

Future Forest Ecosystems of BC:  
Draft Recommendations

West Coast Environmental Law Comments

August 15, 2006



West Coast Environmental Law<sup>1</sup> is BC's legal champion for the environment. Through legal advice, education and advocacy, West Coast provides citizens and organizations with the knowledge, tools and innovative solutions needed to protect our environment and build sustainability locally, nationally and internationally.

We welcome the opportunity to comment on the Ministry of Forests and Range (MoFR) report "*Future Forest Ecosystems of BC: Draft Recommendations for Review and Comment*" (the "FFE Recommendations").

## **1) Is adapting BC's forest management framework to manage for ecological resilience the best way to respond to current and future ecological change?**

Yes, adapting BC's forest management to manage for ecological resilience is an essential component of proactively addressing current and future ecological change.

We agree with the FFE Recommendations that:

*Managing for ecological resilience requires that the forest management framework (i.e., legislation, policy, planning, and guidance that governs forest management) enables ecosystem components such as soils, hydrology, species composition, landscape features and natural disturbances ... to remain within their range of natural variability.<sup>2</sup>*

Only by prioritizing ecological resilience (including maintaining biological diversity<sup>3</sup> and the ecosystem patterns, processes and structural attributes that are responsible for that biodiversity) can we hope to have future forest ecosystems in BC that sustain human communities and economies, as well as other species and ecological services.

### **Relationship to social and economic objectives**

In this respect, we believe that the Future Forest Ecosystems (FFE) initiative speaks not just to the environmental and ecological aspects of forest management, but to the essential foundation for the *economic* future of many BC communities. Increased harvest levels and the creation of related processing infrastructure in the face of the current beetle epidemic may have short-term economic benefits for some actors. However, we must ensure that our forests are able to provide resources and ecological services for our children and our grandchildren. We would suggest that the economic interests of licensees, many of whom have national and global operations and can shift their investments and operations elsewhere when forest resources are depleted, are not necessarily co-extensive with those of forest-based communities over the medium to long-term.

Thus, short-term economic objectives that conflict with or undermine the goal of maintaining ecological resilience should be revisited and adapted. This is critical if options are to be maintained for the future, ecologically and economically.

### **Practical implications of managing for ecological resilience**

*"[M]any of the most severe impacts of climate-change are likely to stem from interactions between threats... rather than from climate acting in isolation."<sup>4</sup>*

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<sup>2</sup> FFE Recommendations at 2. In these comments the terms range of natural variability, RONV, range of historic variability and reference variability are used interchangeably.

<sup>3</sup> Within and among all levels of biological organisation –genetic variation, species, populations, ecosystems, and landscapes.

Cumulative anthropogenic impacts on BC forests, including logging and related road building, affect biodiversity and ecological integrity. As noted in the Appendix 1:

*Scientific evidence indicates that, in general, the greater the discrepancy between recent anthropogenic disturbances such as clearcut logging, domestic grazing, agricultural and urban development and the natural disturbances to which those ecosystems and their biota have adapted over millenia, the greater the loss of ecological resilience.<sup>5</sup>*

Managing for ecological resilience will mean making management choices today that are most likely to maintain ecosystem composition, structure and function within their natural range of variability in the face of increased stress and disturbance from climate change. It will mean identifying and altering current management practices that exacerbate the impacts of climate change, and taking action to maintain options for the future. In general, measures to reduce pressure on biodiversity, such as lower harvest levels and interconnected protected reserves, constitute important climate change adaptation measures.<sup>6</sup>

While we believe the goal of managing for ecological resiliency is achievable through incremental legal and policy changes, it will nevertheless mean an important shift in how we approach forest planning and practices in BC. In effect, it means determining first what needs to be left behind on the land to ensure ecological resilience as a guide to where and how harvesting should occur.

As noted in Appendix 1, in the absence of reliable information about key system drivers, we should take a precautionary approach, erring on the side of maintaining ecosystem composition, structure and function and not assuming that any component is expendable.

### **Removing legal and policy barriers to managing for ecological resilience**

Achieving the goal of managing for ecological resilience will require integrated changes to legislation, policy, and planning, as well as shifts within responsible institutions and agencies. However, aspects of BC's current forest management framework are inconsistent with this goal on their face. Incremental legal and policy change should prioritize reform in these areas, many of which relate to the province's biodiversity strategy.

While there are gaps in our present knowledge about the range of natural variability in various ecosystem components and how climate change will alter present conditions, in the face of uncertainty, the future of our forest ecosystems should be prioritized by erring on the side of maintaining biodiversity as a key indicator of ecological resilience.

