from Foothills Model Forest, Sponsors, and FRIP**

- \$183,500 (CFS/Model Forest Sponsors)
- \$120,000 (FRIP)
- \$ 40,000 (Department of Environmental Protection Grant)
- \$ 20,000 (Weyerhaeuser Canada Limited - Island Remnants portion)
- \$ 14,991 (Jasper National Park - Montane Disturbance history portion)

**15. Proposed Payment Schedule for FRIP Monies**

- July 1, 1997: \$60,000
- September 1, 1997: \$60,000

**16. Subcontracted work**

As needed and approved by project activity team.

**17. Project Management**

The Foothills Model Forest Natural Disturbance Program is managed by a Project Team consisting of:

- Dan Farr, Foothills Model Forest
- Don Harrison, Land and Forest Service
- Hugh Lougheed, Weldwood of Canada Ltd.
- Luigi Morgantini, Weyerhaeuser Canada Ltd. (Island Remnants Project)
- Alan Westhaver, Jasper National Park

This is a co-operative program, with Weldwood of Canada, Alberta Environmental Protection, Jasper National Park involved in all three projects. Weyerhaeuser Canada is involved in the Island Remnants Project.

**18. Additional Companies Requesting FRIP Monies**

None.

**19. Publication of Results for General Consumption**

As indicated in Section 6. Deliverables, the results of this project will be made available in two forms: Foothills Model Forest technical reports and articles submitted for publication in scientific journals.

**20. Other Relevant Information**

None.





**Environmental Assessment Screening Form for Projects Related to the Foothills Model Forest**

**Project Title:** Natural Disturbance Program

**Prepared by:** Dan Farr

	Yes	No
Does the project/activity involve a physical, chemical or a biological agent (e.g. fertilizers, pesticides, large scale drainage or soil exposure)?		X
Does a project/activity involve the introduction of a foreign disease, pest or chemical, or a carrier of these?		X
Are any biological control organisms introduced to control pests, disease or weeds (e.g., bacteria, viruses, nematodes and other insect parasites)?		X
Are the chemicals used in the project/activity registered or not?	N/A	N/A
Are valid permits procured for the use of such chemicals and are permits issued subject to any special conditions?	N/A	N/A
Is there any potential soil erosion expected and are there any water bodies in the impacted project/activity area?		X
Are there any large scale vegetational changes expected which might potentially endanger wildlife habitats?		X
In the case of pesticides, how large are the treated areas and are the aquatic systems in danger of being exposed to such treatments?	N/A	N/A
Does the site of a project/activity and the treatments proposed threaten any rare plants, birds or other organisms?		X
Are project/activity sites on any ecological reserves or land of disputed ownership?	X	

**Comments:** Some sampling sites are on Aboriginal reserves or in National or Provincial Parks. Appropriate permits or written permission will be obtained prior to any activity taking place.

## **Foothills Model Forest/Forest Resource Improvement Program Operational Fish and Stream Inventory Program**

### **1997/98 Work Plan**

**April 24, 1997**

#### **Program Team**

Craig Johnson (Fish Biologist), Foothills Model Forest  
Gordon Stenhouse (Senior Wildlife Biologist), Weldwood of Canada Ltd.

#### **Introduction**

The purpose of this project is to increase the information known of the distribution of fish species, present stock status of populations, and relationships between fish and aquatic habitats within the Weldwood FMA/Foothills Model Forest. This information will be useful in timber harvest scheduling, operational planning, evaluating the fishery within the FMA, and will form a component of the Weldwood 1998 Forest Management Plan (FMP). It is intended that this project be a continuation of the 1995 and 1996 fish and stream inventory projects which were funded by FRIP.

Fish and stream inventory information collected to date have been linked to the Weldwood GIS. The Watershed Coordinator at the Foothills Model Forest also plans to link these data to the Watershed Assessment Model (WAM). Inventory results and the fish database will be shared with Alberta Environmental Protection and other interested land management agencies.

#### **Program Objective**

The objectives of this project are to:

- To continue developing an information database on fish populations and aquatic habitats within the Weldwood FMA/Foothills Model Forest. Information needs include description of a stream's physical characteristics, fish species presence, fish species composition, relative abundance, and other available biological data, and habitat types. Data will be presented in a GIS format and linked to the Weldwood GIS.
- Continue to obtain baseline data on streams scheduled for future harvest (pre-access development and pre-harvest) and information needed for operational planning on other areas.
- Input inventory data into database. Conduct quality control checks. Prepare reports from the database for all sampled streams. Interim management recommendations will be developed for streams sampled during 1995 and 1996, to incorporate into the 1998 FMP.
- Deliver database to Weldwood. Demonstrate the database and train Weldwood staff (Area Coordinators, biological staff, etc.) in its use.
- Evaluate the effects of fish barriers, specifically hanging culverts, on fish populations (e.g. stock-status, species composition, density, etc.).
- Evaluate the effectiveness of culvert remediation work proposed by Weldwood. This remediation work is intended to provide access for fish into formerly inaccessible culverts (hanging culverts, etc.).
- Work with and assist Weldwood biological staff to develop a training program for stream-crossings according to Weldwood's Best Management Practices and Standard Operating Protocols.
- Longer-term objective is to complete inventory on all watercourses and lakes in the Weldwood FMA and the Foothills Model Forest.
- To increase our knowledge and understanding of the aquatic ecosystems found in the Foothills Model Forest.

#### **Relationship to FMF Phase II Proposal**

There is a continued need for additional information on the fish resource and aquatic habitats to properly predict, mitigate and manage impacts of industrial/recreational use as it relates to managing for a broad range of resource values.

#### **This Work Plan**

The format of the remainder of this work plan follows the specifications of the Forest Resource Improvement Program (FRIP) *Interpretation of Program Details*.



**Foothills Model Forest/Forest Resource Improvement Program  
Detailed Proposal**

**EXECUTIVE SUMMARY FORM**

**Project Title**

Operational Fish and Stream Inventory - Weldwood FMA/Foothills Model Forest

**Project Location**

Weldwood Hinton FMA area  
Forest Management Units E4 and E9  
Portions of Willmore Wilderness Park

**Name of Company**

Foothills Model Forest  
Box 6330  
Hinton, Alberta T7V 1X6

Weldwood of Canada Ltd. (Hinton Division)  
760 Switzer Drive  
Hinton, Alberta T7V 1V7

**Other Companies Involved**

No other forest industry companies are involved at this time. Other organizations that are involved are Foothills Model Forest and Alberta Department of Environmental Protection, Natural Resources Service.

**Duration of Project Being Proposed**

January 1 to December 31, 1997 (program will be renewed on an annual basis pending approval).

**Cost of the Project Being Proposed**

\$200,000, (FRIP share \$200,000)

**Consent of other Companies Involved**

Signature page at the end of this application

**Contact Person(s) for this Foothills Model Forest/FRIP Proposal**

Foothills Model Forest      Craig Johnson (Fish Biologist)  
Phone (403) 865 5734  
Fax      (403) 865 8331

Weldwood of Canada Ltd.      Gordon Stenhouse (Senior Wildlife Biologist)  
Phone (403) 865 8537  
Fax      (403) 865 8164

## **Foothills Model Forest/Forest Resource Improvement Program Detailed Proposal**

### **OPERATIONAL PROJECT**

#### **Fish and Stream Inventory - Weldwood FMA/Foothills Model Forest**

##### **1. Proposal Prepared By:**

Craig Johnson (ph 865-8381) on behalf of the Foothills Model Forest/Forest Resource Improvement Program Fish and Stream Inventory Program Team:

- Gordon Stenhouse, Weldwood of Canada Limited (Hinton Division)
- Craig Johnson, Foothills Model Forest
- Carl Hunt, Natural Resource Service

##### **2. Introduction**

The purpose of this project is to increase the information known of the distribution of fish species, present stock status of populations, and relationships between fish and aquatic habitats within the Weldwood FMA/Foothills Model Forest. This information will be useful in timber harvest scheduling, operational planning, evaluating the fishery within the FMA, and will form a component of the Weldwood 1998 Forest Management Plan (FMP). It is intended that this project be a continuation of the 1995 and 1996 fish and stream inventory projects which were funded by FRIP.

Fish and stream inventory information collected to date have been linked to the Weldwood GIS. The Watershed Coordinator at the Foothills Model Forest also plans to link these data to the Watershed Assessment Model (WAM). Inventory results and the fish database will be shared with Alberta Environmental Protection and other interested land management agencies.

##### **3. Background Information**

An estimated 3300 km of stream and rivers exist in the Weldwood FMA. Twenty-six species of fish occur in this area, including four native cold-water sportfish species: rainbow trout (Athabasca-strain), bull trout, Arctic grayling and mountain whitefish. The fish populations in this area are present in low densities and exhibit slow growth because of the relatively low productivity of streams in the area. This suggests that these populations have a relatively low capability to withstand habitat perturbation and exploitation (Rothwell and O'Neil 1994).

In the past Fish and Wildlife has conducted Phase II inventories on some streams. Additional information has been collected by consultants and research (e.g. Tri-Creeks Experimental Watershed, Northern River Basin Study). The level of fisheries baseline data that currently exists does not allow delineation of basic parameters such as species distribution. Current information for streams is either rudimentary (Phase I surveys, no field work involved), sparse (less than 30% of the Weldwood FMA has been surveyed at a Phase II or III level as of 1995), not current (many inventory numbers were collected before 1980), or results are difficult to interpret or are not comparable as a result of different methodologies.

The absence of reliable and/or accessible baseline inventory data is recognized as a barrier to sound management decisions with respect to fish and fish habitat. To ensure that proper protection strategies are devised and implemented, inventory data on the abundance, distribution, habitats and life history of fish species in areas to be affected by timber harvest operations are required. Better data will result in better management decisions.

The Weldwood FMA supports a wide range of industrial use (forestry, coal, oil/gas) and recreation (angling, hunting, ATV's) which has the potential to impact aquatic resources. More information is needed to properly conserve aquatic ecosystems.

**Work completed in 1995 and 1996**  
(see Appendix I)



#### 4. Research Objectives (updated for 1997)

The objectives of this project are to:

- To continue developing an information database on fish populations and aquatic habitats within the Weldwood FMA/Foothills Model Forest. Information needs include description of a stream's physical characteristics, fish species presence, fish species composition, relative abundance, and other available biological data, and habitat types. Data will be presented in a GIS format and linked to the Weldwood GIS.
- Continue to obtain baseline data on streams scheduled for future harvest (pre-access development and pre-harvest) and information needed for operational planning on other areas.
- Input inventory data into database. Conduct quality control checks. Prepare reports from the database for all sampled streams. Interim management recommendations will be developed for streams sampled during 1995 and 1996, to incorporate into the 1998 FMP.
- Deliver database to Weldwood. Demonstrate the database and train Weldwood staff (Area Coordinators, biological staff, etc. ) in it's use.
- Evaluate the effects of fish barriers, specifically hanging culverts, on fish populations (e.g. stock-status, species composition, density, etc.).
- Evaluate the effectiveness of culvert remediation work proposed by Weldwood. This remediation work is intended to provide access for fish into formerly inaccessible culverts (hanging culverts, etc.).
- Work with and assist Weldwood biological staff to develop a training program for stream-crossings according to Weldwood's Best Management Practices and Standard Operating Protocols.
- Longer-term objective is to complete inventory on all watercourses and lakes in the Weldwood FMA and the Foothills Model Forest.
- To increase our knowledge and understanding of the aquatic ecosystems found in the Foothills Model Forest.

