

# FOREST MANAGEMENT LICENCE # 3

## 2001 - 2002 ANNUAL REPORT



**Cover Photo:** An open water marsh and a sheltered marsh are surrounded by the fall colours of mixedwood forest within the Duck Mountains. photo credit: Rob Arnup (ESG International).



LP Canada Ltd.  
Swan Valley - Forest Resources Division  
Forest Management License # 3

FMML # 3 ANNUAL REPORT 2001-2002

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## **FML # 3 SIGNIFICANT EVENTS 2001-2002**

### **Safety**

- no lost time accidents
- Continued employee training including: Standard First Aid/CPR Training; Canada Safety Council ATV operation/preparation course and Safety Orientation (mandatory review of Swan Valley FRD Safety Policy Manual).

### **LP Oriented Strand Board (OSB) Mill**

- Swan Valley OSB group receives safety award

### **Forest Management Planning**

- for the second consecutive year, actual block areas for FML # 3 were delineated from aerial photos, instead of using planned block areas
- Forest lands Inventory (FLI) cooperative inventory project with Manitoba Conservation continued to develop an ecological inventory for the Duck Mountains and Porcupine Mountains

### **Harvesting**

- logging contractors trained on best management practices for harvesting, road building and water course crossings
- LP harvests 704,700 m<sup>3</sup> of hardwood (from both crown and private land)
- LP harvests 3,109 ha of crown land

### **Forest Renewal**

- LP receives 'Certificate of Reforestation' for 1,212 ha of five-year old aspen cutovers in 44 cutblocks
- site prepared and scarified 544 hectares
- Snow cached 0.9 million seedlings
- planted 2.8 million seedlings

### **Research and Monitoring**

- Duck Mountain Bird Monitoring Program had its 6<sup>th</sup> field season – 329 stations were sampled
- LP involved six major research organizations, including the Sustainable Forest Management Network (SFMN) of Centres of Excellence



## 1.0 INTRODUCTION

The 2001 – 2002 annual report summarizes the forest management activities undertaken by LP Canada Ltd. within FML # 3 and portions of FML # 2 (Forest Management Units 12 and 14) from May 1<sup>st</sup> 2001 to April 30<sup>th</sup>, 2002.

The annual report has been prepared according to the conditions outlined in Paragraph 6 (A) of the Forest Management License Agreement (FML # 3) between the Province of Manitoba and Louisiana-Pacific Canada Ltd., dated September 21, 1994. FML # 3 was allocated to the LP to ensure a long term fiber supply for the operation of the Oriented Strand Board (OSB) mill located near Minitonas (Figure 1) in the Swan River Valley. The Agreement was in effect on the date of signing and will expire on December 31, 2014. The Agreement shall be extended and the license renewed subject to the faithful performance by the Company during the preceding period.

The Company was issued an Environment Act License (No. 2191) dated May 27, 1996 to carry out forest management activities within the geographical boundaries of Forest Management License Area # 3. The appeals process resulted in changes to the Environment Act License No. 2191. Environment Act License No. 2191E was issued December 11, 1996.

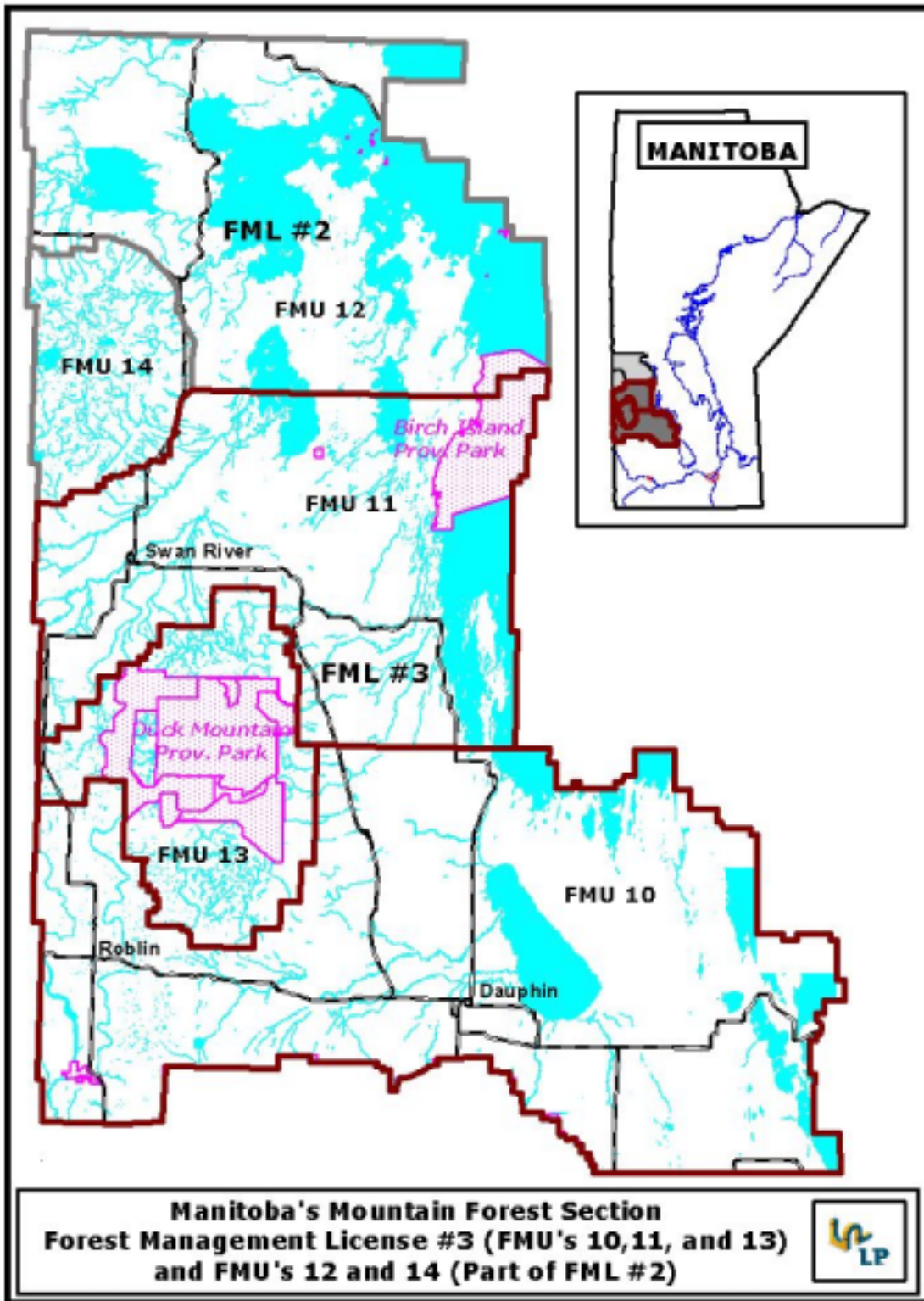


Figure 1.1 Overview map of the Mountain Forest Section including FML # 3 and a portion of FML # 2



## 2.0 FOREST MANAGEMENT PLANNING

Forest management planning is used to apply sustainable management of the renewable resources in FML # 3. Long-term planning is addressed in LP's 10-Year Forest Management Plan, while our Annual Operating Plans (AOP's) focus on current plans within the context of those long-term goals. The planning process is open, and seeks advice and input from stakeholders and the public to ensure that concerns are mitigated before harvesting begins.

### 2.1 PLANNING PROCESS

LP continued to improve its' planning process in the following areas:

- Pre-Harvest Surveys (PHS)
- Pre-Harvest Silvicultural Prescriptions (PHSP)
- Mitigation of provincial government concerns prior to AOP submission
- Public Involvement

#### 2.1.1 Pre-Harvest Surveys

A pre-harvest survey is a site-specific ecosystem assessment of a harvest area prior to logging. In the 2001 field season, cutblocks that would be harvested in 2002 are surveyed (Figure 2.1). The assessment is then developed into a site-specific pre-harvest silvicultural prescription (PHSP) which addresses timber and non-timber resource concerns. LP has committed to completing PHS's on all areas planned for harvest.



**Figure 2.1 A surveyor conducting a vegetation assessment of the herb layer.**

The Pre-Harvest Surveys gather data on most aspects of the ecosystem (Figure 2.2), including:

- in-block waterways
- exceptional features (mineral licks, Heron Rookeries *etc.*)
- live and dead standing (snags) tree data
- coarse woody debris (dead trees on the ground)
- vegetation community and V-type
- soil texture, moisture and S-type
- understorey trees (advanced regeneration)
- competitive vegetation (shrub & forb layers)
- ungulate browse activity
- vulnerable, threatened and endangered species
- forest health (insects & disease)
- wildlife evidence (tracks or scat)
- site limitations (steep slopes, wet areas)
- heritage resources



**Figure 2.2 Pre-Harvest Surveyor compassing to the next plot within a proposed cutblock.**

In the 2001 field season (May 2001 - September 2001), 2,525 PHS plots were surveyed on 157 cutblocks. This total includes both Quota holder proposed cutblocks and LP proposed cutblocks.

### 2.1.2 Pre-Harvest Silvicultural Prescriptions

The Pre-Harvest Silvicultural Prescription (PHSP) is written for each proposed cutblock, based on the PHS data and mapping. The PHSPs are a detailed site-specific plan which include:

- year and season of harvest
- harvest/Silvicultural System (*e.g.* Clear Cut, Understorey Protection)
- wildlife Objectives (*e.g.* leave trees/structure, buffers, corridors)
- renewal detail (*e.g.* site Preparation, Seedlings stock types and densities)
- monitoring (*e.g.* timing of regeneration surveys)

To develop a comprehensive PHSP, a great deal of knowledge is needed in many disciplines, such as forest management, operational forestry, silviculture, and wildlife biology. In order to evaluate the PHS data and develop a PHSP, we created an “Integrated Planning Team”. The Integrated Planning Team consists of an area planner, silviculture forester, wildlife biologist, operations supervisor and the district forester. This group reviews all information on proposed roads, crossings, harvest blocks and renewal. Together the Integrated Planning Team mutually develops a site-specific harvest and renewal prescription for each harvest block.

### 2.1.3 Annual Operating Plan Mitigation Process

In the 2001-2002 operating year, LP continued to work closely with the Grandview, Roblin, and Swan River districts and the local Integrated Resource Management Team (IRMT) to mitigate all concerns regarding cutblock proposals **prior** to the AOP submission. After mitigation, LP completes an AOP with a detailed one-year plan and a general three-year projection. The AOP is submitted to Manitoba Conservation (MC) for a 60-day approval process. Following the AOP’s approval, each proposed cutblock in the plan must be permitted through the local MC district office prior to beginning any forest management activities.

## 2.2 PUBLIC AND STAKEHOLDERS INVOLVEMENT

A large component of the planning process is obtaining input from the public. The citizens of Manitoba are stakeholders in the forest, and have the right to be informed and to provide input into the management of Crown lands. LP is committed to public involvement and provided this opportunity through public open houses, the Stakeholders Advisory Committee, Rural Municipality meetings, field tours and presentations with local schools and interest groups.

### 2.2.1 Public Open Houses

In January and February of 2002, LP held five public open houses regarding the 2002 - 2003 Annual Operating Plan (AOP). The meetings were advertised in the Winnipeg Free Press, Swan Valley Star and Times, Roblin Review, Dauphin Herald, Parkland Shopper, and Hudson Bay Post Review newspapers. Open house meetings were advertised on Dauphin’s radio station 730 CKDM. Written invitations were sent to all Stakeholder Advisory Committee (SAC) representatives, local Rural Municipalities, and town offices.

The five open houses were attended by a total of 68 people. LP believes the exchange of knowledge was beneficial for both LP and the people who attended. The following are the location and dates of the AOP open houses:

<b>Location</b>	<b>Date</b>
• Roblin, MB	Jan 28, 2002
• Grandview, MB	Jan 29, 2002
• Ethelbert, MB	Jan 31, 2002
• San Clara, MB	Feb 4, 2002
• Swan River, MB	Feb 5, 2002

### **2.2.2 Stakeholders Advisory Committee (SAC)**

Throughout the 2001-2002 operating year, the SAC continued as an integral part of the Company's planning process through regular meetings (Figure 2.3) and field trips. The SAC provides valuable insight and information relating to our proposed plans and management activities.



**Figure 2.3 Stakeholder's Advisory Committee meeting in the LP boardroom.**

Active representation on the SAC currently consists of the following organizations (listed alphabetically):

- Cottage Owner's Association
- Intermountain Conservation District
- Manitoba Environment
- Manitoba Natural Resources
- Manitoba Naturalists Society
- Manitoba Trapper's Association
- Midwest Manitoba Lodge and Outfitters

- Mountain Quota Holder's Association
- Northern Association of Community Councils (NACC) - Western Region
- Parkland Trails Association
- Parkland West Economic Development
- Riding Mountain National Park
- Swan Valley Sport Fishing Enhancement Inc.
- West Region Elk Management Board

During this report period, SAC meetings were held:

- October 1, 2001;
- November 19, 2001;
- January 21, 2002;
- Feb. 18, 2002;

Members of the SAC have been involved in field tours to view existing and post logging activities. We value and appreciate the input given by the members of the Stakeholders Advisory Committee and will continue to meet with them on a regular basis.

### **2.2.3 Local Jurisdictions**

LP staff meet regularly with the various local Rural Municipalities (RM) to discuss issues or concerns that may arise due to LP's use of RM road networks in accessing harvest blocks, both on Crown land and private land. Meetings are held to discuss proposed haul routes, necessary road maintenance, road repair or construction.

Traffic safety (*e.g.* avoiding school bus routes) is another important issue. LP staff also met with Swan River RCMP regarding traffic safety through town.

### **2.2.4 Other Field Tours and Presentations**

The following is a list of meetings, presentations and field tours that LP staff attended in 2001-2002:

- May 31, 2001: LP staff provided a sustainable forest management presentation and field trip to Solid Rock Christian School
- June 2001: LP staff provided a sustainable forest management presentation and field trip to the Biology class of the Swan Valley Regional Secondary School.
- January 9 & 10, 2002: LP staff provided a sustainable forest management presentation and field trip to the Biology class of the Swan Valley Regional Secondary School.
- January 25, 2002: LP staff attended a question and answer session and field trip at the Ethelbert School.
- February 2002: LP staff gave students from Swan River, Roblin and Grandview a hands-on field trip involving snow-caching seedlings.



### 3.0 ROAD CONSTRUCTION AND ACCESS MANAGEMENT

Road construction can have a significant impact to the forest landscape. LP wishes to minimize the environmental risk of road construction. Therefore, LP continued to utilize existing trails and roads where possible. After road construction is complete, there is a risk of soil erosion on exposed surfaces. Increasing efforts for erosion control were implemented after road construction and during the active use of forestry roads. When harvesting and renewal activities were complete, LP closed and deactivated roads wherever possible.

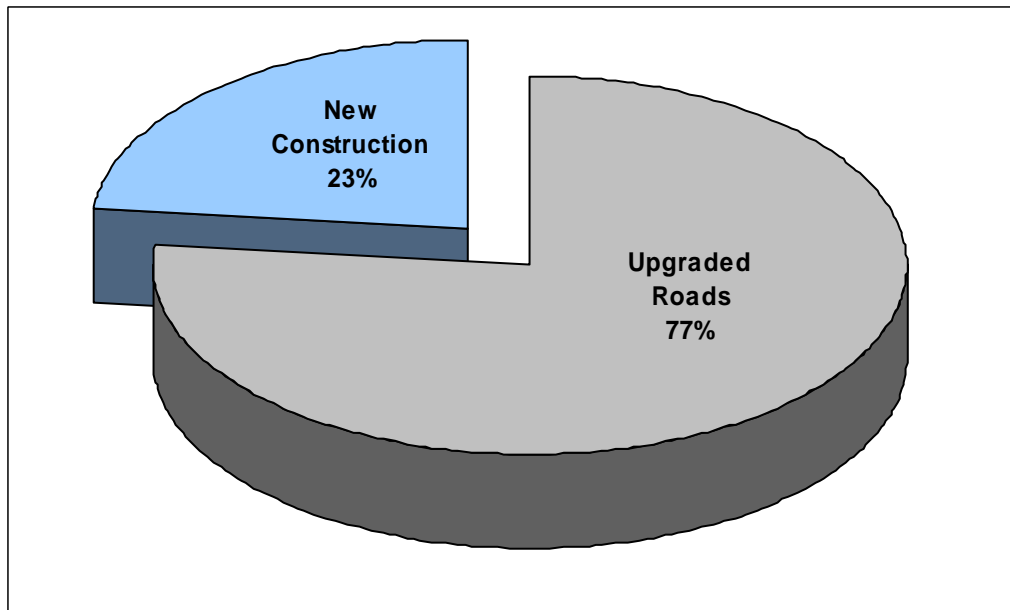
Access was managed cooperatively with the public and the IRMT. Existing access generally has to remain open, but newly built roads are access managed through decommissioning the road, road closures, slash roll-back, and/or gates.

#### 3.1 ROAD UPGRADE AND CONSTRUCTION

The majority of roads were made by upgrading existing trails and roads (Table 3.1 and Figure 3.1).

**Table 3.1 Road upgrade and construction summary by FML for LP operations.**

FML #	Road Upgrade (km)	New Road Construction (km)	TOTAL (km)
2	28.7	13.3	42.0
3	176.7	53.9	230.6
<b>TOTAL</b>	<b>205.4</b>	<b>67.2</b>	<b>272.6</b>



**Figure 3.1 Percentages of existing road upgrade and new construction.**

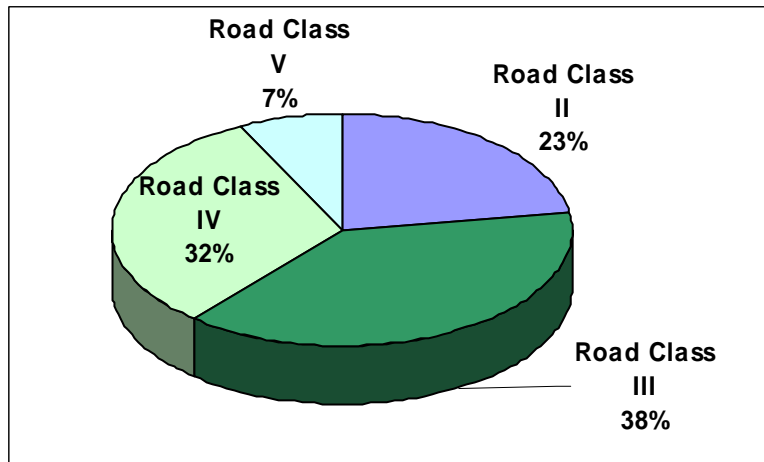
LP uses the following Road Class definitions:

- **Class I** - All-weather road; graded and graveled; 20 year plus life span; 45 m ROW
- **Class II** - All-weather road; graded and graveled; up to 20 year life span; 20-30 m ROW
- **Class III** – All-weather road; grading & graveled; 2-20 year life span; 20 m ROW
- **Class IV**- Dry or frozen road; minimal gravel; stumped, life span 1-5 years; 10-20 m ROW
- **Class V**- Winter only road; little development; used to cross lowlands, swamps and water bodies; life span 1-2 years; 8-20 m ROW

In the 2001-2002 operating year, Quota Holders upgraded and constructed 130.7 km of roads, and LP upgraded or constructed 99.9 km (Table 3.2). Please note that both Quota Holders and LP use the same roads to access some cutblocks. Roads were allocated to the primary user of each road. The road class distribution is shown in Figure 3.2.

**Table 3.2 Road construction by class for both LP and Quota Holders for FML # 3**

	Road Class (km)				TOTAL (km)
	II	III	IV	V	
<b>LP</b>	18.9	51.0	30.0	-	<b>99.9</b>
<b>Quota Holder</b>	33.0	38.2	43.0	16.5	<b>130.7</b>
<b>TOTAL</b>	<b>51.9</b>	<b>89.2</b>	<b>73.0</b>	<b>16.5</b>	<b>230.6</b>



**Figure 3.2 Road class percentages for both LP and Quota Holders - FML # 3**

Actual road construction (in kilometers) by FMU, primary road user (*i.e.* LP or Quota Holder), road class, and road type (*i.e.* upgraded existing road or new construction) (Tables 3.3. and 3.4).

**Table 3.3 Road upgrade and construction summary for FML # 3 - LP and Quota Holder operations.**

FMU	Road Class	Road Upgrade (km)	New Road Construction (km)	TOTAL (km)
FMU 11	II	3.6		3.6
LP only	III	2.4	0.4	2.8
	IV	0.8	2.1	2.9
	V			
	<b>TOTAL</b>	<b>6.9</b>	<b>2.5</b>	<b>9.4</b>
FMU 11	II			
Quota	III		1.0	1.0
Holder	IV	3.4	0.1	3.5
	V	1.2	3.6	4.8
	<b>TOTAL</b>	<b>4.6</b>	<b>4.7</b>	<b>9.3</b>
FMU 13	II	15.3		15.3
LP only	III	30.5	17.7	48.2
	IV	18.5	8.6	27.1
	V			
	<b>TOTAL</b>	<b>64.3</b>	<b>26.2</b>	<b>90.5</b>
FMU 13	II	33.0		33.0
Quota	III	28.2	9.0	37.2
Holder	IV	28.1	11.5	39.6
	V	11.7		11.7
	<b>TOTAL</b>	<b>101.0</b>	<b>20.5</b>	<b>121.5</b>
FMUs 11 & 13	<b>GRAND TOTAL</b>	<b>176.7</b>	<b>53.9</b>	<b>230.6</b>

**Table 3.4 Road upgrade and construction summary for FML # 2 - LP operations.**

FMU	Road Class	Road Upgrade (km)	New Road Construction (km)	TOTAL (km)
<b>12</b>	<b>II</b>			
	<b>III</b>			
	<b>IV</b>	3.5		<b>3.5</b>
	<b>V</b>			
	<b>TOTAL</b>	<b>3.5</b>		<b>3.5</b>
<b>14</b>	<b>II</b>	2.2	3.0	<b>5.2</b>
	<b>III</b>	9.3	9.2	<b>18.5</b>
	<b>IV</b>	0.7	1.1	<b>1.8</b>
	<b>V</b>	13.0		<b>13.0</b>
	<b>TOTAL</b>	<b>25.2</b>	<b>13.3</b>	<b>38.5</b>

### 3.2 ACCESS MANAGEMENT

Building logging roads can have positive and/or negative impacts on forest resources. Ungulate populations, such as moose, are especially sensitive to the increased hunting pressure that follows newly increased access. LP utilizes a variety of techniques to manage access into logging roads, including:

- Road closures
- Road decommissioning (Figure 3.3)
- Roll-back of slash and organic matter
- Removal of stream crossings
- Gates



**Figure 3.3 An example of a decommissioned road.**

### 3.3 STREAM CROSSING PROGRAM

#### 3.3.1 Background

As part of the Environment Act License 2191E, LP is required to submit detailed information regarding the potential for navigability and presence of fish or fish habitat in areas where LP water crossings have been proposed. Since 1997, LP has conducted detailed stream assessments on proposed water crossings that have *the potential to support fish or fish habitat*. The data collected from the assessment is summarized and used to help LP develop forest road access and water crossing prescriptions included in the Annual Operating Plan, that will mitigate potential impacts to fish habitat and public navigational interests. The Annual Operating Plan which includes the stream assessment summary tables, is submitted to the Department of Fisheries and Oceans and the Canadian Coast Guard, as well as, the local Manitoba Conservation Integrated Resource Management Team for review.

Information is collected on a variety of stream attributes, they include, measurements on morphological and hydrological characteristics, identification of instream cover characteristics and substrate composition, and community sampling of fish and invertebrate populations found within the stream. The stream assessments are conducted on an annual basis by LP Fish and Wildlife Resource Technicians between the months of May to September. The stream assessment program is coordinated and supervised by the LP Swan Valley District Biologist.

