

**Forest Resource Improvement Association of Alberta
Forest Resource Improvement Program**

Foothills Growth and Yield Association

Annual Report

April 1, 2008 – March 31, 2009

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Introduction

The Foothills Growth and Yield Association (FGYA) Business and 2008 Work Plan was finalized in May 2008 to incorporate 2007/08 actual results and directives from the Steering Committee meeting held March 6, 2008 ([See Appendix 1 Steering Committee Minutes](#)), then revised July 8, 2008. It identifies 6 active projects and one project with no further action proposed (Project 5):

1. Development and management of the Association (FRIAA¹ Project *Foothills Growth and Yield Association – Second Five-Year Program* # FOOMOD-01-03);
2. Lodgepole pine regeneration (also FRIAA Project # FOOMOD-01-03);
3. Post-harvest stand development;
4. Cooperative management of historic research trials (FRIAA Project *Measurement and Maintenance of Historic Research Trials*, # FOOMOD-01-02);
5. Regional yield estimators;
6. Enhanced management of lodgepole pine (FRIAA Project # OF-02-16);
7. Monitoring and Decision Support for Forest Management in a Mountain Pine Beetle Environment (FRIAA Project # OF-07-PO19)

Income and expenditures (where applicable), achievements and shortfalls for each project are described below for the period from April 1, 2008 projected to March 31, 2009.

1. Development and Management of the Association

1.1. Income and Expenditures

Table 1 shows income and expenditures for Project 1 for the 2008/09 fiscal year. The budgeted amount is that shown in the Business and Work Plan for 2008. The actual amounts are those spent to March 31, 2009 (year end).

Note in Table 1 that the under-expenditure relative to budget results primarily from lower than anticipated costs for Director and Field coordinator, GIS and Misc Services as well as office and field supplies. A member company provided database design and management services normally supplied, which was recognized by a 50% reduction in membership fees from \$15,000 to \$7,500.

Costs reported do not include the following in-kind contributions by members and collaborating agencies:

- Foothills Model Forest (FtMF) GIS, administrative and financial services;
- Data management services provided by the Sundre Forest Products technical representative for Project 2, including services previously supplied by Foothills Model Forest;
- Participation on technical, steering and project committees;
- Attendance of meetings;
- Review of minutes, reports, proposals, experimental designs and scientific papers;
- Inspection and protection of experimental sites.
- Contracting and supervision of field crews measuring the Regenerated Lodgepole Pine project plots

¹ Forest Resource Improvement Association of Alberta

Table 1. Annual Income and Expenditures - Project 1

Income / Expenditure	Budget	Actual ²
Income		
Prior year balance forward	114,450	114,449
Membership fees - FRIP (FRIAA contract)	97,500	97,500
Membership fees - non-FRIP	30,000	30,000
Total income	241,950	241,949
Expenditures		
Director and Field Coordinator	93,500 ³	63,480
Research and Development Associate	80,000	80,000
GIS, Misc. Services, Computer Expense	15,000	1,023
Office and Field Supplies	2,500	445
Meetings and tours	7,000	0
Contingency (5%)	9,300	9,000 ⁴
Total expenses	195,300	153,948
Ending Balance	46,650	88,001

1.2. Achievements and Shortfalls

Table 2 summarizes achievements and shortfalls in development and management of the Association relative to deliverables planned for the year.

Table 2. Achievements and Shortfalls - Project 1

Deliverable	Achievements / Shortfalls
<u>Meetings and tours</u>	
1. Pre-season meeting of technical representatives	- Technical committee and contractor meeting held June 23, 2008 in Edson;
2. Steering Committee and Annual Meeting	- Technical Meeting Edmonton March 20, 2009 - FGYA Steering Committee Meeting Edmonton March 20, 2009 (See Appendix 1)
<u>Development and Management of Association</u>	
1. Annual update of 5 year business plan, annual work plan	- Complete
2. Project plans, designs, reports, publications	- See summary by project number
3. Maintain publicly accessible website	- ongoing under model forest website www.fmf.ab.ca
4. Mid-year and annual progress reports	- Annual Report 2007-08 (FRIAA Project #FOOMOD-01-03, April 2008, updated July 2008) - Mid-year progress report October 2008 (Appendix 2) - Draft Annual Report 2008-09 FGYA (March 2009)

² From March 2009 financial statements.

³ Director costs were projected at \$2,000, Field Coordinator and R&D Associate at \$5,000 respectively above forecast, reflecting extraordinary costs associated with startup and field monitoring of Project 7 MPB (Steering Committee Conference Call Sept 24, 2008 - \$12,000 approved).

⁴ Contingency used for 2008-09 EMLP1 measurement and analysis costs

2. Lodgepole Pine Regeneration

2.1. Income and Expenditures

Costs of treatments and field measurements were incurred directly by the member companies, and not reported to the FGYA Director. Inputs by the FGYA Director, Field Coordinator and Research and Development Associate are accounted for under Project 1 - *Development and Management of the Association* (see Table 1). The data management services of the Sundre Forest Products technical representative were provided to the FGYA in return for a 50% reduction in Annual Membership Fees (See resolution Steering Committee Annual Meeting March 6, 2008).

2.2. Achievements and Shortfalls

Table 3 summarizes achievements and shortfalls in data management, analysis and reporting for the Lodgepole Pine Regeneration Project.

Table 4 summarizes achievements and shortfalls in the field program of the Lodgepole Pine Regeneration Project relative to deliverables planned for the year. Table 5 provides a summary of RLP measurement timing, data submission and QC.

The RLP Database continued to present challenges to the R&D Associate who spent inordinate time correcting errors related to improper data entry by field contractors and other associated database problems.

Table 3. Achievements and Shortfalls – Project 2 – Data Management, Analysis and Reporting

Deliverable	Achievements / Shortfalls
<p><u>Data Management</u></p> <ol style="list-style-type: none"> 1. Detailed Field Schedule 2. Complete measurements by Oct. 31 3. Updated database with 2008 measurements by Dec. 31 4. Audit and work verification reports Jan 31 5. Complete data loading and verification of 2008 RLP data 	<ul style="list-style-type: none"> - Complete - Complete - Partly Done – Further data cleaning required - Done, November 2008 - Done
<p><u>Analysis and Reporting</u></p> <p>A. Analysis</p> <ol style="list-style-type: none"> 1. Expert advice on mortality factors, possible management support system by June 30 2. Solicit development and testing of models by external institutions June 2008 3. Solicit interest in extension of model development to other species/ecosystems June 2008 4. Compare mortality and ingress results to other studies – Sept 30 5. Regen model improvements to include climate data – Dec. 31 6. Extend regeneration performance model to 7 growing seasons with 2007, 2008 data – March 31/09 7. Revised trial measurement and treatment plan Feb 28/09 <p>B. Reporting</p> <ol style="list-style-type: none"> 1. Project Reports 2. Other Reports 	<ul style="list-style-type: none"> - Done, field manual updated - Started, more enquiries to be made - Informal proposals made; interest expressed but no progress. - Not completed. Preliminary assessment indicated importance of including latest (2008) field data in comparison. Rescheduled to June 2009. - First analysis done, results quite significant. Will extend analysis to 7 year results - Not completed. Requires further data corrections first. - Information note: Regenerated Lodgepole Pine Trial: Proposal and Priorities for Measurement and Treatment: March 2009 - April 2008 – Report issued “Analysis of Crop Performance 5 Years after Planting” - Interim Technical Note: Effect of Climate on Mortality of Young Planted Lodgepole Pine – February 2009