#### 6. Deliverables

- Fish and aquatic habitat information for use in operation planning and harvest scheduling.
- Computer database of inventory information including past fisheries studies and inventory linked to the Weldwood GIS.
- Development of a qualitative habitat sampling protocol and associated manual. This protocol is being developed in conjunction with Alberta Natural Resources Service, and the Alberta Lotic Systems Steering Committee. Funding for this project is being proposed jointly to the Fish Habitat Development Program (Alberta Fisheries Trust Fund) and the Foothills Model Forest.
- Standard inventory reports generated from the database and GIS on all sampled streams.
- Training program to demonstrate to Weldwood staff the use and utility of the fish database.
- Management recommendations, based on data collected to date, will be prepared for incorporation into the 1998 FMP.

#### 7. Research Schedule

Continue work with the Alberta Resources Service Lotic Systems Steering Committee as deemed appropriate with present objectives	ongoing-December 1997
Refine site selection criteria, select specific sites and obtain necessary maps and airphotos/orthophotos for the 1997 field season	January-April 1997
Collect stream parameters derived from the Weldwood GIS (stream gradient, elevation, stream order, etc.) required for analyses	January-February 1997
Complete analyses as required to satisfy objectives. Work closely with, and assist Hilary Jones, Fish Biologist (working for the Watershed Coordinator, FMF) to analyse fish and aquatic habitat data collected by the FRIP Fish & Stream Inventory program.	January-April 1997
Organise, inventory and repair existing equipment and purchase necessary field equipment	March-May 1997
Hire full-time fishery technician	January 1997

Advertise and hire seasonal fishery technicians	March-April 1997
Inventory streams. Record information on fish populations and aquatic habitats	May-October 1997
Input current inventory data, complete quality control checks	ongoing-December 1997
Deliver and demonstrate fish database to Weldwood staff	January-March 1997
Assist Weldwood to develop a training program for stream-crossings	ongoing through 1997
Review literature relevant to the program	ongoing through 1997
Evaluate new or existing fisheries data that were included in 1995 & 1996, review information and input to historical fish database	as required through 1997

## 8. Site Selection

Sampling schedule and priorities will be established based upon objectives, Weldwood's AOP and existing information. We intend to use the results of our data analyses during January - March 1997 to direct some of our work. It is hoped that these analyses will identify data-gaps that can be filled in the 1997 field-season. Sites will be sampled in a manner that can be easily replicated in the future.

## 9. Financial Information by Cost Categories

As per plan.

## 10. References

Rothwell, R. and J. O'Neil. 1994. Proceedings of a workshop to develop a strategic plan for a watershed assessment model (WAM). Prepared for Foothills Model Forest. 35 p. plus Appendices.

## 11. Improvements to Forest Resources

There is a continued need for additional information on the fish resource and aquatic habitats to properly predict, mitigate and manage impacts. This information will help in access and road development planning, timber harvest scheduling, and operational planning. It will provide baseline information to evaluate and monitor present and future potential impacts and information to evaluate the success of past management decisions.

Timely and current fisheries inventory data will support the long term timber harvest and resource protection planning undertaken by Weldwood. Fish species occurrence, fish-habitat relationships and relative resource importance information will be presented in a routinely updated database. Linking this database to Weldwood's GIS will ensure forest planners are aware of and have access to the fish information available on streams. This information will be useful for developing future Forest Management Plans, aquatic ecosystems plans and for aquatic/terrestrial integration.

When no inventory data are available, biologists tend to require the most stringent conditions that will protect all species under any situation rather than risk a loss because of lack of information. A good fish inventory database will encourage realistic land use conditions being applied by fish resource managers.

## 12. Amount of Money Request from Foothills Model Forest, Sponsors, and FRIP

\$ 200,000 (FRIP)  
 \$ 50,680 (Fisheries Enhancement Trust Fund)  
 \$ 20,000 (FMF)

## 13. Payment Schedule

quarterly

## 14. Contractors

This project will be completed through the Foothills Model Forest. Contractors will not be required.



## **15. Project Management**

Craig Johnson, Fish Biologist, and the full-time Fish Biologist/Technician will be responsible for project management and completing all aspects of the program as specified in this proposal. Craig Johnson will report directly to Rick Blackwood, Foothills Model Forest, and Gordon Stenhouse, Weldwood. In addition to Gordon Stenhouse, Carl Hunt, Alberta Natural Resources Service, will serve as project advisor. Craig Johnson and/or the full-time Fish Biologist/Technician will maintain communication with project supervisors and advisors regarding progress towards the deliverables. Quarterly reports (March, June, September, and December) will be produced by project staff and submitted to both Weldwood and Foothills Model Forest. Monthly budget summaries will be completed by the administration of the Foothills Model Forest. These summaries will include monthly expenditures, expenditures to-date, committed funds, etc.

Contracts, employment contracts, and other financial responsibilities will be administered through the Foothills Model Forest.

## **16. Approvals, Permits, Licenses, and Authorisations**

The Inventory Team will require a "Fish Collection Permit" from Alberta Natural Resources Service. In addition, Craig Johnson has been certified as an Electrofishing Crew Leader 3 by Alberta Environmental Protection, and Electrofishing Crew Leader 1 by the Lethbridge Community College. All additional crew members should be certified as Electrofishing Crew Members (or equivalency) to undertake backpack electrofishing.

**Environmental Assessment Screening Form for Projects Related to the Foothills Model Forest**

**Project Title:** Fish and Stream Inventory

**Prepared by:** Craig Johnson

	Yes	No
Does the project/activity involve a physical, chemical or a biological agent (e.g. fertilizers, pesticides, large scale drainage or soil exposure)?		X
Does a project/activity involve the introduction of a foreign disease, pest or chemical, or a carrier of these?		X
Are any biological control organisms introduced to control pests, disease or weeds (e.g., bacteria, viruses, nematodes and other insect parasites)?		X
Are the chemicals used in the project/activity registered or not?	N/A	N/A
Are valid permits procured for the use of such chemicals and are permits issued subject to any special conditions?	N/A	N/A
Is there any potential soil erosion expected and are there any water bodies in the impacted project/activity area?		X
Are there any large scale vegetational changes expected which might potentially endanger wildlife habitats?		X
In the case of pesticides, how large are the treated areas and are the aquatic systems in danger of being exposed to such treatments?	N/A	N/A
Does the site of a project/activity and the treatments proposed threaten any rare plants, birds or other organisms?		X
Are project/activity sites on any ecological reserves or land of disputed ownership?	X	

**Comments:** Some sampling sites are on Aboriginal reserves or in National or Provincial Parks. Appropriate permits or written permission will be obtained prior to any activity taking place.



## Appendix I. Progress towards 1996 deliverables.

### 1996 ANNUAL SUMMARY: OPERATIONAL FISHERIES AND STREAM INVENTORY

Weldwood of Canada Ltd. (Hinton Division) and Foothills Model Forest - Project #WELD 01-03

by Craig Johnson

17 December 1996

The 1996 Fish and Stream Inventory project (funded through FRIP and administered by the Foothills Model Forest) was a continuation of the Fish and Stream Inventory project initiated in 1995. An inventory project (funded by the Alberta Fisheries Trust Fund - Fish Habitat Development Program) with similar objectives to the FRIP project was also initiated in 1996 through Foothills Model Forest. Both managing agencies (Weldwood of Canada and Alberta Fish and Wildlife) agreed that these projects should be managed as one, as long as the respective objectives were met. As a result, both projects were combined (along with resources). The following is a summary of the work completed during the past field season. The focus for this summary will be for the FRIP proposal.

#### Deliverables from 1996 and progress towards completion

1. *Fishery and aquatic habitat information for use in operation planning and harvest scheduling. This information will also be useful in evaluating the link between management activities within a watershed and fish populations of those streams.*

As in 1995, the priority for inventory locations was determined by Weldwood's AOP. A focus was placed on those streams that may be affected by access development and harvesting.

The 1996 inventory field season began on 4 June and continued through to 24 October, 1996. The field season was terminated because of freeze-up. In 1996, an estimated 500 streams were visited. Of these, 103 streams were sampled. Some of these streams were sampled in more than one location, resulting in 193 sites in 1996. The total number of sites sampled in 1995 and 1996 was 226 (Appendix I). Although most of the sites sampled were in the Embarras Working Circle (67), the inventory locations were divided relatively equally among all of the Working Circles with the exception of the Marlboro Working Circle (Athabasca, 38; Berland, 49; McLeod 63; Marlboro 9). A total of 5351 fish were captured, identified, and measured in 1995 and 1996 (Table 1).

**Table 1.** Fish species and number captured during the 1995 and 1996 inventories.

Species	Number Captured 1995	Number Captured 1996	Number Captured Total
bull trout ( <i>Salvelinus confluentus</i> )	3	154	157
rainbow trout ( <i>Oncorhynchus mykiss</i> )	369	2821	3190
mountain whitefish ( <i>Prosopium williamsoni</i> )	2	21	23
Arctic grayling ( <i>Thymallus arcticus</i> )	0	9	9
brook trout ( <i>Salvelinus fontinalis</i> )	258	985	1243
cutthroat trout ( <i>O. clarki</i> )	0	5	5
other species <sup>1</sup>	88	636	724
<b>Total</b>	<b>720</b>	<b>4631</b>	<b>5351</b>

<sup>1</sup>other species include: burbot (*Lota lota*), northern pike (*Esox lucius*), longnose sucker (*Catostomus catostomus*), white sucker (*C. commersoni*), longnose dace (*Rhinichthys cataractae*), northern redbelly dace (*Phoxinus eos*), finescale dace (*P. neogaeus*), pearl dace (*Margariscus margarita*), trout perch (*Percopsis omiscomaycus*), brook stickleback (*Culaea inconstans*), and spoothead sculpin (*Cottus ricei*)

**2. *Computer database of inventory information including past fisheries studies and inventory linked to the Weldwood GIS.***

The databases developed in 1995 were updated and linked. All of the present inventory sites (1995-96) and all of the historical sites that we have knowledge of have been linked (UTM or digitized) to Weldwood's GIS. All inventory data from 1995 and 1996 have been entered into the database.

**3. *Work with Fish and Wildlife to develop a standard sampling protocol for use by industry, government and consultants in fish and stream inventories within Alberta.***

Work on this objective is continuing with the Alberta Lotic Systems Steering Committee through Alberta Environmental Protection. A recommendation of the committee was the production of a manual that can be used to generate qualitative habitat data with minimal observer bias. This project is being proposed for the summer of 1997 through the Alberta Fisheries Trust Fund, in conjunction with the Foothills Model Forest, Alberta Natural Resources Service, and the Alberta Lotic Systems Steering Committee.

**4. *A standardized database framework linked to and able to share information with similar fisheries databases under development in Peace River and Grande Prairie.***

This deliverable has been satisfied in that both databases contain similar information. It is difficult to develop "standards" for things like databases, sampling protocols, etc. that will be shared by several agencies, as individual agencies often have unique objectives. Different objectives result in different protocols. Such is the case with the "standard" database framework. The inventory database developed by Fish & Wildlife in Peace River exists in Borland dBase format, and contains only 1 table. The Fish and Stream Inventory database exists in Microsoft Access format and contains several tables. The reasons for the differences are simple. Alberta Fish and Wildlife have traditionally used Borland dBase, while the Foothills Model Forest and Weldwood of Canada (Hinton Division) have traditionally used Microsoft Access. None of these organizations were willing to make a change to satisfy the other. Secondly, the database developed by Fish and Wildlife is used only by fisheries staff. The Fish and Stream Inventory database was designed to satisfy several objectives: to fit into a data model under development with the Foothills Model Forest, incorporation of the database into the Watershed Assessment Model by the Watershed Coordinator, to be used by fisheries staff at the Foothills Model Forest, and to be used by staff at Weldwood. Both of the databases were developed with similar, yet different intended uses. The result is similar, but somewhat different database formats.

**5. *Standard inventory reports generated from the database and GIS (maps) on all sampled streams.***

Inventory reports will be produced for each site. These reports will be distributed to Weldwood of Canada (Hinton Division) and Alberta Natural Resources Service (Edson). Maps are being produced which show inventory sites from 1995 and 1996 on both FMA and working circle maps. Also, maps with historical sites will be produced.