#### 3.3.2 LP 2001 Stream Assessment Results

Fifteen stream assessments were completed during the spring and summer field season of 2001. Out of the 15 stream crossings that were surveyed 10 stream assessments were conducted in FML 3 and five were conducted in FML 2. Field technicians sample 100 m of the stream reach, 50 m upstream and 50 m downstream from the proposed point of crossing (Figure 3.4).



**Figure 3.4 Mottled sculpin collected during a stream assessment (left); sampling for invertebrates using a surber sampler (right).**



## 4.0 HARVESTING

The harvest block design is one of the most critical components of forest management. The design must incorporate site specific concerns such as wildlife habitat and ecological features, as well as fit into the larger picture of sustainable forest management and conserving bio-diversity. Current research is suggesting that to achieve this, harvest plans must “emulate natural disturbances”. The boreal forest’s primary natural disturbance comes from fire. Forest fires create landscape mosaics of large and small openings with irregular boundaries and leave burned and unburned trees standing.

### 4.1 HARVESTING OPERATIONS

#### 4.1.1 Wildlife Trees

After reviewing current research and literature, LP’s Standard Operating Guidelines (SOGs) were modified to ensure 8 – 12 wildlife trees per hectare are maintained on all cut blocks larger than 10 hectares.

Leaving structure throughout a cut block not only benefits wildlife but also achieves several other goals such as:

- conservation of biodiversity
- meeting Provincial line-of-sight guidelines
- protecting softwood understorey
- achieving silvicultural objectives (*e.g.* seed source)
- retaining structure for in-block drains/wet areas
- retaining structure on steep slopes to prevent erosion

#### 4.1.2 Best Practices Meetings

On September 17, 2001, LP held a Best Management Practices meeting for logging contractors. Invitations were sent to all contractors (mandatory), Quota holders, MC, and SAC members. 86 people attended and were given presentations on mill requirements, safety issues, LP planning requirements, LP standard operating procedures, future certification requirements, and a fire presentation from MC.

On June 11, 2001 LP held a Best Practices meeting for Water Crossing Contractors. Invitations were sent to all preferred operators, and SAC members. 40 people attended and were given presentations on DFO, LP SOG's, current erosion control applications and procedures. Also in attendance were the Department of Fisheries and Oceans.

### 4.1.3 Independent Logging Contractors (Crown Land)

During the 2001-2002 operating year LP had 18 independent logging contractors harvesting in the Mountain Forest Section. These consisted of both conventional and mechanical harvesting systems (Table 4.1).

**Table 4.1 Number of harvesting contractors by FML for LP operations.**

FML	LOGGING SYSTEM		TOTAL
	MECHANICAL	CONVENTIONAL	
2	5	0	5
3	12	1	13
<b>TOTAL</b>	17	1	18

### 4.1.4 Timber Purchase Agreements (Private and Crown)

LP signed 150 Timber Purchase Agreements (TPAs) during the 2001-2002 operating year. These consisted of 91 TPAs on private land (TPAP) and 59 TPAs on Crown land (TPAC). Private land TPAs are signed with the logging contractor and the private landowner signs an authorization form.

Timber Purchase Agreements for Crown land wood are entered into with third party operators (Quota Holders) or their contractors to purchase residual hardwood. Typically, softwood Quota Holders cut some hardwood that is within their cutblock. Hardwood Quota Holders manufacture lumber from the sound hardwood, and sign a TPA to sell LP the remaining hardwood that is unsuitable for sawtimber.

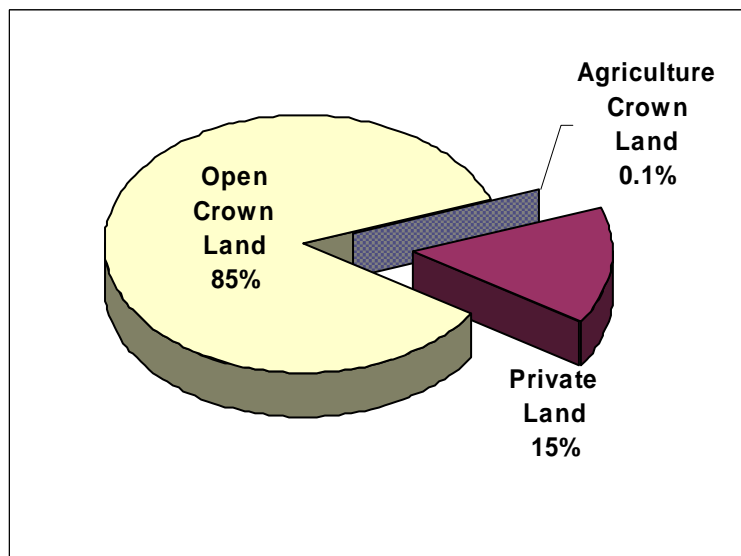
### 4.1.5 Trucking

Approximately 207 trucks are registered to haul hardwood to the OSB mill. During the 2001-2002 operating year 149 trucks were actively hauling. The average haul distance was 90 kilometers in 2001.

All hardwood harvested for LP is delivered in 2.54 metre lengths, therefore several different configurations of trailers can be utilized. In 2001, 49% was delivered by Super-Bee Trains; 17% by Bee Train; 33% by Tri-Axle; and 1% by self-loading Picker trucks.

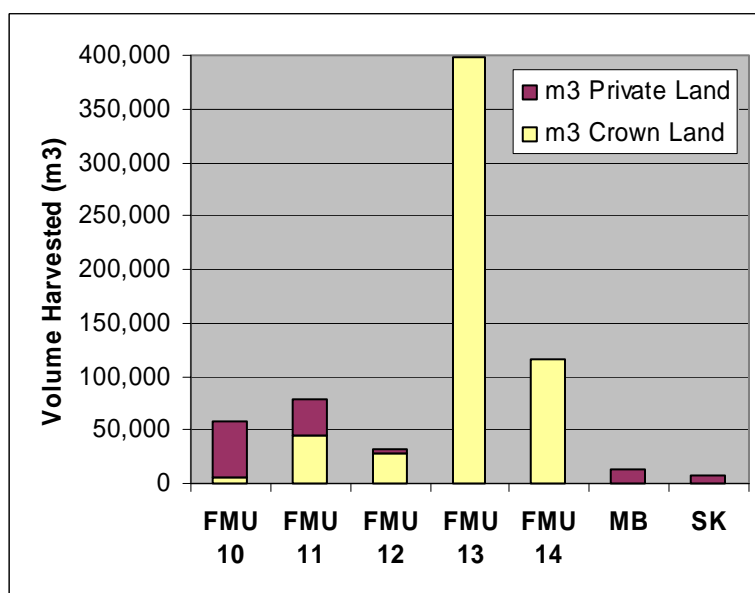
## 4.2 FIBRE PROCUREMENT

LP began harvesting on May 29, 2001 and finished April 7, 2002. In the 2001-2002 operating year LP harvested a total of 704,700.8 m<sup>3</sup> of hardwood. Private land wood accounted for 103,098.0 m<sup>3</sup> or 15 % while Open Crown land wood accounted for 601,011.1 m<sup>3</sup> or 85 %, and Agriculture Crown Land was 591.7 m<sup>3</sup> or 0.1 % (Figure 4.1). Conversion used were: Tonnes x 0.997 for poplar, Tonnes x 0.963 for birch.

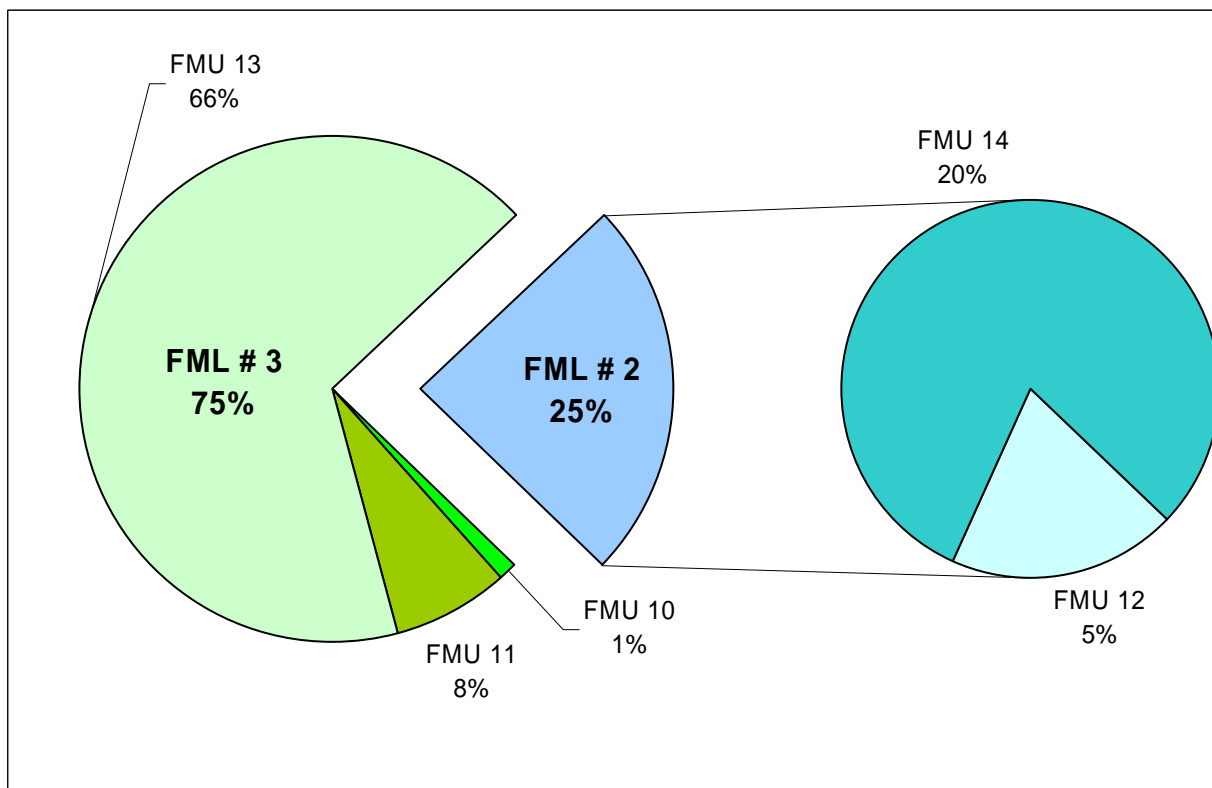


**Figure 4.1 Percentage of hardwood volume harvested on Private versus Crown Land – LP.**

Figure 4.2 illustrates the distribution of Crown land harvest by FMU and private land harvest by FMU and province. The largest volume of wood harvested is from FMU 13 (Figure 4.3).



**Figure 4.2 Volume harvested/purchased on Crown Land by FMU – LP from all sources.**



**Figure 4.3** Percent volume harvested from Crown land within FML #3 and FML #2 for each FMU.

LP's hardwood harvest is below the annual allowable cut (AAC) for all FMUs (Table 4.2). Softwood harvest numbers in Table 4.2 are based on F40 returns from Quota Holders. Additional AAC tracking by Open Crown Land (Table 4.3), Leased Crown Land (Table 4.4), and Private Land (Table 4.5) is included for FML # 3. Softwood volumes for FML # 2 are not included.

**Table 4.2** Actual volume harvested versus the Annual Allowable Cut – Mountain Forest Section – all Crown Land

Forest Management Unit	2001 Hardwood Harvested (m <sup>3</sup> )	Hardwood* AAC (m <sup>3</sup> )	Percent of AAC Harvested	2001 Softwood Harvested (m <sup>3</sup> )	Softwood AAC (m <sup>3</sup> )	Percent of AAC Harvested
FMU 10	6,279	136,070	5 %	0	210	0 %
FMU 11	45,782	144,200	32 %	2,581	18,630	14 %
FMU 13	398,842	545,700	73 %	172,452	199,220	87 %
<b>FML #3 TOTAL</b>	<b>450,903</b>	<b>825,970</b>	<b>55 %</b>	<b>175,033</b>	<b>218,060</b>	<b>80%</b>
FMU 12	27,944	109,860	25 %			
FMU 14	116,425	170,220	68 %			
<b>FML #2 TOTAL</b>	<b>144,369</b>	<b>280,080</b>	<b>52 %</b>			
<b>TOTAL</b>	<b>595,272</b>	<b>1,106,050</b>	<b>54 %</b>			

\*includes TA, BA and WB on open crown and agricultural leased land, but not private land.

**Table 4.3 Actual volume harvested by LP versus the Annual Allowable Cut of Open Crown Land in FML # 3.**

Forest Management Unit	Hardwood		
	2001 Actual Harvest Volume (m <sup>3</sup> )	Provincial AAC (m <sup>3</sup> )	% of AAC
FMU 10	6,279	7,850	80%
FMU 11	45,191	51,310	88%
FMU 13	398,842	545,700	73%
<b>FML # 3 Open Crown Land Total</b>	<b>450,312</b>	<b>604,860</b>	<b>75%</b>

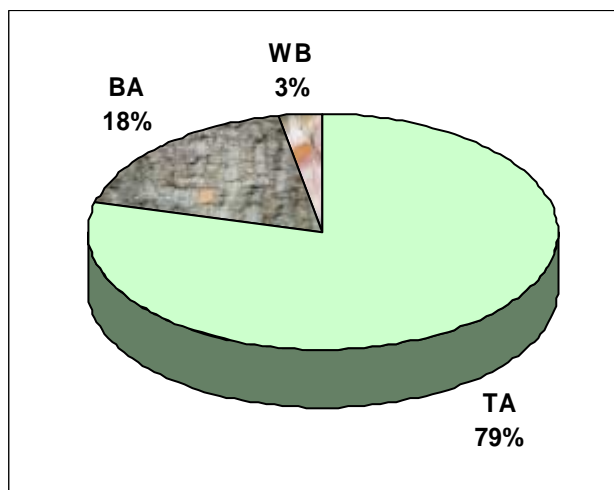
**Table 4.4 Actual volume harvested versus the annual allowable cut from Leased (Agricultural) Crown Land, Community Pasture, and Local Government District Land in FML # 3.**

Forest Management Unit	Hardwood		
	2001 Actual Harvest Volume (m <sup>3</sup> )	Provincial AAC (m <sup>3</sup> )	% of AAC
FMU 10 Development Allowed	0	109,700	0%
FMU 10 No Development Allowed	0	18,520	0%
FMU 11 Development Allowed	591	80,030	0.01%
FMU 11 No Development Allowed	0	12,860	0%
<b>FML # 3 Leased Crown Total</b>	<b>591</b>	<b>221,110</b>	<b>0.003%</b>

**Table 4.5 Actual volume harvested versus the annual allowable cut from Private Land in FML # 3.**

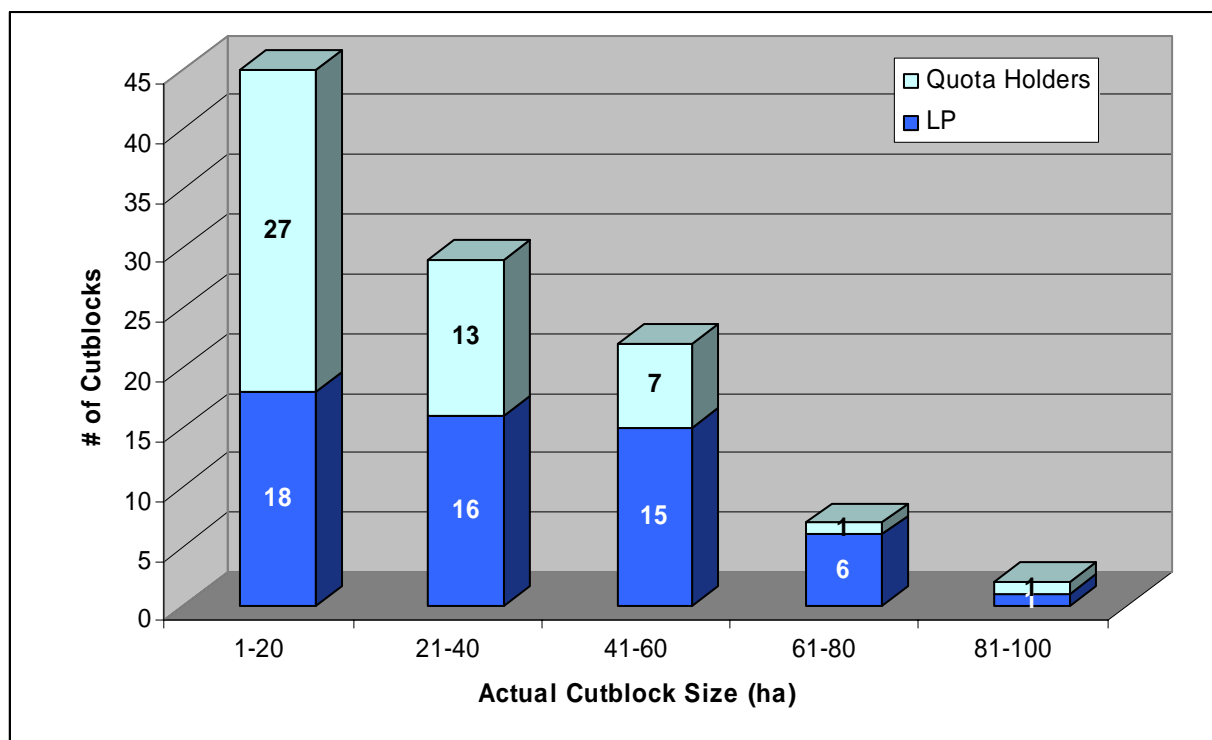
Forest Management Unit	Hardwood		
	2001 Actual Harvest Volume (m <sup>3</sup> )	Provincial AAC (m <sup>3</sup> )	% of AAC
FMU 10	51,547	140,110	37%
FMU 11	32,497	71,610	46%
<b>FML # 3 Private Land Total</b>	<b>84,044</b>	<b>211,720</b>	<b>40%</b>

The percent hardwood species harvested in 2001 was 79% Trembling Aspen (TA), 18% Balsam Poplar (BA), and 3% White Birch (WB) (Figure 4.4).



**Figure 4.4** Hardwood species percentage for LP 2001-2002 harvest.

Based on 105 cutblocks delineated from supplemental aerial photography, the average cutblock size in FML # 3 (FMUs 10, 11 & 13) is 29.6 ha, with a range of 0.9 to 93.1 ha, and a standard deviation of 21.1 ha (Figure 4.5). Total area harvested was 3,109.1 ha.



**Figure 4.5** Distribution of actual cut block sizes in FML # 3.

### 4.3 CROWN FEES

LP collects and submits three types of fees for each cubic metre of Crown wood harvested to MC on a quarterly basis for FML #3. These three fees are:

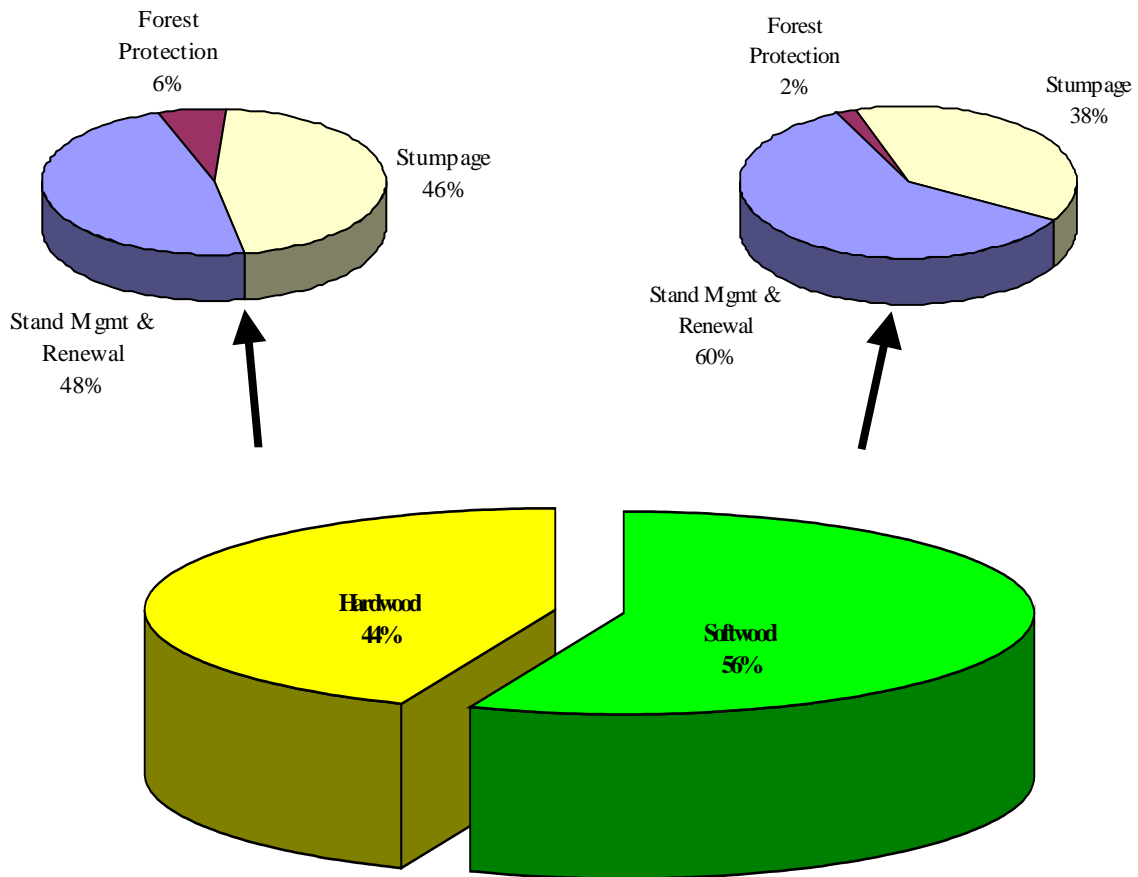
1. Stumpage Dues;
2. Stand Management and Forest Renewal Charge; and
3. Forest Protection Charge.

In the 2001-2002 operating year a total of \$2,833,800.53 was paid by LP and all quota holders in FML # 3. Figure 4.6 illustrates the percentage of all hardwood and softwood fees collected in 2001-2002. Table A3.1 in Appendix III details the volume summary for Quota Holders, and Table A3.2 details the fees collected by quarter.

Stumpage dues in 2001-2002 totaled \$1,183,908.57. Hardwood contributed \$573,989.78 (48% of total) and \$609,918.79 (52% of total) was paid on softwood.

The total of the Forest Renewal Charges (FRC) collected in 2001-2002 was \$1,536,440.21. Charges associated with hardwood totaled 38% or \$590,184.70 while 62% or \$946,255.51 came from softwood.

The total of the Forest Protection Charges (FPC) collected was \$111,571.95 in 2001-2002. Charges associated with hardwood totaled 72% or \$80,133.29 while 28% or \$31,438.66 came from softwood.



