



A Highway 40 North Demonstration Project Update *Putting Natural Disturbance Research to Work*

Issue #8 February 2005

By: David W. Andison

Monitoring Comes Naturally

Over the last several years, a large number of federal, provincial and local level programs have been initiated for monitoring the ecological, economic, and social impacts of management activities on forested landscapes. Much of this effort has gone into designing effective and meaningful indicators based on a widely accepted set of criteria. By design, most such monitoring programs function as “stand alone” systems, independent of planning and management activities.

Adopting a natural pattern planning foundation suggests another possibility exists.

One of the advantages of using a natural pattern foundation for operational planning as we have for the Hwy40 project is that it creates a logical, testable, flow of questions that could form the very backbone of a dynamic and integrated monitoring system. For example, consider the following sequence of questions along with the ‘monitoring system’ interpretations:

- A: What is the natural pattern in question?
(Monitoring Term = *Coarse filter indicator*)
- B: What is the natural range of variation (NRV) of that pattern?
(Monitoring Term = *Historical pattern of a coarse filter indicator*)
- C: What is the desired future forest condition of that pattern?
(Monitoring Term = *Coarse filter indicator target*)
- D: What are the species / functions most likely affected by that particular natural pattern?
(Monitoring Term = *Fire filter indicator*)
- E: What is the most likely response(s) of those species / functions?
(Monitoring Term = *Fine filter indicator target*)

This simple model has tremendous significance for monitoring. Consider that this logical questioning not only helps to identify meaningful indicators, but also distinguishes different types of indicators. Coarse filter indicators describe the disturbance patterns, and are thus useful for *compliance monitoring*. Fine filter indicators measure the impacts of the disturbance activities, and are thus useful for *effectiveness monitoring*.

Recognizing these two types of indicators allows us to make predictions about the likely impacts of management activities on key ecological, economic, or social concerns. In the case of the Hwy40 project, preliminary predictive models already exist for several key species, including caribou and grizzly bear. This is an ideal opportunity to test / validate these models and strengthen them through directed learning. For many other species, predictive models are not possible because we lack sufficient knowledge. In such instances, this same line of questioning identifies knowledge gaps and generates strong hypotheses to guide local research activities. Either way, we gain new understanding by intimately linking management with research.

In the end, even this simple, generic model reveals the potential power of using natural patterns as guides not just for planning, but for monitoring as well. But at this point it is all theory. The Hwy40 project will test the theory by integrating indicators and model predictions into the disturbance plan, and seek new partnerships to pursue the necessary measurements and research. Since this also potentially affects the development and application of local-level monitoring programs, the FMF Local Level Indicators (LLI) program is already actively involved.

For more information on the Hwy40 North Demonstration project, please contact: Dr. David Andison, Bandalooop Landscape Ecosystem Services, Tel.: (604) 939 – 0830, Email: andison@bandalooop.ca, or visit www.fmf.ab.ca