The Boreal IN THE BALANCE:

SECURING THE FUTURE OF CANADA'S BOREAL REGION

A Status Report

The Canadian Boreal Initiative (CBI)

The Canadian Boreal Initiative was created in response to both the opportunities and threats facing Canada's Boreal region.

Based in Ottawa, the CBI brings together a wide range of conservation organizations, First Nations, industry leaders and others to create new solutions for Boreal conservation and sustainable development. It supports scientific research to advance thinking on conservation-based planning for the Boreal region, and acts as a catalyst by supporting a variety of on-the-ground efforts across the Boreal by conservation groups, First Nations and others.

In 2003 the CBI convened the Boreal Leadership Council, an extraordinary group of conservation organizations, First Nations and resource companies. In concert with the members of the council, the CBI created and launched the Boreal Forest Conservation Framework – a vision for the protection and sustainable development of Canada's entire Boreal ecosystem.

Cover photo: Mackenzie River Valley by Fritz Mueller

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CANADIAN BOREAL INITIATIVE

The Boreal in the Balance:

Securing the future of Canada's Boreal Region

CANADIAN BOREAL INITIATIVE

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THE BOREAL IN THE BALANCE: SECURING THE FUTURE OF CANADA'S BOREAL REGION

Photo: Fritz Mueller

The Boreal. Synonymous with the north. Evocative of vast expanses of wild lands and waters. At the heart of our Canadian identity.

Canada's Boreal region represents an unprecedented global conservation opportunity.

Canada's Boreal region is a place of immense beauty and power. It is home to abundant populations of wildlife – including billions of migrating songbirds, some of the largest caribou herds in the world, and the predators who depend on them. Its forests, lakes and wetlands purify our water, produce oxygen, and moderate our climate – vital ecosystem services upon which we depend for life. Home to over 600 Aboriginal communities, it is also a source of spiritual renewal and economic livelihood for many Canadians.

Representing 25% of the world's remaining intact forests, the Canadian Boreal is one of the last places left on earth that can maintain a fully functioning ecosystem capable of sustaining such abundance.

The region also contains a wealth of natural resources that sustain thousands of jobs, many communities, and contribute billions to the Canadian economy. Over the years, human and industrial developments have advanced throughout the region. The growing pace of these forestry, oil and gas, hydroelectric, agricultural and mining developments could dramatically alter the fragile balance in the region over the next five years.

As a result, Canada's Boreal region offers a tremendous opportunity for conservation at a large scale, but there is a diminishing window of time to plan for conservation solutions.

The Canadian Boreal Initiative was established in response to this unique opportunity and challenge. In addition to supporting conservation projects in every Boreal province and territory, the CBI convened the Boreal Leadership Council – an unlikely alliance of resource companies, First Nations and conservation groups – to develop a national vision for conservation of Canada's Boreal region.

The result was the Boreal Forest Conservation Framework, launched in December 2003. The Framework's goal is to conserve the natural, cultural and sustainable economic values of the Boreal region by protecting about half of the region in a comprehensive network of protected areas and promoting world-leading industrial practices on the remainder of the landscape where appropriate.

The Framework represents a balanced conservation solution that offers the opportunity to meet ecological objectives, uphold the rights and interests of Aboriginal peoples and accommodate appropriate sustainable development. It is a national vision and goal for the region as a whole, which sees land use planning as a key mechanism to develop more specific solutions on the ground that reflect regional conditions and priorities.

The Framework is intended to provide a forum for dialogue and engagement among those with an interest and role in shaping the future of the region. In that same spirit, this report assesses the status of Boreal conservation in five key areas. It also highlights exciting new approaches and opportunities emerging across the region. Recognizing the important roles that all parties have in advancing conservation solutions, the report also outlines recommended priorities for action.

Land Use Planning

As envisioned in the Framework, the goal of land use planning is to achieve integrated conservation solutions – including the establishment of new protected areas and the determination of appropriate development activities – in advance of new industrial developments wherever possible. Achieving this goal will require the commitment and participation of all stakeholders. Governments especially have a leadership role to play in establishing comprehensive, conservation-based planning processes, and ensuring that they occur before land use decisions are made.

MAJOR FINDINGS

Nearly 60% of the Boreal region is subject to existing and proposed land use planning exercises that will play a significant role in shaping its future. While a number of these exercises reflect efforts to protect the natural, cultural and sustainable economic values of the existing landscape in advance of industrial allocations, none of the existing processes fully incorporate the principles articulated in the Framework.

While nearly every Boreal jurisdiction requires some form of land use planning in advance of forestry activities, the same requirements are generally not in place for the mining and energy sectors.

There is considerable variation between jurisdictions in both establishing conservation objectives prior to development, and their degree of commitment to integrated land use planning. In the northern territories of the Yukon, the Northwest Territories and Nunavut, land use plans are mandated under the terms of comprehensive land claim and self-government agreements with Aboriginal peoples. Among the provinces, British Columbia, Manitoba and Saskatchewan have made significant commitments to integrated land-use planning.

Several land use planning exercises offer significant opportunities for integrated conservation solutions over the next three years – including the East Side Planning Initiative in Manitoba and efforts to plan for protected areas in advance of new developments in the Northwest Territories.

RECOMMENDATIONS

Recognizing the tremendous value of planning proactively for conservation, it is recommended that:

- As a priority, governments initiate comprehensive conservation-based land use planning exercises before permitting new industrial developments in unallocated regions.
- Conservation organizations, Aboriginal peoples and industry work with governments in good faith to identify opportunities to expand the scope of existing land use planning processes in the allocated portions of Boreal region to apply conservation-based planning principles.

Photo: Fritz Mueller

One of the most important tests of the land use planning process in Canada's Boreal region is occurring in the Mackenzie Valley of the Northwest Territories,

where proposals are being considered for a major energy pipeline through largely pristine landscape that is also subject to land claims negotiations with First Nations. In late December 2004, the federal government announced that it would contribute $9 million — an estimated one-half of the costs to support collaborative efforts between various levels of government, communities, environmental organizations and industry to support a conservation planning process intended to protect 16 eco-regions in the Mackenzie Valley in the face of increasing exploration and development. Environmental non-government organizations and the Government of the NWT have also made funding commitments.

Establishing Protected Areas

Emerging scientific findings underscore the critical role that protected areas play in maintaining ecological integrity. These areas need to be large enough to maintain viable populations of native species, key ecological processes and ecosystem resilience to both short- and long-term environmental changes. Establishing these areas at a large scale is particularly important in the Boreal, given the vital role of large natural disturbances such as fire and the extensive intact landscapes required by Boreal species such as caribou. As a result, the Framework calls for the protection of at least one-half the region in a comprehensive network of protected areas.

MAJOR FINDINGS

Nearly 10 percent of the Boreal region is protected from industrial development. About 5.8 percent of the Boreal region is permanently protected from industrial activity, and 3.6 percent is under interim protection — meaning that their ecological integrity and associated cultural values are protected on a temporary basis, although they lack permanent legislated designation.

While most jurisdictions have protected areas programs in place, they have not yet established conservation goals and planning initiatives specific to — or at the scale required — for the Boreal, given its unique attributes.

RECOMMENDATIONS

Given the important role that protected areas will play in securing the future of the Boreal region, it is recommended that:

- Governments continue to work to meet their existing commitments to establishing protected areas.
- Governments begin to develop new protected area goals for the Boreal region reflecting both our emerging understanding of conservation biology and the unique opportunity in the Boreal.
- Drawing on leading examples, governments, conservation organizations, Aboriginal peoples and industry continue to demonstrate creativity and innovation in setting aside interim protected areas within their spheres of activity.

Since 2002, several large-scale announcements of interim protected areas in the Boreal region have resulted from collaborative work among Governments, First Nations, local communities and conservation organizations, such as the Northwest Territory's Edéhzhie/ Horn Plateau area, and the Poplar/Nanowin Rivers Park Reserve in Manitoba. Combined with the 2002 federal commitment to significantly expand Canada's national parks system, these are encouraging signs that more of Canada's Boreal region will become permanently protected in coming years.

Photo: PhotoDisc

Creating Sustainable Development Practices

The Framework calls for appropriate, sustainable development activities on the Boreal landscape outside of protected areas to generate economic benefits and sustain the ecological, cultural and social values of the region. In part, the extent of progress by companies towards higher standards of sustainability can be measured through the development and implementation of independent third-party performance standards. For this report, relevant information was reviewed about such standards for the forestry, mining, oil and gas and hydro-electricity sectors – the most important industrial actors in the Boreal region.

MAJOR FINDINGS

Some leading companies in each major industrial sector have initiated projects to improve their environmental and social impacts.

Of all the sectors active in the Boreal region, forestry has the largest industrial footprint and has made the most progress towards the development and implementation of credible performance standards. However, much remains to be done to ensure that independently verified performance standards are developed and applied more broadly.

The mining, oil and gas and hydro-electric development sectors all lag behind the forestry sector in creating and implementing sustainable development standards and practices.

RECOMMENDATIONS

Given the important contribution that best management practices and credible third-party performance standards can make to conservation in the Boreal, it is recommended that:

- Resource industries increase efforts to define, implement and participate in third-party verification of standards for world leading sustainable development practices in the Boreal region.
- Industries promote the business case for responsible and innovative conservation-oriented activities in the Boreal among corporate partners and investors.
- Conservation organizations promote financial and economic incentives to support responsible and innovative conservation-oriented activities in the Boreal region.
- Governments develop financial and economic incentives for leading edge sustainable development practices in consultation with industry, conservation organizations and Aboriginal communities.

Canada's Boreal Region

Aboriginal Peoples

Aboriginal people are working to sustain their natural environment and to overcome the many barriers that have historically excluded them from benefiting from resource developments within their traditional territories. The Framework respects the lands, rights and ways of life of Aboriginal people, and is committed to ensuring their meaningful involvement in resource management and conservation planning efforts. It further acknowledges and respects the leadership role of Aboriginal people on their traditional lands.

MAJOR FINDINGS

In the Boreal provinces, land claims and treaty entitlement negotiations towards greater Aboriginal control over resource management and conservation planning decisions have been slow. Available evidence suggests that the level of consultation with Aboriginal peoples varies significantly among and even within jurisdictions.

In the northern territories, Aboriginal people are more able to control the direction and the outcomes of resource management and conservation planning decisions under the terms of land claims settlements.

While consultation and accommodation are important steps, achieving the goals of meaningfully involving Aboriginal people in resource management and conservation planning decisions and respecting the leadership role of Aboriginal people on their traditional lands will require a significant reorientation of the present relationships between governments, Aboriginal peoples and other Canadians.

RECOMMENDATIONS

In working to ensure the meaningful involvement of Aboriginal peoples in land use planning and resource management activities, it is recommended that:

- Governments, industry and conservation organizations respect the leadership role and the rights of Aboriginal peoples to maintain their traditional ways of life and to exercise self-determination in determining the use of lands and resources within their traditional territories
- Drawing on leading examples, industry work cooperatively with Aboriginal peoples to create sustainable partnership ventures that benefit local communities and build Aboriginal capacity.
- Governments implement polices and practices that empower Aboriginal communities and institutions to assume responsibilities for conservation and the sustainable management of resources within their traditional lands in the Boreal region.
- Governments support and promote equitable sharing of benefits from resource development with Aboriginal peoples on their traditional lands (including through impact-benefits and resource revenue sharing agreements).

Mike Beedell Photography

Furthering Scientific and Traditional Aboriginal Knowledge

The Framework identifies the collection and use of scientific and traditional knowledge about the ecology of the Boreal region as fundamental to establishing effective conservation and sustainable development practices. This report uses as an indicator of key data collection the gathering of information in five areas also determined to be of critical importance by the Canadian Council of Forest Ministers for sustainable forest management: forest inventory, biodiversity, protected areas, ecosystem change, and the economic value of non-timber products and ecosystem services.

MAJOR FINDINGS

Some promising data-gathering initiatives are underway by governments and by government/ industry/ academic consortia. These should provide valuable new information on items such as measuring changes to forest ecosystems over time.

At the same time, significant gaps exist in the knowledge base needed for land-use planning and management in the Boreal region. Of particular concern is the inadequacy of biodiversity data to monitor how species interact with each other and the landscape — a deficiency that severely limits capacity to develop ecologically sustainable land-use plans for the region. Also of concern is the limited documentation and integration of traditional ecological knowledge into land use decision-making to date.

Most datasets that are publicly offered are only available in summary form, greatly restricting the utility of the information for conservation planning.

RECOMMENDATIONS

Given the importance of western scientific and traditional knowledge in improving understanding and management of the Boreal region, it is recommended that:

- Governments, industry, conservation organizations and Aboriginal peoples collaborate on scientific research and traditional ecological knowledge to increase general understanding of the ecological function and cultural importance of the Boreal region.
- Industry contribute resources and expertise to advance knowledge about the Boreal region.
- Governments improve monitoring of Boreal ecological integrity and ecosystem response to the cumulative impacts of development activities.
- Governments provide access to the complete datasets collected on the Boreal region to researchers and the public.

Photo: Tembec Inc.

INTRODUCTION

The Boreal in the Balance: Securing the Future of Canada's Boreal Region

Photo: PhotoDisc

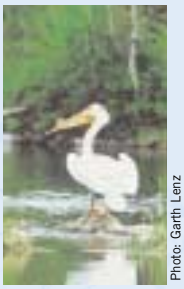

Photo: Garth Lenz

Woodland caribou and white pelicans are two magnificent species that rely on the Canadian boreal forest region.

Canada's Boreal region represents an unprecedented global conservation opportunity.

Nationally and internationally, there is a growing recognition that the Boreal contains a wealth of diverse values — ecological, cultural and economic — that are important not only to Canadians, but to life everywhere on the planet.

Understanding of the region's importance has evolved over time. It once seemed impossible that industrial development and human settlement could make a substantial impact on such a vast and abundant landscape. Yet over the years, human and industrial developments have advanced throughout the region, and the pace of these changes is growing exponentially. In fact, decisions taken over the next five years will have a profound influence on the long-term health of the region as a whole.

In response to these unique opportunities and challenges, **the Canadian Boreal Initiative (CBI)** *was established in 2003. With a mandate to catalyze Boreal conservation across the country, CBI has worked to bring together a wide range of players with an interest in the future of the region. As a result, CBI is involved in conservation partnerships in every Boreal province and territory - projects that demonstrate positive momentum for change.*

In addition, CBI convened the Boreal Leadership Council, composed of leaders in industry, First Nations communities and the conservation community, to develop a national vision for conservation of Canada's Boreal region. The resulting Boreal Forest Conservation Framework recognizes the diverse values at play in the Boreal and seeks to promote balanced and comprehensive solutions that include both large-scale protection of key ecological and cultural values, and support for world-class sustainable resource developments where appropriate.

This report assesses the status of conservation efforts across Canada's Boreal region in five key areas:

- The extent to which ***effective land use planning processes*** are in place to determine appropriate levels of protection and resource development in advance of new industrial developments;
- Progress in ***establishing protected areas*** to ensure that key ecological and cultural values in the region are permanently protected;
- Progress in developing and implementing ***world-leading sustainable development practices*** within industrial sectors active in the Boreal;
- Progress in advancing the rights and participation of ***Aboriginal peoples*** in land use planning and resource management activities in the Boreal; and
- The extent to which ***accurate and consistent information*** about the Boreal is being collected and made accessible to the public.

In so doing, the report provides a baseline against which progress can be measured over time.

The report identifies and highlights examples of new approaches that are emerging across the country. We hope that these success stories and those who lead them will provide a source of inspiration and practical solutions to others across the region, including governments, Aboriginal communities, companies and conservation organizations.

The report also identifies key priority areas where further work is needed. In some cases, such as in the areas of land use planning and the establishment of protected areas, governments hold the key policy and legislative levers. However, all sectors of society have a role to play in developing and adopting conservation solutions. As such, priorities for action by all sectors are identified throughout the report.

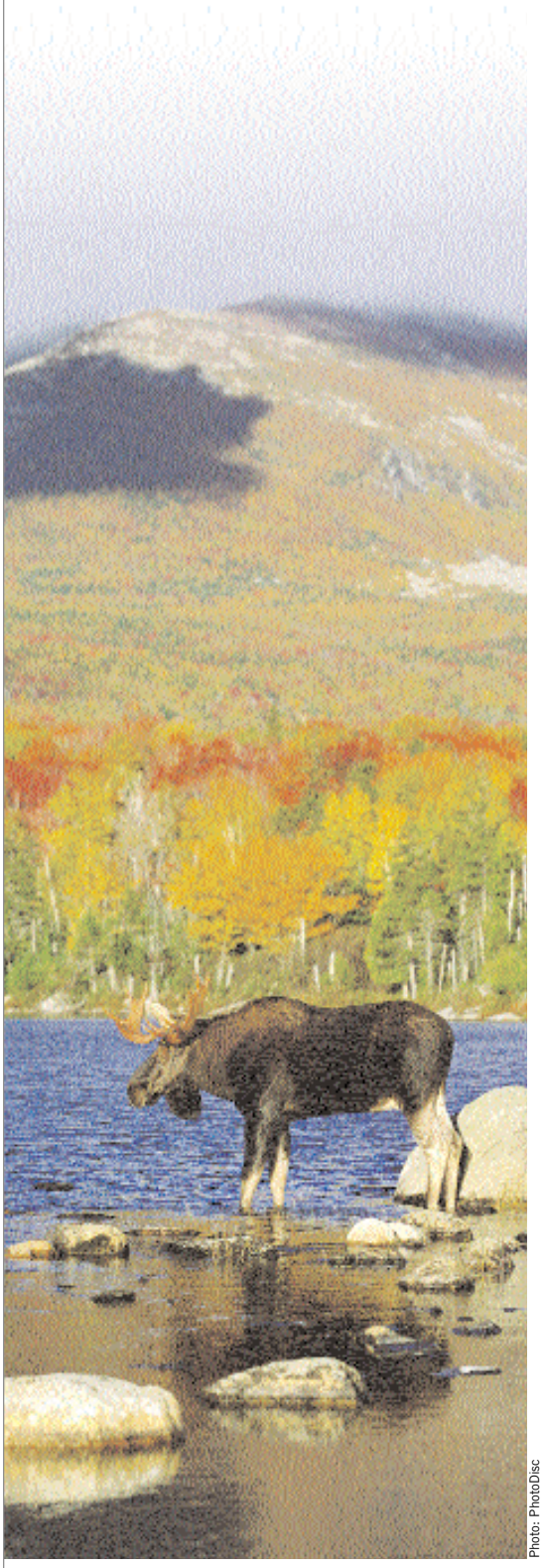

Photo: PhotoDisc

1. ABOUT CANADA'S BOREAL REGION

Photo: Firstlight

Photo: Garth Lenz

Aurora Borealis, or Northern Lights, caused by charged particles from the sun interacting with the atmosphere, are frequently visible shimmering above the boreal forest. The word 'boreal' traces back to Boreas, the Greek god of the north wind. The boreal forests are the world's northern forests, stretching across the higher latitudes of North America, Europe and Asia.

Canada's boreal region is a place of astonishing size and power.

A major part of Canada. Canada's Boreal region is a place of astonishing size and power. Its forests, lakes and wetlands moderate our climate, purify our water and help produce the oxygen that is necessary for life on Earth. The Boreal provides habitat for thousands of species of animals, plants and other organisms. Home to many Aboriginal communities, it is also a source of spiritual renewal and economic livelihood for other people across Canada and indeed throughout the world.

Canada's Boreal region covers nearly six million km^2 (1.4 billion acres), or 58 percent of Canada's landmass, and harbours over 90 percent of the country's remaining large intact forestlands.[1] Based on the federal government's ecological classification scheme, the Boreal includes seven of the country's fifteen ecozones, namely: Boreal Cordillera, Boreal Plains, Boreal Shield, Hudson Plains, Taiga Cordillera, Taiga Plains, and Taiga Shield.[2] As such, this vast "green belt" stretches all the way from Newfoundland to the Yukon.

Canadian Boreal Initiative

[1] Lee, Peter, Dmitry Aksenov, Lars Laestadius, Ruth Nogueron, and Wynet Smith, Canada's Large Intact Forest Landscapes, Edmonton: Global Forest Watch Canada, 2003, pp. 40-41.

[2] This definition of the Boreal Region results in a moderately larger Boreal landmass than one previously developed by Stan Rowe, because it includes portions of Rowe's Great Lakes-St Lawrence Region and some of what he had identified as tundra. It excludes the southern most part of the Boreal Shield, known as the Algonquin - Lake Nipissing ecoregion because the dominant vegetation, including species such as sugar maple, is not characteristic of the Boreal region. Other ecoregions along the southern fringe of the Boreal also contain some vegetation not characteristic of the Boreal, although not to such an extent as the Algonquin – Lake Nipissing ecoregion. The line forming the Boreal boundary is therefore best regarded as a gradient, and as a result the boundary may adjust based on future analyses. See: J.S. Rowe. 1972. Forest Regions of Canada. Department of the Environment. Canadian Forestry Service. Publication No. 1300

Canada's Boreal Region

Canada's Boreal region is defined by the following seven ecozones: Boreal Plains, Boreal Shield (excluding the Algonquin-Lake Nipissing ecoregion), Boreal Cordillera, Taiga Plains, Taiga Shield, Taiga Cordillera, Hudson Plains.

Source: Canadian Boreal Initiative. Ecozone data provided by Agriculture and Agri-Food Canada, http://sis.agr.gc.ca/.

Where's the line?

Natural communities typically do not start and stop according to lines on a map. As one moves northward from the more deciduous forests of the south, there is generally no abrupt line that marks the beginning of the Boreal region.