**6. *Management recommendations, based on data collected to date, will be prepared for incorporation into the 1998 FMP.***

Discussions regarding recommendations for fish management issues in the 1998 Weldwood FMP have occurred between Gordon Stenhouse and Craig Johnson. The specifics of these recommendations will be finalized between December 1996 and April 1997.

## **Foothills Model Forest/Forest Resource Improvement Program Detailed Proposal**

### **RESEARCH PROJECT**

#### **Grizzly Bear Research Program**

##### **Program Team**

Gord Stenhouse, Chair Yellowhead Ecosystem Carnivore Working Group, Weldwood of Canada Limited  
Jeff Kneteman, Natural Resource Service  
George Mercer, Jasper National Park  
Dan Farr, Foothills Model Forest

##### **Introduction**

Grizzly Bears are a species that requires large tracts of land, with linkages between seasonally important food sources and are viewed as a species of serious management concern in this region. It has been recognized that the FMF area is an appropriate sized land base to consider many of the questions and issues relating to large carnivore management that partners of the FMF are now facing. To this end the FMF is a member of the Yellowhead Ecosystem Carnivore Working Group. This group of land managers and resource users intends to work cooperatively to ensure the long term survival and conservation of grizzly bears in the Yellowhead ecosystem.

To embark on a well thought out and structured research program to try to fill in existing data gaps on grizzly bears in this region is not a simple or straightforward task. All members of the YECWG recognize this and have therefore now prepared a RFP document that has been submitted to identified grizzly bear specialists in order to solicit a proposal to prepare a detailed research proposal that will form the basis of a multiyear, multiagency, cooperative research program in the FMF area.

### **REQUEST FOR PROPOSALS**

#### **GRIZZLY BEAR RESEARCH PROGRAM**

##### **Purpose**

Develop a detailed research proposal which focuses on Grizzly Bear (*Ursus arctos*) population management issues in the Yellowhead Region, of west central Alberta and east central British Columbia.

##### **Background**

The Yellowhead Ecosystem Carnivore Working Group was formed in 1996 and includes representatives from industry and federal and provincial government agencies. The working group is committed to ensuring the long-term survival of carnivores within the Yellowhead region, which encompasses an area of approximately 68,000 km<sup>2</sup>.

The Carnivore Working Group has completed a review of the Status of Carnivores in the Yellowhead Region and has determined that the grizzly bear is the carnivore species of greatest management concern. As a result of this decision the Carnivore Working Group wishes to move forward with a detailed work plan and research proposal on grizzly bears to address the concerns of land managers in this region.

##### **Terms of Reference**

The Yellowhead Ecosystem Carnivore Working Group invites proposals based on the following program direction:

*To investigate the cumulative effects of human pressures and the specific impacts of human activities on grizzly bear populations in this region. Primary focus will be to investigate grizzly bear mortality, movements, and resilience to human caused disturbance, in a cumulative impact framework as these are seen as key elements for future management and conservation efforts for this species. A multi-scale approach is desired which considers a broad regional perspective but also incorporates a number of smaller study*



*areas within the Yellowhead region. These study areas will be located in such a manner as to ensure that regional variation in both grizzly bear ecology and human use patterns will be considered.*

The Yellowhead Carnivore Working Group considers that within an adaptive management framework, a combination of indirect and direct modeling and monitoring techniques will be necessary.

### **Guiding Principles**

1. The contractor should prepare the detailed research proposal with a minimum 5 year program life expectancy, and with the assumption that the program will be initiated in 1998.
2. Utility of existing Cumulative Effects and Friction Models will be assessed, and utilizing data from the field program, changes and enhancements will be made as required. Building, testing and modifying these models will form an integral part of this program
3. Provide methodology and recommendations for the development of targets for landscape conditions and population characteristics recognizing ecological variations within the region. With these targets in mind provide a current status assessment.
4. Field programs need to be initiated to gather information and fill data gaps on grizzly bear:
  - movements and mortality
  - habitat use and availability
  - denning locations and important seasonal habitats
  - female home ranges and recruitment
  - responses to human/industrial activities
  - population status in key management zones
  - gather information to assess and improve existing CEM and Friction models
  - describe and quantify effective habitat, including resiliency to change
5. The contractor will provide a detailed study design for the field program, which will include a full description of all methodologies and techniques envisioned.
6. Provide recommendations and methodologies for ongoing population monitoring within the Yellowhead region.
7. There is a desire to have a number of study areas within the Yellowhead region. These study areas will be located in such a manner as to ensure that regional variation in both grizzly bear ecology and human use patterns will be considered.
8. While the overall research program must integrate the components identified above, it will be desirable to have program components that could be undertaken as discrete subprojects within the overall program framework.
9. It is anticipated that this program will utilize and, if appropriate, build upon the existing Ecological Land Classification database, which has been prepared by the Yellowhead Ecosystem Working Group.
10. Details and estimates of resource requirements to conduct all aspects of the research program should be clearly identified (financial and personnel).
11. The research program should also identify where linkages with current grizzly bear programs would be useful and appropriate.

### **Submission Requirements**

Proposal submissions should include:

1. A statement of the contractors experience and qualification pertinent to the development of this research proposal. Should a project team be utilized to prepare this proposal, detail of the qualifications and experience of this team should be included.
2. Time estimate to complete the preparation of this research proposal.
3. Detailed cost estimate to complete the proposal.
4. Submission deadline DECEMBER 20, 1997
5. Only successful contractor/s will be contacted.
6. Lowest bid may not be accepted.
7. Please provide 7 copies of your bid on submission.

Inquiries on this request for proposals should be directed to:

Gord Stenhouse, Chair Yellowhead Ecosystem Carnivore Working Group 865-8537 (fax 865-8165 or Gordon\_Stenhouse@Weldwood.com).

These proposals will be received and evaluated before the end of 1997 and the carnivore working group will select the contractor to prepare the detailed proposal at this time. It is our intention that the full proposal will take approximately 2-3 months to complete and during this time period we will be endeavoring to have all cooperating partners identify and commit to a funding level for (a minimum of ) the first year of the program. The working and administrative structure of this program will also need to be scoped out in the first few months of 1998. The goal will be to have this program begin the second quarter of 1998.

**Environmental Assessment Screening Form for Projects Related to the Foothills Model Forest**

**Project Title:** Grizzly Bear Research Program

**Prepared by:** Gordon Stenhouse

	Yes	No
Does the project/activity involve a physical, chemical or a biological agent (e.g. fertilizers, pesticides, large scale drainage or soil exposure)?		X
Does a project/activity involve the introduction of a foreign disease, pest or chemical, or a carrier of these?		X
Are any biological control organisms introduced to control pests, disease or weeds (e.g., bacteria, viruses, nematodes and other insect parasites)?		X
Are the chemicals used in the project/activity registered or not?	N/A	N/A
Are valid permits procured for the use of such chemicals and are permits issued subject to any special conditions?	N/A	N/A
Is there any potential soil erosion expected and are there any water bodies in the impacted project/activity area?		X
Are there any large scale vegetational changes expected which might potentially endanger wildlife habitats?		X
In the case of pesticides, how large are the treated areas and are the aquatic systems in danger of being exposed to such treatments?	N/A	N/A
Does the site of a project/activity and the treatments proposed threaten any rare plants, birds or other organisms?		X
Are project/activity sites on any ecological reserves or land of disputed ownership?	X	

**Comments:** Details of this program area are still being developed. This may/may not have some bearing on the above responses in future years.



## **Foothills Model Forest Indicators of Sustainable Forest Management Program**

### **RESEARCH PROJECT**

#### **Program Team**

Foothills Model Forest Executive Committee, General Manager  
Rick Bonar, Weldwood of Canada Limited  
Evelynne Wrangler, Land and Forest Service  
Dick Dempster, Simons, Reid Collins (Consultant)  
Model Forest Partnership

#### **Background and Purpose**

The Model Forest Program of the Canadian Forestry Service (CFS) includes commitments and requirements to:

- enhance sustainable forest management (SFM) at the local level;
- provide acceptable indicators of SFM including measurement and monitoring systems, and reporting mechanisms that can measure performance relative to the model forest's goals and objectives;
- by March 31, 1998, identify indicators, develop measurement methodology, and take initial benchmark measurements.

These requirements are relevant to other partners in the Foothills Model Forest (FMF) because of:

- their commitment to the CFS Model Forest Program;
- indicators will provide a narrowed focus for planning and assessment;
- potential for synergy in achieving outcomes desired by partners.

#### **Relationship between Goals and Indicators**

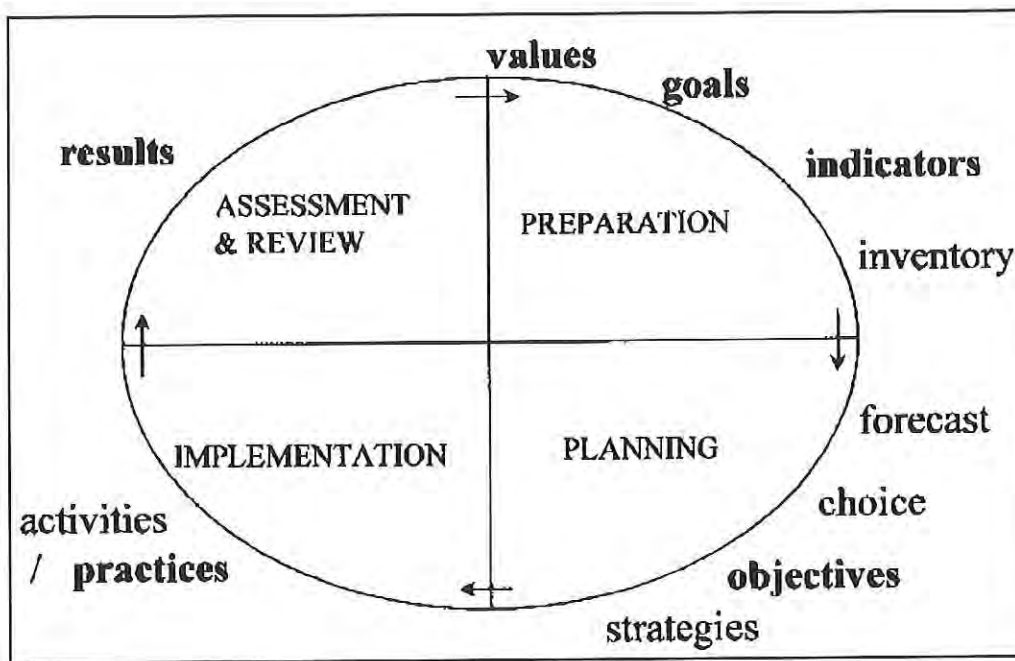
A *goal* in the context of SFM is a broad, general statement that describes a desired state or condition related to one or more forest values (CAN/CSA-Z808-96 - *A Sustainable Forest Management System: Guidance Document*). Too often, goals are stated in a way which is not sufficiently precise to render anyone accountable for their achievement, or which is mathematically and scientifically impossible to achieve. Other CSA definitions recognized by the Committee were:

- *value*: a principle, standard, or quality considered worthwhile or desirable;
- *objective*: a clear, specific statement of expected quantifiable results to be achieved within a defined period of time related to one or more goals; commonly stated as a desired level of an indicator;
- *indicator*: a measurable variable used to report progress toward the achievement of a goal.

The FMF proposes organizing indicators within the criteria categories identified by the Canadian Council of Forest Ministers:

1. conservation of biological diversity;
2. maintenance and enhancement of forest ecosystem condition and productivity;
3. conservation of soil and water resources;
4. forest ecosystem contributions to global ecological cycles;
5. multiple benefits to society;
6. accepting society's responsibility for sustainable development.

Figure 1 illustrates the relationship between goals, indicators and other steps in the SFM process.



