

BorNet Canada

WORKSHOP PROCEEDINGS

BorNet Canadian Regional Workshop

October 13 and 14, 2001

Sault Ste. Marie, Ontario

A working meeting hosted by the
Sustainable Forest Management Network

Prepared by Carolyn Whittaker and John Innes
University of British Columbia



Workshop proceedings

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BorNet Canada is part of BorNet, an international network of researchers, forest managers and government representatives developing a synthesis of available information on the conservation of biological diversity and identifying gaps in our understanding in order to further develop coordinated research efforts among boreal countries worldwide.

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The Sustainable Forest Management Network is a national partnership in research and training excellence. Its mission is to deliver an internationally recognized, interdisciplinary program that undertakes relevant university-based research. It will develop networks of researchers, industry, government and First Nations partners, and offer innovative approaches to knowledge transfer. The Network will train scientists and advanced practitioners to meet the challenges of modern natural resource management.

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Foreword

AS LARGE-SCALE FORESTRY AND URBAN GROWTH CONTINUES ITS PACE NORTHWARD, CANADA'S boreal forests are increasingly coming under pressure. However, the biodiversity consequences of expansion and extensive forest management are complex and poorly understood. At present, there is little collaboration between the large number of government agencies, universities and non-governmental organizations conducting research on biodiversity in Canada's boreal areas. Nor is there broad collaboration among the host of researchers, resource managers and governments involved in biodiversity management. Furthermore, as 90 per cent of communities in the boreal are aboriginal, there is a large, unmet need to understand distinct cultural relationships to the land and resources in boreal forests across Canada.

As a result of this lack of collaboration and consultation, there is no clear direction or consensus regarding current research and monitoring priorities.

The BorNet regional workshop series were organized to:

- increase the exchange of information and ideas among those researching boreal biodiversity
- seek contributions to the development of a national synthesis, and
- provide direction on future research and monitoring.

To guide discussion, the workshops used as a background reference *Biodiversity Evaluation Tools for European Forests* (Tor-Björn Larsson (ed.) Swedish Environmental Protection Agency. Ecological Bulletin 50: 2001).

A template of three questions, derived during a meeting between Canada and other BorNet countries, was modified by the working groups to suit key regional issues:

- How much forest needs to be devoted to biodiversity maintenance?
- How can management effectively restore/recreate/maintain important features required to conserve biodiversity?
- How can we determine the effectiveness of these biodiversity conservation efforts?

The first question addresses the task of developing targets and benchmarks for biodiversity conservation at the landscape scale. The second question is related to implementation and management tools used to achieve the objectives articulated in Question 1. Finally, the third question explores the effectiveness of management tools and systems, outlined in Question 2, in terms of meeting targets identified in Question 1.

These proceedings were created for the use of workshop participants and others affiliated with BorNet and the Sustainable Forest Management Network. Key issues will be further addressed through an on-line conference in the spring of 2002. Results from the workshops and on-line conference will be integrated into a synthesis document identifying key strengths and gaps in our knowledge. The synthesis will be presented to other boreal countries at the BorNet international conference in Stockholm on May 27-28, 2002 and disseminated as broadly as possible. Documents are posted to the BorNet website (www.bornet.org) as they are made available.