Table 4. Achievements and Shortfalls – Project 2 – Field Program

1. Regenerated Lodgepole Pine Plots Measured and Audited						
FMA Code	Full Measure Scheduled	Full Measure Done	Status Check Scheduled	Status Check Done	Total Done	Formal Audit
ANC	24	24			24	4
BRL	24	24			24	0
CFP	24	24			24	7
MWFP	24	24			24	5
SDA	24	24			24	7
SLS	24	24			24	0
SPI	4	4	52	52	56	0
WEYDV	24	24			24	6
WEYED	24	24			24	0
WEYGP	64	64	8	8	72	14
WWC	40	40	48	48	88	10
TOTAL	300	300	108	108	408	53

2. RLP Plots Scheduled for Treatment and Actually Treated			
FMA Code	Scheduled for Weeding &/or Assessment	Treated	Comments
ANC	0	0	4-3-0-W and 4-3-0-WT
BRL	0	0	
CFP	2	2	
MWFP	0	0	
SDA	0	0	
SLS	0	0	
SPI	0	0	
WEYDV	0	0	
WEYED	0	0	
WEYGP	0	0	
WWC	2	2	5-3-0-WT, 5-3-1111-W
TOTAL	4	4	

Table 5. Field Audits RLP program 2008

FMA Code	Measured	Received Data	Checked
ANC	Sept 1 to Oct 9	Oct-16	Oct-18
CANFOR	Aug 12 to 18	Aug-25	Aug-28
MWFP	Sept 14 to Oct 17	Oct-21	Oct-23
HWP	July 8 to July 23	Jul-29	Aug-07
SDA	Aug 26 to 31	Sep-03	Sep-08
WEYDV	July 23 to 25	Jul-28	Jul-29
WEYGP	July 28 to Aug 3	Aug-12	Aug-12
WEYGP	Aug 5 to Aug 12	Sep-10	Sep-10

3. Post-harvest Stand Development

3.1. Income and Expenditures

The Research and Development Associate's time inputs were covered under Project 1 – *Development and Management of the Association*.

3.2. Achievements and Shortfalls

Table 6 summarizes achievements and shortfalls in Project 3 – Post-harvest Stand Development relative to deliverables planned for the year.

Table 6. Achievements and Shortfalls: Project 3

Deliverable	Achievements / Shortfalls
Advance Three Dialogues	The Dialogue work is complete, the FGYA will continue to support efforts to align and seek common ground and measurement/research protocols between G&Y Association, to reduce overlap and optimize outcomes.
<u>Publications and reports</u> 1. Analysis to further investigate pre- and post-harvest density effects	Being conducted under Project #4 – Historic Research Trials

4. Cooperative Management of Historic Research Trials

4.1. Income and Expenditures

Table 7 shows income and expenditures for *Measurement and Maintenance of Historic Research Trials* (FRIAA Project # FOOMOD-01-02) during the 2007-08 fiscal year. The project covers the FGYA inputs for the overall Project 4 – *Cooperative Management of Historic Research Trials*.

Table 7. Annual Income and Expenditures – Project 4

Income / Expenditures	Budget	Forecast
Income		
Prior year balance forward	12,131	12,131
Member Contribution	10,000	10,000
FRIAA funding transfers	20,537	20,537
Other		
Total income	42,668	42,668
Expenditures		
Re-measurements	25,000	19,425
Evaluation of G&Y Models	3,500	4,614
Gregg Trial Analysis	3,500	0
Contingency and signage	10,000	0
Total expenditure	42,000	24,039
Ending Balance	668	18,629

4.2. Achievements and Shortfalls

The Project involves 3 main tasks:

1. Maintenance and protection of the field installations including signage;
2. Analysis of historic data and synthesis of results;
3. Ongoing re-measurement of trials.

Table 8 summarizes achievements and shortfalls in the Historic Research Trials Project relative to deliverables planned for the year. Some of these deliverables are by agencies other than the FGYA, but are described under the Letter of Agreement between the FGYA, CFS and Alberta Sustainable Resource Development. These are shown to provide a complete picture of activities.

This is a cooperative effort shared between the FGYA, the Canadian Fibre Centre, Canadian Forest Service (CFS) and Alberta Sustainable Resource Development (ASRD). The FGYA's main role is re-measurement, maintenance and analysis of the trials as specified and provided for under the FRIAA project: *Measurement and Maintenance of Historic Research Trials* (April 2003, FRIAA Project # FOOMOD-01-02). See Appendix 3: Letter of Agreement, Historic Research Trials, 2008.

Table 8. Achievements and Shortfalls: Project 4

Deliverable	Achievements / Shortfalls
Negotiate New Five Year Agreement	Complete. New five year agreement 2008-2013 setting forward principles of collaboration; annual and ongoing work to be defined in separate planning documents
<u>Remeasurements of Trials</u> McKay Thinning (A34, 1954) and Swan Lake Thinning (1977) trials	Re-measurements and maintenance completed for 2 trials
<u>Publications and Reports</u> <ol style="list-style-type: none"> 1. Analysis and reporting of Gregg and MacKay Trials against latest available versions of GYPSY and TASS 2. Use Gregg trial data to verify interpretation of Project 3 pre- and post-harvest density results 3. Extension of validation to other trials and TASS. 4. Analysis and publication of results from trials – 4 papers CFS (hold over from 2007/08) <ol style="list-style-type: none"> a. Predicting individual-tree diameter growth in thinned and nitrogen fertilized mid-rotation Lodgepole Pine. Yang/ Stewart (CFS – HRT LoA) b. Stand Density Management and Productivity of Lodgepole Pine Stands. (CFS – HRT LoA) c. Modeling and analysis of longitudinal and multilevel historical spacing trial data. (CFS – HRT LoA) d. Analysis of spacing effects on lodgepole pine height growth using singular value decomposition. Yang/ Stewart (CFS – HRT LoA) 	<ul style="list-style-type: none"> - Interim contractor reports for the Gregg and MacKay trials were received on Oct 27 and Sept 17. - Quicknote #10 on effects of juvenile spacing on Lodgepole pine stand height: April 2008, Sharon Meredith - Not done. - Models are finished; intro and methods written, needs results and discussion written, proposed winter 2009/10 - Major revision nearing completion; should go to CFS editorial board spring 2009 - Manuscript and scientific review complete; minor technical revisions underway; should go to CFS editorial review spring 2009 - Manuscript complete, technical review to follow; scientific review in spring

5. Regional Yield Estimators

5.1. Income and Expenditures

No expenditures were incurred by the Association on this Project during 2008.

5.2. Achievements and Shortfalls

An *Interim Report on the Development of Yield Estimators for Pure Lodgepole Pine Stands in Alberta* prepared by Yuqing Yang and Shongming Huang of the Forest Management Branch, ASRD, and edited and amended with input from the FGYA Director has been posted on the FGYA website as a technical information report.

