Western Boreal Growth and Yield Association

Annual Report 2011

Forest growth, yield, inventory and planning in western Canada

www.ales.ualberta.ca/rr/Research/WESBOGY.aspx

UNIVERSITY OF ALBERTA

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Executive Summary and Highlights

The Western Boreal Growth and Yield Association first met in the mid 1980's as an informal group of agencies involved in forest growth, yield, inventory and planning in western Canada. The association works to: encourage member agencies to work in a coordinated fashion to improve the efficiency of their research and development efforts; facilitate data sharing; and, provides a forum for communication. We are focused on development and dissemination of growth and yield modeling technology and information for both natural and regenerated stands in the western boreal mixedwood region, primarily aspen and spruce.

Current membership in the association includes seven forest companies, three provincial/territorial governments (Alberta, Saskatchewan and the Northwest Territories) and the federal government.

The association coordinates the maintenance, data collection, data storage and analysis for a long-term study designed to examine the effects of manipulating aspen density in young stands on growth and yield of mixedwood stands. Currently there are 11 experimental installations within the western boreal forest.

In 2010 work on MGM shifted from model development to model validation, the publishing of relationships and results and the demonstration of MGM's utility in forest management planning.

In 2010 some studies were completed, several continue and a number of new projects initiated. All studies are designed to contribute to a better understanding of the growth and yield implications of managing mixedwood stands.

This Annual Report presents highlights of work accomplished during 2010 and briefly outlines plans for 2011.

Understory Protrection Harvesting

June 2011

The past year has been another good year for the Western Boreal Growth and Yield Association. Thanks to Steve Blanton and his hard work our fall meeting in Manning was outstanding and provided momentum for us to get through the winter.

During the past winter we were able to develop and ratify a new agreement for association membership, and this included substantial input from all members in the development of a new priorities list. We continue to try to focus our activities on key issues that will help our members to make better and more cost effective decisions relating to the management of boreal forests.

This past year has seen substantial progress with MGM and the long-term study. Mike, Ken and Steve have invested substantial effort in validating and demonstrating MGM. Excellent progress has been made in preparation of the validation report for MGM which we hope we will be published in the fall.

Mike has also been working on detailed MGM simulations of Understory Protection. We expect that the results from this project will help to better inform decisions about the application of understory protection.

2011 will be another busy year as we continue with validation and demonstration of MGM, analysis of LTS data, participation in conferences and workshops, internal discussions on topical issues, development of new projects, and other activities. In June we will be participating in the the Western Mensurationists meeting in Banff and the North American Forest Ecology Workshop in Virginia where we will make presentations on WESBOGY work.

I look forward to seeing all of our active members at the 2011 fall meeting in Peace River on October 4 and 5 and I invite you to contact us if you have any questions or ideas about WESBOGY projects and activities.

Phil Comeau
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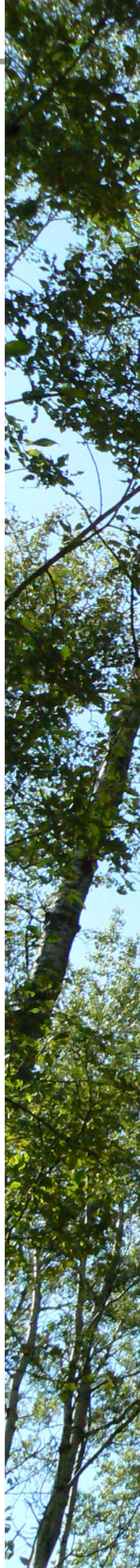


Mission Statement and Goals

The purpose of the WESBOGY Association is to conduct research projects that contribute to the development and dissemination of growth and yield information and modeling technology for both natural and regenerated stands growing in the boreal mixed wood region, primarily aspen and spruce.

Individual projects and/or students sponsored with Association resources should make progress in achieving this mission. Sponsored projects include those supported using Association resources. Associated projects are identified with the Association but are funded by individual (or groups of) Members or other sources. Business plans outlining project priorities and the allocation of resources to accomplish the mission are developed and periodically reviewed with the participation of Steering Committee Members.

GOALS

To develop and implement a program of research in the study of growth and yield and stand dynamics focused on problems of interest to Members of the Association. Projects will have defined goals and products, and will be completed in a timely manner.

To increase knowledge and awareness of growth and yield relationships, as they exist in western and northern Canada.

To foster communication, cooperation and exchange of information among the Members as well as various agencies and groups concerned with management and development of boreal forests.

To focus on the dynamics of mixed wood stands of aspen and white spruce growing in the boreal forest. Basic relations to be studied will include establishment, ingrowth, growth, and mortality. While the major species of interest are aspen and white spruce, other species such as balsam poplar, lodgepole pine, black spruce, and jack pine will also be studied. In developing simulation models based on these relations, provision will be made for projecting stands subject to multiple interventions (treatments) through the life of the stand. Differences between Natural Subregions (Ecoregions) and site productivity will also be evaluated where there is sufficient data.

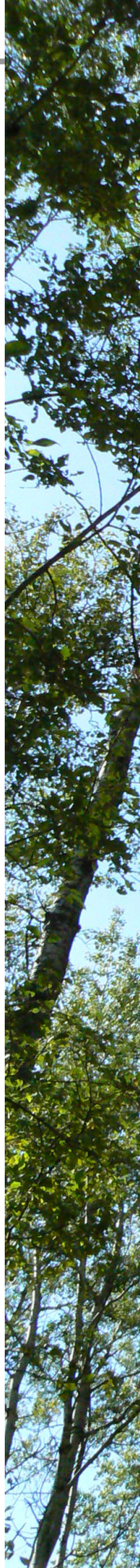
To encourage the establishment and continued monitoring of standardized permanent sample plots (PSPs) to quantify the effects of forest management practices in natural and regenerated stands, and in general to coordinate the acquisition of high priority growth and yield data;

To identify, evaluate, rank and address areas of research which are: of regional importance, of shared mutual interest, and most effectively approached cooperatively by the Association rather than by individual efforts;

To facilitate the dissemination of growth and yield data through the development of appropriate procedures, standards and databases for Members' use.