Agenda

October 13, 2001	Presentations and discussion
8:00	Breakfast
8:30	Introduction to BorNet <i>John Innes, University of British Columbia</i>
9:30	Wildlife habitat and climate change <i>Graham Forbes and Anthony Diamond, University of New Brunswick</i>
10:30	Break
11:00	Evidence for thresholds in forest bird response to local and landscape-scale silvicultural treatments in the Acadian forest <i>Marc-André Villard, Université de Moncton</i>
12:00	Lunch
1:00	Increasing the accessibility of NTFP resources by integrating forest planning activities with wild crafter needs – a case study in the Algoma District of Ontario <i>Luc C. Duchesne, Canadian Forest Service; Shanon Meawasige-Gow, Mitigaawaaki Forestry Marketing Co-operative Inc.; Joanne Marck, Ontario Ministry of Natural Resources; Peter Uhlig, Ontario Ministry of Natural Resources; and Stacey Koumentaros, Natural Resources Renaissance Network, Sault Ste. Marie Innovation Centre</i>
2:00	Multiscale relationships between landscape pattern and biodiversity <i>Rob Rempel, Centre for Northern Forest Ecosystem Research and Lakehead University</i>
3:00	Break
3:30	Panel discussion: Synthesizing research and management efforts undertaken in eastern Canada <i>Facilitated by John Innes</i>
October 14, 2001	Break-out discussions
8:00	Breakfast
8:30	Begin break-out groups around key themes elaborated above
10:30	Break
11:00	Discussions continued
12:00	Lunch
1:00	Discussions continued
3:00	Break
3:30	Final discussion <i>Facilitated by John Innes</i>

Welcome and objectives

John Innes, University of British Columbia

Introduction to BorNet

- BorNet is an international network on biodiversity research in the boreal forest with participants from Canada, Finland, Norway, Russia, Scotland, Sweden and the United States.
- BorNet researchers, forest managers and government representatives are developing a synthesis of available information on the conservation of biological diversity and identifying gaps in our understanding to further develop coordinated research efforts in the circumpolar boreal.

BorNet objectives

- Objective 1 – National Synthesis: Develop a national synthesis linking management tools with biodiversity requirements within the context of current assessment systems at a range of spatial scales in Canada.
- Objective 2 – International Conference: Compare national reports from Canada, Norway, Sweden, Finland, Russia, the U.K. and the U.S.; develop extension tools; develop an international research program addressing gaps identified in the international comparison.

May conference outputs

- Production of a proceedings volume in a refereed publication.
- Planning of extension activities associated with this publication.
- Development of new international research partnerships and submission of proposal(s) to relevant national and international funding agencies (EU, NSERC, SFMN).

Where are we now

- Phase 1: National synthesis
 - Regional workshops have also taken place in Edmonton, Alberta (November 17 and 18) and Prince George, B.C. (November 23 and 24).
 - National synthesis draft will be prepared by early spring.
- Phase 2: International program
 - International conference: May 27-28, 2002.
- Phase 3: International implementation
 - Extension following conference will consist of industry feedback, project dissemination, and new research opportunities.

Workshop format

- The workshop will be semi-structured, addressing three key questions.
- Initial speakers are asked to put forward ideas that can be picked up in the discussions.

Workshop questions

- How much forest needs to be devoted to biodiversity maintenance?
- How can management restore/recreate/maintain important features required to conserve biodiversity?
- How can we determine the effectiveness of these biodiversity conservation efforts?

Key workshop objectives

- The strengths and limitations of knowledge should be identified and classified.
- Ranking.
- Other objectives may be specified by participants.

Desirable deliverables

- Identification of the key issues and priorities for the boreal (validated in follow-up work from December 2001 to May 2002).
- Recommendations for prioritizing research and funding resources (for SFMN, NSERC, ARC).
- Improved networking amongst boreal biodiversity researchers and managers (including boreal research database via NRIN and GFIS).
- Recommendations for developing practical tools for operational managers.

Questions and comments

- A long list of indicators will not be very useful. We should instead focus on research that tests currently proposed indicators.
- There is some discussion over the amount of old growth that is left. This question will be determined by the scale used.
- The issue of biodiversity credits should be discussed.

Social science comments

- This group is limited because it is made up of natural scientists, and does not include social scientists.
- Those in the SFM Network have seen more social scientists brought into the discussion.
- Are some of the research gaps in the social sciences? Can social scientists actually make an impact?
- Social science includes tourism and economics.

