

Annex III Progress towards the Programme of Work on Protected Areas

Purpose

The purpose of this Annex is to provide a broad overview of progress in Canada towards achieving the goals of the Convention on Biological Diversity (CBD) Programme of Work on Protected Areas. This includes both specific advances in protected areas establishment as well as a more thematic treatment of some of the key areas where Canada has experienced significant success over the past five years. The Annex also outlines several emerging issues facing protected areas agencies in the years to come.

The Annex begins with a brief overview of the particular Canadian context for protected areas, followed by sections on the following themes:

- The status of both terrestrial and marine protected areas planning in Canada;
- The success of recent and ongoing partnerships with Aboriginal communities in establishing and managing protected areas;
- Partnerships with other sectors of Canadian society;
- The increasing importance of integrated management planning;
- The importance of active management of protected areas;
- The role of protected areas in re-connecting Canadians with nature; and
- The important role of protected areas in climate change adaptation efforts.

The Annex draws largely on data generated through the development of the Canadian Protected Areas Status Report (2000-2005), published in 2006, which outlined progress and perspectives on protected areas planning and management by governments across the country. It also reflects information on additional successes since 2005, which have been identified in part through consultations with Canada's parks and protected areas agencies.

1.0 Overview

As the second largest country in the world, Canada is home to rich and diverse natural resources. A variety of tools are used to conserve the country's biodiversity, including private land stewardship, community education and action programs, species at risk recovery efforts, and others. Effectively managed protected areas form a critical component of this suite of conservation instruments, and to date have made a significant contribution to Canada's overall efforts to conserve, build awareness, and educate Canadians about biodiversity.

Canadian governments have made significant strides in recent years in establishing and managing networks of protected areas, in partnership with Aboriginal communities, environmental non-governmental organizations and local communities. While shifts such as climate change and a changing society present new challenges and opportunities for protected area managers, a strong foundation has been established upon which to build in the years to come.

Summary of Progress

Canada's terrestrial protected areas cover 933,930 square kilometres (km²). This represents 9.4% of Canada's land base.

0.64% of Canada's ocean surfaces have been protected to date. This represents approximately 45,280 km².

A global opportunity

Canada has an unprecedented opportunity to protect natural values that are of regional, national and global significance. In particular, we are one of the few remaining countries in the world that maintains large, relatively unfragmented ecosystems containing functioning natural processes.

For example, Canada's boreal region is one of the largest and relatively intact ecosystems on the planet. Canada's boreal provides habitat for sizeable populations of caribou, wolves, and bears, as well as breeding grounds for more than 30% of the North American bird population.

Canada's Arctic region encompasses vast expanses of tundra and permafrost, and is home to wildlife species such as polar bears, barren-ground caribou, and muskoxen. Both the Arctic and the boreal are home to Aboriginal peoples that have lived in these regions for thousands of years.

In addition, with their broad diversity of marine ecosystems and species, our oceans teem with life. Canada also has the longest coastline in the world, as well as access to nearly 20% of the world's freshwater resources.

Canada has a global responsibility to protect and conserve these exceptional places. A key tool for doing so is our national system of parks and protected areas.

At the same time, these networks also play an important role in our more fragmented southern and coastal landscapes by acting as core areas where biodiversity is concentrated, complemented by a range of other stewardship conservation tools.

Together these protected areas provide literally billions of dollars in ecological goods and services – among them clean air and water, productive forests and oceans, climate regulation and pest and disease control.

Globally Significant Ecosystem Services

A 2005 study commissioned by the Canadian Boreal Initiative suggested that the value of ecosystem services such as water filtration and carbon sequestration in the boreal represent roughly 2.5 times the net market value of industrial development in the region. A follow-up study in 2007 estimated the value of these ecosystem services in the Mackenzie Region alone at close to \$500 billion.

Canada's parks and protected areas also provide an unparalleled opportunity for Canadians to enjoy, learn and experience the wonders of their natural world. They provide a foundation for nurturing a conservation ethic within society now and into the future.

A shared responsibility

Nature conservation is a shared responsibility in Canada. All governments – federal, provincial, and territorial – have legislation, policies and programs in place to establish and manage protected areas. Aboriginal governments and land claims organizations play an increasingly significant role in protected area establishment and management. Citizens also play a vital role in conservation efforts through private land trusts, non-governmental organizations, and through their own interactions with these natural places.

Currently, federal departments such as the Parks Canada Agency (PCA) and Environment Canada (EC) manage approximately 50% of the total area contained in Canadian protected areas, while 50% are managed by provincial and territorial governments. The federal government has traditionally played a greater role in marine ecosystems. Fisheries and Oceans Canada (DFO), PCA and EC administer almost 90% of the total area contained in all marine protected areas established to date.

Canadian governments collaborate through a variety of mechanisms on issues related to protected areas. Federal, provincial and territorial governments have all signed a Statement of Commitment to

the Canadian Biodiversity Strategy, which recognizes the key role that protected areas play in conserving biodiversity and achieving the other goals of the Convention on Biological Diversity.

Federal, provincial and territorial officials also work together through the Canadian Parks Council, the Oceans Task Group, the Canadian Council on Ecological Areas, and other inter-agency coordinating committees on wildlife and habitat management issues. These councils provide invaluable mechanisms to exchange information and encourage cooperation across the country. They also support Canada's involvement in various international conventions, programs and organizations, such as the World Heritage Convention, UNESCO's Biosphere Reserves Program, and the World Conservation Union (IUCN) and its World Commission on Protected Areas.

Progress towards integrated national protected areas reporting and tracking

In close cooperation with the Canadian Council on Ecological Areas, Environment Canada is developing the Conservation Areas Reporting and Tracking System (CARTS). CARTS will allow jurisdictions to track the amount of lands and waters in Canada's protected areas in a consistent, standardized and authoritative manner. Significant progress has been made towards the finalization of this system.

2.0 Terrestrial Protected Areas

Canadian governments at all levels have made significant strides in recent years in establishing and managing Canada's terrestrial protected areas in support of biodiversity conservation.

Types of terrestrial protected areas in place across the country include national and provincial parks, migratory bird sanctuaries, national wildlife areas, wilderness areas, conservancies and ecological reserves. The specific design criteria, management objectives and levels of protection offered by each of these areas differ by jurisdiction.

For example, many protected areas agencies apply the principle of representation (i.e. ensuring that the diversity of natural features within each natural region is represented within the protected area system as a whole). Other criteria include the conservation and protection of wildlife and wildlife habitat; unique and productive ecosystems/habitats; critical habitat for endangered or threatened species; and responding to initiatives of local indigenous communities. Many of Canada's parks and protected areas also have an important mandate to connect Canadians with their natural world, which is critical to their success as a conservation tool.