The following table lists measurable objectives identified for the 2011-2015 Agreement. It also includes links to the overall goals of the WESBOGY Association.

5 – year Objectives	Related Goals
1. To maintain the WESBOGY long-term study designed to evaluate the effect of spruce and aspen density levels on the development of plantations from establishment to final harvest. Maintain and update the database for the WESBOGY long-term study. Complete analysis of data. Encourage new Members to participate in the long-term study.	Goal #1 and #5
2. To develop and refine growth and mortality relationships and incorporate these new relationships into the MGM growth simulator.	Goal #1 and #2
3. To expand the scope of the MGM growth simulator as a tool for the development of managed stand yield projections for the major commercial tree species in the region. This will also include providing support for studies required to develop models of tree and stand response to establishment, tending and harvesting practices.	Goal #4, #5, and #6
4. To maintain a website that will identify, evaluate and disseminate information on trends in growth and yield research	Goal #3 and #7
5. To hold annual technical meetings for dissemination of information obtained from ongoing Sponsored Research Projects as well as other speakers invited to address other relevant growth and yield issues	Goal #3 and #7
6. To expand the scope of WESBOGY activities by recruiting new Members and seeking opportunities to augment the research component by securing funding from other granting agencies.	Goal #1, #2, #3 and #6
7. To identify and summarize regional PSP database standards and protocols for data exchange and use with regional growth models.	Goal #2, #3, #5 and #7
8. To collaborate with other agencies and organizations in the development of research and acquisition of data to support a better understanding of and development of models to estimate effects of silviculture on yield.	Goal #1, #2, #3 and #4
9. To identify and prioritize research needs and to initiate new projects as appropriate under the direction of the Steering Committee and Members.	Goal #1, #2 and #6



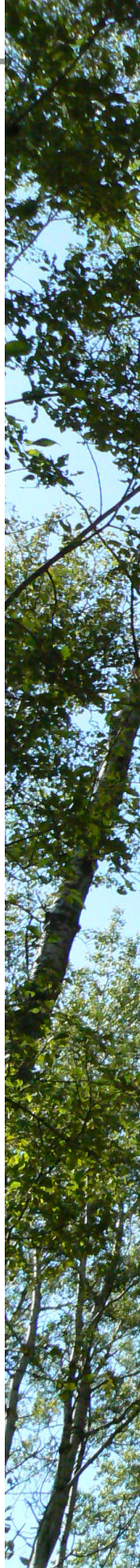
5-Year Program (2011-2015)

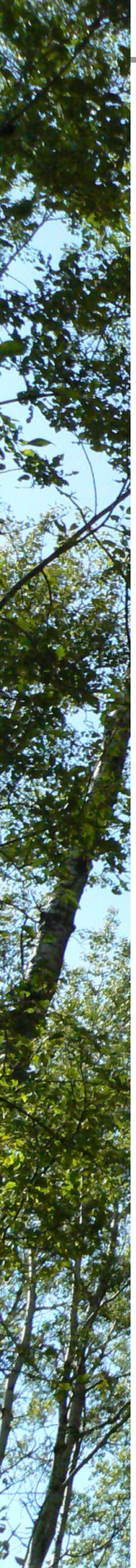
1. To continue analysis of the WESBOGY long-term study including:
   - Height, diameter, and density patterns for aspen in the natural plots;
   - Height and diameter growth of spruce and aspen in treated plots;
   - Mortality of spruce and aspen;
   - Recruitment (ingress) of new trees into natural and treated plots;
   - Preparation of manuals, reports, papers, extension notes and posters for distribution to Members and for journal publication;
2. To continue development of MGM to improve its ability to represent stand responses to silviculture. This will include:
   - Refinement of mortality, breakup and self-thinning functions for aspen;
   - Evaluation of model sensitivity to site index;
   - Natural regeneration and ingress of white spruce and aspen;
   - Refine calibration for lodgepole pine;
   - Calibrate MGM for black spruce, jack pine and balsam poplar;
   - Model Validation and publication of results;
   - Demonstration and training.
3. To update and maintain the WESBOGY long-term study data collection manual, the database, and the WESBOGY website and sharepoint site.
4. To seek to expand the scope of WESBOGY activities and influence.
   - To identify and approach potential new Members;
   - To seek opportunities and develop proposals for potential complementary funding from other agencies.
   - To work with other groups and co-operatives and to promote WESBOGY activities and information in growth modeling, silviculture practices and forest management activities.
5. To organize the WESBOGY Fall, Spring, and Steering Committee meetings each year. Prepare the meeting minutes and WESBOGY annual reports.
6. To review and update the list of priority and ongoing projects.
7. To undertake high priority Sponsored Research Projects as recommended by the Steering Committee and approved by the Members.
8. To work with Members in the development of proposals for high priority associated research projects.