Regional issues

- Recreating forest: In the Maritimes this is relevant as the extent of change has gone beyond the first pass. There has been some thought as to what is lacking in the Maritimes regarding priorities for restoration.
- Restoration is discussed more in the east than in the west of Canada. There is a lot of discussion about this in Europe. In Scotland, the focus is not on maintaining forest, rather efforts are going into recreating the forest through re-structuring.
- There is a south-north gradient of impact in Quebec and Ontario.
- With regard to natural disturbance, the eastern climate is more affected by insects and the central boreal is more fire driven. However, both systems are complex and include both fire and insect disturbances.
- As fire protection gets better and better, insects have taken on a more dominant role because older forests than might normally occur are present.
- One issue that is a bit contentious is that of areas that have not been significantly harvested nor had large disturbances since glaciation. What is their role as potential reference areas?

The impact of climate change on wildlife in the boreal forest

Graham Forbes and Anthony Diamond, University of New Brunswick

ABSTRACT: We present an overview of the expected change in summer and winter climate for Canada east of the Rocky Mountains and the potential for different distributions and abundances of certain wildlife species based on timing of breeding and hatching (i.e. waterfowl, passerines), dispersal abilities, displacement by congeneric competitors (i.e. bobcat-lynx, gray jay-blue jay) and community structure. The boreal forest region will experience dramatic change, particularly in central Canada. Species that are habitat generalists, vagile, and whose productivity is limited by spring conditions should adapt well. Forestry and protected area planning may need to begin long-term planning that facilitates the movement of individual species.

Questions and comments

Overall

- Climate change will make ecosystems function differently. There will be a variety of changes, about which there is a great deal of uncertainty.

Catastrophic changes

- As extreme weather events are selective forces, we may be dealing with catastrophic changes in the boreal forest (e.g. the ice storm in Quebec, changes in fire frequencies). The ecology of boreal forests is driven by these catastrophic events.

Survival

- In terms of populations and distributions of plants and animals, impacts will be masked in the boreal forest because of the buffer zone. Because of the dynamic aspects of the boreal, animals can move fairly well through time and space to survive. The saving grace for many species is that most animals should be able to move.

Future research

- How is this relevant to forest management? If this is a moving target, how does it change? How fast can organisms adapt according to their genetic capabilities? How do we assess whether forest management has been successful in these changing systems?

Affecting policy

- We cannot afford to be myopic within this network: we have the opportunity to deal with climate change issues. That said, our ability to predict the impact of climate change is limited as we do not know what climate change is going to do directly.
- Research has always been far ahead of actual implementation and policy – and this is more and more the case – so how can we actually make the link between those large-scale issues and policy? Just applying the *Migratory Convention Bird Act* is difficult.

Scale

- The land use issue is within provincial jurisdiction. There is the holarctic and there is the boreal forest. Where are we going to focus? We have to consider all three scales (provincial, national and circumpolar boreal).

Corridors

- Do we know enough about whether corridors are really important? Do wildlife use the corridors? Do we start putting in corridors now and then check all the evidence or wait until we understand the context better? The rate of change is very fast and, as the landscape changes, the corridors will have to move through time and space.

Evidence for thresholds in bird response to silvicultural treatments in the Acadian forest, Canada

Marc-André Villard, Canada Research Chair in Landscape Conservation,
Département de biologie, Université de Moncton

ABSTRACT: In its broader sense, silviculture encompasses treatments ranging from thinning and selection harvesting to clearcutting followed by plantation and herbicides. The Acadian forest experiences the full range of silvicultural treatments. This forest region, located in the Maritime provinces of eastern Canada, is co-dominated by spruce-fir (*Picea* spp.-*Abies balsamea*) and beech-maple (*Acer saccharum*-*Fagus grandifolia*) stands, with an increasing proportion of spruce plantations.

It is increasingly clear that moderate silvicultural intensity does not compromise the persistence of many forest species. The key question is to determine the ranges in intensity where species' presence, abundance or fitness parameters start showing a response.