Protected area agencies are also increasingly recognizing the importance of maintaining key ecological processes and functions (e.g. natural processes such as fire) and enhancing connectivity within and between protected areas. Planning for these values in turn requires a greater understanding of and participation in broader regional planning efforts (See Section 6.0).

Many Canadian governments have established protected areas targets for their jurisdictions. For example, Nova Scotia's *Environmental Goals and Prosperity Act* establishes legislated targets for protected areas. It commits the province to protecting 12% of the province by 2015. The province has made significant inroads in increasing the amount of protected lands it manages since 2005.

Current Status

Canada's terrestrial protected areas currently include a total of 933,930 km² across the country. This represents 9.4% of the country. The distribution of these protected areas by ecological units is described in Chapter 1.

The distribution of these protected areas differs greatly across the country. The greatest progress has been made in the Montane Cordillera, Boreal Cordillera, and Pacific Maritime ecological units, where

protected areas represent 18.6%, 16.4%, and 15.7% of their respective regions. In part, this reflects recent progress made by the province of British Columbia in completing comprehensive land use plans, including the establishment of protected areas, for major portions of the province (see Section 6 for additional details).

Freshwater Ecosystems

While historically, little attention had been given to considering effective representation of freshwater ecosystems within terrestrial protected areas planning initiatives, efforts are now underway by some agencies to enhance planning for protection of inland freshwater ecosystems. A number of jurisdictions are beginning to incorporate conservation of freshwater systems into their protected areas planning. However, no reporting currently exists on the amount of freshwater habitat contained within Canada's protected areas networks.

Significant progress in recent years includes efforts by the governments of Canada and Ontario to establish the Lake Superior National Marine Conservation Area. At just over 10,000km², this area will be the largest freshwater protected area in the world, and will help protect the pristine waters and aquatic biodiversity of the world's largest lake. Under the *Canada National Marine Conservation Areas Act*, the area will be managed for ecologically sustainable use of its biological resources while also fully protecting special features and sensitive ecosystem elements. Its management plan will be developed with the input of regional First Nations and an advisory committee, and will consider resource conservation, opportunities for visitor experiences and learning, as well as benefits to local communities and First Nations.

Moving Forward

Most governments have developed protected areas strategies to guide the selection of candidate sites within their jurisdiction. Significant progress has been made in a number of provinces and territories to complete implementation of these strategies. These strategies will continue to guide work by individual jurisdictions towards meeting their protected areas goals in coming years.

Northwest Territories Protected Areas Strategy (NWTPAS)

The Northwest Territories Protected Areas Strategy (NWTPAS) is jointly administered by the governments of Northwest Territories and Canada, in partnership with Aboriginal communities, land claim organizations, industry, and non-profit organizations. Focused on protecting both special natural and cultural areas as well as representative core areas in each territorial ecoregion, the NWT PAS has become a vital mechanism for local communities to take the lead in identifying and nominating protected areas based on cultural values and traditional knowledge. Sixteen communities are currently involved in identifying and advancing 20 candidate areas throughout the territory.

Governments are also making progress on working collaboratively on a more ecoregional basis, including the establishment and management of transboundary protected areas. For example, British Columbia (B.C.) and Alberta have established an inter-provincial park that includes Kakwa Provincial Park in B.C., and Kakwa Wildland and Willmore Wilderness Parks in Alberta. These areas form the northern terminus of a complex of protected areas in the Rocky Mountains. This initiative will facilitate ecosystem-based management approaches to a number of transboundary issues, including wildlife management, forest health, visitor services, and recreation management.

Recent Progress in Quebec

In the last few years, Quebec has made impressive progress in creating protected areas and protecting biodiversity. From 2002 to 2009, almost 124,000 km² of protected area were added through

two strategic action plans. More than 53,600 km² were added in 2008-2009 alone, with the result that Quebec now has 135,450 km² in protected areas, representing 8.12% of its territory.

In 2002, most of the protected areas were concentrated in southern Quebec, close to populated areas. Today, they are scattered over all of the 13 natural provinces. A natural province represents the first level of subdivision of Quebec's ecosystems. In three of the 13 natural provinces, over 10% of the area is protected; in one, the protected area accounts for more than 25%.

The expansion of protected areas was especially noteworthy in the boreal forest. Since 2002, the protected area located in this zone went from 23,800 to 97,300 km². Now, 9.2% of the boreal forest area is dedicated to conservation.

On March 29, 2009, Quebec committed to protecting 12% of its territory by 2015.

Some recent advances:

- The proposed Rivière Dumoine aquatic reserve covers almost 1,500 km² in Témiscamingue and Outaouais. It will protect one of southern Quebec's last natural rivers.
- With an area of 4,259 km², the proposed Paakumshumwaa-Maatuskaau biodiversity reserve is of substantial ecological and cultural value, particularly for the Wemindji Cree community. The watersheds it protects are almost all in their natural state. Here, traditional and scientific knowledge combine in protected the territory.
- The Rivière George protected area and the Monts Pyramides National Park reserve adjacent to it cover an area of approximately 9,900km². The Quebec government is protecting this majestic river along its entire course, over about 350 kilometres from where it is joined by its major tributary, Rivière De Pas. This makes it Quebec's largest protected river. These protected areas will help protect one of the Quebec Arctic's largest caribou herds, with a population of 385,000 head.
- New proposed biodiversity reserves close to Lac Evans will help protect woodland caribou in this part of the boreal forest.
- The Baie aux Feuilles National Park reserve (3,868 km²) borders one of the biggest river estuary systems in northern Quebec, which is characterized by enormous seventeen metre tides. Among other things, this is the only site in Quebec where muskoxen are found.

Several governments also participate in regional, national and international protected areas initiatives, such as the Circumpolar Protected Area Network of the Arctic Council. These broader efforts will provide important context for additional protected areas establishment work in Canada over the next five years and beyond.

Canada has not undertaken a national gap analysis to explore future biodiversity conservation needs.

3.0 Marine Protected Areas

The Pacific, Atlantic and Arctic Oceans bound Canada to the west, east, and north. Ocean waters within Canada have a combined surface area of approximately 7.1 million km² and almost 250,000 kilometres of coastline. These oceans are home to an astonishing array of species and special features, and have a rich human history of settlement, commerce and recreation. A large percentage of Canada's ocean waters are currently undeveloped.

Marine protected areas can play a vital role in conserving marine species and their habitats. Unlike terrestrial protected areas, which are relatively restrictive in terms of acceptable uses, marine protected areas typically reflect a mix of permissible and restricted activities at different surface levels. As a result, decisions regarding the appropriate scale and use of these areas are determined on a site-by-site basis.

While some provinces and territories have legislation that enables them to create marine protected areas in coastal areas, the federal government has primary responsibility for ocean management in Canada.