WESBOGY Fall Field Tour - 2010

Current Research Projects

	Subject/Title	Status and Priority
1.	Development of MGM	**Status:** Ongoing **Researchers:** Mike Bokalo, Ken Stadt, Steve Titus, Phil Comeau
2.	Validation of MGM2010A	**Status:** Manuscript in Prep **Researchers**: Mike Bokalo, Ken Stadt, Phil Comeau, Steve Titus
3.	Maintenance of Long Term Study Database	**Status**: Ongoing **Researchers**: Mike Bokalo, Phil Comeau, Susan Humphries
4.	Analysis of Long Term Study Data	**Status**: Ongoing **Researchers**: Mike Bokalo, Phil Comeau
5.	Climate change response on Long Term Study Sites	**Status:** Initiated in 2009 **Researchers:** Ted Hogg, Mike Bokalo, Dan MacIsaac, Phil Comeau
6.	MGM-Volume Loss Factor development	**Status**: Manuscript in Prep **Researchers**: Cosmin Tansanu (PhD). Mike Bokalo and Phil Comeau
7.	Effects of herbaceous and woody vegetation control on early boreal mixedwood stand development (Judy Creek Mixedwood Regeneration study)	**Status**: Initiated in 2002; ongoing **Researcher:** Doug Pitt, Phil Comeau, Dan MacIsaac. Paper published in CJFR in January 2010 (see list of recent publications)
8.	Stand Density Index and its relationships with productivity and understory vegetation	**Status**: Initiated in 2007 **Researcher**: Valentin Reyes-Hernandes, Phil Comeau
9.	Growth and Yield Implications of White Spruce Understory Protection and Other Mixedwood Silviculture Systems	**Status:** Completed 2009; 2 manuscripts in preparation **Researcher:** Dan MacIsaac, Ken Stadt, Mike Bokalo, Phil Comeau
10.	Benchmarking Natural (fire origin) stand regeneration.	**Status**: Completed in 2009; 3 manuscripts in preparation **Researcher**: Stefanie Gaertner, Mike Bokalo, Ken Stadt and Ellen Macdonald
11.	Influence of silviculture on the successional dynamics of mixedwood stands.	**Status**: Initiated in 2011 **Researcher**: Kirk Johnson, Phil Comeau and Mike Bokalo
12.	The use of Lidar and Wet Areas Mapping in representing Stand Structure and Unproductive Gaps in Forest Stands	**Status**: Initiated in 2011 **Researcher**:Dan Jensen, Mike Bokalo and Phil Comeau
13.	MGM Height, Diameter and Mortality Functions for black spruce and jack pine.	**Status**: To be initiated in early 2012. **Researcher**: Mike Bokalo and Phil Comeau





Membership

Agency/Company	Current Membership
Alberta Sustainable Resource Development	Since 1985
Alberta-Pacific Forest Industries Inc.	Since 1990
Alberta Plywood	Since 1985
British Columbia Ministry of Forests	1985-2003
Canadian Forest Products	Since 1985
Daishowa-Marubeni International Ltd.	Since 1990
Wood Fibre Centre, Canadian Forest Service	Since 2009
Louisiana-Pacific Canada Ltd., British Columbia	Since 1997
Louisiana-Pacific Canada Ltd., Manitoba	Since 1996
Manning Diversified Forest Industries Ltd.	Since 1997
Northwest Territories Resources, Wildlife and Economic Development	Since 1985
Saskatchewan Ministry of Environment	Since 1985
University of Alberta	Since 1985
Weyerhaeuser Company, Alberta Forestlands	Since 1985

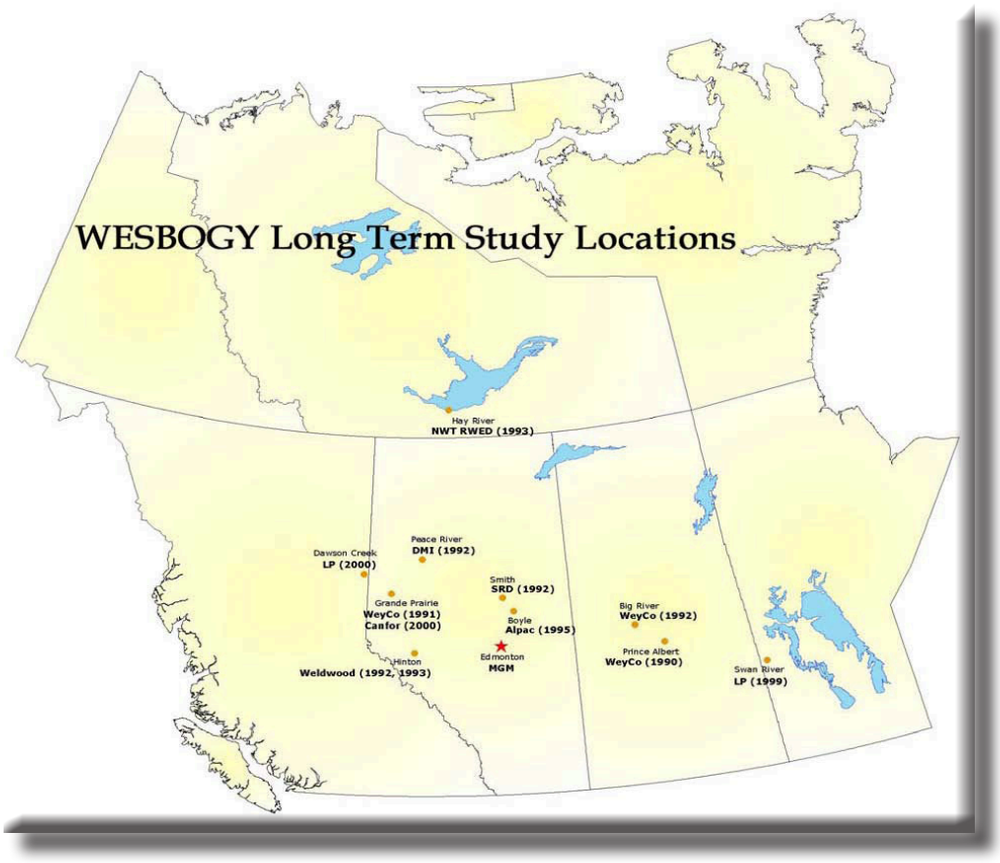
Steering Committee Members

A Steering Committee, consisting of three or four members elected to the Committee at the Annual Fall meeting, and the Chair and the Research Scientist sets policy, develops strategic objectives and priorities, reviews work plans, adjusts annual membership assessments in light of planned activities, and deals with other items which may arise.

