



Future Forest Ecosystems of BC: Draft Recommendations for Review and Comment

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The Future Forest Ecosystems of BC: Draft Recommendations for Review and Comment

I Introduction

Natural disturbances such as insect and disease outbreaks, wildfires, and droughts are a normal part of British Columbia's forest ecosystems. B.C.'s ecosystems have adapted along with these disturbances and recover naturally when they occur. However, the cumulative effects of climate change, increasing resource use by humans, and other agents of environmental and ecological change could stress forest ecosystems to the point where they cannot recover from disturbances, or recover at a rate that is unacceptably slow. The effects of ecological change or stress are especially evident in the current province-wide mountain pine beetle outbreak. Action is necessary to ensure B.C.'s future forest ecosystems continue to have the capacity to recover from disturbances.

The capacity of an ecosystem to absorb disturbance or stress and remain within its range of natural variability is called "ecological resilience". Ecological resilience has important benefits to society – it enhances the ability of forest ecosystems to recover from environmental and ecological changes, and it ensures ecosystems will continue to provide the basic services and resource values society depends on – such as clean air and water, soil formation, biological control of pests, biological diversity, and wildlife habitat. Ecological resilience also benefits society by enabling sustainable production of renewable natural resources, such as timber and non-timber forest products.

II Purpose

The Ministry of Forests and Range (MoFR) is taking steps to help maintain and enhance the resilience of B.C.'s forest ecosystems through a new initiative – the Future Forest Ecosystems (FFE) Initiative. The purpose of the FFE Initiative is to adapt B.C.'s forest management framework to "manage for ecological resilience".

Managing for ecological resilience requires that the forest management framework (i.e., the legislation, policy, planning, and guidance that governs forest management) enables ecosystem components such as soils, hydrology, species composition, landscape features, and natural disturbances (fire, insects and disease) to remain within their range of natural variability. An ecosystem's range of natural variability is technically called its "stability domain".

Appendix 1, *Managing B.C.'s Forest and Rangeland Ecosystems to Achieve Ecological Resilience*, provides a detailed, technical discussion of ecological resilience, environmental and ecological change agents that influence resilience, and the concept of managing for resilience.

This report outlines the purpose, background, scope, and objectives of the FFE Initiative, as well as 46 draft recommendations for projects aimed at increasing government's understanding of ecological processes and alterations, and using that knowledge to adapt B.C.'s forest management framework to manage for ecological resilience. The report also discusses implementation of approved projects, long-term direction of the FFE Initiative, the process for internal and external review of this report, and next steps.

III Background

2005 symposium and workshop

The FFE Initiative originated at a symposium and workshop hosted by the MoFR's Chief Forester in December 2005, entitled *The Future Forest Ecosystems of BC: Exploring the Opportunities*. This session was attended by representatives of federal and provincial agencies, universities, First Nations, forest and range industries, environmental organizations, and consulting resource professionals.

At the session, participants: a) explored current and potential future changes to B.C.'s forest ecosystems and their implications to forest management, and b) brainstormed strategies for adapting the forest management framework. All written products from the symposium and workshop are posted on the FFE web site: http://www.for.gov.bc.ca/hts/Future_Forests.

Establishment of FFE team

In early 2006, the Chief Forester established a FFE team to analyze the strategies resulting from the symposium and workshop, and incorporate key themes into the FFE Initiative's purpose, objectives and draft recommended projects. The team comprises MoFR specialists with expertise in climate change, natural disturbance, fire ecology, biotic agents, species composition and genetics, the biogeoclimatic classification (BEC) system, and forest management operations. The terms of reference (including membership) of the FFE team is posted on the FFE web site.

Context – related and complementary initiatives

Subject to their approval, many projects recommended under the FFE Initiative will be implemented through or in collaboration with related initiatives led by government. As well, the FFE Initiative is intended to work in harmony with other complementary initiatives that have social, economic, and environmental objectives.

These related and complementary initiatives are identified in the following table. **Appendix 2** briefly describes these initiatives and how their objectives support or complement the FFE Initiative.