At the federal level, overall responsibility for leadership and coordination of oceans-related activities rests with Fisheries and Oceans Canada. However, three federal departments have legislative authorities enabling them to establish and manage marine protected areas:

- *Fisheries and Oceans Canada* creates Marine Protected Areas (MPAs) to conserve and protect fish, marine mammals and their habitat, unique areas, or areas of high productivity;
- The *Parks Canada Agency* establishes National Marine Conservation Areas (NMCAs) to protect and conserve representative examples of marine regions across the country and for public benefit, education and enjoyment; and
- *Environment Canada* has authority to establish both Marine Wildlife Areas (MWAs) and National Wildlife Areas (NWA) with a marine component in order to conserve and protect habitat for key wildlife species, including migratory birds and species at risk.

In addition to these programs, the federal government also contributes to marine conservation through the establishment of marine components within a number of national parks and migratory bird sanctuaries, and through the establishment of other protection measures such as fisheries closures. Canada's emerging national network of marine protected areas will also include a number of existing and future coastal sites designated by provincial and territorial governments.

At the international level, Canada participates in marine protected area network planning through initiatives such as the Commission on Environmental Cooperation - Biodiversity Conservation Working Group's North American Marine Protected Areas Network (NAMPAN). One of the most comprehensive projects of NAMPAN to date has been the development of a NAMPAN Condition Assessment Scorecard, which distils large amounts of complex technical and traditional/local ecological knowledge about MPA conditions for 10 piloted sites in Canada, the United States, and Mexico.

Current Status

Approximately 45,280 km² (0.64 %) of Canada's oceans are protected. Although some terrestrial protected areas on Canada's coasts have marine components, the designation of specific marine protected areas (such as designation of National Marine Conservation Areas by Parks Canada Agency and Marine Protected Areas by Fisheries and Oceans Canada) is newer.

In general, progress on marine protected areas in Canada is newer than similar efforts on land. This is due in part to the relatively recent passage of applicable legislation to establish these areas, lack of knowledge marine ecosystems, lack of public awareness, and the fact that a large percentage of Canada's oceans are not yet under development pressure.

The Gully

The largest marine canyon in eastern North America, the Gully located off Nova Scotia near Sable Island, was designated as a Marine Protected Area in 2004 by Fisheries and Oceans Canada. This 2,364 km² area is recognized internationally for the exceptional species and habitats it contains, including deep-sea corals and habitat for the endangered northern bottlenose whale. The MPA contains varying levels of protection for the three management zones within its borders. Further guidance for long-term stewardship of the site is provided in the Gully MPA Management Plan, published in 2008.

The Gully canyon contains over a dozen species of coral; as such, the Gully MPA makes an important contribution to coral conservation in Atlantic Canada. Conservation of corals and their habitats is also being addressed through broader integrated management efforts in the region. For example, a Coral Conservation Plan was released in 2006 to provide a more comprehensive conservation strategy for coral species in the Maritime region.

Moving Forward

Federal MPA agencies are presently working towards establishment of an additional 13 to 15 sites by 2012. The current extent of the federal network, as well as a number of areas where planning is underway, is outlined in Figure 2 (below).

Figure 2: **to be inserted.**

At the federal level, departments responsible for marine protected areas are working together to be more strategic and collaborative in establishing new MPAs and participating in the development of a national network of MPAs with the provinces and territories.

For example, a Federal Marine Protected Areas Strategy (FMPAS) was released in 2005 to enhance cooperation towards completion of the federal component of the national network of MPAs. The Strategy has four primary objectives: 1) to establish a more systematic approach to marine protected area planning and establishment; 2) to enhance collaboration with other jurisdictions (including Aboriginal peoples) for the management and monitoring of marine protected areas; 3) to increase the awareness, understanding and participation of Canadians in the marine protected areas network; and 4) to link Canada's network of marine protected areas to continental and global networks.

To implement the first objective of the FMPAS, officials have developed a Federal Guide for Collaborative Planning of Marine Protected Areas. The guide outlines a framework for federal action that includes the systematic collection of information, assembly of conservation objectives, and prioritization of potential candidate network sites.

Several pilot projects have also been launched under the FMPAS to explore collaborative public education and awareness approaches among adjacent or neighbouring sites. For example, federal officials worked jointly to develop shared public outreach materials for the Saguenay-St Lawrence Marine Park (PCA), the proposed St Lawrence Estuary MPA (DFO) and several national wildlife areas/migratory bird sanctuaries (EC).

Efforts are also underway nationally to enhance collaboration between federal, provincial and territorial agencies with a mandate to establish and manage marine protected areas, coordinated by the Oceans Task Group of the Canadian Council of Fisheries and Aquaculture Ministers. These national efforts aim to ensure that the overall national network linking MPAs will attain ecological objectives that go beyond what individual sites could achieve on their own.

Intergovernmental Cooperation on Marine Protected Areas

The governments of Quebec and Canada are collaborating in the establishment of marine protected areas. For example, the 1,246km² Saguenay-St. Lawrence Marine Park was created in 1998 and is managed jointly by the two governments. In 2007, the two governments set up a bilateral group on marine protected areas, with the common goal of establishing a network of new marine protected areas in Quebec by 2012 that preserves the richness and represents all aspects of coastal, marine and benthic biodiversity in the province. Recent progress includes collaboration between the two levels of government to strategically align a proposed provincial aquatic reserve in Manicouagan with a proposed DFO marine protected area in the same region.

These national efforts also involve strengthened partnerships with a variety of players both in Canada and around the world. For example, in January 2008, Fisheries and Oceans Canada and World Wildlife Fund Canada co-hosted a workshop on international guidance and lessons learned for developing Canada's marine protected areas network. This session provided a unique opportunity for representatives of federal, provincial and territorial governments, ENGOs and Aboriginal organizations to seek advice from international experts.

Canada is also providing leadership on international efforts to identify marine areas beyond national jurisdiction in need of protection. Canada has hosted one expert workshop on this issue, with another taking place in Ottawa in September 2009.

These and other collaborative efforts will continue in coming years, as all jurisdictions work to complete and maintain comprehensive networks of marine protected areas in Canada.

4.0 Partnerships with Aboriginal Communities

As Canada's first inhabitants, Aboriginal peoples have a unique relationship to its lands and waters. Given this long-standing use and occupancy, many communities have constitutionally-protected rights with respect to their traditional territories. As such, they represent critical partners in the establishment and management of protected areas across the country.

The relationship between protected areas agencies and Aboriginal communities has sometimes been strained. Settlement of Aboriginal land claims and finalization of Impact Benefit and other agreements has been instrumental in helping to develop strengthened partnerships that promote mutual respect and support protection of both cultural and ecological values.