No further work is envisioned under the auspices of the FGYA (SRD will solicit support directly from FMA holders in the event it undertakes further work and requires further inputs).

6. Enhanced Management of Lodgepole Pine

6.1. Income and Expenditures

Table 9 shows budgeted and actual income and expenditures for Project 6 during the 2008/09 fiscal year.

Table 9. Annual Income and Expenditures – Project 6

Income / Expenditures	Budget	Actual
Income		
Prior year balance forward	3,043	3,043
FRIAA Open Funds	39,024	39,024
Extension		
Transfer from Project 1		9,000
Total income	42,067	51,067
Expenditures		
Sub-project 1: lodgepole pine nutrition	42,067	47,334
Sub-project 2: pine-aspen density management	0	
Analysis		9143
Total expenditures	42,067	56,477
Balance	0	(5,410)

The expenditures in 2008/09 will conclude monetary activity for this project, however analysis and final report preparation will continue in 2009, with the R&D Associate's time covered under Project 1 and the work of U of A specialists as an "in-kind" contribution. Upon submission and acceptance of final reports the FRIAA holdback of \$5,010 will be released to effectively remove the deficit shown.

6.2. Achievements and Shortfalls

Achievements, shortfalls and problems encountered with this project are summarized in Table 10.

Table 10. Achievements and Shortfalls - Project 6

Deliverable	Achievements / Shortfalls
Sub-project 1: lodgepole pine nutrition	
1. 3 rd year growth measures 2. Foliar mass and chemical analysis 3. Analysis, projections and technical / information report	- 3 rd year growth measures completed on 15 young (10-30) post-harvest stands - foliar collections and analysis completed on 15 young (10-30) and 15 mid-late (30-80) stands - budget limitations precluded measures on the mid-late aged stands - Not done. Proposed for completion in 2009 by Dr. V. Lieffers, U of A.
Sub-project 2: pine-aspen density management	
1. Finalize the analysis of trial measurements	- Complete
<u>Publications and Reports</u>	
1. Scientific paper for Sub-project 2 (pine/aspen) by U of A March 31 2. Associated technical and information reports	- Incomplete - Interim Report – Effects of Trembling Aspen on Lodgepole Pine Growth – August 2008 - Quicknote #11 on pine/aspen prepared by Phil Comeau August 2008

The most notable shortfall is the inability, due to funding limitations, to remeasure the mid-late aged plots for growth responses to the treatment. If analysis for foliar responses and other related projects indicate a need for this at a future date – perhaps after a more extended remeasurement return interval, a supplementary budget will be presented for this purpose.

7. Regeneration Management in a Mountain Pine Beetle Environment

This is a new project that began late in 2007/08 with work continuing into 2008/09 and 2009/10 to provide tools and guidance for members and others faced with the challenge of managing stands and landscapes in a post-beetle environment.

Funding has been provided to the program from the Foothills Research Institute's Mountain Pine Beetle Ecology Program, as well as FRIAA Open Funds (Project #OF-07-P019), and the project is being managed by the Program Lead of the MPBEP of the Foothills Research Institute, with technical direction from the FGYA's Research and Development Associate.

7.1 Income and Expenditures Project 7

The FGYA Research and Development Associate provides technical direction and oversight of this project, while project management and budget control and reporting is under the direction of the Program Lead of the MPBEP at the Foothills Research Institute. Table 11 shows budgeted and projected income and expenditures for Project 7 during the 2008/09 fiscal year. Expenditures and budget control are reported by the Program Lead of FRI, Don Podlubny.

Table 11. Annual Income and Expenditures – Project 7

Income / Expenditures	Budget	Actual
Income		
Prior Year Balance Forward	71,280	71,280
FRIAA Open Funds	83,100	83,100
FGYA Management/ Technical Input ⁵ (in-kind)	18,240	18,240
Model Forest MPB Program	108,800	108,800
Total income	281,420	281,420
Expenditures		
Baseline Assessment	163,300	Reported by Program Lead, MPBEP of FRI
Projections	37,000	
Monitoring	38,400	
Synthesis	21,000	
Technical input/ management FGYA (in-kind)	18,240	
Administration / project management FtMF (in-kind)	12,000	
Total Expenditure	289,940	
Balance	-8,520	

⁵ R&D Associate technical input and management role

7.2 Achievements and Shortfalls

Achievements, shortfalls against proposed deliverables are summarized in Table 12, and a complete report from the R&D Associate is included in Appendix 4.

Table 12. Achievements and Shortfalls – Project 7

Deliverable	Achievements / Shortfalls
<u>Assessment of Supplementary Data Requirements</u>	- Done, information note by Dr. Ellen MacDonald: <i>“Development of sampling protocol to quantify/ document forest vegetation responses to mountain pine beetle attack, June 25, 2008”</i>
<u>Precompilation of Existing Data and Selection of Candidate Plots</u> 1. Compile database from SRD and member companies 2. Identify candidate list of 240 plots	- Done - Done, list shortened to 150 due to high cost of measurements. Additional plots to be identified in 2009, if any.
<u>Baseline Supplementary Measurements and Field Checks for Infestation Status</u> 1. Measure selected plots using sampling protocol 2. Field checks for infestation status	- 149 plots measured, also assessed for MPB infestation - infestation status was lower than expected - Only 9 of 53 plots previously identified as infested by plot owners were recorded as infested by the field crew, the rest of the 149 plots were uninfested
<u>Compilation of Existing and New Data – Database Development</u> 1. Compilation 2. Technical Report on data and Projections	- All data entered and delivered in MS Access database - Technical reports on data received January 2009 - No projections contracted or made
<u>Dendrochronological Measurements and Analysis</u>	- Measures made on 20 PSP in Lower and Upper Foothills Subregions, preliminary report to project Technical Management Committee Feb. 2009

8. Extension and Communication

Most deliverables for extension and communications are generally listed against the projects to which they relate, however Table 13 summarizes deliverables against the proposed activities for 2008. The cost for activities conducted under Extension and Communications are funded under Project 1 and not reported separately here.