The Boreal region contains a diverse range of habitats. The southern fringe includes the mixed forests of the southern Boreal shield in the east and Boreal forest-prairie-parkland habitats in the west. The heart of the Boreal is a vast expanse dominated by coniferous forest, peatlands and lakes that stretch from east to west right across Canada. In the northern Boreal region is the taiga, an ecological crossroads between the forests to the south and the tundra to the north. The taiga contains a unique mixture of Boreal forests and peatlands, as well as open shrublands and meadows of the arctic tundra.

Boreal Flora and Fauna

The Boreal forest teems with life, from tiny fragile lichens to some of the world's largest remaining populations of woodland caribou, wolves and bears. Five species of conifers (black spruce, white spruce, tamarack, jack pine, and balsam fir) are the dominant trees, with willows, alders, poplar including aspens, and birches being the most common deciduous species. Mosses and lichens often cover the forest floor along with a wide variety of wildflowers and ferns.

Fire and ice

In this land of extremes, massive wildfires are a frequent occurrence and many Boreal species have adapted to the fire cycle. The rapid appearance of fireweed and opening of jack pine cones after fires are two examples of adaptations to fire. Winters in the Boreal are extremely cold. This helps account for the dominance of conifers, whose needles are well adapted to these conditions.

A place for people

Approximately 3.5 million people live in cities, towns, villages and settlements throughout Canada's Boreal region.[3]

The Boreal is the cultural, spiritual and economic base *for approximately 600 Aboriginal communities.[4] Virtually the entire region is subject to historic treaties or modern day land claims by Aboriginal peoples to their traditional territories.*

Aboriginal peoples were the first inhabitants of the Boreal forest. Their importance to the survival of the early European settlers, and their status as self-governing nations, was recognized in early treaties and in the Royal Proclamation of 1763. However, as the early colonies grew in strength and status, many of the promises were forgotten or ignored, and Aboriginal people were forced onto the margins of Canadian society.[5]

Today, Aboriginal people are among the poorest groups in Canadian society. Although many Aboriginal people continue to rely on the Boreal forest for their cultural and economic survival, most have not benefited from the development of its natural resources, which accounts for billions of dollars of revenue and a significant percentage of Canada's annual GDP. Average incomes in reserve communities are less than half of the level enjoyed by non-native Canadians, and unemployment rates can exceed 80%.

Photo: Fritz Mueller

Canada's Boreal is integral to our identity. While the word "Boreal" is seldom used in everyday conversations, the region's landscapes, cultures and wildlife form an integral part of the Canadian identity.

Stamps: Canada Post, Coins photo: The Bytown Group

Empty your pockets of loose change and you might find caribou, beaver and loons that have graced our currency for years. Picture Pierre Trudeau, the voyageurs and Aboriginal people paddling Canada's great rivers. How about lumberjacks, Mounties, dogsled teams, snowmobiles, hockey on a frozen pond, the howl of the wolf and the cry of the loon? Important Aboriginal artists and the Group of Seven, Tom Thomson, Robert Bateman and many others have captured these quintessential Boreal scenes in many of our best-known images.

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3 Burton, P.J., C. Messier, G.F. Weetman, E.E. Prepas, W.L. Adamowicz, and R. Tittler, 'The current state of Boreal forestry and the driver for change,' in Philip J. Burton, Christian Messier, Daniel W. Smith, Wiktor L. Adamowicz, eds., Towards Sustainable Management of the Boreal Forest, Ottawa, National Research Press, 2003, p. 2.

4 Source: Global Forest Watch Canada, based on data from National Atlas of Canada, Geogratis and Department of Indian and Northern Affairs, 2004.

5 Royal Commission on Aboriginal Peoples, Report of the Royal Commission on Aboriginal Peoples Volume 1, Ottawa: Minister of Supply and Services, 1996. <online: http://www.ainc-inac.gc.ca/ch/rcap/index_e.html>

Nearly 20% of Aboriginal people on reserve have annual incomes less than $2,000 per year, and more than 50% earn less than $10,000 per year.[6]

This disparate situation presents tremendous challenges for Aboriginal peoples and for Canadians. There is an urgent requirement to create new employment and economic opportunities to alleviate the social and economic deprivation that many Aboriginal people endure, while respecting and reconciling these objectives with the responsibilities that Aboriginal peoples have as the guardians and stewards of their traditional territories.

Key Ecological Values

The Boreal region is of enormous global ecological value. The world's Boreal region (which includes Russia and Scandinavia) stores more freshwater in its lakes, rivers and wetlands and more carbon in its forests, soils and peat than any other ecosystem.[7] In Canada's Boreal, fresh water is stored in the wetlands, waterways and an estimated 1.5 million lakes that together cover about 30 percent of its area.[8]

Its size, remoteness and variety of landscapes make Canada's Boreal region **home to abundant numbers of some of the continent's biggest species of wildlife** *— such as caribou, bears and wolves — and billions of its smallest — including migratory birds and butterflies.*

The Boreal region is invaluable to North American bird life. During the critical breeding season it offers long daylight hours and an abundance of insect prey for raising young. Its vast expanses also allow birds to move about widely and take advantage of unpredictable windfalls such as spruce budworm outbreaks or conifer seed crops.[9] Its wetlands, lakes and rivers, accommodate about 75 percent of the continent's ducks during migration.[10]

Up to three billion warblers, thrushes, sparrows, hawks and other land birds migrate to Canada's Boreal region to nest each spring, and each fall, up to five billion land birds migrate south. One billion of these birds spend the winter in the U.S., one-half billion in Mexico and the rest in Central and South America and the Caribbean.[11] The Boreal region also provides habitat for tens of millions of breeding waterfowl and shorebirds.[12]

Who makes decisions in the Boreal?

More than 90 percent of Canada's Boreal region is publicly owned, making governments key decision-makers in approving different land uses. In the southern Boreal, provincial governments are primarily responsible for Boreal lands. In the northern territories, negotiations over land claims with Aboriginal peoples are advancing, as are negotiations over the devolution of powers from the federal to territorial governments. As outstanding land claims are settled and more Aboriginal peoples reach agreements on self government, the role and influence of Aboriginal governments across the country can be expected to grow. Land use and wildlife responsibilities continue to be shared among territorial, Aboriginal and federal governments.

Photo: Garth Lenz

Boreal is for the birds

American White Pelican: Canada's Boreal is where the most northerly breeding colonies of this majestic species are found. Once considered nationally threatened, the White Pelican was removed from Canada's Species at Risk list in 1987 because of its promising recovery.

6 Aboriginal communities are also the youngest and fastest growing communities in Canada. Of the estimated one million people who live in more than 600 Aboriginal communities across Boreal Canada, more than half are under the age of 25. Most of these communities lack adequate housing, and some even lack safe drinking water and other basic sanitation facilities. As a consequence of these conditions, suicides, substance abuse, and many other forms of social dysfunction are endemic in many Aboriginal communitiesAssembly of First Nations. -Fact Sheet: Socio-Economic Exclusion of First Nations in Canada. <online: http://www.afn.ca/Programs/Treaties%20and%20Lands/factsheets/see_fact.htm>.

7 Schindler, D.W. 1998. Sustaining aquatic ecosystems in Boreal regions. Conservation Ecology [online] **2**(2): 18. Available from the Internet. URL: http://www.consecol.org/vol2/iss2/art18/. Schindler states that softwater Boreal lakes may contain 80% or more of the world's fresh, unfrozen water. According to the Woods Hole Research Center, the Boreal biome is the world's largest terrestrial carbon reservoir. See http://www.whrc.org/Borealnamerica/.

8 Lee, Peter, Boreal Canada: State of the Ecosystem, State of Industry, Emerging Issues and Projections, Report to the National Round Table on the Environment and the Economy, Global Forest Watch Canada, Edmonton, 2004, p. 7.

9 Blancher, op cit.

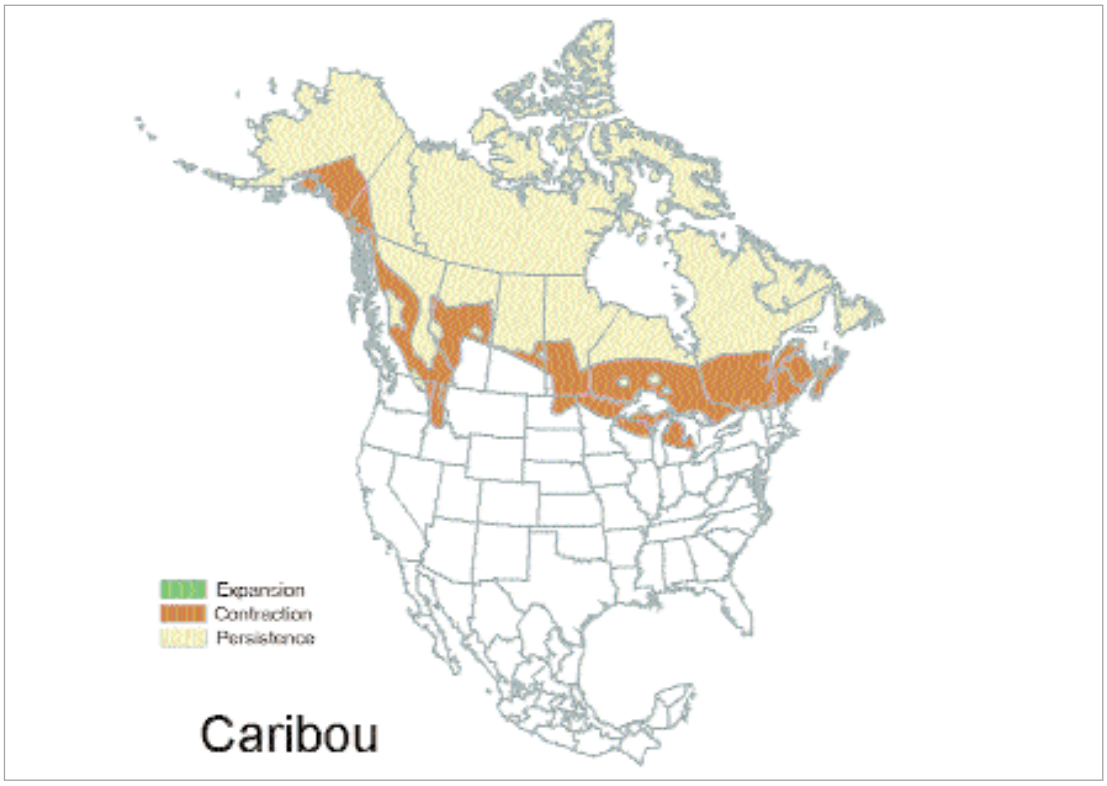
10 Ducks Unlimited Canada, op cit.

11 Blancher, Peter, Importance of Canada's Boreal Forest to Landbirds, Canadian Boreal Initiative and Boreal Songbird Initiative, 2003. For more information, see www.Borealbirds.org

12 Ducks Unlimited Canada, « All Eyes on the Boreal Forest », The Conservator, Vol 24, No 3, 2003.

Reductions in grizzly bear ranges in North America

Reductions in caribou ranges in North America



Demonstrating the Boreal's importance, a recent study shows that large carnivores and ungulates (hoofed mammals) have experienced range losses of 53 percent for grizzly bears, 43 percent for gray wolves, 40 percent for black bears and 24 percent for caribou.

Source: Andrea S. Laliberte and William J. Ripple. Range Contractions of North American Carnivores and Ungulates. BioScience 54(2): 123-138. Maps used with permission from the authors.

A stronghold for mammals

This region offers one of the last opportunities to ensure abundant numbers of many species that have suffered large declines in their historic ranges. The ranges of some mammals, like the grizzly bear and the gray wolf, once stretched south to Mexico. However, these species now depend largely on the Boreal forest, western mountains and tundra for habitat. A recent study shows that large carnivores and ungulates (hoofed mammals) have experienced range losses of 53 percent for grizzly bears, 43 percent for gray wolves, 40 percent for black bears and 24 percent for caribou (see maps on p.13).[13]

Ecosystem Services and Climate Change

The Boreal region offers Canada and the world a number of 'ecosystem services' — critical functions that help sustain life on earth. For example, the region filters millions of litres of water on an average day, stores carbon, produces oxygen, rebuilds soils and restores nutrients, holds back floodwaters and releases needed water into rivers and streams and provides food and shelter for hundreds of species, large and small, including humans.

It plays a particularly vital role in mitigating the impacts of climate change. North America's Boreal forest stores between 7 and 11% of the world's terrestrial biospheric carbon. [16] Peatlands and old forests are especially important carbon stores.

The Boreal represents ***one of the planet's few intact natural areas still big enough to buffer some of the changes in habitat that climate change will bring about for many northern species.***

Over the past quarter century, temperature has increased at a rate greater than exhibited at any point during the past 1,000 years.[17] This global warming phenomenon is linked to the increased atmospheric concentrations of carbon dioxide and other greenhouse gases that have occurred due to fossil fuel combustion and land use. Climate change is expected to accelerate this century, reaching a rate higher than has occurred over the past 10,000 years and causing temperatures to increase 1.5-5.8 C.[18]

Increased global warming at northern latitudes and other factors make the Boreal region one of the most susceptible in the world to climate-induced change.[19] Large-scale Boreal conservation will not only support maintenance of the region's integrity in the face of climate change, but also act to slow the process of climate change itself.

Photo: Garth Lenz

The list of species at risk that are found in the Boreal region amounts to less than 20 percent of Canada's total of 467 species at risk. Those species that are endangered, threatened or of special concern are in need of habitat protection to ensure their continued survival in the Boreal region. [14]

Woodland caribou populations are threatened in many southern parts of the Boreal forest and are particularly sensitive to human incursion into their traditional habitat.[15] Wood Buffalo National Park is the critical nesting grounds for the highly endangered whooping crane, which is making a slow recovery from perilously low numbers. Other endangered species that live in the Boreal include: Newfoundland Marten, Wolverine (eastern population), Red Crossbill (percna subspecies), Eskimo Curlew (may be extinct), Piping Plover, Aurora Trout, Hotwater Physa, Lake Winnipeg Physa Snail, Long's Braya and Barrens Willow.

13 A. S. Laliberte and W. J. Ripple, "Range Contractions of North American Carnivores and Ungulates." Bioscience, Vol. 54, No.2, 2004, pp. 123 – 138.
14 These are the official categories of 'risk' used by the Committee on the Status of Endangered Wildlife in Canada.
15 Canadian Parks and Wilderness Society, Grey Ghosts: Can we save woodland caribou in Canada's Boreal forest?, Report, October, 2004, 27 pages. Available at: www.cpaws.org/news/cariboureport.pdf.
16 Intergovernmental Panel on Climate Change. IPCC Special Report on the Regional Impacts of Climate Change: An Assessment of Vulnerability. Available on the internet: http://www.grida.no/climate/ipcc/regional/index.htm.
17 Climate Change, Third Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, 2001.
18 Solomon, A.M. and P.J. Bartlein. "Past and future climate change: response by mixed deciduous-coniferous forest ecosystems in northern Michigan", Canadian Journal of Forest Research, 22:1727-1738.
19 Schindler, D.W. "A dim future for Boreal waters and landscapes," Bioscience, Vol.48, No. 3, 1998, pp. 157-165.

Key Economic Values

Industrial activity in the Boreal region includes forestry operations, oil and gas exploration and development, precious metals and mineral mining, agriculture, and hydro-electric development. Together these generate tens of thousands of jobs and are worth billions of dollars annually. Many Boreal communities depend on resource development industries such as forestry or mining. As such, the Boreal holds significant economic value, in addition to its ecological and cultural values.

About 60 percent of Canada's forest industry *activity occurs in Canada's Boreal region.*[20] *Approximately 29% of the Boreal has been allocated to forest companies through a system of licenses and tenure.*

While statistics specific to the Boreal are not available for the forest sector, in 2003 Canada's forestry industry employed over 376,000 workers in wood product and paper manufacturing, logging and forestry services, providing the economic base for many communities across the Boreal region. Annually, approximately $40 billion in wood products are exported from Canada's forests.

In 2003, forest products contributed almost $30 billion towards Canada's nearly $46 billion positive trade balance. Canada is the world's largest producer and exporter of newsprint.[21]

Photo: Innu Nation marking leave area

20 Burton et al, p. 1.

21 Natural Resources Canada, The State of Canada's Forests 2003-2004 (http://www.nrcan-rncan.gc.ca/cfs-scf/national/what-quoi/sof/latest_e.html)

Other important economic facts about Canada's boreal region:

- Alberta's oil sands constitute the world's second-largest known potential source of oil and represent one-third of its recoverable petroleum resources. Virtually the entire extent of the oil sands lies within the boreal region.[22]
- Canada is also the world's largest producer of hydro-generated electricity, with most dams located in the boreal region.[23]
- Approximately 80 percent of Canada's mining is in the boreal region. In 1999, mining and processing in Canada contributed: 2.7 percent of national employment; 3.7 percent of national GDP, for a total of $27.7 billion.[24]

New forms of economic value are also growing in the boreal and across the country. For example, in 1996, 20 million Canadian residents spent $11 billion on nature-related activities within Canada. This includes expen ditures for transportation, accommodation, food, equipment and supplies. Just over $7 billion was spent on outdoor activities in natural areas.[25]

In many parts of the Boreal, remote-based tourism is of growing economic importance. For example, remote-based tourism is the third most important industry in Ontario's northwestern Boreal region after forestry and mining, providing over 17,000 jobs in fields including fishing, hunting and wilderness tourism. These are largely fly-in activities to pristine landscapes where there are no roads.[26]

Northern Images by Wayne Sawchuck

22 Lee 2004, p. 32.

23 Lee 2004, p. 32, citing: Government of Canada. 1996. Boreal Shield Ecozone. Pages 5-1 to 5-30 In: The State of Canada's Environment 1996. Environment Canada. Ottawa.

24 Lee 2004, p. 33, citing: Mining Watch Canada. 2001. The Boreal Below: Mining Issues and Activities in Canada's Boreal Forest Region. Mining Watch Canada. Available at http://www.miningwatch.ca/ (February 2004), and Greenwell, Brock. 2000. General Review: Canadian Minerals Yearbook, 1999 Review and Outlook, Natural Resources Canada – Minerals and Metals Sector. Page 1.5.

25 Federal-Provincial Task Force on the Importance of Nature to Canadians, *The Importance of Nature to Canadians: The Economic Significance of Nature-related Activities*, Ottawa: Environment Canada, 2000, pp. 5 & 11.

26 CPAWS-Wildlands League and Ontario Nature, Remoteness Sells, A Report on Resource-Based Tourism in Northwestern Ontario, Wildlands League, Ontario Nature, Toronto, forthcoming, p.17

2. THE OPPORTUNITY FOR A NEW APPROACH

Photo: Garth Lenz

A region of global importance.

Canada's Boreal region is part of a "great northern forest" that extends into Alaska, Russia and Scandinavia. Canada's portion contains approximately forty percent of this immense region.[27] It also represents one-quarter of the world's remaining original forests (Russia and Brazil are the other major stewards of the world's original forests), and nearly all of North America's remaining original forests.[28] [29]

Home to nearly all of the country's remaining large intact forest landscapes, *the level of intactness in Canada's Boreal is unparalleled anywhere in the world.[30] Because it still holds vast tracts of relatively undisturbed habitat, Canada's Boreal region contains increasingly rare examples of fully functioning ecological processes such as predator-prey relationships and wildfires at a large-scale.*

Boreal forest conservation is increasingly receiving international attention. In the past few years, Canada's Boreal region has been recognized for its ecological importance by organizations such as the World Resources Institute and the Natural Resources Defense Council and has been profiled in National Geographic and a number of books and academic journals.[31] The IUCN World Conservation Union recently passed a recommendation urging Canada and Russia to act to conserve their respective Boreal regions.[34] And the United Nations Environment Program's (UNEP) World Conservation Monitoring Centre is focusing on raising the profile of temperate and Boreal forests — which constitute 40% of the world's forest cover.[33] As well, a recent joint report by the European Environment Agency and UNEP points to the critical role of northern ecosystems and the threats to their integrity.[34]

27 Burton, P.J., C. Messier, G.F. Weetman, E.E. Prepas, W.L. Adamowicz, and R. Tittler, 'The cuurent state of Boreal forestry and the driver for change,' in Philip J. Burton, Christian Messier, Daniel W. Smith, Wiktor L. Adamowicz, eds., Towards Sustainable Management of the Boreal Forest, Ottawa, National Research Press, 2003, p.1.

28 Lee, Peter, Boreal Canada: State of the Ecosystem, State of Industry, Emerging Issues and Projections, Report to the National Round Table on the Environment and the Economy, Global Forest Watch Canada, Edmonton, 2004, pp.7 & 13.

29 Frontier forests are large, intact forest ecosystems whose structure and composition is shaped largely by natural events and that are capable of maintaining viable populations of all native species. Source: Bryant, Dirk, Daniel Nielsen and Laura Tangley, The Last Frontier Forests: Ecosystems and economies on the edge, Washington: World Resources Institute, 1997.

30 Lee, P, et al. Canada's Large Intact Forest Landscapes, Op. Cit.

31 See for instance: Bryant, Dirk, Daniel Nielsen and Laura Tangley, The Last Frontier Forests: Ecosystems and economies on the edge, Washington: World Resources Institute, 1997; Lee, Peter, Dmitry Aksenov, Lars Laestadius, Ruth Nogueron, and Wynet Smith, Canada's Large Intact Forest Landscapes, Edmonton: Global Forest Watch Canada, 2003; www.savebiogems.org/Boreal/.