**Figure 4.6 Percentage of hardwood and softwood fees collected in 2001-2002 including Stumpage Dues, Stand Management and Forest Renewal Charge (FRC), and Forest Protection Charge (FPC).**

## 4.4 HARVESTING REQUIREMENTS

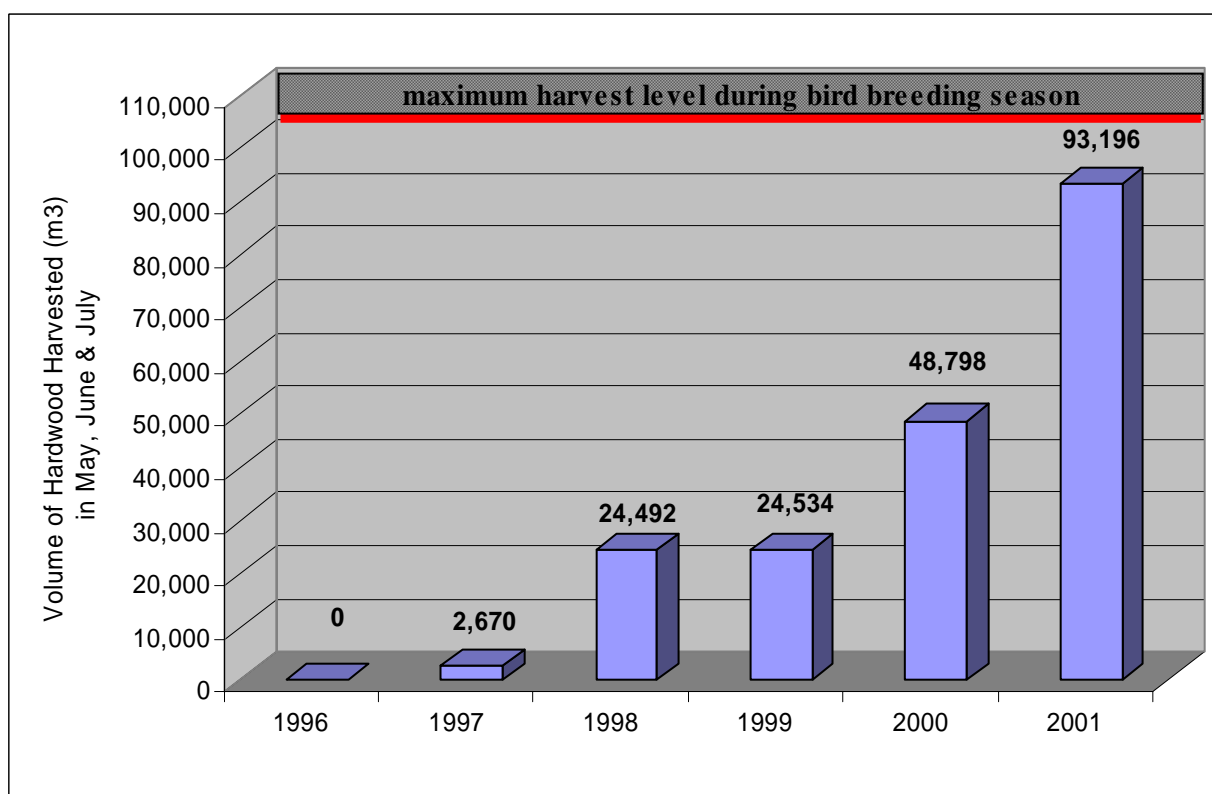
Environmental Act Licence number 2191E issued Dec. 10, 1996 and the FML # 3 Forest Management Licence Agreement dated Sept. 21, 1994 both have harvesting requirements for LP's operations.

### 4.4.1 Bird Breeding Season

To reduce the impact to breeding bird populations in the forest, Environmental Act Licence number 2191E section 11 states:

*The Licencee shall minimize the harvest of hardwoods during May, June and July of each year, but, in any event, shall not harvest a cumulative volume of more than 100,000 cubic metres of hardwood from FMUs 10, 11, and 13, during May, June and July in any year.*

In the period from May 1, 2001 to July 31, 2001 LP harvested a cumulative volume of 93,196 m<sup>3</sup>, which is below the 100,000 m<sup>3</sup> maximum (Figure 4.7). The 2001 harvesting total includes approximately 4,000 m<sup>3</sup> of wood, which was harvested by not hauled to the OSB mill.



**Figure 4.7 LP actual hardwood harvest volume during the bird breeding season as compared to annual 100,000 m<sup>3</sup> maximum.**

#### 4.4.2 Maximum Harvest Level

The FML # 3 Forest Management Licence Agreement section 12(A) states:

*The Company represents to Manitoba that it requires a timber supply of 900,000 cubic metres per annum of hardwood and softwood to meet the requirements of the O.S.B. Mill in accordance with plans that are or will be prepared by the company. The Company acknowledges that in order to satisfy its annual timber supply, it must access timber from both Crown and private lands.*

The amount of hardwood harvested in the 2001-2002 operating year from all sources was 704,700 m<sup>3</sup>, which is below the 900,000 m<sup>3</sup> maximum (Figure 4.8).

#### 4.4.3 Minimum Harvest Level

The FML # 3 Forest Management Licence Agreement section 12 (C) states:

*In the event that the five (5) year average planned harvesting program for the Crown land portion of FML 3 and the hardwood portions of FMUs 12 and 14 is less than 400,000 cubic metres per annum and the production capacity of FML 3 and FMUs 12 and 14 exceeds the timber volumes required by the Company, then FML 3 and commitments to the Company in FMUs 12 and 14 will be adjusted to the then planned annual requirement level, effective on the 1<sup>st</sup> day of January, 2000, or, on subsequent anniversary dates thereof as mutually agreed to by Manitoba and the Company. Such adjustments will only be made by Manitoba after consultation with the company.*

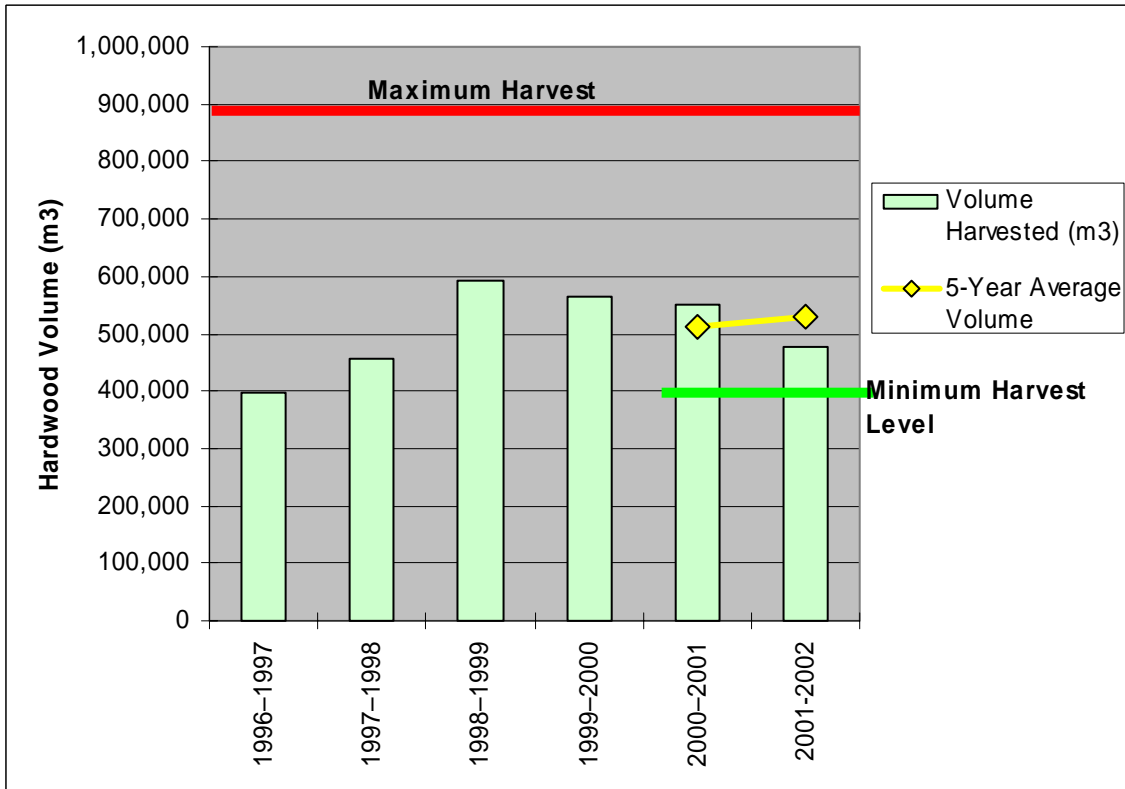
Actual harvested volumes from FML # 3 (FMUs 10, 11 & 13) and FMUs 12 and 14 for the last five years are shown in Table 4.6.

**Table 4.6 Five year volumes and average volume of hardwood harvested from FML # 3 and FMUs 12 and 14 Crown land<sup>1</sup>.**

Operating Year	Volume Harvested (m <sup>3</sup> )	Five Year Average (m <sup>3</sup> )
2001 – 2002	478, 847m <sup>3</sup>	<b>528,783 m<sup>3</sup></b>
2000 – 2001	549,526 m <sup>3</sup>	<b>512,625 m<sup>3</sup></b>
1999 – 2000	565,547 m <sup>3</sup>	n/a
1998 – 1999	592,280 m <sup>3</sup>	n/a
1997 – 1998	457,714 m <sup>3</sup>	n/a
1996 – 1997	398,057 m <sup>3</sup>	n/a

<sup>1</sup> – excludes private land

The five year average harvest volume of 528, 783 m<sup>3</sup> meets or exceeds the 400,000 m<sup>3</sup> minimum required harvested volume requirement (Figure 4.8). Please note that the 2000-2001 operating year is the first year that a five year average could be calculated.



**Figure 4.8 LP actual hardwood harvest volume in FML # 3 and FMUs 12 & 14 as compared to annual maximum and five-year minimum harvest levels.**



## 5.0 FOREST RENEWAL AND STAND MANAGEMENT

Forest renewal and stand management are an integral part of LP's commitment to responsible forest stewardship and forest management. LP has been assigned all obligations and responsibilities with respect to forest renewal and stand management within FML # 3 (Forest Management Units 10, 11 and 13). The FML Agreement (dated Sept. 21, 1994) states in section 22 (D):

*“The Company acknowledges its primary forest management and renewal responsibility by ensuring that all harvested areas within FML 3 are regenerated to approved Provincial Standards.”*

These renewal responsibilities apply to all areas harvested by LP and all third parties (*i.e.* Quota holders) in FML # 3, both hardwood and softwood. This commitment to forest renewal shall ensure:

- (i) a perpetual sustained timber yield from the productive forest lands harvested; as well as,
- (ii) the maintenance of forested ecosystems within FML # 3.

LP carries out all reforestation activities on behalf of Quota Holders within FML # 3, financed by a Forest Renewal and Stand Management Trust Fund (the Fund) which has been established. Proceeds from the Fund are used to ensure adequate and reasonable reforestation and stand management within FML 3. LP, as well as all quota holders harvesting merchantable timber from FML # 3, contribute a per cubic metre fee to the Fund. These fees are collected and administered by LP.

LP has committed to manage and maintain forest ecosystems on a landscape level basis. LP's strategy is to reforest harvested ecosystems to their pre-harvest tree species composition. This is achieved through a variety of silvicultural systems such as modified clear-cut (Figure 5.1), group seed tree, understorey protection and other treatments (shelterwood, selection, *etc.*) which balance the ecology of the forest with the silvics of the tree species. These regeneration strategies rely on 'natural' (Figure 5.1), "advanced" and/or 'assisted' regeneration tactics. All silvicultural management interpretations, prescriptions and objectives are based upon:

- (i) the assessment of the forest ecosystem (Vegetation & Soil Types) prior to harvesting (Pre-Harvest Survey & Pre-Harvest Cut Block Prescription) and

- (ii) joint field visits to all active harvest blocks by the operations technicians (of logging) and the silviculture forester, in order to ‘finalize’ forest renewal strategies/objectives for each site.

LP’s reforestation responsibility was initiated in 1996 after the signing of the FML Agreement with the Province of Manitoba. The Company’s silvicultural activities have dramatically increased over the last few years with the continuation or commencement of the following initiatives:

- (i) implementation of a variety of silvicultural systems;
- (ii) cone/seed collection;
- (iii) tree planting;
- (iv) site preparation/scarification;
- (v) forest plantation survival assessments;
- (vi) forest regeneration surveys;
- (vii) free-to-grow surveys;
- (viii) stand tending and maintenance.
- (ix) establishment of a tree improvement sites/cooperative with Manitoba Conservation; and
- (x) funding of silvicultural research trials.

Financial information regarding these forest renewal and stand management (Trust Fund) activities/programs are included within this report (Appendix IV), which contains financial ledger and withdrawal summaries regarding the Trust Fund’s 2001-2002 programs.



**Figure 5.1 Four-year old aspen regeneration within a modified clear-cut hardwood V-Type.**

## 5.1 SITE PREPARATION AND SCARIFICATION

Site preparation and scarification are necessary treatments in order to ensure the establishment and survival of coniferous seedlings. In the past LP recruited contractors from outside its FML to complete site preparation/scarification treatments. LP realized that it would be more beneficial to have local contractors performing this work. The company was having difficulty recruiting site preparation contractors to FML 3; therefore a decision was made to develop local contractors. In order to make this a reality, LP committed to the purchase of the site preparation/scarification equipment. In 2001 all site preparation/scarification was completed by local contractors from the area. The FML 3 Trust Fund owns a TTS power disc trencher and a set of shark-fin barrels and anchor chains, which it affixes to a local contractor's prime mover. In 2001, LP signed spring fall Site Preparation/Scarification Agreements with Dave Adams of Adams Contracting (1989) Ltd.

### 5.1.1 Site Preparation Activities

Shark-fin barrels/anchor chains and disc trenching were prescribed for site preparation to all weather areas, accessible during the spring/summer/fall season. Scarification is prescribed on sites having a shallow organic surface layer, low slash loading and only requiring minimal disturbance. Scarified sites are typically left for natural regeneration (jack pine types), however the disturbance created by the scarification equipment often produces excellent planting microsites within the mixedwood subtypes. Figures 5.2 and 5.3 illustrate the microsites created by these different site preparation/scarification implements utilized by the company in 2001.

Table 5.1 summarizes the company's 2001-2002 site preparation activities from May 1<sup>st</sup>, 2001 until April 30<sup>th</sup>, 2002. A total of 544.3 hectares (ha) were site prepared/scarified. The Shark-fin Barrels and Anchor Chains scarified 346.6 ha (64 %) and the Power Disc Trencher 197.7 ha (36%) (Figure 5.4). A complete summary of the harvest blocks treated can be referred to within Appendix IV.

**Table 5.1 Actual area site prepared by equipment type.**

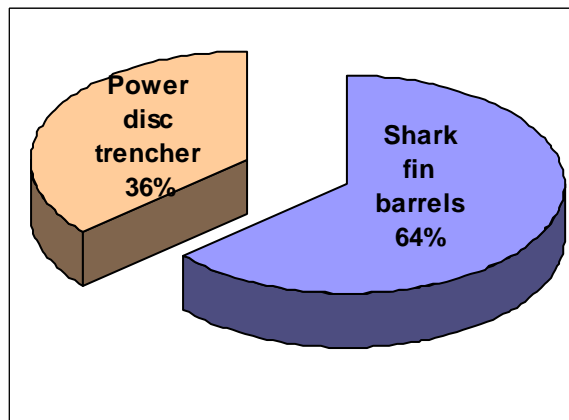
Equipment Type	Area (ha)
Shark-fin barrels & Anchor Chain	346.6
Disc Trenching	197.7
<b>TOTAL</b>	<b>544.3</b>



**Figure 5.2 Site preparation equipment - power disc trencher mounted on a skidder.**



**Figure 5.3 Scarification equipment – shark-fin barrels and anchor chains being pulled by a skidder.**

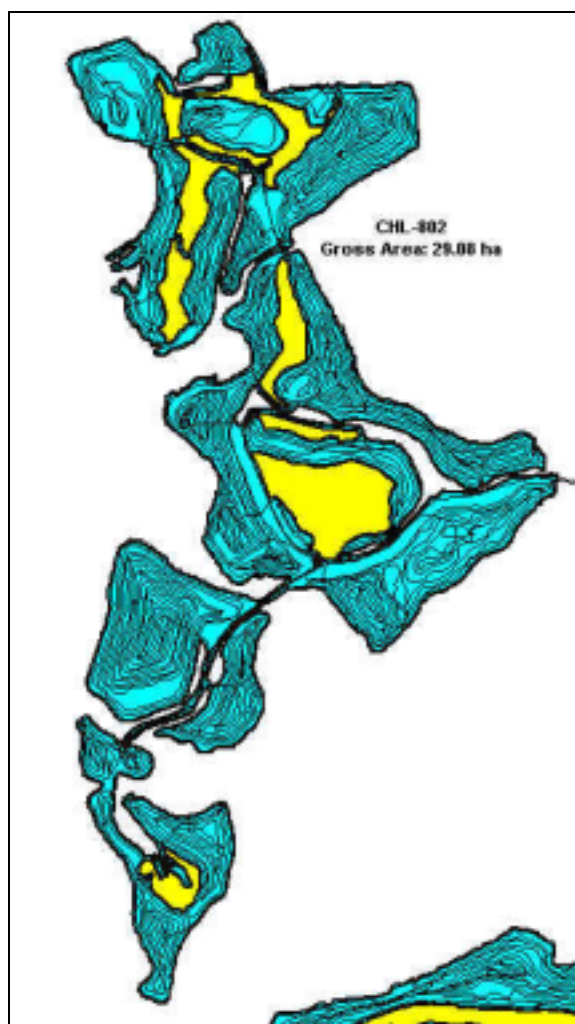


**Figure 5.4 Distribution of Site Preparation by equipment type.**

### 5.1.2 *Silvitrac*s Scarification Monitoring System

In 1997 Louisiana-Pacific Canada Ltd. purchased two portable *Truckbase Silvitrac*s Geographic Positioning Systems (GPS) based Scarification Monitoring Systems. *Silvitrac*s is designed to record the precise path taken by scarification/site preparation equipment, correct/analyze the GPS information, measure treatment areas/units, locating and measuring missed areas within the cutblock. It also monitors machine production and efficiency, processes information in order to determine fair contract payment rates, creates a GIS treatment layer/quality map report, creates a site map (Figure 5.5) for planting and aids management with strategic planning initiatives.

*Truckbase Silvitrac*s consists of an onboard GPS receiver and computer that is mounted on the site preparation equipment (prime mover). The onboard computer is literally a 'black box' programmed to communicate with the GPS receiver computing position, speed and bearing of the prime mover. This information is stored on a PC memory card that can be easily removed and the data transferred to a conventional Windows-based computer. Using *Truckbase*'s Corrector and Analysis software the memory card's data is differentially corrected, thereby providing real-time information on the prime mover's location, time, speed, etc.



**Figure 5.5** *Silvitrac*s map showing the exact path of the site preparation equipment. Note the leave areas (yellow residual pockets) that were not treated.

## 5.2 SNOW CACHE

Louisiana-Pacific Canada Ltd. snow cached a total of 957,840 jack pine, white spruce and black spruce containerized seedlings in February of 2002. The numbers of seedlings cached by Operating Area are shown in Table 5.2. Boxes of seedlings are placed on pallets and wrapped in poly prior to being buried with one metre of clean snow. A one-metre layer of flax straw is then placed over the snow to insulate the snow and seedlings (Figure 5.6), in order to keep seedlings at a proper storage temperature. All stock was found to be in excellent condition upon removal from the snow caches in May/June of 2002.

Students from schools in Swan River, Roblin, Grandview and Ethelbert helped in the construction of LP's snow caches in 2002. Students spent the day (field trip) assisting with the unloading of seedlings from the trailer, as well as touring LP harvesting operations and winter site preparation activities.

**Table 5.2** Number of seedlings snow cached in February 2002 by species and operating area.

Operating Area	Black Spruce Seedlings	White Spruce Seedlings	Jack Pine Seedlings	Total Seedlings
Duck Lake	45,000	180,000	10,200	235,200
Wine Lake	25,200	140,040	10,200	175,440
Ethelbert Trail	70,200	110,160	5,400	185,760
Route H	70,200	100,080	5,400	175,680
Cowan West	100,080	-	-	100,080
Arm Lake	10,080	70,200	5,400	85,680
<b>Totals</b>	<b>210,600</b>	<b>530,280</b>	<b>31,200</b>	<b>957,840</b>



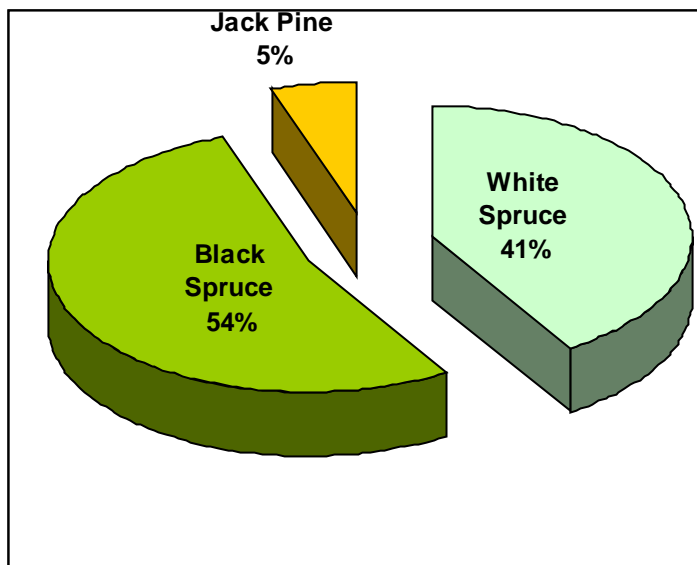
**Figure 5.6** A snow cache in progress. Flax straw is being placed over one metre of clean snow.

### 5.3 TREE PLANT

In 2001 the company planted a total of 2,802,221 seedlings throughout FML # 3. Figure 5.7 illustrates a tree plant in progress. The spring (May 14<sup>th</sup> to June 13<sup>th</sup>) tree plant was comprised of 1,416,431 black spruce, white spruce and jack pine seedlings, while an additional 1,385,790 white and black spruce seedlings (figure 5.8) were planted during the summer plant (July 2<sup>nd</sup> to 24<sup>th</sup>). A summary of harvested areas planted, species and stock types planted, number of seedlings planted, planting dates and planting qualities are in Appendix IV. All seedlings planted in 2001 were grown by Pineland Forest Nursery (Hadashville, Manitoba). On recommendation from Pineland Forest Nursery the summer tree plant began two weeks earlier in 2001 due to the stock being ready for shipment and outplanting. Both the spring and summer tree plant contracts were awarded to Coast Range Contracting Ltd. (a.k.a. Outland Reforestation Inc.).



**Figure 5.7** Planting a spruce seedling within a prepared (mixed and raised) microsite.



**Figure 5.8** Percentage of seedlings by species planted in 2001.

## 5.4 FOREST REGENERATION PERFORMANCE SURVEYS

Hardwood harvest blocks are regenerated by prescribing a modified clear-cut silvicultural system to the site. Removal of the overstorey is crucial in promoting prompt initiation of ‘coppice’ (to reproduce vegetatively from stumps or root suckers) aspen, poplar and birch regeneration. All sites are carefully harvested and monitored on a regular basis to ensure that the regeneration capacity/potential of the site is not negatively impacted by the following:

- (i) excessive slash logging/poor utilization;
- (ii) excessive roads, truck turn a-rounds and camp sites;
- (iii) rutting of forest soils; and
- (iv) maintaining a disproportionate amount (*i.e.* too much) of in-block ‘leave’ structure.

The harvested hardwood sites (described above) are monitored by LP during forest regeneration surveys (Figure 5.9). After five growing seasons a forest regeneration survey is completed in order that LP can apply for and receive a ‘Certificate of Reforestation’ from the Province of Manitoba. To date, all hardwood sites harvested by LP have meet (and exceeded) the provincial regeneration standards.

Forest regeneration performance surveys were performed by LP in the fall of 2001. A total of 44 hardwood (“H” original subtype)/hardwood mixedwood (“N” original subtype) harvest blocks (all LP sites logged in the fall/winter of 1996 and summer of 1997) were surveyed. All company staff performing regeneration surveys were certified by the Province of Manitoba. A subset of the harvest blocks surveyed by LP were ‘check surveyed’ by Manitoba Conservation. On February 15<sup>th</sup>, 2002 LP received a Certificate of Reforestation (from Manitoba Conservation) for these harvest blocks.



**Figure 5.9** Surveyor assessing regeneration within a harvested site.

## 5.5 CONE COLLECTION

LP completed a white spruce cone collection program in August of 2001 within the Upper Dam, Favel River and Wine Lake Operating Areas of FML 3. A total of 98.5 hectolitres of white spruce cones were collected (Table 5.3). Taiga Air Service Ltd. and Brinkman & Associates Reforestation Ltd.

were contracted to assist the company with the white spruce cone collection (Figure 5.10). Potential collection areas were monitored throughout July and August. Samples of cones were regularly inspected for embryo development, as well as any signs of insect activity or disease. A Fandrich Power Cone Rake was rented to collect the cones.