The 1995 *Biodiversity Guidebook* identified many of the landscape and stand attributes that must be managed for in relation to ecological resilience, including: representation, seral stage distribution, patch size, connectivity, interior habitat, snags, coarse woody debris, large living trees, tree species diversity, structural diversity (canopy complexity and spatial patchiness), and soil conditions (soil structure, nutrient spectrum, organic matter content, water retention and drainage and pH). Despite limitations of the Biodiversity Guidebook –specific direction is not provided with respect to all of these attributes; targets were compromises between scientific knowledge and economic objectives; and, the NDTs used represent an oversimplified view of natural disturbance regimes –management direction for

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<sup>4</sup> Chris D. Thomas et al, "Extinction risk from climate change" (2004) 427 Nature 145 at 147.

<sup>5</sup> FFE Recommendations, Appendix 1 at 4.

<sup>6</sup> UNEP, *Climate Change and Biodiversity: Executive Summary of the Report on Interlinkages Between Biological Diversity and Climate Change* (CBD Technical Series no. 10, 2003).

*high biodiversity emphasis areas* remains the closest proxy for managing for ecological resilience within our present legal and policy framework.

BC's current forest management framework presently contains a number of explicit barriers to managing for ecological resilience. Examples of such areas include:

- Policy direction that only 10% of subregional planning units are to be managed with a high emphasis on biodiversity, and approximately 45% assigned low biodiversity emphasis, where “pattern of natural biodiversity will be significantly altered, and the risk of some native species being unable to survive in the area will be relatively high.”<sup>7</sup>
- Past Chief Forester direction that the impact of landscape unit biodiversity objectives on provincial timber supply is “not permitted to exceed 4.1% in the short-term and 4.3% over the long-term.”<sup>8</sup>
- Policy direction that early and mature seral targets are not to be met unless there is no timber supply impact and that all low biodiversity emphasis areas are to be managed to achieve only one third of the old seral target.<sup>9</sup>
- Policy direction that management for most landscape and stand attributes<sup>10</sup> is only permitted if it would have no timber supply impacts.<sup>11</sup>
- Past Chief Forester direction that biodiversity representation must not be considered at a scale finer than BEC variant level when establishing landscape unit objectives.<sup>12</sup>

While higher level strategic plans and related objectives established under the *Land Act* (or previously under the *Forest Practices Code*) can create direction that overrides these policy directives, in many areas of the province LRMPs are already completed and sustainable resource management planning is the most active level of strategic planning. It is key that the policy direction with respect to landscape unit planning/sustainable resource management planning prioritizes managing for ecological resilience, and at a minimum is not constrained from doing so by the barriers identified above. This should also be the case for Sustainable Forest Management Plans developed by industry.

We strongly recommend that the Chief Forester issue new policy direction clarifying that priority is to be given to managing for ecological resilience and which supersedes past direction. It would be advisable to issue this jointly with the Integrated Land Management Bureau, who presently has authority over landscape level planning<sup>13</sup>

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<sup>7</sup> Ministry of Forests, *Biodiversity Guidebook* (1995) at 7.

<sup>8</sup> Larry Pederson et al to Regional Managers and District Managers, MOF; Regional Directors and Designated Environmental Officials, MELP; and all staff involved in Landscape Unit Planning, “Release and Implementation of the Landscape Unit Planning Guide,” March 17, 1999.

<sup>9</sup> Ministry of Forests and Ministry of Environment, Lands and Parks, *Landscape Unit Planning Guide* (1999) (unless there are no timber supply impacts).

<sup>10</sup> Other than old growth and wildlife tree retention.

<sup>11</sup> *Landscape Unit Planning Guide* (unless RMZ objectives provide otherwise; now s. 93.1 or 93.4 objectives under the *Land Act*)

<sup>12</sup> Larry Pederson, Chief Forester to District Managers, MOF and Designated Environmental Officials, MELP “Chief Forester Direction on Landscape Unit Objectives,” May 25, 1998.

<sup>13</sup> Despite ambiguity as to the legal status of historical policy direction from the Chief Forester and MoFR officials,\* it continues to guide provincial staff and decision-makers with respect to landscape level biodiversity planning. For this reason, we submit that it is appropriate for the Chief Forester to show leadership in revising and clarifying policy direction in ways that removes barriers to conserving biodiversity, a key indicator of ecological resilience.

\*Subsection 4(1)(b) of the *Forest Practices Code of British Columbia Act* that gave legal effect to Chief Forester direction regarding landscape unit objectives was amended in 2002.