**Figure 1.**

The Committee concluded that:

- indicators for SFM of the FMF should be selected to measure performance against agreed goals of the partners;
- indicators logically define what needs to be inventoried and forecast in the planning processes of FMF partners;
- objectives stated in the management plans of partners which apply to the FMF should be expressed as desired levels of indicator variables;
- objectives cannot be defined rationally until indicators are inventoried and forecast.

Goals used as a basis for selecting indicators should be:

- mandated by legislation and / or agreed to by public process;
- fundamental and linked to values, but;
- sufficiently specific to allow identification of indicators;
- common to, or agreed to by, FMF partners.

It was also concluded that some clarification was necessary of “agreed” or “common” goals, and how to define the interest each partner has in a particular goal. The following classification of goals was recognized as useful in this respect:

1. *Owned* goals of a partner are fundamental to the internal values, mandate, mission or charter of the partner organization, and not imposed by external authority or societal values. The partner will normally wish to set indicators and objectives, and to take a lead role in forecasting and monitoring performance against these goals.
2. *Adopted* goals originate externally, but are accepted by, or imposed upon, a partner. The partner will normally wish to agree on indicators of performance, and be willing to modify conflicting objectives and share in the cost of forecasting and monitoring performance.
3. *Recognized* goals are accepted as valid aims of others. However, the partner may be unwilling to modify conflicting objectives, and to incur uncompensated effort in forecasting and monitoring performance.
4. *Disputed* goals are not accepted by the partner as valid aims. The partner will likely contest any activities in pursuit of this goal, but otherwise not willingly participate in monitoring.

Categories 1 and 2 were considered by the Committee to represent *common* goals which should provide the basis for co-operative selection and measurement of indicators by the FMF and its partners.

### **Process and Time Frame for Meeting Program Requirements**

The Committee concluded that the FMF should seek:

- identification and classification of the goals of its partners;
- agreement on appropriate indicators for these goals, in sufficient time to be incorporated into key planning and assessment initiatives.

Key planning and assessment initiative were identified as:

- Weldwood detailed forest management plan;
- Weldwood CSA SFM certification;
- Jasper National Park management plan;
- Crown Forest Unit management plans (E4 and E9);
- status reporting required under federal parks and provincial forest legislation.

It was noted that development of indicators should also be harmonized with work currently being undertaken on cumulative effects, provincial SFM performance assessment, and coal, oil and gas developments.

The following sequence of activities was scheduled:

1. FMF will solicit information on the goals of partner organizations.
2. FMF will hold a workshop in conjunction with the December 15, 1997 Board Meeting to review and classify goals, and assemble a list of goals providing a suitable basis for defining required indicators.
3. Following the December workshop the FMF will solicit suggestions from partners and technical experts for indicators applicable to retained goals.
4. A workshop will be held towards the end of January, 1998 to select appropriate indicators.

This will provide a unified basis for Weldwood and others to proceed with planning initiatives. Ratification of goals and indicators, and development of measurement techniques and data, can then proceed in parallel with these initiatives without delaying them. Identification of indicators, together with appropriate measurement methodologies and assembly of available measurement data, will be completed by March 31, 1998.

### **Budget Allocation**

\$55,000 (\$30,000 FRIP component)



**Environmental Assessment Screening Form for Projects Related to the Foothills Model Forest**

**Project Title:** Indicators of Sustainable Forest Management Research Program

**Prepared by:** Rick Blackwood

	Yes	No
Does the project/activity involve a physical, chemical or a biological agent (e.g. fertilizers, pesticides, large scale drainage or soil exposure)?		X
Does a project/activity involve the introduction of a foreign disease, pest or chemical, or a carrier of these?		X
Are any biological control organisms introduced to control pests, disease or weeds (e.g., bacteria, viruses, nematodes and other insect parasites)?		X
Are the chemicals used in the project/activity registered or not?	N/A	N/A
Are valid permits procured for the use of such chemicals and are permits issued subject to any special conditions?	N/A	N/A
Is there any potential soil erosion expected and are there any water bodies in the impacted project/activity area?		X
Are there any large scale vegetational changes expected which might potentially endanger wildlife habitats?		X
In the case of pesticides, how large are the treated areas and are the aquatic systems in danger of being exposed to such treatments?	N/A	N/A
Does the site of a project/activity and the treatments proposed threaten any rare plants, birds or other organisms?		X
Are project/activity sites on any ecological reserves or land of disputed ownership?	X	

**Comments:** Some sampling sites are on Aboriginal reserves or in National or Provincial Parks. Appropriate permits or written permission will be obtained prior to any activity taking place. No sampling is taking place at this time

**Foothills Model Forest  
Cumulative Effects in the Rocky Mountains and Foothills of Alberta Research Program**

**1997/98 Work Plan**

**November 28, 1997**

**Program Team**

George Mercer, Jasper National Park, Jasper, Alberta, T0E 1E0, george\_mercerg@pch.gc.ca  
Dan Farr, Foothills Model Forest, Hinton, Alberta  
Gord Stenhouse, Weldwood of Canada, Hinton, Alberta Gordon\_Stenhouse@weldwood.com  
Rick Bonar, Weldwood of Canada, Hinton, Alberta Rick\_Bonar@weldwood.com  
Jeff Knetemann, Natural Resources Service, Alberta Environmental Protection, Hinton  
Kirby Smith, Natural Resources Service, Alberta Environmental Protection, Edson ksmith@env.gov.ab.ca  
Don Harrison, Natural Resources Service, Alberta Environmental Protection, Hinton

**Board Sponsors**

Paul Galbraith, Jasper National Park  
Colin Edey, Nova  
Jerry Sunderland, Director, Northern East Slopes Region, Natural Resources Service, Alberta Environmental Protection,

**Technical Review Team**

To be determined.

**Introduction**

The Foothills and Rocky Mountain Natural Regions of Alberta are under increasing pressure from human activities including industrial forestry, oil and gas exploration and development, mining, recreation and tourism. These activities are placing increased demands on the regional ecosystem encompassing the Foothills Model Forest and resulting in potentially significant cumulative effects (BIOS, 1996).

Cumulative effects are considered to be the total effects on a natural system from spatial and temporal perturbations resulting from human activities (Beanlands *et al.* 1986). Cumulative effects assessment is the evaluation of the total effects and must be considered by project proponents and decision-making authorities in the environmental impact review process (Davies 1992).

Within the Foothills Model Forest study area, the need for a cumulative effects assessment capability was identified in the Phase II proposal for the model forest. Model Forest partners are interested in developing a greater understanding of the cumulative effects assessment process and applying it to human activities within the model forest landbase.

Cumulative Effects is seen as an umbrella theme within the Phase II program which could serve to link a number of the ongoing studies in the Natural Disturbance, Caribou, Grizzly Bear, Criteria and Indicators, Socio-economic and Communications programs.

This proposal outlines an approach to quantifying cumulative effects within the Foothills Model Forest. By linking as many of the Phase II projects under the umbrella of Cumulative Effects, we will optimize the opportunity to improve our understanding of the impacts of our combined activities on regional biodiversity and ecosystem health.

This understanding will contribute to the development of regional goals and management objectives. Specifically this work will contribute to the establishment of landscape-level objectives for management of human activities within the Foothills Model Forest Study Area.

## **Program Objectives**

The goal of this work is to provide land managers in the Foothills Model Forest with an improved understanding of the cumulative effects of spatial and temporal perturbations resulting from human activities such as increased recreation and tourism, oil and gas development and industrial forestry.

- Develop a multi-scale and multi-indicator cumulative effects assessment capability for the Foothills Model Forest.
- Ensure linkages exist between other Phase II components and the Cumulative Effects Program.

## **End Results/ Deliverables**

- Workshop and summary report outlining an approach to cumulative effects assessment in the Foothills Model Forest, November 30, 1997.
- Detailed workplan for the remainder of the Phase II Program (1998/9 - 2001/2) which clearly outlines program components, schedules, budgets, responsibilities, March 31, 1998.

## **Study Location**

The study area for this project is the combined landbases of the Foothills Model Forest including Jasper National Park, Willmore Wilderness Park, the Forest Management Agreement area of Weldwood of Canada, and several adjacent Crown Forest Management Units (E4&E9).

## **Methods**

### **1. Data assessment and compilation**

Assemble a complete, seamless, accurate digital map of time-since-fire as of 1995, for the Foothills Model Forest and Jasper National Park.

- Define preliminary age (time-since-fire) classes for the study area, and determine an acceptable
- Level of data accuracy and resolution for each phase of this study.
- Evaluate and compare where possible existing fire history data, forest inventory data, and other
- Historical information available for the study area.
- Evaluate and prioritize gaps in the fire history data, and make a preliminary evaluation of existing
- Data accuracy and resolution. Known gaps include: a) areas where no fire history data are available;
- Fire history data are of insufficient resolution (e.g. lumping of older age classes).
- Fill data gaps as prioritized above, through air photo interpretation, field work, digitizing and
- Appending to existing ArcInfo fire history coverages.
- Assess the accuracy of the time-since-fire map for the entire study area through a field
- verification program.
- Incorporate changes from field verification and other sources where available.

### **2. Phase 1 Research**

Broad-based area analysis using the preliminary time-since-fire distribution by natural region (Rocky Mountains, Foothills) and natural subregion (Subalpine, Montane, Upper and Lower Foothills).

- Area by time-since-fire class (10 or 20 years).
- Estimate historical range of fire frequency for the study area.
- Estimate range of variability in historical age class distribution for the study area.
- Compare estimated historical age class distributions among natural subregions.

### **3. Phase 2 Research**

Analysis of landscape patterns using the time-since-fire map for the study area.

- Size distribution of patches having similar time-since-fire.
- Shape distribution of patches having similar time-since-fire.
- Spatial arrangement (dispersion/ contagion/ connectivity) of patches having similar time-since-fire.
- Compare size, shape, and spatial arrangement of patches among natural subregions.

## **Links to Other Foothills Model Forest Activities**

This project is linked to another disturbance project the Foothills Model Forest, "Ecosystem Response to Disturbance at the Stand Scale". An evaluation of landscape disturbance processes and patterns will also link with development of a regional ecological land classification and will provide the foundation to address



regional resource management issues and extend existing and proposed Foothills Model Forest projects to a larger area.

**Environmental Assessment Screening Form for Projects Related to the Foothills Model Forest**

**Project Title: Cumulative Effects in the Rocky Mountains and Foothills of Alberta**

**Prepared by: George Mercer**

	<b>Yes</b>	<b>No</b>
Does the project/activity involve a physical, chemical or a biological agent (e.g. fertilizers, pesticides, large scale drainage or soil exposure)?		X
Does a project/activity involve the introduction of a foreign disease, pest or chemical, or a carrier of these?		X
Are any biological control organisms introduced to control pests, disease or weeds (e.g., bacteria, viruses, nematodes and other insect parasites)?		X
Are the chemicals used in the project/activity registered or not?	N/A	N/A
Are valid permits procured for the use of such chemicals and are permits issued subject to any special conditions?	N/A	N/A
Is there any potential soil erosion expected and are there any water bodies in the impacted project/activity area?		X
Are there any large scale vegetational changes expected which might potentially endanger wildlife habitats?		X
In the case of pesticides, how large are the treated areas and are the aquatic systems in danger of being exposed to such treatments?	N/A	N/A
Does the site of a project/activity and the treatments proposed threaten any rare plants, birds or other organisms?		X
Are project/activity sites on any ecological reserves or land of disputed ownership?	X	

**Comments:** Project still under development.

**Foothills Model Forest  
Technology Transfer Opportunity Development/Partner and Network Management**

**1997/98 Work Plan**

**August 25, 1997**

**Project Leader**

Ross Risvold, Chairman of the Board, Mayor of Hinton, Director (ETC)

**Activity Team Members**

Rick Blackwood, Foothills Model Forest

Bob Udell, Weldwood of Canada

Bill Bresnahan, Environmental Training Centre, Outdoor Safety/Environmental Programs

Terry Van Nest, Environmental Training Centre, Fire Management Group

Jim Friesen, Environmental Training Centre, Alberta Forest Management Training Group

Possibility of others under the umbrella of ETC

**Introduction**

The Foothills Model Forest is founded on the concept of partnership building. The intent of this partnership exercise is to bring together the many diverse stakeholder groups that use our forests to better understand their issues and concerns as we develop management plans that support the concept of sustainability. The understanding of these complex issues and development of plans and activities that would find their way "on-the-ground" was identified as a key program element in the Foothills Model Forest (FMF) Phase II Proposal. The program outlined in this work plan is designed to foster ongoing research, communication and implementation initiatives that are consistent with both the 1997 FMF Phase II Proposal, and the 1996 Proposal Guidelines for Phase II of Canada's Model Forest Program. This is a collaborative program involving various levels of government and industry and builds on partnerships developed throughout Phase I of the Model Forest program.