The white spruce cones collected yielded 133.4 kilograms of seed or 65,845,000 seeds (Table 5.3). This seed collected will produce approximately 25,000,000 million white spruce seedlings over the next fifteen years. The current FML # 3 seed inventory is listed in Table 5.4.

**Table 5.3 Summary of 2001 white spruce cone collection program.**

Collection Area	Seedlot #	Volume HI	Total Seed (kg)	Yield grams/HI	Testing Data		Total Number of Seed
					Purity	Seed/g	
Upper Dam	3-01-13.4-923	30.5	44.32	1453	100.0%	508	22,515,000
Favel River	3-01-13.4-924	12.5	16.88	1350	99.8%	450	7,581,000
Wine Lake	3-01-13.4-925	55.5	72.22	1301	100.0%	495	35,749,000
<b>Total</b>		<b>98.5</b>	<b>133.42</b>	<b>1355</b>			<b>65,845,000</b>



**Figure 5.10 White spruce cones are being removed from raked white spruce tops collected by the helicopter. Note the raked pile of tops behind worker.**

**Table 5.4 FML # 3 seed inventory as of February 2002.**

Seedlot Number	Seed Year	Species	Seed Zone	% Viability	Total Seed (Kg)	Viable Seed/ Gram	Total Number Viable Seed
3-00-11.4-G-834	2000	Black Spruce	11.4D	93	0.48	1058	507,784
3-01-11.4-G-909	2001	Black Spruce	11.4D	91	5.57	890	4,952,739
3-01-11.4-G-910	2001	Black Spruce	11.4D	91	18.80	898	16,889,770
529	94/95	Black Spruce	11.4D	93	0.36	937	337,203
688B	97/98	Black Spruce	11.4D	92	0.16	1030	164,743
<b>Total Black Spruce</b>					<b>25.37</b>		<b>22,852,239</b>
3-01-13.4-G-923	2001	White Spruce	13.4D	79	44.32	403	17,842,789
3-01-13.4-G-924	2001	White Spruce	13.4D	83	16.88	371	6,254,167
3-01-13.4-G-925	2001	White Spruce	13.4D	83	72.22	408	29,492,843
689A	97/98	White Spruce	13.4D	81	5.26	352	1,853,570
689B	97/98	White Spruce	13.4D	68	24.00	336	8,070,240
<b>Total White Spruce</b>					<b>162.68</b>		<b>63,513,609</b>
3-01-04.4-G-911	2001	Jack Pine	4.4D	94	3.62	242	876,583
690	97/98	Jack Pine	4.4D	94	10.58	259	2,735,865
<b>Total Jack Pine</b>					<b>14.20</b>		<b>3,612,448</b>

## 5.6 STAND TENDING

LP Canada Ltd. completed its first stand tending program within FML 3 in 2001. The purpose of the project was to perform a manual selective backpack chemical release on approximately 150 hectares of coniferous plantations. The treatment areas were selected/identified (in 2000) due to excessively high components of woody and herbaceous competition. Failure to treat these plantations could jeopardized the survival/establishment of the conifer within these areas. Manual backpack was selected as the mode of chemical application because it targets specific microsites (*i.e.* 1 metre treatment zone around each coniferous crop tree), thereby (i) reducing the total amount of chemical applied to the site, as well as, (ii) allowing for the maintenance of vegetation within areas not containing coniferous crop trees (Figure 5.11) (*i.e.* not a broadcast treatment).



**Figure 5.11 Competition around conifer crop trees have been reduced, while wildlife trees and adjacent hardwood regeneration have been maintained.**

A total of 132.3 hectares of coniferous plantation (four harvest blocks) were treated within the Sarah Lake and Tee Lakes Operating Areas of FML 3 from August 28<sup>th</sup> until September 8<sup>th</sup>, 2001 (Table 5.5). LP Canada Ltd. was issued a Pesticide Use Permit No. 2001218 from Manitoba Conservation on July 17, 2001. The chemical applied by the company was Vision® (Glyphosate) Silvicultural Herbicide. For additional project details and information please refer to the internal project report titled '2001 Tending Program'.

**Table 5.5 Fall stand tending program.**

Operating Area	Block Number	Block Area (ha)	Area Applied (ha)
<i>Sarah Lake</i>	133228s3-01	51	44.74
<i>Sarah Lake</i>	133328s3-01	47	39.4
<i>Sarah Lake</i>	13322803-05	56	34.43
<i>Tees Lake</i>	133227s3-02	36	13.7
<b>Total</b>		<b>190</b>	<b>132.27</b>

## 5.7 TREE IMPROVEMENT

LP Canada Ltd. (Swan Valley FRD) and Manitoba Conservation have signed Tree Improvement Memorandum of Understandings, thereby creating a Manitoba Tree Improvement Co-operative between the two parties. The 3<sup>rd</sup> Annual Tree Improvement meeting was held on Sept. 20, 2001 in The Pas. Below is a list of the tree improvement activities completed within FML 3 from May 1<sup>st</sup>, 2001 to April 30<sup>th</sup>, 2002.

### Breeding Zone 13.4 (Mountain Breeding Zone)

#### **Birds Hill Orchard –**

Cone induction on approximately 400 trees using a combination of gibberellin injections and root pruning. Conducted cone counts per tree in control and treatment areas to add to cone crop database to determine effectiveness of cone induction treatment.

Maintenance and management of orchard including mowing, trimming grass, applying Scoot to base of trees, fertilizing and foliar sampling for nutrient analysis completed. (May 15 & 23 – 24, Oct. 11, 15 & 31, Nov 2)

There has been a loss of 3.3% of the trees in the orchard since June 2000. Some of the trees have died due to drowning with the wet summer. Two trees dropped their needles in a very short period of time. These trees are suspected to have been attacked by Tomentosus Root Rot. The Pitch Moth and Spruce Gall Adelgid have damaged other trees in the orchard. The orchard will be closely monitored next year and possible control programs will be investigated.

A fertilizer application schedule was prepared for 2001.

A GIS map has been prepared for the orchard.

#### **Boggy Creek Family Test –**

Two applications of Methoxychlor to control terminal weevil to reduce damage to test trees completed (May 8 – 13 & May 22 – 26)

**Shortdale Family Test –**

Two applications of Methoxychlor to control terminal weevil to reduce damage to test trees completed (May 8 – 13 & May 22 – 26)

**Antler Corner Family Test –**

No work undertaken

**Rice Creek Family Test –**

Two applications of Methoxychlor to control terminal weevil to reduce damage to test trees completed (May 8 –13 & May 22 – 26)

Competition was removed from test site using brush saws. (Aug. 8)

**Pineland Clone Bank –**

The clone bank was mowed three times. The irrigation pipe was removed from the clone bank by Green Team staff to facilitate the mowing. (June 18 – 19, July 26 – 27, Sept. 10 – 11)

**Breeding Zone 11.4 (Mountain Breeding Zone)**

Prepare computer programs for mapping of tests and orchard May 24 - 25

**Wine Lake Orchard –**

The Wine Lake orchard was pinned on May 30 and planted on June 4 and 5. The orchard was inspected on July 10, was performing well.

**San Clara Family Test –**

The San Clara family test was pinned on May 31 and planted on June 6 (Figure 5.12). The test was inspected on July 10 and was performing well.

**Cryderman Pit Family Test –**

The Cryderman Pit family test was pinned on May 31 and planted on June 7. The test was inspected on July 11 and was performing well.



**Figure 5.11 Workers plant the family test site at San Clara.**



## 6.0 RESEARCH AND MONITORING

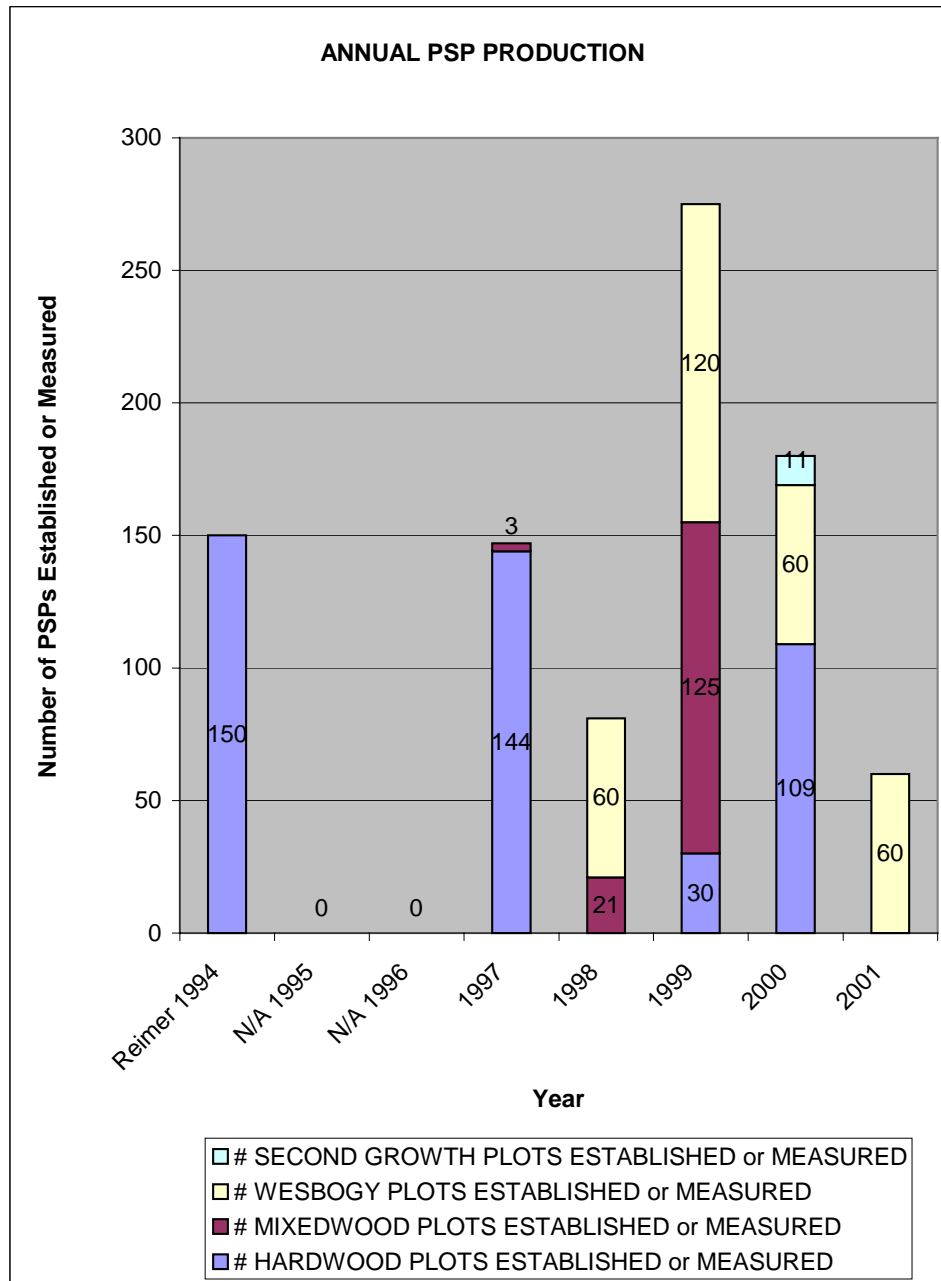
### 6.1 PERMANENT SAMPLE PLOTS

Louisiana-Pacific Canada Ltd. (LP) is responsible for the sustainable management of the forest resources in Forest Management License (FML) #3 in western-central Manitoba. As part of LP's Forest Management Plan, and in accordance with Environment Act License 2191E, LP Swan Valley - Forest Resources Division is establishing permanent sample plots (PSPs) within its license area. The primary objectives of the PSP program are:

1. To assess stand dynamics such as succession, regeneration, and mortality within major forest cover-types;
2. To provide information that will be used to formulate yield curves and tables, timber supply models, *etc*;
3. To provide representative areas for the study of forest management treatments;
4. To collect data that enables LP to monitor the long-term health of the forest ecosystem; and
5. To develop relationships between stand structure, forest ecosystem classification (FEC), vegetation and soil types, wildlife habitat and biodiversity conservation attributes.

LPs permanent sample plots are established according to the protocol outlined in the LP Ecological Monitoring PSP Field Procedures Manual. The plots are established in clusters of three, within each randomly selected stand that meets specific site criteria. Each square plot is approximately 22 m X 22 m (0.05 hectares). Within each plot, data are collected for a variety of ecological attributes such as soils, understorey vegetation, live and dead trees, wildlife habitat values and coarse woody debris, which enables the program to meet its objectives.

In 1994, LP initiated its PSP Program by establishing 150 plots within hardwood dominated areas (Figure 6.1). Initial measurements on these PSPs were completed by 1997. In 1998, LP established, and completed initial measurements on 21 PSPs within mixedwood areas. In 1999, LP established and completed initial measurements on an additional 129 PSPs within mixedwood areas, and established and measured 27 hardwood PSPs in the Interlake Plain Ecoregion. In 2000, LP completed re-measurement of 23 hardwood PSPs, establishment of 85 hardwood PSPs; re-location and GPSing of 184 PSPs MS-69 PSPs within Riding Mountain National Park, and entered MS-69 PSP data from archived field data sheets at CFS Edmonton into a digital database.



**Figure 6.1 Permanent sample plot establishment and re-measurement history.**

Notes:

1. 150 hardwood PSPs were established and some measurements were taken in them in 1994. In 1997 these plots were revisited and further measurements were taken, however, 1 cluster (3 PSPs) had been harvested and 1 cluster (3 PSPs) could not be located (this cluster was located & measured in 1999).
2. In 1998 21 mixedwood PSPs were established in the mid-boreal uplands. Also, 60 WESBOGY PSPs were established in 1998. Initial measurements (60 plots) and first year measurements (60 plots) were completed in the spring and fall respectively in 1999.

3. In 1999 125 mixed-wood PSPs were established in a variety of ecoregions, 27 hardwood PSPs were established in the Interlake Plains ecoregion, and the 3 hardwood PSPs that could not be located in 1997 were measured.
4. PSP activities for 2000 were as follows:
  - (i) establishment of 84 hardwood PSPs in the Lake Manitoba Plain ecoregion;
  - (ii) re-measurement of 23 hardwood PSPs which were established in 1994 (15% of the original 150 PSPs established);
  - (iii) eight second-growth PSPs and one hardwood PSP were established as part of the Garland Grazing Trial Experiment;
  - (iv) 3 second-growth PSPs were established at the Loggers and Haulers Forestry Demonstration Site;
  - (v) one hardwood PSP was established in the Mid-Boreal Uplands ecoregion in order to change a cluster of two previously established PSPs into a cluster of three PSPs;
  - (vi) completed laboratory analysis (University of Alberta) of soil samples from 46 PSPs;
  - (vii) the annual spring maintenance and the fall re-measurements were completed at the WESBOGY sites (60 PSPs);
  - (viii) located and GPSed 184 of 226 attempted MS-69 PSPs located within Riding Mountain National Park; and
  - (ix) entered MS-69 PSP data (from archived field data sheets @ CFS Edmonton) into a digital database.
5. In 2001, the WESBOGY Mixedwood Density Study received the annual re-measurement and maintenance (Figure 6.2).



**Figure 6.2 Seasonal staff measuring the WESBOGY mixedwood trial.**

LP is a member of the Western Boreal Growth and Yield Association (WESBOGY). The general objective of this association is to promote further understanding of the effects of intensive management strategies on boreal mixedwood forest dynamics. As a member of the association, LP agreed to establish 60 mixedwood density study (MDS) PSPs. Establishment of these 60 MDS PSPs was completed in 1998. Initial measurements of these PSPs were completed in the spring of 1999, and re-measurements/maintenance was completed in the fall of 1999, 2000 and 2001.

## **6.2 DUCK MOUNTAIN FOREST BIRD MONITORING PROJECT**

The Duck Mountain Forest Bird Monitoring project was initiated in spring 1997 to fulfill a condition of LP's Environmental License. Baseline data is collected annually in support of concerns raised at the Clean Environment Commission Environmental Hearings about neo-tropical migrant and resident bird populations, and potential impacts of forest management activities on the bird's breeding habitat in the Duck Mountains.

The multi-year objective of the bird monitoring project is to identify and quantify factors which influence the distribution and abundance of bird species in the Duck Mountains. The fourth year objective (the 2000 field season) was to resample a subset of all the habitat types sampled between 1997 and 1999 using stand and site level variables to account for annual variation in populations over the four year life of the project. The fifth year of the study (2001 field season) concentrated on sampling bird communities associated with riparian forested habitats. Therefore, new listening stations were established in riparian zones, under the guidance of Dr. Rob Berger.

### **6.3 FOREST RESEARCH ORGANIZATION AFFILIATIONS**

LP continued its' association with a number of partners and research organizations including (in alphabetical order):

- Centre for Interdisciplinary Forest Research (C-FIR at University of Winnipeg)
- Forest Engineering Research Institute of Canada (FERIC)
- Manitoba Model Forest (MMF)
- Natural Resources Institute (NRI at University of Manitoba)
- Sustainable Forest Management Network of Centres of Excellence (SFMN)
- Western Boreal Growth and Yield Cooperative (WESBOGY at University of Alberta)

#### **6.3.1 Centre for Forest Interdisciplinary Research (C-FIR)**



<http://www.uwinnipeg.ca/~wang/C-FIR.html>

The Centre for Forest Interdisciplinary Research is located at the University of Winnipeg, located in Winnipeg, Manitoba. The Centre offers one of the few truly interdisciplinary forest ecology programs offered in Canada. C-FIR provides support in key areas of sustainable forest management and related development to industry, environmental groups, government agencies and variety of other stakeholders. There is a focus on providing access to made-in Manitoba research and expertise. C-FIR researchers are from a variety of disciplines including biology, biochemistry, economics, philosophy, conflict resolution, anthropology, geography, GIS and climatology.

The Centre was developed and funded by support from the Canadian Foundation for Innovations, the Manitoba provincial government, and matching contributions from the private sector and other organizations.

### 6.3.2 Forest Engineering Research Institute of Canada (FERIC)



<http://www.feric.ca/en/index.htm>

FERIC, the Forest Engineering Research Institute of Canada, is a private, non-profit research and development organization whose goal is to improve Canadian forestry operations related to the harvesting and transportation of wood, and the growing of trees, within a framework of sustainable development.

FERIC is funded by a growing partnership between leading forestry companies (who utilize almost 70% of the total Canadian wood harvest), the Government of Canada, and the provinces (plus the Northwest Territories). FERIC's mission is to provide these partners with the knowledge and technology to conduct cost-competitive, quality operations that respect the forest environment.

FERIC's affairs are administered by a board of directors that represents the forest industry, the federal and provincial governments and universities with forestry programs. The research program is developed with the guidance of national and regional advisory committees that include representatives of all our partners. Ongoing feedback helps FERIC to address the broad spectrum of technical problems encountered during the planning and implementation of forestry operations.

FERIC has offices in Montreal and Vancouver, and employs more than 80 forestry and engineering professionals, technicians and support staff.

FERIC's research and development programs cover the engineering, human, operational and environmental aspects of harvesting, processing and transportation of forest products; silvicultural operations; and the specific problems encountered in small-scale operations. In addition, FERIC conducts contract research on projects selected for their value to the partners. FERIC's research is field-oriented, and is carried out in close cooperation with woodlands personnel. The research program is focused on the following areas:

- wood harvesting
- transportation and roads
- silvicultural operations
- small-scale operations
- engineering design/specialized technologies
- technology transfer

### 6.3.3 Manitoba Model Forest



<http://www.manitobamodelforest.net/>

Canada's Model Forest Program was created by the Government of Canada, through the Canadian Forest Service, to address the challenge of balancing the extensive range of demands that is placed on today's forests, and the needs of tomorrow's generations. A model forest is a partnership between individuals and organizations sharing the common goal of sustainable forest management. Partners typically include industrial companies, parks, landowners, all levels of government, Aboriginal people, academic institutions, environmental groups, labour and youth. This cross section of membership is committed to demonstrating how social, environmental, cultural and economic interests can be integrated.

The Model Forest provides a unique forum where these partners can gain a greater understanding of conflicting views, share their knowledge, and combine their expertise and resources to develop innovative, region-specific approaches to sustainable forest management. The result of this grass roots approach is solutions that work and earn local support. There are presently 12 Model Forests across Canada.

The Manitoba Model Forest, located northeast of Winnipeg, contains 1.05 million hectares of boreal forest. Since 1993, the Manitoba Model Forest has completed over 200 short and long term research, development, education and communication projects. These projects span a diverse range of subjects from charting woodland caribou migration patterns using Global Positioning System technology; to enhancing forest resource inventories and building lasting partnerships between diverse forest stakeholders. Currently, science efforts are focusing on ecosystem based management, developing indicators of sustainable forest management and mimicking natural disturbance such as fire by altering logging techniques and patterns. Socio-economic efforts are focusing on First Nations Land Use studies being conducted in three First Nations communities within the Manitoba Model Forest by capturing traditional knowledge, language and history using modern day technology such as geographic information systems.

### 6.3.4 Natural Resources Institute (NRI)



[http://www.umanitoba.ca/institutes/natural\\_resources/](http://www.umanitoba.ca/institutes/natural_resources/)

The mission of the Natural Resources Institute is to create, preserve and communicate interdisciplinary knowledge in areas of resource and environmental management, and to contribute to the well-being of the people of Manitoba, Canada and the world.

Research at the Institute can be divided into two categories, Student theses and faculty research. Theses are initiated either by students or by staff members at the Institute; arrangements are made for students to research a particular resource problem. The thesis is a written research report prepared to address a practical problem or issue in natural resources management. Student thesis projects address a broad range of issues in the natural resource and environmental sector and are generally funded by government and private agencies. It is primarily through this research process that links are created between the Institute and our client community. Theses committees draw from a wide range of on-campus and off-campus expertise. The Institute continues to demonstrate that the university community has the people and the expertise to contribute solutions to complex problems in the field of resources management. Moreover, the practical experience gained by Institute students is invaluable in the education of professional resource managers.

Faculty research is carried out on a variety of topics. Areas of strength include natural resources policy; living resources; environmental and risk assessment; sustainable development; northern resources and native peoples; resource planning and administration and environmental hazard management. Major faculty research projects, with graduate student participation, are carried out in the areas of: wildlife management, conservation of habitats and biological diversity, agro-wildlife policy evaluation (R. Baydack); sustainable floodplain management, risk perception and communication, hazards knowledge and research assessment (E. Haque); sustainable development of Northern Manitoba and comparative studies with the Russian North; environmentally and culturally appropriate economic development based on natural resources (T. Henley); community-based natural resource management, co-management of fish and wildlife, and common property resources (F. Berkes); waste management, particularly waste reduction, local government and environmental decision-making (J. Sinclair)

Results of faculty research projects are published in national and international journals and the scholarly media, and presented at world-class conferences. Applied aspects of these studies also become the subject of policy reports.

### 6.3.5 Sustainable Forest Management Network (SFMN)



#### SUSTAINABLE **FOREST** MANAGEMENT NETWORK

<http://sfm-1.biology.ualberta.ca/english/home/index.htm>

The Sustainable Forest Management Network (SFMN) began in 1995 as one of 17 research organizations established under the Networks of Centres of Excellence (NCE) program. The mission of the SFM Network, through strong partnerships and enhanced networking, is to provide integrated, multidisciplinary research that will ensure the sustainability of Canada's boreal forests. This research is aimed to preserve the ecological functions and biodiversity inherent in Canada's forests and meet social needs and values of people. The SFMN goal is to improve the nation's forest-based economy by developing new technologies, new knowledge and new strategies for the management and conservation of this valuable renewable resource.