Within the new *Forest and Range Practices Act (FRPA)* and regulations, there are also legal provisions that run counter to the goal of managing for ecological resilience. These include:

- The qualification of ecological FRPA objectives by the language “without unduly reducing the supply of timber from British Columbia’s forests...”<sup>14</sup> and the use of similar language in the *Government Actions Regulation*.
- Section 25(1) of the Forest Planning and Practices Regulation that specifies that: “An intended result or strategy is not inconsistent with an established objective only because it (a) is capable of producing a condition outside the range of variation characteristic of a season, an area or a forest resource...”
- Section 64(1)(a) of the Forest Planning and Practices Regulation, which permits 40 ha clearcuts in areas where the dominant natural disturbance regime is gap replacement.

While legislative amendments will ultimately be required to address these issues, in the short term guidance should be provided to statutory decision-makers and licensees clarifying that these sections must be interpreted in light of the goal of managing for ecological resilience, and more particularly that despite s. 25(1) of the FPPR, it is expected that strategies and results specified in FSPs will result in landscape patterns and stand structures that are compatible with the range of natural variability.

There is an urgent need to maintain options while research anticipated by the FFE initiative is being conducted. Removing obvious legal and policy barriers to managing for ecological resilience is an important step in this direction.

## **2) Will the five objectives for adapting the forest management framework help BC manage for ecological resilience?**

Yes, overall these objectives are very much on the right track.

In objective 4 the specific sub-points (“...by adapting legislation and policy”; “...by adapting planning and systems”; “...by adapting guidance”) should be made explicit when the objectives are listed.<sup>15</sup>

We would also make the following overarching comments with respect to the objectives.

### **RONV as environmental base case**

We would emphasize that RONV provides an essential environmental base case against which risks to ecological resilience can be measured and upon which management choices to reduce these risks can be made.

Historical forest dynamics, i.e., approximating the temporal and spatial distribution of ecological processes and structures prior to European settlement of North America, is the only model known to maintain the conditions to which most species are adapted, and thus to allow the persistence of the forest ecosystems, plant and animal species, and ecological services we know today.<sup>16</sup> For this reason, the range of natural variability is often used interchangeably with other terms such as the range of historic variability or reference variability.

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<sup>14</sup> Forest Planning and Practices Regulation, BC Reg. 14/2004, ss. 5-9.2, in that this language appears to give timber supply concerns priority over management for ecological resilience.

<sup>15</sup> Although it is not immediately clear what the distinction is between ‘policy’ 4(a) and ‘guidance’ 4(c).

<sup>16</sup> K. Lertzman and J. Fall “From forest stands to landscapes: spatial scales and role of disturbance” in D.L. Peterson and T. Parker eds, *Ecological Scale: Theory and Applications* (New York: Columbia University Press, 1998) at

Consistent with FFE Objective 1, understanding and describing RENV is a critical aspect of implementing the goal of managing for ecological resilience. However, the FFE Recommendations would benefit from greater clarity regarding the temporal scale at which research and analysis are to be conducted.<sup>17</sup> For example RENV is appropriately identified based on a period when industrial human influences were minimal.<sup>18</sup>

As a starting point, we would recommend using the Forest Stewardship Council definitions of RENV and compatible with RENV, which are as follows:

**Range of natural variability (RENV):** *The range of dynamic change in natural systems in the last 2000 years prior to the influence of European settlers; it includes consideration of the range of ecosystem conditions such as seral stage distribution, patch size distribution, stand structure and disturbance regimes (i.e., frequency, intensity, spatial extent and heterogeneity of disturbances); FSC-BC includes First Nations' prehistoric management systems (e.g., burning) as an integral part of RENV; similar concepts include natural variability, historical range of variability, reference variability and reference ecosystems.*

**Compatible with natural disturbance regimes, patterns or the range of natural variability:** *Sufficiently similar in function, frequency, intensity, spatial extent and degree of heterogeneity to natural disturbances (e.g., those caused by fire or wind), to result in similar ecosystem characteristics and landscape patterns to those that result from natural disturbances; management strategies include a range of practices that represent a significant portion of the range of natural variability centered on the estimated mean or median condition (i.e. do not focus on strategies on either end of the range; landscape and/or regional seral stage distributions or amounts of old and mature forests are maintained within 2 standard errors of mean natural levels or +/- 25% of estimated mean when data are lacking); avoid doing the same thing everywhere all the time (e.g., high stand level retention in some areas, moderate and low in others, wildlife tree patches in some areas, single tree retention in others); management strategies do not include practices that attempt to mimic extreme events of low frequency (e.g., massive fires or hurricanes), as disturbance events of that magnitude will continue naturally and their frequency is likely beyond most planning horizons; where practices are outside the range of natural variability, there are mitigating factors that ensure the maintenance of ecological integrity in the broader context (see also FSC BC Guidance—A companion document to the FSC Regional Standards for BC – Guidance on Applying RENV to Forest Management).<sup>19</sup>*

The Ministry of Environment Habitat Branch Technical Bulletin *Environmental Risk Assessment: an approach for assessing and reporting environmental conditions* (2000)<sup>20</sup> provides a useful methodology for identifying and managing for risks to ecological resilience using RENV as a base case.