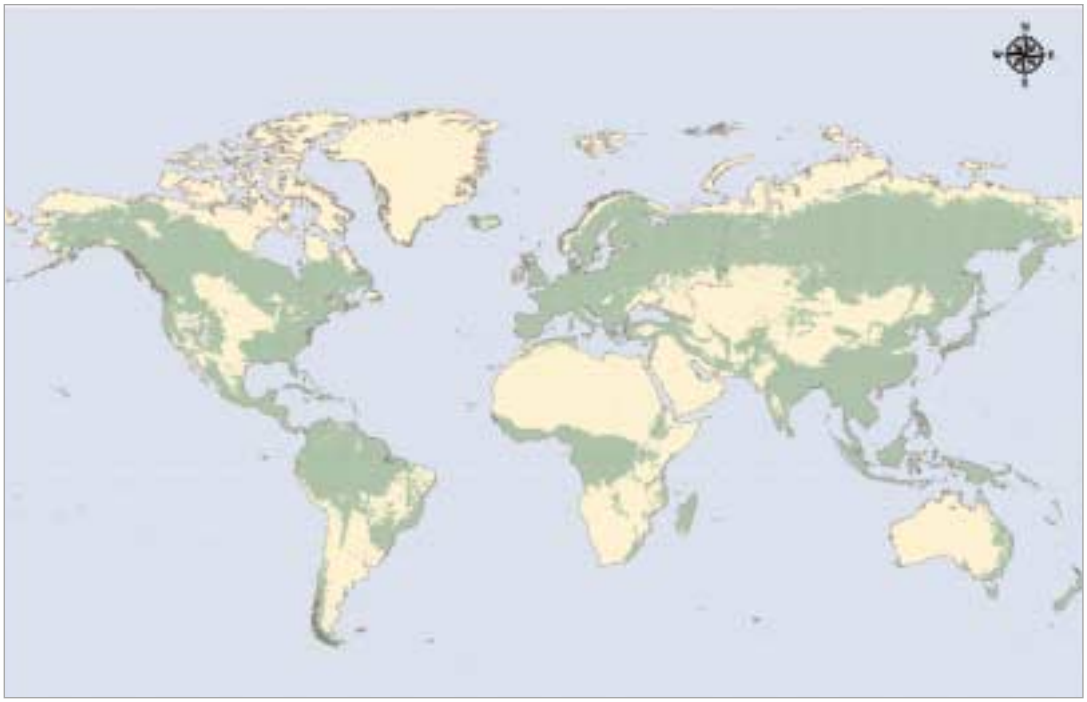
32 See " International recommendation highlights Canada's Boreal region", Canadian Boreal Initiative News Release, November 25, 2004, http://www.Borealcanada.ca/news_e.cfm?p_id=231.

33 See: www.iucn.org/info_and_news/press/statwhBoreal.pdf; www.unep-wcmc.org/forest/Boreal/background.htm; www.iucn.org/info_and_news/press/statwhBoreal.pdf.

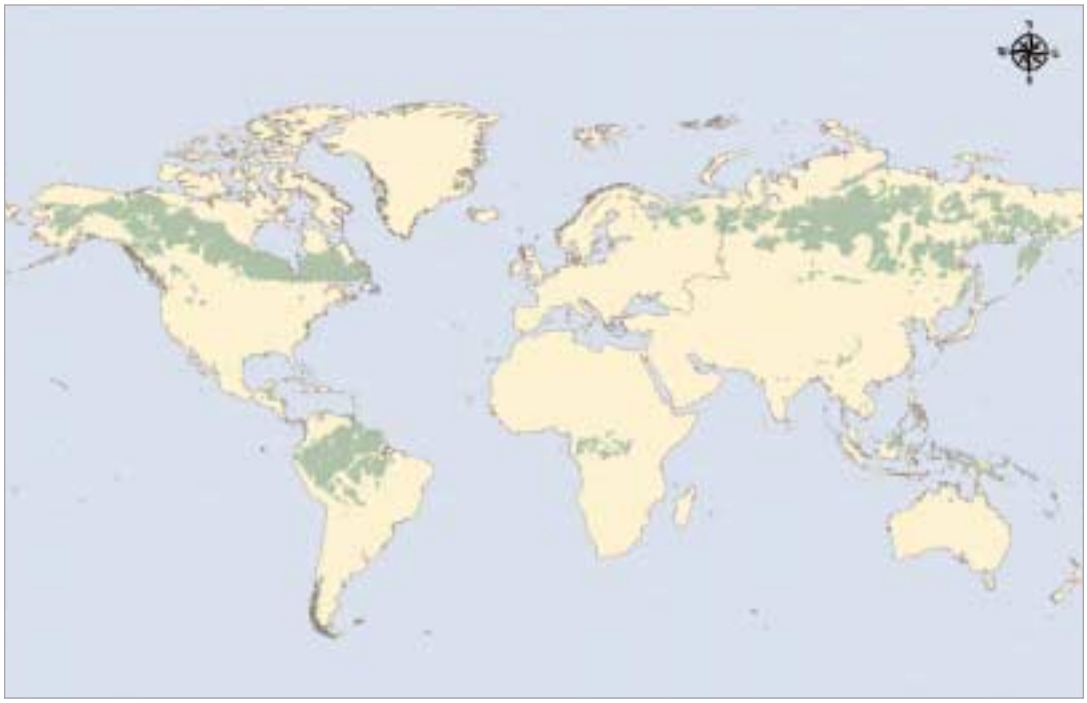
34 European Environment Agency (EEA), Arctic Environment: European Perspectives, 2nd ed., Copenhagen: EEA, 2004, 60 pp.

Canada's Boreal is one of the world's most important remaining frontier forest regions

Frontier forests 8,000 years ago



Frontier forests today



Frontier forests are large, relatively intact forest ecosystems that are likely to survive indefinitely without human assistance.

Source: Data provided by World Resources Institute, http://www.wri.org/.

Industrial Interest is increasing. *While this region is of vital ecological importance, it also contains natural resources that sustain thousands of jobs, indeed entire communities, and contributes billions to the Canadian economy. Both national and international pressure to accelerate forestry operations, oil and gas exploration and development, precious metals and mineral mining, and hydro-electric development is increasing.*

For example, industrial developments being considered across the Boreal over the next five years include:

- Hydroelectricity expansion in Quebec, Labrador, Ontario, Manitoba and the Northwest Territories;
- Oil and gas development or expansion in Alberta, British Columbia, Saskatchewan, and the Yukon and Northwest Territories;
- Agricultural land clearing in the Prairie provinces;
- Intensive logging in the southern Boreal region across Canada, and logging expansion into the northern Boreal regions; and
- Mineral exploration and mine development in Labrador, Ontario, Quebec, Manitoba and the Yukon and Northwest Territories. [35]

The window for conservation is closing

Canada's Boreal region offers a tremendous opportunity for conservation at a large scale, but there is a diminishing window to plan for conservation solutions that meet ecological objectives, uphold the rights and interests of Aboriginal peoples, and accommodate appropriate sustainable development.

The Need for Large Scale Conservation

Boreal species and processes have evolved over extensive, intact landscapes. Boreal mammals with large home range sizes and long migration routes, such as grizzly bear and caribou, need extensive landscapes to persist. Extensive landscapes are also important for Boreal birds that rely on foods such as spruce cones and insect outbreaks, resources that are often widely dispersed.

Large natural disturbances — mainly fires and insect outbreaks — play an important role in Boreal ecosystems by maintaining a diversity of habitat types. As well, Canada's Boreal forest is a water-dominated ecosystem, and the condition of watersheds is strongly related to the condition of the surrounding forest. Both the quantity and quality of water moving across the land is affected by land use. Nevertheless, our knowledge of Boreal ecology is limited, and there is an urgent need to better understand the natural dynamics of Boreal ecosystems, as well as their response to various human activities.

"Until now nature conservation has largely been an ad hoc process.

Tracts of land have been protected from development for their scenic value, or because they contain impressive concentrations of wildlife, or less often because they harbor rare species or notable biological diversity. This ad hoc approach to biological conservation has left Canada, the United States, Mexico, and most other countries with highly fragmented systems of parks and reserves in which some elements of the native biota are over-represented and others are not represented at all.

Not only are most of the protected areas too small, but they are also isolated from other protected areas by agricultural lands, freeways, industrial zones, or other unnatural environments that are inimical to the large majority of native species. The resulting fragmentation of the natural environment severely threatens biological diversity. Even the largest national parks in western North America are too small to maintain all their larger mammals (Newmark 1995).

Many species cannot long survive in small habitat remnants because the ecological processes that stabilize their populations have been distorted or disrupted… The lesson learned from experience with small preserves is this: To be effective, biological conservation must be planned and implemented on large spatial scales… nature and wildness cannot be saved by protecting a piece here and a piece there."

35 Lee, op. cit., p. 52

Intact Forest Landscapes in Canada.[36]

Source: Data provided by Global Forest Watch Canada, www.globalforestwatch.ca.

IUCN — World Conservation Union calls on Canada to protect its Boreal ecosystems

At its November 2004 international congress, the IUCN World Conservation Union recommended that Canada and Russia, the world's two key Boreal nations, do more to protect the overall health of the region. The IUCN recommendation reflected consensus among member delegates, including Canadian government departments and agencies, non-government organizations and institutions that the Boreal Region is of vital global importance.

The IUCN called for conservation commitments and actions around three major themes: community-based and ecosystem-based land use planning in advance of tenure allocation; enhancing, expanding and establishing new protected areas; and acknowledging and respecting the role of indigenous peoples in achieving conservation goals, while respecting their traditional land management regimes and knowledge.

It referenced the tremendous ecological values of the Boreal Region and specifically recognized the spiritual and cultural relationships of indigenous peoples to their lands, waters, and creatures, and that indigenous cultures, spirituality, and economic well-being and renewal are inextricably linked to the continuing health of Boreal ecosystems.[37]

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36 This map is from a study by Global Forest Watch Canada that evaluated the proportion of Canada's forests that remain as large intact forest landscapes. Criteria for intactness included no industrial activity within a region at least 500 km² in area and with a minimum width of 10 km. Despite these strict critieria, 62% of forests within Canada's Boreal were determined to be intact. In addition, the study did not include tundra and treeless uplands, much of which are also likely to be intact and cover 15% of the Boreal region. Thus, the vast majority of the Boreal region (both its forested and non-forested components) is intact and presents an extraordinary conservation opportunity.

37 See http://www.iucn.org/congress/members/submitted_motions.htm for full text of IUCN recommendation.

Emerging scientific findings *conclude that large areas, accounting for a significant proportion of regions, will need to be managed with biological conservation as a priority in order to achieve conservation goals.*[38]

Maintaining ecological integrity will require the establishment of protected areas that:

- Achieve representation of all native ecosystem types and seral stages across their natural range of variation in a system of protected areas;
- Maintain viable populations of all native species in natural patterns of abundance and distribution;
- Maintain ecological and evolutionary processes, such as natural disturbance regimes, predator-prey cycles, and hydrologic processes; and
- Maintain ecosystem resilience to short-term and long-term environmental change.[39]

At the same time, it will be important to identify human activities that are compatible with the goal of ecological sustainability on lands that lie outside of protected areas. These areas have several important conservation roles, including supporting populations of species, facilitating movement of wildlife between protected areas, and maintaining the integrity of aquatic systems.[40] Achieving these contributions requires careful selection of sustainable management practices.

To date, the sciences of conservation planning and resource management have evolved in relative isolation. Further, conservation planning has generally been reactionary, focusing on maximizing conservation objectives after resource development plans have been made. As a result, proactive conservation opportunities have been under-utilized and the design of sustainable management practices and protected areas have largely occurred in isolation of each other.

In relatively intact systems, such as Canada's Boreal region, it is possible to pursue pre-emptive conservation strategies that move beyond efforts to simply mitigate the negative effects of human activities. Planning proactively for biological conservation and ecological sustainability requires a new, interdisciplinary approach that integrates the fields of conservation biology and resource management through simultaneous assessment of conservation and resource values prior to widespread development.

This approach is reflective of emerging consensus among conservation biologists on the level of protection required to achieve conservation goals. For example, a comprehensive assessment of the Greater Yellowstone Ecosystem led researchers to conclude

Advancing science to support Boreal conservation.

The Canadian BEACONs Project, partnering with the Canadian Boreal Initiative and based at the University of Alberta, was initiated in 2003 to help build the knowledge base required for conservation planning in Canada's Boreal region, including confirming appropriate levels of protection required to maintain the ecological integrity of the region.

Photo: PhotoDisc

Under the BEACONs reverse-matrix model for conservation planning, the paradigm of reserves as nodes within a largely degraded environment is inverted, and extensive conservation lands are the supportive matrix within which development activities are carefully managed so as not to erode other values. Protected area design and sustainable management are united through adaptive resource management, with development treated as an experiment that proceeds incrementally, so as not to preclude future options.

Protected areas are designed to meet conservation objectives and to act as benchmarks against which to interpret the sustainability of management activities. Some of the protected areas are large enough to maintain ecological processes such as fire that are important components of Boreal region.

see: www.rr2.ualberta.ca/Research/Beacons/index.htm

38 For example, see www.rr2.ualberta.ca/Research/Beacons/index.htm

39 R.F. Noss and A. Cooperrider, Saving Nature's Legacy: Protecting and Restoring Biodiversity, Washington DC, Defenders of Wildlife and Island Press, 1994.

40 D.B. Lindenmayer and J.F. Franklin. 2002. Conservation Forest Biodiversity: A Comprehensive Multiscaled Approach. Island Press, Washington, D.C..

that 70% must be protected to achieve representation, maintain habitat for focal species, and protect special elements.[41] Projects that have considered narrower conservation goals have also determined that large areas must be protected. For instance, a 1992 study found that 60% of the Northern Rocky Mountains in the United States must be protected to support an effective population size of 500 grizzly bears over the long term.[42] A review of conservation planning initiatives determined that, overall, 25 to 75% protection was necessary to achieve ecological objectives.[43]

In Labrador, *the inclusion of conservation biology principles during land-use planning of a largely intact Boreal region resulted in greater than 50% of the region being afforded protected designation, with the remainder designated for sustainable use.[44] While the size and attributes of areas that require protection to achieve objectives will differ across Canada's Boreal region due to variation in human and natural disturbance and ecosystem composition and function, this is an indication of the need for planning for protection at a large scale to maintain ecological integrity, and to ensure that the intervening landscapes are managed according to the highest sustainable development standards.*

The Emergence of a New Vision

In response to emerging scientific findings and the unique opportunity to plan proactively for conservation in the Boreal, the CBI convened the Boreal Leadership Council in 2003. Each member of the Council is a conservation leader in their own right, through their efforts to protect key ecological and cultural values, develop and adopt leading edge best management practices and promote long-term conservation solutions for areas for which they are responsible.

Together they developed the Boreal Forest Conservation Framework as a national vision for conservation. It represents the collective wisdom of this group of leading resource companies, First Nations and conservation groups, based on experiences gained over the course of the environmental issues and efforts of the last 30 years.

The Framework was intended to form the basis for further dialogue with other key Boreal players. In particular, it was launched in the hopes of engaging governments in efforts to further refine and implement the Framework's vision. As the managers of the vast majority of the Boreal region, governments

Members of the Boreal Leadership Council include:

ALBERTA PACIFIC FOREST INDUSTRIES INC

CPAWS

INNU NATION

Domtar

POPLAR RIVER FIRST NATION

Ducks Unlimited Canada
CANADA'S CONSERVATION COMPANY

FORESTETHICS

SUNCOR ENERGY

Tembec

WWF

41 R.F. Noss, C. Carrol, K.Vance-Borland, and G. Wuerthner, 2002. "A multicriteria assessment of the irreplaceability of sites in the Greater Yellowstone ecosystem," Conservation Biology 15:578-590.

42 Metzgar, L.H. and M. Bader, 1992, "Large mammal predators in the Northern Rockies: grizzly bears and their habitat," Northwest Environmental Journal 8:231-233

43 R.F. Noss and Cooperrider, Op.Cit.

44 See: Innu Nation & Silva Ecosystem Consultants, Peer review summary: Multiple Spatial Scale Reserve Designs for FMD 19, Labrador December 2001 - February 2002.

have a range of policy and legislative tools to implement conservation solutions on the ground. The Framework does not intend to take the place of government policy, but rather seeks to inform it.

The Framework's goal is to conserve the natural, cultural, and sustainable economic values of the entire Canadian Boreal region. Guided by the principles of conservation science, it aims to:

- protect at least 50 percent of the region in a comprehensive network of large protected areas to safeguard ecological services and ecosystem integrity across the Boreal region; and
- promote world-leading ecosystem-based resource management practices and state-of-the-art stewardship practices in the remaining landscape.

All signatories to the Framework have agreed to this goal and a series of supporting principles and commitments. Principles guiding implementation of the Framework include:

- maintaining ecological processes and intact areas;
- respecting Aboriginal leadership, rights and interests in the Boreal;
- ensuring benefits for Northern communities;
- fostering innovative and long-lasting solutions to land-use issues;
- achieving optimal social and environmental benefits from resource development; and
- using scientific knowledge, traditional knowledge, local perspectives and adaptive management to achieve the conservation of natural and cultural values.

Photo: Wayne Sawchuck

Commitments included in the Framework relate to collaborative conservation planning, information gathering, the full participation of Aboriginal people in conservation planning and land management, and the elaboration of new management practices.

In promoting a conservation approach for the entire Boreal region, the Framework recognizes that conservation challenges and opportunities will vary. What may be achievable in a particular region at a given point in time will be influenced by a variety of factors, including existing industrial allocations; land ownership patterns; the evolving status of Aboriginal and treaty rights; and land use planning exercises. As such, the Framework represents a national vision and goal for the region as a whole, rather than a formula to be applied on a unit-by-unit basis in a particular part of the Boreal region.

Building on success

The Framework recognizes that a host of existing initiatives by governments, industry, First Nations and conservation groups already contribute to achieving the vision and goals of the Framework. A number of these leading initiatives are highlighted throughout this report. Since launching the Framework in 2003, the CBI has been establishing new partnerships in support of its goals, including ones with the:

Kaska Nation

Composed of five First Nations whose traditional territory stretches over more than 240,000 km^2 in northwestern British Columbia, the southeast Yukon and the Northwest Territories, the Kaska Nation has created a conservation initiative to protect the ecological integrity of its lands and waters, while enhancing cultural and socio-economic well-being.[45] In 2004, the CBI signed an agreement with the Kaska Nation to support its conservation initiative. This agreement provides for, among other things, the development of land use plans based on traditional knowledge and conservation biology that includes large-scale protected areas and conservation lands as well as ecosystem-based management and a sustainable economy for the Kaska people. This is consistent with the vision of the Boreal Forest Conservation Framework, and its implementation will make a significant contribution to achieving the goals and principles of the Framework.

Forest Products Association of Canada

In 2004, the Forest Products Association of Canada (FPAC) and the Canadian Boreal Initiative announced an agreement to work together to develop projects that will advance boreal research and conservation.[46] FPAC has also committed $1 million in total project funding over five years, in addition to resources-in-kind to further boreal ecosystem conservation.

This engagement is part of broader efforts on the part of both bodies to expand dialogue and work collaboratively on initiatives to support the long-term conservation of the boreal region. Current projects under the agreement involve research and conservation activities led by World Wildlife Fund Canada and Ducks Unlimited Canada. Additional projects to promote strong boreal conservation practices and greater understanding of this complex set of ecosystems are planned.

These and other emerging partnerships on the ground underscore both the immense opportunities for conservation in the region, and the momentum that is building for positive change.

45 Visit www.kfrsc.ca for more information on the Kaska Conservation Initiative.
46 Visit www.fpac.ca for more information about this organization.

3. THE STATE OF CONSERVATION IN CANADA'S BOREAL REGION

Photo: Innu Nation

Can Canada develop a "natural landscape-based approach to managing a Boreal forest that is increasingly coming under siege," according to the Canadian Senate?

Introduction

This section of the report reviews the state of conservation of the Boreal region, based on the Boreal Forest Conservation Framework's vision, which aims for the region to become "the world's best conserved forest ecosystem while supporting Northern communities." And it builds on earlier reports by the National Forest Strategy and the Canadian Senate, which identified the importance and the challenges of developing "a natural landscape-based approach to managing a Boreal forest that is coming increasingly under siege".[47]

The assessment reflects the five focal areas in the Framework, namely:

- ***Land Use Planning*** — how much and what kind of land use planning is underway across Canada's Boreal region?
- ***Protected Areas*** — how much of Canada's Boreal region is protected from industrial development and what action and commitments are in place to expand existing protected areas networks?
- ***Sustainable Development Practices*** — to what extent are best management practices emerging and being implemented across the boreal?
- ***Aboriginal Rights and Interests*** — to what extent are the rights and interests of Aboriginal peoples accommodated in land use planning and resource management activity underway in Canada's Boreal region?
- ***Information*** — to what extent is key data being collected and made publicly available to support Boreal land use planning?

For each area, key indicators were chosen based on both their relevance and the availability of reliable information. For most of the indicators, comprehensive information was available, however, for some, partial information was used where more was unavailable. As such, the review identifies key trends and needs across the region. It is not intended to be a comprehensive assessment of the health of the entire region or an exhaustive compilation of existing activities in any one sector.

47 Senate Committee on Agriculture and Forestry's Subcommittee on the Boreal Forest, 1999, Competing Realities: The Boreal Forest at Risk and: National Forest Strategy Coalition, 2003, National Forest Strategy (2003-2008). Ottawa: NFSC <online: http://nfsc.forest.ca/>. The Senate called for land use planning for the Boreal forest, with conservation of biodiversity as a priority for up to 80% of region.