2000 Titus, Wang, Behuniak, Niemi, Weeks
2001 Titus, Behuniak, Niemi, Nichol, Ewan
2002 Titus, Bokalo, Comeau, Behuniak, Niemi, Nichol, Ewan
2003 Comeau, Bokalo, Titus, Behuniak, Niemi, Nichol, Ewan/Ashley
2004 Comeau, Bokalo, Titus, Behuniak, Nichol, Ashley, Whittaker
2005 Comeau, Bokalo, Titus, Behuniak, Nichol, Ashley, Whittaker
2006 Comeau, Bokalo, Behuniak, Nichol, Blue/Ashley, Whittaker/Whitmore
2007 Comeau, Bokalo, Nichol, Ashley, Whitmore, Morgan
2008 Comeau, Bokalo, Leblanc, Zaichkowsky, Whitmore, Morgan
2009 Comeau, Bokalo, Leblanc, Whitmore, Morgan
2010 Comeau, Bokalo, Leblanc, Whitmore, Morgan, Blue

History and Locations of Long Term Study Installations

Company or Agency	Agency Code	Site	Year Spruce Established	Measurements Including 2010
Alberta Sustainable Resource Development	SRD	Med	1992 2001	18 9
Alberta-Pacific Forest Industries Inc.	ALP	High Med	1994 2001	17 9
Canadian Forest Products Ltd.	CFR	High Med	2000 2001	10 9
Daishowa-Marubeni International Ltd.	DMI	High Med	1992 1992	18 18
Louisiana-Pacific Canada Ltd., Manitoba	LPSR	High Med	1998 1998	12 12
Louisiana-Pacific Canada Ltd., Dawson Creek	LPDC	High Med	2001 2004	9 7
Northwest Territories Resources, Wildlife and Economic Development	NWT	High Med	1993 1993	17 17
Alberta Plywood	WFR	High Med	1992 1993	16 18
Weyerhaeuser Company, Alberta Forestlands	WGP	High Med	1991 1991	19 19
Saskatchewan Ministry of Environment	SSK	High Med	1990 1990	20 20
Wood Fibre Centre, Canadian Forest Service	CFS	High Med	1992 1992	18 18



Long Term Study of Aspen/Spruce Stand Development

Mike Bokalo, Phil Comeau and Susan Humphries

The WESBOGY Long-Term Study has been underway since 1991 and is designed to document and demonstrate the effects of spruce and aspen densities (and precommercial thinning) on the development of mixedwood stands. The design of the Long-Term Study involves planting white spruce seedlings in recently clearcut areas where aspen regeneration had already been established. Spruce seedlings were planted in both the plot and buffer areas. For the first 5 years, vegetation was controlled by clipping or using plastic mulch mats within a 40 to 50 cm radius of the spruce. After 5 years, both the spruce and aspen are thinned to desired treatment densities. The objectives of the thinning are to achieve desired densities but retain potential crop trees at relatively uniform spacing. The study uses a randomized block design with each agency setting up and maintaining one block, comprised of two installations. Each installation consists of two replications of a series of 15 plots.

In 2010 the Saskatchewan Prince Albert installation saw it's 20th re-measurement. The anniversary marked the first expansion of the natural, untreated plots to the larger 5m by 5m plot size. The expansion required the updating of the WESBOGY LTS Experimental Design, Field Procedures and Database Maintenance Manual to include expansion methods and procedures. The manual also saw significant revisions to make it more concise and direct by; clearly defining what activities and measurements were required at each measurement year, by removing references to old methods and procedures, by more intimately incorporating the GPS, Top Height and Site Index protocols.

LTS Database management and maintenance work continued in 2010 to complete the restructuring of the database to include the history files, top height data and all the site, soil and vegetation tables. The last of the spatial data was obtained and the process of creating a single spatial tree data table is underway.

In 2010 the sharepoint site was expanded to include secure workspaces for contractors working for member agencies.

Prince Albert Saskatchewan Installation - Year 20

MGM Development

Mike Bokalo, Ken Stadt, Phil Comeau and Steve Titus

The development of MGM in 2010 focused on a number of key areas. The migration of MGM to Excel 2007 and 2010 was necessary since many users were upgrading to these new platforms. The early decision to support Excel 2003, 2007 and 2010 proved to be too much of a challenge and a decision to hold off on the migration to Excel 2010 was made in order to maintain backward compatibility with Excel 2003 and continue to develop the model in Excel 2007. The plan is to migrate to Excel 2010 in late 2011.