The research program my students and I are pursuing was undertaken in 2000 to determine (1) to what extent various forest bird species can tolerate the increasing intensity of silviculture in the region, and (2) whether they exhibit thresholds in their response to silvicultural intensity. We estimated silvicultural intensity both at the scale of forest stands (field sampling of vegetation structure and composition) and at the landscape scale (analysis of georeferenced forest inventories). Landscape analyses were conducted using a GIS database classified according to the perceived requirements of the target bird species. The parameters of bird response we used are (1) an index of reproductive activity of forest songbirds and (2) the presence of the Pileated Woodpecker (*Dryocopus pileatus*), a crow-sized woodpecker that requires large-diameter trees for nesting, roosting and foraging.

We used a principal components analysis to classify stations according to stand characteristics. The first axis separates stations located in or near conifer plantations from those located in other stand types, whereas the second axis represents a gradient in harvesting intensity. We will relate the presence or absence of songbird reproductive activity at over 300 stations (e.g. pairs seen, adults carrying food, family groups seen) to these multivariate axes and to selected variables quantified at each spatial scale. A survey of Pileated Woodpecker at 70 stations will also allow us to examine the effects of conifer plantation and harvesting intensity on its regional distribution. The presence of this species was determined from its responses to playbacks of calls and drummings and the detection of freshly-used foraging substrates.

If clear threshold ranges emerge in harvesting intensity or conifer plantation beyond which some species are negatively affected, we will propose approaches to incorporate these results into harvest planning. Our field techniques could also be adapted to be used in the ongoing monitoring of permanent sampling plots by our industrial partner, J.D. Irving Ltd.

Questions and comments

- Should we be looking for the most sensitive species?
- There should be lots of different kinds of thresholds. There are going to be some difficult decisions to be made. However, if we want to maintain species x when it goes below 60 per cent, we will need undisturbed forests.

Socioeconomic development in First Nations communities using logging waste as non-timber forest products

Luc C. Duchesne, Canadian Forest Service; P. Uhlig, Ontario Forest Research Institute, Ontario Ministry of Natural Resources; S. Gow-Meawasige, Mitigaawaaki Forestry Marketing Co-operative Inc.; Joanne Marck, Ontario Ministry of Natural Resources; Stacey Koumantaros, Natural Resources Renaissance Network, Sault Ste. Marie Innovation Centre

ABSTRACT: Many northerners, particularly aboriginal people, possess primary responsibility for the health, integrity and management of their mostly forest landscape, a traditional task central to First Nations culture. Furthermore, First Nations communities maintain the right to benefit from resources derived from their ancestral lands, which they have tended for multiple generations. More and more, aboriginal people are prepared to invest time, labour, knowledge and capital into the sustainable development of forest resources. They require a central role in decision-making processes used to control and manage these resources now and in the future.

Traditional knowledge is one of many systems of knowledge that can be drawn upon when planning and managing forest resources. A variety of knowledge systems must be integrated if northern communities in Canada are to adapt and thrive as healthy and sustainable rural communities. The underlying values of Anishinabek culture, as communicated through sacred teachings and everyday living, reinforce a commitment to serve the land and people; these values should be integrated into industrial forestry applications.

This presentation emphasizes attempts to create opportunities within First Nations communities for non-timber forest product (NTFP – commodities derived from the forest that are not timber or paper products) in Ontario's Algoma District, which spans the area from White River in the west to Spanish in the east, and from the shores of Lakes Huron and Superior, to the District of Cochrane in the north. Generally, non-timber resources for which aboriginal people have a long history of utilization – as food sources or everyday technology, such as maple sap or birch bark – are those of immediate interest for commercialization. For these products, the ability to return a fair wage to gatherers and processors is better known; therefore, the ability to mobilize a workforce is enhanced.

Once this work is completed, appropriate strategies to develop each sector of NTFP can be considered. For example, one strategy to avoid depleting wild populations of a specific plant may be to undertake “enhancement planting” or “inter-cropping” of existing forest lands.

See www.bornet.org for hotlink to copies of this presentation and related papers.

Questions and comments

- Conservation of non-timber forest products (NTFPs) is important to future economic diversification. We need to introduce legislation to conserve NTFPs.
- We recommend research on how to promote NTFP growth and sustainability.

