

Interdisciplinary Climate Change Adaptation Research For Forest and Rangeland Ecosystems

BACKGROUNDER ON FFESC RESEARCH PROGRAM

Introduction

The Future Forest Ecosystems Scientific Council (FFESC) was established in March 2008 to guide the allocation of a \$5.5 million grant-in-aid to research that supports the objectives of the Future Forest Ecosystems Initiative (FFEI)¹, namely informed adaptation of BC's forest and range management framework² to climate change. The FFESC is a cooperative council representing the Ministry of Forests, Lands and Natural Resource Operations (FLNRO), the Ministry of Environment (MoE), the University of British Columbia (UBC), and the University of Northern British Columbia (UNBC).

Affiliation	Member	Title
FLNRO	Susanna Laaksonen-Craig (Chair)	Acting ADM, Resource Stewardship Division
	Jim Sutherland	Acting Chief Forester, Resource Stewardship Division
MoE	Alec Dale	Director, Ecosystem Protection and Sustainability Branch
UBC	Dr. Jack Saddler	NSERC Industrial Senior Chair, Faculty of Forestry
	Dr. Cindy Prescott	Associate Dean, Faculty of Forestry
UNBC	Dr. Daniel Ryan	Dean, College of Science and Management
	Dr. Kathy Lewis	Chair, Ecosystem Science and Management Program (<i>Darwyn Coxson acting until May 2012</i>)

In total, the FFESC has funded 27 research projects that fulfill the FFESC's four key research objectives:

- Increase our understanding of how forest and range ecosystems can be expected to change over time as a result of climate change;
- Develop projections to forecast those changes;
- Develop methods of adapting forest and range management in response to climate change that will help reduce the impacts on forest and range ecosystems and productivity; and,
- Determine the economic and social consequences to B.C. of the changing forest and range ecosystems, and of the effects of the proposed adaptation options.

Scope of FFESC Research Projects

FFESC research projects address one or more of the following areas:

- *Impact Assessments*: evaluating the potential social, economic, and ecological consequences of climate change to forest and range ecosystems and their dependent communities;
- *Vulnerability Assessments*: evaluating where a forest or rangeland socio-ecological system is most exposed and sensitive, or least capable of adapting, and identifying barriers to adaptation;
- *Adaptation*: designing and implementing adaptive actions to reduce the vulnerabilities of forest and rangeland socio-ecological systems to climate change;

¹ For more information about FFEI, visit http://www.for.gov.bc.ca/HFP/future_forests/

² The forest and range management framework includes legislation, policies, procedures and systems under the *Forest Act*, *Range Act*, *Forest and Range Practices Act*, and *Wildfire Act* that support: biogeoclimatic classification; timber supply planning; and, management and conservation of ecosystem services, biodiversity, wildlife, fish, riparian, water, soil, terrain, tree species and genes, forage and rangeland plant communities, biotic and abiotic agents, exotic and invasive species, and fire.

- **Integration:** monitoring the response of forest and rangeland socio-ecological systems to climate change, identifying interactions, feedbacks and cumulative effects, and adjusting adaptation approaches as necessary.

Key Guiding Principles for FFESC Research

Interdisciplinary: Projects address the cross disciplinary, cross-scale challenges inherent to studying ecological and socio-economic systems, and build capacity to work on interdisciplinary teams.

Scientist -Practitioner Partnerships: Researchers work in partnership with clients (policy makers, resource management practitioners, and community stakeholders) to understand adaptation challenges, frame research questions and implement projects that fill critical knowledge gaps and provide practical information and tools for addressing those adaptation challenges.

Build on Existing Knowledge Bases: Projects use and build on the best available international science, standards, terminology and frameworks for ecosystem adaptation research rather than inventing a made-in-BC approach. Projects take advantage of and contribute to the province's existing forest and range research and planning networks, long term field experiments, modeling frameworks and databases.

FFESC Projects

The 27 research projects funded by the FFESC are listed in the following table. Directly-awarded projects are highlighted in grey; competitively-awarded projects are highlighted in beige; projects funded in exchange for in-kind administrative support from FLNRO are highlighted in purple; and, one project to be completed by the FFESC (a synthesis of FFESC research outcomes) is highlighted in green.

#	Project	Lead
A1	Projecting future ecosystem distributions: uncertainties and management applications	Sally Aitken & Tongli Wang, UBC
A2	Regeneration vulnerability assessment for dominant tree species throughout BC's central interior	Craig Nitschke, BVRC
A3	Climate change and fire management research forum	Lyle Gawalko, FLNRO
A4	A study of tree species vulnerability and adaptation to climate change	Mark Johnston, on behalf of CCFMC
A5	Indicators of sustainable forest management in a changing climate	Peter Duinker, on behalf of CCFM
A6	Predicting forest insect disturbance under climate change	Allan Carroll, UBC
B1	Reducing vulnerabilities and promoting resilience of BC's natural and human systems through adaptation of post-disturbance land management options	Alan Wiensczyk, FORREX
B2	Climate change adaptation plan for Northwest Skeena communities	Dirk Brinkman, Consultant
B3	Integrating climate change adaptation strategies with sustainability and socioeconomic objectives for the Quesnel timber supply area	Ann Chan-McLeod, UBC
B4	Climate change vulnerability of old-growth forests in BC's inland temperate rainforest	Darwyn Coxson, UNBC
B5	Risk Analysis and decision support tool	Craig Delong, Consultant
B6	Using red alder as an adaptation strategy to reduce environmental, social and economic risks of climate change in coastal BC	Louise deMontigny, FLNRO
B7	Managing for the ecological and socioeconomic effects of climate change on BC rangelands	Lauchlan Fraser, TU
B8	Resilience and climate change: adaptation potential for management and ecological systems in the West Kootenays	Rachel Holt, Consultant