3.1 Land Use Planning

INDICATORS:

1. *Government commitments to conservation-based land use planning*
2. *Establishment of effective conservation-based land-use planning processes*

As envisioned in the Framework, the goal of land use planning is to achieve an integrated network of protected areas and sustainable development across the whole of the Boreal. Achieving this goal will require the commitment and participation of all stakeholders. Governments especially have a leadership role to play in establishing comprehensive, conservation-based planning processes, and ensuring that they occur *before* land use decisions are made wherever possible.

The need for effective land use planning in the Boreal region is widely recognized. Comprehensive land use planning in advance of development to ensure conservation of natural and cultural values was a key recommendation of the landmark Mackenzie Valley Pipeline Inquiry led by Thomas Berger in the mid-1970s.[48] The Senate Subcommittee on the Boreal Forest also emphasized the importance of completing large-scale land-use planning in the Boreal prior to industrial development in its 1999 report.[49]

This approach is also consistent with the ecosystem approach recognized by Canada and the other Parties to the United Nations Convention on Biological Diversity as the central strategy for achieving integrated management of land, water and living resources and promoting conservation and sustainable use in an equitable way.[50] This direction was reinforced in a recent IUCN recommendation adopted at the World Conservation Congress in November 2004. The 2003-2008 National Forest Strategy (2003-2008) also calls for the management of Canada's natural forests using an ecosystem-based approach, and identified land-use planning prior to tenure allocation as one of the tools needed to achieve sustainability.[51]

Assessing progress

There are many different ways to carry out effective, ecosystem-based, land use planning.[52] Land use regimes vary considerably between jurisdictions, as does the degree to which issues such as existing land tenures, Aboriginal and treaty rights, and existing or proposed industrial development figure into local or regional decisions about the most appropriate balance between protection and sustainable use. In addition, conservation organizations have developed a variety of conservation-based planning methodologies which are generally similar in objective but vary widely in scope and technical detail. Accordingly, the Framework recognizes the need to include a wide range of local approaches, issues and priorities, as long as they meet the primary goal of ensuring the ecological and cultural integrity of the Boreal region as a whole.

Given these objectives, existing land use planning processes were evaluated[53] to determine to what extent they included:

- Commitments to the realization of conservation goals through protected area designations or industrial use deferrals prior to making land use decisions for industrial development;
- Planning for a full range of potential land uses ;

48 T. Berger, Northern Frontier, Northern Homeland: The Report of the Mackenzie Valley Pipeline Inquiry, 1977.

49 Senate Committee on Agriculture and Forestry's Subcommittee on the Boreal Forest, 1999, Op.Cit.

50 United Nations, Decisions Adopted By The Conference Of The Parties To The Convention On Biological Diversity At Its Fifth Meeting, Nairobi 15-26 May, 2000, UN Doc: UNEP/CBD/COP/5/23. See also) "Ecosystem Approach: Further Conceptual Elaboration" in United Nations, Convention on Biological Diversity, Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA (2000) UN Doc: UNEP/CBD/SBSTTA/5/1

51 National Forest Strategy Coalition, 2003, op.cit.

52 The goal of ecosystem-based planning is to ensure that development and other human activities occur within ecological limits. The approach is premised on the recognition that healthy economies depend on healthy cultures and communities, which ultimately depend on healthy ecosystems. Ecosystem-based land use planning involving a full range of sectors including Aboriginal people, local communities, governments and experts in science and traditional knowledge, as well as industry, is essential in achieving Framework goals.

53 The evaluation of land use planning processes and policies in each jurisdiction within the Boreal was conducted for this report through analysis of existing policy and legislation, interviews with government officials, non-governmental organizations and other participants in current planning activities, and a review of published planning documents and secondary materials.

- Provisions for the meaningful accommodation of Aboriginal peoples' rights;
- Effective mechanisms to address the needs and perspectives of all interested stakeholders;
- Utilization of scientific and traditional knowledge expertise to achieve the conservation of natural and cultural values;
- Transparency and accountability during approval and implementation.[54]

1. Have governments committed to land use planning in advance of development?

Recognizing that land use planning is an evolving concept, and that there is considerable variation in the planning processes and approaches that presently exist between and even within jurisdictions, the evaluation focused on determining whether conservation goals are being addressed through effective land use planning processes before new industrial developments are permitted to proceed.

Based on this review, it is evident that there is considerable variation between jurisdictions, not only to establishing conservation objectives prior to development, but in their degree of commitment to integrated land use planning. The jurisdictions that are leading in the use of land use planning are the northern territories of the Yukon, the Northwest Territories and Nunavut, where land use plans are mandated under the terms of comprehensive land claim and self-government agreements with Aboriginal peoples.

Photo: Garth Lenz

54 Sierra Club of Canada, Integrated Land-use Planning and Canada's New National Forest Strategy, 2004.

Government Land Use Planning Procedures Affecting the Boreal Region

Jurisdiction	Summary
British Columbia	Provincial mandate to complete strategic land use planning for all regions within the province. Significant additions to protected areas achieved through land use planning process. Provisions for land use plans to be adopted and enforced under Forest Practices Code, but few binding provisions apply to other resource sectors.
Alberta	Provincial emphasis on adaptive management and mitigation strategies concurrent with (but not prior to) development activities.
Saskatchewan	Integrated land use planning required for large areas of Boreal prior to new forest developments under the 1999 Forest Resources Management Act (FRMA); inclusion of candidate protected areas within planning areas; interim protection measures established in Athabasca process. Mineral development activities not subject to planning under FRMA.
Manitoba	Areas of special interest identified through Protected Areas Initiative. Some interim protection in place. Broad area planning initiative established on East Sidc of Lake Winnipeg. Land use planning not yet extended to remainder of Boreal.
Ontario	Land use planning initiative underway in unallocated Boreal region though Northern Boreal Initiative presently focused on forest management activities.
Quebec	Planning for new protected areas being implemented but not yet fully integrated with planning for development.
Newfoundland and Labrador	Planning limited to forest management activities. No systematic plan for protected areas. Other industrial developments may occur during forest planning.
Yukon	Comprehensive land use planning requirements set out in Yukon Umbrella Final Agreement which covers virtually all of Boreal Yukon. Planning still underway or not yet initiated in several areas.
Northwest Territories	Comprehensive land use planning requirements under final land claim agreements. Well-developed protected areas planning process. Planning efforts still underway or not yet initiated in several areas.
Nunavut	Comprehensive land use planning requirements under final land claim agreements. Planning in early stages.

In total, nearly 60 percent of Canada's Boreal region is subject to current or proposed land use planning procedures.

Among the provinces, **British Columbia and Saskatchewan** *have both made significant commitments to integrated land-use planning that will affect their Boreal regions, and* **Manitoba** *has embarked in a major exercise in one portion of the province.*

Within most jurisdictions, however, regulatory processes remain largely focused on individual resource sectors or individual developments. Even where land use planning processes occur, there are often considerable differences in the degree to which different resource sectors and land use activities are subject to planning. While nearly every jurisdiction places planning controls on its forest industry, the mining and energy sectors often remain largely outside of land use planning frameworks.

There are some promising examples of leading land use planning exercises underway within the Boreal region. Several of these processes are being led by or are proceeding in partnership with Aboriginal people under the provisions of comprehensive land claim and self-government agreements, while others, such as the Muskwa-Kechika process in British Columbia, are examples of innovation within existing land use planning frameworks.

Processes such as the **Northern Boreal Initiative in Ontario** *and* **Manitoba's East Side Planning Initiative** *are in the early stages, but represent important opportunities for land use planning in the region.*

2. Are effective conservation-based land-use planning processes in place?

While few land-use planning and resource management processes fully embrace the approach set out in the Framework, several examples of processes that incorporate some of the essential elements of conservation-based land use planning were identified during the review conducted for this report. In total, these processes affect nearly 1.7 million km^2 of Canada's Boreal region. They include:

British Columbia — Development of integrated land use planning policies for different regions and resource sectors is the responsibility of the Ministry of Sustainable Resource Management.[55] The BC multi-stakeholder Land and Resource Management Planning process has resulted in a number of important conservation initiatives, including the designation of the 64,000 km^2 Muskwa-Kechika Management Area under specific legislation.[56]

Photo: Tembec Inc.

55 Government of British Columbia, Integrated Land Use Planning for Public Lands in British Columbia. Victoria: Resource Management Division, 1997. <online: http://srmwww.gov.bc.ca/rmd/rpts/!int-html/int-toc.htm>

56 Muskwa-Kechika Management Area Act, S.B.C. 1998, c. 38

The Muskwa-Kechika Management Area legislation requires conservation objectives to be defined prior to resource tenure allocations, and established an advisory board together with a significant trust fund to advance special projects and planning initiatives. While it has experienced some challenges in recent years, the Muskwa-Kechika remains an outstanding example of conservation-based land use planning.

A sustainable resource use management plan was recently concluded for the Dease-Liard region of north-central BC in partnership with the Kaska Dena Council. This plan primarily addresses forestry management and wildlife issues within a nearly 24,000 km^2 area of British Columbia's northern Boreal forest, and designates large "no harvest zones" in recognition of high values for tourism, wildlife and Kaska culture and history in parts of the plan area.[57] A land use planning process for the Atlin-Taku region has also been proposed.

Alberta – In contrast to many other parts of Canada's Boreal, Alberta's forests and northlands are significantly impacted by resource development, including both forestry and oil and gas development. As a result, planning initiatives in recent years have shifted to focus on integrated strategies to manage the cumulative effects of resource industries, rather than comprehensive land use planning in advance of new developments.

Saskatchewan — The province has initiated integrated land use planning within its Boreal forests primarily under the requirements of the Forest Resources Management Act (FRMA).[58] Planning is underway in several large districts, each consisting of tens of thousands of square kilometres, through multi-stakeholder processes in which protected areas, infrastructure, forestry and other development opportunities are considered in advance of development decisions.

Mineral developments are not subject to the plans pursuant to the FRMA. In addition, several planning tables are experiencing real difficulties in achieving consensus. Recent government spending reductions have also limited the resources available to conduct large-scale integrated planning. The Athabasca land use planning process, affecting 120,000 km^2, is proceeding under an agreement with Aboriginal people outside of the provisions of the FRMA, and may prove to be an important model for land use planning in Saskatchewan's unallocated Boreal region.

Innovative Land Use Planning Process in Saskatchewan

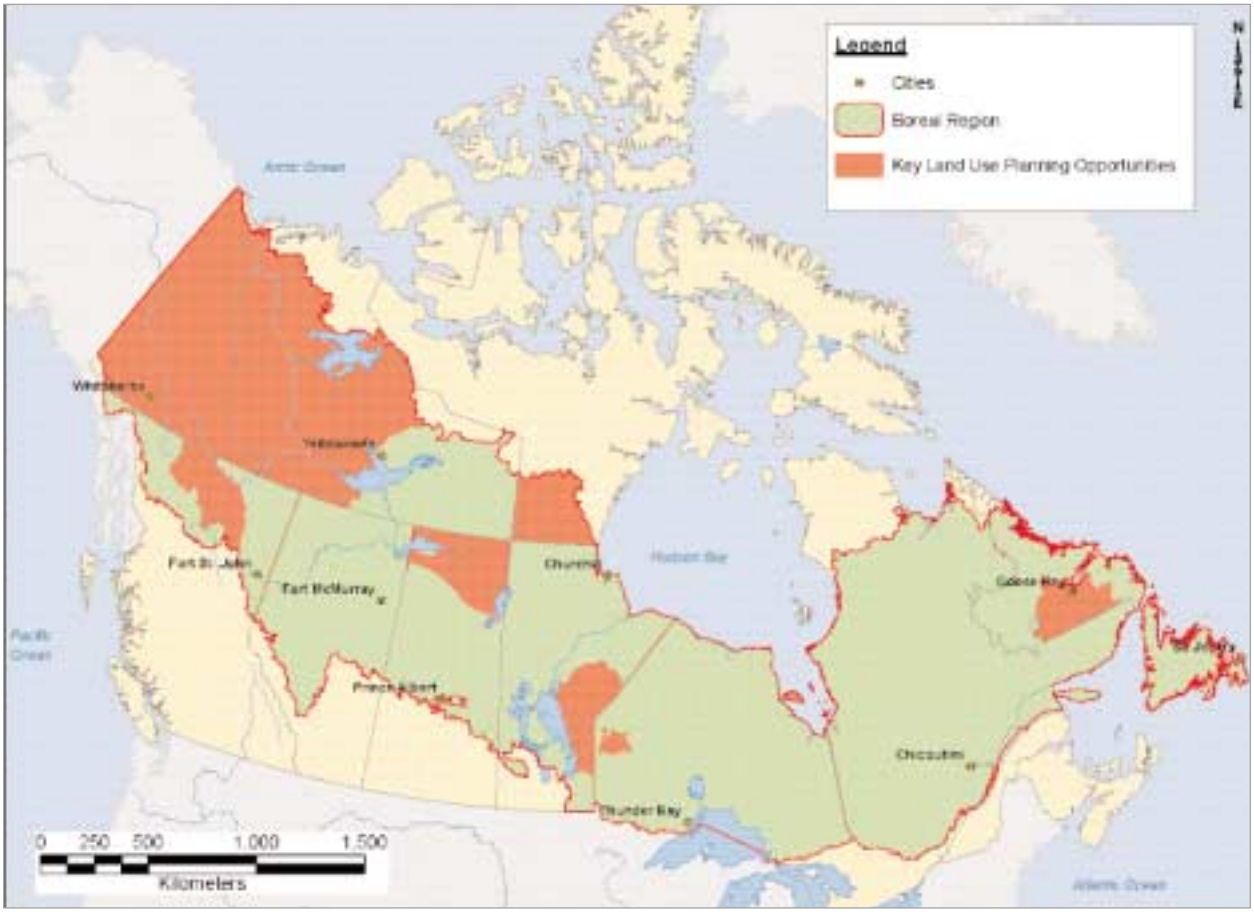
Saskatchewan's Athabasca Land Use Planning Process, which covers about 120,000 km^2 (nearly 30 million acres) in the far north of the province, in many way exemplifies the meaningful involvement of Aboriginal peoples in land-use planning.[59] Designed to result in management guidelines for both protected areas and sustainable development areas, the plan is the result of a unique agreement between three Dene First Nations of the Prince Albert Grand Council, the non-treaty communities of the area and the Province.

The plan incorporates local knowledge gathered during a comprehensive Traditional Land Use and Occupancy Study, based on interviews with over 600 traditional resource users in the area. The database, which includes information on natural resource use, cultural sites and other relevant topics, ensures that local interests and perspectives are fully documented and well represented at the planning table.

Photo: Garth Lenz

57 http://srmwww.gov.bc.ca/ske/srmp/dease-liard/index.htm
58 Sierra Club of Canada, Op.Cit.
59 S.S. 1996, Ch. F-19.1.

Key Land Use Planning Opportunities



There are a number of land use planning exercises underway or proposed in the Boreal that offer significant opportunities to advance proactive conservation planning in advance of new industrial developments.

Source: Canadian Boreal Initiative. NB: Land use planning boundaries are approximate.

Manitoba – An integrated large area land use plan for 82,500 km 2 on the east side of Lake Winnipeg was recommended by the 1999 *Consultation on Sustainable Development Implementation* report.[60] The East Side Planning Initiative (ESPI) has brought together First Nations, local stakeholders industry, and provincial organizations to identify a wide range of options for protection and sustainable use of this region. Participants delivered a progress report in November 2004.[61] And in November 2004, the Manitoba Government's Speech from the Throne referenced support for the ESPI process and its commitment to additional protected areas and ecological reserves in the coming year.[62] While significant work remains to complete this planning work, it represents an important opportunity to secure large-scale conservation of this key area.

60 Manitoba Conservation, East Side of Lake Winnipeg Round Table Terms of Reference, 2003 <online: www.gov.mb.ca/conservation/eastsideplan/press/index.html>

61 East Side Planning Initiative, 2004. Promises to Keep: Towards a Broad Area Plan for the East Side of Lake Winnipeg. <online: http://www.gov.mb.ca/conservation/eastsideplan/status-report/index.html>

62 See: http://www.gov.mb.ca/throne.html

Ontario – In 2001, Ontario announced a new planning process called the Northern Boreal Initiative (NBI) for the unallocated Boreal forest region north of the Lands for Life planning area (generally the area north of 51°N latitude). A number of First Nations have been engaged in building the NBI process, which is intended to enable First Nations to take a lead role in community-based land use planning to support new economic activities, particularly within the forestry sector.

Terms of reference for the 13,000 km2 Whitefeather Forest were developed by the Pikangikum First Nation in cooperation with the Ministry of Natural Resources under the NBI policy framework, These terms of reference are consistent with a conservation-based approach.[63] While the Pikanjikum planning process reflects the particular needs and circumstances of that community, the results of the Whitefeather Forest plan will be an indication of prospects for future land use planning under the NBI. The Ontario government has indicated that it is committed to "community-based land use planning, embodying a "strong conservation-based, orderly development approach" for all of the NBI-associated First Nations.[64]

Quebec – While integrated land use planning requirements are not in place, substantia reorientation in land and forest use policies is occurring in the province. Consultations and planning are underway to define boundaries and establish management plans for numerous proposed areas throughout the Boreal region – which covers 90% of the province, based on a science-based protected areas strategy.[65] Significant reforms may also follow the recommendations of the Commission d'étude sur la gestion de la forêt publique québécoise ("The Coulombe Commission"), which released its final report in December 2004. The Commission has called for an overhaul of Quebec's forest management regime, and has recommended ecosystem-based planning measures to increase the area of Quebec's Boreal forests that are protected from development.[66]

Photo: PhotoDisc

Another significant development in land use planning in Quebec is the Agreement Concerning a New Relationship Between Le Gouvernement du Québec and the Crees of Québec concluded between the Grand Council of the Crees and the Government of Quebec in 2002.[67] This agreement establishes a Cree-Quebec Forestry Board to review forestry regulations and forestry plans for Cree territory, and enables communities to participate in planning forestry activities to attempt to reconcile forestry activities with Cree traditional uses of the territory and the protection of the natural environment.

63 Background on the initiative is available online at www.whitefeatherforest.com;
64 Personal conversation with official, Ministry of Natural Resources, December 22, 2004.
65 Government of Quebec, Briller parmi les meilleurs: La vision et les priorités d'action du gouvernement du Québec, 2004 <Online: http://www.briller.gouv.qc.ca/>
66 Commission d'étude sur la gestion de la forêt publique québécoise, Rapport, 2004 <online: http://www.commission-foret.qc.ca/rapportfinal.htm>
67 http://www.gcc.ca/pdf/LEG000000008.pdf

Newfoundland and Labrador — Most of the Island portion of the province is allocated for timber production under long-term tenure to pulp and paper companies. Given that forestry is a dominant land use, forest management planning is of particular importance. Since 1994, the province has made a substantial commitment to ensuring participation by local people in the development of forest management plans. Many plans developed within this process address a wide range of land and resource uses. In 2003, the province released a 20-year Sustainable Forest Management Strategy, which reaffirms prior commitments to implementing ecosystem-based forest management planning.[68]

The province has also entered into agreements with the Innu Nation, leading to the development of an innovative ecosystem-based plan for a 70,000 km^2 area within central Labrador. This plan applied conservation-based principles in the designation of a network of ecological and cultural protection zones, resulting in the protection of more than 50% of the planning area from industrial forest development, and set new standards for planning and protection at the stand level.[69]

Yukon, Northwest Territories, Nunavut — The context for land use planning in the territorial North is quite different from that in the provinces because jurisdiction over land use decisions in most of the North is divided between federal, territorial and Aboriginal governments under the terms of land claim settlements.

In the **Yukon**, integrated land use plans are being developed in four settlement areas, representing approximately 50% of the territory, by regional land-use commissions established following land claims agreements with different Yukon First Nations.[70] Integrated land-use planning is expected to proceed in the remaining areas pending a review of the territorial land-use planning framework. Similar treaty-based land use planning processes are underway in the Northwest Territories and in Nunavut where land claim agreements have been concluded.

Another notable development in the Yukon is the MOU concluded between the governments of Canada and the Yukon and the Kaska Dena Council in 2002.[71] This MOU resulted in the initiation of an ecosystem-based forest management process for a 110,000 sq. km region in the southeast Yukon, under the leadership of a jointly appointed Kaska Forest Resources Stewardship Council.[72] The Kaska Dena concluded an agreement in principle on forest co-management with the Yukon government in March 2004.[73]

In the territorial North

The context for land use planning in the territorial North is quite different from that in the provinces because jurisdiction over land use decisions in most of the North is divided between federal, territorial and Aboriginal governments under the terms of land claim settlements.