The SFM Network is a national university-based organization that includes world-class researchers from the natural, social and applied sciences. The SFMN is located at the University of Alberta. Currently the Network operates with a \$ 6.5 M annual budget that is judiciously allocated to research that meets the SFMN mission. The Network works closely with partners to establish and, when necessary, redirect the Network's research program so that it tackles relevant problems and focuses on realistic solutions. It also works closely with those organizations that are in the best position to implement the results of the Network's research, so that the Network's intellectual property is transferred and implemented.

In addition, the Network provides sustainable forest management training and education, and reduces the barriers to students who complete course work in interdisciplinary environmental studies at more than one institution. Hundreds of graduate students from Canadian universities are trained by SFM Network researchers in collaboration with its partners each year, using their new knowledge to address current issues in practical and meaningful ways.

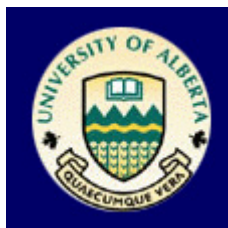
Funding is provided by a number of partners including the Government of Canada, Networks of Centres of Excellence, which includes the Natural Sciences and Engineering Research Council of Canada (NSERC) and Social Sciences and Humanities Research Council of Canada (SSHRC); 14 forestry companies; 4 First Nations, 4 Provincial Governments (Alberta, Manitoba, Ontario, Quebec); 1 Non-Government Organization (Ducks Unlimited Canada), and 30 Canadian Universities.

The Sustainable Forest Management Network supports an integrated research program to develop knowledge, strategies and tools to ensure that Canada's boreal forests are effectively managed. Research projects are selected for funding following an annual Call for Proposals and a comprehensive review process that involves the Program and Research Area leaders, Partner representatives, Research Planning Committee members and external reviewers.

The structure of the research program has evolved since the inception of the Network. The past few years have seen more emphasis placed on group proposals in which interdisciplinary teams focus on integrated research projects. There are currently 13 priority research areas that provide focus to research projects and the formation of research groups, they are

- Aboriginal/First Nations Forestry Issues
- Biodiversity
- Carbon dynamics
- Disturbance Modelling
- Integrated Resource Management
- Intensive Forest Management
- Policy, Guidelines and Standards Analysis
- Public Involvement
- Pulp and paper technologies
- Regeneration and stand dynamics
- Riparian Zone Management
- Solid Waste Management
- Values at Risk

### 6.3.6 Western Boreal Growth and Yield Cooperative (WESBOGY)



<http://www.rr.ualberta.ca/wesbogyl/>

LP became a member of the Western Boreal Growth and Yield Cooperative (WESBOGY) in 1997-1998. The WESBOGY Cooperative is currently comprised of members representing governments, academic and forest industry agencies. The general objective of this cooperative is to advance the understanding of the dynamics of the boreal mixedwood forest (under management). LP realizes that a better understanding of the dynamics of these mixedwood forests is necessary.

Specific objectives of the WESBOGY cooperative are:

- to access total and individual species productivity in various densities and mixtures
- to develop an individual tree growth model using stand growth, mortality and Crown dynamics;
- to simulate a model of Crown dynamics of aspen and spruce mixedwood stands
- to develop, share and exchange growth and yield data (PSP data matrix) between all cooperative members
- to formulate short-term and long-term growth and yield research priorities

## 6.4 ADVISORY AND COMMITTEE MEMBERSHIP

LP Canada Ltd. and LP staff continue to advise and/or hold membership on the following committees:

- Manitoba Forest Research Advisory Committee (MANFRAC)
- Manitoba Model Forest – Science & Technical Advisory Committee
- Sustainable Forest Management Network – Board of Directors, Research Planning Committee, Partners Committee
- Western Boreal Growth and Yield Cooperative – Steering Committee

In addition to the above, LP and LP staff are involved with many associations and groups.

### 6.4.1 Canadian Forestry Association (CFA)



<http://www.canadianforestry.com/eng/>

The Canadian Forestry Association established a new board of directors at the organization's annual general meeting in Ottawa November 21 - 22, 2001, signaling a significant change for the 101-year-old forest conservation organization. The CFA has been operating under a board of directors as a federation of provincial forestry associations since 1959. The new CFA will maintain its collaborative relationship with provincial forestry associations and other forest conservation organizations across Canada through a new partners council.

The CFA will continue to pursue success in its role as Canada's lead forest conservation organization, with its long-standing public awareness and youth education mandate.

### 6.4.2 Canadian Institute of Forestry (CIF)



<http://www.cif-ifc.org/>

The Canadian Institute of Forestry/Institut forestier du Canada (CIF/IFC) is the national voice of forest practitioners. The CIF/IFC (formed in 1908) organized in 23 sections across Canada represent members who are foresters, forest technologists and technicians, educators, scientists and others with a professional interest in forestry.

The mission of the Canadian Institute of Forestry (CIF) is to advance the stewardship of Canada's forest resources, provide national leadership in forestry, promote competence among forestry professionals, and foster public awareness of Canadian and international forestry issues.

The CIF's objectives are:

- To provide leadership in all aspects of forestry<sup>(1)</sup> in Canada
- To foster public understanding of forestry, and its importance in Canada
- To advance members in their knowledge of forestry
- To cultivate an "esprit de corps" among members
- To publish a professional and scientific forestry journal
- To recognize excellence through a) a national awards program, the outstanding contributions made to Forestry by members and non-members, b) the presentation of silver rings, to graduates of Canadian forestry baccalaureate programs.
- To cooperate with other organizations having similar objectives

<sup>(1)</sup> Forestry: the science, the art and the practice of managing on a sustainable basis the ecosystems that occur on or in association with forest lands, for environmental, economic, social and cultural values.

### 6.4.3 Forest Products Association of Canada (FPAC formerly CPPA)



<http://www.fpac.ca/>

LP is an active member on the FPAC Biodiversity Committee and the Forestry Section.

The work of the Forest Products Association of Canada (FPAC) formerly the Canadian Pulp and Paper Association, is carried out through the volunteer efforts of the CEOs and executives of the member companies. These individuals work together through committees and task forces, devoting their time and efforts to common industry issues and programs. Their common goal is to increase the knowledge base of the industry and raise the standards by which Forest Products are produced. Their work is designed to assist the industry as a whole by:

- developing markets around the world for new and existing pulp and paper products
- developing common guidelines for the improvement of forest management practices and mill management
- working with government, environmental groups and other stakeholders for the benefit of the industry, the protection of the environment and the responsible care and harvesting of our forests through sustainable forest management practices
- compiling and analyzing environmental statistics and promoting global free trade
- generating open dialogue and discussion through industry communications programs and representation of the industry in Canada and around the world

FPAC represents forest products companies across Canada. FPAC activities are funded by member companies. Member companies are represented on the Association's Board of Directors by their President or Chief Executive Officer. Together, our members account for nearly all the wood products and paper and pulp produced in Canada.

FPAC's people and resources deal with specific industry issues divided into sections. Section members include representatives from member companies as well as FPAC staff.

These sections are (in alphabetical order) :

- Environment
- Finance
- Forestry
- Public Affairs
- Risk and Insurance Committee
- Taxation Committee
- Trade Affairs
- Transportation and Distribution

#### 6.4.4 Manitoba Forestry Association (MFA)



<http://www.canadian-forests.com/mfa.htm>

Manitoba Forestry Association's mission is to inform and educate all Manitobans about wise management of trees and forests as a vital part of the larger ecosystem. Forests are an integral part of the global ecosystem and the lives of all human beings. Inherently forests are used but their use must be in a manner which ensures they will remain healthy and productive today, and for future generation.

LP is involved with the Envirothon program of the MFA. A complete list of the MFA programs includes:

- Envirothon
- Forest Centres
- ForestEd. Teacher Workshops
- Forestry Scholarships
- National Forest Week and Arbour Day
- Poster Challenges
- Project Learning Tree
- School Conservation Classes
- Smokey Bear Reading Club
- Woodlot Extension Services - working with the Manitoba Christmas Tree Growers Association and the Woodlot Association of Manitoba.

### 6.4.5 Swan Lake Basin Management Plan – Round Table

The Swan Lake Basin Management Plan was initiated by the Water Branch of Manitoba Conservation. Local residents from Saskatchewan and Manitoba play a major role in formulating a basin management plan that will present guidelines for managing the basin's resources. A multi-agency technical advisory group works with the round table to provide background information on the Swan Lake Basin for round table members. A draft management plan will be produced by March 2003, and will then be available for public input.

## 6.5 OTHER RESEARCH AND MONITORING INITIATIVES

LP has also provided direct funding to the following projects:

- **Influence of forest harvesting on arthropod biodiversity in mixedwood ecosystems.** Dr. Richard Westwood, University of Winnipeg, Centre for Forest Interdisciplinary Research . (partial funding for 2001 operating year will be provided by the Manitoba Model Forest)
- **Forest site quality evaluation and classification of three stand types in western Manitoba.** Dr. Steve Titus, University of Alberta.

There are a number of **collaborative projects** that are supported by LP and other partners, depending on the project. Support may include research funds, baseline data, preharvest survey or ecological monitoring plot data, GIS thematic information, aerial photo and satellite imagery and GIS technical support. These projects include

- **Climate change impacts on productivity and health of aspen forests in the western Canadian interior .** Ted Hogg and Michael Michaelian, Northern Forestry Centre, Canadian Forest Service, Edmonton.
- **Prairie Region landscape analysis of bird communities and habitat associations.** Dr. Keith Hobson, Canadian Wildlife Service, Saskatoon.
- **Localization of the Mixedwood Growth Model for Saskatchewan and Manitoba.** Dr. Steve Titus, University of Alberta.
- **Assessing factors of seedling mortality of important boreal species across the Canadian boreal forest.** Dr. Norm Kenkel, University of Manitoba. (funded by the SFMN).
- **Development of an analytical framework to assess adaptability of forest operations to climate change.** Dr. Mark Johnston Saskatchewan Research Council, Saskatoon Saskatchewan.
- **Development and collection of data to support modelling for water quality and watershed disturbances on the Boreal Plain.** Dr. Ellie Prepas, University of Alberta and Millar Western Forest Products.
- **Development of an ecosite-based decision support system for sustainable forest management.** Dr. Rick Baydack, Natural Resource Institute, University of Manitoba, Manitoba Conservation, Tembec Forestry Group, Tolko Industries Inc., Geospatial International, Manitoba Model Forest and LP.

- **Sucker Regeneration of Aspen.** Drs. Simon Landhausser and V. Lieffers. Alberta Pacific Forest Industries Inc., Slave Lake Pulp Corp, Weyerhaeuser Canada Ltd, LP Canada Ltd., Daishowa-Marubeni International Ltd., Ainsworth Lumber Co Ltd.
- **Forecasting Our Future Forests: An Integrated Approach to Ecological Resource Management.** Dr. Norm Kenkel, Univ. of Manitoba (funded by the SFMN)
- **Recruitment dynamics of white spruce and balsam fir advanced regeneration in trembling aspen stands, Duck Mountains, Manitoba.** Dr. Norm Kenkel, Univ. of Manitoba (funded by the SFMN)
- **Impact of slash loading and residual trees on soil temperatures and aspen regeneration.** Dr. Ken Van Rees, Univ. of Saskatchewan (funded by the SFMN)
- **Forest succession and post-logging regeneration dynamics in the Duck Mountain Ecoregion, west-central Manitoba.** Dr. Norm Kenkel, Univ. of Manitoba (funded by the SFMN)
- **Fire history reconstruction and response of the dominant tree species to climate in the Duck Mountain ecoregion, western Manitoba.** Jacques C. Tardif, University of Winnipeg, Centre for Forest Interdisciplinary Research and Edward Cloutis, University of Winnipeg (funded by the SFMN)
- **The management of boreal riparian areas: Development of base-line data; regionalization of parameters and integrated watershed management protocols.** Suzanne Bayley, University of Alberta & Dale Vitt, Southern Illinois University. (funded by the SFMN)
- **Multiscale landscape indicators of forest bird diversity and community structure.** Rob Rempel, Ontario Ministry of Natural Resources, Centre for Northern Forest Ecosystem Research, Lakehead University (funded by the SFMN)
- **Warp II Data base for modelling water quality and watershed disturbance on the boreal plain.** Ellie Prepas, University of Alberta, Biological Sciences; David Chanasyk, University of Alberta; Gordon Putz, University of Saskatchewan; Dan Smith, University of Alberta; Participating SFM Network Partners: Millar Western Forest Products Ltd., Louisiana-Pacific Canada Ltd.
- **Developing better probabilistic function and field indicators of seedling mortality of important boreal species across the Canadian boreal forest.** Christian Messier, Dép. Des sciences biologiques, Université du Québec à Montréal; Norm Kenkel, University of Manitoba; Geoff Wang, University of Winnipeg; Ellen Macdonald, University of Alberta; Hubert Morin, Université du Québec à Chicoutimi; Alison Munson, Université Laval; Jean-Claude Ruel, Université Laval; Art Groot, Canadian Forest Service
- **Spatial and non-spatial modelling of canopy tree dynamics in boreal forests.** Vic Lieffers, University of Alberta, Renewable Resources; Steve Titus, University of Alberta; Christian Messier, Université du Québec à Montréal; Norm Kenkel, University of Manitoba; Dave Coates, Université du Québec à Montréal; Gitte Grover, Alberta-Pacific Forest Industries Inc.

## **6.6 COLLABORATIVE PROJECTS**

### **Western Boreal Forest Initiative, Pasquia Project – Ducks Unlimited Canada**

LP is pleased to be the first industrial partner to voice an intention to support and participate in the Ducks Unlimited Canada (DUC) Western Boreal Forest Initiative (WBFI)– the Pasquia Project. The WBFI project was established in 1997 by DUC to address questions relative to boreal wetland ecosystems, including their importance as waterfowl habitat, potential consequences of climate change, and the influence of associated land-use activities such as agriculture, forestry, mining, and hydro electric development. The Pasquia Project study area (which encompasses a large area of the Porcupine Hills) was selected to represent the southeastern portion of the Boreal Plains Ecozone. The project focus has several components which include landcover inventory and mapping, waterbird and water quality inventory and Traditional Ecological Knowledge.

### **The effects of habitat fragmentation and slope on the spatial distribution of owls in the western upland region of Manitoba**

Heather Hinam, University of Manitoba

### **Climate change impacts on productivity and health of aspen forests in the western Canadian interior**

Ted Hogg, Canadian Forestry Service, Edmonton

### **Prairie Region landscape analysis of bird communities and habitat associations**

David Kirk and Keith Hobson, Canadian Wildlife Service, Saskatoon

### **The Garland Grazing Trial**

Manitoba Conservation

### **Genetics of Black Spruce**

Manitoba Model Forest

### **Development of Growth and Yield Curves for Hardwood Species in Manitoba and Saskatchewan.**

Steve Titus, Renewable Resources Dept., University of Alberta



## 7.0 EMPLOYMENT SUMMARY

LP's OSB mill directly generates many jobs. In addition to the mill, a great deal of employment has been created in the forestry sector of the Mountain Forest Section. LP has distributed the economic benefits of harvesting and trucking activities throughout the entire FML area, other parts of Manitoba and into Saskatchewan.

Much forestry employment is seasonal or contracted, therefore all figures have been converted into equivalent person/years. The equivalent of 415 full time jobs were attributed to LP's forestry operations in 2001-2002 season (Table 7.1).

**Table 7.1 Employment in person years for all activities related to LP's operations.**

<b>HARVESTING</b>	<b>PERSON/YEARS</b>
LP Crown Land Logging	128.8
TPA Crown Land Logging	41.6
Private Land Logging	108.3
All Trucking	87.0
<b>SUBTOTAL</b>	<b>365.7</b>
<b>RENEWAL</b>	<b>PERSON/YEARS</b>
Site Preparation	1.0
Snow Caching	0.5
Planting	10.0
Surveys	1.5
Cone Collection	0.5
Tree Improvement	3.0
<b>SUBTOTAL</b>	<b>16.5</b>
<b>LP FOREST MANAGEMENT</b>	<b>PERSON/YEARS</b>
LP Regional	5.0
LP Full Time	14.0
LP Part Time/Contract	1.5
LP Seasonal	8.0
Consultants	5.0
<b>SUBTOTAL</b>	<b>33.5</b>
<b>TOTAL</b>	<b>415.7</b>

For all calculations a year is considered 250 working days. For each sector, the following equation was used to determine the number of person/years:

$$(\# \text{ of employees} \times \# \text{ of weeks} \times \# \text{ of days/weeks}) / 250 \text{ days/year}$$



## 8.0 SAFETY

### Swan Valley Forest Resources Division's Safety Vision Statement:

*We believe that to have a successful business we must have a safe business:*

We, the employees and leaders of this Division, assume the accountability and responsibility for creating an environment in which the safety and health of our employees and business associates is expected and demanded. We will apply the appropriate amount of focus, training and effort toward eliminating unsafe behaviors and conditions in our work places and situations.

During the 2001/2002 operating year, LP believes its employees have lived up to this vision statement. Swan Valley Forest Resources again achieved its goal of no lost time accidents. One accident and three near-misses were reported in 2001. Although all accidents or incidents are significant, this demonstrates LP's commitment to safety. This commitment includes providing to all employees: proper job and safety training, all necessary safety equipment, as well as employee directed safety policies. To ensure that this commitment will continue into the future an employee elected Safety Committee was established within Swan Valley FRD. This committee not only deal with safety related situations that arise daily, but is proactive in identifying and correcting foreseeable unsafe conditions.

The company also recognizes the inherent dangers involved in forestry operations for our independent contractors. Although these contractors are solely responsible for the safety of their employees, the company still promotes safe work practices whenever possible. This involves working closely with Manitoba's Workplace Safety and Health Branch as well as the Worker's Compensation Board to ensure that our contractors are following all applicable laws, acts and regulations. Safety is a never ending process and the company will continue to encourage safety practices among our contractors through education and awareness.

The goal of the Swan Valley FRD Safety Committee is to create a safe work environment and ensure the safety principals listed within the Swan Valley FRD safety vision statement and manual are followed. For more detailed information regarding safety objectives, committee roles and responsibilities, education and training, *etc.* one can refer to the Swan Valley Forest Resource Division Safety Policy Manual.

Safety highlights in 2001/2002:

- Maintained regular Swan Valley FRD Safety Committee meetings and submission of safety meeting minutes to Manitoba Labour and Immigration: Workplace Safety and Health Division.

- Revised Swan Valley FRD Safety Policy Manual.
- Elected summer/seasonal field staff to the Swan Valley FRD Safety Committee.
- Continued employee training including: Standard First Aid/CPR Training; Canada Safety Council ATV operation/preparation course and Safety Orientation (mandatory review of Swan Valley FRD Safety Policy Manual).
- Continued support of a safety incentive award program

## APPENDIX I - GLOSSARY OF TERMS

**Annual Allowable Cut (AAC)** - the volume of wood which can be harvested from an area each year on a sustainable yield basis. In Manitoba, AAC volumes are determined by the MC Forestry Branch

**Coarse Woody Debris** – dead and down trees on or near the forest floor.

**Conventional Logging** - a logging system that includes chains saw operators and cable-line skidders.

**Crown Land** - forest lands owned by the Province of Manitoba

**Crown Other** – a term used by LP in this document for summarizing hardwood delivered to the OSB mill that was harvested by a quota or permit holder.

**Cutblock** - a designated area within which harvesting has been proposed or taken place.

**Forest Ecosystem Classification** - a management oriented classification system for Manitoba Forests. It is intended to identify and describe accurately the major forest conditions in Manitoba including vegetation and soils types and management interpretations.

**Forest Management License (FML) Area** - the area in western Manitoba described within the Forest Management License Agreement between the Province of Manitoba and LP.

**Forest Management Unit (FMU)** - designated areas of the Province of Manitoba by the MNR for the administration of the forest resource.

**Forest Renewal** - projects that are aimed at establishing a new forest stand on a site following a disturbance.

**Hardwood** - tree species with the typical broad-leafed appearance. These tree species lose their foliage during the winter months. Species included in this group are balsam poplar, trembling aspen, white birch, Manitoba maple etc.

**Integrated resource Management Team (IRMT)** - a regional Manitoba Natural Resource team organized to review natural resource issues. They are comprised of members of the following branches: Forestry, Wildlife, Regional Operations, Lands, Fisheries, Water Resources, and Parks and Natural Areas.

**Manitoba Conservation (MC)** - the department of the government which is responsible for the administration and overseeing of the management of the natural resources on Crown lands. MC includes several branches each responsible for the administration of a particular segment of the natural resource. These branches include: Forestry, Wildlife Regional Operations, Lands, Fisheries, Water Resources and Parks and Natural Areas.

**Mechanical Logging** - a logging system that includes mechanical tree felling and skidding equipment.

**Operating Area** - a designated area used for the operational management of timber harvesting. These areas are often delineated based on natural features and or access routes.

**Oriented Strand Board (OSB)** - a type of particle board in which logs are processed by cutting strands tangentially from the longitudinal face of the log so the grains of the wood runs the length of the strand. Strands are bonded together with resins under heat and pressure.

**Permanent Ecological Monitoring Plots (PSP)** - a permanent research plot that is established and re-measured at regular intervals to monitor changes over time.

**Pre-Harvest Silvicultural Prescriptions (PHSP)** - a detailed site-specific management plan developed prior to harvesting.

**Pre-Harvest Surveys (PHS)** - a detailed site-specific assessment of ecosystem elements within a proposed cutblock conducted prior to harvest.

**Quota Holders** - parties other than LP who have been granted the right to harvest timber within the FML area by the Government of Manitoba.

**Road Classes** - the type of roads built for the extraction of timber. LP uses the following definitions:

- **Class I** - All-weather road; graded and graveled;  $\leq 20$  year life span; 45m right-of-way
- **Class II** - All-weather road; graded and graveled;  $< 20$  year life span; 30m right-of-way
- **Class III** - Dry weather road; minimal grading and graveling; 1-10 year life span
- **Class IV** - Winter road (frost); stumped, no gravel; life span 1-5 years
- **Class V** - Winter only road; little development; used to cross lowlands, swamps and water bodies; life span 1-5 years

For reporting purposes LP uses the following definitions for each type of road construction:

- **Existing Road Maintenance:** Where an existing road or trail was utilized requiring minimal road work (*e.g.* grading).
- **Existing Road Upgrade:** Where an existing road or trail was utilized but significant road work was required to allow logging trucks to move efficiently and safely (*e.g.* widening of right-of-way, “cat work”, grading *etc.*).
- **New Road Construction:** Where no road or trail existed previously, requiring design, layout and complete construction (*e.g.* Harvesting and stumping of right-of-way, cut and fill leveling, grading *etc.*).

**Silviculture** - the science and art of growing and tending a forest based on the knowledge of the forest species requirement.

**Site Preparation** - the treatment of a harvest cutblock prior to planting to enhance the growth of desired tree species.

**Softwood** - conifer tree species with the typical “evergreen” appearance. Species included in this group are black spruce, white spruce, jack pine, balsam fir and tamarack.

**Stakeholders Advisory Board (SAC)** - a group of individuals representing the various stakeholders within the FML area. The SAC plays an integral role in the planning process by reviewing LP’s operating plans and Standard Operating Procedures. The SAC members bring valuable local knowledge and concerns to LP’s planning process.

**S-Type** – soil type classified in the field, using the soil key within the forest ecosystem classification for Manitoba field guide (Zoladeski *et. al* 1995).

**Timber Purchase Agreements** - Crown land wood agreements are entered into with third party operators who do not harvest for LP under the Company's Independent Logging Contractor Agreement.

**V-Type** - vegetation type classified in the field, using the vegetation key within the forest ecosystem classification for Manitoba field guide (Zoladeski *et. al* 1995).