**Program Objective**

The objective of the Technology Transfer Opportunity Development/Partner and Network Management program is to investigate areas where results from research done on the Model Forest landbase can be transferred and applied in other settings. It is also designed to allow for the continual investigation of new partnership opportunities with groups and organizations who may have common goals, interests, and objectives with those of the Foothills Model Forest and its current partnership.

**Relationship to FMF Phase II Proposal**

1. The goal of the FMF Technology Transfer Opportunity Development/Partner and Network Management program element is linked to the goal to "*Integrate a broad range of forest uses into a sustainable forest management framework*" (FMF Phase II Proposal, p. 25). It is also complementary to another goal in the program, that being to "*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*", again as outlined in the FMF Phase II Proposal (p. 26).

**This Work Plan**

The format of the remainder of this work plan follows the specifications of the Forest Resource Improvement Fund *Interpretation of Program Details*.



**Forest Resource Improvement Program/Foothills Model Forest  
Detailed Proposal**

**i) EXECUTIVE SUMMARY FORM**

**Project Title**

Technology Transfer Opportunity Development/Partner and Network Management

**Project Location**

Throughout the Foothills Model Forest  
Outside of the Model Forest with various stakeholder groups

**Name of Company**

Foothills Model Forest Sponsors and Partners

**Other Companies Involved**

To be determined as a part of the program itself

**Duration of Project Being Proposed**

January 1997 – March, 2002

**Cost of the Project Being Proposed**

\$12,000 per annum, possibly augmented with additional ETC funds

**Consent of other Companies Involved**

Signature page at the end of this application.

**Contact Person for this FRIP/Foothills Model Forest proposal**

Ross Risvold, Director, Environmental Training Centre

## Forest Resource Improvement Program/Foothills Model Forest Detailed Proposal

### RESEARCH PROJECT

#### Technology Transfer Opportunity Development/Partner and Network Management

##### 1. Proposal Prepared By:

Ross Risvold (ph 865-8206), on behalf of the Foothills Model Forest Technology Transfer Opportunity Development/Partner and Network Management Team:

- Ross Risvold, Director, Environmental Training Centre, Mayor of Hinton
- Rick Blackwood, Foothills Model Forest
- Bob Udell, Weldwood of Canada
- Bill Bresnahan, Environmental Training Centre, Outdoor Safety/Environmental Programs
- Terry Van Nest, Environmental Training Centre, Fire Management Group
- Jim Friesen, Environmental Training Centre, Alberta Forest Management Training Group

##### 2. Introduction

The Foothills Model Forest is founded on the concept of partnership building. The intent of this partnership exercise is to bring together the many diverse stakeholder groups that use our forests to better understand their issues and concerns as we develop management plans that support the concept of sustainability. The understanding of these complex issues and development of plans and activities that would find their way "on-the-ground" was identified as a key program element in the Foothills Model Forest (FMF) Phase II Proposal. The program outlined in this work plan is designed to foster ongoing research, communication and implementation initiatives that are consistent with both the 1997 FMF Phase II Proposal, and the 1996 Proposal Guidelines for Phase II of Canada's Model Forest Program. This is a collaborative program involving various levels of government and industry and builds on partnerships developed throughout Phase I of the Model Forest program.

##### 3. Background Information

*"The purpose of the final step in the strategic planning process is to develop a clear and succinct description of what the organization or community should look like as it successfully implements its strategies and achieves its full potential. This description should be the organization's vision of success."*

**Strategic Planning for Organizations  
Bryson, 1990**

The key words in the above quotation from Bryson, in the mind of the Foothills Model Forest partnership, are clear and succinct. Our vision statement does reflect the uniqueness of the landbase and its people by describing itself as "a unique community of partners." Throughout Phase I of the Model Forest program, the Foothills Model Forest continued to build upon its relationships with its partners to foster and appreciation for the various viewpoints and concerns held by each. As time progressed, it became more and more apparent that many of our partners had very similar land use issues and ideals but because many of them had supposedly "different" objectives in mind, they had not spent much time or effort in looking at the possibilities of working together to solve common problems. Our efforts have led to partnerships that some would consider to involve "strange bedfellows" or, as we have called it, "a unique community of partners" that represent the diversity of interests found throughout our region.

*"The achievements of this Program (Partnership) constitute a real success story of the Foothills Model Forest Agreement. In pursuit of a visionary ideal of sustainable development, some seventy-three (73) partners supported the original proposal for the establishment of the Foothills Model Forest. Some of these original supporters are still at the table, others have become inactive whereas new supporters are participating in the program activities of the Foothills Model Forest."*

*Major accomplishments of this Initiative are the inclusion of Jasper National Park in the Foothills Model Forest and the contributions of the Yellowhead Ecological (Ecosystem) Working Group to landscape management and planning. While opportunities exist for the expansion of partnerships, this Program*

*has undoubtedly achieved its objectives and has therefore contributed to the attainment of those of the Agreement”.*

**Final Evaluation of the Foothills Model Forest Agreement  
Hugh Walker Consulting Enterprises Ltd., 1996**

The Foothills Model Forest's vision also refers to the dedication that our partnership has in providing practical solutions for stewardship and sustainability of our forest lands. Dr. King's definition of a vision states that it should be positive, tap important values, and get those involved something they desire. Our partnership is committed to the concept of sustainability and stewardship of forest lands. This desire is certainly positive, reflects important values held by all, and, once achieved, will provide not only our partnership, but all Albertan's and Canadians with something that they desire - sustainable forests for future generations.

**4. Research Objectives**

The objectives for this project area are quite simple and include:

1. exploring avenues for the timely dissemination of information developed as a part of the Foothills Model Forest program,
2. linking work done by the Foothills Model Forest to other initiatives in technology transfer and development being carried out by partners of the Foothills Model Forest, and;
3. to continue to foster our relationship with current partners and to investigate the possibilities of new partnership development from the various sectors involved in our program.

**5. Potential Application of Results**

The application of results from this program area will again lie with the various resource management agencies involved in our program. The Foothills Model Forest will monitor various initiatives carried out by sponsors as a way of evaluating the application of information developed here.

**6. Deliverables**

Deliverables for this program area will be somewhat different from those found in pure or applied research programs. The outcome of this program can and will be judged by the ability to maintain and, where possible, enhance our current list of partners and programs.

**7. Research Methods and Design**

Again, as this program area does not fall under the usual category of pure or applied research, the use of a tried and tested science-based methodology does not apply. Work in this area will consist of ongoing personal contact and investigation of opportunities through continuous exchange of information and dialogue.

**8. Research Schedule**

Ongoing throughout the term of the program.

**9. Site Information**

Throughout the Foothills Model Forest  
Outside of the Model Forest with various stakeholder groups

**10. Financial Information by Cost Categories**

As per overall budget.

**11. References**

Not applicable.

**12. Scientific Review**

Not applicable. Endorsed by the Board of Directors of the Program.

**13. Improvements to the Forest Resource**

See introduction.



- 14. Amount of Money Requested from FRIP/FMF**  
\$12,000 per annum.
- 15. Proposed Payment Schedule for FRIP/FMF Monies**  
Paid annually through contribution account
- 16. Subcontracted work**  
As needed and determined by Activity Team
- 17. Project Management**
- Ross Risvold, Chairman of the Board, Mayor of Hinton, Director (ETC)
  
  - **Activity Team Members**
  - Rick Blackwood, Foothills Model Forest
  - Bob Udell, Weldwood of Canada
  - Bill Bresnahan, Environmental Training Centre, Outdoor Safety/Environmental Programs
  - Terry Van Nest, Environmental Training Centre, Fire Management Group
  - Jim Friesen, Environmental Training Centre, Alberta Forest Management Training Group
- 18. Additional Companies Requesting FRIP Monies**  
Not applicable
- 19. Publication of Results for General Consumption**  
Details of progress made will be detailed in annual reports as required under the terms of our contribution agreement.
- 20. Other Relevant Information**  
None.

**Signature Page / Project Team Approval**

**Foothills Model Forest Technology Transfer Opportunity Development/Partner and Network Management**

The undersigned support the 1997/98 Foothills Model Forest Technology Transfer Opportunity Development/Partner and Network Management, as outlined in the attached Work Plan.

\_\_\_\_\_  
Ross Risvold, Director, ETC

\_\_\_\_\_  
Date

\_\_\_\_\_  
Rick Blackwood, Foothills Model Forest

\_\_\_\_\_  
Date

\_\_\_\_\_  
Bob Udell, Weldwood of Canada

\_\_\_\_\_  
Date

**Environmental Assessment Screening Form for Projects Related to the Foothills Model Forest**

**Project Title:** Technology Transfer Opportunity Development/Partner and Network Management

**Prepared by:** Ross Risvold

	<b>Yes</b>	<b>No</b>
Does the project/activity involve a physical, chemical or a biological agent (e.g. fertilizers, pesticides, large scale drainage or soil exposure)?		X
Does a project/activity involve the introduction of a foreign disease, pest or chemical, or a carrier of these?		X
Are any biological control organisms introduced to control pests, disease or weeds (e.g., bacteria, viruses, nematodes and other insect parasites)?		X
Are the chemicals used in the project/activity registered or not?	N/A	N/A
Are valid permits procured for the use of such chemicals and are permits issued subject to any special conditions?	N/A	N/A
Is there any potential soil erosion expected and are there any water bodies in the impacted project/activity area?		X
Are there any large scale vegetational changes expected which might potentially endanger wildlife habitats?		X
In the case of pesticides, how large are the treated areas and are the aquatic systems in danger of being exposed to such treatments?	N/A	N/A
Does the site of a project/activity and the treatments proposed threaten any rare plants, birds or other organisms?		X
Are project/activity sites on any ecological reserves or land of disputed ownership?	X	

**Comments:** None.



## **Foothills Model Forest/Forest Resource Improvement Program Socio-Economic Research Program**

### **1997/98 Workplan**

**28 November 1997**

#### **Program Team**

Tom Beckley, Canadian Forest Service  
Bill White, Canadian Forest Service  
Peter Boxall, Canadian Forest Service  
Bonita McFarlane, Canadian Forest Service  
Janaki Alavalapati, Foothills Model Forest  
Dieter Khunke, Canadian Forest Service  
Mandy Fisher, Canadian Forest Service  
Adam Wellstead, Foothills Model Forest  
John Parkins, Foothills Model Forest

#### **Introduction**

The five year Socio-Economic Research Program for the Foothills Model Forest is comprised of three research projects; socio-economic impact analysis; public involvement, attitudes, values, and decision-making; and non-timber valuation. These projects are comprised of individual studies many of which have connections to studies from other projects.

#### **Program Objective**

The objectives of the socio-economic program are; 1) to describe existing socio-economic conditions; 2) to describe past trends for in selected socio-economic indicators; and 3) create models of impacts of projected future change. The impact models will use realistic policy scenarios, physical changes in natural resource attributes, and commodity prices as independent variables. Socio-demographic and economic variables related to consumer, forest user and community residents behaviour will be used as independent variables. The overall intent is to provide managers with information on how future actions and decisions might effect the sustainability of the communities of the Foothills Model Forest, as well as how actions and decisions taken in the Model Forest might effect non-local forest stakeholders.