Photo: Mike Beedell Photography

68 Newfoundland and Labrador, Department of Forest Resources and Agrifoods, Provincial Sustainable Forestry Management Strategy, 2003 <online: http://www.gov.nl.ca/forestry/strategy/>

69 Government of Newfoundland and Labrador and Innu Nation, Ecosystem-Based Forest Management Plan for Forest Management District 19. Goose Bay: DFRA and Innu Nation, 2003. <online: www.gov.nf.ca/env/Env/EA%202001/Project%20Info/1062.htm>

70 These were accomplished under the Yukon Umbrella Final Agreement. See Yukon Land Use Planning Council, <online: www.planyukon.ca/index.php>

71 Indian and Northern Affairs Canada, Backgrounder and Memorandum of Understanding, 2002 <online: www.ainc-inac.gc.ca/nr/prs/m-a2002/for008_e.htm>

72 The Kaska Forest Resources Stewardship Council, <online: http://www.kfrsc.ca>

73 http://www.gov.yk.ca/news/2004/mar/04-068.pdf

Within the ***Northwest Territories***, regional land-use planning and management boards have been established in settlement areas with the authority to undertake integrated land-use planning for the area. These bodies, which include the Sahtu Land Use Planning Board and the Gwich'in Land Use Planning Board, are mandated to develop land use plans that will ensure the conservation and protection of the environment and traditional Aboriginal ways of life while planning for the sustainable use of resources. The Inuvialuit Land Administration is responsible for activities on Inuvialuit lands within the Inuvialuit Settlement Area, and has developed community conservation plans in place of a larger-scale regional plan.[74] The recently completed Tlicho Final Agreement does not call for the establishment of a land use planning body, but provides a basis for land use planning as part of the exercise of Tlicho self-government.[75] Conformity with land use plans developed through these processes is ensured through legislative mechanisms such as the Mackenzie Valley Resource Management Act (MVRMA), which regulates land and water use permitting within the Sahtu and Gwich'in settlement areas. Under the MVRMA, permits and licenses for land and water use activities can only be issued in conformity with existing land use plans.[76] The provisions of the MVRMA are in the process of being extended to include the 154, 000 km^2 Tlicho settlement area between Great Bear Lake and Great Slave Lake.[77]

The Nành' Geenjit Gwitr'it T'igwaa'in (Working for the Land), the Gwich'in Land Use Plan, affecting 59,000 km^2, is an example of the results of the work of these boards. This plan was developed after several years of consultations with Gwich'in communities and organizations, territorial and federal government departments, industry groups and environmental non-government organizations, and integrates existing traditional and scientific knowledge about the region. The plan identifies zones for ecological and cultural protection, traditional practices, and sustainable resource use.[78] The Gwich'in Land Use Plan received federal approval in 2003. The Sahtu Land Use Planning Board recently released a draft land use plan for the Sahtu settlement area.[79]

Land-use planning can also play an important role where land claim agreements are still under negotiation. The Dehcho First Nations Interim Measures Agreement, concluded in 2001, committed the governments of Canada and the Northwest Territories to work cooperatively with the Dehcho to develop a land use plan which would take into consideration the principles of respect for the land, sustainable development and provide for the conservation, development and utilization of the land, waters and other resources in the Dehcho territory.[80] Land use planning under the Interim Measures Agreement resulted in 2003 interim land protection for approximately 70,000 km^2 (17.3 million acres)— representing approximately 50% of the Dehcho territory.[81]

RECOMMENDATIONS

Making meaningful progress towards conserving the boreal will require action by all of the players active in the region. Given the important role effective, conservation-based land use planning can play in protecting ecological and cultural values while identifying opportunities for sustainable development, it is recommended that:

- As a priority, governments initiate comprehensive conservation-based land use planning exercises before permitting new industrial developments in unallocated regions.
- Conservation organizations, Aboriginal peoples and industry should work with governments in good faith to identify opportunities to expand the scope of existing land use planning processes in the allocated portions of Boreal region to apply conservation-based planning principles.

74 Inuvialuit Regional Corporation, <online: http://www.irc.inuvialuit.com>
75 Tlicho Agreement, s. 7.4.2
76 Mackenzie Valley Resource Management Act, S.C. 1998, c. 25, s. 61
77 Bill C-14: Tlicho Land Claims and Self-Government Act is presently before the House of Commons. Online: < http://www.parl.gc.ca/38/1/parlbus/chambus/house/bills/government/c-14/c-14_1/c-14-4e.html>
78 Gwich'in Land Use Plan, <online: http://www.gwichinplanning.nt.ca/>
79 Sahtu Land Use Planning Board, <online: http://www.sahtulanduseplan.org/lupdoc.html>
80 Dehcho First Nations Interim Measures Agreement, <online: http://www.ainc-inac.gc.ca/pr/agr/dci_e.pdf>
81 Indian and Northern Affairs Canada, Dehcho process agreements balance economic development with land protection, Press release, April 17, 2003. <online: http://www.ainc-inac.gc.ca/nr/prs/j-a2003/2-02287_e.html>

3.2 Establishing Protected Areas

INDICATORS

1. *Amount of protected areas in the Boreal region*
2. *Government commitments and actions to establish protected Boreal areas*

Emerging scientific findings underscore the critical role that protected areas play in maintaining ecological integrity. These areas need to be large enough to maintain viable populations of native species, key ecological processes and ecosystem resilience to both short- and long-term environmental changes. Establishing these areas at a large scale is particularly important in the Boreal, given the vital role of large natural disturbances such as fire and the extensive intact landscapes required by Boreal species such as caribou. As a result, the Framework calls for the protection of at least one-half the region in a comprehensive network of protected areas.

In assessing protection of Canada's Boreal region, this report identifies two types of protection: permanent and interim. The former provide permanent legislated protection from industrial activity for specific areas. Interim protected areas set in place measures to protect ecological integrity and associated cultural values on a temporary basis, but they lack permanent legislated designation. [82]

A protected area is defined as land or water that has been designated under legislative or other means to be managed primarily for the protection of ecological integrity and associated cultural values. Protecting ecological integrity means ensuring the capability of characteristic natural systems to maintain their structure and functions and to support biological diversity over the long term. To protect cultural values, protected areas must respect the rights of Aboriginal people to maintain longstanding cultural sites, such as sacred and burial grounds, and traditional activities, such as hunting and trapping.

Protected areas provide permanent legislated protection from industrial activity, including logging, mining, and development of hydroelectric dams and oil and gas resources. However, a variety of other protection approaches exist across the country, tailored to accommodate a range of needs. For example, some areas

Forging a new path in Manitoba

"Like our ancestors, we are the caretakers of this land and we know once the resources from the land are depleted, that our people will be depleted. We have been told by our Elders to keep the land as it was when the Creator made it." (Noel Bruce, Poplar River, 2004)

Poplar River First Nation, whose traditional territory lies about 400 km north of Winnipeg, is working to permanently protect and manage its lands and waters. Poplar River First Nation has gained interim protection for nearly 8,000 km² (almost two million acres) of these lands. This protection under the Manitoba Parks Act ensures that no industrial activities will occur before 2009, while the First Nation completes its community-driven land management plan.

The management plan will combine traditional methods and knowledge with the best available scientific techniques and data. It will celebrate sacred and ancestral places and values and ensure that resource development is managed accordingly.

In 2002 Poplar River signed a historic First Nations and Protected Areas Accord with its neighboring communities of Little Grand Rapids, Pauingassi and Pikangikum First Nations. Their goal is to establish a United Nations World Heritage Site for their linked traditional territories, covering about 43,000 square kilometres (10.3 million acres).

Working with the Provinces of Manitoba and Ontario and the Government of Canada, the First Nations have submitted a proposal to the World Conservation Union (IUCN). In April 2004 the federal government included the site on the tentative list of future World Heritage sites in Canada.

82 Further explanation of protected area interpretation across jurisdictions is provided in Appendix 3.

are not yet protected through legislation, but interim protection is in place through a variety of mechanisms. In other areas, protection is in place although legislation may permit limited industrial activity, often in recognition of resource tenure that existed prior to protection.[83] These examples contribute to the overall protection of the region, and have been included in the calculations for protected areas in this report if they have the protection of ecological integrity and associated cultural values as primary objectives.[84]

1. *How much of Canada's Boreal region is protected from industrial development?*

At present, the percentage of the Boreal region that is either permanently or temporarily protected from industrial development stands at approximately 9.4 per cent.

Existing large protected areas include Wood Buffalo National Park, which straddles Alberta and the Northwest Territories (over 45,000 km^2 or 11 million acres) and Woodland Caribou Provincial Park in Ontario (4,500 km^2 or 1.1 million acres). The first provides habitat for two of the Boreal region's key species at risk – the Whooping Crane and Wood Bison. The second is home to the forest-dwelling Woodland Caribou, a signature species of the Boreal that is at risk throughout much of its remaining range.

2. *Government commitments and actions to establish protected Boreal areas*

Canada's federal, provincial and territorial governments all committed "to completing Canada's networks of protected areas by the year 2000."[85] Some governments have also stated that their protected areas network should be representative of ecological areas. Governments have continued to make progress towards these goals. However, there is a compelling argument to re-visit original protected area targets dating from the 1980s in the face of emerging scientific findings supporting a large-scale approach to conservation.

More recently, based on a review of conservation planning initiatives around the world, scientists have determined that 25% to 75% of a region should be protected to maintain ecological integrity.[86]

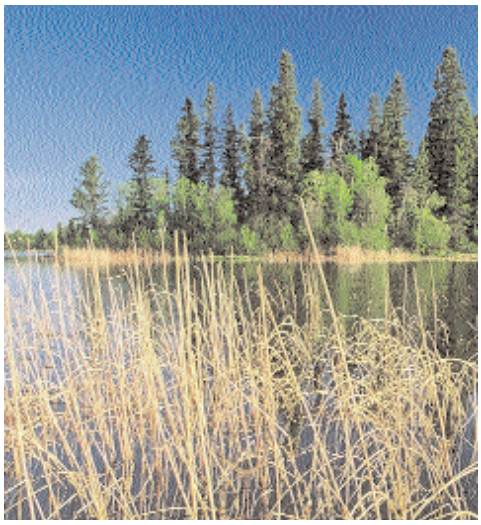


Photo: Garth Lenz

Efforts to protect private lands

Most of the Boreal region is Crown (public) land, but there are also extensive pockets of private land that can significantly contribute towards maintaining ecological integrity. Conservation easements, for instance, are an effective means of protecting ecological values. They are tailored to the landowner's desired use of the land, such as permitting traditional activities to continue while preventing other types of development from occurring. Other agreements with governments and non-governmental organizations, ranging from a memorandum of understanding to a contract, can also increase the level of protection for private lands. In addition, organizations such as Ducks Unlimited Canada and the Nature Conservancy of Canada (NCC) purchase lands and rights of land to ensure that they are managed appropriately for conservation. While the NCC has traditionally focused on southern Canada, it has recently expanded its conservation planning northward to include, for example, Boreal landscapes in the Great Lakes basin.

83 Although not evaluated in this protected areas analysis, Boreal lands under tenure to industry can be protected through such means as designation of "high conservation value" forests that are off limits to harvesting.

84 By comparison, in areas outside protected areas, other objectives, such as resource production, have the same or greater influence on management decisions.

85 In 1992, all of Canada's federal, provincial and territorial governments signed the Tri-Council Statement of Commitment "to complete Canada's networks of protected areas by the year 2000." The three Councils included the Canadian Council of Ministers of the Environment, the Canadian Parks Ministers' Council and the Wildlife Ministers' Council of Canada. The statement of commitment was also endorsed by representatives of the Canadian Council of Forest Ministers and Canada's national aboriginal organizations. Source: (Canadian Parks Ministers' Council, 2000).

86 R.F. Noss and A. Cooperrider, op.cit., 1994.

Permanent and Interim Protected Areas in Canada's Boreal Region

Source: Data provided by various sources, as described in Appendix 3.

World Heritage Sites within Canada's Boreal region

Areas of outstanding universal value are recognized by the United Nations as World Heritage Sites under the World Heritage Convention.[87] *Four Boreal areas — all national or provincial parks — are among Canada's 13 World Heritage Sites — Gros Morne (Newfoundland), Kluane/Tatshenshini-Alsek (Yukon and British Columbia), Nahanni (Northwest Territories) and Wood Buffalo (Alberta and Northwest Territories). Another Boreal site currently under consideration is the Atikaki/Woodland Caribou/Accord First Nations site along the Manitoba-Ontario border.*

Photo: Canadian Boreal Initiative

Gros Morne National Park is a UNESCO World Heritage Site.

87 www.whc.unesco.org.

Protected Boreal Areas in Provinces and Territories[88] [89]

Province/Territory	Permanent Protected Area in the Boreal Region of each Province or Territory (Km²)	Percent of the Boreal region in each Province or Territory that has permanent protection	Interim Protected Area in the Boreal Region of each Province or Territory (Km²)	Percent of the Boreal region in each Province or Territory that has interim protection	Total % protected
Alberta	51554	11.3	0	0	11.3
British Columbia	42024	14.1	0	0	14.1
Manitoba	40828	7.1	11941	2.1	9.2
Newfoundland and Labrador	7193	1.9	42894	11.2	13.1
Northwest Territories	21746	2.3	113620	12.0	14.2
Nunavut	559	0.5	0	0	0.5
Ontario	76095	8.8	9074	1.1	9.9
Quebec	29093	2.4	15179	1.2	3.6
Saskatchewan	21677	5.3	6023	1.5	6.8
Yukon	40186	8.5	7785	1.6	10.2
Totals	330946	5.8	206516	3.6	9.4

Source: Data provided by various sources, as described in Appendix 3.

This table summarizes actions with respect to establishing protected areas in the Boreal region to date. While progress has been made, much work remains. Most governments are still working to complete the representative networks of protected areas that they committed to in the 1990s.

National Parks will expand Boreal protected areas

The federal government is playing a significant role in the expansion of protected areas in Canada's Boreal region by expanding existing and establishing new national parks, following up on a commitment at the 2002 United Nations World Summit in Johannesburg to expand Canada's national parks system. Aided by a $220 million boost in federal funding announced in the 2003 federal budget, Parks Canada is negotiating for a total of approximately 80,000 km² of new national parkland within the Boreal region, which would represent an 80% increase in the amount of Canada's Boreal region now permanently protected in national parks.

The proposed new national parks in the Boreal region include unique natural areas around the Yukon's resplendent Wolf Lake, the rugged East Arm of Great Slave Lake in the Northwest Territories, Manitoba's Interlakes country, Labrador's dramatic Mealy Mountains, and the expansion of the Nahanni National Park Reserve in the NWT to include the entire South Nahanni watershed.

This expansion of national parks in the Boreal region is part of the federal government's plan to complete the creation of national parks in each of Canada's 39 distinct natural regions identified by Parks Canada.[90]

88 See Appendix 3 for information on data sources for calculations. Numbers may not add up due to rounding.

89 The 50% target set out in the Framework is focused on the Boreal region as a whole, not each constituent jurisdiction or ecozone. These figures are simply meant to illustrate the current percentage of protection.

90 See http://canadaonline.about.com/od/parksincanada/a/newparks.htm

Recent interim protection designations

The process that starts with the identification of candidate protected area sites and ends with permanent protection can take many years. Governments have a range of tools available to put interim protection into effect — ranging from withdrawing an area from mineral staking or development to redirecting forest harvesting approvals elsewhere while protected area deliberations take place. Several recent interim protected area announcements hold promise for the long-term.

A five-year land withdrawal that prevents new mineral staking has been put in place for the NWT's 25,000 km^2 (6.2 million acre) Edéhzhie/ Horn Plateau area — home to Woodland Caribou and Wood Bison. Local communities including the Dehcho and Tlicho First Nations leadership and Fort Providence, Líídlii Kue (Fort Simpson), Jean Marie River, Pehdzéh Kí (Wrigley), Behchokò (Rae) and Wha Ti (Lac la Martre), are considering permanent protection for this large Boreal area.

In 2004, the Manitoba government extended interim protection for the Poplar/Nanowin Rivers Park Reserve, a 7,500 km^2 (nearly two million acre) protected area that is the -traditional territory of Poplar River First Nation. As well, the 1,000 km^2 (247,000 acre) Chitek Lake park reserve was extended during 2004. These protected park reserves were originally nominated by the Poplar River and Skownan First Nations.

In November 2003, the Alberta government placed a priority on the development of a management strategy for the 3,500 km^2 (865,000 acre) forest management unit located northwest of the Chinchaga River prior to new forestry allocations in the region.

All of these recent "interim protection" measures are promising developments on the road towards the permanent conservation of the Boreal region.

RECOMMENDATIONS

Making meaningful progress towards conserving the Boreal will require action by all of the players active in the region, including civil society organizations, the private sector, governments and Aboriginal communities. In light of the findings in this report and the goals and principles of the Boreal Forest Conservation Framework, the following priorities have been identified:

- Governments should continue to work to meet their existing commitments to establishing protected areas.
- Governments should begin to develop new protected area goals for the Boreal region reflecting both our emerging understanding of conservation biology and the unique opportunity in the Boreal.
- Drawing on leading examples, governments, conservation organizations, Aboriginal peoples and industry should continue to demonstrate creativity and innovation in setting aside interim protected areas within their spheres of activity.

Interim protected lands agreement holds promise

The Dehcho territory spreads over 200,000 km^2 (49.4 million acres) in the southwestern part of the Northwest Territories, including the magnificent Nahanni watershed and the pristine Mackenzie Valley – a site of major importance for oil and gas development.

In April 2003, the Dehcho and the Government of Canada announced an agreement that will result in protection of just over 50% of the Dehcho's traditional lands from industrial development for the next five years, while negotiations proceed for permanent land use designations.

The Dehcho territory is home to about 7,000 people as well as huge populations of wildlife including caribou, grizzly bears and migratory birds. Its intact wildlife habitats and important watersheds support hunting, trapping and fishing activities that have sustained the Dehcho for thousands of years.

The Dehcho agreement is rooted in northern Aboriginal land claims and traditional values. It illustrates a conservation-first approach to planning, involving governments, Aboriginal peoples and conservation organizations working together to protect areas of cultural, spiritual and ecological significance before industrial development occurs.

Now the challenge is to create a permanent agreement that will protect the natural environment and traditional ways of life for the Dehcho, while also permitting resource development activities that could benefit all Canadians.

Visit www.dehchofirstnations.com for the latest news on this process.

3.3 Creating Sustainable Development Practices

INDICATORS

1. *Development of standards for sustainable practices by industry sector*
2. *Adoption of standards for sustainable practices by industry sector*
3. *Implementation of standards for sustainable practices by industry sector*

In addition to the creation of protected areas, the Framework calls for appropriate, sustainable development activities on the intervening landscape that will generate economic benefits and sustain the ecological, cultural and social values of the Boreal forest region.

A variety of stakeholders have influence on how sustainable development activities are undertaken on the Boreal landscape. Individual corporations can demonstrate leadership in environmental and social performance. The Framework also recognizes the vital role of governments in promoting sustainability through regulation and review processes. Governments can set clear and enforceable standards and mechanisms to ensure compliance with a set of minimum performance standards. Working with all stakeholders, governments can ensure that regulations are kept current in the face of the constant evolution of science, technology and public expectations.

There are also a range of other government programs at all levels that can contribute to sustainable development. For example, Canada's Model Forest Program was established in 1992 to deal with the challenge of balancing the range of demands placed on Canada's forests.

Forestry in Canada

Nearly 30% of Canada's boreal region, comprising almost one-half of the region's forests, is tenured to forestry companies. On these lands, forest tenure agreements issued by governments grant rights to harvest timber to one or more private companies

Source: Data provided by Global Forest Watch Canada, www.globalforestwatch.ca.

Eleven Model Forests, dispersed all across Canada, are "managed by local individuals and organizations who work together to ensure that their forest remains a healthy and dynamic part of the community." Among the successes identified by the Program thus far are the development of local-level indicators of sustainability; innovative land-tenure models; best management practices including sustainability codes of conduct for woodlot managers and contractors; and the development of geographic information systems (GIS) technologies for forest management.

Partnerships with Aboriginal communities are an important component of the Model Forest Program, as is the federal government's First Nation Forestry Program. The federal government renewed its support for the Model Forest Program in 2002 with a five year, $40 million commitment.[91] These national programs complement the activities of provincial and territorial governments across the country.

Leadership by Individual Companies

Meanwhile, the progress of companies who are committed to working towards best possible management practices can be measured in part through the development and implementation of independent third-party performance standards that recognize leading edge ecosystem-based stewardship activities. In recent years, both the public and some business owners have moved to accept and request the creation of standards that go beyond regulatory requirements for social, environmental and economic performance.

In general, these standards involve:

- Objective, comprehensive, independent and measurable performance based environmental and social standards;
- Equitable, meaningful participation of a broad range of stakeholders;
- Reliable and independent third party assessments;
- Full transparency to the parties involved and the public; and
- Demonstrated commitment from the company to improve its environmental and social performance.

This section of the report provides a brief overview of the status of the development, adoption and implementation of standards for the forestry, mining, oil and gas and hydro sectors that meet the above criteria. These sectors were chosen because they are the most important industrial actors in the Boreal region.

While leading companies in every sector have initiated projects to improve their environmental and social impacts, much remains to be done to ensure that standards are both applied more broadly throughout each sector; and established and implemented with the participation and oversight of key boreal actors.

First Nations committed to sustaining their lands in Northern Alberta

In Alberta's northern Boreal region, members of the Little Red River Cree Nation (LRRCN) are working with conservationists, other governments and forestry companies to plan for both the protection and the sustainable resource management of their traditional territories, which cover approximately 14,000 km^2 (3.5 million acres) of Boreal lowlands and highlands, including part of Wood Buffalo National Park (5,000 km^2) and the entire Caribou Mountains Wildlands Park (6,000 km^2).

The Little Red River Cree Nation is seeking a balanced approach to protecting their lands and attaining economic prosperity. It has helped to establish new parks within its territory and is now working to expand High Conservation Value Forest (HCVF) assessment of forestlands within its territory in advance of land use decisions. Its member communities have obtained provincial Crown forest tenures and are working with the Alberta government and with other forest corporations, including Footner Forest Products Ltd., TOLKO-High Level and Alberta Pacific Forest Industries, to develop a resource management strategy for the Caribou-Lower Peace Special Management Area.

91 Natural Resources Canada, Canada's Model Forest Program, available at: www.nrcan.gc.ca/cfs-scf/national/what-quoi/modelforest_e.html#minister. See www.modelforest.net for more information.