## APPENDIX II - FIBRE PROCUREMENT

The following tables (A2.1 – A2.5) contain the hardwood volume harvested by LP on crown land. In addition, these tables contain the total hardwood volume received from quota holders (cutblocks whose block number is 800 or greater) and lease holders. The hardwood volume is measured and recorded in tonnes when it crosses the scales at the LP OSB mill site. The wood's weight is then converted to cubic meters using conversion factors that account for the changing weight/density of the hardwood throughout the year. The conversion factors used in 2001-2002 were:

Quarter		BA/TA	WB	
Quarter 1	Tonnes x	1.100	1.100	= m <sup>3</sup>
Quarter 2	Tonnes x	0.988	0.968	= m <sup>3</sup>
Quarter 3	Tonnes x	0.979	0.953	= m <sup>3</sup>
Quarter 4	Tonnes x	0.921	0.830	= m <sup>3</sup>
<b>Average</b>	<b>Tonnes x</b>	<b>0.997</b>	<b>0.963</b>	<b>= m<sup>3</sup></b>

Tables A2.1 to A2.5 also contain cutblock areas in hectares. Within FML # 3 (FMUs 10, 11 & 13), the cutblock areas are based on **actual** areas delineated from cutover photography which was digitized. FML # 2 cutblocks had to use **planned** areas, since LP does not yet have access to cutover photography for FMUs 12 & 14.

**Table A2.1 Hardwood volume and actual cutblock areas from Crown land by FMU.**

Cutblock	Crown Land Type	Balsam Poplar (m <sup>3</sup> )	Trembling Aspen (m <sup>3</sup> )	White Birch (m <sup>3</sup> )	Hardwood TOTAL (m <sup>3</sup> )	Planned Cutblock Area (ha)	Actual Cutblock Area (ha)	Comments
<b>FMU 10</b>								
GRL-103	Open	1,048	3,348	125	4,520	34.4	31.7	
GRL-104	Open	193	1,565	-	1,759	8.4	7.5	
<b>FMU 10 TOTALS</b>		<b>1,241</b>	<b>4,913</b>	<b>125</b>	<b>6,279</b>	<b>42.8</b>	<b>39.2</b>	
<b>FMU 11</b>								
38-24-16-SW	Open	-	63	-	63			lease no area planned or calculated
ALP-001	Open	291	4,074	-	4,365	38.1	24.5	
ALP-851	Open	758	2,514		3,271	89.8	26.5	
RWR-103	Open	480	4,018	-	4,498	23.5	19.4	
RWR-104	Open	379	3,156	246	3,782	21.1	16.4	
RWR-107	Open	129	3,524	-	3,653	22.6	18.3	
RWR-108	Open	304	7,467	63	7,834	47.2	40.7	
RWR-112	Open	298	5,618	860	6,776	62.6	7.3	
RWR-113	Open	621	1,891	168	2,680	23.9	19.7	
RWR-114	Open	3,405	4,590	276	8,271	60.8	46.1	
SWL-851	Open	87	503	-	590	28.2	3.0	
<b>FMU 11 TOTALS</b>		<b>6,751</b>	<b>37,419</b>	<b>1,613</b>	<b>45,782</b>	<b>328.0</b>	<b>221.9</b>	
<b>FMU 13</b>								
13272601-04	Open	203	3,417	-	3,620	64.8	18.5	took 3 yrs to cut
133425S3-02	Open	269	1,049	-	1,318	36.9	8.7	took 3 yrs to cut
133225S1-02A	Open					4.0	3.9	chipperwd only
ARL-009	Open	865	5,880	188	6,934	56.2	42.2	
ARL-010	Open	913	10,729	-	11,642	84.4	76.0	
ARL-011	Open	504	5,098	240	5,842	53.0	44.0	
ARL-012	Open	210	1,553	16	1,779	16.7	12.9	
ARL-802	Open	26	166	-	192	39.5	2.4	
CHL-809&809B	Open	21	349	-	369	50.0	43.2	
CRP-008	Open	115	5,383	595	6,092	62.9	41.7	
CRP-010	Open	553	4,920	571	6,043	52.3	52.3	
CRP-024	Open	618	6,441	673	7,732	56.8	42.7	
CRP-025	Open	23	2,308	38	2,369	22.8	15.2	

Cutblock	Crown Land Type	Balsam Poplar (m <sup>3</sup> )	Trembling Aspen (m <sup>3</sup> )	White Birch (m <sup>3</sup> )	Hardwood TOTAL (m <sup>3</sup> )	Planned Cutblock Area (ha)	Actual Cutblock Area (ha)	Comments
CRP-105	Open	416	2,431	62	2,909	18.9	12.7	
CRP-106	Open	182	1,890	-	2,072	14.7	11.2	
CRP-114	Open	313	3,929	528	4,770	36.5	29.3	
CWC-894	Open	262	1,453	39	1,755	59.2	35.3	
CWW-818	Open	71	574	532	1,177	47.5	15.6	took 3 yrs to cut
CWW-826	Open	139	1,693	12	1,844	56.0	27.1	only 1/2 cut
EAF-810	Open	19	330	5	354	70.1	7.4	will take 5 yrs to cut
EBT-802	Open	354	1,420	251	2,025	36.4	16.7	only 1/2 cut
EBT-806	Open	126	297	4	428	12.4	11.0	
EBT-807	Open	471	1,157	48	1,676	43.4	38.8	
EBT-813	Open					60.5	9.7	no wood received from this block
ISL-802	Open	588	6,498	-	7,086	41.0	35.0	all wood hauled under 802 from 802 and 837
ISL-837	Open					22.0	19.6	
ISL-840	Open	-	716	-	716	83.0		road only
JFL-810	Open	17	100	-	117	20.5	3.6	multi yr harvest
MGL-008	Open	1,702	5,651	201	7,553	47.4	41.7	
MGL-010	Open	861	1,325	73	2,259	20.7	14.5	
MGL-802	Open	948	10,331	-	11,279	63.8	56.0	
MGL-851	Open	818	1,993	15	2,826	19.2	16.6	
MGL-852	Open	1,033	7,626	58	8,717	48.7	43.4	
MGL-853	Open	1,683	8,215	35	9,933	51.2	46.3	
MNC-820	Open	148	2,127	-	2,275	34.1	9.5	multi yr harvest
NTD-112	Open	-	291	42	333	9.1	7.3	
NTD-113	Open	708	9,297	1,374	11,378	80.2	64.8	
ONL-801	Open	118	432	-	550	74.7	59.5	
ONL-821	Open	503	2,955	-	3,458	35.7	36.3	
ONL-900	Open	737	3,367	168	4,273	32.2	25.7	
RTH-001	Open	337	2,918	227	3,481	26.3	27.2	
RTH-002	Open	1,398	8,855	1,151	11,405	92.1	85.7	
RTH-003	Open	1,167	4,690	485	6,342	41.1	40.5	
RTH-004	Open	1,393	13,800	1,250	16,443	76.7	74.2	
RTH-005	Open	1,841	7,169	1,204	10,214	71.5	66.0	
RTH-901	Open	458	4,200	331	4,989	65.3	60.7	
RTH-903	Open	1,163	2,498	150	3,811	27.4	30.0	

Cutblock	Crown Land Type	Balsam Poplar (m <sup>3</sup> )	Trembling Aspen (m <sup>3</sup> )	White Birch (m <sup>3</sup> )	Hardwood TOTAL (m <sup>3</sup> )	Planned Cutblock Area (ha)	Actual Cutblock Area (ha)	Comments
RTH-904	Open	1,308	2,751	402	4,461	56.1	45.8	
RTW-011	Open	210	7,460	114	7,784	39.2	35.9	
RTW-013	Open	1,544	11,717	176	13,437	67.4	59.1	
RTW-014	Open	291	6,359	18	6,668	33.9	27.3	
SLC-100	Open	1,911	4,532	-	6,443	76.8	62.9	
SLC-802	Open	61	131	-	192	50.2	3.5	multi yr harvest
SNL-001	Open	1,946	7,775	581	10,302	59.1	60.2	
SNL-006	Open					60.0	53.9	stock piled wood
SNL-007	Open	346	1,831	-	2,177	30.9	10.0	2 yr harvest
SRL-002	Open	630	2,879	75	3,584	25.4	18.6	
SRL-003	Open	106	2,828	-	2,934	20.5	19.0	
SRL-005	Open	552	6,090	128	6,769	60.5	39.3	
SRL-006	Open	1,380	12,248	389	14,017	73.6	74.7	
SRL-802	Open	75	941	-	1,016	19.3	3.9	multi yr harvest
SRL-814	Open	154	1,188	-	1,341	31.7	11.4	multi yr harvest
SRL-815	Open	310	770	-	1,080	40.3	7.1	multi yr harvest
STR-002	Open	388	714	-	1,102	16.7	10.7	
STR-004	Open	151	1,953	-	2,104	36.3	15.8	2 yr harvest
STR-806	Open	202	1,091	-	1,293	25.3	9.8	multi yr harvest
STR-851	Open	57	210	-	267	16.5	3.0	multi yr harvest
TEL-805	Open	1,341	7,921	-	9,262	83.1	74.3	
TEL-806	Open	341	78	-	419	26.4	25.6	
TEL-807	Open	1,401	6,445	-	7,846	80.5	93.1	
TEL-808	Open	-	499	-	499	5.9	4.1	
TEL-809	Open	86	497	-	583	10.8	9.4	
TEL-810	Open	15	297	-	312	3.9	3.8	
TEL-812	Open	351	3,960	-	4,311	23.0	22.3	
TEL-813	Open	462	1,682	-	2,144	65.2	27.1	only 1/2 cut
VLR-803	Open	133	1,006	-	1,139	58.7	5.7	only partially cut
VMR-807	Open	37	140	13	191	60.8		old wood only
WEF-009	Open	1,910	6,029	305	8,243	57.6	47.0	
WEF-010	Open	1,494	7,153	257	8,904	49.7	41.6	
WEF-804	Open	61	179	-	240	24.5	2.7	multi yr harvest
WJL-012	Open	815	3,610	95	4,520	31.6	28.0	
WJL-013	Open	676	3,084	342	4,102	30.5	25.0	
WJL-014	Open	919	4,720	364	6,003	39.9	31.1	

Cutblock	Crown Land Type	Balsam Poplar (m <sup>3</sup> )	Trembling Aspen (m <sup>3</sup> )	White Birch (m <sup>3</sup> )	Hardwood TOTAL (m <sup>3</sup> )	Planned Cutblock Area (ha)	Actual Cutblock Area (ha)	Comments
WJL-015	Open	993	4,204	191	5,388	30.6	28.3	
WJL-016	Open	990	4,385	450	5,824	24.1	24.4	
WJL-017	Open	1,031	6,885	252	8,167	50.2	40.8	
WJL-018	Open	1,340	6,448	215	8,004	54.4	45.2	
WJL-019	Open	364	5,056	173	5,592	30.5	26.8	
WJL-802	Open	522	2,006	518	3,046	49.5	30.3	
WNL-100	Open	983	6,669	-	7,652	63.4	51.4	
WNL-102	Open	451	1,751	24	2,226	23.8	16.9	
WNL-804	Open	137	1,055	-	1,192	77.5	10.3	2 yr harvest
WNL-812	Open	142	1,787	-	1,929	27.4	26.6	
WNL-813	Open	317	1,445	-	1,756	16.0	13.4	
<b>FMU 13 TOTALS</b>		<b>53,220</b>	<b>329,976</b>	<b>15,645</b>	<b>398,841</b>	<b>3,993.9</b>	<b>2,809.4</b>	
<b>FML # 2 FMU 14</b>								
40-26-19-N	Open	249	1,231	-	1,480			
41-25-31-SW	Open	34	393	-	428			
42-26-34	Open	48	1,476	-	1,524			
42-27-28	Open	97	1,546	18	1,661			
42-27-28	Open	131	488	18	638			
42-27-28	Open	164	2,311	-	2,475			
43-26-10-SW	Open	662	2,480	-	3,143			
43-26-2-SW	Open	5	1,185	-	1,190			
43-29-14-NW	Open	20	668	-	688			
43-29-21-NW	Open	20	269	30	319			
43-29-8-NE	Open	137	1,857	-	1,994			
44-27-22-NW	Open	766	139	55	960			
44-29-2-SW	Open	15	234	52	301			
ANT-001	Open	1,119	2,384	191	3,694	39.8		
ANT-002	Open	1,599	1,812	29	3,440	23.8		
ANT-003	Open	2,478	6,036	113	8,626	51.1		
BLR-010	Open	661	4,444	460	5,565	37.2		
BLR-011	Open	416	2,405	56	2,876	17.7		
BLR-012	Open	2,115	7,748	890	10,754	46.4		
HRT-053	Open	587	16	-	603	4.4		
HRT-054	Open	572	198	-	770	10.3		

Cutblock	Crown Land Type	Balsam Poplar (m <sup>3</sup> )	Trembling Aspen (m <sup>3</sup> )	White Birch (m <sup>3</sup> )	Hardwood TOTAL (m <sup>3</sup> )	Planned Cutblock Area (ha)	Actual Cutblock Area (ha)	Comments
HRT-055	Open	43	169	-	213	1.3		
HRT-056	Open	820	1,487	-	2,307	16.5		
HRT-057	Open	2,597	7,983	-	10,580	61.8		
NOV-001	Open	811	3,460	-	4,271	15.9		
NOV-002	Open	709	2,435	-	3,144	15.4		
NOV-003	Open	579	1,571	2	2,153	12.4		
NOV-004	Open	610	6,224	-	6,834	29.6		
NOV-005	Open	359	1,592	4	1,955	8.6		
NOV-006	Open	646	1,651	12	2,309	8.3		
SRR-001	Open	994	9,017	184	10,195	40.4		
SRR-002	Open	1,689	3,702	353	5,743	33.3		
SRR-003	Open	2,285	4,841	41	7,167	37.6		
SRR-004	Open	2,297	3,929	198	6,424	42.2		
<b>FMU 14 TOTALS</b>		<b>26,334</b>	<b>87,383</b>	<b>2,708</b>	<b>116,425</b>	<b>554.0</b>		
<b>FML # 2 FMU 12</b>								
42-25-6-SW	Open	319	741	-	1,059			
44-29-31-NW	Open	72	2,114	20	2,207			
44-29-35-SE	Open	155	539	-	694			
45-27-3	Open	150	295	39	484			
45-27-3	Open	1,875	5,612	27	7,514			
48-25-30-SW	Open	90	64	-	154			
49-24-27-W	Open	217	12	-	229			
BRW-010	Open	8,054	2,659	783	11,496	120.0		
BRW-011	Open	1,953	1,313	265	3,531	35.1		
NLM-101	Open	-	188	-	188	99.4		
NLM-103	Open	-	388	-	388	47.8		
<b>FMU 12 TOTALS</b>		<b>12,884</b>	<b>13,926</b>	<b>1,134</b>	<b>27,944</b>	<b>302.3</b>	-	

### APPENDIX III – QUOTA HOLDER VOLUMES AND STUMPAGE

**Table A3.1 Quota Holder Volume Summary by Quarter for May 1, 2001 – March 31, 2002. (shaded areas indicate F-40 not completed)**

FMU 13	Holder	Quota	Allowable Cut/01		Over/Undercut 2000		Jun 30	Ending	Sep 30	Ending	Dec 31	Ending	Mar 31	Ending	TOTAL m <sup>3</sup>	
Quota Holder Name	No.	No.	SWD	HWD	SWD	HWD	SWD	HWD	SWD	HWD	SWD	HWD	SWD	HWD	SWD	HWD
Angus, Len & Bill	M2427R	156	167.1	-	167.1	-	-	-	-	-	-	-	197.6	-	197.6	-
BASARABA, Les	M2428GV	269	-	1,000.0	-	1,000.0	-	-	-	-	-	1,387.5	-	109.1	-	1,496.6
Bielek, Peter	M2429SR	154	-	191.4	-	191.4	-	-	-	-	-	382.8	-	-	-	382.8
Bresky, Herb & Sons	MM2441SR	185	1,819.2	-	1,806.5	-	-	-	-	-	-	-	1,912.3	-	1,912.3	-
				10,000.0		10,000.0								10,000.0		10,000.0
Cords, Tom & Don	M2430GV	158	104.9	-	2.7	-	-	-	-	-	-	-	120.0	-	120.0	-
Dubek, Metro M.	M2431GV	159	232.2	-	232.2	-	-	-	-	-	37.5	-	278.7	-	316.2	-
Dudar Forest Products	M2432GV	281	-	1,000.0	-	1,000.0	-	-	-	-	-	-	-	-	-	-
Dudar, Harold	M2433GV	160	630.1	-	630.1	-	-	-	-	-	-	-	-	-	-	-
EAGLE, Stuart	M2432SR	163	-	1,004.3	-	308.2	-	-	-	-	-	-	-	938.7	-	938.7
Fullerton, William	M2435SR	165	329.8	1,355.2	188.7	1,355.2	-	-	-	-	-	247.5	350.0	390.0	350.0	637.5
GURICA, Ernie	M2436GV	267	-	1,000.0	-	502.0	-	-	-	-	-	1,375.0	-	127.0	-	1,502.0
Halabisky, Walter	M2437G	167	197.8	-	(13.2)	-	-	-	-	-	-	-	-	-	-	-
Harapiak, Stanley	M2438GV	169	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hay, Robert	M2439SR	171	1,898.1	36.4	(62.7)	61.0	-	-	247.7	-	598.1	-	1,043.6	64.9	1,889.4	64.9
Intermountain Logging	MM2440SR	202	84.1	3,923.1	3.8	3,923.1	-	-	-	1,141.2	-	-	-	2,781.9	-	3,923.1
Kotyk Lumber Ltd.	MM2449SR	152D	3,879.4	2,091.4	1,293.1	2,091.4	-	-	-	-	1,050.1	-	2,623.9	1,211.2	3,674.0	1,211.2
Pachkowski, Ted	M2442G	186	113.9	-	3.6	-	-	-	-	-	-	-	36.8	-	36.8	-
Penner Bros. Logging	MM2443GV	272	-	3,000.0	-	1,212.7	-	-	-	-	-	-	-	1,364.0	-	1,364.0
Perchaluk, John & Sons	M2444R	188	637.1	29.3	137.2	29.3	-	-	-	-	-	-	766.8	29.3	766.8	29.3
Tembec (PFP)	MM2455GV	149	10,108.4	232.9	9,655.0	-	-	-	-	-	-	-	18,309.1	-	18,309.1	-
Tembec (PFP)	MM2459GV	149	20,000.0	-	14,921.5	-	-	-	581.7	-	12,937.1	-	-	-	30,999.3	-
													17,480.5			
Pine Creek 1st Nation	MM2461SR	158	-	-	-	-	-	-	-	-	-	4,296.9	-	2,910.7	-	7,207.6
Poyser, David	M2445R	191	498.5	201.2	464.6	9.2	-	-	-	-	250.0	68.8	402.5	91.6	652.5	160.4
Puchailo, Danny	M2446G	194	497.4	-	497.4	-	-	-	-	-	929.3	-	-	-	929.3	-
Riehl's Lumber & Logging	MM2447SR	198	-	-	-	6,474.2	-	-	-	-	1,375.0	-	5,265.0	-	2,974.5	-
				10,288.4												
Roblin Forest Products Ltd.	MM2448R	199	-	2,039.5	(2,692.2)	1,022.1	-	-	444.6	-	8,083.4	-	13,871.0	1,625.1	22,399.0	1,625.1
			24,561.8													
Soloway, Harvey Lee	M2456SR	175	-	67.8	-	67.8	-	-	-	-	-	-	-	-	-	-

Spruce Products Ltd.	MM2450SR	206D	97,603.6	470.6	11,557.0	-	-	-	-	14,052.6	-	43,189.3	-	32,272.6	-	89,514.5	-
Spruce Products Ltd.	MM2460SR	206D	-	15,000.0	-	-	-	-	-	-	500.0	-	523.4	-	13,976.6	-	15,000.0
Stratuliak, Nestor	M2451GV	211	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
THOMAS, Robert	M2452SR	271	-	2,000.0	-	-	-	-	-	-	-	-	-	-	2,000.0	-	2,000.0
Trembach, Gerald	M2453SR	212	-	63.3	-	63.3	-	-	-	-	-	-	-	-	-	-	-
TREMBACH, Gordon	M2462R	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zander, Anne	NM-2452SR	218	75.1	39.3	75.1	8.7	-	-	-	-	-	-	-	-	-	-	-
Zaretsky/Brown	M2457R	164	342.2	1,299.9	43.0	1,299.9	-	-	-	385.2	-	-	-	-	1,400.6	385.2	1,400.6
<b>FMU 13 TOTAL</b>			<b>163,781</b>	<b>56,334</b>	<b>38,910</b>	<b>30,619</b>	-	-	-	<b>15,712</b>	<b>3,016</b>	<b>67,075</b>	<b>13,547</b>	<b>89,665</b>	<b>41,995</b>	<b>172,452</b>	<b>58,558</b>
<b>FMU 11</b>	<b>Holder</b>	<b>Quota</b>	<b>Allowable Cut/01</b>		<b>Over/Undercut 2000</b>		<b>Jun 30</b>	<b>Ending</b>	<b>Sep 30</b>	<b>Ending</b>	<b>Dec 31</b>	<b>Ending</b>	<b>Mar 31</b>	<b>Ending</b>	<b>TOTAL m³</b>		
<b>Quota Holder Name</b>	<b>No.</b>	<b>No.</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	
Burke, Frank T.	M2400SR	9	62.5	-	25.0	-	-	-	-	-	-	-	-	-	-	-	
Cocks, Earl	M2401SR	11	80.0	-	20.0	-	-	-	-	-	-	-	-	-	-	-	
Graham, Malcolm	M2402SR	265	-	2,000.0	-	1,093.2	-	-	-	-	-	-	-	817.4	-	817.4	
Trembec (PFP)	M2403SR	149	848.5	-	821.4	-	-	-	-	-	-	-	1,636.3	-	1,636.3	-	
Prairie Forest Prod.	M2404SR	192	210.0	-	(65.8)	-	-	-	-	-	-	-	-	-	-	-	
Spruce Products Ltd.	M2405SR	206	974.8	-	467.8	-	-	-	188.7	-	-	-	714.6	-	903.3	-	
Zander, Stuart	M2406SR	217	36.1	16.8	9.8	-	-	-	12.2	(7.0)	-	-	29.2	-	41.4	(7.0)	
<b>FMU 11 TOTAL</b>			<b>2,212</b>	<b>2,017</b>	<b>1,278</b>	<b>1,093</b>	-	-	<b>201</b>	<b>(7)</b>	-	-	<b>2,380</b>	<b>817</b>	<b>2,581</b>	<b>810</b>	
<b>Louisiana Pacific</b>	<b>Holder</b>	<b>Quota</b>	<b>Allowable Cut/01</b>		<b>Over/Undercut 2000</b>		<b>Jun 30</b>	<b>Ending</b>	<b>Sep 30</b>	<b>Ending</b>	<b>Dec 31</b>	<b>Ending</b>	<b>Mar 31</b>	<b>Ending</b>	<b>TOTAL m³</b>		
<b>Quota Holder Name</b>	<b>No.</b>	<b>No.</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	
FMU 10							0	-	-	6,224.1	-	-	-	-	-	6,224.1	
FMU 11							0	2,176.5	-	7,003.1	-	5,252.6	-	29,493.7	-	43,925.8	
FMU 13							0	5,123.6	-	120,972.0	-	76,120.1	-	158,577.4	-	360,793.1	
<b>Louisiana Pacific - TOTAL</b>							-	<b>7,300</b>	-	<b>134,199</b>	-	<b>81,373</b>	-	<b>188,071</b>	-	<b>410,943</b>	
<b>Tolko Manitoba</b>	<b>Holder</b>	<b>Quota</b>	<b>Allowable Cut/01</b>		<b>Over/Undercut 2000</b>		<b>Jun 30</b>	<b>Ending</b>	<b>Sep 30</b>	<b>Ending</b>	<b>Dec 31</b>	<b>Ending</b>	<b>Mar 31</b>	<b>Ending</b>	<b>TOTAL m³</b>		
<b>Quota Holder Name</b>	<b>No.</b>	<b>No.</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	<b>SWD</b>	<b>HWD</b>	
<b>Tolko Manitoba Inc.</b>							<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