Documenting Best Practices

In 2007, Parks Ministers released a series of case studies profiling leading collaborative work between Aboriginal peoples and Canada's park agencies. These case studies highlight best practices in Aboriginal engagement across the country in a variety of areas including: cooperative involvement in park planning and management, participation in broader regional planning initiatives, incorporation of traditional knowledge into park planning and management, creation of economic opportunities such as tourism ventures, and the use of parks as cultural learning opportunities for Aboriginal youth. The case studies can be found at <http://www.parks-parcs.ca/english/cpc/aboriginal.php>.

Aboriginal peoples are now extensively involved in the establishment of protected areas in Canada. To date, Aboriginal peoples have been involved in establishing over one quarter of the total lands within Canada's protected areas.

For example, the Quebec Inuit actively participate in all stages leading to the creation of protected areas in the Nunavik region of the province. Under the terms of an agreement signed with the government of Quebec in 2002, the Kativik Regional Government (KRG) is now directly responsible for key stages of the park establishment process, including community liaison and acquisition of both traditional and western scientific knowledge. In addition, once a provincial park is established in Nunavik, its management is delegated to the KRG. As such, the Pingualuit park created in 2004 is the first national park in Quebec to be managed by aboriginal peoples.

Indeed, Aboriginal communities are increasingly the driving force behind protected areas, particularly in the northern territories where negotiation of comprehensive land claims provides a formal mechanism for cooperative land and resource management. Many significant protected areas gains made in the Northwest Territories in recent years are supported by claim negotiations.

Protecting historic and cultural values – Kusawa Park, Yukon

Kusawa Park in the Yukon Territory was established and is being planned through a cooperative effort by a number of First Nations and the Yukon Government. The park, which represents extremely important historic and cultural values for First Nations communities, is identified as a settlement agreement park within both the Kwanlin Dun First Nation and the Carcross Tagish First Nation Final Agreements. Although it is not identified in their Final Agreement, the Champagne Aishihik First Nation are also involved in park planning efforts, given that the site is also part of their traditional territory.

The park management plan under development also reflects the importance of First Nations participation in determining the overall direction, management policies and practices for the site. The Kusawa Park Steering Committee is composed of representatives of three First Nations and Yukon Government. It is addressing a full range of park management issues as it develops a recommended park management plan for the area.

Other leading examples include the work of four First Nations straddling the Ontario-Manitoba border. The Pikangikum, Poplar River, Paunigassi and Little Grand Rapids First Nations have signed a Protected Areas and First Nation Stewardship Accord to promote protection of their traditional lands. Together with the governments of Ontario and Manitoba, they are promoting this area, which is on Canada's tentative list of future UNESCO World Heritage Sites.

These First Nations have driven the protected areas establishment process since its inception. Their leadership, clear articulation of an overarching conservation vision for their lands, and integration of traditional knowledge and western science have been essential to its success. Recent steps towards achieving this vision include identification of dedicated protected areas in the Pikangikum First Nation's Whitefeather Forest Land Use Strategy. In this Land Use Strategy, called Keeping the Land, Pikangikum First Nation identified 35% of the Whitefeather Forest, over 4000 km², as Dedicated Protected Areas.

Recent negotiation of a land use plan by Poplar River First Nation that will ultimately protect over 8000 km² of their traditional territory also marks important progress in this area. In addition, in December 2008, the Manitoba Government introduced the East Side Traditional Lands Planning and Special Protected Areas Act, which will grant greater authority to these communities to protect cultural and ecological values while planning for the sustainable use of traditional over the long-term.

One of the factors behind the success of some of these initiatives is the incorporation of traditional knowledge and activities into protected area establishment and management. A powerful example of this approach is in the future Albnel-Temiscamie-Otish Park in Quebec. As a result of ongoing dialogue between the Cree Nation of Mistissini and Quebec officials, an important role for trapline tallymen has been confirmed in the development, management, and long-term stewardship of the

park. These tallymen are senior hunters that play a key role in enforcing community rules regarding hunting and fishing on traditional traplines. Involving these tallymen in a leadership role, while also confirming that traditional activities will continue within park boundaries, has been instrumental in building community support for the park.

As the first inhabited park in Quebec, the site represents an important model for partnerships that promote both conservation and respect for cultural traditions and activities. It is also indicative of growing trends in northern Quebec and elsewhere across the country towards formal joint or delegated management, and the explicit protection of cultural values within protected areas. For example, the proposed Tarium Niryutait Marine Protected Area in the Beaufort Sea will provide protection not only for beluga whales and their habitat, but also the traditional beluga subsistence harvest that is of extreme cultural importance to the Inuvialuit.

Protected Areas and Cultural Landscapes – A Nunavut Example

Recognizing how difficult it is to separate cultural and natural resources, Nunavut Parks initiated a Cultural Landscape Resource Assessment to gain a better understanding of overall landscape resources for a proposed park in the Clyde River area. The assessment included places to which oral traditions are attached, as well as places associated with living heritage including natural features, wildlife areas, archaeological and palaeontological sites, graves and burial grounds, and community use or recreation sites. Through a variety of means including community consultations and interviews with elders, residents were invited to add information about what is important to them about the landscape and resources in the area to maps of the study area. The collected information was recorded in a GIS database and will be combined with other knowledge of the area to produce a comprehensive database for planning and managing the park area.

In 2008, Nunavut Parks started working with residents of Kugaaruk to further develop this model through a similar study towards a proposed Territorial Park. This project will not only develop a cultural landscape resource inventory for Kugaaruk, but will also produce a framework that can be applied to all territorial parks throughout Nunavut. The project will also produce a Training Manual in order to facilitate the use of this framework by future Community Joint Planning and Management Committees as they record and analyze natural and cultural resources, capture related Inuit Qaujimaqatuqangit (traditional knowledge), and maintain records of oral histories and knowledge related to all park landscapes. A further extension of this information will be the development of a new ecological and cultural landscape-based System Plan for Nunavut Parks. The fact that this process considers both quantitative and qualitative aspects of cultural heritage resources in the landscape makes the approach developed for Clyde River's cultural heritage assessment precedent setting.

Efforts are also underway to ensure that protected areas provide meaningful economic benefits for Aboriginal communities. For example, a cooperative eco-tourism venture with the Vuntut Gwich'in First Nation, Vuntut Development Corporation, Yukon Parks and a local company to support grizzly bear viewing in the Ni'iinlii'Njik (Fishing Branch) Park was formally launched in 2006. This joint effort aims to promote a unique experience for tourists in ways that benefit the local Aboriginal community while protecting the bears and their habitat.

New types of protected areas designations are also emerging as a result of Aboriginal land claims and partnership agreements. For example, as part of the coastal planning processes initiated in the temperate rain forests of British Columbia, the provincial government agreed to create a new Conservancy designation under their Parks Act that includes as one of its purposes 'the preservation and maintenance of social, ceremonial and cultural uses of first nations'. These conservancies will be managed in collaboration with First Nations, in order to balance the protection of ecosystems with the

maintenance of cultural uses and the diversification of the economies of coastal communities. First Nations are also assuming a greater role in direct operation of conservancies through community based guardian and watchmen programs.