Forestry sector leads way

Among the major industrial sectors in the Boreal region, forestry has the biggest overall footprint across the nation, although other industrial sectors may have more of an impact in some regions.[92] Historically, forestry in Canada's Boreal region has been guided by the objective of maximizing timber harvest. In response to scientific concerns about the impact on other values such as wildlife habitat, terrestrial biospheric carbon storage, and even long-term timber supply, study and development of sustainable forest management practices have been accelerated in recent years.

Of all industrial sectors active in the Boreal region, *forestry has made the most progress towards the development, adoption and implementation of credible performance standards.*

This progress is a reflection and result of many political, economic and scientific drivers linked to the future of the forests. Important among these factors for progress are a variety of growing markets for sustainably-harvested wood products.

Public pressure combined with the vision of some leading companies and communities has resulted in some significant environmental commitments and innovative practices.

For example, in August 2004, the Forest Stewardship Council of Canada (FSC Canada) received formal endorsement from the international organization of its forest certification standards for the Boreal region. These standards were developed through a process that brought together industry, First Nations and environmental groups from across Canada's Boreal region. These standards can now be used to assess the quality of forest management in terms of both environmental protection and social responsibility. The FSC logo on a wood or paper products denotes that a company's operations have passed an audit against FSC standards. Growing awareness in the marketplace about the value of FSC products and their importance for the boreal has been generated by a variety of groups.

Other forest certification systems are also emerging in Canada. These include the Canadian Standards Association (CSA) Sustainable Forest Management Program and the U.S.-based Sustainable Forest Initiative (SFI). There is ongoing policy debate around the effectiveness of these standards in addressing environmental and social issues.[93]

In an effort to support greater participation by forest companies in certification efforts, the Forest Products Association of Canada

Forestry companies demonstrate commitment through FSC

Tembec Inc. and Domtar Inc., two members of the Boreal Leadership Council, are committed to adopting Forest Stewardship Council (FSC) standards — the world's highest endorsement for environmentally and socially responsible forestry practices.

The companies, World Wildlife Fund (Canada) and the Canadian Parks and Wilderness Society (Wildlands League Chapter) have been working together to implement these commitments, including protected areas deferrals and better forestry practices. Tembec obtained the first FSC certification in Canada's Boreal region in April 2003 for the 20,000 km² (five million acre) Gordon Cosens Forest in Ontario and recently obtained certification for the nearby Romeo Malette Forest (6,000km² or 1.5 million acres).

In 2003, Domtar announced its commitment to obtaining FSC certification, noting that it will be the only paper and forest products company in North America to apply FSC certification to its manufacturing and distribution activities as well as forests. Three of its tenured forests, covering about 27,000 km² (6.7 million acres) in Ontario's Boreal forest region, were undergoing FSC assessment during the fall of 2004.

92 NRTEE, 2004, Op Cit., p. 32

93 FSee NRCan, The State of Canada's Forests 2000-2001: Forest Certification available at http://www.nrcan-rncan.gc.ca/cfs-scf/national/what-quoi/sof/sof01/certification_e.html

Forest Stewardship Council Activity in Canada

Source: WWF-Canada; www.certifiedwood.org; www.fsccanada.org; www.rainforest-alliance.org. The following three nonboreal forests that were certified in the fall of 2004 are not shown: Tree Farm License 14 and Inlailawatash Holdings in British Columbia and Central Ontario Forest Resource Management in Ontario. Some commitments made to pursue FSC certification after January 2004 may not be included.

has required, as a condition of membership, that all companies must be certified under one of the three systems by 2006. As a result of these commitments, Canada is an international leader and has the largest amount of certified forest in the world.

Mining sector begins to consider standards

Eighty percent of Canada's mining activity occurs in the Boreal region, and its impacts on the landscape can range from site-specific issues such as acid mine drainage, abandoned mines, habitat loss due to infrastructure requirements including roads and very substantial energy and water inputs. Prior to mine development, the exploration phase has a lighter footprint but is more extensively spread across the landscape, as it is generally understood that there are at least one thousand exploration sites for every mine discovered.[94] A particular area of concern relates to legislation and policy from the early 20th century that still permits free entry by prospectors and exploration companies across a broad percentage of the landscape without consultation or planning.

Voisey's Bay offers a way forward

Generally, the mining sector has only recently turned its attention to developing broader, credible performance standards that address impacts on biodiversity and the challenge of third-party verification. However promising advances in best management practices, are occurring at some major new mining sites within Canada's Boreal, notably where First Nations have negotiated conditions based on their land rights. One example is at the Voisey's Bay Nickel mine, where Innu and Inuit have negotiated Impact Benefit Agreements and participatory monitoring and information sharing agreements for the future mine development.

Similar agreements have been negotiated with Aboriginal organizations at the Ekati and Diavik diamond mines in the Northwest Territories as well as the Raglan mine in northern Quebec. Each of these sites has established site-specific agreements that are the subject of ongoing negotiation. Mining development is long and complex, and it is too early to assess the effectiveness of these agreements, but, if successful, they represent important signs of progress.

94 A Young, More Precious than Gold: Mining and the Protection of Biodiversity in Canada, Environmental Mining Council, Victoria, 1998, p. 8

The response by the mining sector to protected areas initiatives has varied. While both the concept and specific proposals for protected areas have met with clear opposition by some, the Mining Association of Canada has demonstrated strong support for specific protected areas. On regional basis, since 1997 the Manitoba Mining Association has worked closely with the World Wildlife Fund, Nature Canada, and Manitoba Wildlands to undertake mineral assessment and technical review of over 100 areas of special interest. The results include mining sector support for protected area designations, and currently 39,000 km 2 of these sites are ranked and waiting for protected status.[95]

In 2003, the Prospectors and Developers Association of Canada (PDAC) released an "Environmental Excellence in Exploration" program to try to guide its membership in reduction of impacts. The program, intended as an educational tool to spread lessons on best practices for mineral exploration, was developed largely by industry practitioners. It currently has no independent verification mechanisms.

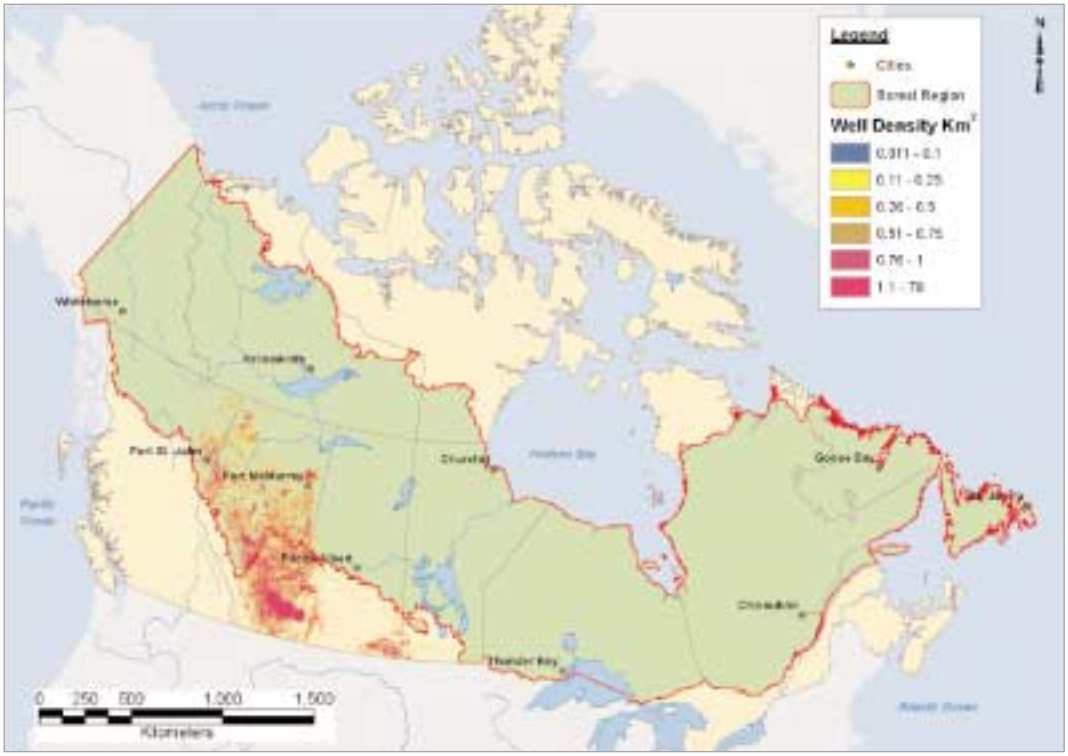
In 2002, the Mining Association of Canada began an initiative called "Towards Sustainable Mining" (TSM) to address some key environmental and social performance issues for its members. Its focus to date has been on guidelines for energy management and the planning and management of mine tailings and waste. TSM is in the early stages of coming to terms with biodiversity conservation issues as they could be incorporated into guidelines. An independent performance verification system against the TSM principles is also in development.

This is an important start, *but more work is needed within the mining sector to systematically identify and promote best management practices that are consistent with the Framework.*

Oil & gas sector lags on sustainability front

In some areas of the Boreal region such as northern Alberta and northeastern British Columbia, oil and gas development is the dominant industrial activity. The principal surface impacts caused by this sector include seismic lines required for exploration activities, access roads, pipelines, well-sites and power corridors required for active oil and gas operations. Given the breadth of the oil and gas footprint, there are significant concerns about the cumulative effects of development in this sector.

Wells in Canada



Gas and oil well activity is concentrated in Alberta and northeastern British Columbia.

Source: 2003 data provided by Global Forest Watch Canada, www.globalforestwatch.ca.

95 http://manitobawildlands.org/pa.htm

Seismic lines and roads increase public access to what were once remote intact forests. This in turn can result in increased hunting and predation pressure, the establishment of pathways for invasive species and, ultimately, a decline in sensitive wildlife populations. For example, a recent study in northern Alberta predicts that woodland caribou could be extirpated from the project's study area in as little as 37 years.[96]

Efforts to limit the cumulative disturbance

caused by the oil and gas sector and others, including forestry, are key to safeguarding the ecological health of fossil-fuel rich areas of the Boreal region.

Fortunately, opportunities do exist for oil and gas companies to limit cumulative effects, including minimizing the size and lifespan of footprints such as roads and seismic lines, integrating planning with other sectors to reduce the amount of disturbance required to access resources, and scheduling exploration and development such that cumulative disturbance does not exceed limits. That is the direction pursued by Alberta Pacific Forest Industries Inc. and ConocoPhillips Ltd. in jointly planning access development to the Gulf Surmount heavy oil project in northeastern Alberta. Their precedent setting cooperation reduced the total of roads built by over 100 kilometres.[97]

In addition, some well-intentioned efforts to minimize cumulative linear disturbances by organizations such as the Alberta Chamber of Resources exist; however, these voluntary codes of practice do not prescribe thresholds for maximum amounts of cumulative linear disturbances.

In summary, while successful examples exist of cooperation between oil and gas and forestry tenure holders to reduce the extent of disturbances, significantly greater effort is needed for this sector to properly address the scale of its impacts on Boreal ecosystems.

Hydro-electric development standards in infancy

Hydro-electric development has played a critical role in re-shaping Boreal landscapes and communities across Canada, most notably in Quebec, Manitoba and British Columbia. Some of the best-known development projects in Canada's Boreal region are the La Grande, Phases I and II (the Great Whale Project) in Quebec, the Williston Reservoir (the W.C. Bennett Dam) on the Peace River in British Columbia, and the Churchill-Nelson in Manitoba. Large dams required for hydro-electric plants have undoubtedly made a significant contribution to the development of economies and communities in Canada and the USA. However, they have also created profound social, economic and environmental impacts, often felt primarily by Aboriginal communities.

Joint sustainable land use efforts underway in Alberta

In September 2003, Alberta-Pacific Forest Industries Inc. (Al-Pac) and Ducks Unlimited Canada (DUC) began work on a five-year research initiative that will result in a watershed-based conservation plan for 115,000-square kilometres (28.4 million acres) of Alberta's northeastern Boreal region.

Known as the Boreal Conservation Project, the work involves research on plants, animals, natural processes and human uses of the area by industry, Aboriginal peoples and communities. It will also incorporate local First Nations' traditional knowledge of the land. The information gathered will be used to develop new decision-making tools and best practices for land users such as forestry companies.

The study area includes Al-Pac's 58,000-square kilometre (14.3 million acre) Forest Management Agreement area. Together, Al-Pac and DUC are seeking to involve others in the Boreal Conservation Project, including governments, Aboriginal communities, industrial land users and researchers who share their vision of an environmentally, socially and economically sustainable forest ecosystem.

Photo: Bryan Evans

96 Weclaw, P. and R.J. Hudson. "Simulation of conservation and management of woodland caribou", Ecological Modelling 177 (1-2), 2004: pp.75-94.

97 See: www.innovationalberta.com/article.php?articleid=75

Impacts range from habitat loss and fragmentation due to dams, reservoirs and transmission corridors, to long-term health issues related to flooding-related mercury contamination, to displacement of communities and subsistence economies. The issues raised by hydro are made more complex by their direct links to overall energy demand management and supply options, and the related climate change questions. These issues, when combined with the growing demand for energy to fuel industrial and urban centers in the south, make hydro standards a vital and difficult challenge for the Boreal region.

Over the past decade there have been some major studies of dam-related problems around the world with a variety of proposed guidelines generated by independent commissions and industry associations. The most far-reaching attempts at standards were undertaken in the global level review completed by the World Commission on Dams in 2000, by the International Energy Agency, and most recently by the International Hydropower Association.[98] These standards focus on public participation protocols, environmental and social impact assessment methodologies, as well as water quality and quantity standards. However, broad acceptance and implementation of broader standards for hydro developments remains an unmet challenge.

Debates and questions continue *about the contribution of hydro-electric power to sustainability. Resolving these questions in the Boreal region of Canada requires a much more systematic application of sustainability standards as they relate to public participation, environmental and social assessment and operational practices.*

The Business Case for Sustainability

Beyond industry performance standards, a variety of factors have an impact on the business case for sustainability. Community engagement, consumer preferences, internal corporate culture, political influence, regulatory structures, market opportunities, financial realities — these are all part of the dynamic global marketplace in which companies operate and have to make the best possible choices based on the most compelling economic and social business incentives.

Governments have significant policy and legislative tools at their disposal, such as fiscal and economic incentives, that they can use to stimulate sustainable practices by industry. Other stakeholders, like conservation organizations, consumers and communities can also create social, economic and political impetus to encourage corporate sustainability practices. Further efforts are needed as a priority to both develop and implement these incentives.

National Roundtable on Environment and Economy (NRTEE) stimulates new federal incentives

This independent advisory organization, whose multi-stakeholder participants are appointed by the Prime Minister of Canada, has taken a particular interest in sustainable development and conservation issues in Canada's Boreal region.

The NRTEE has developed expertise in regulatory and fiscal policy reforms to improve environmental performance, which they have applied with significant success to such issues as agricultural policy and urban sustainability. Its Boreal Task Force, established in 2003, is now investigating economic and fiscal incentives that would support conservation, primarily in the allocated portions of Canada's Boreal region.[99]

98 See: World Commission on Dams, Dams and Development: A New Framework for Decision-Making: The Report of the World Commission on Dams, Earthscan Publications, November 2000; International Energy Agency (Hydro Program), Hydropower and the Environment: Present Context and Guidelines for Future Action (Technical Report), May 2000; International Hydropower Association, Sustainability Guidelines, February 2004.

99 For more information see http://www.nrtee-trnee.ca

RECOMMENDATIONS

Making meaningful progress towards conserving the boreal will require action by all of the players active in the region, including civil society organizations, the private sector, governments and Aboriginal communities. In light of the findings in this report and the goals and principles of the Boreal Forest Conservation Framework, the following priorities have been identified:

- Resource industries should increase efforts to define, implement and participate in third-party verification of standards for world leading sustainable development practices in the Boreal region.
- Industry should promote the business case for responsible and innovative conservation-oriented activities in the Boreal among corporate partners and investors.
- Conservation organizations should promote financial and economic incentives to support responsible and innovative conservation-oriented activities in the Boreal region.
- Governments should develop financial and economic incentives for leading edge sustainable development practices in consultation with industry, conservation organizations and Aboriginal communities.

Photo: Garth Lenz

3.4 Aboriginal Peoples Rights and Interests

INDICATORS

1. *Consultation and meaningful accommodation of rights and interests of Aboriginal people*
2. *Aboriginal people control resource management and planning decisions on their lands and territories*

The Boreal Forest Conservation Framework's principles acknowledge the lands, rights and ways of life of Aboriginal people. Aboriginal rights are evolving legal concepts that are intended to recognize and affirm those practices that were and continue to be integral parts of distinctive Aboriginal cultures. Aboriginal rights cannot be exhaustively defined, and may vary substantially with context, but will generally include inherent rights to self-government, to engage in traditional activities, to manage and benefit from their resources, to maintain distinctive cultural institutions, languages, and practices, and to flourish as communities and as peoples in accordance with their own beliefs and goals.

The Boreal Framework includes a commitment to ensuring that Aboriginal people are meaningfully involved in all resource management and conservation planning efforts, and to acknowledging and respecting the leadership role of Aboriginal people on their traditional lands. The Framework recognizes that Aboriginal people have the right to determine their own future and to control their own lands and resources. It supports the aspirations of Aboriginal peoples to achieve self-government, and to become full and equal participants in the modern Canadian economy.

Aboriginal Communities in Canada

There are more than 600 Aboriginal communities in Canada's Boreal region.

Source: Data provided by Global Forest Watch Canada, www.globalforestwatch.ca.

These principles are in keeping with Section 35(1) of the *Constitution Act, 1982*, that recognizes and affirms the existing Aboriginal and treaty rights of the Aboriginal peoples of Canada. They are also an effort to align with the expectations of Aboriginal people themselves as they work towards re-asserting their rights over their traditional lands and resources and rebuilding indigenous self-governance institutions.

1. Are land managers consulting and meaningfully accommodating the rights and interests of Aboriginal people?

Although Aboriginal and treaty rights have been recognized and affirmed in Canada's Constitution since 1982, significant differences remain between Aboriginal peoples and the federal and provincial governments about what these rights mean. These differences find expression in land claim and treaty entitlement negotiations, disputes over the management of resources, and in everyday lives of ordinary Aboriginal people seeking greater involvement in decision-making at all levels. Increasingly, these differences are being settled in the courts.

The Supreme Court of Canada has expressed a strong preference for negotiation rather than litigation as a means to resolve these differences. It has provided guidance concerning how decisions must be made and the extent to which government decisions must involve Aboriginal people and take Aboriginal rights into account.[100] In the recent *Haida* and *Taku* decisions, the Court ruled that governments have a duty to consult Aboriginal people regarding decisions that could affect rights asserted by an Aboriginal group, even if those rights have not yet been proven in court decisions or confirmed by treaty.[101]

This new direction will require substantial changes in the approach taken by the federal government and most of the provinces in their dealings with Aboriginal people. Although most governments have either adopted or are in the process of developing formal policies for consulting with Aboriginal people about resource developments in areas which are under treaty or subject to land claims, there is little data available to track how governments are implementing these policies. Available evidence suggests that governments tend to apply existing policies inconsistently, and that the level of consultation afforded to Aboriginal peoples varies significantly among and even within jurisdictions.[102] The *Haida* and *Taku* decisions should result in a much more consistent approach, although the level of consultation required will vary in particular circumstances based on the strength of the rights being asserted and on the severity of any anticipated impacts.

While there are no comprehensive data regarding the adequacy of consultation across Canada's Boreal region, many Aboriginal organizations have expressed strong dissatisfaction.[103] [104] Some Aboriginal organizations have put forward their own consultation protocols.[105] Other groups have taken the approach of negotiating agreements for specific individual projects with government or with industry proponents to ensure appropriate levels of consultation and involvement.[106] Regrettably, many Aboriginal groups continue to feel denied in their efforts to seek meaningful participation in resource management decisions and instead are seeking resolution through litigation, political action, and in some cases, protests and blockades.[107]

100 R. v. Sparrow, [1990] 1 S.C.R. 1075; Delgamuukw v. the Queen, [1997] 3 S.C.R. 1010;

101 Haida Nation v. British Columbia (Minister of Forests) 2004 SCC 73; Taku River Tlingit First Nation v. British Columbia (Project Assessment Director) 2004 SCC 74.

102 National Forest Strategy Coalition, 2002, Op Cit.

103 National Aboriginal Forestry Association, "Canada forest policy inconsistent with legal requirements for addressing Aboriginal issues", Press release, September 2003. <online: http://www.nafaforestry.org/press/legalrightssept2003.pdf>

104 National Roundtable on the Environment and Economy, State of the Debate: Aboriginal Communities and Non-renewable Resource Development, Ottawa: NRTEE, 2001 <online: http://www.nrtee-trnee.ca/eng/programs/ArchivedPrograms/Aboriginal/aboriginal_e.htm>

105 Examples include Nishnawbe Aski Nation, Handbook on Consultation in Natural Resource Development, 2003, < http://www.nan.on.ca/lands/consultation.html> and the Innu Nation, Innu Nation Guidelines for the Mining Industry — A Matter of Respect, Innu Nation: Sheshatshiu , 1997.

106 See for example agreements concluded between the Government of Quebec and several First Nations setting out mechanisms for consultations and direct participation in forest management activities. <online: http://www.mrn.gouv.qc.ca/ministere/affaires/affaires-ententes-juin2000.jsp>

107 For example, for two years the Grassy Narrows First Nation in northwestern Ontario maintained a peaceful blockade of a forest access road in an effort to stop what it considers to be unsustainable forest management in their territory by Abitibi Consolidated and the Ontario government, in an attempt to seek recognition and meaningful accommodation of their Aboriginal and treaty rights from the Ontario Ministry of Natural Resources.