#	Project	Lead
B9	Climate change adaptation research for forest and rangeland ecosystems: resiliency implications at the landscape level	John Innes, UBC
B10	Uncertainty in adaptation to climate change in forest management: selected case studies in British Columbia	Emina Krcmar, UBC
B11	A multi-scale trans-disciplinary vulnerability assessment	Don Morgan, BVRC
B12	Validating impacts, exploring vulnerabilities, and developing robust adaptive strategies under the Kamloops Future Forest Strategy	Harry Nelson, UBC
B13	Comprehensive synthesis of forested watershed science and climate change impacts	Todd Redding, FORREX
B14	High resolution spatial climate data for climate change research in BC	Dave Spittlehouse, FLNRO
B15	Integrating FFEI scientific predictions into community planning and governance	Tracy Summerville, UNBC
B16	The effects of climate and forest cover change on snowmelt-dominated water supplies in the Okanagan	Rita Winkler, FLNRO
C1	Soil and Ecological Baseline Data: Improvement and Delivery	Chuck Bulmer, Will Mackenzie, FLNRO
C2	Climate based seed transfer modelling	Greg O'Neill, FLNRO
C3	Climate change monitoring strategy (Phases 3 & 4)	Peter Bradford, FLNRO
C4	Interdisciplinary assessment of the implications of climate change on BC's forest and range ecosystems and their stewardship	Don Morgan, MoE
D1	Synthesis of FFESC research outcomes	FFESC

See the FFESC web site for links to completed projects: http://www.for.gov.bc.ca/HFP/future_forests/council/index.htm.

Review and approval of final research reports

15 of the 16 competitively-awarded FFESC-funded projects (including those led by Wiensczyk, Brinkman, Chan-McLeod, Coxson, Delong, DeMontigny, Fraser, Hold, Innes, Krcmar, Morgan, Nelson, Spittlehouse, Summerville, and Winkler) will undergo review by peers and knowledge users for their scientific and pragmatic value in informing policy evaluation and adaptation.

Project reports that will not undergo peer and user review by the FFESC include directly-awarded projects and projects funded in exchange for in-kind administrative support from FLNRO. As well, one competitively-awarded project (Redding³) will not undergo user review.

The FFESC will evaluate each final project report, financial statement, and peer and user reviews, to determine whether reporting has been adequate. The FFESC will work with project team leaders as necessary to address any identified concerns with final project reports and/or financial statements. The FFESC hopes to approve each project report within two months of reporting. Once approved, FFESC project reports will be posted to the FFESC web site.

Synthesis of Research Outcomes

To maximize the utility of the FFESC's research in informing policy, the FFESC will complete a synthesis of all FFESC research outcomes.

³ The project led by Redding will not undergo user review given that FFESC funds were aimed at completion, publication and extension of a watershed science compendium, which was released in January 2011.

This project will be carried out over January – May 2012, and will involve:

- Synthesizing research outcomes associated with all FFESC-funded research reports;
- Matching synthesized research outcomes with appropriate legislation and policy under the forest and range management framework, in consultation with policy specialists and decision-makers; and,
- Synthesizing positive outcomes and opportunities for improvement associated with the FFESC's research program, for the future benefit of Government-funded research programs.

A draft research synthesis report will provide the basis for planning the themes/focus of the FFESC's closing conference/workshop.

Closing Conference and Workshop

The FFESC is planning a two-day closing conference and workshop on June 12-13, 2012 at UBC to showcase the outcomes of its innovative research program and to illustrate practical applications of the research in informing adaptation of forest and range policies and practices to climate change.

The event will serve as a forum for FFESC researchers and knowledge users⁴ to:

- discuss FFESC research outcomes and their policy implications;
- identify new research and policy evaluation priorities; and,
- share lessons learned and wise practices regarding implementing a multi-disciplinary, client-focused research program.

The conference/workshop will also profile other relevant Government-funded research and policy projects that support FFEI objectives. These include projects carried out by Natural Resources Canada (on behalf of the Canadian Council of Forest Ministers and BC Regional Adaptation Collaborative), FLNRO, and MoE. These and other adaptation partners will be invited to the event to strengthen discussions of policy implications and to promote continued collaboration on climate change adaptation research and policy work.

Proceedings of the conference/workshop will be integrated into the FFESC research synthesis report, which will be finalized and posted to the FFESC web site and broadly distributed to researchers, knowledge users, and others.

For More Information

Questions regarding the FFESC should be directed to Kristine Weese, FFESC Coordinator, at 250-558-1760 or Kristine.weese@gov.bc.ca.

For more information about the FFESC, visit: http://www.for.gov.bc.ca/HFP/future_forests/council/index.htm.

⁴ Knowledge users invited to the event include Government policy decision-makers and specialists, Government and industry practitioners, community stakeholders, and other adaptation partners.