Future research

- How does our approach to biodiversity and holistic forest management operate in the context of other uses, such as agriculture?
- Most of the zonation approaches, whether urban or natural, fail because they are not asking the right questions. We need to move beyond the static view of these zones and consider more flexible and dynamic approaches where management for NTFPs is not always fixed in space.

Multiscale relationships between landscape pattern and biodiversity

Rob Rempel, Centre for Northern Forest Ecosystem Research
and Lakehead University

ABSTRACT: Moose Habitat Guidelines are an example of the focal species approach in Ontario. They emphasize the creation of browse habitat by specifying a cutting pattern that promotes the interspersion of young and old age classes. Moose tend not to browse more than 100-200 metres from shelter, so in a small clearcut almost all of it becomes available to browse as a functional characteristic with respect to moose habitat. On the other hand, in a large clearcut, only a very small proportion of that area is available to browse because of the distance from shelter. Satellite imagery clearly illustrates that logging under the Moose Habitat Guidelines has dramatically altered the pattern of the landscape and can potentially have significant impacts on wildlife habitat.

The checkerboard pattern created by the Moose Habitat Guidelines is completely unnatural, and the consequences of this pattern are unknown. An alternative approach is to harvest in a manner that would promote natural landscape patterns. Current harvesting rules focus on a single unit – the clearcut – and this entity cannot exceed 260 hectares. As a consequence, 260 clearcuts can spread across the landscape, essentially consuming any large tracts of unlogged forest. The practices have homogenized the landscape and the pattern is simplified to a small range of opening sizes in a patchwork distribution. The patch size has little variability, and the shapes of the patches are simplified. To emulate natural disturbance, a hierarchical, multi-scale set of rules must be developed where rules for disturbance (and variable retention) occur at the landscape, stand, and within-stand scales.

The one-size fits all practices have only been in place since the mid-1980s, so it hasn't taken long to create the present checkerboard pattern of clearcuts. One of the first steps towards a multiple-scale approach is to consider forestry as a disturbance event. Natural burns are comprised of skips and areas of intensive burns, but the overall extent of the event can be bounded. Instead of prescribing clearcut sizes, foresters should prescribe "event sizes," which could be comprised of a combination of small and large clearcuts. The events themselves would be prescribed at the landscape level to ensure conservation of large tracts of "interior forest."

Questions and comments

- This is a landscape approach; perhaps we should emphasize as a group that there is no guarantee that our patches are going to regenerate as we want them to. How do we, as scientists, deal with this?
- It is possible to destroy all the species at a stand level. Most management of natural resources occurs at the stand level. The landscape approach is crucial to balancing practices.
- Wildlife and forestry tend to be managed by different departments; this is part of the problem.
- What is the average patch size? We could have a completely different landscape and come up with the same mean patch size. When we start getting into landscape design, what is it that we want on the landscape?
- Moose density changes dramatically across scales. There may be emerging properties that are happening at different spatial scales. We need to make measurements of response variables across scales. We need to characterize that landscape across the scales. We need to look at different trophic groups and different animals across vast areas.

Summary of group discussion

Question 1: How much forest needs to be devoted to biodiversity maintenance?

- We need to consider the contribution of 100 per cent of the landbase to the biodiversity maintenance of the forest of eastern Canada, but there are different levels of biodiversity priority within the landscape. The key part of this question is how to divide up the landbase among levels of use and protection. Given the existing average size and total amount of area in parks and protected areas (generally <10 per cent of forest area), parks and protected areas, by themselves, cannot be expected to maintain biodiversity.
- We need to list the components of biodiversity maintenance (percentages regionally); we need to figure out what parts and what pieces of land contribute to that cut-off point on the continuum.
- We need to use a natural disturbance regime template to develop targets.
- At what scale do we identify areas for protection? We must be cautious of landscape approaches as we can have good representation at the landscape scale but poor management at the stand level (composition). We need to keep in mind that it is not purely a landscape process – there is also a danger of failing to see the trees for the forest. For example, we can have perfect configuration at the landscape level, but continue doing all the wrong things at the stand level.
- There will be losses of biodiversity at the stand level.
- What are the percentage thresholds for companies to use? We should work together with forest companies so they are part of the solution.
- We do not know enough to give a specific figure (e.g. 12 per cent protected forest).
- Ecosystem management augments the reserves approach.
- The greatest concerns are the reduction in the average age of the forest and the shrinking areas of contiguous “pristine” forest (Northern Quebec, Northern Ontario, Newfoundland, New Brunswick, Labrador).
- The greatest concerns in (Southern Ontario and Southern Quebec) New Brunswick and Nova Scotia are the greatly diminished ranges of some species and age classes.
- Should reserves be permanent or rotating?
- This first question is more relevant to Southern Ontario and to Europe than to Canada, as we have a continuous band of forest across the boreal.