Even where consultations have occurred, they have often been less than successful. Aboriginal societies have different values and ways of ordering their affairs than do western governments. In many Boreal communities, people's first languages are Aboriginal dialects, so that careful translations of technical concepts are required, but rarely provided.[108] Aboriginal organizations may also lack technical staff or the resources to effectively participate or respond within such processes.[109]

Given that the duty to consult and accommodate is part of **a process of fair dealing and reconciliation**, *the courts have determined that governments should negotiate with Aboriginal peoples about the manner in which consultations will be conducted; taking into account the differences that must be accommodated in order for consultations to be meaningful.*

There are positive developments in some jurisdictions which may become models for meaningful consultation and accommodation of the rights and interests of Aboriginal peoples. For example, under an interim agreement and in the context of ongoing land claim and self-government negotiations, the Innu Nation and the government of Newfoundland and Labrador completed an ecosystem-based forest management plan covering 70,000 km^2 (17.3 million acres) in 2003.[110] The process for developing that plan was fully inclusive of Innu perspectives and objectives, but did not prejudice Aboriginal rights or the outcome of land claim negotiations. Consultations between the Innu Nation, the government and local community members dramatically improved forest protection guidelines and resulted in the designation of ecological and cultural protected networks representing approximately 50 percent of the planning area.[111]

Aboriginal peoples are also signatories to establishment agreements for approximately 50% of the lands in Canada's current national park system. These agreements, rooted in treaty obligations, set out the terms for co-management of national parks, preferential hiring, and other important elements fundamental to each partnership between Aboriginal communities and Parks Canada. There is also a legislative mandate to consult enshrined in the *Canada National Parks Act*[112], reinforced in Parks Canada policies and by recent Federal Court decisions.[113] Parks Canada has also established an Aboriginal Advisory Committee and is initiating in a healing process in some parks as one means to address past grievances.[114]

An Innu Vision for the Boreal, by Ben Michel

"For nearly 30 years, I've been talking about Innu rights in Nitassinan (or Labrador), and about what those rights must come to mean in order for there to be justice for our people. For the last ten or more years, I've been sitting at negotiation tables, representing the Innu Nation in comprehensive land rights negotiations with the Governments of Canada and Newfoundland and Labrador.

There are many issues at those tables, which is why the process takes so very long. But if we are successful in bringing those negotiations to a close, which is something that I hope that we can accomplish in the next few years, our role will radically transform. The Innu Nation will become a government.

As a government, we will have the power to determine how our lands will be used and how our resources will be developed. As a government, we will have the tools to begin to solve some of our social problems. As a government, we will assume our rightful place as leaders in the region we have lived in for hundreds of years, and we will work with our neighbours to build a strong and prosperous future for Labrador.

It won't be business as usual. Instead of the uncertainties that now attend every new resource development, there will finally be clarity about what will have to be done in order to make it happen. When Innu are satisfied that our lands, our rights and our way of life are protected, we will be the leaders in bringing new investment and new opportunities to Labrador. And as we prosper, so will the industries that depend on our natural resources, like forestry."

— Adapted from a speech by Mr. Michel to a forest management workshop in August 2003. Mr. Michel was elected as President of the Innu Nation of Labrador in October 2004.

108 Indian and Northern Affairs, From Generation to Generation: Survival and Maintenance of Canada's Aboriginal Languages within Families, Communities and Cities, Ottawa: Minister of Supply and Services, 2002.

109 Hopwood, Doug, What Lies Beneath: Responding to Forest Development Plans. A Guide for First Nations. Vancouver: Ecotrust Canada, 2002.

110 Government of Newfoundland and Labrador and Innu Nation, Ecosystem-Based Forest Management Plan for Forest Management District 19. Goose Bay: DFRA and Innu Nation, 2003. <online: http://www.gov.nf.ca/env/Env/EA%202001/Project%20Info/1062.htm>

111 Innes, Larry and Len Moores, "Ecosystem-based Forest Management in Nitassinan/Labrador" in Proceedings of the World Forestry Congress XII (FAO/UN), Quebec City, 23 September 2003.

112 Canada National Parks Act, S.C. 2000, c. 32, s. 12

113 See Makivik Corp. v. Canada (Minister of Canadian Heritage) (T.D.), [1999] 1 F.C. 38; Mikisew Cree Nation v. Canada (Minister of Canadian Heritage) (T.D.) [2001] F.C.T. 1426; varied on other grounds 2004 FCA 66; leave to appeal to SCC granted 22 July 04.

114 Parks Canada Agency, Corporate Plan 2004-2009. <online: http://www.pc.gc.ca/docs/pc/plans/plan-2004-05-2008-09/planf_e.asp>

The Species at Risk Act, administered by Environment Canada, requires the establishment of a National Aboriginal Council to advise governments on the administration of the act as it affects Aboriginal peoples.[115]

While the long-term effectiveness *of these new approaches are not yet known, they nonetheless represent positive steps forward in developing new relationships with Aboriginal peoples.*

2. Do Aboriginal people have control over resource management and planning decisions on their lands and territories?

There is a significant difference between Canada's territories — which are in various stages of devolution negotiations — and the provinces concerning the degree to which recognition of and respect for the rights of Aboriginal people to exercise control over resource management and conservation planning decisions on their lands and territories has been achieved.

In the Yukon and the Northwest Territories, modern comprehensive land claim and self-government agreements have been concluded or are under active negotiation with recognized Aboriginal groups. Once concluded, these constitutionally protected agreements recognize the power of Aboriginal governments to exercise primary jurisdiction over certain core lands, and provide for extensive consultations between the Aboriginal government and other levels of government within the remainder of the land claim settlement area.

Modern land claim agreements *also provide for the establishment of co-management authorities involving both Aboriginal and other governmental representatives. Consequently, in the context of settled land claims agreements, Aboriginal people are able to control the direction and the outcomes of resource management and conservation planning decisions on their lands and within their traditional territories.*

Recent legislative amendments have also enabled many First Nations communities to exercise more direct control over lands and resources on reserve lands, which are also under federal jurisdiction. Under the First Nations Land Management Act, participating First Nations can "opt out" of approximately 30 sections of the Indian Act and assume direct responsibility for many land and resource management decisions. Participating First Nations can develop land codes, regulate zoning, and implement environmental laws and policies. Also, revenues generated by on-reserve resources — such as through forestry activities — can now flow directly to these First Nations, and are no longer held in trust by the Government of Canada. [116]

Photo: Mike Beedell Photography

115 Species at Risk Act, S.C. 2002, c. 29, s. 8.1
116 First Nations Land Management Act, S.C. 199

However, the **recognition of Aboriginal rights on lands** *under provincial jurisdiction is an issue that remains largely unresolved. Except in Newfoundland and Labrador, northeastern Quebec and much of British Columbia, most provincial Boreal forestlands are subject to historic treaties concluded between the Crown and Aboriginal people. Generally, Aboriginal people and provincial governments strongly disagree about the meaning and intent of these treaties, particularly on matters related to the control over natural resources.*

In those parts of the provinces where no treaties have ever been concluded, there is also a fundamental lack of agreement about Aboriginal control over resource management and conservation planning decisions. In some of these areas, negotiations are underway between Aboriginal people and governments, while in others, differences are being settled through litigation.

Whether negotiation or litigation occurs, progress towards achieving greater recognition of Aboriginal rights and control over resource management and conservation planning decisions in the Boreal region is slow. This results in frustration and uncertainty for all parties. Resolving these issues will require a renewed relationship between Aboriginal peoples and governments, and a more constructive and consultative approach on the part of industries, conservation organizations and other stakeholders. While the Supreme Court's 2004 Haida decision makes it clear that developers are not legally obligated to consult with Aboriginal peoples, this does not prevent governments from introducing such requirements, nor does it limit the ability of developers to voluntarily engage with Aboriginal peoples in a respectful way.

New approaches show promise

A positive development is the recent adoption of voluntary standards by leaders in the forestry sector. Forest Stewardship Council (FSC) Canada's recently approved Boreal standard requires applicants for FSC certification to demonstrate that the legal and customary rights of Aboriginal peoples to own, use and manage their lands, territories, and resources are recognized and respected. Applicants are required to demonstrate compliance with the FSC Boreal standard by developing agreements with each affected Aboriginal community that their interests and concerns will be addressed in the applicant's forest management plan. Applicants are also required to demonstrate that they are working constructively with affected Aboriginal communities to participate in all aspects of forest management, including forest-related economic developments.[117]

Photo: Garth Lenz

Cree-Quebec Agreement

The Cree-Québec Agreement is a unique example of a negotiated agreement between a provincial government and an Aboriginal people subsequent to a settled land claim agreement. It provides for significant participation by the Cree in the planning and management of resource development activities.

Under the Agreement, companies holding tenures within the Cree territory are required to consult with Cree tallymen prior to conducting harvesting operations. The agreement also specifies requirements for protecting Cree land uses, and is overseen by working groups at the local level and by a Cree-Québec Forestry Board. The Board provides recommendations to conciliate forestry activities with the Cree traditional uses of the territory and the protection of the natural environment. According to Grand Chief Ted Moses, the Agreement will ensure that Cree are "involved in all aspects of forestry planning and management through meaningful and results oriented consultation processes at the community level."[118]

117 FSC Canada Working Group, National Boreal Standard, 2004.

118 Secrétariat aux affaires autochtones du Québec. Ministère du Consiel Exécutif. Technical Sheet 4: Forestry. Quebec: Secrétariat aux affaires autochtones du Québec <online: http://www.autochtones.gouv.qc.ca/relations_autochtones/ententes/cris/entente_cris_20020207.pdf>; "Grand Council of the Cree, Cree Approve New Agreement with Quebec", Press release February 5, 2002

Impact benefits agreements (IBAs) are another evolving mechanism for achieving a degree of control by Aboriginal communities over natural resource developments in their territories.[119] Governments may mandate IBAs, or they may be included in the terms of land claim settlements; in other cases they result from discussions between interested parties. IBAs are common in the mining sector, where some agreements have been in place for more than decade. The approach has also been used in hydroelectric developments, gas pipeline projects, and other major resource developments.

IBAs are negotiated between Aboriginal groups and resource companies — governments are not directly involved. They require a resource company to recognize impacts on Aboriginal people as a result of a proposed development, and to agree to provide benefits in return, such as royalty sharing, employment, training, environmental protection and preferential business opportunities.

Certification, IBAs and other approaches can provide Aboriginal peoples with opportunities to cooperatively work with industries and other stakeholders, however they are only a step toward the full recognition of Aboriginal and treaty rights and the reestablishment of Aboriginal governance on traditional lands. This is reflected in several final land claims agreements that require IBAs for major developments within a settlement area, but also require other forms of approval and consent from Aboriginal regulatory agencies.

In summary, *while consultation and accommodation are important steps, achieving the goals of meaningfully involving Aboriginal people in all resource management and conservation planning decisions and respecting the leadership role of Aboriginal people on their traditional lands will require a significant reorientation of the present relationships between governments, Aboriginal peoples and other Canadians.*

RECOMMENDATIONS

Making meaningful progress towards conserving the boreal will require action by all of the players active in the region, including civil society organizations, the private sector, governments and Aboriginal communities. In light of the findings in this report and the goals and principles of the Boreal Forest Conservation Framework, the following priorities have been identified:

- Governments, industry and conservation organizations should respect the leadership role and the rights of Aboriginal peoples to maintain their traditional ways of life and to exercise self-determination in determining the use of lands and resources within their traditional territories.
- Drawing on leading examples, industry should create sustainable partnership ventures that benefit local communities and build Aboriginal capacity.
- Governments should implement polices and practices that empower Aboriginal communities and institutions to assume governance responsibilities for conservation and the sustainable management of resources within their traditional lands in the Boreal region.
- Governments should support and promote equitable sharing of benefits from resource development with Aboriginal peoples on their traditional lands (such as resource revenue and royalty sharing agreements).

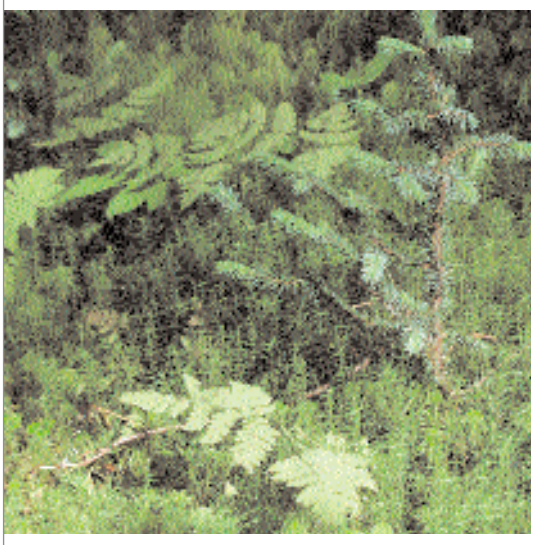


Photo: Innu Nation

119 For further background on IBAs see: S. Matiation, "Impact benefits agreements between mining companies and Aboriginal communities in Canada", Great Plains Natural Resources Journal, 2003, p.204; Steven A. Kennett, A Guide to Impact and Benefits Agreements. Canadian Institute of Resource Law, 2003.

3.5 Furthering Scientific and Traditional Knowledge

INDICATORS

1. *Collection of key data required for Boreal conservation planning*
2. *Public availability of key data required for Boreal conservation planning*
3. *Incorporation of Traditional Knowledge into land use planning and resource management decisions with the informed consent of Aboriginal people.*

A key principle of the Framework is that land-use planning and management decisions must be based on sound science and Traditional Knowledge.[120] The Framework also emphasizes the importance of promoting the development and dissemination of knowledge through collaboration and research. One of the great challenges of such work will be effective communication between western and Aboriginal cultures.

Western Science

With respect to the scientific knowledge that informs land-use planning and management in the Boreal, an attempt has been made to assess both what information exists, and whether it is available to the public. This assessment focuses on five key data areas that are of critical importance to Boreal conservation: forest inventory, biodiversity, protected areas, ecosystem change, and the economic value of non-timber products and ecosystem services. The Canadian Council of Forest Ministers (CCFM) has also identified these five key data sets as critical in its Criteria and Indicators Framework for sustainable forest management.[121]

The following assessment is partly based on an assessment of the status of the CCFM's data collection work and its availability. It is also informed by data gaps that have been identified through research supported by the Canadian Boreal Initiative.

Advancing science to support Boreal conservation

A partnership between the Canadian Boreal Initiative and the University of Alberta, the BEACONs Project is developing a conservation framework tailored to the unique opportunities and challenges posed by the Canadian Boreal region. The approach turns the existing conservation planning methodology on its head by placing priority on Boreal ecological sustainability, and determining levels of resource development that are compatible with broader goals.

The BEACONs approach to proactive conservation planning places priority on maintenance of ecological integrity and demonstration of ecological sustainability, requiring careful evaluation of the levels of resource development compatible with these goals.[122]

The BEACONS team is identifying criteria and candidates for benchmark areas across Boreal Canada to anchor a protected areas network, and to provide reference areas against which resource development activities can be evaluated. Benchmark areas must be large enough to maintain ecological processes, such as predator-prey dynamics, hydrological connectivity and natural disturbance regimes. To assist benchmark identification, as well as other conservation planning activities, BEACONs is assembling an inventory of important boreal datasets and developing a research atlas that summarizes existing Canadian Boreal research.

120 Traditional Knowledge refers to the understanding that Aboriginal peoples have of the ecology of the land, based on centuries of living in harmony with their natural environment.
121 Canadian Council of Forest Ministers, Defining Sustainable Forest Management in Canada: Criteria and Indicators 2003, Ottawa, 2003
122 BEACONs Project website: www.rr2.ualberta.ca/Research/Beacons/index.htm

1. Have the key data required for Boreal conservation planning been collected?

There are examples of promising data-gathering initiatives underway across the country. The Canadian Council on Ecological Areas, a national non-profit organization supported by governments, non-government organizations, industry and researchers, is developing nationally consistent criteria for protected areas that will be used to update and standardize the Canadian Conservation Areas Database.

Another promising initiative is the Earth Observation for Sustainable Development of Forests. Under this program, a partnership of government agencies, First Nations, industry, research institutions and non-government organizations is developing a space-based forest measuring and monitoring system. The remote sensing and satellite data produced will be used for forest inventories, carbon accounting, biomass estimates and monitoring change over time.[123]

In addition, leading industry actors also conduct independent research in the course of their development activities, although there are limited mechanisms to share this data between companies, within sectors and beyond.

However, **significant gaps still exist** *in the scientific knowledge base needed for land-use planning and management in the Boreal. Although the CCFM and other organizations are in the process of data collection, key data sets are still incomplete or non-existent. Of particular concern is the inadequacy of biodiversity data, a deficiency that severely limits capacity to develop ecologically sustainable land-use plans for the region.*

Photo: Wayne Sawchuck

Alberta offers promising model for measuring long term biodiversity changes

Established in 1997 by a coalition of government, universities, industry and non-government organizations, the Alberta Biodiversity Monitoring Program offers a promising model for conservation monitoring efforts.[124]

Researchers are testing and refining the data collection protocols at select sample sites now for this program that will monitor a broad array of species including mammals, birds, amphibians, fish, invertebrates, mosses, lichens and more. The program will also use remote sensing to monitor forest types, water resources, and natural and human-caused disturbances at the landscape-level.

A strength of the planned program, should it become fully operational, is its systematic coverage of Alberta. It aims to establish more than 1,500 sites, 20 kilometres apart, spaced evenly across the province. This means that the program will not be limited to road surveys, a weakness of many monitoring efforts. It is intended to collect data for 100 years — long enough to ensure that even slow, small changes are detected — and the data and information collected will be made freely available to the public. However, the program still faces challenges in incorporating benchmark or control areas and securing enough funding for full implementation.

123 http://www.pfc.cfs.nrcan.gc.ca/eosd/index_e.html

124 C. Shank, J. Schiek and D. Farr, The Alberta Biodiversity Monitoring Program: Updated Technical Summary, 2004.

Improved monitoring in managed and large-scale protected areas is also needed to increase understanding of how biodiversity responds to development activities. This information is invaluable when planning land use. But due to the size and remoteness of the Boreal region, such biodiversity monitoring is challenging, and only recently have there been attempts to address this gap.[125]

Data on the economic value of non-timber forest products and ecosystem services are also scarce. The CCFM is in the process of collecting what limited information exists from the provinces and territories. However, work commissioned by CBI to develop an ecological accounting framework has revealed that there is not only a critical shortage of data, but also a lack of adequate techniques to ascribe economic values to the Boreal forest.[126] As a result, Boreal land-use planning is proceeding with neither the information nor the assessment techniques available to do a full-cost accounting of human activities and their impacts.

Information on ecosystem change, primarily due to land use, is also deficient. The 'footprint' of industrial development increases each year in the Boreal region, due to cutblocks, roads, mines, seismic lines, pipelines, wellsites, dams, and hydro rights of way. There is no method to reliably track this footprint, restricting the ability to plan and monitor the status of conservation in the region.

Environmental groups, along with conservation biologists, have developed a number of conservation planning approaches to help design conservation activities. These approaches include high conservation value forests, assessment of representation, ecoregional planning, ecosystem-based management, and others. This diversity of approaches provides a broad toolkit, but can be confusing to participants in conservation planning exercises such as natural resource companies. In addition, most of the approaches were not designed specifically with Canada's boreal region in mind.

To maximize the effectiveness of conservation planning, simplification of the diversity of conservation planning approaches is necessary. A modification of existing approaches is also required to incorporate techniques suited to Canada's boreal region. Work towards developing clear guidelines for Canadian boreal conservation planning began in 2004 with meetings among conservation groups to identify common Canadian boreal conservation planning principles.

Clearly, more work is needed to address these and other data gaps to inform conservation planning in the Boreal region.

2. Are key data required for Boreal conservation planning publicly available?

To ensure that land-use planning and management of Canada's Boreal forest region are based on the best possible sources of information, it is critical that raw data are publicly accessible, so that all sectors can access and apply this information to their conservation planning efforts.

However, most datasets that are offered are only available in summary form, greatly restricting the utility of the information for conservation planning. For example, the Canadian Forest Inventory is a very useful information source when evaluating questions related to forests in Canada. While summary information is available on the National Forest Database Program website, non-government researchers have found it very difficult to obtain the actual forest inventory data. Forest inventory data are currently only released following a lengthy process of official requests and data sharing agreements, if at all.[127]

Photo: Garth Lenz

125 See for example the discussion of this matter in: Blancher, op.

126 Mark Anielski and Sara Wilson. Measuring the Ecological Service Values of the Canadian Boreal Forest. Preliminary Report: a Boreal Wealth Accounting Framework. Unpublished, 2003

127 Personal conversations with Fiona Schmiegelow, Director BEACONs Project, University of Alberta, Peter Lee, Executive Director, Global Forest Watch Canada.

Restrictions stem, in part, from the perceived proprietary nature of some forest inventory data. In certain jurisdictions, responsibility for collecting forest inventory data has been turned over to individual companies, resulting in restrictions in access to such data.

In contrast, the effort by the Canadian Council on Ecological Areas to make raw protected areas data available to the public on its website is promising. If achieved, this will set an excellent precedent. In addition, many of the data being compiled by the CCFM are slated for public release in its 2005 *Criteria and Indicators Report*.[128]

There is an **urgent need to make data of relevance to land-use planning publicly available** *(such as via the Internet), particularly if it has been gathered by government agencies. Data held by private corporations about public resources such as forests, minerals, water or wildlife would also be of immense use to those planning for the conservation of our Boreal region.*

Traditional Knowledge

3. Is Traditional Knowledge incorporated into land use planning and resource management decisions with the prior and informed consent of Aboriginal people?