#### **Relationship to FMF Phase II Proposal**

The goals of the FMF for Phase II include the utilization of leading edge socio-economic methods for generating data and models related to natural resource planning, decision-making, and use. Specific objectives include

1. to continue development of leading edge economic models that incorporate a wide range of economic drivers for use in resource management planning and decision-making.
2. to develop social and economic indicators that are relevant to the Foothills Model Forest region that are in step with the CCFM Criteria and Indicators document.
3. to link with other initiatives in this area being carried out by the Model Forest Network, Network Centres of Excellence, etc. (p. 27)

All these objectives will be extended in the 1998/99 budget year. Economic models are undergoing further revision and refinement. The Foothills socio-economic team includes three CFS staff members who are charged with leading or contributing to CCFM criteria and indicator reporting. Socio-economic team members also have strong connections to the NCE, including several joint projects that incorporate FMF projects into provincial and national studies. As well, the socio-economic team has established a connection with the Model Forest Network and is likely to extend some of the research protocols developed in the FMF to several other model forests.

# **Foothills Model Forest/Forest Resource Improvement Program Detailed Proposal**

## **RESEARCH PROJECT**

### **1. Proposal prepared by**

Tom Beckley, Canadian Forest Service  
Bill White, Canadian Forest Service  
Peter Boxall, Canadian Forest Service  
Bonita McFarlane, Canadian Forest Service

### **2. Introduction**

The Foothills Model Forest initiated a socio-economic research program in 1995. A tremendous amount of primary and secondary data were collected and some analysis was done in the later years of phase I. However, due to the late start of the program, and the reluctance of some partners to share data with our research team, final deliverables from Phase I were delayed. In 1997/98 several of these deliverables were completed. As well, much of the research program proposed for Phase II entails extensions and continuations of projects and specific studies initiated in Phase I. A few new studies are proposed from within the socio-economics research theme. Additional studies may emerge as the need dictates. The potential for linkages with ecological and cumulative effects research streams are high. This program already has significant linkages with the NCE, and additional links are being planned for the coming fiscal year. One will involve developing a model that integrates wildlife habitat, timber harvest scheduling and non-timber values (See separate proposal by Beck, Adamowicz and Boxall).

This proposal for the budget year 1997/98 maintains some research in each of the three research projects identified in our initial Phase II proposal:

- Socio-Economic Impact Analysis
- Public Involvement, Attitudes, Values and Decision-Making
- Non-Timber Values

### **3.0 Background Information**

#### **3.1 Socio-economic impact analysis**

##### **3.1.1 Economic impacts of resource sectors on the Foothills regional economy**

This study investigates economic impacts of activities related to forestry, oil and gas and tourism sectors on the economy of the Foothills Model Forest region. We will examine the economy-wide impacts of changes in resource management and institutional and environmental regulations on the use of forest land. Specifically, we will focus on employment and household income effects in the Foothills region and the rest of the province. Investigation of these issues requires the collection of primary data. Therefore, economic data for forestry, oil and gas, tourism, and other sectors of the Foothills region is being collected.

##### **3.1.2 Economic Importance of Tourism in the Foothills Model Forest**

During the past year we have conducted an exhaustive search of secondary data sources of visitors/tourists and their role in the regional, provincial and national economies. From these sources we have been able to derive an estimate of the total value of visitor expenditures in the FMF. The expenditures have been broken down by visitor type i.e. tourists, non-destination travellers, tour groups, crews, campers, conventions and other special events and hunters and by type of expenditure i.e. gas, food, hotel, retail etc. A draft report will be completed by March 31, 1998. During the next fiscal year we will review and refine the data where the greatest need exists. This will be accomplished, in part, by contacting area businesses to substantiate our existing data set. Existing employment data on the tourism sector is particularly weak. Research will be conducted to determine levels of employment and wages that can be traced to the visitor/tourism sector.

##### **3.1.3 Indicators of community sustainability**

This project will evaluate qualitative and quantitative indicators of community sustainability. It will be linked with the general population survey (see below) and a larger NCE project for which Dr. Beckley is the principle investigator. That project is entering its fourth and final year. Total budget for the

larger project is \$120,000. It entails analysis of a national database on timber dependent communities, as well as a series of case studies of forest-dependent communities. The communities have been chosen to represent tourism dependent, subsistence dependent, timber dependent and diversified forest communities. Jasper will be classified as tourism dependent, and Hinton as diversified (between timber and other industrial sectors). The primary activity in this fiscal year will be the delivery of a final report and individual indicator reports that combine secondary, quantitative data with primary interview data about the indicators. We will also ask questions on these indicators to (at least) the local respondents (Foothills residents) of the general population survey. The indicators we are examining are employment, poverty rate, income and income distribution, population stability, real estate values, percent of income from transfer payments, and education.

### **3.2 Public Involvement, Attitudes, Values and Decision-Making**

#### **3.2.1 Sustainable Development of Natural Resources: Quantitative Measures of Local and Provincial Attitudes and Values**

The goal of this study is to understand the attitudes and values that Albertans hold towards the use of public forested land in the model forest. The emphasis is on a comparative analysis of attitudes and knowledge of local and non-local residents and an examination of feasible combinations of land use activities. In the next fiscal year we intend to do one large random sample survey (sample size approximately 2000). We will over-sample within the model forest area so that we can make extensive comparisons between local and non-local residents. We will also make more general rural/urban comparisons. The large sample size will also allow us to make comparisons on the basis of gender, age, occupation (within broad categories), and education levels. The survey will question respondents about their knowledge of resource management, where they obtain information about natural resource issues, whether they visit the model forest, and for what activities. As well, we will survey respondents on a range of management preferences. These questions will be based on the attitudes scales developed in the hunter and camper surveys. Subsequent surveys (in following years) will introduce more sophistication in presenting respondents with choices of favoured forest attributes or management foci. The goal is to ultimately develop models that predict how certain segments of society will react (attitudinally and behaviourally) to possible management scenarios. This initial survey will give us a good background on attitudes and values toward resources and resource management in the region. Given the large sample size, and its wide distribution, there is the potential to link with the communications coordinator for the Foothills Model Forest to include a few questions on awareness and/or approval of the Model Forest.

### **3.3 Non-Timber Values**

#### **3.3.1 Recreational user models**

For the past two years CFS-SERN has been conducting research on recreation in the Model Forest. This has involved on-site interviews, a series of two mail surveys, some focus group sessions, the development of attitudinal scales, development of GIS tools, the development of a preliminary camping DSS, and some preliminary economic valuation models. The elements that require completion will enable sophisticated technology transfer and will clean up some loose ends. In this module we propose that:

- the development of the camping DSS continue so that some additional enhancements be incorporated. These were discussed at a workshop in Hinton in November.
- we complete the analysis of provincial level trend data we have gathered on recreation use. This will facilitate linkages with our recreation site choice models and allow some major recreational uses to be considered in the examination of future cumulative effects of recreational use.
- we finish analysis of models of the economic valuation of recreation for incorporation into the socioeconomic impact model.

#### **3.3.2 The Value of Wilderness and Wilderness User Preferences**

The goal of this project is to determine social and economic values (use and non-use values) of wilderness, user attitudes and preferences, and the importance of wilderness in the FMF. A gap analysis of existing information was conducted in 1997 and revealed this information currently does not exist for the FMF and indeed, very little socio-economic data on wilderness exists in Canada. This study will focus on backcountry users in Jasper National Park and Willmore Wilderness. Whenever possible



existing information such as backcountry registration permit data in JNP will be utilized. Other users such as random campers in the Weldwood FMA and off-highway vehicle users will be included. The gap analysis suggests that primary data collection will be necessary in order to get information on wilderness values and user preferences. The study will determine the levels and distribution of use and the value of random and wilderness activities and recreation and forest management preferences and will identify socio-economic indicators of wilderness at the local level. This project is linked directly with the Criteria and Indicators proposal "Indicators of the Benefits of Wilderness ..." submitted to the Model Forest Network. It will be an on-going project for approximately 3 years.

#### **4.0 Research Objectives**

##### **4.1 Socio-economic impact analysis**

Resource managers and policy makers require information on the economic and social implications of the decisions that they make and of the changes over which they do not have control such as price changes, land withdrawals and changes in consumer preferences. The goals of this research are:

##### **4.1.1 Economic impacts of resource sectors (including tourism) on the Foothills regional economy**

- to model the impacts of resource policies and other macroeconomic variables on the regional economy including distributional consequences. The modeling incorporates the expenditure data collected in Phase I.

##### **4.1.2 Economic Importance of Tourism in the Foothills Model Forest**

- to refine the data set on the tourism sectors through meeting with local firms and the collection of primary data on employment.
- to incorporate into existing models environmental-economic interactions including impacts associated with the tourism sector.

##### **4.1.3 Indicators of community sustainability**

- to develop and test indicators of community sustainability.

#### **4.2 Public Involvement, Attitudes, Values and Decision-Making**

##### **4.2.1 Sustainable Development of Natural Resources: Quantitative Measures of Local and Provincial Attitudes and Values**

The public is demanding more input to natural resource decision-making. Natural resource managers face the predicament of trying to accommodate this demand in the face of declining resources. The goal of this research area in 1998/99 is:

- to employ survey research to assess the attitudes and values of a broad range of local and non-local stakeholders of the Foothills Model Forest.

#### **4.3 Non-Timber Values**

There is a need to more fully understand non-timber values in forest management. The goals of this research element are:

##### **4.3.1 Recreation User Models**

- To refine and enhance the camping DSS developed in earlier studies
- To examine camping, hunting, and wilderness use trends and socioeconomic and environmental factors influencing trends

##### **4.3.2 The Value of Wilderness and Wilderness Use Preferences**

- To identify information gaps in wilderness values applicable to the Foothills Model Forest
- To determine use and non-use values of wilderness in the Foothills Model Forest
- Determine wilderness users attitudes and preferences for natural resource management
- Develop mechanisms that allow periodic measurement of socioeconomic indicators of wilderness values and allow assessment through Criteria and Indicators

#### **5.0 Deliverables**

##### **5.1 Socio-economic impact analysis**

##### **5.1.1 Economic impacts of resource sectors on the Foothills regional economy**

- a report describing the economic impacts associated with changes in resource policies and macroeconomic variables. The policies and variables will be chosen in conjunction with FMF.
- a report examining the distributional consequences of proposed policy changes.

### **5.1.2 Economic Importance of Tourism in the Foothills Model Forest**

- a report describing the structure and economic importance of the tourism sector of the FMF.
- an impact assessment model which specifically incorporates the tourism sector.
- a socio-economic impact assessment report incorporating environmental-economic interactions.

### **5.1.3 Indicators of community sustainability**

- a report detailing local indicators of community sustainability (for Jasper and Hinton).
- individual indicator reports on education, poverty, real estate values, income and income distribution, employment, local demographics (including stability), and transfer payments.

## **5.2 Public Involvement, Attitudes, Values and Decision-Making**

### **5.2.1 Sustainable Development of Natural Resources: Quantitative Measures of Local and Provincial Attitudes and Values**

- We will provide a summary report from the survey that will feature comparisons of attitudes and values of local and non-local stakeholders toward resource management issues.

## **5.3 Non-Timber Values**

### **5.3.1 Recreation User Models**

- Computer based DSSs of recreation which provide spatial distribution of recreation activities in relation to industrial activities and modification of existing and potential recreation developments
- The possible development of a data collection system to enhance the information collected from parks and provincial recreation areas will be explored. This will provide a standardized platform for measuring recreation use in the model forest. From this platform and trend data statistical models that project demand for recreational activities and examine factors influencing demand, such as fees, regulations, macro-economic (e.g., inflation), socioeconomic, and the supply of biophysical variables (e.g., trails, number of campsites, etc.), will be developed.