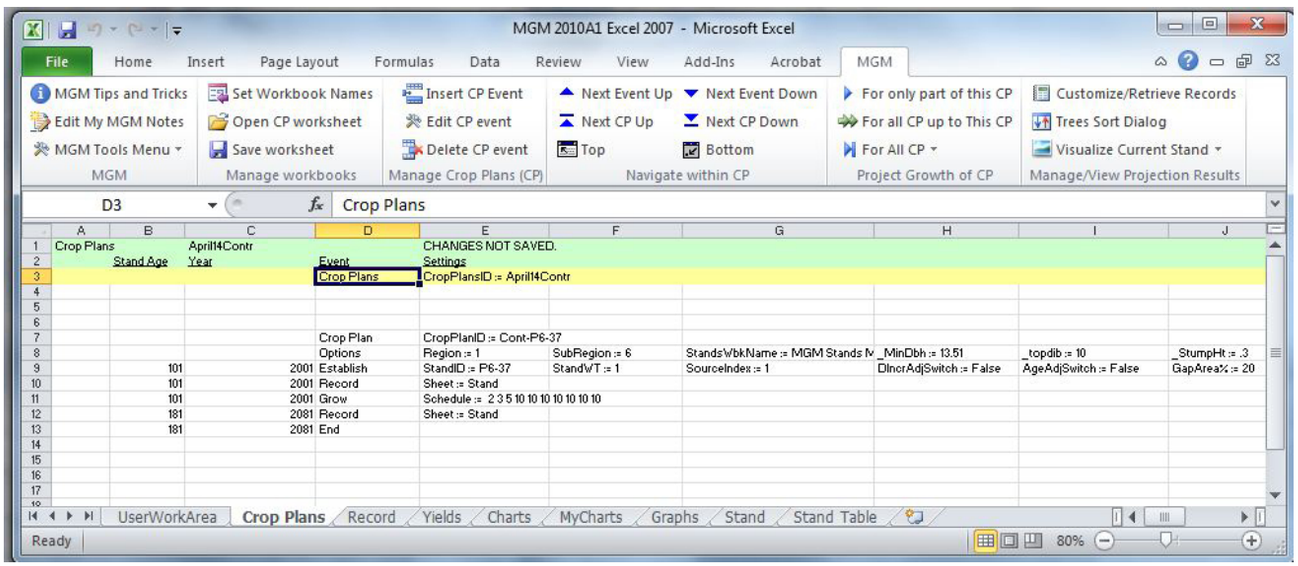
Another focus with MGM was to begin to demonstrate its utility in modeling complex stand structures and treatments. Several scenarios were modelled in 2010/11 looking at the long term effect of different thinning/herbicide treatments on long term productivity in in an attempt to isolate the best treatments. We also began exploring ways to model alternative harvest strategies such as understory protection to better understand the key factors influencing its success and to provide results which could be used to develop yield curves for timber supply.

A validation manuscript was submitted for publication in September of 2010. The validation compared model predictions against stand level data (average height, top height, DBH, volume, basal area and density) using 4 permanent sample plot databases; the ASRD mature PSPs and juvenile stand dynamics system plots (SDS), the juvenile WESBOGY LTS plots and the mature Saskatchewan PSPs. Residual plots and statistical tests (average mean bias, relative model bias and efficiency) were used in the validation and show that the model validates well for both juvenile and mature stages of stand development for both pure and mixed species stands of aspen, spruce and lodgepole pine. Although the validation was a thorough evaluation of MGM it was reviewed as being too long and too comprehensive for publication. The manuscript is currently being revised for re-submission in the fall of 2011. The new manuscript will be considerably shorter while being strengthened with the inclusion of a new model performance measure "the paired t-test for equivalence".

In 2010, MGM was presented at several conferences including the National CIF meeting in Jasper, Alberta. In 2011, presentations and posters will be made at the Western Mensurationist's Conference in Banff, Alberta and a poster will be presented at the North American Forest Ecology workshop in Roanoke, Virginia.

The future plans for MGM development include: the migration to Excel 2010; the development of a more user friendly interface; and, continued demonstration of MGM's utility in forest management decision making. Initiatives to begin to develop better functionality for black spruce and jack pine are underway.

The "New Look" of MGM in Excel 2007.



Effects of Herbaceous and Woody Vegetation Control on Early Boreal Mixedwood Stand Development (The Judy Creek Mixedwood Study)

Doug Pitt, Phil Comeau, Dan MacIsaac, Milo Mihajlovich,Michael Hoepting and Susan Humphries

In 2002 we initiated this study at Judy Creek to examine effects of planting spruce at 5-m spacing, tending them individually with 2-m radial treatments, and leaving aspen to regenerate naturally in the intervening area between the spruce. We also compared the effects of controlling only the woody component against control of both woody and herbaceous vegetation for 2 and 4 years after planting. The site is located 30 km northeast of Whitecourt Alberta Canada (54°03' N, 115°36'W; elevation: 1000 m). Att age 5 the best growth of spruce and aspen was observed following treatments consisting of 2 to 4 years of herbaceous and woody (i.e., complete) competition control within a 2 m radius of the spruce planted at 4 m spacing. In these situations, spruce growth was equivalent to the same stock grown at 2.5-m spacing and provided with complete, continuous relief from competition. Removing only the woody vegetation stimulated herbaceous competition and reduced survival and growth of spruce. In contrast, control of herbaceous vegetation alone resulted in increased spruce and aspen growth over woody-only competition control. Untended plots contained the smallest spruce and aspen in the study.

A detailed discussion of results is available in: Pitt, D.G., P.G. Comeau, W.C. Parker, D. MacIsaac, S. McPherson, M.K. Hoepting, A. Stinson, and M. Mihajlovich. 2010. Early vegetation control for the regeneration of a single-cohort, intimate mixture of white spruce and trembling aspen on upland boreal sites. Can. J. For. Res. 40: 549-564.

Effects of stand density and composition on key stem and crown characteristics for aspen and white spruce – links to wood quality and data for CROBAS calibration.

Phil Comeau and Derek Sattler

Stand density and composition can have substantial effects on wood quality through their influences on crown and branch size, growth rates, stem form, and the size of the juvenile wood core.

The objectives of this project are to: 1) Examine effects of density, age, stand composition, tree characteristics and other factors on crown architecture, and branch size (and size distribution) of white spruce and trembling aspen; 2) Develop regression models that predict crown architecture and branch size as a function of tree and stand characteristics; 3) Examine relationships between stand and tree characteristics and wood properties; and, 4) Collect field data for calibration of CROBAS (and other models).