There is a growing respect for the knowledge and understanding that Aboriginal people have acquired over countless generations through observation and experience on the land. Many modern land claim agreements require that western science and Traditional Knowledge be given equal consideration in resource management decisions. Traditional Knowledge also features prominently in Aboriginal-led land-use planning initiatives. A number of recent environmental assessments of northern resource development projects have also sought to give equal weight to Traditional Knowledge, although with mixed success.[129]

Mandates to incorporate Traditional Knowledge into decision-making are also being entrenched in legislation, such as the federal Species at Risk Act. However, there is also a growing recognition that such Traditional Knowledge is not simply another resource that can be acquired and used by external players. Within Canada and internationally, there is a growing commitment to protecting Traditional Knowledge from being exploited, and to ensuring that it is used only with the prior and informed consent of Aboriginal communities.[130]

Traditional land use documented in innovative process

Traditional land use is both culturally and economically important for the Dene and Metis people of the Dehcho territory.[131] Between 1996 and 2002, scientists and Dehcho people documented and mapped traditional land use and occupancy of eight member communities of the Dehcho First Nations. The resulting studies have provided a rigorous and legally defensible database for negotiations with the federal and territorial governments over self-government and ownership of lands and resources.

During the studies, nearly 400 harvesters and elders were asked to identify places such as where they had shot or trapped fur-bearing animals, birds and fish; where they had gathered berries, medicinal plants or food plants; and where Dene people had been born, buried or had gathered. Along with existing natural resource data, this information was then used to negotiate five-year protection for nearly 50% of the Dehcho territory. During this period of "interim land withdrawals", no sale or lease of the land for industrial activity may occur while land use planning and the establishment of permanent protected areas is underway. The land use and occupancy data have also been used in boundary negotiations, forest fire management and search-rescue operations.

128 Andre H. Rousseau, Chair, C&I Task Force, CCFM, in letter to CBI Director, Cathy Wilkinson, dated September 9, 2004. The letter indicates that data on population levels of selected species, additions or deletions of forest area, and non-timber forest products and forest-based services will be in the 2005 report.

129 Usher, P. "Local ecological knowledge in environmental assessment and management". Arctic, Vol. 53, No. 2, 2000, pp.183-193

130 Examples include Article 8(j) of the Convention on Biodiversity, and Principle 3 of the Forest Stewardship Council.

131 All information taken from Herb Norwegian and Petr Cizek, Using Land Use and Occupancy Mapping and GIS to Establish a Protected Area Network in the Dehcho Territory, Fort Simpson, NWT: Dehcho First Nations, 2004.

The Framework sets out a commitment to working with Aboriginal communities to foster a better appreciation and awareness of how Traditional Knowledge can be used to make better informed decisions about the protection and use of the Boreal forest, while ensuring that such knowledge remains under the control and direction of Aboriginal communities. This is clearly an area that requires further development as part of the effort to conserve the natural and cultural values of Canada's Boreal region.

RECOMMENDATIONS

Making meaningful progress towards conserving the boreal will require action by all of the players active in the region, including civil society organizations, the private sector, governments and Aboriginal communities. In light of the findings in this report and the goals and principles of the Boreal Forest Conservation Framework, the following priorities have been identified:

- Governments, industry, conservation organizations and Aboriginal peoples should collaborate on scientific research and traditional ecological knowledge to increase general understanding of the ecological function and cultural importance of the Boreal region.
- Industry should contribute resources and expertise to advance knowledge about the Boreal region.
- Governments should improve monitoring of Boreal ecological integrity and ecosystem response to the cumulative impacts of development activities.
- Governments should provide access to the complete datasets collected on the Boreal region to researchers and the public as a matter of course:
- Conservation organizations should work together to provide consistent methodological support to companies and sectors working towards greater sustainability.

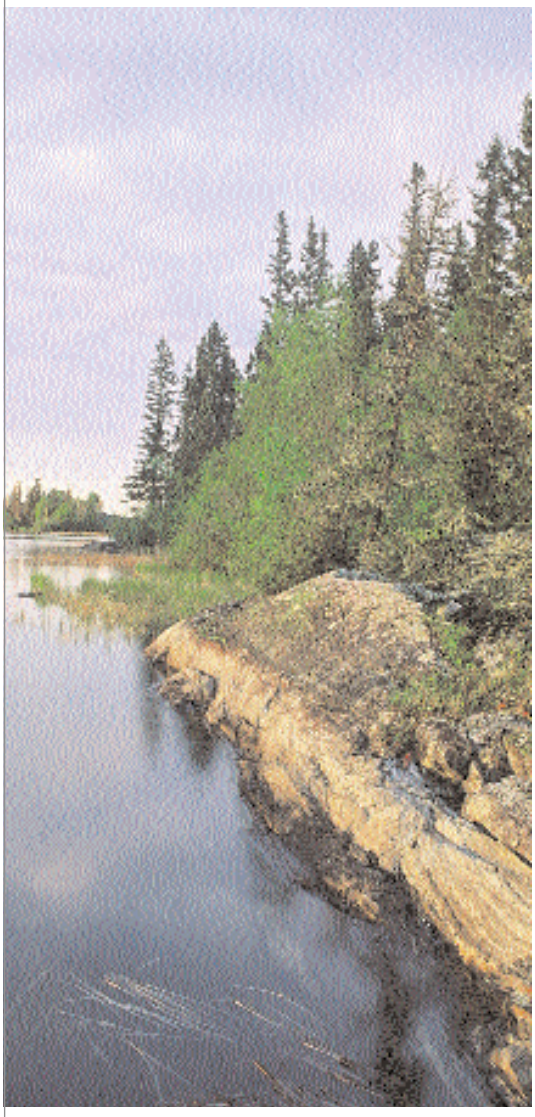


Photo: Garth Lenz

CONCLUSION

The Boreal in the Balance: Securing the Future of Canada's Boreal Region

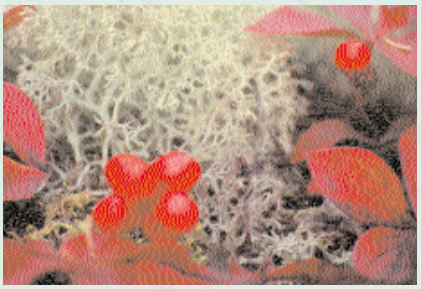


Photo: Wayne Sawchuck

Photo: Garth Lenz

Canada's Boreal region is one of the last, extensive, forested areas in the world that still supports a suite of native species in large, connected ecosystems shaped by powerful natural forces like fire.

Conserving Canada's Boreal Region: global challenge AND opportunity

Over 70% of Canada's Boreal region remains ecologically intact. It is one of the last, extensive, forested areas in the world that still supports a suite of native species in large, connected ecosystems shaped by powerful natural forces like fire. The vast majority of the region is publicly owned, enabling governments to work with Aboriginal peoples, other local communities, industries and conservation organizations to plan proactively for the future.

Industrial development already has a significant presence in the southern Boreal, including forestry operations, oil and gas exploration and development, precious metals and mineral mining, agriculture and hydroelectric power development. There are mounting national and international demands to accelerate these developments. Less than 10 per cent of the region is currently protected from development, and application of best management practices is still in its infancy in many industrial sectors.

Given these pressures, and the fact that land use planning is actively underway in much of the region, it is clear that time is truly of the essence.

All sectors need to work together to secure a meaningful future for Canada's Boreal region. The Boreal Forest Conservation Framework was developed in such a spirit of collaboration. It is intended to serve as a foundation and a forum for dialogue among all parties interested in the future of this unique region. In promoting a national conservation approach, the Framework recognizes that implementation will look different in different parts of the country, influenced by a variety of factors and interests. As such, the Framework represents a vision and goal for the region in its entirety, rather than a formula to be applied on a unit-by-unit basis. That said, a balanced approach, based on proactive planning, is at the heart of the Framework vision wherever it takes shape across the country.

Human activities *can* be compatible with the goal of ecological sustainability. Both protected areas and best practices on the remaining landscape can make important conservation contributions. However, to determine the most appropriate mix of land use in any given area, governments need to ensure that conservation considerations are incorporated into existing land use planning exercises, and that comprehensive land use planning processes are implemented in advance of major resource allocations.

As an outcome of these processes, protected areas networks need to be expanded throughout the region, in order to ensure that key ecological and cultural values are protected for all time.

There is also an opportunity for industries that rely on the Boreal region to follow in the footsteps of some of the leaders profiled in this report, and accelerate efforts to develop, adopt and implement world-leading standards for sustainability. This is particularly important in the oil and gas, mining, and hydroelectric sectors, none of which have made as much progress as the forestry sector in this regard.

Governments, industries and conservation organizations also need to increase efforts to recognize the rights of and meaningfully work with Aboriginal peoples across the Boreal. This includes ensuring that Aboriginal peoples have full access to information, sufficient funding for technical resources, and adequate time for discussion of planning processes within the community.

And finally, further efforts are urgently needed in knowledge gathering relative to the Boreal, and incorporating traditional ecological knowledge in land use planning. In order to inform the work of all players across the landscape, it is crucial that the resulting data be made publicly accessible.

Looking ahead, expanding engagement and positive partnerships with governments is absolutely vital to the success of future conservation efforts in the Boreal region. There are a number of positive government initiatives underway that, once finalized, would significantly contribute to long-term conservation and sustainability in Canada's boreal region. We invite governments at all levels to explore ways to work together to advance shared goals.

Engagement on partnership initiatives at the invitation of Aboriginal peoples and communities to meet cultural, ecological and economic objectives is also central to achieving this vision. For example, there are important efforts underway in response to the need for traditional ecological knowledge in land use planning, and for research to assist in the resolution of land and wildlife issues through land claims negotiations.

In sum, all parties need to work together now to secure a meaningful future for Canada's Boreal region. Working together, we have the potential to better understand, plan for, and implement creative solutions that will conserve the diverse values of this ecosystem for all time.

The time is now, *and the conditions are right, to establish Canada as a world leader in ecosystem conservation.*

Photo: Bryan Evans

APPENDIX 1: FURTHER READING

Photo: PhotoDisc

"All Eyes on the Boreal Forest", Conservator (Ducks Unlimited Canada), Vol. 24, No. 3, 2003, 40 pp.

Blancher, Peter, Importance of Canada's Boreal Forest to Landbirds, Ottawa: Canadian Boreal Initiative/ Boreal Songbird Initiative/ Bird Studies Canada, 2003, 40 pp. (available online at: www.Borealcanada.ca)

Bocking, Stephen, ed., Biodiversity in Canada: Ecology, Ideas, and Action, Peterborough, Ontario: Broadview Press, 2000, 426 pp.

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Burton, Philip J., Christian Messier, Daniel W. Smith, and Wiktor L. Adamowicz, eds., Towards Sustainable Management of the Boreal Forest, Ottawa: NRC Research Press, 2003, 1039 pp.

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Canadian Forest Service, The State of Canada's Forests 2002-2003: Looking Ahead, Ottawa: Natural Resources Canada, 2003, 96 pp. (available online at: www.nrcan-rncan.gc.ca)

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Gawthrop, Daniel, Vanishing Halo: Saving the Boreal Forest, Vancouver: Greystone Books, 1999.

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Lee, Peter, Boreal Canada: State of the Ecosystem, State of Industry, Emerging Issues and Projections: Report to the National Round Table on the Environment and Economy, Edmonton, Alberta: Global Forest Watch Canada, 2004, 85 pp.

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Panel on the Ecological Integrity of Canada's National Parks, "Unimpaired for Future Generations"? Conserving Ecological Integrity with Canada's National Parks, Vol. I "A Call to Action." Vol. II "Setting a New Direction for Canada's National Parks," Ottawa: Parks Canada Agency, 2000.

Schneider, Richard R., Alternative Futures: Alberta's Boreal Forest at the Crossroads, Edmonton: Federation of Alberta Naturalists/ Alberta Centre for Boreal Research, 2002, 152 pp.

Soule, Michael E. and John Terborgh, eds., Continental Conservation, The Wildlands Project, Island Press, Washington, D.C., 1999.

Sub-Committee on Boreal Forest of the Standing Senate Committee on Agriculture and Forestry, Competing Realities: The Boreal Forest at Risk, Ottawa: Government of Canada, June 1999 (available online at: www.parl.gc.ca)

Smith, Wynet, and Peter Lee, eds., Canada's Forests at a Crossroads: An Assessment in the Year 2000, Washington: World Resources Institute, 2000, 114 pp. (available online at: www.globalforestwatch.ca)

APPENDIX 2:
USEFUL WEBSITES

Alberta Centre for Boreal Studies: www.Borealcentre.ca

Alberta-Pacific Forest Industries: www.alpac.ca

American Bird Conservancy: www.abcbirds.org

Bird Studies Canada: www.bsc-eoc.org

Boreal Caribou Research Program: www.deer.rr.ualberta.ca/caribou/bcrp.htm

Boreal Ecology and Economics Synthesis Team: www.rr2.ualberta.ca/Research/Beest/

Boreal Ecosystem-Atmosphere Study:

www-eosdis.ornl.gov/BOREAS/boreas_home_page.html

Boreal Forest Network: www.Borealnet.org

Boreal Songbird Initiative: www.Borealbirds.org

Canadian Boreal Ecosystems Analysis for Conservation Networks Project (BEACONs): www.rr2.ualberta.ca/Research/Beacons/index.htm

Canadian Boreal Initiative: www.Borealcanada.ca

Canadian Council of Forest Ministers: www.ccfm.org

Canadian Council on Ecological Areas: www.ccea.org

Canadian Forests Gateway to Forestry and Forest Products: www.canadian-forests.com

Canadian Geographic Boreal In-depth: www.canadian-geographic.ca/magazine/jf04/indepth/

Canadian Parks and Wilderness Society: www.cpaws.org

Canadian Wildlife Federation: www.cwf-fcf.org

Dehcho First Nations: www.dehchofirstnations.com

Domtar Inc.: www.domtar.com

Ducks Unlimited Canada: www.ducks.ca

Ecosystem Management by Emulating Natural Disturbance Project:

www.biology.ualberta.ca/old_site/emend/index.htm

Forest Ecosystem Network of Sites: www.pfc.cfs.nrcan.gc.ca/ecology/ferns/index_e.html

Forest Ethics: www.forestethics.org

Forest Products Association of Canada: www.fpac.ca

Forest Stewardship Council Canada: www.fsccanada.org

Innu Nation: www.innu.ca

Global Forest Watch Canada: www.globalforestwatch.ca

Lakehead University Boreal Forest Information: www.Borealforest.org

National Aboriginal Forestry Association: www.nafaforestry.org

National Audubon Society: www.audubon.org

National Round Table on the Environment and Economy: www.nrtee-trnee.ca

Natural Resources Canada: www.nrcan-rncan.gc.ca

Natural Resources Defense Council: www.nrdc.org

National Wildlife Federation: www.nwf.org

Nature Canada (Canadian Nature Federation): www.naturecanada.ca

Nature Conservancy of Canada: www.natureconservancy.ca

Parks Canada: parkscanada.pch.gc.ca/

Poplar River First Nation: www.poplarriverfirstnation.ca

Sierra Club of Canada: www.sierraclub.ca

Suncor Energy Inc.: www.suncor.com

Sustainable Forest Management Network: sfm-1.biology.ualberta.ca/english/home/

Taiga Biological Station: www.wilds.mb.ca/taiga/

Taiga Net: www.taiga.net

Taiga Rescue Network: www.taigarescue.org

Tembec Inc: www.tembec.com

World Wildlife Fund (Canada): www.wwf.ca

World Resources Institute: www.wri.org

APPENDIX 3: METHODOLOGY FOR CALCULATING PROTECTED AREAS

Information provided by provincial, territorial, federal and aboriginal governments were used in this report to evaluate the current extent of protection in Canada's Boreal region. To determine if an area is protected, information including IUCN categories (I-IV are considered protected[132]) and protected area descriptions were used to decide whether the primary objectives of the area are protection of ecological integrity and associated cultural values. Protected areas were further categorized as permanent or interim. Permanent protected areas were judged to provide permanent legislated protection. For interim protected areas, protection was not yet legislated. The analysis of protected areas is now explained for each Canadian Boreal jurisdiction.

Federal

National parks, reserves, marine conservation areas and National Wildlife Areas were considered permanently protected. Protected areas data were provided by Parks Canada.

Quebec

Based on protected areas interpretations provided by the Quebec Ministry of Environment, the following Quebec protected area types were considered permanently protected: écosysteme forestier exceptionnel, écosystème forestier exceptionnel réserve à l'état, habitat d'une espèce menacée ou vulnérable, parc d'intérêt récréotouristique et de conservation, parc national, réserve aquatique projetée, réserve de biodiversité projetée,réserve écologique, réserve écologique projetée, refuge faunique, réserve nationale de faune, réserve naturelle, site protégé par la Fondation de la faune du Québec and site protégé par une charte d'organisme prive. The following category was considered interim protected because legislated protection is not yet established: projet de parc national québécois. Protected areas data were provided by the Quebec Ministry of Environment.

Saskatchewan

Based on protected area category interpretation provided by the Saskatchewan Department of Environment, the following Saskatchewan protected area categories were considered permanently protected: provincial parks, protected areas, recreation sites, historic sites, fish and wildlife development fund lands, game preserves, wildlife refuges, and representative area ecological reserves. Special management areas were considered interim protected because they are not yet protected through legislation. Protected areas data were provided by the Saskatchewan Department of Environment.

Newfoundland

Based on information provided by the Government of Newfoundland, provincial parks and ecological and wilderness reserves were considered permanently protected. The District 19 protected areas network was considered interim protected because the network is not yet fully protected through legislation, but excludes commercial forestry and related activities. The Mealy Mountains National Park Feasibility Study Area and the Main River Waterway Interim Provincial Park were also considered interim protected areas. Protected areas data were provided by the Government of Newfoundland except for District 19 protected areas network data which were provided by the Innu Nation.

132 IUCN (1994) Guidelines for protected area management categories. IUCN Commission on National Parks and Protected Areas with the assistance of the World Conservation Monitoring Centre. IUCN, Gland. Available online at: http://www.unep-wcmc.org/index.html?http://www.unep-wcmc.org/protected_areas/categories/eng/~main.

Alberta

Based on information provided by the Heritage Protection and Recreation Management Branch of Alberta Community Development, the following protected area categories were considered permanently protected: ecological reserves, natural areas, wilderness areas, wildland and provincial parks, and the Willmore Wilderness Park.

Manitoba

The Government of Manitoba protected areas dataset available at http://mli.gov.mb.ca was used to determine interim and permanent protected areas. All areas in the dataset were considered protected, based on information from Manitoba Conservation that areas in the dataset are protected from logging, mining, oil and gas and hydro.

British Columbia

All areas in the Government of British Columbia protected areas dataset available at ftp://ftp.env.gov.bc.ca/dist/arcwhse/parks/ were considered permanently protected, based on information British Columbia Ministry of Water, Land and Air Protection that areas in the dataset are permanently protected from logging, mining, oil and gas and hydro.

NWT

Based on protected area category interpretations provided by the Northwest Territories Department of Resources, Wildlife and Economic Development, the following categories were considered permanently protected: territorial parks and the Thelon Wildlife Sanctuary. The Dehcho land withdrawals and the Gwich'in Conservation and Heritage Conservation Zones were considered interim protected areas because the areas are not yet protected through legislation. The East Arm of Great Slave proposed national park was also consider interim protected, as were the following candidate protected areas with interim protection: Edacho, Edehzhie and Sahyoue. Protected areas data were downloaded from http://nwtcrs.rwed-hq.gov.nt.ca/pub/PA/files.htm, except for Dehcho land withdrawals data which were provided by the Dehcho Nation and the Gwich'in Conservation and Heritage Conservation Zones which were estimated based on the Gwich'in Land Use Plan (available at http://www.gwichinplanning.nt.ca/publications/lupd/final/Gwichin_Plan.pdf). The Gwich'in Conservation and Heritage Zones are not displayed in the protected areas map because spatial data were not available.

Ontario

Provincial parks and conservation reserves were considered permanently protected based on information from Ontario Parks that these categories are permanently protected from industrial activity. Recommended provincial parks and conservation reserves were considered interim protected. Protected areas data were provided by Ontario Parks. Recommended provincial parks and conservation reserves are not displayed in the protected areas map because spatial data were not available.

Nunavut

Based on protected areas data provided by the Nunavut government, the Thelon Wildlife Sanctuary was considered permanently protected.

Yukon

Based on information provided by Yukon Environment, the following protected area categories were considered permanently protected: territorial parks, ecological reserves, habitat protection areas and wildlife preserves. The Old Crow Flats special management area was considered interim protected. Tabular protected areas data provided by Yukon Environment were used to calculate the amount of permanent protected area. Spatial protected areas data provided by Global Forest Watch Canada and current to February 2003 were used to produce the protected areas map because spatial data was not available from Yukon Environment

Canada's Boreal Region

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Canada's Boreal ... an unprecedented conservation opportunity ... integral to our identity.

Empty your pockets of loose change and you might find caribou, beaver and loons that have graced the currency for years. Picture Pierre Trudeau, the voyageurs and Aboriginal people paddling Canada's great rivers. How about lumberjacks, Mounties, dogsled teams, hockey on a frozen pond, and the howl of the wolf? Important Aboriginal artists and the Group of Seven, Tom Thomson, Robert Bateman and many others have captured these quintessential Boreal scenes in many of our best-known images.

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