These and other activities are helping to build strong and enduring relations between protected areas agencies and Aboriginal communities. It represents one of the most significant areas of success for Canada in recent years.

5.0 Partnerships with other sectors of Canadian society

In addition to growing partnerships with Aboriginal communities, Canada's success to date has relied on strong partnerships with private citizens, NGOs and industry.

Private donations of ecologically sensitive land are becoming an important conservation tool, particularly in the southernmost parts of the country where much of Canada's lands are privately held. As a result, many Canadian governments formally include private conservation lands in their protected areas networks.

A wide variety of private lands organizations are active across the country, including over 200 independent land trusts and conservation authorities. Many of these organizations now belong to the Canadian Land Trust Alliance (CLTA), which works to strengthen the land trust movement nationally through partnerships, communication and training.

Other active organizations include groups such as Ducks Unlimited Canada (DUC). DUC has completed over 7000 habitat projects across the country, and works in partnership with over 17,000 landowners in support of habitat conservation.

Working with Private Landowners in Alberta

In 2008, Alberta established the "OH Ranch Heritage Rangeland" and developed cooperative management guidelines in partnership with a private landowner of OH Ranch, the Nature Conservancy of Canada (NCC), Southern Alberta Land Trust Society (SALTS) and multiple government departments. This public-private partnership represents the culmination of a collaborative effort to conserve Alberta's native grassland ecosystems. Both the private land under conservation easement and the public land established as a heritage rangeland under protected areas legislation will continue to be managed as a single unit under one operating ranch to conserve the native grassland ecosystems. Ongoing management of the OH Ranch Heritage Rangeland represents a collaborative and cooperative effort between all partners.

In recent years, governments have introduced incentives to encourage private land conservation. All provinces have legislation that allows for conservation easements. In addition, both the federal and some provincial governments offer tax benefits for land donations, while several provinces have established matched-funds partnerships with local land trusts. More recently, the federal government eliminated the tax on any capital gains on charitable donations of ecologically sensitive lands certified under the Ecological Gifts Program in order to remove tax and financial barriers to conservation efforts.

In addition, in 2007, the Government of Canada invested \$225 million in the Natural Areas Conservation Program to help non-profit, non-government organizations secure ecologically sensitive lands. This program is administered through an agreement with the Nature Conservancy of Canada (NCC), which will partner with other NGOs to match funds for each federal dollar received. A science-based process will be used to identify and acquire ecologically sensitive lands through donations, purchase or stewardship agreements with private landowners. Priority is given to lands that are

nationally or provincially significant, that protect habitat for species at risk and migratory birds, or that enhance connectivity or corridors between existing protected areas.

A recent success fostered through this program is the NCC's 2008 purchase of the Darkwoods property, which provides important habitat for a number of species at risk including the last remaining Mountain Caribou herd in the region. Located in south-central British Columbia, this 55,000 ha site represents the single largest private land conservation purchase in Canadian history.

Fostering a network of private protected areas in Quebec

Between 2002 and 2008, the Quebec government invested over \$20 million in private lands conservation efforts. These investments, which have leveraged significant contributions by other conservation players, have resulted in the acquisition by private conservation organizations of 166 properties representing over 14,000 ha. Almost 75% of these projects have contributed to habitat protection for species at risk. Of particular note is a \$3.3 million investment by the Quebec government in to support acquisition of more than 4000 ha of lands owned by forest products company Domtar Inc in the Sutton Mountain Range. This represents the largest private conservation agreement in Quebec history. In January 2009, the government of Quebec launched a new partnership program to build on these efforts. With a \$25 million budget over five years, this program aims to further contribute to the development of a network of private protected areas in the province.

Partnerships with industry are also helping to achieve conservation successes in both the marine and terrestrial environments. For example, Fisheries and Oceans Canada has worked with the Canadian shipping industry to re-route some shipping lanes around the North Atlantic Right Whales' migratory path and establish a voluntary Area to be Avoided near the Roseway Basin south of Nova Scotia.

Working with industry to ban logging in Manitoba's Provincial Parks

The Manitoba government has introduced legislation that will prohibit logging in 80 of its 81 existing provincial parks, as well as in all future parks. Timber harvest activities dating back to the 1880s were allowed to continue in five major provincial parks when they were established in the 1960s and 1970s. The provincial government has reached agreements with the two major logging companies, Tembec Inc. and Tolko Industries Ltd., who held harvesting rights in four of these five parks. As a result, all commercial operations will cease in Whiteshell, Nopiming, Clearwater and Grass River Provincial Parks effective April 1, 2009. An additional 16 smaller quota holders will also be moved out of these four parks. The complexity of agreements with commercial harvesters in Duck Mountain Provincial Park will not allow operations to end at this time, as local mills and jobs are completely dependent on this wood supply. This policy decision by the government required a substantial amount of work to end a practice that was entrenched decades ago. It focused not just on environmental objectives but also took into consideration economic impacts and social dynamics. Ending the practice of logging within Manitoba's provincial parks is one more step toward permanent protection of these areas and will help ensure they remain natural landscapes for all to enjoy.

These initiatives and hundreds like them across the country illustrate the power of partnerships in achieving shared conservation goals. Continuing to work with all sectors of society will be critical for Canadian governments in their ongoing efforts to complete, enhance and maintain their protected areas networks over time.

6.0 Integrated Management Planning

Competing resource demands from different players require governments to make decisions and often trade-offs about where and how resources are developed and which areas receive protection. Historically, these decisions have often been made on an ad hoc, site-by-site basis.

At the same time, while parks and protected areas make a key contribution to maintaining ecological integrity, they rarely protect entire ecosystems. As such, engaging in broader ecosystem planning initiatives is important to help ensure that resource use outside of protected areas is sustainable, provides habitat connectivity, and contributes to overall ecosystem health.

Governments are increasingly establishing integrated planning processes to develop more holistic approaches for the conservation and sustainable use of Canada's lands and waters. In most cases, these integrated planning processes specifically include provisions to identify and establish new protected areas. They also typically provide a formal mechanism for bringing a broad range of players – including government officials, Aboriginal and local communities, industry, and conservation organizations – to the table to help collaboratively resolve competing demands.

Canadian governments have made significant progress in integrated management planning in recent years. This includes defining areas where planning will occur, establishing appropriate governance structures, developing frameworks to guide planning activities, and completing comprehensive plans in various parts of the country.