### **5.3.2 The Value of Wilderness and Wilderness User Preferences**

- A report on information gaps of wilderness use and preferences
- An interim report on the levels and distribution of use and value of random and wilderness activities and preferences and attitudes of wilderness users

## **6.0 Research Methods and Design**

### **6.1 Socio-economic impact analysis**

#### **6.1.1 Economic impacts of resource sectors on the Foothills regional economy**

Data on social accounts will be collected from the Statistics Canada's sources. Additional data on tourism and other resource sectors will be applied from different sources. This requires cooperation of corporate managers, field managers, and government officials. The main task will be building a model to estimate economic impacts of resource sectors to the Foothills region. A user friendly interface or DSS will be developed.

#### **6.1.2 Economic Importance of Tourism in the Foothills Model Forest**

- Review existing data sets to determine weakest links.
- Review results with businesses and other key organizations in the FMF to substantiate results and determine possible areas for improvement.
- Seek peer reviews of the draft report.
- Determine methodologies for refining the data set and refine as required.
- Estimate employment, salaries and wages of the visitor/tourism sector.
- Estimate the economic importance of the visitor/tourism and complete a final report.

#### **6.1.3 Indicators of community sustainability**

Over 100 face to face interviews have been completed and transcribed and entered into a NUD\*IST data base (a qualitative data analysis program). As well, secondary data from Statistics Canada and a

variety of local sources has been collected. Raw numbers from these secondary, quantitative sources have been converted into easily readable Harvard Graphics charts and graphs. The final report and individual indicator reports will combine the narrative, qualitative data with the secondary data to give a full accounting of objective and subjective aspects of the chosen indicators.

## **6.2 Public Involvement, Attitudes, Values and Decision-Making**

### **6.2.1 Sustainable Development of Natural Resources: Quantitative Measures of Local and Provincial Attitudes and Values**

During 1998/99 we will develop a final survey instrument for the large random sample survey. A sampling frame will be selected and in the fall the survey will be administered using Dillman's Total Design Method. Once data is gathered it will be coded and entered into a computer database for analysis.

## **6.3 Non-Timber Values**

### **6.3.1 Recreation User Models**

- Completing the DSS will require some programming and meetings with partners to fine tune the final platform
- Collect existing data on camping and hunting trends from the provincial government
- Conduct econometric analyses on trend data

### **6.3.2 The Values of Wilderness and Wilderness User Preferences**

- Collect existing backcountry registration data from Jasper National Park
- Develop travel cost models for valuing wilderness use
- Surveys (onsite and mail) and focus groups will be used to collect attitude and preference data from wilderness users

## **7.0 Research Schedule**

### **7.1 Socio-economic impact analysis**

#### **7.1.1 Economic impacts of resource sectors on the Foothills regional economy**

- Social account data collection from March 1998 to September 1998.
- Data tabulation and description October 1998 to November 1998
- Model calibration, analysis, and report preparation December 1998 to March 1999.

#### **7.1.2 Economic Importance of Tourism in the Foothills Model Forest**

- Review and seek input on existing data March to June
- Interviews with FMF businesses and other organizations June to September
- Analysis of employment, refining of data sets and final report October to March

#### **7.1.3 Indicators of community sustainability**

- Individual indicators reports - September 1998
- Final indicator report - December 1998

## **7.2 Public Involvement, Attitudes, Values and Decision-Making**

### **7.2.1 Sustainable Development of Natural Resources: Quantitative Measures of Local and Provincial Attitudes and Values**

- Finalize survey instruments - May 1998
- Select sample frames - May 1998
- Administer surveys using the Dillman method - September, October 1998
- Code and enter data - November, December 1998
- Preliminary analysis and report - March 1999

## **7.3 Non-Timber Values**

### **7.3.1 Recreational user models**

- All elements to be completed by March 31 1999

### **7.3.2 The Value of Wilderness and Wilderness User Preferences**

- Identify information gaps on wilderness use and values: ongoing to March 1998
- Obtain existing data bases, develop survey instruments: April/May 1998
- Administer surveys, hold focus groups: June - Oct. 1998
- Examine and test socio-economic indicators of wilderness: June - March 1999
- Data entry, analysis, and interim report: Nov. - March 1999

### **8. Site Information**

Primary data collection will occur in Jasper National Park, the Weldwood FMA, Hinton, Jasper townsite, and the Willmore Wilderness Area.

### **9. Financial Information by Cost Categories**

### **10. References**

None

### **11. Scientific Review**

### **12. Improvements to the Forest Resource**

This research will lead to the improvement of the forest resource by providing a better understanding the needs and interests and behaviour of the users of that forest. Our hope is that the work will inform resource management decisions such that net social welfare (benefits to society) from the forest can be increased while at the same time maintain or improving forest health and ecosystem integrity. Our efforts this fiscal year will focus on some key areas where little is known about major forest user groups

The economics of the tourism industry is not well understood. Its impact is claimed to be understated by its proponents and overstated by its detractors as an economic force on which an economy might rely. An objective modeling of the sector will be a valuable source of information to land base managers. Understanding the potential impacts of new developments and policy and price changes on industry and local citizens and businesses will assist resource managers in making informed decisions within the region. This information will also help decision makers outside the region understand the potential economic and social impacts of their decisions. Indicators of community sustainability will provide resource managers with benchmarks with which they can track progress toward community sustainability and well-being. It will also provide means to compare Foothills communities with other resource-dependent communities across Canada.

One of the problems that natural resource managers have in incorporating public values into decision-making is that they do not have experience in mechanisms for gauging public attitudes and values. Very little is legally required of most resource development activities with respect to public involvement. It is not uncommon for resource managers to be in full compliance with the law with respect to public involvement, but resource development may still face considerable opposition from some segment of the public. Survey research can be conceptualized as an alternative form of public involvement. It is a tool for gauging what stream of benefits a wide range of stakeholders desire from a given land base. Only through knowing what the demands are for all forest resources, can we make decisions on how to allocate forests to maximize net social benefits. This research will also document the range and distribution of attitudes and values toward key resource management issues both locally and across the province. This will highlight differences and similarities between and within the Foothills Model Forest, and within and between residents of the Province of Alberta.

One problem in natural resource management has been the measurement and incorporation of non-timber values into management plans. This research will address these deficiencies by providing an assessment of the demand for non-timber services provided by the land base, a more comprehensive understanding of these benefits, and their distribution among relevant stakeholders. This research will benefit managers by providing input into the reduction of current and potential conflicts between forest users and industry and between different types of forest users and in the design of regulations and opportunities regarding recreational land use. It will assist in the design of industrial activities to minimize the impact on non-



timber values and link non-timber use with biophysical inventories e.g., supply of moose habitat and recreational resources.

**13. Amount of Money Requested from FRIP**

Amount requested from the Foothills Model Forest \$235,000

**14. Proposed Payment Schedule of FRIP Monies**

**15. Subcontracted Work**

**16. Project Management**

The Foothills socio-economic program is managed by a project team consisting of

- Bill White, Canadian Forest Service
- Tom Beckley, Canadian Forest Service
- Peter Boxall, Canadian Forest Service

**17. Additional Companies Requesting FRIP Monies**

None

**18. Publication of Results for General Consumption**

Deliverables from this research program will include both technical reports to the Foothills Model Forest and articles submitted for peer review in scientific journals. We are committed to making this information available to a broad audience and welcome collaboration with Foothills Communications staff to facilitate wide distribution of this research.

**19. Other Relevant Information**

None

**Environmental Assessment Screening Form for Projects Related to the Foothills Model Forest**

**Project Title:** Socioeconomic Research Program

**Prepared by:** Tom Beckley

	Yes	No
Does the project/activity involve a physical, chemical or a biological agent (e.g. fertilizers, pesticides, large scale drainage or soil exposure)?		X
Does a project/activity involve the introduction of a foreign disease, pest or chemical, or a carrier of these?		X
Are any biological control organisms introduced to control pests, disease or weeds (e.g., bacteria, viruses, nematodes and other insect parasites)?		X
Are the chemicals used in the project/activity registered or not?	N/A	N/A
Are valid permits procured for the use of such chemicals and are permits issued subject to any special conditions?	N/A	N/A
Is there any potential soil erosion expected and are there any water bodies in the impacted project/activity area?		X
Are there any large scale vegetational changes expected which might potentially endanger wildlife habitats?		X
In the case of pesticides, how large are the treated areas and are the aquatic systems in danger of being exposed to such treatments?	N/A	N/A
Does the site of a project/activity and the treatments proposed threaten any rare plants, birds or other organisms?		X
Are project/activity sites on any ecological reserves or land of disputed ownership?	X	

**Comments:** None.

## **Foothills Model Forest/Forest Resource Improvement Program Public Affairs and Communications Program**

### **1997/1998 Work Plan**

**April 30, 1997**

#### **Program Team**

Hilary McMeekin, Foothills Model Forest  
Mike Voisin, Weldwood of Canada Limited  
Jeff Anderson, Jasper National Park  
Gina Zsombor, Alberta Environmental Protection  
Bob Newstead, Canadian Forest Service

#### **Introduction**

The Foothills Model Forest (FMF) Public Affairs and Communications Program was identified as a key program element in the Foothills Model Forest Phase II Proposal. It was also identified as a key program element in the 1996 Proposal Guidelines for Phase II of Canada's Model Forest Program. The FMF Public Affairs and Communications Program has undergone significant changes over the past 10 months. A communications strategy, designed to reflect and learn from research conducted in the spring of 1996, has been completed and is progressing well in accordance with the proposal and guidelines. All initiatives are collaborative and involve Jasper National Park, Weldwood of Canada Limited, Alberta Environmental Protection, with certain initiatives involving the Model Forest Network.

#### **Program Objective**

The FMF has a communications goal. It is "to build recognition, among Albertans and other stakeholders, as a credible research partnership developing practical tools for sustainability and stewardship in forest ecosystem management."

The program is intended to identify key audiences, determine the best method to communicate the FMF messages, and to ensure that communication of those messages occurs.

#### **Relationship to the FMF Phase II Proposal**

As it is stated in the Phase II Proposal (page 31), we will:

- develop a formal communications strategy for the FMF
- provide a forum for various views on forest management
- base our communications messages on the results of our applied research
- develop communications programs that facilitate the transfer of information to practitioners
- utilize the strengths of our partners in targeted communications
- engage in promotional efforts
- use our communications plan to influence policy and decision-making in the short and long term.

#### **Detailed Work Plan**

The work plan is divided into the following communication areas:

- Internal Relations
- Education
- Community Relations
- Media Relations
- Partner Relations
- Network Relations
- Government Relations
- Tech Transfer

### **1.0 Internal Relations**

#### **1.1 Associated Budget**



There is no budget associated, because current costs pertain to human resources and time.

## **1.2 Introduction**

This area is intended to build and maintain communication processes that encourage understanding, participation and pride among employees of the FMF.

## **1.3 Background**

Internal relations has seen significant improvement since the entire FMF staff moved to one central location. All offices are within walking distance, therefore providing more opportunities for discussion. Staff meetings have been the primary, formal internal relations effort in the past and these will continue to occur.

## **1.4 Initiatives**

**Bi-monthly update:** A bi-monthly email update will be circulated to all employees and associated personnel to ensure they remain informed, in a timely fashion, of any relevant research program information, administrative issues, or general program information.

## **2.0 Education**

**2.1 Associated Budget: \$42,000 (including \$7,000 in human resource assistance from Jasper National Park)**

### **2.2 Introduction**

The FMF would like to build a relationship with local educators, as well as educators throughout Alberta, because they will ensure sustainable forest management information reaches the children, and subsequently the families, of Alberta. Investing in youth (through educators) is a key strategic approach to communications focused on the long-term.

Through educational initiatives the FMF will create a broad understanding about its commitment to unbiased research, and it will provide detailed information on sustainable forest management.

