Forest Science Program New Research LOI 2006/07

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Section 1: Proponent Information

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Section 2: Project Information

Title: Complex Stand Management; Extension of recent research to forest managers.

Keywords: complex stands, forest growth and yield, mountain pine beetle

Project Program/Theme/Topic/Priority:
Timber Growth and Value Program
***Theme 1*:** Basic research on tree growth and stand development.
Topic 1.1: Complex stands (including partial cutting, variable retention)
Priority: a and c: This application is to implement an extension program that provides recent research on complex stands to managers.

Geographic focus: Northern Interior, Southern Interior.

Project Description: For the past 15 years, a research team led by Dr. Dave Coates has been undertaking research on the ecology and succession of complex stands in northern British Columbia. This research program has included the development of a stand level model now called SORTIE ND, which is specifically designed to model complex stands, and can fill a void in the models that are currently available in British Columbia today.

SORTIE is an award winning model, originally developed as a small-scale disturbance successional model of forest dynamics for mixed forests in eastern North America (Pacala *et al*. 1996). The model has been upgraded/parameterized by the BC SORTIE research group for interior cedar-hemlock forests in northern BC (Kobe and Coates 1997, Wright *et al.* 1998, 2000, Canham *et al.* 1999, 2004 LePage *et al.* 2000, Coates *et al*. 2003) and for juvenile and adult tree growth in sub-boreal forests (ongoing studies).

The Forest Sciences Program has funded three studies to the BV Research Centre that will fill major gaps on our current knowledge of the dynamics of complex stands in British Columbia.

- Regeneration and Stand Structure following Mountain Pine Beetle infestation in the sub-boreal spruce zone; and
- Regeneration and Stand Structure in Stands in the East Ootsa and Entiako Areas after Infestation by Mountain Pine Beetles; and
- Improving juvenile tree growth prediction for complex Mountain Pine Beetle damaged stands

Several other research projects are underway with respect to complex stands, several of which use SORTIE ND as a research tool (e.g., Predicting development and productivity of southern interior mixed species stands through calibration and modelling with SORTIE, Suzanne Simard).

These complementary research products are now resulting in a significant new body of knowledge about the ecology and succession of complex stands. SORTIE ND is also now ready to move beyond use as a research tool into broader use by forest managers. As an example of this, the Chief Forester has recently commissioned Dr. Coates, in cooperation with the BV Centre, to undertake a project that uses the results of this research on complex stands to explore the implications of alternative forest management strategies on mid-term timber supply in areas affected by Mountain Pine Beetle

To this point, extension of the results of these projects has been targeted at the partners, managers, and consultants who are actively involved in the primary study area including the Ministry of Forests and Range, local forest companies, and consultants. The potential audience for this research is much larger.

The Purpose of this extension project is to:

1. Introduce the research and management communities to advances in knowledge about Tree Growth and Succession in Complex Stands and to identify operational applications of this knowledge through a two day **Conference**; and
2. Train analysts and researchers in the use of SORTIE-BC so that they are able to model the succession and growth of complex stands in forests they are responsible for, through a two-day **Technical Session**.

Deliverables, Outcomes, and Extension:

1. A two day **Conference**.
   - The target attendance is 100 people.
   - A typical attendee would be a planning forester, a timber supply analyst, or a forest ecologist.
   - **Outcome**: As a result of this extension activity, conference participants will say their knowledge of the succession and growth of complex stands has increased by 50%.
2. A two day **Technical Session**.
   - The target audience is 25, drawn from the research, industry and consulting communities
   - A typical attendee would be a researcher or analyst who is responsible for predicting the succession and structure of complex stands
   - The technical session will give researchers and analysts a "hands-on" opportunity to use SORTIE ND to model complex stands and learn about the dynamics of those stands
   - **Outcome**: As a result of this extension activity researchers and analysts will be able to demonstrate, through the use of the SORTIE model, their ability to project the succession and growth of complex stands they are responsible for managing.
3. A Conference **Proceedings**.
   - Outcome: As a result of this proceedings, the research, industry and consulting communities will have access to the state-of-knowledge information regarding complex stands; as well as an increase in awareness of knowledge gaps in this area.
   - Additional knowledge requirements regarding complex stands will be documented.