Progress during 2009 included preliminary analysis of permanent sample plot data from Alberta SRD to examine effects of stand density and composition on live crown ratio and slenderness and to select candidate sites for field sampling. Field data collection was completed in seven stands in 2009. Wood samples collected from 41 trees were collected and measurement of density and MOE completed at the Univ. Laval, Centre de Research sue le Bois laboratories. Sampling of 9 stands is planned for the 2010 field season.

More information on the ForValueNet Strategic Network is available at: http://www.forvaluenet-foretvaleur.ca/

The use of Lidar and Wet Areas Mapping (WAM) in representing Stand Structure and Unproductive Gaps in Forest Stands

Mike Bokalo, Phil Comeau, Barry White and Dan Jensen

Project Funded by Alberta Sustainable Resource Development

In Alberta the forest landscape is represented by Alberta Vegetation Inventory (AVI) polygons which use map type calls based on canopy cover class, species composition, polygon height, and origin to delineate the landscape. These AVI inventory polygons are often considered homogeneous and consistent with the biological definition of a stand, but in reality they are heterogeneous entities formed from many differently stocked sub-stands that on average represent the AVI forest stand structure. The homogeneity assumption is problematic when estimating yield since unproductive gaps, whether they are persistent (rock, water or wet areas), or are caused by stochastic biotic and abiotic events such as windthrow, insects and disease, decrease yield.

Lidar and the Wet Areas Mapping (WAM) in Alberta has come to a point where the resolution may be sufficient to identify and estimate the percent area within a stand that is contained in unproductive gaps, and it can also indicate whether these gaps are related to seasonal flooding. These estimates could then be used operationally, to directly adjust estimated yield into ranges that are indicative of the landscape level yields found in natural stands.

This project will evaluate methods for using Lidar and WAM to quantitatively estimate and validate the percent gaps and forest structure in a sample of stands in Alberta. Results will highlight regional applicability of Lidar and WAM and identify areas for future research while providing important information supporting sustainable forest management.

Influence of silviculture on the successional dynamics of mixedwood stands.

Phil Comeau, Mike Bokalo, and Kirk Johnson

Project Funded by Saskatchewan Ministry of Environment

This project has three major objectives: 1) Document and examine the effects of site preparation, planting, and tending (e.g. brushing and thinning) on tree growth, stand density, and species composition during the first 15 to 40 years after harvest; 2) Use the Mixedwood Growth Model (MGM) to estimate growth and yield of selected stands, modeling a range of treatment outcomes; and, 3) Examine linkages between survey data and future forest conditions

To meet these project objectives, data collection in 2011 will proceeded in two distinct phases: 1) re-measurement of (up to) sixteen "Managed Stand" Permanent Sample Plots (MS-PSP's) in site prepared white spruce plantations across the Prince Albert Forest Management Area (PAFMA); 2) assessment of temporary sample plots (TSP's) in operational white spruce plantations/cutblocks across the Prince Albert FMA. [Each operationally established white spruce plantation has a comparable site preparation regime to the MS-PSP's.]

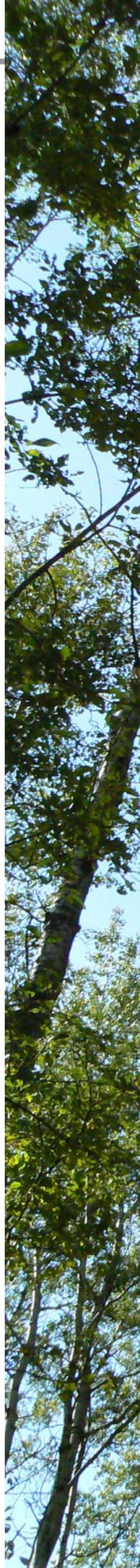
Publications during 2010-2011

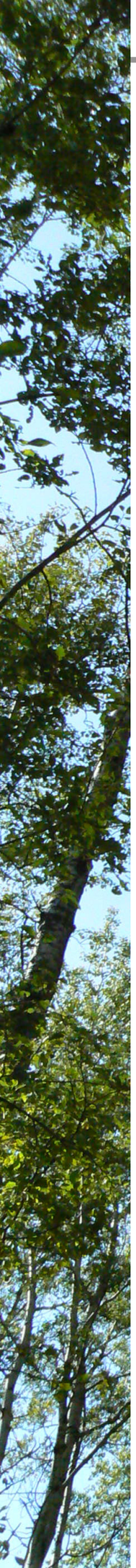
Cortini, F, P.G. Comeau, J. O. Boateng, L. Bedford, J. McClarnon, and **A. Powelson** 2011. Effects of climate on growth of lodgepole pine and white spruce following site preparation and its implications in a changing climate. Can. J. For. Res. 41: 180–194 .