## APPENDIX IV – RENEWAL DETAILS

**Table A4.1 Site preparation and scarification summary by treatment block.**

<b>Operating Area</b>	<b>Block Number</b>	<b>Area (ha)</b>
<b>Spring Scarification</b>		
<i>Cache Lake</i>	CHL-813	25.66
<i>Upper Dam</i>	UPD-001	69.12
<i>Upper Dam</i>	UPD-002	16.57
<i>Upper Dam</i>	UPD-003	26.84
<i>Upper Dam</i>	UPD-004	3.13
<i>Cryderman's Pit</i>	CRP-021	22.84
<i>Cryderman's Pit</i>	CRP-022	25.67
<i>Cryderman's Pit</i>	CRP-020	34.41
<i>Cryderman's Pit</i>	CRP-009	13.21
<i>Cowan East</i>	113623S1-01	1.66
<i>West Favel</i>	133425S3-02	6.58
<i>Onion Lake</i>	ONL-820	25.28
<b>Spring Total</b>		<b>270.97</b>
<b>Fall Scarification</b>		
<i>Cryderman's Pit</i>	CRP-010	33.75
<i>Cryderman's Pit</i>	CRP-024	41.86
		<b>75.61</b>
<b>Fall Site Preparation</b>		
<i>Arm Lake</i>	ARL-012	6.39
<i>Madge Lake</i>	MJL-008	23.49
<i>Madge Lake</i>	MJL-010	5.51
<i>Route "W"</i>	RTW-014	14.73
<i>Route "W"</i>	RTW-011	29.17
<i>Tees Lake</i>	TEL-805	67.98
<i>Tees Lake</i>	TEL-806	23.5
<i>Tees Lake</i>	TEL-807	23.18
<i>Tees Lake</i>	TEL-808	3.8
<b>Fall Total</b>		<b>197.75</b>
<b>GRAND TOTAL</b>		<b>544.3</b>

**Table A4.2 Seedlings planted in 2001 by treatment block and tree species.**

Operating Area	Block Number	Planting Dates	Total WS Seedlings	WS Stock Types	Total BS Seedlings	BS Stock Types	Total JP Seedlings	JP Stock Types	Total Seedlings	Planting Quality
<b>Alpine</b>	ALP-853	May 27th - 28th	17,833	MP # 3	735	MP # 6	0		18,568	95.6%
<b>Arm Lake</b>	ARL-802	May 28th	4,672	MP # 3	0	MP # 6	0		4,672	95.6%
<b>Cache Lake</b>	CHL-802	June 13th	10,065	MP # 3	27,439	MP # 6	16,107	MP # 6	53,611	95.5%
<b>Cache Lake</b>	CHL-802 (roads)	July 3rd & 4th	0		5,430	MP6	0		5,430	100.0%
<b>Cache Lake</b>	CHL-804	July 2nd - 4th	0		45,067	MP6 / V-50	0		45,067	94.4%
<b>Cache Lake</b>	CHL-806	June 13th	8,200	MP # 3	5,704	MP # 6	2,935	MP # 6	16,839	95.6%
<b>Cache Lake</b>	CHL-806	July 2nd & 3rd	0		35,635	MP6	0		35,635	97.5%
<b>Cache Lake</b>	CHL-813	July 3rd & 4th	0		67,069	MP6 / V-50	0		67,069	96.1%
<b>Cowan East</b>	113623s1-01	July 9th	0		3,690	MP6	0		3,690	97.9%
<b>Cowan West</b>	133424s1-22	June 1st-10th	0	MP # 3	58,757	MP # 6	0	MP # 6	58,757	95.2%
<b>Cowan West</b>	133424s1-28	June 1st-2nd	0	MP # 3	56,510	MP # 6	0	MP # 6	56,510	94.2%
<b>Cowan West</b>	CWW-818	June 1st-2nd	0	MP # 3	26,468	MP # 6	0	MP # 6	26,468	95.7%
<b>Cowan West</b>	Roads	July 20th	0		6,345	MP6	0		6,345	96.3%
<b>Cryderman's Pit</b>	CRP-009	July 23rd -24th	14,288	MP3 / MP2	42,670	MP6	0		56,958	96.3%
<b>Cryderman's Pit</b>	CRP-021	July 24th	11,456	MP3	1,340	MP3	0		12,796	96.2%
<b>East Favel</b>	133425s1-10	June 7th	0	MP # 3	19,230	MP # 6	0	MP # 6	19,230	95.3%
<b>East Favel</b>	133425s1-10	July 8th	0		20,673	MP6	0		20,673	97.2%
<b>Four Corners</b>	FRC-804	May 25th - 28th	52,675	MP # 3	24,975	MP # 6	0		77,650	96.2%
<b>Four Corners</b>	FRC-805	May 25th - 26th	30,265	MP # 3	27,730	MP # 6	0		57,995	95.0%
<b>Island Lake</b>	ISL-001	July 5th & 7th	0		61,551	V-50 / MP6	0		61,551	95.5%
<b>Island Lake</b>	ISL-003	July 5th - 8th	0		71,634	MP6 / V-50	0		71,634	95.1%
<b>Island Lake</b>	ISL-004	July 5th - 12th	25,896	MP6	65,647	MP6 / V-50	0		91,543	96.0%

Operating Area	Block Number	Planting Dates	Total WS Seedlings	WS Stock Types	Total BS Seedlings	BS Stock Types	Total JP Seedlings	JP Stock Types	Total Seedlings	Planting Quality
<b>Island Lake</b>	ISL-005	July 11th	44,287	MP6	15,694	MP6	0		59,981	95.9%
<b>Island Lake</b>	ISL-006	July 5th - 12th	29,817	MP6	40,016	MP6 / V-50	0		69,833	95.5%
<b>Island Lake</b>	ISL-835	July 7th & 8th	0		83,133	MP6	0		83,133	95.8%
<b>Island Lake</b>	ISL-843	July 12th	6,111	MP6	28,189	MP6	0		34,300	95.9%
<b>Onion Lake</b>	133225s1-02	June 11th	0	MP # 3	8,478	MP # 6	6,427	MP # 6	14,905	95.5%
<b>Onion Lake</b>	133225s1-10	June 12th	0	MP # 3	14,975	MP # 6	815	MP # 6	15,791	97.7%
<b>Onion Lake</b>	133225s1-13	June 12th	945	MP # 3	10,244	MP # 6	7,920	MP # 6	19,108	95.0%
<b>Onion Lake</b>	ONL-820	June 11th-12th	2,310	MP # 3	33,808	MP # 6	25,122	MP # 6	61,241	95.6%
<b>Onion Lake</b>	ONL-Roads	June 12th	0	MP # 3	61	MP # 6	2,239	MP # 6	2,300	95.0%
<b>Riverhill</b>	roads	July 4th	0		14,425	V-50	0		14,425	95.8%
<b>Route H</b>	132923s2-08	June 5th-8th	3,800	MP # 3	38,182	MP # 6	0	MP # 6	41,982	97.0%
<b>Route H</b>	RTH-803	July 12th	1,207	MP6	2,592	MP6	0		3,799	95.9%
<b>Route H</b>	RTH-905	June 4th-8th	14,173	MP # 3	55,009	MP # 6	0	MP # 6	69,182	95.8%
<b>Route H</b>	RTH-906	June 7th-9th	20,520	MP # 3	24,161	MP # 6	0	MP # 6	44,681	94.3%
<b>Sarah Lake</b>	SRL-851	May 28th - 29th	53,147	MP # 3	9,875	MP # 6	0		63,022	95.0%
<b>Sarah Lake</b>	SRL-852	May 29th	36,914	MP # 3	21,365	MP # 6	0		58,279	95.0%
<b>Sarah Lake</b>	SRL-852	July 12th & 13th	29,482	MP6	20,118	MP6	0		49,600	96.7%
<b>Singuish Lake</b>	SGL-801	July 9th	0		3,646	MP6	0		3,646	100.0%
<b>Upper Dam</b>	13292601-05	July 17th -21st	22,320	MP3	14,874	MP3 / MP6	0		37,194	95.6%
<b>Upper Dam</b>	13292601-06	July 17th - 18th	47,495	MP3	6,076	MP6	0		53,571	96.1%
<b>Upper Dam</b>	13292601-10	July 19th - 20th	22,460	MP3	14,476	MP3 / MP6	0		36,936	96.2%
<b>Upper Dam</b>	UPD Roads	July 21st	1,101	MP3	0		0		1,101	100.0%
<b>Upper Dam</b>	UPD-001	July 15th - 18th	127,630	MP3	5,957	MP6	0		133,587	96.6%
<b>Upper Dam</b>	UPD-002	July 15th - 19th		MP3		MP6	0			95.0%

Operating Area	Block Number	Planting Dates	Total WS Seedlings	WS Stock Types	Total BS Seedlings	BS Stock Types	Total JP Seedlings	JP Stock Types	Total Seedlings	Planting Quality
			61,864		30,555				92,419	
<b>Upper Dam</b>	UPD-003	July 21st	15,880	MP3	40,342	MP6 / MP3	0		56,222	95.0%
<b>Upper Dam</b>	UPD-004	July 15th - 18th	43,140	MP3	29,417	MP6	0		72,557	95.3%
<b>Upper Dam</b>	UPD-005	July 20th - 21st	14,758	MP3	21,885	MP6 / MP3	0		36,643	96.0%
<b>Valley River</b>	VLR-016	May 21st - 24th	70,208	MP # 3	15,120	MP # 6	0		85,328	96.4%
<b>Valley River</b>	VLR-101	May 14th - 16th	47,301	MP # 3	2,340	MP # 6	0		49,641	95.0%
<b>Valley River</b>	VLR-102	May 16th - 17th	9,896	MP # 3	0	MP # 6	0		9,896	97.2%
<b>Valley River</b>	VLR-103	May 17th	1,119	MP # 3	8,460	MP # 6	0		9,579	95.3%
<b>Valley River</b>	VLR-105	May 17th	9,891	MP # 3	3,915	MP # 6	0		13,806	95.0%
<b>Valley River</b>	VLR-105	July 19th - 20th	49,356	MP3	0		0		49,356	95.4%
<b>Valley River</b>	VLR-106	May 16th - 17th	18,202	MP # 3	4,560	MP # 6	0		22,762	95.7%
<b>Valley River</b>	VLR-107	May 15th - 17th	24,470	MP # 3	885	MP # 6	0		25,355	95.4%
<b>Vimy Ridge</b>	VM-11	June 3rd	0	MP # 3	11,422	MP # 6	0	MP # 6	11,422	94.3%
<b>Vimy Ridge</b>	VM-44	July 20th and 24th	5,547	MP3	2,513	MP6	0		8,060	95.6%
<b>Vimy Ridge</b>	VMR-804	June 3rd	0	MP # 3	52,757	MP # 6	0	MP # 6	52,757	94.8%
<b>Vimy Ridge</b>	VMR-807	June 4th & 8th	0	MP # 3	46,492	MP # 6	29,170	MP # 6	75,662	95.8%
<b>Vimy Ridge</b>	VMR-809	June 3rd&9th	0	MP # 3	3,905	MP # 6	8,280	MP # 6	12,185	95.7%
<b>Vimy Ridge</b>	VMR-817	June 10th	0	MP # 3	1,800	MP # 6	3,630	MP # 6	5,430	95.0%
<b>Vimy Ridge</b>	VMR-819	June 9th & 10th	0	MP # 3	41,265	MP # 6	29,730	MP # 6	70,995	95.0%
<b>Vimy Ridge</b>	VM-Roads	June 9th-11th	0	MP # 3	3,450	MP # 6	18,285	MP # 6	21,735	95.1%
<b>Watjask Lake</b>	WJL-101	May 23rd - 24th	47,670	MP # 3	1,200	MP # 6	0		48,870	95.6%
<b>Watjask Lake</b>	WJL-102	May 24th	24,852	MP # 3	165	MP # 6	0		25,017	95.6%
<b>West Favel</b>	133425s3-02	July 8th	0		11,036	MP6	0		11,036	95.9%
<b>Wine Lake</b>	WNL-804	May 21st - 22nd	32,010	MP # 3	13,300	MP # 6	0		45,310	95.6%
<b>Wine Lake</b>	WNL-809	May 18th and 21st	33,675	MP # 3	16,215	MP # 6	0		49,890	95.8%
<b>Total</b>			<b>1,148,908</b>		<b>1,502,652</b>		<b>150,660</b>		<b>2,802,221</b>	<b>95.9%</b>

**Table A4.5 2001 "H" and "N" forest regeneration survey summary results.**

Operating	Block	Block	Original	Percent (%)			Stems per Hectare			Current	Average
			Pre-harvest	Softwd	Hardwd	Total	Softwd	Hardwd	Total	Forest	Hdwd.
			Subtype	Stocking	Stocking	Stocking	Density	Density	Density	Descriptio n	Height (m)
RTW	13342701-96-03	33	H	24	92	<b>92</b>	1458	11958	<b>13417</b>	H	1.5
RTW	13342701-06	25	H	0	99	<b>99</b>	0	28053	<b>28053</b>	H	2.0
RTW	13342701-05	18	N	0	92	<b>92</b>	0	19500	<b>19500</b>	H	1.5
SLT	11332001-96-02	9	H	0	87	<b>87</b>	0	13000	<b>13000</b>	H	1.1
SLT	11332001-96-03	21	H	1	82	<b>82</b>	118	7235	<b>7235</b>	H	1.2
FRC	13322901-02	38	H	24	90	<b>92</b>	364	15273	<b>15636</b>	H	1.5
FRC	13322901-97-04	15	N	0	96	<b>96</b>	0	29278	<b>29278</b>	H	1.6
FRC	13322901-97-03	38	N	0	96	<b>96</b>	0	30083	<b>30083</b>	H	1.4
MGL	13312901-96-10	30	H	6	95	<b>95</b>	1222	19389	<b>20611</b>	H	2.0
MGL	13312901-96-04	11	H	26	94	<b>94</b>	1000	26571	<b>27571</b>	H	1.8
MGL	13312901-96-12	37	H	20	95	<b>98</b>	448	20621	<b>21069</b>	H	2.0
MGL	13312901-96-13	22	H	3	98	<b>98</b>	0	21375	<b>21375</b>	H	1.9
MGL	13312902-96-06	8	H	42	88	<b>88</b>	667	16500	<b>17167</b>	N	1.4
MGL	13312902-96-08	17	H	46	90	<b>90</b>	3500	18929	<b>22429</b>	N	1.5
WJL	13302901-96-C1	17	H	0	100	<b>100</b>	0	20000	<b>20000</b>	H	1.3
WJL	13302901-96-C3	20	H	14	98	<b>98</b>	200	22500	<b>22700</b>	H	1.6
WNL	13292701-04	39	N	1	98	<b>98</b>	0	42074	<b>42074</b>	H	1.5
WNL	13292701-08	44	N	0	99	<b>99</b>	0	32350	<b>32350</b>	H	2.0
WNL	13292701-01	15	N	0	100	<b>100</b>	0	30800	<b>30800</b>	H	1.6
WNL	13292701-02	26	N	1	97	<b>97</b>	63	30375	<b>30438</b>	H	1.4
SRL	133228s2-02	41	H	27	93	<b>94</b>	1179	21107	<b>22286</b>	H	1.8
SRL	13332702-96-02	22	H	0	95	<b>95</b>	0	20167	<b>20167</b>	H	1.5
SRL	300m permit	22	H	2	83	<b>83</b>	0	19920	<b>19920</b>	H	2.5
CRP	13352502-96-01	61	H	11	96	<b>97</b>	91	18970	<b>19061</b>	H	2.2
UPD	13282603-96-07	19	H	13	97	<b>99</b>	375	24438	<b>24813</b>	H	1.8
UPD	13282603-16	32	N	5	99	<b>99</b>	105	36052	<b>36158</b>	H	1.6
UPD	13282603-15	20	H	4	96	<b>96</b>	0	34417	<b>34417</b>	H	1.2
UPD	13282603-17	18	N	0	98	<b>98</b>	0	30917	<b>30917</b>	H	1.5
UPD	13292601-09	39	N	8	96	<b>98</b>	148	46222	<b>46370</b>	H	1.3
UPD	13282603-96-02	15	H	20	98	<b>100</b>	727	18455	<b>19182</b>	H	1.7
UPD	13292601-08	32	N	3	94	<b>95</b>	0	25700	<b>25700</b>	H	1.5
UPD	13282601-96-03	10	H	22	94	<b>94</b>	500	26500	<b>27000</b>	H	1.6
STR	13272401-96-02	23	H	0	94	<b>94</b>	0	20385	<b>20385</b>	H	1.6
EAF	13342501-96-	31	H	8.0	93	<b>94</b>	308	15538	<b>15846</b>	H	1.8



## APPENDIX V – FOREST RENEWAL and STAND MANAGEMENT FUND

Table A5.1 Stand Management Fund Bank Ledger from April 30, 2001 to March 31, 2002

Reforestation - Hardwood	Date	DEPOSIT		Total	Interest	Withdrawal	Balance
		QH Hardwood	LP Hardwood				
Carry over from 2000/2001	30-Apr-01						9,600.00
Jan 1 - April 30, 2001	25-May-01	17,130.44	121,811.30	138,941.74			148,541.74
Interest					21.06		148,562.80
Jan 1 - April 30, 2001	11-Jun-01	5,742.47		5,742.47			154,305.27
Jan 1 - April 30, 2001	12-Jun-01	807.75		807.75			155,113.02
Interest					81.47		155,194.49
Interest					408.66		155,603.15
May 1 - June 30, 2001	7-Aug-01	0.00	9,753.85	9,753.85			165,357.00
Q2 - Apr - June, 2001	9-Aug-01					38,436.57	126,920.43
Interest					414.50		127,334.93
May 1 - June 30, 2001	4-Oct-01		996.15	996.15			128,331.08
Interest	4-Sep-01				342.15		128,673.23
Seasonal grant - LP	24-Oct-01		3,720.00	3,720.00			132,393.23
July 1 - Sep 30, 2001	24-Oct-01		174,458.85	174,458.85			306,852.08
July 1 - Sep 30, 2001	30-Oct-01	430.37		430.37			307,282.45
Interest	1-Oct-01				265.74		307,548.19
Interest	1-Nov-01				305.33		307,853.52
Oct 1 - Dec 31, 2001	8-Jan-02		105,784.48	105,784.48			413,638.00
Oct 1 - Dec 31, 2001	8-Jan-02	5,455.99		5,455.99			419,093.99
Interest	3-Dec-01				366.89		419,460.88
Oct 1 - Dec 31, 2001	23-Jan-02	337.52		337.52			419,798.40
Interest	2-Jan-02				261.76		420,060.16
Q3-Q4, 2001 withdrawal	18-Jan-02					168,700.62	251,359.54
Interest	1-Feb-02				227.65		251,587.19
MB input for QH's Jan 1/01 - Dec 31/01	5-Mar-02	23,216.58		23,216.58			274,803.77
MB input for QH's Jan 1/02 - Mar 31/02 estimate	18-Mar-02	32,084.80		32,084.80			306,888.57
Interest	1-Mar-02				144.75		307,033.32
Interest	28-Mar-02				182.46		307,215.78
Carry over to 2002/2003							307,215.78

		DEPOSIT						
Reforestation - Softwood	Date	QH Softwood	LP Softwood	Total	Interest	Withdrawal	Balance	
Carry over from 2000/2001	9-Apr-01				0.79		46,315.93	
Jan 1 - April 30, 2001	25-May-01	212,677.66		212,677.66			258,993.59	
Interest					101.61		259,095.20	
Jan 1 - April 30, 2001	11-Jun-01	216,393.32		216,393.32			475,488.52	
Interest					218.33		475,706.85	
Interest					1,078.04		476,784.89	
May 1 - June 30, 2001	7-Aug-01	64,765.09		64,765.09			541,549.98	
Q2 - Apr - June, 2001	9-Aug-01					146,443.50	395,106.48	
Interest					1,270.11		396,376.59	
May 1 - June 30, 2001			0.97	0.97			396,377.56	
Interest	4-Sep-01				1,065.70		397,443.26	
Jul 1 - Sept 30, 2001	30-Oct-01	115,219.52		115,219.52			512,662.78	
Interest	1-Oct-01				827.22		513,490.00	
Passed due payment Harold Dudar - Dec 31/00	6-Dec-01	3,761.00		3,761.00			517,251.00	
Interest	1-Nov-01				708.44		517,959.44	
Sept Supplement - Zaretsky/Brown - Sep 30/01	13-Dec-01	1,764.31		1,764.31			519,723.75	
Interest	3-Dec-01				612.81		520,336.56	
Oct 1 - Dec 31/2001	23-Jan-02	67,455.76		67,455.76			587,792.32	
Q3-Q4 partial withdrawal	18-Jan-02					500,000.00	87,792.32	
Interest	2-Jan-02				440.80		88,233.12	
Oct 1 - Dec 31/2001	7-Feb-02	209,904.52		209,904.52			298,137.64	
Interest	1-Feb-02				232.68		298,370.32	
MB input for QH's Jan 1/01 - Dec 31/01	5-Mar-02	18,198.74		18,198.74			316,569.06	
MB input for QH's Jan 1/01 - Dec 31/01	13-Mar-02	710.24		710.24			317,279.30	
MB input for QH's Jan 1/02-Mar 31/02 estimate	18-Mar-02	27,184.36		27,184.36			344,463.66	
Interest	1-Mar-02				145.79		344,609.45	
Interest	28-Mar-02				208.34		344,817.79	
Carry over to 2002/2003							344,817.79	

		Deposit						
Combined - Hardwood Softwood account	Date	QH Hardwood	QH Softwood	LP Hardwood	Total	Interest	Withdrawal	Balance
Carry over from 2000/2001	2-Apr-01					1708.45		241531.83
Interest earned	1-May-01					1344.22		242876.05
Interest earned	1-Jun-01					718.67		243594.72
Interest earned	3-Jul-01					650.70		244245.42
Interest earned	9-Aug-01					650.63		244896.05
Q2 - 2001	9-Aug-01						244896.05	0.00

**TableA5.2 Stand management fund withdrawal summary for 2001-2002.**

	Jan - March 2001	Apr - Jun 2001	Jul - Sep 2001	Oct - Dec 2001	Jan - Mar 2002	Apr - Jun 2002	Total Costs
<b>PSP</b>	\$ 37,601.37	\$ 30,026.57	\$ 21,337.64	\$ 3,146.40	\$ 14,115.76	\$ 53,414.89	\$ 159,642.63
<b>Site Preparation/ Scarification</b>	\$ 128,253.58	\$ 73,817.11	\$ 31,232.05	\$ 38,419.46	\$ 8,639.01	\$ 23,274.01	\$ 303,635.22
<b>Seedling storage/seeds</b>	\$ 12,685.42	\$ 32,642.77	\$ 74,664.56	\$ 12,773.81	\$ 1,511.35	\$ -	\$ 134,277.91
<b>PHS</b>	\$ 314.00	\$ 31,162.14	\$ 56,887.80	\$ 10,138.66	\$ 1,733.17	\$ 32,193.12	\$ 132,428.89
<b>Post Harvest Assessments</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Tree Plant</b>	\$ 9,219.12	\$ 127,195.33	\$ 371,641.20	\$ 37,677.16	\$ 6,267.53	\$ 14,805.73	\$ 566,806.07
<b>Tree Improvement</b>	\$ 15,000.00	\$ 29,855.00	\$ 24,705.92	\$ 38,450.04	\$ 14,008.02	\$ 2,825.28	\$ 124,844.26
<b>Aerial Photographs</b>	\$ -	\$ 977.10	\$ 13,856.00	\$ 561.00	\$ -	\$ -	\$ 15,394.10
<b>Snow Cache</b>	\$ 10,421.64	\$ 10,457.53	\$ -	\$ 266.70	\$ 11,505.19	\$ 6,832.90	\$ 39,483.96
<b>Surveys</b>	\$ 51.91	\$ 6,013.51	\$ 13,182.25	\$ 30,042.97	\$ 42.04	\$ 151.94	\$ 49,484.62
<b>Research/ Development</b>	\$ -	\$ 4,300.00	\$ -	\$ -	\$ -	\$ 4,300.00	\$ 8,600.00
<b>Administration</b>	\$ 83,349.86	\$ 83,329.06	\$ 85,357.92	\$ 68,664.46	\$ 68,509.70	\$ 87,159.14	\$ 476,370.14
<b>Admin - Audit reconciliation</b>	\$ (13,830.68)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (13,830.68)
<b>TOTAL</b>	\$ 283,066.22	\$ 429,776.12	\$ 692,865.34	\$ 240,140.66	\$ 126,331.77	\$ 224,957.01	\$ 1,997,137.12

## APPENDIX VI – STREAM CROSSINGS

Table A6.1 Proposed and actual stream crossings in 2001-2002.