Table 13. Achievements and Shortfalls – Communications and Extension

Deliverable	Achievements / Shortfalls
Website Updates	Website is current with all reports including 2008
Technical Information Reports/ Papers for Projects 2,3,4,6,7	<ul style="list-style-type: none"> - Project 2: – Report: Analysis of Crop Performance 5 Years after Planting” - Project 6 Subproject 1, scientific paper with U of A – pending; Subproject 2, interim report, Effects of Trembling Aspen on Lodgepole Pine Growth – August 2008
Bulletins	<ul style="list-style-type: none"> Two Quicknotes, One Technical Information Note - Quicknote #10 – Quicknote #10 on effects of juvenile spacing on Lodgepole pine stand height: April 2008, - Quicknote #11 – Effect of Trembling Aspen on Lodgepole Pine Growth August 2008 - Interim Technical Note: Effects of Climate on Mortality of Young Planted Lodgepole Pine – February. 2009

Appendix 1
Foothills Growth and Yield Association Annual Meeting
Steering Committee
March 6, 2008

Attendees

Greg Behuniak Richard Briand Daniel Chicoine Bob Held
Daryl D'Amico Dick Dempster Don Podlubny John Huey
Ed Kulcsar Tim McCready Dwight Weeks Bob Udell
Sharon Meredith (scribe)

Greg Behuniak called the meeting to order 830

1. Review of Minutes and Action Items of February 14, 2007

Committee adopted minutes as recorded.

a. Project 1: Administration of Organization

i. Field Tour

Field tour was organized with excellent cooperation from British Columbia Ministry of Forests (BCMoF) staff and was well attended. It set the stage for development of the Mountain Pine Beetle (MPB) research proposal.

ii. Restructure Staff and Assignments

As proposed last year (Strategic Planning Meeting 10 Jan 2007) Dick Dempster assumed the role of research and development associate. After a competitive bid process the business and field coordination was awarded jointly to Timberline Natural Resource Group and Bob Udell.

iii. Foothills Model Forest Support for GIS Services

Due to changes in funding, the Foothills Model Forest (FMF) is no longer able to provide free GIS services; therefore starting in 2008 the FGYA will pay for services as they are used.

b. Project 2: Regenerated Lodgepole Pine - Need Detailed Fieldwork Schedule

The fieldwork schedule was prepared and executed.

c. Project 3: Postharvest Stand Development - Scientific Paper re Site Index Models

Planned scientific paper has been put on hold due to extensive changes and work on Site Index and Growth and Yield models by Alberta Sustainable Resource Development. To meet objective of the originally planned work, an analysis of the 2006 re-measurements of the 1963 Gregg spacing trials that will quantify site index will be completed by year end.

d. Project 4: Historic Research Trials – Renewal of Agreement

A one-year extension to the agreement was signed with the intent to develop a new five-year agreement. A draft of the new five year agreement was prepared by Bob Udell, is being updated by Barrie Phillips of the Canadian Fibre Centre. Jim Stewart was assigned to the Canadian Fibre Centre and took responsibility for the Historic Research Trials with him.

i. Review of Trials in Draft Report

Hugh Loughheed and Dick Dempster developed re-measurement priority evaluation and classified trials as high, medium, and low priority.

Tim McCready suggested using verbenone to protect trials that are high priority and that FRIAA funding would be available for this.

Action: Dick Dempster will look into technical feasibility and cost of protecting trials with verbenone and recommend whether to employ on selected trials.

ii. Review initial Agreement to confirm deliverables

Canadian Forest Service (CFS) has committed to do 4 papers and they are underway.

2. New Business

a. Election of new Chair

Dwight Weeks was declared Chair by acclamation.

b. Director's Report

Bob Udell presented his written report with explanation. Bob also explained proposal for providing services for next year. No questions on report.

c. R&D Associate's Report

Dick Dempster presented his written report with explanation. Question from Daniel Chicoine on days committed. Dick responded that he wants to reduce number of days to about 80; the schedule for 2008 included in his report was based on the assumption he will update the RLP analysis to a 7-year progress report by adding 2007 and 2008 field measurements to the review and update. However, if the 2008 data is not loaded in a timely manner, the 60 days planned for RLP will not be necessary in 2008.

d. Annual Work Plan

i. Project 1 – Program Development and Management

MPB monitoring and decision support added to work plan. Items removed from FMF responsibilities have been added to either R&D associate or program manager. Business plan now makes it explicit that FGYA work is not a regulatory requirement.

Action: Members to review amount of net pine area and notify Bob Udell if there are significant changes.

ii. Project 2 – Lodgepole Pine Regeneration

Dick Dempster reported that the RLP database is robust and suitable for analysis from a number of perspectives, and could provide the basis for a number of PhD programs. For instance, the data suggests that mathematical techniques such as mixed modeling could be appropriate, an opportunity for university/graduate student involvement. Daryl D'Amico brought up the "Forward" project at Lakehead as an example of how this could be done. Richard Briand emphasized importance of maintaining relationship with Virginia. There may be an opportunity to determine relationships between trends in Virginia's forests and forests here that could lead to long term savings in reduced measurements.

Action: Dick Dempster to develop research opportunity two-pager as an appendix to the technical report by the end of March. Bob Udell and Dwight Weeks will determine how to bring it forward to the universities.

Agreed to hold off on getting formal input from practitioners on RLP trial results until next year so that more measurements are available. Dick Dempster indicated that he may want to contact some staff to discuss some of the plots informally before then.

Dick Dempster expressed the need to get some expertise out to the RLP trials to examine forest health impacts on plots, e.g. insect and disease damage, that may be outside the expertise of the field crews assigning damage codes.

Action: Dick Dempster will talk to Daryl Price about the best way to approach SRD for cooperation on getting entomological expertise to assess damage on RLP trials.

iii. Project 3 – Comparison of Pre-harvest and Post-harvest Stand Development

The three dialogues initiated as an outcome of the 2006 conference are winding down with significant action still being pursued on one (Technical Program Alignment), one more or less complete (Vision, Strategic Direction and Incentives) and one set aside due to other priorities (Education).

iv. Project 4 – Historic Research Trials

Signage on trials has been suspended pending obtaining a more secure 5-year agreement, however there is continuing interest in updating signage on the trials. Andria Dawson's work on Historical Trials will be extended to include new versions of GYPSY and TASS but requires no additional funding.

v. Project 5 – Regional Yield Estimators

Project is basically complete.

vi. Project 6 – Enhanced Management of Lodgepole Pine

Project is underway as per schedule in Table 6 of the work plan. The remaining funds for the 2008 program may be low, and will have to be reviewed after proposals are received. At this point the project may have to be curtailed or other funds found.

Pine/aspen analyses being conducted by Phil Comeau may fill some important gaps in the pine regeneration modeling work being undertaken under Project 2 . It will be useful to re-measure the plots after 5 or 6 years.

Tim McCready raised the idea of protective notation. Dick Dempster said that this should be done for nutrition and density management plots, but was not such a high priority for pine/aspen plots.

Action: Members to review and advise of protective notation status of FGYA plots on their FMAs.

vii. Proposed U of A Study Lieffers

Dick Dempster reviewed preliminary proposal and supports the idea. U of A involvement could be helpful, e.g. FGYA has no budget to check plots for MPB and this could be accomplished when the U of A crews visit the plots. FGYA needs to ensure there are no issues with data sharing or risk to plots.

Action: Dwight Weeks will ask Vic Lieffers to propose a collaborative research agreement.

viii. Project 7 – Regeneration Management in a MPB Environment

Technical Committee meeting was held on March 6 to discuss initial review of proposals and candidate plot selection. Dick Dempster will be revising plot selection criteria and will send this out to members.. Ellen MacDonald is working on recommendations for supplemental measurements.

Moved by Greg Behuniak and seconded by Daryl D’Amico that negotiations commence with the Forestry Corp to sign a contract for the MPB decision support contract. Prior to completion of the contract that the FGYA are in agreement to contract Forestry Corp as per proposal to carryout initial work required for completion of plot selections. Carried.