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339-367; C.. Wong and K. Iverson “Range of natural variability: applying the concept to forest management in central British Columbia” (2004) 4(1) BC Journal of Ecosystems and Management at 2. Available on line at [http://www.forrex.org/publications/jem/ISS21/vol4\\_no1\\_art3.pdf](http://www.forrex.org/publications/jem/ISS21/vol4_no1_art3.pdf)

<sup>17</sup> While accurately pointing out that the choice of time scale can influence whether an ecosystem is considered to have shifted to another stability regime, the Appendix could go further to identify what an appropriate base case is.

<sup>18</sup> Wong and Iverson, *supra* at 3.

<sup>19</sup> We would suggest a minor modification to this definition to better reflect the role of First Nations management as follows: “Compatible with the range of historic variability means resulting in ecosystems with characteristics similar to those resulting from First Nations traditional management systems and natural disturbance (e.g., those caused by fire or wind); sufficiently similar in function, frequency, intensity, spatial extent and degree of heterogeneity to result in similar ecosystem characteristics and landscape patterns to those resulting from First Nations traditional management systems and natural disturbances....”

<sup>20</sup> Available on-line at <http://www.env.gov.bc.ca/wld/documents/era.pdf>. MOE defines Environmental Risk Assessment as “a process for estimating the likelihood or probability of an adverse outcome or event due to pressures or changes in environmental conditions resulting from

## **First Nations historic management systems are an integral aspect of the ‘natural’ range of variability**

In determining the range of natural variability researchers rely on historic sources of evidence in forests (e.g., measurement of stand structure, tree-rings) to describe attributes and processes of the forest. These historical sources of evidence reflect both conditions influenced by First Nations peoples and those with abiotic or biotic origins. For example, in many ecosystems First Nations used fire in systematic ways as a management tool over millennia.

First Nations historical management systems prior to the influence of European settlers are an integral aspect of historic forest dynamics, i.e., the range of ‘natural’ variability. Definitions and terminology used by the FFE initiative should explicitly recognize this.

For this reason it may be advisable to use the term “range of historic variability” in the FFE Recommendations (see note 19 for suggested modifications to definitions).

### **3) Will the recommended projects help manage for ecological resilience?**

Yes, the projects identified will provide an important starting point for managing for ecological resilience. However, to actually achieve this goal, clear linkages must be established between research and monitoring results (i.e., arising from identified projects) and concrete changes to planning, practices and management. *This linkage needs to be provided by amendments to the laws and policies that make up BC’s forest management framework.*

The FFE Recommendations and Appendices do not set out a clear plan for how linkages to law and policy reform will be made. With the future of our forest ecosystems and forest-based communities at stake, we cannot afford to have the outcomes from such an important initiative gathering dust on the shelf. As noted above, it would be advisable to begin removing legal barriers to managing for ecological resilience as soon as possible. An incremental approach should keep us continually taking steps forward along the path to managing for ecological resilience. It is not realistic to expect that licensees will participate fully in this shift in the absence of an appropriate regulatory framework.

### **4) Which objectives/recommended projects will have the best results in terms of helping BC manage for ecological resilience?**

As noted above, to actually affect on-the-ground change, removing existing legal barriers to managing for ecological resilience needs to be a priority. Project 23 comes closest to this, but does not close the loop in terms of identifying how this assessment of biodiversity policy will result in changes to the forest management framework, which is essential from our perspective.

Objective 1, project 4 (ecosystems research) could provide critical information both as a benchmark for measuring environmental risk and as a tool to describe the outcomes associated with managing for ecological resilience. To be effective, however, approaches and projects associated with Objective 4(b) (adapting planning and systems) need to create a clear linkage between the information generated under Objective 1, including data about RONV, and ensuring that it actually used by licensees and decision-makers in strategic and operational planning.

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human activities.”