TOP FOUR RESEARCH PRIORITIES

There was consensus at the BorNet regional conference in Sault Ste. Marie that the current top four research priorities are:

- Silvicultural treatments
- How much to protect
- What scale, and
- Baselines (old growth, natural disturbances, etc.).

Question 2: How can management effectively restore/recreate/maintain features required to conserve biodiversity?

- It is important to understand what happens to biodiversity under different management scenarios (the BorNet gradient). Biodiversity maintenance will cause companies to shift supply.
- Another management option is a zoning approach (or TRIAD): Ontario, Newfoundland and New Brunswick are discussing this approach.
- We should make a clear representation as to what part of the forest will deal with social values. How much is needed for biodiversity maintenance? In Ontario and New Brunswick, every piece of wood is allocated – there is no room left for any other initiative.
- We need to use best management practices and multiple biodiversity objectives.
- BorNet Phase III: Implementation aims to extend information developed through BorNet to resource managers in Canada. Resource managers do not have the time or the inclination to read a book – they want a three- to four-page summary document. Forest companies also need a contact who has integrated the information and can deliver the technical information to their practitioners.
- It would be useful to get together a list of agencies and people who are active in the area of biodiversity research and practice to put in the general BorNet document. There is a component of communication and education delivered to partners and industry. This is part of the mandate of BorNet.

Key features of biodiversity

- Connectivity – ability for movement in space and time.
- Core habitats.
- Structural heterogeneity (horizontal, vertical); coarse woody debris (maintaining the heterogeneity within the stand and among stands).
- Composition – community diversity, mature and late seral stage forest.
- Special topographical/climatic features.
- Representation of all ecosystem types.
- Aboriginal culture was also suggested as a key feature, but there was no agreement on how to use it.

Question 3: How can we determine the effectiveness of these biodiversity conservation efforts?

- We must use a multi-tiered, systematic approach. We need to use a single map based on ecological units that could be comparable to Europe.
- We should look at community response, but there is little agreement on how to quantify it. An example is featured vegetation communities: the indicator is actually the area of each community and the objective is to maintain it within its natural range. We are allowed some variation over the forest cycle, but the variation must be within the accepted range based on the natural range of variation. This approach includes coarse-filter objectives and fine-filter objectives.

- We need to incorporate the natural protected areas that are going to serve as benchmarks.
- We need some measure that says that we expect communities to rebound in a certain number of years.
- We should encompass measures of functions or services that ecosystems provide.
- We should set acceptable ranges for companies, not minimums. Then we should measure implementation across the range – birds and insects.
- We need to monitor at the species and community level to ensure that we are not losing species.
- Population size and abundance of feature species (those for which we have enough information) need to be assessed.
- We should measure and maintain structural features.
- We need planning indicators and monitoring indicators for effectiveness.
- We should monitor changes in age class structure and other changes due to harvesting on habitat.
- Who should be paying for the data collection? Who should be leading the effort of collecting specific level measures?

OTHER RESEARCH QUESTIONS

In addition to the consensus reached on the top four research priorities (see page 14), individual participants at the BorNet regional conference in Sault Ste. Marie also identified the following research questions.

