

SECTION TEN
RESEARCH AND INNOVATION

DFMP

DETAILED FOREST MANAGEMENT PLAN

TEXT REPORT



BLUE RIDGE LUMBER INC.
A SUBSIDIARY OF WEST FRASER MILLS LTD.

10 Research and Innovation

The Blue Ridge Lumber research and innovation program is annually reviewed and updated to insure that the Company effectively acquires new knowledge that is pertinent to its operations. Research and innovation is accomplished by direct and in-direct funding, actively working on various research and innovation programs, and maintaining various memberships on national and provincial research organizations. Company staff is actively involved on various research committees and the Company sponsors scholarships. Without research and innovation, continuous improvement of sustainable forest management and environmental protection practices would not be possible.

Co-operation has been and will continue to be undertaken on research, trials and studies that are related to watershed protection, water quality research, fish and wildlife habitat, fire protection, forest insects and disease, log harvesting and trucking, forest productivity, regeneration, ecosystem management, stand improvement, herbicide and genetics.

The Company will be proactive in implementing new ideas and technology to insure that losses from weather, environment, forest fires, insects, diseases, chemicals and other land uses are minimized. New found research knowledge will be incorporated into periodic revisions of ground rules, management plans and operating procedures.

New developments will arise from exchanging information at seminars, various committees, and working cooperatively in associations to insure that forest losses are minimized and all forest values are enhanced through forest management and utilization of the resource.

Table 40: Research Projects from 1995 to 2004

Type of Research Project	Project Description	Time Period
BRL Direct Research		
URMULE – (User Required Minor Use Label Extension)	Operational research trials with Imazapyr herbicide to determine effectiveness for spot treatments in mixed-wood sites.	2002 to 2004
Infra Red Color Photography for Herbicide Treatment Program	Researched and implemented by BRL. Infra Red Color Photography is used to determine actual area treated for mapping and due diligence.	1997
Penner Herbicide Research Program	Operational research trials with vision to determine the impacts of vegetation control on birds in the BRL FMA area.	1994 to 1997
Penner Herbicide Research Program	Operational research trials with vision to determine the impacts of vegetation control on ungulates in the BRL FMA area.	1994 to 1997
Sheep Grazing & Vegetative Management Program	Sheep were grazed in a heavy grassed area in the FMA area to determine if sheep grazing is a viable alternative to control competition,	1994 to 1997
Mechanical Strip Thinning Trial	Seppi Mechanical thinning trial in the Judy Creek Fire.	1994 to 1997
Gall Rust Study	Study involved with the Genetic Tree Improvement Program. Purpose of the study was to determine the resistance of trees to the Western Gall Rust.	1994 to 1997
BRL Cooperative Research		
FORWARD Research Project FORest WAtershed and Riparian Disturbance	BRL is participating jointly with U of A and other FMA holders in examining the impacts of harvesting on riparian streams for water quality and quantity.	2000 to 2004
Foothills Model Forest Grizzly Bear Research Project	BRL is an industrial sponsor of the FMF Grizzly Bear Research Project.	2000 to 2004
Foothills Model Forest Natural Disturbance Research	BRL is an industrial sponsor of the FMF Natural Disturbance Research Project.	1999+
Evaluating the Effects of the Virginia Hills Fire	BRL, MWI, Alberta Health & Environmental Protection and National Water Research Institute and other members of the Sustainable Forest Management Centre of Excellence are cooperating in the “Virginia Hills Fire: Once-In a Lifetime Opportunity to Evaluate the Impact of Natural versus Forestry-Related Disturbance on Water Quality, Contaminants and Biodiversity in Surface Waters on the Boreal Plain of Alberta.	1998
BRL Innovation		
Cut to Length Harvesting System	BRL developed a 30’ cut to length system that allows safer and more economic log hauling. This system also has better lumber recovery than a traditional cut-to-length system.	2001
Log fill procedure	BRL researched and implemented a log fill procedure with contractors for the crossing of ephemeral and intermittent streams to minimize the impact. The technique involves covering logs with burlap and spruce boughs to contain all fill material and facilitate clean removal.	2001
Smaller bunch sizes in LP stands	Researched and implemented smaller bunch sizes in pure lodgepole pine stands in summer blocks to promote improved natural regeneration success.	2000
GPS Herbicide Swathing Technology Program	BRL implemented state of the art GPS Swathing Technology in contractors’ aerial application aircraft to provide real time aircraft location information.	1999
Low Drift Spray Nozzle Program	BRL implemented this program to minimize the drift from herbicide aircraft for swath control. Excursions are minimized.	1999

