

February 2006

Future Forest Ecosystems of BC Symposium

Working Group Report: Natural Disturbance

Summary of Discussion

Our Natural Disturbance Working Group addressed the following questions:

- Is it wise to continue to operate under the paradigm of managing forests to emulate natural disturbance processes?
- What ecosystem processes should/can we realistically emulate?
- How robust is the current management paradigm in enabling the achievement of desired outcomes?
- How is the current management paradigm preventing us from effectively emulating disturbance processes?
- What changes to the current paradigm would be advantageous, or what alternative paradigm would assist us in emulating disturbance processes?
- Identify key information needs

Our discussion did not follow the questions above, as it was felt that there was a lot of overlap between and among them. However, in our free-wheeling and broad-ranging discussions, we certainly considered all of these questions at some point.

Our group is just dealing with the process of natural disturbance. Other ecosystem processes were not discussed in any detail.

Other ecosystem processes include:

- hydrological system (especially in light of mountain pine beetle)
- interactions among biological communities and among species
- successional processes
- pre-contact (First Nations) interactions with ecosystems
- nutrient cycles (including global carbon cycle)
- primary and secondary productivity
- evolution

Emulating some aspects of natural disturbance is a good coarse filter for many of the other processes, but we will still need to manage for other processes (fine filter elements), and we will still need to conduct programs of research and adaptive management to better understand these processes. (Keeping in mind that we actually emulate the patterns, not the processes, of natural disturbance.)

There seemed to be general agreement that using natural disturbance as a model is appropriate most of the time. However, as climate changes, so disturbances (type, extent, duration, intensity) will change. This may limit the utility of a natural disturbance model based on our current understanding of natural disturbance.

Emulating natural disturbance may not be the appropriate model everywhere. On the coast, we may want to manage to hydrological regimes.

Emulating natural disturbance is one tool we can use in managing for resilient ecosystems (there are likely other approaches as well). Managing for resilient ecosystems should be our goal. It is important to not confuse means and ends.

Our tool for managing to emulate natural disturbance is rate of disturbance: what we take from the site, what we leave on the site.

We need to focus on areas of the province where management activities depart significantly from the range of natural variation. This may be the social choice, but it should be clearly acknowledged as such. We may also want to adjust management activities accordingly. Ecosystem resilience and ecosystem integrity on some parts of the Northern Interior Region are probably OK under current management policies and practices; some parts of the Coast are probably not.

Key questions in the North are related to having sufficient latitude in species selection and stocking density.

Structural retention has to be a package, from landscape- to stand- to sub-stand level. It needs to be widely emphasized that retention is not just for wildlife.

Ecosystems grow trees: don't focus on 2X4's. The focus is on flexibility in both fibre and non-fibre production: healthy resilient ecosystems have various outputs.

The deadwood cycle is clearly an area where management will take us outside of the range of natural variation. This suggests a need for research activities to determine how far we can depart from the range of natural variation before we're in trouble.

Entrenched planning barriers constrain management flexibility.

Certification is an important component of compelling changes to current practice.

Current Paradigm

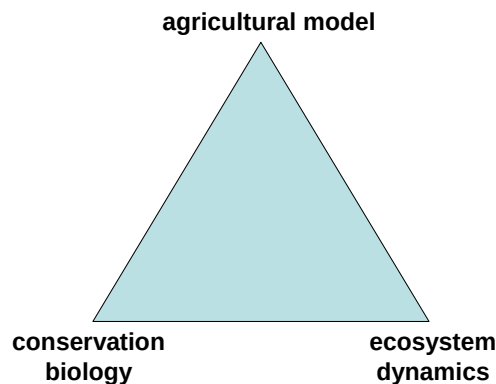
There seemed to be general agreement that using natural disturbance as a model is appropriate most of the time. However, as climate changes, so disturbances (type, extent, duration, intensity) will change. This may limit the utility of a natural disturbance model based on our current understanding of natural disturbance.

Our management paradigm right now:

- is using natural disturbance in a mainly spatial fashion: need to add temporal dimension
- isn't really using natural disturbance very well
- is largely about simplifying forests (e.g., through stocking standards, free growing standards).

The current management paradigm is to grow sawlogs on normalized forests on short rotations, including natural disturbance as possible within a 3% timber supply cap. We need to move to managing for variability, managing for the 'R' in range of natural variation. A measure of variability should be our measure of success (e.g., minimum number of tree species; minimum and maximum stocking levels with an average, but people must manage over the entire range).

There was considerable debate about where on the "triangle" we were operating (and where we ought to be operating):



Recommendations

Our group discussion produced a number of recommendations for change. There was a general consensus that our management goals should include managing for resilient ecosystems. Some specific recommendations from the group:

1. We need to better define ecological benefits (especially ecosystem services) for consideration in management decisions. We need to move to a new model of management or risk, recognizing that we are contributing to unhealthy forests.
2. We need to define levels of risk, and acceptable levels of risk. We also need to define who will accept these levels of risk (government, landowner?). As Bruce Larson noted, risk can be shifted, but not universally reduced – e.g., reducing environmental risk may increase economic risk.
3. Change must be defined in economic benefits if we expect companies to buy in. Companies react to two things: regulations, and financial incentives.
4. We need to tell the story of how we've run into problems when we've changed natural processes and patterns (e.g., *Dothistroma*, MPB). (This is not about admitting 'mistakes' so much as highlighting a collective growth in knowledge and the evolution of best practices, so that the next generation does not repeat the errors of short-term, simplistic and expedient decisions.) We also need to tell the story of problems we anticipate with climate change, and why we're proposing to change management. Media may be best here.
5. Planning at various scales should be iterative processes – shouldn't just be done once and then walked away from.
6. We must take advantage of opportunities (e.g., there may be opportunities following fire beyond simply timber salvage).
7. We need to use models more.
8. We need to provide incentives for people to practice adaptive management.
9. Increase protected areas size, and evaluate their sustainability on a natural disturbance basis.
10. Double wildlife tree patch requirements (but be careful of the effects of increased roads – paper by DeLong et al. 2004 (CJFR 34: 323-331). Wildlife tree patches are not only about wildlife.
11. We need a co-ordinated vision of flexible, long-term forest research and adaptive management.
12. Correct counter-productive forest management policies: reform of standards and appraisal formulae associated with coarse woody debris, partial cutting, stocking and free-growing are needed.
13. Reduce AACs where not compatible with regional disturbance regimes.

14. Free up more land from management by large corporations; encourage diversity in management approaches and emphasis.
15. Develop an active provincial wildlife research program.
16. Allow greater licensee flexibility. FRPA empowers this, but provides no incentive for, e.g., adaptive management trials.
17. The current division of landscapes into Biodiversity Emphasis Options (typically 10% high, 45% moderate, 45% low), but climate change will increase stress. We need to change these to 45% high, 45% moderate, 10% low
18. We should be actively managing ecosystems both on and off of the timber harvesting landbase.

Summary

We need to change management objectives from a primary focus on timber, to managing for resilient ecosystems.

BC has a global responsibility. Having 94% Crown Land gives us an opportunity to look at large-scale processes that most places in the world don't have.

We need a vision, and a champion for that vision. The champion should be the provincial government.

*Our policies wander and shift
And now we demand a facelift
As forestry shrinks
It'll drive us to drink
So let's cheer the paradigm shift!*

Russell