Current Status

Most provinces and territories have now initiated integrated planning processes for all or portions of the land bases for which they are responsible. For example, since 2006, B.C. has completed land use planning processes on the North and Central Coast (Great Bear Rainforest), Haida Gwaii, the Sea to Sky corridor between Vancouver and Whistler, and the Morice area in the northern interior. These land use decisions were arrived at through multi-stakeholder consultations, followed by government-to-government discussions with First Nations communities in each of the planning regions. These processes have contributed to the establishment of over 150 new protected areas and additions to existing protected areas encompassing over 20,000 km² of land and foreshore in that time.

Land-Use Framework for Alberta

The Government of Alberta established a new Land-Use Framework for the province in 2008. This Framework is a comprehensive strategy for addressing cumulative impacts of multiple industrial developments on the province's environment. Under the auspices of the Framework, the provincial government will work to develop regional land use plans in partnership with a range of regional and local organizations. A more detailed implementation plan is currently under development.

In addition, Manitoba has been working with First Nations since 2001 on a broad area planning process for their traditional lands on the East Side of Lake Winnipeg, an area covering 83,000 km² and an important tract of intact boreal forest in Canada. The Wabanong Nakaygum Okimawin (WNO) process brings together local communities, First Nations, industry and environmental organizations to develop a vision for land and resource use in the area.

Integrated management planning may also occur in the context of resource management planning. While these types of planning initiatives have not always provided for the identification of new protected areas, consideration of conservation values requiring longer-term protection is now increasingly incorporated into these processes.

For example, an innovative partnership between the Innu Nation and the province of Newfoundland and Labrador resulted in an Ecosystem-based Forest Management Plan for a 68,000 km² area in central Labrador. This 5-year Plan includes an extensive network of no cut zones designed to protect ecological function at the landscape, watershed, and stand level throughout the Plan's duration. In total, the 2003 approved Plan includes interim protection for candidate protected areas totalling over 32,000 km², including critical habitat for the Redwine Caribou herd. The plan, which also called for a number of changes to forest harvesting practices in the area, was the result of a far-reaching public participation process with Innu communities.

British Columbia's Central and North Coast Land and Resource Management Plan – A Global Model for Conservation

British Columbia's Central and North Coast Land and Resource Management Plan is a largely intact 64,000 km² area of temperate rainforest on the coast of British Columbia. This area was the subject of protracted environmental campaigns throughout the 1990s and early 2000s. In February 2006, the province of British Columbia, along with First Nations, NGOs, and forest companies agreed to establish more than 100 new protected areas covering almost 18,000 km² along the coast. The land use decisions also established 21 biodiversity areas, covering approximately 3000 km². These areas contribute to the conservation of species, ecosystems and seral stage diversity by being located adjacent to protected areas and by limiting the land uses within the zones. Commercial timber harvesting and commercial hydro-electric power projects are prohibited within these areas. Other resource activities and land uses will continue, subject to existing regulations and legislation. Finally, the decision requires the joint development of an ecosystem-based management system for forestry operations across the balance of the planning area. Legislation to establish the protected areas, or conservancies, was completed in April 2008.

In 2007, the Federal and BC Governments provided \$60 million to support this initiative, matching contributions made by private donors and foundations. The resulting Conservation Investments and Incentives Initiative (CIII) fund will facilitate implementation of the land use plan over time by supporting economic diversification and conservation projects in coastal communities.

Large-scale ecosystem-based planning is also underway within our oceans. Five Large Ocean Management Areas (LOMAs) have been established in order to facilitate an integrated management planning approach that includes both marine protected areas establishment and effective resource management decision-making. These areas typically span hundreds of square kilometres, and reflect boundaries determined on the basis of a number of ecological and administrative factors. LOMAs may also include coastal management areas to ensure that planning efforts include estuaries and coastal areas¹.

Within each LOMA, ecological components such as Ecologically and Biologically Significant Areas, Ecologically Significant Species, Species of Concern, and Ecologically Significant Community Properties are identified as needing particular management. These components are also used to inform the selection of candidate protected area sites and associated management decisions. Similar approaches are now being explored in coastal management areas and in offshore areas beyond the boundaries of LOMAs.

Canada is also active in IM planning in the Arctic, through its membership in the Working Group for the Protection of the Arctic Marine Environment (PAME), one of six working groups of the Arctic Council. Its mandate, to address policy and non-emergency pollution prevention and control measures, is essential to protecting the Arctic marine environment. Three of PAME's current

¹ For more information, see <http://www.dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/loma-zego/index-eng.htm>

deliverables are particularly important for Canada, namely: an Arctic Marine Shipping Assessment (if adopted); an update of the Regional Programme of Action to address pollution in the Arctic; and the application of an Ecosystem Approach in the Arctic Ocean.

Biosphere Reserves

Biosphere reserves, which are designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO), represent a unique tool for promoting integrated planning and management approaches. Biosphere reserves typically incorporate large areas that include core protected areas with strict legal protection, along with buffer areas, and adjacent lands with agricultural or industrial development. There are currently 15 biosphere reserves in Canada, including the Frontenac Arch Biosphere Reserve, which covers approximately 2700 km² of intersecting terrestrial and freshwater ecosystems in southeastern Ontario. The reserve works with a wide range of partners, including St Lawrence National Park, on a number of initiatives designed to maintain the ecological integrity of the area as a whole. In 2009 the Federal Government approved \$5 million over the next five years to support Canada's Biosphere Reserves.

Moving Forward

Recognizing the role that conservation of large, interconnected areas can play in protecting ecosystems, several provinces have recently announced major expansions to existing integrated land use planning processes, driven by ambitious conservation visions for the future. In July 2008, the Government of Ontario announced its intention to protect more than 50% of the province's Far North region, spanning an area at least 225,000 km² in size. This vision will be achieved in part through land use planning driven by Aboriginal communities.

In November 2008, Quebec announced a new vision for northern development by envisioning protecting half of all Quebec lands located above the 49th parallel from development. It could represent a significant contribution to conservation both nationally and internationally.

These and other large-scale planning initiatives offer a powerful opportunity for all jurisdictions to significantly enhance the contribution that their protected areas networks make to the ecological integrity of our ecosystems as a whole.

7.0 Management of Protected Areas

Rather than marking the end goal of conservation efforts, protected areas establishment is only the first step in a longer-term process to ensure that these areas provide meaningful ecological protection, both within their boundaries and within the greater ecosystem as a whole.

Habitat fragmentation, incompatible adjacent land uses, the rise of invasive species, and in some cases, managing increasing visitor use, have all been identified as challenges to the integrity of these networks and their ability to meaningfully contribute to the ecological health of the ecosystems in which they are found. Effective management is therefore essential to the success of Canada's protected areas networks.

Management Planning

Management planning is a key tool for considering the ecological challenges facing individual protected areas and developing solutions for addressing them over time. Protected area management plans are typically shaped by information generated from site monitoring and reporting programs, and reflect both ecological issues facing the site, as well as actions managers will take to achieve that site's goals and objectives.