- How do we translate community objectives into quantifiable, measurable targets?
How long do we allow ecological communities to respond? What is the resilience in the community that we expect?
- Is there a strong enough correlation between singing and actual reproductive success, such that birds are good indicators?
- How well are management plans integrated with protected areas? Are biodiversity values included in the management plans for companies, for protected areas, and for national parks?
- How can we create old growth structure? What are the associated risks?
- How can we explore the potential for developing cooperatives among companies for better integration at the coarse scale?
- What scale should we be dealing with: ecoregion or ecodistrict?
- What is the role of invasive species in the loss of biodiversity.
- There is a lack of natural disturbance models (especially spatially explicit models).
- What are the silvicultural treatments that encompass biodiversity goals, e.g. pre-commercial thinning?
- How well can the old-growth condition be emulated by structural manipulations?
- We need a better understanding of restoration and recreation priorities.
- What are the cumulative impacts of management of biodiversity.
- What are templates for the application of multiple objectives to landscape planning?
- What are the biodiversity contributions of riparian zone management?
- We need examples of the incorporation of climate change scenarios into biodiversity management.
- Our research needs to incorporate an understanding of society's approach to tenure, employment product consumption, and involvement of First Nations.
- We need baseline data and studies (old growth, disturbance) in eastern Canada.

Provincial comments and context

Newfoundland

A key concern in Newfoundland is that the mean age of the forest is diminishing. Very shortly our wood supply for Newfoundland will be reduced by 10 per cent. A minimum 15 per cent and in some cases 20 per cent of old growth will be maintained. There will also be floating reserves.

The impacts of disturbances within stands will be determined by silviculture; between-stand impacts will be assessed through GIS planning tools. Silviculture in Newfoundland is very poorly applied; it is applied as a tree-growing tool and not at all as a tool for biodiversity management. Further study would help identify ways in which silviculture could be used to meet biodiversity objectives.

New Brunswick

The big issue in this province is what protection means. In New Brunswick, when the parks issue arose last year, industry said 21 per cent was protected. These protected areas fall into seven or eight classes of parks, but only Class 1 to Class 3 are really protected. The ISCU classification needs to be improved.

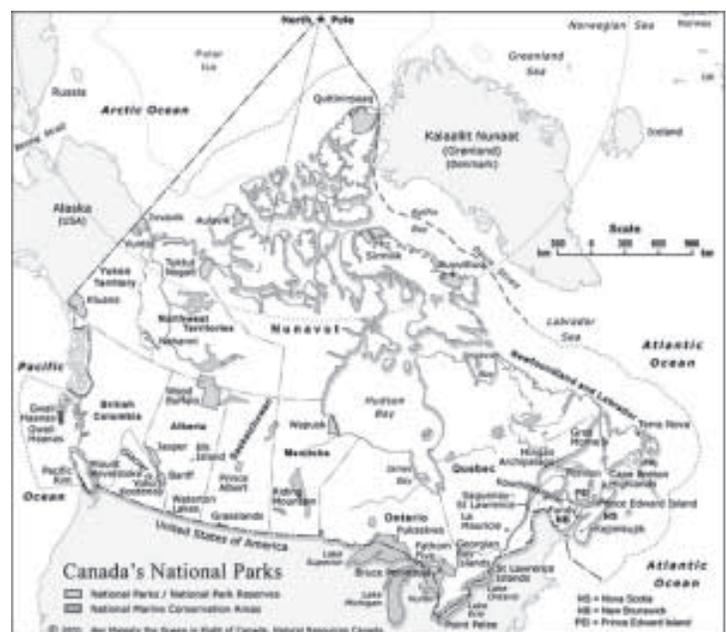
New Brunswick has floating reserves and protected reserves. These have been identified for the next 200 years. In New Brunswick, there is not a set percentage for parks, rather we have a gap analysis. Best management practices are used to work towards multiple objectives of biodiversity.

In New Brunswick, essentially there are no fires. So what are the templates for natural disturbance?

Nova Scotia

Nova Scotia went through the identification of protected areas but there is no structured research approach. There is currently no biodiversity monitoring taking place.