Related Initiatives	Complementary Initiatives
Climate Change Task Team	BC Forum on Economics and Policy
Species Management Committee	BC Climate Change Plan
Mountain Pine Beetle Action Plan	Ecosystem Based Management on Coast
BC Wildfire Management Forum	Forest Certification
Ecosystem Restoration Initiative	Land Use Planning
Forest and Range Practices Act (FRPA)	New Relationship with First Nations
FRPA Resource Evaluation Program	Provincial Water Strategy
Forest Investment Account-Forest Science Program	Species At Risk Act
Forests for Tomorrow	State of the Forest Reporting
Timber Supply Review	Timber Reallocation
Tree Gene Resource Management Challenge Dialogue	

IV Scope

The FFE Initiative contemplates incremental changes to B.C.’s existing forest management framework to maintain and enhance the resilience of forest ecosystems. The forest management framework includes legislation, policy, planning (e.g., resource management strategies, timber supply analysis), and guidance. The management framework is supported by and continuously improves with ongoing research, monitoring, forecasting, and adaptive management.

The FFE Initiative is not intended to disrupt the achievement of social and economic objectives being addressed through other government initiatives discussed above, such as the BC Forum on Economics and Policy, and the New Relationship with First Nations. The aim of the FFE Initiative is to manage for ecological resilience without negatively impacting the productivity of forest resources, including timber.

The following table summarizes the initiative’s scope.

Scope	Explanation
Forest ecosystems within the provincial forest land base	<p>While the concept and intent of ecological resilience applies to all ecosystems, the FFE Initiative is currently focussed on forested ecosystems and non-forested ecosystems within the forest matrix. The FFE Initiative does not currently address rangeland ecosystems, which include grasslands, shrublands and their related ecosystems. The MoFR’s Range Branch has recently started a provincial ecosystem restoration initiative aimed at restoring rangeland ecosystems and range values within forest ecosystems. This initiative may result in recommendations for future projects designed to maintain and enhance the resilience of rangeland ecosystems. Any recommendations of this nature will be considered for implementation under the FFE Initiative.</p> <p>In keeping with the MoFR’s jurisdiction, the FFE Initiative addresses Crown provincial forest lands, and does not address private forest lands.</p>
Environmental and ecological aspects of forest management	As previously discussed, the FFE Initiative does not address the province’s social and economic objectives, which are inherently addressed in other MoFR programs, such as tenure allocation, revenue, and marketing. The focus of the FFE Initiative is environmental and ecological aspects of forest management.
Incremental changes to existing forest management framework	The FFE Initiative does not contemplate development of a new forest management framework, but rather adapting the existing framework, which largely revolves around FRPA, through incremental changes.
Projects for which MoFR is the lead or partner agency	The FFE Initiative does not include programs or initiatives that are the exclusive jurisdiction of other agencies, such as land use allocation. Some of the recommended projects are likely to be the joint responsibility of the MoFR and other agencies such as the Ministry of Environment, the Ministry of Agriculture and Lands, and the Integrated Land Management Bureau. In these cases, other agencies will be invited to participate in project planning and delivery, and project results that affect the mandates of other agencies will be forwarded to those agencies for their consideration.

The scope of the FFE Initiative will likely evolve over time as government expands its understanding of forest ecosystem patterns and processes, agents of ecological change, and attributes of a forest management framework that are desirable to maintain and enhance ecological resilience.

V Objectives

The projects recommended under the FFE Initiative are designed to help the MoFR and its partner agencies and stakeholders achieve the following objectives:

1. Understand the range of natural variability of ecosystem components, including soils, hydrology, species composition, landscape features, and natural disturbances such as fire, insects and disease;
2. Measure whether we're managing to maintain ecosystem components within their range of natural variability;
3. Predict how climate change might alter the range of natural variability of ecosystem components;
4. Set forest management goals and objectives that maintain and enhance ecological resilience; and,
5. Communicate forest management goals and objectives that support ecological resilience.

VI Recommended Projects

The FFE team has developed 46 draft recommended projects to fulfil the above-noted objectives. The recommended projects are derived from:

- The symposium and workshop *The Future Forest Ecosystems of BC: Exploring the Opportunities* (December 2005);
- The MoFR Climate Change Task Team (CCTT) report *Preparing for Climate Change: Adapting to Impacts of Climate Change on BC's Forest and Range Resources* (May 2006), http://www.for.gov.bc.ca/mof/Climate_Change;
- The MoFR Species Management Committee (SMC) report *Management of Species Composition in Cutblocks in Beetle-Impacted TSAs* (October 2005), <http://www.for.gov.bc.ca/hfp/fft/species/index.htm>; and,
- Further analysis by the FFE team.