Filipescu, C.N. and **P. G. Comeau**. 2011. Influence of Populus tremuloides density on air and soil temperature. Scand. J. For. Res. 26: 421-428

Bokalo, M., and **P. G, Comeau**, 2010. Western Boreal Growth and Yield (WESBOGY) Association Long Term Study: Development and dynamics of young aspen-spruce mixedwood stands. CIF National Meeting, Jasper, Alberta

Bokalo, M., Stadt, K., Comeau, P.G, and **Titus, S.J.**, 2010. The Validation of the Mixedwood Growth Model (MGM).CIF National Meeting, Jasper, Alberta





Graduate Students Working on Projects in the Western Boreal

Valentin Reyes-Hernandez (PhD) - Stand Density Index and its relationships with productivity and understory vegetation in the boreal mixedwoods in Western Canada

Fang Ye (PhD) - Evaluation of competitive effects of willow and aspen on white spruce growth in western boreal mixedwood stands

Hongan Yan (PhD) - The effects of competition control treatments on white spruce (Picea glauca [Moench] Voss) height and diameter growth

Francesco Cortini (PhD) - Yield implications of site preparation and climate change in northern British Columbia

Derek Sattler (PhD) - Effects of density, species composition, age, and tree dimensions on wood quality for aspen and white spruce in boreal mixedwoods of western Canada (FORVALUENet Project 1.2)

Diana Osika (MSc) - Reconstructed Height Growth Trajectories of White Spruce Following Hardwood Release

Claudia Rivera-Rios (PhD) – Role of understory vegetation and effects of management practices on C cycling and sequestration in boreal mixedwood ecosystems

Kirk Johnson (MSc) – Influence of silviculture on the successional dynamics of mixedwood stands

Dan Jensen (MSc) – The use of Lidar and Wet Areas Mapping (WAM) in representing Stand Structure and Unproductive Gaps in Forest Stands

2010 WESBOGY Annual Fall Meeting

Manning, Alberta
September 14th and 15th

Sponsored by Manning Diversified Forest Products

September 14th
Dr. Barry J. Cooke, Canadian Forest Service
"Forest tent caterpillar dynamics and impacts on trembling aspen: historical analysis and lessons from afar"
Graduate Student Research Presentations
WESBOGY Research
Dan MacIsaac - Hotchkiss South - Understory Protection

WESBOGY Business Meeting – (3:30 – 5:00)

MDFP – Mill Tour (5:00-7:00)
Evening BBQ 6:00)

September 15th - Field Tour
Hotchkiss South – Understory Protection - Dan MacIsaac
Wellsite Reclamation – Steve Blanton
MDFP – Understory Protection – Steve Blanton
Progeny Test Site– Pine and Spruce – Steve Blanton and John Quinn (ATISC)
Tree Improvement Seed Orchard – Steve Blanton and John Quinn (ATISC)

Planned WESBOGY Meetings in 2011

The 2011 Annual Spring Meeting is planned for April 19, 2011 on the University of Alberta campus.

The 2011 Annual Fall Meeting will be sponsored by Daishowa-Marubeni Ltd., Peace River, Alberta on October 4th and 5th, 2011.

History of WESBOGY Meetings

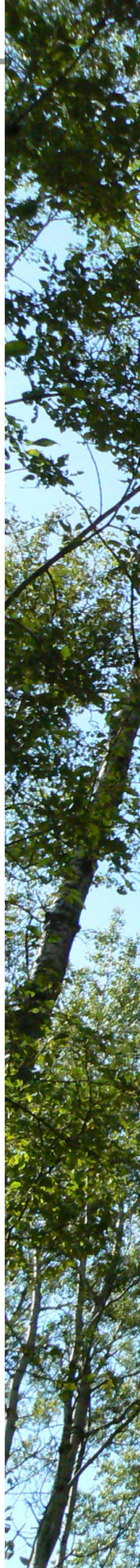
Date	Sponsor	Location
2010 Sept 14-15	Manning Diversified Forest Products	Manning, AB
2009 Sept 15-16	University of Alberta	Whitecourt, AB
2008 Sept 8-10	Alberta Plywood	Slave Lake, AB
2007 Sept 4-6	Alberta-Pacific Forest Industries	Lac La Biche, AB
2006 Aug 29-Sept 1	Louisiana Pacific Canada Ltd.	Dawson Creek, BC
2005 Aug 29 - Sept 1	Northwest Territories Resources, Wildlife and Economic Development	Hay River, NWT
2004 Aug 30 - Sept 1	Saskatchewan Environment – Forest Service	Prince Albert, SK
2003 Sept 9-11	Canadian Forest Products Ltd.	Grande Prairie, AB
2002 Sept 9-11	Louisiana-Pacific Canada Ltd.	Riding Mountain, MB
2001 Sept 9-11	Daishowa-Marubeni International Ltd.	Peace River, AB
2000 Sept 6-8	Weyerhaeuser Company, Drayton Valley	Edson, AB
1999 Sept 23-25	Weyerhaeuser Company, Prince Albert	Anglin Lake, SK
1998 Oct 7-9	Alberta-Pacific Forest Industries Ltd.	Athabasca, AB
1997 Oct 7-9	British Columbia Ministry of Forests	Dawson Creek, BC
1996 Nov 6-8	Daishowa-Marubeni International Ltd.	Peace River, AB
1995 Oct 11-13	Weldwood of Canada Ltd.	Hinton, AB
1994 Oct 12-14	Weyerhaeuser Company, Alberta Forestlands	Big River, SK
1993 Nov 4	University of Alberta	Edmonton, AB
1992 Oct 6-7	Weyerhaeuser Company, Grande Prairie	Grande Prairie, AB
1991 Oct 24-25	Weyerhaeuser Company, Prince Albert	Prince Albert, SK
1990 Nov 22	University of Alberta	Edmonton, AB
1989 Mar 15	Canadian Forest Service	Saskatoon, SK
1988 Nov 4	Canadian Forest Service	Whitecourt, AB
1998 Feb 4-5	Canadian Forest Service	HInton, AB
1987 Mar 27	Canadian Forest Service	Edmonton, AB
1986 Feb	Canadian Forest Service	Edmonton, AB
1985 Nov 15	Canadian Forest Service	Edmonton, AB
1985 Oct 24	Canadian Forest Service	Banff, AB
1985 Mar 23	Canadian Forest Service	Edmonton, AB