The BorNet regional conference held in Sault Ste. Marie included participants from Ontario, Quebec and three of Canada's Atlantic coast provinces.



Ontario

The landscape issue is driving current policy in Ontario. Companies are interested in what it means to maintain habitat and biodiversity at the landscape scale. Ontario uses sub-regional planning processes in five sub-regions. This forces managers to come up with plans one level higher than forest management plans. We have not yet set many sub-regional objectives. This does provide a framework for forest management at a landscape scale. Ontario Lands for Life does not address climate change.

Right now, Ontario is in a transition phase. In the past 60 to 80 years we have had heavy logging; 100 years from now it will be completely different. We need to confirm that what we are doing right now will result in the landscape we want in the future.

Quebec

In Quebec there is some confusion about biodiversity and resource management in both companies and the government. There is a need to clarify what we mean by biodiversity conservation, as some are thinking of integrated management when discussing biodiversity management.

In Quebec there are problems of language. The ideas that come from the rest of Canada or the U.S. do not transfer directly. The Association of Timber collaborated with WWF and proposed the strategy for the conservation areas in Quebec, namely that industry has to set aside 8 per cent for biodiversity objectives.

The major issues are that we are reducing the average age of the forest and that we practise extensive management, losing the larger expanse of forest. These two are the main threats for biodiversity. Can we propose a strategy to manage the forests for timber production while maintaining the large expanses of forests and while keeping the over mature to old growth forest habitat? There is a committee within the Quebec Ministry of Natural Resources that is examining logging dispersal in the Quebec boreal. If current forestry is homogenizing the forest, this is not good for biodiversity and will exacerbate climate change impacts.

Quebec takes a species-by-species approach. We need proof that the habitat of an animal is being destroyed by forestry before we can make recommendations.

Quebec does not use the natural disturbance template. In Quebec we aim to develop an eco-disturbance region approach where the quantity of over-mature to old growth would be defined. So in each region there would be a definition of what the natural disturbance regime is. Instead of using martens as an indicator of old growth, we will use disturbance. This does not necessarily mean that we have to emulate disturbance. It is unclear whether this approach would be supported by the province.

What we know in terms of fire regime is that there are large expanses of forests that burn once in a while. However, if we look at the forests, there are parts that have not burned for 200 years, but there are probably some islands that have escaped fires for 10,000 years. The old forests are not just islands. There are large areas of old forests that have escaped fire for hundreds of years, but there are also probably islands and those might be unique. They might have biodiversity values that should be related to unique topographic features.

Maybe it is not such a bad thing that we do not all take the same approach to set area targets.

Recommendations to BorNet

- BorNet should become the vehicle for cooperation and knowledge transfer among boreal ecologists, managers and others.
- BorNet should play a role in developing a framework (monitoring protocols) and establishing some general practices for biodiversity management.
- The BorNet primary function should be as an internal force, locating collaborators, finding internal information, finding networks.
- The second function should be technology transfer to industry, delivering state of the art science on biodiversity maintenance.
- Canada had a massive list of what everyone was doing. It was lots of work, but of little use. It would be useful to identify gaps.
- We should be clear and identify research activities that deal with management or maintenance.



Participants

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BorNet Canadian Regional Workshop

October 13 and 14, 2001 • Sault Ste. Marie, Ontario

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BORNET PROJECT OVERVIEW

PHASE 1

NATIONAL SYNTHESIS

Canada: Three BorNet regional workshops

Finland: FIBRE program

Sweden: MISTRA program

Funding – Canada: SFMN;
Sweden: MISTRA, Finland: FIBRE

PHASE 2

INTERNATIONAL PROGRAM

International conference May 2002

- Networking
- Development
- Knowledge gap analysis

Funding – Canada: NSERC IOF and SFMN;
Sweden: MISTRA; Finland: BITUMI

PHASE 3

INTERNATIONAL IMPLEMENTATION

Industry feedback

Project dissemination

New research opportunities

Funding to be sought –
Canada: SFMN, private sector