While the CCTT and the SMC have communicated their recommendations under separate reports, their recommendations that are within the scope of FFE Initiative have been incorporated into this report, and will be considered and implemented under the FFE Initiative.

The recommended projects are described in detail in **Appendix 3**. The following table provides an abbreviated summary of the recommendations, by objective.

#	Objective	Brief summary of recommendations
1	Understand the range of natural variability of ecosystem components	<ul style="list-style-type: none"> • Document existing knowledge and conduct research to define the range of natural variability of ecosystem components (soils, hydrology, species composition, landscape features, and natural disturbances including fire regimes, insects and disease) • Continually update ecosystem management tools (BEC, TEM, and PEM) based on new and forecasted ecosystem information

#	Objective	Brief summary of recommendations
2	Measure whether we're managing to maintain ecosystem components within their range of natural variability	<ul style="list-style-type: none"> • Monitor the range of variability of ecosystem components • Enhance the current forest health monitoring program to provide timely information on pest incidence • Establish an adaptive management program and incentives to practice adaptive management, to promote continual improvement of policy and practices based on current and new ecological information • Enhance forest information systems so they report on species composition and diversity at multiple scales
3	Predict how climate change might alter the range of natural variability of ecosystem components	<ul style="list-style-type: none"> • Develop climate change projection models and a climate change monitoring system to project future climates and to monitor changes to forest ecosystems as a result of climate change • Develop tools for evaluating impacts of climate change on natural disturbance processes • Conduct risk assessments to determine potential impacts of climate change on forest and range resources • Conduct research and modelling to determine potential impacts of climate change on key species, tree seed genotypes, soil processes and productivity, and fire regimes
4a	Set forest management goals and objectives that maintain and enhance ecological resilience by adapting legislation and policy	<ul style="list-style-type: none"> • Evaluate current policies for wildlife tree patches, coarse woody debris, biodiversity, and partial cutting, to assess whether they enable ecological resilience • Revise species selection, free growing, and seed transfer policies and systems to improve the diversity of tree seed, tree species, stand types and ages, and their adaptation to future climates • Incorporate forest health objectives into FRPA • Examine options for legislating fire management objectives
4b	Set forest management goals and objectives that maintain and enhance ecological resilience by adapting planning and systems	<ul style="list-style-type: none"> • Evaluate protected areas to determine their contribution to ecological resilience • Establish a process for incorporating natural disturbance regimes into forest management planning • Improve stand growth models to better manage multi-species and complex stand types • Establish a model for analyzing climate change impacts on timber supply • Develop an innovative forest health strategy that anticipates future forest health issues, management implications, and solutions that temper future impacts of insects and pathogens • Develop provincial, regional and local fire management strategies / plans that encourage reintroduction of fire on the landscape where appropriate, to allow more natural fire-based ecosystem processes to occur • Examine options for enhancing MoFR's fire management program to deliver prescribed burning and other fire management activities
4c	Set forest management goals and objectives that maintain and enhance ecological resilience by adapting guidance	<ul style="list-style-type: none"> • Define ecosystem services and risks to those services, and promote their consideration in forest management planning • Promote partial cutting, green tree retention, protection of advanced regeneration, and broadleaves where appropriate

#	Objective	Brief summary of recommendations
5	Communicate forest management goals and objectives that support ecological resilience	<ul style="list-style-type: none"> • Train users of BEC to encourage a knowledge-based approach to interpreting BEC and developing ecosystem management prescriptions • Use communication to increase awareness and understanding of climate change impacts on B.C.'s forests • Use communication to improve government and public understanding of the role and value of fire as a natural ecosystem process • Initiate extension and dialogue on ecological resilience concepts, research, and management goals and objectives

VII Implementation

Some of the recommended projects described above are already partially or fully staffed and resourced, with initial work underway. Appendix 3 includes a description of project activities to date. However, full implementation of the recommended projects will require extensive capacity, resources, and training over the long term, as well as analysis and action to address cost impediments for tenure holders to achieving desired forest management outcomes.