### **2.3 Background**

A relationship with FEESA, an organization dedicated to providing bias-balanced environmental information for teachers, has been established. In July and October 1997 three separate initiatives to introduce educators to the Foothills Model Forest will occur. On July 14 and 15, 22 teachers will visit the FMF during FEESA's Spaces and Species Institute. On July 27, 28, 29, 22 teachers will visit the FMF during FEESA's Forest Education Leadership Institute. In October FEESA and the FMF will be hosting an EcoTour through the FMF, for local educators only. These initiatives are the beginning stages of the development of a relationship between educators and the FMF.

### **2.4 Initiatives**

**Education Resource Kits (\$20,000):** To continue the success created with the EcoTour in the fall of 1997, the FMF will develop an education resource kit that focuses on information about the FMF. This kit is intended for educators within the communities of the FMF landbase, however, it is hoped that it will be offered to educators throughout Alberta in the future.

**Institutes and EcoTours (\$15,000):** The FMF will fund front-end work on subsequent Institutes and EcoTours on the FMF landbase.

**Newsletter(\$ allocated to partner relations budget):** Although the newsletter is intended to communicate with partner organizations, it will also be used to communicate with interested educators looking for more FMF information. It will be produced four times in 1997/1998; in June, September, January and April. It will contain information about the latest successes, developments, interesting results,



and unique stories about the FMF. There will be an evaluative process built into the newsletter, it will have a tear-off return card that will provide room for feedback and requests for more information.

All educational programs will have an evaluative process. FEESA has all participants provide feedback for the summer institutes and EcoTours, and through the development of relationships with the FMF, local educators will be encouraged to provide feedback and suggestions for improvement in educational programs.

### **3.0 Community Relations**

#### **3.1 Associated Budget: \$119,000**

##### **3.2 Introduction**

The FMF recognizes that it cannot focus all communication efforts on audiences that are more knowledgeable about sustainable forest management. It must also create awareness and establish a broad understanding of the FMF, its purpose and its progress, to a general audience of residents in the communities throughout the FMF landbase, as well as the major urban centres of Alberta: Calgary and Edmonton.

##### **3.3 Background**

The FMF communication team is currently creating the tools to be used to communicate with the more general audiences throughout Alberta. A general knowledge display and a brochure intended to introduce the concept of the FMF will be complete by May 12, 1997.

In the past, the primary role of the communications manager at the FMF was to manage tours that were intended to educate this general audience, as well as more knowledgeable audiences, about the FMF. This focus will be changing.

##### **3.4 Initiatives**

**Advertising (\$80,000):** "Did You Know" advertisements will be produced and placed in the weekly papers of the FMF landbase communities, and the major daily newspapers in Calgary and Edmonton. Additional advertising in partner publications will also occur, as situations arise. A tear-off section on the advertisements will provide an opportunity for feedback and evaluation of the initiative.

**Jasper National Park Communications (\$11,000):** Another Kiosk for the Jasper townsite will be developed. As well, the FMF will have recognition within publications that are provided to tourists visiting Jasper National Park.

**Tours (\$19,000):** The FMF will continue to provide tours, however, they will be organized and managed by a contract employee dedicated to this area specifically. An evaluation sheet will be provided to tour organizers and participants to ensure the FMF continues to offer effective tour programs.

**Presentations and Conferences (travel costs and time):** FMF personnel will travel to a variety of conferences and meetings to present information, show the display and educate the public about the FMF.

**Signage (\$20,000 unfunded presently):** The FMF would like to display new signage at the Environmental Training Centre, at other partner offices and along highway #16.

**Cache Percotte Demonstration Forest (\$9,000):** The FMF will be creating communication initiatives for the Cache Percotte Demonstration Forest. However, there is a possibility that these costs will be off-set.

### **4.0 Media Relations**

#### **4.1 Associated Budget: \$1,000**

## **4.2 Introduction**

The FMF will establish a relationship with key media representatives, encouraging them to use the FMF as a resource and to fairly and accurately cover FMF stories and issues.

## **4.3 Background**

In the past, media attention from the major dailies has been based on partner affiliation and major announcements.

The weekly papers in the communities of Jasper and Hinton have been publishing a variety of stories regarding specific research projects.

## **4.4 Initiatives**

**Regular contact (mailing costs, entertainment costs):** The FMF communications manager will develop a key media personnel list to contact regularly. They will be given all relevant publications and they will be encouraged to meet informally on a semi-regular basis.

**Editorial Board Sessions (\$1,000 for travel):** The FMF communications manager and other necessary personnel will travel throughout Alberta to visit editorial board meetings.

**Local media contact (time costs only):** All key media contacts at local weekly papers will be encouraged to periodically cover FMF developments.

**Newsletter(\$ allocated to partner relations budget):** Although the newsletter is intended to communicate with partner organizations, it will also be used to communicate with key media representatives. It will be produced four times in 1997/1998; in June, September, January and April. It will contain information about the latest successes, developments, interesting results, and unique stories about the FMF. There will be an evaluative process built into the newsletter, it will have a tear-off return card that will provide room for feedback and requests for more information.

Evaluation of the success of developing relationships with the media will be evident through the type of coverage obtained.

## **5.0 Partner Communications**

### **5.1 Associated Budget: \$28,000**

### **5.2 Introduction**

The FMF is fortunate to have numerous sponsors and partners that contribute time, effort, enthusiasm and money to the program. These partners require constant information regarding the development of the FMF program. These partners also have significant numbers of employees that still have no understanding of the FMF, or their employer's involvement in the program. The following initiatives will create and maintain a communications process to inform partner organizations, and the employees of those partner organizations about the FMF and the latest developments and results of the program.

### **5.3 Background**

A newsletter of the FMF has been used in the past to communicate messages to the partners of the organization. However, this newsletter was not effective, and communication with the partners has been weak over the past few years.

### **5.4 Initiatives**

The intent of this area is not only to create communication tools and opportunities to communicate with partner organizations, it is also intended to provide assistance to partner organizations in their internal

communication efforts. The following list of FMF initiatives will be in conjunction with communication initiatives developed by partner organizations.

**Newsletter (\$25,000):** Although the newsletter is intended to communicate with partner organizations, it will also be used to communicate with key media representatives, educators, staff of the FMF, members of the Model Forest Network and key government officials. It will be produced four times in 1997/1998; in June, September, January and April. It will contain information about the latest successes, developments, interesting results, and unique stories about the FMF. There will be an evaluative process built into the newsletter, it will have a tear-off return card that will provide room for feedback and requests for more information.

**Annual Report (\$3,000):** This publication will not be as large or detailed as in the past, however, it will highlight the previous year's achievements and provide financial summaries.

**Display Usage and Presentations (time and travel costs only):** To facilitate the understanding of the FMF program with employees of the partner organizations, staff and personnel of the FMF will be available to conduct presentations on program areas and the display will be available for the lobbies or entrance ways of partner offices.

## **6.0 Network Relations**

### **6.1 Associated Budget: only travel costs**

### **6.2 Introduction and Background**

One of the past criticisms of the Model Forest Network has been the communication between the 10 model forests across the country. The Foothills Model Forest is willing to improve its communication with other model forests in Phase II.

It is also expected that the FMF communication strategy will be tied to the Network communication strategy, however, this network communication strategy has not yet been created. The FMF will assist in the development of the network strategy and it will ensure its communication strategy is affiliated with the network strategy when it is created.

As well, the FMF will participate in the Model Forest Network Communication Committee that has been operating for the last three to four years and will continue to operate over the next five years.

### **6.3 Initiatives**

**Travel to Model Forest Network Communication Committee Meetings (travel costs and time):** The FMF communications manager will travel and participate in the development and maintenance of network communication initiatives.

**Regular communication with other model forests (time costs only):** The FMF communications manager will maintain regular communication with other model forests, as related projects arise. FMF publications will be distributed to other model forests as examples.

**Newsletter (\$ allocated to partner relations budget):** Although the newsletter is intended to communicate with partner organizations, it will also be used to communicate with other members of the Model Forest Network. It will be produced four times in 1997/1998; in June, September, January and April. It will contain information about the latest successes, developments, interesting results, and unique stories about the FMF. There will be an evaluative process built into the newsletter, it will have a tear-off return card that will provide room for feedback and requests for more information.

## **7.0 Government Relations**

### **7.1 Associated Budget: \$5,000**

#### **7.2 Introduction and Background**

In the past the FMF has maintained a strong relationship with Federal government representatives, but relationships with Provincial government representatives have been lacking. The FMF must meet its promise reported in the Phase II Proposal: "we will...use our communication plans to influence policy and decision-making in the short and long term." To ensure this occurs the FMF is intending to establish and maintain communications with government (elected and civil servant) representatives to ensure understanding of the FMF progress, policies and research projects.

#### **7.4 Initiatives**

**VIP/Media Tour (\$5,000 possible):** The FMF will host an annual tour for government representatives and media. This tour is an expensive proposition, likely costing more than the allocated \$5,000 and so it is currently being researched and discussed to find additional funding.

**Regular Interface (time and travel costs):** The FMF President and other Board members have offered to schedule regular interface opportunities with key Federal, Provincial and local government representatives.

**Newsletter (\$ allocated to partner relations budget):** The FMF newsletter will be distributed to key representatives.

## **8.0 Tech Transfer**

### **8.1 Associated Budget: \$20,000**

#### **8.2 Introduction and Background**

The FMF has now completed its first phase of projects and the results determined must now be distributed to other resource management agencies for implementation. However, more extensive avenues to accomplish this task must still be determined.

#### **8.3 Initiatives:**

**Website Design and Maintenance (\$10,000):** As the one main tech transfer communication tool available, the website must be redesigned to fit with the new look of the FMF and to make the website more functional and attractive. This medium of communication will grow in popularity, with a large number of FMF partners using it to download key project reports, meeting minutes and research results. The FMF must have a contract employee regularly updating and refreshing the website. Visitors to the website will be encouraged and given an opportunity to provide feedback to the FMF about the interactiveness and effectiveness of the website. As well, the FMF will be moving the website from the Alberta Government server over to the University of Alberta server, allowing more flexibility to change information on the website and to monitor the number of contacts to the site.

**Presentation Training (\$2,500):** Due to the emphasis that will be put on encouraging staff and other personnel to effectively present research results and "on-the-ground" application of those results in the surrounding communities and across Alberta, it is hoped that formal presentation training will be provided for those intended to present in the future.

**Front-line Staff Workshops (\$7,500):** The FMF will be hosting a variety of workshops for front-line staff of resource managers. These workshops will ensure the sustainable forest management practical solutions and results determined by the FMF are applicable "on-the-ground."



**Environmental Assessment Screening Form for Projects Related to the Foothills Model Forest**

**Project Title:** Public Affairs and Communications Program

**Prepared by:** Rick Blackwood

	<b>Yes</b>	<b>No</b>
Does the project/activity involve a physical, chemical or a biological agent (e.g. fertilizers, pesticides, large scale drainage or soil exposure)?		X
Does a project/activity involve the introduction of a foreign disease, pest or chemical, or a carrier of these?		X
Are any biological control organisms introduced to control pests, disease or weeds (e.g., bacteria, viruses, nematodes and other insect parasites)?		X
Are the chemicals used in the project/activity registered or not?	N/A	N/A
Are valid permits procured for the use of such chemicals and are permits issued subject to any special conditions?	N/A	N/A
Is there any potential soil erosion expected and are there any water bodies in the impacted project/activity area?		X
Are there any large scale vegetational changes expected which might potentially endanger wildlife habitats?		X
In the case of pesticides, how large are the treated areas and are the aquatic systems in danger of being exposed to such treatments?	N/A	N/A
Does the site of a project/activity and the treatments proposed threaten any rare plants, birds or other organisms?		X
Are project/activity sites on any ecological reserves or land of disputed ownership?	X	

**Comments:** None.