3. Staff and Assignments 2008/09

Bob Udell pointed out that the Steering Committee, in its 2006 annual meeting directed that Dick Dempster’s contract be set up on a rolling two-year basis to provide continuity and assist forward planning should Dick decide in future to step away from the program.

Moved by Ed Kulcsar and seconded by Richard Briand that the FGYA renew Dick Dempster's contract for another two years. Carried

Moved by John Huey and seconded by Daryl D’Amico that the FGYA renew Timberline’s contract for 2008/09. Carried

For both the intent will be to have contracts signed by the beginning of April.

a. Database management

Bob Held will maintain the DB for one more year and load next year’s data. FMF will continue to maintain a secure copy.

Moved by John Huey and seconded by Daniel Chicoine that Sundre’s contribution be \$7500 for 2008 to recognize and compensate for last year’s and this year’s work on the database through reduced dues. Carried

4. Updating of Business Plan

Moved by Richard Briand and seconded by Tim McCready to accept business plan. Carried.

Action: If there are changes in steering committee or technical committee members notify Bob Udell by end of March.

Priority update (see Bus. Plan Sec. 3.2)

Review of members' priorities was done in 2001 and hasn't been formally updated. However, the strategic planning session of January 2007 added Mountain Pine Beetle to the list of priorities, with direction to pursue funding for research on this issue.

Action: Revise work plan to include a review of priorities at the technical committee meeting in June."

Action: Schedule discussion at technical committee meeting.

5. Authorizations for Project Administration and Funding

Bob Udell distributed forms authorizing FRIAA to transfer membership dues to the Model Forest. See Attachment 1. Some members are reviewing whether they will pay directly or through the FRIP program.

There was discussion surrounding timing of allocation of FRIAA funds for the member company contributions, i.e. did FRIAA encumber membership fees for the full five years when Project 1 was renewed, or are they taken out as directed on an annual basis.

Action: Members to complete Membership dues form and send to the Foothills Model Forest by March 31.

Action: Dwight check to see if FRIP funds are allocated for the five year period and if they can be earmarked going forward.

6. Other Business

None

Meeting was adjourned at 12:25

Appendix 2: 2008/09 Mid Year Progress Report October 2008

Project/Activity	Approved Budget for Year	Expended to September 30	Progress to Date (September 30)
<p>Foothills Growth and Yield Association (FGYA) Project 1: <i>Development and Management of the Association</i></p> <p>- FtMF Project 235 - FRIAA Project FOOMOD-01-03</p>	<p>\$195,300 (FRIP and member funded)</p>	<p>\$71,642</p>	<p><i>Planning and Funding Approvals:</i></p> <ol style="list-style-type: none"> 1. Work plan and budgets for all projects updated and approved. 2. Strategic priorities for FGYA have been updated <p><i>Meetings and tours:</i> Technical committee and contractor meeting held June 23 in Edson;</p> <p><i>Publications:</i></p> <ol style="list-style-type: none"> 1. Annual Report 2007-08 2. Regenerated Lodgepole Pine Trial, ANALYSIS OF CROP PERFORMANCE Five Growing Seasons After Planting – April 4, 2008 (FRIAA Project FOOMOD-01-03) 3. <i>Quicknote #10.</i> Effects of Juvenile Spacing on Lodgepole Pine Stand Height – April 2008 (Historic Research Trials. FRIAA Project FOOMOD-01-02) 4. <i>Quicknote #11.</i> Effects of trembling aspen on lodgepole pine growth August 2008 (Subproject 2, pine/aspen – FRIAA Project OF-02-16) <p><i>Agreements:</i></p> <ol style="list-style-type: none"> 1. The Cooperative Research Agreement between the FGYA and the University of Alberta (FRIAA Project OF-02-16) was revised in July to accommodate a proposed new project by U of A – Reducing Mountain pine beetle impact by managing stand vigour to increase tree defences and resistance 2. The Letter of Agreement for the Historic Research Trials (FRIAA Project FOOMOD-01-02) between FGYA, the Canadian Fibre Centre, Canadian Forest Service and Sustainable Resource Development was updated to 2013 and signed in June.
<p>FGYA Project 2: <i>Lodgepole Pine Regeneration</i></p>	<p>Estimated value \$256,050 (in-kind fieldwork contribution by members)</p>	<p>Estimated 90% complete = \$230,450 (in-kind)</p>	<p><i>Planning:</i></p> <p>Schedules finalized and approved for full measurements (300 plots), status checks (108 plots) and tending treatments (5 plots).</p> <p><i>Fieldwork:</i></p> <ol style="list-style-type: none"> 1. Quality Control procedures adjusted following a field visit by a forest disease specialist, who identified significant errors in field mortality calls. 2. Scheduled work nearing completion; verification and QC audits in progress. <p><i>Analysis and reporting:</i></p> <ol style="list-style-type: none"> 1. 5 year results analyzed and reported. 2008 plans include analysis of seven year

Project/Activity	Approved Budget for Year	Expended to September 30	Progress to Date (September 30)
			<p>results. Database is being maintained by Bob Held at Sundre Forest Products.</p> <ol style="list-style-type: none"> 2. Work underway to extend mortality and ingress results to later ages using data from other studies, e.g. Ives and Rentz data, FGYA pine-aspen results etc. 3. A preliminary assessment is underway relating RLP mortality and growth to climate factors using an updated version of the ClimateAB program provided by Dr. Andreas Hamann of U of A is underway. Correlation appears strong and points to a more detailed project.
FGYA Project 3: <i>Post-harvest Stand Development</i>	-	-	<p>Several projects are linked to this initiative; a proposed paper is delayed pending completion of the new GYPSY model, now proposed for March 2009.</p> <p><i>Follow-up to PHSD Conference:</i> Three Dialogues arising from the PHSD Conference have been suspended until the Chairs indicate a need to meet again.</p>
FGYA Project 4: <i>Historic Research Trials</i> -FtMF Project 235.1 -FRIAA Project FOOMOD-01-02	\$42,000 (FRIP and member funded)	\$0	<p><i>Fieldwork:</i> A contract was let for 2008 fieldwork and two trials will be measured in October – MacKay and Teepee Creek plots.</p> <p><i>Analysis and Reporting:</i></p> <ol style="list-style-type: none"> 1. Analysis done on effect of spacing on juvenile height growth for the Gregg Trials. 2. Work continues on the Gregg and MacKay Trials projecting stand development under different stocking regimes using the existing GYPSY and MGM models.
FGYA Project 5: <i>Regional Yield Estimators</i>	-	-	Complete, no further work planned.
FGYA Project 6: <i>Enhanced Management of Lodgepole Pine</i> - FtMF Project 235.2 - FRIAA Project OF-02-16	\$47,069 (project funded under FRIAA Open Funds Program, augmented by members)	\$0	<p><i>Sub-project 1 (Nutrition):</i> Work planned for 2008 (3 year foliage analysis, 3 year growth response, information report) has not begun.</p> <p><i>Sub-project 2 (Pine-aspen Density):</i> A Quicknote and internal technical report have been produced, proposed scientific paper not yet done.</p>
FGYA Project 7 Monitoring and Decision Support	Project funded under FRI's	Reported under FRI's	Project is managed under FRI's Mountain Pine Beetle Program, and reported by Program Manager Don Podlubny. Highlights include:

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Project/Activity	Approved Budget for Year	Expended to September 30	Progress to Date (September 30)
for Forest Management in a Mountain Pine Beetle Environment FRIAA Project OF-07-P019 Reported under MPBEP of Foothills Research Institute	MPBEP	MPBEP	<ol style="list-style-type: none"> 1. Selection and pre-compilation of 240 candidate PSP's for baseline assessment and monitoring completed; 2. Protocols developed for supplementary baseline assessment; 3. Baseline assessment of 150 PSP's nearing completion; 4. Dendrochronological field sampling completed for a sub-sample of 16 PSPs in 12 stands .
FGYA Total 2008-09	\$284,369 direct \$256,050 In Kind	\$71,642 \$230,450 In Kind	

Appendix 3: Letter of Agreement, Historic Research Trials 2008

LETTER OF AGREEMENT

between

Canadian Wood Fibre Centre, Canadian Forest Service, Natural Resources Canada
(Herein referred to as CWFC),

Forestry Division, Alberta Sustainable Resource Development (ASRD),

Foothills Growth and Yield Association (FGYA),

and

Foothills Research Institute (FRI)

WHEREAS The CWFC has a goal for the benefit of Canada to advance the competitiveness of the Canadian Forestry Sector by finding new, innovative and optimal uses of wood fibre;

WHEREAS ASRD shares this goal from the perspective of benefits to Alberta and the FGYA and FRI recognize the value of this goal for the forestry sector;

WHEREAS all Participants see the value in expanding our understanding of wood fibre attributes related to forest sector competitiveness;

WHEREAS all participants see value in continuing to maintain, measure and interpret research trials that contribute to accumulating knowledge of the current or future status of the forest and the fibre it produces;

WHEREAS all Participants concur to share relevant work plans and expectations for collaboration related to growth and yield, silviculture and inventory relating to wood fibre attributes, and to tools and techniques for the optimal utilization of wood fibre.

THE PARTICIPANTS THEREFORE ENTER INTO THIS LETTER OF AGREEMENT:

I. PURPOSE

The purpose of this Letter of Agreement (LoA) is to confirm a mutual understanding, by all Participants, of the undertakings required of all Participants over the remainder of the 2008-09 fiscal year and for the next four fiscal years (2009-10 to 2012-13), including:

- a. working arrangements for collaboration;
- b. continuing access to and use of historic research trials for the purpose of improving knowledge of growth, yield, silviculture and fibre qualities.

II. TERMS

- a. The provisions of this LOA will come into effect when signed by all Participants and the LOA will remain in effect until the planned expiry date of March 31, 2013. Modification and/or early termination of the LOA are permissible as set out in Section V.
- b. This LOA does not create any legally binding rights or obligations between the Participants.

III. WORKING ARRANGEMENTS

- a. The Executive Director, Canadian Wood Fibre Centre, will be the primary CWFC contact for implementing the terms of the LOA. His/her representative will participate at meetings working committees as required.
 - b. The Executive Director, Forest Management Branch, will be the primary ASRD contact for this LOA. His/her representative will participate at meetings and working committees as required.
 - c. The Chairman, Foothills Growth and Yield Association will be the primary FGYA contact for this LOA. His/her representative will participate at meetings and working committees as required.
 - d. The President, Foothills Research Institute will be the primary FRI contact for this LOA. His/her representative will participate at meetings and working committees as required.
 - e. All parties will be mandated to resolve any shortcomings or disagreements that may arise in the interpretation or application of this LOA. If issues persist or are not resolvable to the satisfaction of the Participants, a special meeting may be requested by the signatories to resolve the disagreement at that level. Any differences regarding the interpretation or application of this LOA will be resolved amicably by consultation between the Participants and will not be referred to a third party for settlement.
-

IV. UNDERSTANDING OF THE PARTICIPANTS

It is the intent of the Participants that this LOA provide continuing access to historic research trials and data of the CFS by the FGYA and ASRD for the purpose of maintaining, measuring and analyzing the research trials to improve knowledge of growth, yield, silviculture and fibre characteristics and uses of Lodgepole pine in Alberta.

Participants will:

- a. Work collaboratively on development of projects that have mutual and synergistic benefits to the Participants. Examples of these projects could be to improve the positioning and understanding of growth and yield, silviculture or inventory tools in natural resource applications;
- b. Work collaboratively to provide for the efficient implementation and administration of mutually beneficial projects;
- c. Facilitate and accommodate projects that are of unique value to individual Participants but may not be of interest or value to all Participants. An example of this could be the growing and manipulation of desirable wood fibre attributes; and
- d. Work collaboratively on public communications activity related to the LoA and any resulting collaborative project activity.

V. EARLY TERMINATION OR AMENDMENT OF THIS LOA

- a. The Participants may mutually agree to terminate or amend this LOA at any time.
- b. Participants, upon serving 120 days prior notice, may terminate this LOA. Such notice will include the reasons for termination, and will provide an opportunity for the others to be heard.

VI. LEGAL RELATIONSHIP

- a. Nothing contained in this LOA will create the relationship of principal and agent, employer and employee, partnership or joint venture between the Participants.
 - b. ASRD, FGYA or FRI will not make any representation that:
 - i) they are an agent of Canada; or
 - ii) could reasonably lead any member of the public to believe that they or its contractors are agents of Canada.
-

c. CWFC will not make any representation that:

- i. It is an agent of FRI, ASRD or FGYA
- ii. Could reasonably lead any member of the public to believe that it or its representatives are agents of these organizations.

VII. APPROVALS

Witness _____ George Bruemmer
Executive Director
Date _____ Canadian Wood Fibre Centre
Canadian Forest Service
Natural Resources Canada

Witness _____ D.A. Sklar
Executive Director
Date _____ Forest Management Branch
Alberta Sustainable Resource Development

Witness _____ Dwight Weeks
Chairman
Date _____ Foothills Growth and Yield Association

Witness _____ James LeLacheur
President
Date _____ Foothills Research Institute

Appendix 4.

Foothills Growth and Yield Association

Information Note

Regeneration Management in an MPB Environment

Progress Report for 2008

March 2009

Tasks and Deliverables Scheduled for 2008

The following tasks were scheduled to be undertaken during the period April 1, 2008 to March 31, 2009, by 3 primary contractors / research collaborators.

Dr. Ellen MacDonald

- Assessment of supplementary data requirements (April, 2008);

The Forestry Corp

- Pre-compilation of existing data and selection of candidate plots (by April 30, 2008);
- Baseline supplementary field measurements (May - October, 2008);
- Field checks for plot infestation status (August – October 2008);
- Compilation of existing and new data - PSP database development (October, November 2008);
- Stand projections with existing models (November 2008 – January 2009).
- Decision support tool development (ongoing);
- Status report on preliminary assessment of decision-support tools (by March 31, 2009);
- Update report on monitoring (by March 31, 2009);
- Technical report on compiled data and projections (by March 31, 2009).

Canadian Forest Service

- Dendrochronological measurements (May – October);
- Dendrochronological analyses and report (by March 31, 2009).