Herbicide Birddog Helicopter Program	This program was researched and implemented by BRL to provide a command and control tool for the supervisor to avoid any incidents and provide due diligence for the herbicide treatment program.	1995
Growth and Yield PSP Program	Improved growth and yield forecasting	2002 to 2004
Membership		
Forest Engineering Research Institute of Canada (FERIC)	A national research organization that focuses on forest engineering applications that help make the forest industry's wood divisions more innovative in harvesting, transportation and silviculture systems. Its goal is to ensure the long-term competitiveness of the industry.	1995 to 2004
Forintek Canada Corp.	A national research organization that focuses on making the solid wood products of forest industry more viable. Its goal is to ensure the long-term competitiveness of the industry.	1995 to 2004
Alberta Registered Professional Foresters Association (ARFPA) and Canadian Institute of Forestry	BRL woodlands staff are members of these two professional organizations. They attend meetings and receive The Forestry Chronicle research publications.	1995 to 2004
Alberta Forest Products Association (AFPA)	BRL is a committee member of the AFPA Forest Management Committee and other committees.	1995 to 2004
University of Alberta Forest Industry Lecture Series	BRL supports the U of A Forest Industry Lecture series to invite leaders in the forest industry to make presentation to the students and the forest industry on various forest issues, research or innovative programs.	1995 to 2004
Whitecourt Regional Forest Advisory Committee	BRL is a forest industry member of this committee that is shared by ANC, MWFP and Mostowich. Damon Deacon currently represents BRL on this committee.	1997 to 2004
Caribou Landscape Management Assoc.	Caribou research in west central Alberta	2004
Research Committees –		
FERIC	Brian Davies represents BRL and attends bi-annual meetings to review, advise and prioritize the annual research programs.	1995 to 2004
Foothills Growth and Yield Association	Colin Scott represents BRL on the Technical Committee. Murray Summers and Daryl D'Amico represent BRL on the Steering Committee of the Association.	1998 to 2004
Cooperative Genetic Tree Improvement	Brian Mc Donald represents BRL as a member of the Alberta Cooperative Genetic Tree Improvement Program with active interest in the Region C (Pine) and Region D (White Spruce).	1995 to 2004
Northern East Slopes Integrated Pest Management Committee	Mark Dewey represents BRL on the Insect & Disease NES IPM Committee meetings.	1998 to 2004
AFPA Joint Herbicide Task Force	Brian McDonald represents BRL on the Joint Herbicide Task Force. The U of A is reviewing the monitoring procedures of the Herbicide Manual and Alberta Research Council is determining the amount of aspen that is growing on old herbicide treatment blocks. Each company establishes and monitors their own plots.	2000 to 2004
Whitecourt Fire Management District Landscape Assessment	BRL is an industrial supporter of this committee and Daryl D'Amico represents BRL on this committee.	1998 to 2004
Alberta Forest Research Institute (AFRI)	Murray Summers has been appointed to the Board of Directors by the Minister Mike Cardinal.	2004 +
Sponsorship, Support, and Student Scholarships		
West Fraser Timber Graduate Scholarships	West Fraser graduate scholarships in Enhanced Forest Management at the University of Alberta. (\$50,000 per year)	2001 to 2004

Pete Ketcham Memorial Scholarship Fund for Graduate Bursary Assistance	West Fraser provides assistance to post secondary students that either graduated from a school that was located in a community in which the Company operates and who has a parent that is employed by the Company.	1996 to 2004
BRL Scholarship	Two Scholarships per year at \$1,000 each.	1995 to 2004
Whitecourt Forestry Interpretive Centre	BRL has supported the construction and management of the Whitecourt Forestry Interpretive Centre. The Whitecourt Regional Forest Advisory Committee meets monthly at the centre.	1998 to 2004
Eric S. Huestis Demonstration Forest	BRL supported the establishment of the Eric Huestis Demonstration Forest and often takes forestry students for field tours.	1990 to 2004
Alberta Centennial Forest History Film Production	Provide resource for television broadcasting, internet streaming, school use, libraries and public forums.	2004

In 2004, BRL conducted research and level of understanding, either on our own or in collaboration with other agencies for a total actual cost of \$703,000. In 2004 there was a total of 541,217 m³ of timber harvested from the FMA area. This represents \$1.30/m³ spent for research. Paragraph 32 (9) of the FMA states that BRL is required to maintain a program with a minimum annual funding of \$0.25/m³.

Table 41: 2004 Research Program

Research Project/Program Description	Research Intent	2004 Dollars
Progeny tests	Tree improvement - on-going	\$78,000
Effects of herbaceous vegetation control and aspen density on boreal mixedwood stand development.	Develop good prescriptions for mixedwood stands.	\$10,000
Users request Minor Use Registration of Imazapyr (Arsenal) Herbicide for mixedwood site preparation.	Low cost chemical site preparation offering good Calamagrostis control with aspen crop tree retention	\$2,000
Herbicide Monitoring Fund	Monitor response to herbicide treatments. Originally installed as requirement for herbicide program approvals	\$9,000
Foothills G & Y Association membership and project costs	Response of Lodgepole pine to various silvicultural treatment regimes	\$29,000
Foothills G & Y Association re-measurement and maintenance of historic research trials	Salvage as much info as practical from old research trials on commercial thinning, etc.	\$2,000
Foothills Model Forest Grizzly Bear Research	Understand behavior patterns to assist in protection of grizzly bears and their habitat	\$20,000
Forest Watershed and Riparian Disturbance Research Project	Select and calibrate existing hydrologic/water quality model to improve establishment and management of buffer zones	\$26,000
Growth & Yield PSP program	Improved yield forecasting	\$320,000
University of Alberta Forest Industry Lecture Series	Support tech transfer of research	\$1,000
FERIC dues	access FERIC research	\$33,000
Forintek Corp. dues	access Forintek research	\$73,000
Alberta Centennial Forest History Film Production	Provide resource for television broadcasting, Internet streaming, school use, libraries and public forums	\$50,000
WFM - U of A Graduate Scholarship	Enhanced Forest Management	\$50,000
Totals		\$703,000