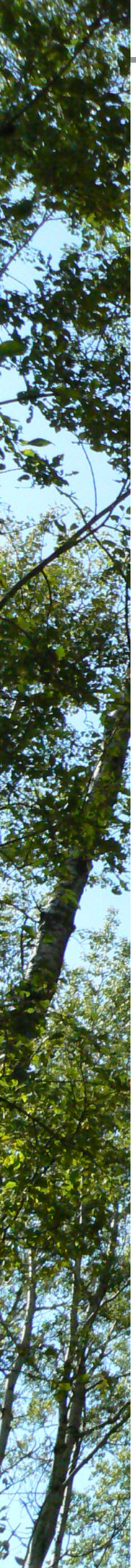
WESBOGY Website and Sharepoint Site

With the assistance of Judy Huck (U of A, Department of Renewable Resources Webmaster / Multimedia Technician) our new website is up and running. Changes include: having our own web address, a secure members area, and inclusion of both historical and current documents in readily accessible formats.

Check out our:

WEBSITE at: http://www.ales.ualberta.ca/rr/Research/WESBOGY.aspx
Sharepoint Site at: https://portal.ales.ualberta.ca/wesbogy/default.aspx





WESBOGY Financial Summary For 2010-2011

Description	Budgeted Amount	Actual Expenditures	Difference
Salaries & Benefits			
Research Scientist	$77,250.00	$81,816.74	-$4,566.74
Field and office tech support	$12,000.00	$10,000.00	$2,000.00
Grad students	$0.00	$0.00	$0.00
Professional (Programmer / Analyst)	$10,000.00	$7,290.00	$2,710.00
Travel	$9,000.00	$8,400.00	$600.00
Supplies, Equipment, Communication	$6,500.00	$4,950.00	$1,550.00
Overhead (15% of member contributions)	$22,500.00	$24,375.00	-$1,875.00
TOTAL	$137,250.00	$136,831.74	$418.26
Opening Balance April 1, 2010		$145,968.71	
Member Contributions		$162,500.00	
Total Expenditures 2010/2011		$136,831.74	
Balance at March 31, 2011		$171,636.97	
WESBOGY - Budget for 2010/11			
Description	**Amount**		
Salaries & Benefits			
Research Scientist	$80,000.00		
Field and office tech support	$12,000.00		
Grad students	$5,500.00		
Professional (Programmer/Analyst)	$10,000.00		
Travel (Wesbogy Meetings, travel & Judy Creek)	$7,000.00		
Supplies, Equipment, Communication	$5,000.00		
Overhead (15% of $137,500)	$18,750.00		
TOTAL	$138,250.00		
Projected Balance at March 31, 2011			
Opening Balance April 1, 2011		$171,636.97	
Accounts Receivable		$12,500.00	
Member Contributions		$112,500.00	
Expenditures 2011/2012		$138,250.00	
Estimated Balance at March 31, 2011		$158,386.97	

Company or Agency	Contact	Email
Alberta Sustainable Resource Development	Dave Morgan (780) 422-5295 Darren Aitkin (780) 644-5581	Dave.Morgan@gov.ab.ca Darren.Aitkin@gov.ab.ca
Alberta-Pacific Forest Industries Inc.	Dave Cheyne (780) 525-8261 Gitte Grover (780) 525-8349	Dave.Cheyne@alpac.ca Gitte.Grover@alpac.ca
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Daishowa-Marubeni International Ltd.	Gord Whitmore (780) 624-7036 Florance Niemi (780) 624-7048	GWhitmore@prpddmi.com FNiemi@prpddmi.com
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Louisiana-Pacific Canada Ltd., Dawson Creek	Adam Campbell (250) 782-3302 ext 223 Rod Brooks (250) 782-3302 ext 239	Adam.Campbell@lpcorp.com Rod.Brooks@lpcorp.com
Manning Diversified	Steve Blanton (780) 836-5397	Steve.Blanton@mdfp.ca
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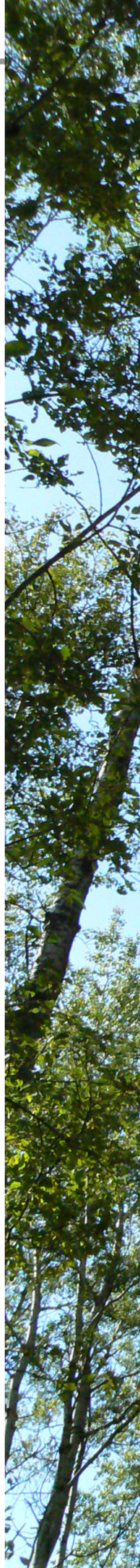
University of Alberta	Phil Comeau (780) 492-1879 Mike Bokalo (780) 492-9038	Phil.Comeau@ualberta.ca Mike.Bokalo@ualberta.ca
Alberta Plywood Ltd. A Division of West Fraser Mills Ltd	Gary Harmata (780) 805-3718 Gordon Sanders (780) 849-4145	Gary.Harmata@westfraser.com Gordon.Sanders@westfraser.com
Weyerhaeuser Company, Alberta Forestlands	Greg Behuniak (780) 539-8207 Wendy Crosina (780) 451-9783	Greg.Behuniak@weyerhaeuser.com Wendy.Crosina@weyerhaeuser.com
Wood Fibre Centre, Canadian Forest Service, Natural Resources Canada	Dan MacIsaac (780) 435-7332 Derek Sidders (780) 435-7355	Dan.MacIsaac@NRCan-RNCan.gc.ca Derek.Sidders@NRCan-RNCan.gc.ca



Western Boreal Growth & Yield Association (WESBOGY)

C/O Department of Renewable Resources
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www.ales.ualberta.ca/rr/Research/WESBOGY.aspx

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Canadian Wood Fibre Centre