CROSSING NAME	TYPE OF CROSSING		INSTALLED Y/N	REMOVED Y/N	COMMENTS
	PROPOSED	ACTUAL			
ARL-C01	Culvert	Timber Bridge	yes	no	Will be removed in summer 2002
CHL-C01	Snow and Ice		no		
CHL-C02	Snow and Ice		no		
CRP-C09	Culvert	Culvert	yes	yes	
CRP-C10	Snow and Ice	Snow and Ice	yes	yes	
CRP-C11	Snow and Ice	Snow and Ice	yes	yes	
CWC-C02	Snow and Ice	Snow and Ice	yes	yes	To be crossed again in winter 2002-2003
CWC-C03	Snow and Ice	Snow and Ice	yes	yes	To be crossed again in winter 2002-2003
CWW-C05	Bridge		no		Will cross in 2002-2003
CWW-C06	Culvert		no		Will cross in 2002-2003
CWW-C07	Snow and Ice	Snow and Ice	yes	yes	Will cross in 2002-2003
EAF-C01	Temporary Log Bridge		no		
EAF-C02	Snow and Ice		no		
ISL-C03	Snow and Ice		no		Moved road to miss crossing
JFL-C01 to C17	Various		no		May cross in 2002-2003
MGL-C01	Temporary Log Bridge		yes	yes	
MGL-C02	Culvert		yes	yes	
RWR-C01	Snow and Ice	Snow and Ice	yes	yes	
RWR-C02	Temporary Log Bridge	Culvert	yes	yes	
RWR-C03	Snow and Ice	Snow and Ice	yes	yes	
RWR-C04	Snow and Ice	Snow and Ice	yes	yes	
RWR-C05	Snow and Ice	Snow and Ice	yes	yes	
RWR-C06	Snow and Ice	Snow and Ice	yes	yes	
RWR-C20	Bridge	Bridge	yes	yes	
SLC-C02 to C11	Various		no		May cross in 2002-2003
SNL-C01	Snow and Ice	Snow and Ice	yes	yes	To be crossed again in winter 2002-2003
TEL-C02	Snow and Ice	Snow and Ice	yes	yes	
TEL-C03	Snow and Ice	Snow and Ice	yes	yes	
TEL-C04	Snow and Ice	Snow and Ice	yes	yes	
TEL-C05	Snow and Ice	Snow and Ice	yes	yes	

CROSSING NAME	TYPE OF CROSSING		INSTALLED Y/N	REMOVED Y/N	COMMENTS
	PROPOSED	ACTUAL			
TEL-C06	Culvert	Culvert	yes	no	
TEL-C07	Culvert	Culvert	yes	no	Main Sarah Lake road.
UPD-C07	Culvert		no		
UPD-C08	Culvert		no		
UPD-C09	Culvert		no		
VLR-C03	Snow and Ice		no		
WEF-C02	Snow and Ice		no		
WJL-C01	Culvert	Culvert	yes	no	To be used for future access.
WJL-C02	Culvert	Culvert	yes	yes	
WNL-C06	Snow and Ice	Snow and Ice	yes	yes	

## APPENDIX VII – STREAM ASSESSMENT SUMMARY REPORTS

### Stream Crossing Name: ANT-C01

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
October 1, 2001	permanent	1.7	7.54	0.078	4.57	8.9	2.1

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SiCL	1	35	Upland Hardwood	12	48	11	1	0

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
80	20	1.4	16	0	18	46	10	10

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	0	0	0	0	0	Nemetoda	Hydracina	Plecoptera

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Invertebrate Order 7	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
Trichoptera	Coleoptera	Diptera	Gastropoda	0	0	0	0	0

**Stream Crossing Name: BLR-C10**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
October 2, 2001	permanent	1.7	4.55	0.087	23.87	9.6	1.8

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SIC	1	30	Upland Hardwood	10	2	12.4	2.6	0

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
98	2	2.4	0	0	52	28	11	5

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
4	0	0	0	0	0	Nemetoda	Plecoptera	Tricoptera

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Invertebrate Order 7	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
Coleoptera	Diptera	0	0	0	0	0	0	0

## Stream Crossing Name: Bowman River

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
June 27, 2001	permanent	11.38	13.77	0.234	11.52	18.3	0.9

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SIS	13	2	Upland Conifer	10.2	14.8	11.2	0	6.7

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
30	70	2	0	18	59	8	1	0

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	14	0	Ceratophyllum demersum	0	0	Hirudinea	Hydracarina	Ephemoptera

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Invertebrate Order 7	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
Plecoptera	Trichoptera	Coleoptera	Diptera	Blacknose Dace	Longnose Dace	Brook Stickelback	Common Shiner	Johnny Darter

**Stream Crossing Name: CHL-C01**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
July 6, 2001	permanent	2.03	7.47	.257	13.54	20.2	1

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SIL	18	6	Upland conifer	2.5	15	12.5	3.75	0

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
43	57	1.8	13	0	0	2	9	0

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	76	0	0	0	0	Nematoda	Hydracarina	Ephemoptera

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5	
Plecoptera	Diptera	Pelecypoda	Electrofishing not conducted due to access constraints.					

## Stream Crossing Name: CRP-C10

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
August 23, 2001	permanent	0.77		0.0586	1.08	21.9	0.8

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
Organic	5	3	Upland Hardwood	5.4	4	9	8	16

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
45	55	7	6	0	16	26	2	4

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
2	4	40	Cyperaceae	Caltha palustris	0	Amphipoda	Ephemeroptera	Plecoptera

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Invertebrate Order 7	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
Trichoptera	Coleoptera	Diptera	Gastropoda	Brook stickleback	Creek chub	Finescale dace	0	0

**Stream Crossing Name: CRP-C15**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
July 12, 2001	permanent	1.17	2.75	.0478	3.59	20.2	1

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SiL	Aspen Hardwood	0	Upland Hardwood	4.4	6	15	0	0

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
60	40	2	30	0	0	38	26	0

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	6	0	0	0	0	Diptera	Ephemeroptera	Hydracarina

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5	
Plecoptera	Trichoptera	Coleoptera	SAMPLING COULD NOT BE CONDUCTED					

**NOTES:**

Electrofishing was not completed due to the fact that stream flows were too low to submerge anode ring on unit. However, very immature minnow species were observed in the channel at the time of the assessment.

**Stream Crossing Name: CWC-C06 (previously Identified as 133324CW-C2)**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
June 13, 1998	Permanent	3.48	4.17	.14	51.1	N/A	1.6

Bank Materials	FEC V-Type	Canopy Cover (%)	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SIS	V-30	0	Upland conifer	1.2	45	5	12.5	0

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
100	0	0	59	0	0	13	10	18

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	0	0	Carex sp.	Caltha palustris	0	N/A		

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
N/A			Brook trout	Shiner sp.	0	0	0

**Stream Crossing Name: EAF-C01**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
July 30, 2001	permanent	3.34	8.09	0.16	14.79	11.7	1.1

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
S	5	13	Upland Hardwood	11	7	17	0	4

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
54	46	1	0	3	43	17	37	0

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	0	0	0	0	0	Hirundinea	Ephemoptera	Plecoptera

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
Trichoptera	Diptera	0	Brook stickleback	Iowa darter	Finescale dace	0	0

**Stream Crossing Name: EBT-C05 (previously identified as 13302301-C3)**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
June 16, 1998	Permanent	3.95	5.9	0.17	63.40	N/A	1.2

Bank Materials	FEC V-Type	Canopy Cover (%)	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SIS	V-8	10	Meadow	0	5	0	0	0

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
70	30	0	12	0	30	40	9	9

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	0	0	0	0	0	N/A		

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
N?A			Electrofishing completed results indicated no fish present within the sample reach.				

**Stream Crossing Name: GRL-C01**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
July 5, 2001	permanent	1.30	2.92	.087	4.51	15.5	1

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SIS	Balsam Poplar Mixwood	19	Upland Hardwood	17	2	19	0	2

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
37	63	2	0	0	0	15	23	23

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	39	0	0	0	0	Diptera	Ephemeroptera	Hydracarina

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
Plecoptera	Gastropoda	0	White sucker	Creek chub	Pearl dace	Brook stickleback	0

**Stream Crossing Name: HSC-C20**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
July 25, 2001	permanent	1.13	5.9	0.051	6.98	14	3.4

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SL	5	34	Upland Hardwood	17	15	13	14	0

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
76	24	2	5	0	2	45	48	0

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	0	0	Equisetaceae	0	0	Hydracarina	Ephemeroptera	Trichoptera

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Invertebrate Order 7	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
0	0	0	0	0	0	0	0	0

**Stream Crossing Name: HSC-C21**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
July 21, 2001	permanent	0.8	4.46	0.055	0	16.7	6.8

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SIL	1	34	Upland Hardwood	3	10	7	0	0

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
64	36	2	16	2	6	24	0	0

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	52	0	Equisetaceae	0	0	Hydracarina	Diptera	Gastropoda

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Invertebrate Order 7	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
0	0	0	0	0	0	0	0	0

## Stream Crossing Name: RTW-C02

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
August 24, 2001	permanent	1.73	6.7	0.196	N/A	21.1	1.2

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
CL	5	0	Upland hardwood	16.4	6.8	0	1	1

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
1	99	1	21	0	1	40	4	4

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	30	0	Cyperaceae	Sagittaria cuneata	Lemnaceae	Amphipoda	Hydracarina	Ephemeroptera

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Invertebrate Order 7	Invertebrate Order 8	Fish Sp 1	Fish Sp 2	Fish Sp 3
Plecoptera	Trichoptera	Coleoptera	Diptera	Gastropoda	Brook stickleback	Finescale dace	0

**Stream Crossing Name: TEL-C02**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
July 20, 2001	permanent	13.3	33.4	0.794	0	23	1

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
organic	13	0	Upland conifer	0	0	20	0	40

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
0	100	0	0	0	0	0	0	0

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
0	95	5	Ceratophyllum demersum	Lemnaceae	Equisetaceae	Hirundinea	Amphipoda	Hydracarina

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Invertebrate Order 7	Invertebrate Order 8	Invertebrate Order 9	Fish Sp 1	Fish Sp 2
Ephemoptera	Plecoptera	Hemiptera	Trichoptera	Gastropoda	Pelecypoda	Brook stickleback	0

**Stream Crossing Name: UPD-C12**

Date of Survey	Stream Type	Wet Channel Width (m)	Bankfull Channel Width (m)	Mean Depth (m)	Velocity (cm/s) from Hydraulic Head	Mean Stream Temperature (°C)	Mean Water Surface Slope (%)
September 14, 2001	permanent	2.06	9.59	0.15	0	8	1

Bank Materials	FEC V-Type	Canopy Cover	Terrain Type	Instream Cover % of Undercut Banks	Instream Cover - % of Rock	Instream Cover - % Logs and Trees	Instream Cover - % Organic Debris	Instream Cover - % Other
SiCL	8	0	Upland Hardwood	5	9	24	66	0

% Riffle Habitat	% of Pool Habitat	Avg. No of Barriers	Substrate - % Rock	Substrate - % Boulder	Substrate - % Rubble	Substrate - % Gravel	Substrate - % Sand	Substrate - % Silt
0	100	1	6	0	0	14	0	0

Substrate - % Clay	Substrate - % Muck	Substrate - % Detritus	Aquatic Veg 1	Aquatic Veg 2	Aquatic Veg 3	Invertebrate Order 1	Invertebrate Order 2	Invertebrate Order 3
10	70	0	Cyperaceae	Certoplum demersum	0	Sampling could not be conducted		

Invertebrate Order 4	Invertebrate Order 5	Invertebrate Order 6	Fish Sp 1	Fish Sp 2	Fish Sp 3	Fish Sp 4	Fish Sp 5
			Sampling could not be conducted due to dangerous substrate conditions – too soft and too deep.				

## APPENDIX VIII - ANNUAL ALLOWABLE CUTS WITHIN THE MOUNTAIN FOREST SECTION

FML #2 Tolko MOUNTAIN FOREST SECTION		15% Reduction Factor, 10% Cull Factor for Hardwood										EXCLUDES WHITE SPRUCE IN TREMBLING ASPEN STANDS				
FML #3 LP NET MERCHANTABLE ANNUAL ALLOWABLE CUT - HARDWOOD and SOFTWOOD												15% Reduction Factor, Normal Cull Factors for Softwood				
FMU	OWNERSHIP	TREMBLING ASPEN	BALSAM POPLAR	SUBTOTAL TA&BA	WHITE BIRCH	SUBTOTAL TA,BA&WB	OTHER HARDWOOD	TOTAL HW	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	TOTAL SW		
10	PROV (2-1,4-1)OPEN LONG TERM COMMITMENT	5350	1550	6900	950	7850	200	8050	50	90	0	80	10	210		
	PROV(0-1)AGRICULTURE-OPEN SHORT TERM COMMITMENT	62390	14300	76690	2550	79240	5560	84800	430	440	0	90	50	1010		
	PROV(9-1)AGRICULTURE-OPEN SHORT TERM COMMITMENT	12450	4880	17330	1190	18520	920	19440	200	260	0	30	20	510		
	<b>SUB TOTAL OPEN SHORT TERM COMMITMENT</b>	<b>74840</b>	<b>19180</b>	<b>94020</b>	<b>3740</b>	<b>97760</b>	<b>6480</b>	<b>104240</b>	<b>630</b>	<b>700</b>	<b>0</b>	<b>120</b>	<b>70</b>	<b>1520</b>		
	LOCAL GOVERNMENT DISTRICT (0-6,2-6,9-6)SHORT TERM COMMITMENT	15470	4130	19600	780	20380	1220	21600	110	120	0	20	10	260		
	COMMUNITY PASTURE-OTHER(0-9)SHORT TERM COMMITMENT	7720	1850	9570	510	10080	520	10600	90	120	0	10	20	240		
	<b>SUB TOTAL LGD/OTHER SHORT TERM COMMITMENT</b>	<b>23190</b>	<b>5980</b>	<b>29170</b>	<b>1290</b>	<b>30460</b>	<b>1740</b>	<b>32200</b>	<b>200</b>	<b>240</b>	<b>0</b>	<b>30</b>	<b>30</b>	<b>500</b>		
	PRIVATE	100030	33070	133100	7010	140110	16560	156670	1250	1210	280	310	230	3280		
	<b>TOTAL FMU</b>	<b>203410</b>	<b>59780</b>	<b>263190</b>	<b>12990</b>	<b>276180</b>	<b>24980</b>	<b>301160</b>	<b>2130</b>	<b>2240</b>	<b>280</b>	<b>520</b>	<b>340</b>	<b>5510</b>		
11	PROV FOREST, PROV CROWN(1-1,5-1)OPEN LONG TERM COMMITMENT	33020	13850	46870	4440	51310	3430	54740	1620	10890	2400	700	1000	18610		
	PROV(0-1)AGRICULTURE-OPEN SHORT TERM COMMITMENT	45510	17880	63390	4640	68030	2430	70460	1170	1650	50	130	250	3250		
	PROV(9-1)AGRICULTURE-OPEN SHORT TERM COMMITMENT	8360	3640	12000	860	12860	810	13670	140	410	0	10	60	620		
	<b>SUB TOTAL OPEN SHORT TERM COMMITMENT</b>	<b>53870</b>	<b>21520</b>	<b>75390</b>	<b>5500</b>	<b>80890</b>	<b>3240</b>	<b>84130</b>	<b>1310</b>	<b>2060</b>	<b>50</b>	<b>140</b>	<b>310</b>	<b>3870</b>		
	LOCAL GOVERNMENT DISTRICT (0-6,2-6,9-6)SHORT TERM COMMITMENT	5570	2290	7860	630	8490	370	8860	110	140	0	20	20	290		
	COMMUNITY PASTURE-OTHER(0-9)SHORT TERM COMMITMENT	2380	880	3260	250	3510	50	3560	60	50	0	0	10	120		
	<b>SUB TOTAL LGD/OTHER SHORT TERM COMMITMENT</b>	<b>7950</b>	<b>3170</b>	<b>11120</b>	<b>880</b>	<b>12000</b>	<b>420</b>	<b>12420</b>	<b>170</b>	<b>190</b>	<b>0</b>	<b>20</b>	<b>30</b>	<b>410</b>		
	PRIVATE	44350	22710	67060	4550	71610	6970	78580	770	930	90	120	100	2010		
	<b>TOTAL FMU</b>	<b>139190</b>	<b>61250</b>	<b>200440</b>	<b>15370</b>	<b>215810</b>	<b>14060</b>	<b>229870</b>	<b>3870</b>	<b>14070</b>	<b>2540</b>	<b>980</b>	<b>1440</b>	<b>22900</b>		
13FML# 3	PROV FOREST, PROV PARK(1-1,7-1)OPEN LONG TERM COMMITMENT	387110	81790	468900	31770	500670	950	501620	54660	93510	42800	7880	370	199220		
	PROV FOREST, PROV PARK(1-2,7-2)RESTRICTED SHORT TERM COMMITMENT	35590	7090	42680	2350	45030	10	45040	5050	9120	3100	430	30	17730		
	<b>TOTAL FMU</b>	<b>422700</b>	<b>88880</b>	<b>511580</b>	<b>34120</b>	<b>545700</b>	<b>960</b>	<b>546660</b>	<b>59710</b>	<b>102630</b>	<b>45900</b>	<b>8310</b>	<b>400</b>	<b>216950</b>		
FML# 3 LP	TOTAL PROV OPEN LONG TERM COMMITMENT	425480	97190	522670	37160	559830	4580	564410	56330	104490	45200	8640	1380	218040		
	TOTAL PROV OPEN SHORT TERM COMMITMENT	128710	40700	169410	9240	178650	9720	188370	1940	2760	50	260	380	5390		
	TOTAL RESTRICTED SHORT TERM COMMITMENT	35590	7090	42680	2350	45030	10	45040	5050	9120	3100	430	30	17730		
	TOTAL LGD/OTHER SHORT TERM COMMITMENT	31140	9150	40290	2170	42460	2160	44620	370	430	0	50	60	910		
	<b>SUB TOTAL SHORT TERM COMMITMENT</b>	<b>195440</b>	<b>56940</b>	<b>252380</b>	<b>13760</b>	<b>266140</b>	<b>11890</b>	<b>278030</b>	<b>7360</b>	<b>12310</b>	<b>3150</b>	<b>740</b>	<b>470</b>	<b>24030</b>		
	PRIVATE	144380	55780	200160	11560	211720	23530	235250	2020	2140	370	430	330	5290		
	<b>TOTAL FML #3 -LP</b>	<b>765300</b>	<b>209910</b>	<b>975210</b>	<b>62480</b>	<b>1037690</b>	<b>40000</b>	<b>1077690</b>	<b>65710</b>	<b>118940</b>	<b>48720</b>	<b>9810</b>	<b>2180</b>	<b>245360</b>		
12 FML# 2	PROV(2-1,4-1)OPEN LONG TERM COMMITMENT	53700	23850	77550	10460	88010	7190	95200	11040	35740	11800	3420	6600	68600		
	PROV(5-1)OPEN LONG TERM COMMITMENT	9500	4760	14260	1950	16210	680	16890	3660	13080	4180	650	1110	22680		
	<b>SUB TOTAL OPEN LONG TERM COMMITMENT</b>	<b>63200</b>	<b>28610</b>	<b>91810</b>	<b>12410</b>	<b>104220</b>	<b>7870</b>	<b>112090</b>	<b>14700</b>	<b>48820</b>	<b>15980</b>	<b>4070</b>	<b>7710</b>	<b>91280</b>		
	PROV(0-1)AGRICULTURE-OPEN SHORT TERM COMMITMENT	1430	510	1940	150	2090	20	2110	20	260	240	0	60	580		
	PROV(9-1)AGRICULTURE-OPEN SHORT TERM COMMITMENT	2010	1260	3270	280	3550	380	3930	20	590	770	20	90	1490		
	<b>SUB TOTAL OPEN SHORT TERM COMMITMENT</b>	<b>3440</b>	<b>1770</b>	<b>5210</b>	<b>430</b>	<b>5640</b>	<b>400</b>	<b>6040</b>	<b>40</b>	<b>850</b>	<b>1010</b>	<b>20</b>	<b>150</b>	<b>2070</b>		
	PRIVATE	3030	1590	4620	340	4960	550	5510	20	360	930	20	40	1370		
<b>TOTAL FMU</b>	<b>69670</b>	<b>31970</b>	<b>101640</b>	<b>13180</b>	<b>114820</b>	<b>8820</b>	<b>123640</b>	<b>14760</b>	<b>50030</b>	<b>17920</b>	<b>4110</b>	<b>7900</b>	<b>94720</b>			
14FML# 2	PROV(1-1)OPEN LONG TERM COMMITMENT	123440	32820	156260	13960	170220	960	171180	39580	67700	13970	4870	190	126310		
FML#2 TOLKO	TOTAL OPEN LONG TERM COMMITMENT	186640	61430	248070	26370	274440	8830	283270	54280	116520	29950	8940	7900	217590		
	TOTAL OPEN SHORT TERM COMMITMENT	3440	1770	5210	430	5640	400	6040	40	850	1010	20	150	2070		
	PRIVATE	3030	1590	4620	340	4960	550	5510	20	360	930	20	40	1370		
	<b>TOTAL FML #2-TOLKO</b>	<b>193110</b>	<b>64790</b>	<b>257900</b>	<b>27140</b>	<b>285040</b>	<b>9780</b>	<b>294820</b>	<b>54340</b>	<b>117730</b>	<b>31880</b>	<b>8980</b>	<b>8090</b>	<b>221030</b>		
MOUNTAIN FOREST SECTION	TOTAL PROV OPEN LONG TERM COMMITMENT	612120	158620	770740	63530	834270	13410	847680	110610	221010	75150	17580	9280	433630		
	TOTAL PROV OPEN SHORT TERM COMMITMENT	132150	42470	174620	9670	184290	10120	194410	1980	1060	280	530	530	7460		
	TOTAL RESTRICTED SHORT TERM COMMITMENT	35590	7090	42680	2350	45030	10	45040	5050	9120	3100	430	30	17730		
	TOTAL LGD/OTHER SHORT TERM COMMITMENT	31140	9150	40290	2170	42460	2160	44620	370	430	0	50	60	910		
	<b>SUB TOTAL SHORT TERM COMMITMENT</b>	<b>198880</b>	<b>58710</b>	<b>257590</b>	<b>14190</b>	<b>271780</b>	<b>12290</b>	<b>284070</b>	<b>7400</b>	<b>13160</b>	<b>4160</b>	<b>760</b>	<b>620</b>	<b>26100</b>		
	PRIVATE	147410	57370	204780	11900	216680	24080	240760	2040	2500	1300	450	370	6660		
	<b>TOTAL MOUNTAIN FOREST SECTION</b>	<b>958410</b>	<b>274700</b>	<b>1233110</b>	<b>89620</b>	<b>1322730</b>	<b>49780</b>	<b>1372510</b>	<b>120050</b>	<b>236670</b>	<b>80610</b>	<b>18790</b>	<b>10270</b>	<b>466390</b>		