Assessment of Supplementary Data Requirements

The assessment was completed and documented in the information note by Dr. Ellen Macdonald: *Development of sampling protocol to quantify/document forest vegetation responses to mountain pine beetle attack*, June 25, 2008. This formed the basis for baseline supplementary field measurements conducted during 2008.

Pre-compilation of Existing Data and Selection of Candidate Plots

A database was compiled containing summary information on 5,749 permanent sample plots belonging to SRD and the 9 FGYA member companies. A candidate list of 280 PSP's was created from this, based on the following criteria:

- Plot-based SSI value (without climate factor) provided by company;
- Distance (km) to nearest infestation, from spatial overlay;
- Stand age (or pine age if available);
- Number of years since last re-measurement;
- Ground observation or local knowledge of known infestation;
- Distribution among 8 pre-identified ecological strata;
- Geographic distribution;
- Ownership and reservation status.

The intent was to establish a network of 240 monitoring plots, as per the project proposal and design: 180 to be baseline-measured in 2008, and the remainder in 2009. Because of budget restrictions on the number of plots that could be measured, 150 plots were selected for baseline assessment in 2008, primarily by removing plots from strata with disproportionately high representation and plots that were least accessible.

Baseline Supplementary Field Measurements and Field Checks for Plot Infestation Status

Supplementary baseline assessments were conducted on a total of 149 plots. The same plots were also checked for MPB infestation status. Table 1 shows the number of plots by plot ownership.

Table 14. Number of baselined PSPs by owner

Owner	# of Plots
Blue Ridge Lumber	5
Canadian Forest Products	4
Hinton Wood Products	13
Millar Western Forest Products	4
Sundance Forest Industries	4
Sundry Forest Products	5
Spray Lake Sawmills	3
Alberta Sustainable Resource Development	111
Total	149

The collected data included saplings (trees < 9.1 cm in DBH and > 1.3 m in height), regeneration (trees < 1.3 m and ≥ 0.1 m in height), ecosite, non-tree vegetation, quantification of mountain pine beetle attack, arboreal lichens, and cone serotiny.

Table 2 shows the number of plots by ecological stratum, and the number of plots indicated (either by the baseline assessment crew or previously by the plot owner) as MPB infested.

Table 15. Number of baselined and MPB-infested plots

Ecosite (and Edatopic) Type	Stratum #	# of Plots Baselined	# of Plots Attacked
1. Bearberry / lichen / hairy wild rye (submesic / subxeric, medium – low)	1	14	1
2. Labrador tea – mesic (mesic – poor)	2 (UF) 3 (LF)	23 33	0 9
3. Billberry / cranberry / sarsaparilla / rhododendron (mesic / medium)	4 (UF) 5 (LF)	21 15	1 15
4. Honeysuckle / fern (subhygric – rich)	6 (UF) 7 (LF)	12 21	1 20
5. Labrador tea – hygric (hygric – poor)	8	10	7
Total		149	54

Only 9 of 53 plots previously identified as infested with MPB by the plot owners were recorded as infested by the 2008 field crews. This inconsistency has resulted in uncertainty over the true status of the plots. The original identifications and their basis are currently being checked, and if necessary corrections and field checks

will be made in 2009. The inconsistency is thought to have arisen partly because of plots by chance escaping infestation within infested stands. Modifications to the planned monitoring protocol have been proposed to deal with this situation. Other inconsistencies are apparent between the soil and vegetation-based ecosite identifications made in the field in 2008, and between these and the plot owners' original ecosite classifications. Dr. Ellen MacDonald and the field contractor are reviewing the discrepancies and will make recommendations for confirming or correcting the ecosite assignments.

Compilation of Existing and New Data - Database Development

All data collected in the 2008 field season were key-punched twice and the resulting files were compared for quality control and to identify the key punching errors. Existing tree information (DBH \geq 9.1 cm) was obtained from the last re-measurement of the PSP by the plot owner. Age data by species were also obtained from previous re-measurements.

The following variables were compiled from the existing and 2008 field data:

- Density
- Basal area
- Breast height or stump height ae by species
- Top height
- Site index
- Average height and diameter by species
- Regeneration
- Mortality and mountain pine beetle attack
- Arboreal lichens and cone serotiny
- Non-tree vegetation

The contractor delivered the compiled data in an MS Access database, plus the input data and compilation programs.

8.1.1. Technical Report on Compiled Data and Projections

The contractor (The Forestry Corp.) provided the following documents in January 2009 describing the data, compilation and database:

- *Regeneration Management in a Mountain Pine Beetle Environment (Data Compilation Report – 2008 Surveys);*
- *Access Database 2008 Tables Description;*
- *SAS Programs Description.*

Projections of the compiled data were not contracted or made.

Dendrochronological Measurements and Analysis

Measurements, including increment coring and destructive sampling within plot buffers, were made on a sub-sample of 20 PSP's (15 plot clusters or stands) in the Lower and Upper Foothills Sub-regions within the northern portion of the study area. Laboratory tree-ring analyses were used to generate stand reconstructions and as a basis for analysis of growth patterns and assessment of factors influencing canopy disturbance and growth. A preliminary report⁶ was distributed to the project Technical Management Committee in February, 2009.

⁶ R.Alfero, J. Axelson and B .Hawkes, *The dendroecology and stand dynamics of a selection of permanent sample plots, Alberta.*

Decision Support Tool Development

Projections of the compiled data (initially intended to be undertaken using existing models) were not contracted or made in 2008; neither was any formal assessment of decision-support tools. The Technical Management Committee met in March 2009 and have made recommendations for this aspect of the work.⁷ The FGYA 2009 annual work plan includes provision for an expert-systems workshop to be held in June with project participants and co-operators to design the decision-support system.

Update Report on Monitoring

No field monitoring of plots was contracted or undertaken other than the visits to the 149 PSP's selected for baseline assessment.

As a supplementary basis for assessing the need and priorities for further baseline sampling in 2009, a series of maps was developed showing the locations of baselined and candidate plots relative to:

1. Locations of red tree attacks surveyed in 2008;
2. R-values as surveyed in 2008;
3. Stand susceptibility index based on Alberta Vegetation Inventory;
4. Predicted MPB overwinter survival (to February 13, 2009).

A preliminary assessment² of the compiled field data and the infestation trends indicated by the above maps tentatively concluded that the project should:

- In the north, sample the 5 remaining candidate plots reported as showing signs of infestation, that occur in the heavily attacked Weyerhaeuser forest management area;
- In the south, sample all 10 candidate plots in the Crowsnest Pass area;
- Defer supplementary baseline sampling of the remaining candidate PSPs, subject to the results of improved infestation and survival predictions.

W.R. (Dick) Dempster, Ph.D., R.P.F.
March 31, 2009

⁷ See FGYA Information Note: *Regeneration management in an MPB environment – priorities for work in 2009*, March 2009.