## 5) Do the recommended projects hold any implications for the interests of your organisations?

### Compatibility with Forest Stewardship Council Certification

Forest Stewardship Council (FSC) certification is the only forest certification system considered credible by environmental, social justice and indigenous peoples' organizations, and the only system supported by West Coast Environmental Law. FSC forest certification provides timber producers with an opportunity to distinguish their products from the rest of the marketplace, and allows them access to markets that would otherwise be unavailable.

Forest managers who wish to achieve FSC's stamp of approval in the marketplace can voluntarily request that a third party auditor assess a management unit against a set of globally applied principles and criteria and BC-specific indicators and verifiers (the FSC-BC Regional Certification Standards).

West Coast staff lawyer Jessica Clogg was one of the principle technical drafters of the FSC-BC standards and participated in over 7 years of negotiations to achieve full consensus on the standards among representatives of the forest industry, First Nations, forest workers and conservation groups. In November 2005, the FSC-BC Regional Certification Standards received final endorsement from FSC international, replacing Preliminary Standards that had been in place since 2003. These standards are the result of two extensive public consultation processes, expert reviews, technical writing, field testing and a consensus-based decision-making process.<sup>21</sup>

A central theme in the FSC-BC standards is managing for ecological resilience. For example:

- Indicator 6.1.7 requires managers to prepare a written description of the estimated range of natural variability include reference to ecosystem conditions and ecosystem functioning
- Indicator 6.3.7 requires that silvicultural treatments, including regeneration, maintain a diversity of tree species and stand types compatible with the range of natural variability at the landscape level
- Indicator 6.3.8 requires that structural components, including at a minimum canopy complexity, live wildlife trees snags and coarse woody debris are maintained or restored to quantities and distributions that are compatible with RONV
- Indicator 6.3.10 requires that "forest management maintains or restores a distribution of seral stages, patch sizes and interior habitat that are compatible with the range of natural variability"

Information generated pursuant to Objective 1, project 4 (ecosystems research) has the potential to greatly assist forest managers, particularly smaller operators in meeting Indicator 6.1.7. In turn, descriptions of RONV and monitoring by forest managers who pursue FSC certification may be able to augment MOFR research.

Overall, amendments to BC's forest management framework to prioritize managing for ecological resilience will reduce the incremental cost of meeting the FSC-BC standards and facilitate access of BC forest managers to the market benefits of FSC certification.

### First Nations "Ancestral Footprints" and RONV

West Coast works with First Nations partners to provide legal, technical and facilitation support in land use planning and forestry initiatives, including government-to-government negotiations.

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<sup>21</sup> See <http://www.fsc-bc.org/SiteCM/U/D/48B4F585905BF469.pdf> for the full standards.



Indigenous knowledge with respect to historic forest dynamics is an essential component to this work. For example, Elders have knowledge regarding the timing, locations and extent of traditional burning and resulting conditions. West Coast<sup>22</sup> has developed a number of tools to support First Nations in using such information in their own planning and decision-making processes. First Nations-led initiatives to use their own Indigenous knowledge to complement scientific sources of information in developing and using descriptions of the historic range of variability could be a valuable outcome from the FFE initiative.

Historic forest dynamics is the only known model for maintaining the species that are intimately connected to First Nations cultures. A provincial shift to managing for ecological resilience has the potential to create greater synergies between First Nations' desired management goals and those of the province, and to reduce conflict with respect to infringements of Aboriginal Title and Rights.

### **Legal and institutional mechanisms to manage for ecological resilience**

West Coast is one of Canada's oldest environmental law organisations and has for a number of years played a leadership role in researching, analysing and proposing models related to embedding the goal of managing for ecological resilience in the provincial legal and policy framework.<sup>23</sup>

We look forward to working with MoFR to bring this experience and expertise to bear in adapting BC's forest management framework.

### **6) Does the FFE Initiative put BC on the right track in responding to climate change, insect and pathogen attacks, wildfire events and other environmental and ecological changes?**

Yes.

### **8) Further information**

Yes. Please keep me informed of events under the FFE initiative including approved projects and implementation

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<sup>22</sup> In collaboration with the St'át'imc Land and Resource Authority. We would like to acknowledge the role of Carmen Wong, Russell Collier and Debra MacKillop in this initiative.

<sup>23</sup> See for example: J. Clogg, G. Hoberg and A. O'Carroll, *Policy and Institutional Analysis for Implementation of the Ecosystem-Based Management Framework* (Coast Information Team, 2004); *Forest Solutions for Sustainable Communities Act* (model private members bill drafted by West Coast Environmental Law on behalf of the BC Coalition for Sustainable Forest Solutions, 2003).