A number of Canadian agencies are incorporating the maintenance of ecological integrity as a key goal for their management planning efforts. Parks Canada has introduced EI monitoring and reporting programs for the entire national park system. In addition, in 2006, Ontario introduced a new *Provincial Parks and Conservation Reserves Act* that establishes the maintenance of ecological integrity as the first priority in the planning and management of Ontario's system of provincial parks and conservation reserves.

Canadians have a critical role to play in this process. A number of protected areas agencies are working with local communities to inform management decisions concerning their protected areas. For example, New Brunswick has appointed close to 200 provincial residents to Protected Natural Area Advisory Committees to assist in developing management plans for sites within its protected areas network.

Canadian governments also work closely with local and Aboriginal communities, conservation organizations, and individual Canadians in implementing active management solutions. The success of many on-the-ground efforts across the country rely on these organizations and individuals. For example, volunteers in Kejimikui National Park and National Historic Site have logged almost 10,000 hours since 2005 to support recovery efforts for the endangered Blanding's turtle. In addition, DFO's Marine Protected Areas each have an advisory committee that recommends management decisions.

Active Management and Ecological Restoration

In response to these challenges, protected areas managers have become increasingly proactive in implementing management actions to maintain or recover the values that these areas are meant to protect.

For example, ecological restoration refers to the process of intervening in an ecosystem to re-establish its mix of species and processes, through such actions as the reintroduction of native species and natural processes such as fire, or the removal of invasive or alien species. Ecological restoration can help re-establish key ecosystem values, while also creating new kinds of opportunities for meaningful public education and engagement by Canadians.

A number of jurisdictions are working to enhance their ecological restoration programs. For example, Nova Scotia has adopted an ecological restoration policy for its provincial parks, and is currently defining system-wide priorities for restoration.

As a first step towards a more comprehensive approach to ecological restoration across the country, the Canadian Parks Council established a multi-disciplinary working group to develop Principles and Guidelines for Ecological Restoration in Canada's Protected Natural Areas. The Principles and Guidelines were reviewed by Ministers responsible for the Parks Council in 2007 and published in 2008. They represent the first ever pan-Canadian guidance for ecological restoration practices, and provide an approach that can be applied by all protected areas agencies across the country according to their needs².

² The principles and guidelines can be found at http://www.pc.gc.ca/docs/pc/guide/resteco/index_e.asp.

The approach is centred on three over-arching principles – that ecological restoration is effective, efficient, and engaging. Efforts are now underway with the IUCN World Commission on Protected Areas to work with protected area agencies around the world to adapt these guidelines as an international best practice.

Sometimes restoring ecological integrity and ecosystem health requires the re-introduction of natural processes that have been lost. As a result, many agencies are working to re-introduce fire into protected areas across the country, given the role it plays in creating habitat, controlling invasive species, and encouraging nutrient recycling in the soil.

For example, BC Parks has implemented an ecosystem management program using prescribed burning to address multiple management objectives. These objectives include: reducing wildfire risks to park facilities and adjacent communities through the reduction of fuel accumulations; restoring fire maintained ecosystems such as grasslands through the removal of forest in-growth; and addressing the impacts of the provincial mountain pine beetle infestations by reducing fuels and restoring habitats where required. BC Parks has undertaken prescribed burning projects involving 5000 ha in over 30 protected areas in the last two years.

The Prairie Persists Project

Prairie grasslands are one of the most threatened ecosystems in the country. As a result of widespread habitat degradation, the loss of millions of free-roaming bison in the 19th century, and more recent fire suppression efforts, the ecological processes that drive renewal in this ecosystem have disappeared or been significantly degraded.

In order to recreate the ecological processes linked to natural fires and grazing by large herbivores, Parks Canada and partner agencies initiated the Prairie Persists project in Grasslands National Park in Saskatchewan. In May 2006, 71 plains bison were successfully released into the park. Combined with prescribed burns and efforts to reduce exotic and invasive species, these efforts are helping to restore the overall ecological integrity of this rare ecosystem, while bringing back one of the most enduring symbols of our nation's history.

An important element of this project's success has been its focus on partnerships and engagement with local First Nations and with youth. For example, the Prairie Learning Centre, established by Grasslands National Park and the Chinook School Division, provides students from across the province and country unique place-based learning experiences about this fragile ecosystem.

Monitoring and Reporting

Monitoring and reporting programs provide important mechanisms for both informing the development of management programs across the country, and assessing their success over time. Governments across the country are actively seeking to improve their information and knowledge about the ongoing health of their protected areas networks, as well as adjacent areas.

For example, Ontario Parks has developed a structured monitoring framework including criteria and indicators for monitoring the status and health of Ontario's system of provincial parks and conservation reserves. Based on these criteria and indicators, Ontario Parks has assembled and analyzed information on ecological, social and economic aspects of Ontario's provincial parks and conservation reserves. The information is used to support the sustainable planning and management of Ontario's protected areas, and to report to the public on the state of Ontario's protected areas.

State of Ontario's Protected Areas: Healthy by Nature is a series of four technical reports that are nearing completion. Collectively, these reports describe the state of Ontario's system of provincial parks and conservation reserves during the period January 2001 to January 2006. The four technical

reports will be used as the basis for preparing a plain-language State of Ontario's Protected Areas summary report to be released in 2009.

Moving Forward

The rise of active management approaches in recent years reflects a growing understanding of the need to sometimes intervene in protected area ecosystems in order to maintain the natural values those areas were intended to protect. In addition to promoting ecological integrity within and surrounding protected areas, these approaches can also play a valuable role in engaging Canadians in on-the-ground actions that enhance their experience of and connection to our natural world.

8.0 Connecting with Canadians

Canada's parks and protected areas exist for many reasons – to protect biodiversity and ecosystem health, to safeguard unique places and spaces, and to promote greater understanding of our natural world. They also provide irreplaceable benefits to people and their communities, by providing opportunities for recreation, restoration, inspiration, and connection to each other and the world around us.

However, Canadian society is shifting, and our values are changing simultaneously. Despite our history as a nation of rural communities separated by distance, time and language, we are now a largely urban society highly concentrated along our southern border. Particularly in our major population centres, we are connected not by our history and shared experience, but through technology and the Internet.

Canada's population is also aging. Most of our population growth is due to immigration, primarily to large urban centres in the south. Youth culture is highly urban and often conducted virtually. In part as a result of these trends, visitation to protected areas is in decline in many jurisdictions across the country.

These shifts pose new opportunities and challenges. If Canadians do not feel a deep personal connection to their natural world, they won't understand its importance, take the opportunity to experience its beauty or care about its stewardship. This in turn will impoverish not only our natural world but our society. This is particularly true for our youth, who stand to become increasingly disconnected from our environment and the wonder it instills.