Section 3: Project Team:

1. Kevin Kriese, RPF, MRM, Project Leader. He is the Executive Director of the BV Research Centre. Kevin's role will be to form and manage a project steering committee who will guide the development of the project. Time commitment is 10 days.

2. Dr. Dave Coates, Research Silviculturist, Smithers, BC. He has studied unmanaged and managed forests in northern BC for 25 years. For the past 10 years his research has focused on tree growth in complex mixed-species stands. He is an authority on the regeneration and growth of young trees and has published on this topic in leading journals. He has 30 publications in refereed journals and numerous government publications. Estimated time commitment is 10 days.
3. Dr Suzanne Simard, Assistant Professor, Department of Forest Sciences, University of British Columbia. Suzanne's many research interests includes forest regeneration and stand dynamics; she is currently working on several projects related to the ecology and management of complex stands. Estimated time commitment is 5 days.
4. Erin Hall, RPF has worked with the Smithers SORTIE research group for the past 2 years. She has 7-yrs field experience in collecting research data and has undertaken data analysis for parameterization of the SORTIE model. She is experienced in running SORTIE model simulations. Estimated Time commitment is 20 days.
5. Al Wiensczyk, RPF, Extension Specialist, Ecosystems and Stand Management. Al will provide extension advice to ensure the program effectively meets the needs of the target audiences. Estimated time commitment is 5 days.

The Steering Committee will consist of at least one industry representative who will be identified at the full proposal stage.

Section 4: Project Costs and Funding

Cost/Benefit Description: There has been a significant investment in funds over the past five years to improving our understanding of complex stands (funded by FSP, the Mountain Pine Beetle Initiative, and others). The results of that research are now arriving, and there is an urgent need for managers to use that information in decisions they are making today (especially with respect to Mountain Pine Beetle). Due to the increased use of variable retention harvesting and now the increase in complex stands created by mountain pine beetle mortality and salvage, the number of managers in the province who need to understand manage complex stands is substantial.

This project will provide hands-on exposure of this new knowledge to the managers that need the information and will maximize extension of research results. The two-tiered approach to the extension program allows the knowledge to move from awareness (the Conference) to application (the Technical Session).

The Ministry of Forests has already provided the BV Research Centre with $3,000 in funding to support extension projects related to SORTIE ND. In the absence of this proposal, that extension would be limited to a simple extension note or a workshop for local managers. The FSP funding will allow that extension program to include participants from across the province and will allow us to make that extension activity a hands-on exercise that gives the managers real capacity to address complex stands themselves through modelling.

Reasonable fees will be established for the Conference and the Technical Session, which will cover the costs of facilities and materials. Funding is required to retain a Conference Coordinator, who will be responsible for all aspects of conference organization, for a technical specialist to organize the technical session, and for FORREX to provide extension advice in developing the program. Volunteers from the BV Research Centre will be used for delivery of other aspects of the conference and Technical Session.

Funding Request:

Fiscal Year/Source	FSP Funds Requested					Partner Contributions		Project Total
	Salary & Related Costs	Non-Salary Costs	Subtotal	DA (5%)	Total FSP	Cash	In-Kind	
2006-07 FY FSP	$17,000	$3,000	$20,000	$1,000	$21,000			
MoFR[a]						$3,000	$5,000	
BVRCentre						$15,000	$3,000	
						$18,000	$8,000	$47,000

[a] Ministry of Forests and Range. $3,000 cash provide to the BV Research Centre. In kind contribution is salary for Dave Coates, use of facilities and travel funds and support to Erin Hall. Cash contribution from the BV Research Centre is estimated at $15,000 from conference and technical session fees.

Section 5: Peer Group

Dr. Phil Burton, CFS, Prince George, e-mail: pburton@pfc.cfs.nrcan.gc.ca
Dr. Phil Comeau, University of Alberta, e-mail: phil.comeau@ualberta.ca
Dr. Robert Deal, USDA Forest Service, Portland, Oregon, e-mail: rdeal@fs.fed.us

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