Appendix 5. Detailed Expenses 2008-09 Project 1 – Management of the Association

Foothills Research Institute

10:18 AM

04/09/2009

April 2008 through March 2009

Accrual
 Basis

Type	Date	Name	Memo	Amount
COMPUTER EXPENSE				
8101 - Hardware/Network Maint				
Bill	02/19/2009	Debbie Mucha	plotter cln	23.07
Total 8101 - Hardware/Network Maint				23.07
8103 - Software Expense				
Bill	05/13/2008	Dell Canada Inc.	server software	23.39
Total 8103 - Software Expense				23.39
8104 - Supplies & Accessories				
Bill	05/14/2008	Acrodex	backuptape	50.40
Bill	05/28/2008	RU-LINK Computer Corp.	servr batt backup	15.94
Bill	02/17/2009	RU-LINK Computer Corp.	tape	46.96
Bill	02/20/2009	Dell Canada Inc.	hard drives	28.13
Total 8104 - Supplies & Accessories				141.43
8105 - Equipment Lease				
Bill	04/10/2008	Dell Financial Services	server	24.08
Bill	04/10/2008	Dell Financial Services	server	35.18
Bill	04/10/2008	Dell Financial Services	server	26.40
Bill	05/01/2008	Dell Financial Services	server	24.08
Bill	05/01/2008	Dell Financial Services	server	26.40
Bill	06/01/2008	Dell Financial Services	server	24.08
Bill	06/01/2008	Dell Financial Services	server	26.40
Bill	07/10/2008	Dell Financial Services	server	26.40
Bill	07/10/2008	Dell Financial Services	server	24.08
Bill	07/21/2008	Dell Financial Services	server	37.80
Bill	08/12/2008	Dell Financial Services	comp	24.08
Bill	08/12/2008	Dell Financial Services	comp	26.40
Bill	08/12/2008	Dell Financial Services	comp	12.60
Bill	09/04/2008	Dell Financial Services	server	24.08
Bill	09/04/2008	Dell Financial Services	server	26.40
Bill	09/04/2008	Dell Financial Services	server	12.60
Bill	10/01/2008	Dell Financial Services	server	24.08
Bill	10/01/2008	Dell Financial Services	server	26.40
Bill	10/09/2008	Dell Financial Services	server	12.60
Bill	11/01/2008	Dell Financial Services	server	24.08
Bill	11/01/2008	Dell Financial Services	server	26.40
Bill	11/01/2008	Dell Financial Services	server	12.60
Bill	12/01/2008	Dell Financial Services	server	24.08
Bill	12/01/2008	Dell Financial Services	server	26.40
Bill	12/05/2008	Dell Financial Services	server	12.60
Bill	01/12/2009	Dell Financial Services	server	24.08

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Bill	01/12/2009	Dell Financial Services	server	26.40
Bill	01/12/2009	Dell Financial Services	server	12.60
Bill	02/02/2009	Dell Financial Services	server	24.08
Bill	02/02/2009	Dell Financial Services	server	26.40
Bill	02/06/2009	Dell Financial Services	server	12.60
Bill	03/04/2009	Dell Financial Services	server	26.40
Bill	03/04/2009	Dell Financial Services	server	<u>12.60</u>
Total 8105 - Equipment Lease				755.46
 8106 - Computer Equipment				
Bill	02/02/2009	Dell Financial Services	server	<u>79.85</u>
Total 8106 - Computer Equipment				<u>79.85</u>
 Total COMPUTER EXPENSE				 1,023.20
 CONTRACTS				
8152 - General Contracts				
Bill	04/30/2008	Dick Dempster Consulting Ltd.	apr	6,384.00
Bill	04/30/2008	Timberline Natural Resource Group	apr	3,555.56
Bill	05/31/2008	Dick Dempster Consulting Ltd.	may	10,673.25
Bill	05/31/2008	Timberline Natural Resource Group	may	2,262.75
Bill	06/30/2008	Dick Dempster Consulting Ltd.	jun	10,269.78
Bill	06/30/2008	Timberline Natural Resource Group	jun	5,957.96
Bill	07/31/2008	Dick Dempster Consulting Ltd.	jul	4,189.50
Bill	07/31/2008	Timberline Natural Resource Group	jul	7,524.64
Bill	08/31/2008	Dick Dempster Consulting Ltd.	aug	6,384.00
Bill	08/31/2008	Timberline Natural Resource Group	aug	8,467.63
Bill	09/30/2008	Timberline Natural Resource Group	mgt	3,991.92
Bill	10/31/2008	Timberline Natural Resource Group	mgt	5,066.03
Bill	11/30/2008	Dick Dempster Consulting Ltd.	sept-nov	8,379.00
Bill	12/31/2008	Timberline Natural Resource Group	mgt	4,394.26
Bill	01/31/2009	Dick Dempster Consulting Ltd.	dec-jan	13,665.75
Bill	01/31/2009	Timberline Natural Resource Group	mgt	448.88
Bill	02/28/2009	Timberline Natural Resource Group	mgt	3,690.75
Bill	03/31/2009	Dick Dempster Consulting Ltd.	feb-mar	<u>20,055.00</u>
Bill	04/2009	Timberline Natural Resource Group	Mar	<u>10,001.88</u>
Total 8152 - General Contracts				<u>135,362.54</u>
 Total CONTRACTS				 135,362.54

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OFFICE& ADMINISTRATION

8322 - Printing & Binding

General Journal	06/10/2008		copy paper	31.97
Bill	06/10/2008	IKON Office Solutions	copy	54.83
Bill	07/23/2008	IKON Office Solutions	copy	7.69
General Journal	07/23/2008		copy paper	1.83
General Journal	09/08/2008		copy paper	0.44
Bill	09/09/2008	IKON Office Solutions	copy	3.51
Bill	11/24/2008	IKON Office Solutions	copy	13.65
General Journal	11/24/2008		copy paper	11.45
General Journal	03/07/2009		copy paper	3.84
Bill	03/07/2009	IKON Office Solutions	copy	<u>9.73</u>
Total 8322 - Printing & Binding				138.94

8324 - Station. & Off. Supplies

Bill	05/28/2008	Grand & Toy	bus cards	5.29
Bill	06/30/2008	Sharpline Print Solutions Ltd.	plotter supplies	<u>19.07</u>
Total 8324 - Station. & Off. Supplies				<u>24.36</u>

Total OFFICE& ADMINISTRATION 163.30

PROFESSIONAL FEES

8356 - Consulting services

Bill	08/31/2008	Timberline Natural Resource Group	mpb dss	5,357.65
Bill	09/30/2008	Timberline Natural Resource Group	mpb dss	1,526.39
Bill	10/31/2008	Timberline Natural Resource Group	mpb dss	<u>1,233.50</u>
Total 8356 - Consulting services				<u>8,117.54</u>

Total PROFESSIONAL FEES 8,117.54

UTILITIES

8422 - Telephone & Fax

Bill	10/14/2008	Telus Communications	sept 24 conf call	152.89
Bill	03/14/2009	Telus Communications	ph	<u>128.61</u>
Total 8422 - Telephone & Fax				<u>281.50</u>

Total UTILITIES 281.50

8640 - Transfers within Funds

8642 - Transfer to Cont Projects Cont

General Journal	03/11/2009		to 235.2	<u>9,000.00</u>
Total 8642 - Transfer to Cont Projects Cont				<u>9,000.00</u>

Total 8640 - Transfers within Funds 9,000.00

TOTAL 153,948.08