Implementation of approved projects will involve: a) developing terms of reference (TOR) for each project; b) conducting TOR reviews with affected agencies and non-government organizations; c) soliciting staff and funding resources where necessary to implement projects; and, d) planning and initiating work based on allocated staff and budgets.

Partners that assist the MoFR in implementing projects under the FFE Initiative will be identified during the development of terms of reference for approved projects.

VIII Monitoring Performance

Measures of success in achieving the purpose, objectives, and project deliverables of the FFE Initiative will be developed once individual projects are approved. Performance measures will consider links to other forest reporting criteria and indicators, such as State of the Forest reporting.

A plan for monitoring and reporting on performance under the FFE Initiative will be developed in conjunction with the performance measures.

IX Long-Term Direction

Over the next few years, the FFE team will oversee implementation of approved projects, report on the progress and outcomes of projects, and help resolve project-specific issues that require higher level direction. In due course, the FFE team will design and implement a process to integrate the purpose and objectives of the FFE Initiative into normal ministry business.

As previously mentioned, the scope of the FFE Initiative and the projects under it will likely evolve as government learns more about how to maintain and enhance the resilience of B.C.'s forest ecosystems through the forest management framework. To this end, the Chief Forester will likely host periodic

workshops to refine the direction of the FFE Initiative and to consider new projects that support FFE objectives.

X Consultation

Approach

This report is being circulated to MoFR staff, other agencies, First Nations, and non-government organizations to solicit feedback that will help the FFE team a) evaluate, refine and prioritize the recommended projects based on their contribution to ecological resilience, and b) refine the overall direction of the FFE Initiative, including its purpose, scope, and objectives.

Written feedback will be accepted until August 15, 2006. The Chief Forester and FFE project manager will also host consultation sessions with MoFR senior manager teams, multi-agency committees, First Nations, and non-government organizations in June and July. With written and verbal feedback in hand, the FFE team will finalize the recommendations report and submit it to the MoFR Executive for consideration and approval this fall.

All FFE Initiative products – including this report and its three appendices, an electronic feedback form, the FFE team terms of reference, communication materials, and background documents – are posted on the FFE web site: http://www.for.gov.bc.ca/hts/Future_Forests.

Questions for reviewers

For reviewers of this report, the FFE team would greatly benefit from your feedback on the following eight questions:

1. Is adapting B.C.'s forest management framework to manage for ecological resilience the best way to respond to current and future ecological change?
2. Will the five objectives for adapting the forest management framework help B.C. manage for ecological resilience?
3. Will the recommended projects under each objective help B.C. manage for ecological resilience?
4. Which objectives / recommended projects will have the best results in terms of helping B.C. manage for ecological resilience?
5. Do the recommended projects hold any implications for the interests of your organization? If so, which ones and how?
6. Does the FFE Initiative put B.C. on the right track in responding to climate change, insect and pathogen attacks, wildfire events, and other environmental and ecological changes?
7. Do you have any other comments on the FFE Initiative?
8. Would you like to be informed of the approved projects, their implementation progress, and other events under the FFE Initiative?

Responses to these questions may be submitted using the electronic feedback form posted on the FFE web site. As well, written comments may be submitted directly to Kristine Weese, FFE Project Manager (see contact information under section XII Contact).

XI Next steps

Here is a brief overview of next steps under the FFE Initiative:

June – Aug. 2006	Review of the draft recommendations report by ministry staff, other agencies, First Nations, and non-government organizations.
Aug. – Sept. 2006	Analysis of review outcomes and completion of a feedback summary and final recommendations report by FFE team.
Early Oct. 2006	Consideration and approval of projects by MoFR Executive, and completion of approved projects summary.
Late Oct. 2006	Implementation planning and start of approved projects.

All post-consultation products of the FFE team, and periodic updates on the status of the FFE Initiative, will be posted on the FFE web site. MoFR staff and other interested organisations and individuals will be kept informed of the progress and products of the FFE team.

XII Contact

Any questions about the FFE Initiative or comments on this report may be directed to Kristine Weese, Future Forest Ecosystems Project Manager, at:

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FFE web site: http://www.for.gov.bc.ca/hts/Future_Forests.

XIII Appendices

- Appendix 1 – Managing B.C.’s Forest and Rangeland Ecosystems to Achieve Ecological Resilience
- Appendix 2 – Related and Complementary Initiatives
- Appendix 3 – Recommended Projects