This raises critical questions for park and protected areas agencies. How do we remain relevant to a changing world, an increasingly urban and multicultural society, and a youth population more comfortable with digital networks than trail networks? How do we provide meaningful connections to the natural world for all Canadians, regardless of where they live? What opportunities do these shifts present in terms of new partnerships and ways of learning and experiencing our protected areas?

Protected areas agencies in Canada are at an early stage of considering how best to respond to these changing circumstances. However, initial work is underway across the country to explore strategies for connecting with all Canadians, particularly youth and those in urban centres. These efforts will help build a new generation of stewards and supporters across the country for whom protected areas are both relevant and essential.

For example, protected areas agencies are working together to find new ways of reaching Canadian youth, particularly Aboriginal and new Canadians. Initial research has been conducted into ways to effectively reach youth and 'plug them in' to parks and protected areas. The Youth Engagement Working Group of the Canadian Parks Council has undertaken research into best practices and has established a youth advisory panel to help in the development of a national strategy and toolkit for youth engagement across the country.

Individual jurisdictions are also exploring ways to engage youth more effectively. For example, in partnership with Parks Canada, Metro Vancouver and Wild BC, BC Parks is developing a new

curriculum guide (Get Outdoors!) to encourage educators and outdoor leaders to take children outside. The guide provides both outdoor activities and background information for educators. Get Outdoors! has been endorsed by the Ministry of Education and the Environmental Educators Professional Specialist Association (EPPSA). Environment Canada's Biosphere in Montreal has also developed a Biokit to encourage families to explore and discover natural areas in their neighbourhood.

Alberta Parks Outreach and Public Engagement Program

Alberta Parks is exploring innovative ways to foster meaningful relationships between marginalized or disconnected groups and the province's protected areas, and to enhance the quality of life for these people through wilderness experiences and outdoor recreation. Using a highly collaborative approach rooted in partnerships with a wide range of organizations, a pilot outreach program in Kananaskis Country has introduced several initiatives, including:

- The *Alberta Access Challenge*, in which 10 people with disabilities and over 60 volunteers participated in adapted backcountry camping, sea kayaking, and cycling, and are now helping to develop an educational video series about the benefits of wilderness experiences;
- *Nature as a Second Language*, where over 700 new immigrants were introduced to parks through a digital guidebook in non-official languages, day trips, and presentations; and
- *Parks in the Boardroom*, a program being developed with various professionals to connect the corporate community with ecological, sustainability, and stewardship principles.

In addition, Parks Canada is developing an internal strategy for reaching out to urban Canadians, whose proximity and access to the national park system is limited. Initial directions being explored include emphasizing the role that protected areas can play as gathering places or resources for communities. Partnering with community organizations to host gatherings, festivals, and recreational activities helps root individual sites more deeply within the fabric of their surrounding communities, and connects them to new audiences who might not otherwise be exposed to the national park system.

Parks Canada is also exploring new ways to facilitate lifelong learning about nature conservation among urban Canadians. Working in a sustained and collaborative fashion with a wide variety of new partners will help create an integrated web of complementary learning experiences for Canadians regardless of their point of entry, be it a protected area or historic site, a zoo or aquarium, or a museum.

A related priority for protected area agencies is finding and working with new types of partners who can help build awareness of and support for natural areas. For example, artists reach and inspire us in unique ways. Through pictures, movement, and the written word, they can touch our emotions and evoke a deep sense of connection to the wonders of the natural world. As such, the arts community can play a unique role in promoting protected areas and the values they represent. These types of partnerships can be particularly valuable in the urban context.

Feel the Earth Move

In 2006 Montreal's renowned Coleman Lemieux Dance Company traveled to Gros Morne National Park in western Newfoundland. In seven days, they created a modern dance piece honouring the park's unique people and geography. A local film-maker captured both the creative process and the interaction between the company and the local community in a film that has subsequently been broadcast across the country. The company was involved in a similar multi-media project in Saskatchewan's Grasslands National Park in 2004.

While initial work is underway to respond to the changing social context for parks and protected areas in Canada, additional efforts will be required in coming years. New approaches, skills, and partnerships will be essential to our success in this regard.

9.0 Adapting to Climate Change

Climate change represents a key emerging issue for parks and protected areas over the coming decades. While the impacts of climate change pose a number of challenges for managers, protected areas can also play a vital role in buffering the effects of climate change.

For example, they can increase ecological resilience, provide protection against the physical impacts of extreme weather events and other climate change impacts, and help species and communities adapt to changing conditions. As such, they serve as what the International Union for the Conservation of Nature (IUCN) has called 'natural infrastructure' to help ecosystems adapt to the impacts of climate change.

Projected Impacts

With its northern latitude, Canada is expected to see major impacts from climate change, particularly in the Arctic. Many indications of ecological change – including rising temperatures, thawing permafrost and shrinking ocean ice cover - are already being observed.

While current climate models are unable to reliably predict future ecological conditions within Canada's land and seas, there is general agreement that climate change will result in a series of changes in vegetation succession, water regimes, wildlife habitat, species distribution, and permafrost. Overall, scientists anticipate a general shifting of ecosystem distribution and composition, generally in a northward direction.

Over time, it is anticipated that western Canada will experience a more severe fire regime, while the Arctic Ocean may be ice-free in summer. Anticipated impacts in the southernmost parts of the country include changes in water quantity and quality, as well as exacerbated air pollution and the introduction of insect-borne diseases such as Lyme disease.

Climate change is also putting the world's oceans at risk by increasing the temperature of seawater and altering atmospheric and oceanic circulation. Coastal erosion and sea level changes are also anticipated, with coastal zones especially susceptible to the potential impacts of climate change. Recently attention has focused on oceans acidification due to the uptake of increased amounts of carbon dioxide, which is causing widespread and severe damage to marine ecosystems. The ocean water becomes more acidic as the gas dissolves to create carbonic acid. This increased acidity can hamper the ability of a wide variety of marine organisms to form calcium carbonate shells and skeletal structures.

These changes will also have an impact on visitation across the country. Preliminary studies of the implications of climate change on park-related tourism suggest changes in both the overall level and the seasonality of park visitation. Potential increases in costs associated with ensuring staff and visitor safety may also result.

Moving Forward

There has been a growing recognition among Canadian parks and protected areas agencies of the need to develop strategies to address both the potential challenges and opportunities posed by climate change.

This includes considering potential climate change impacts during the protected area establishment and boundary setting process, as well as accelerating efforts to enhance connectivity within and between protected areas networks regionally and nationally. It may also include enhanced public education and outreach programs that emphasize the important role protected areas can play in helping us adapt to a changing climate, which will in turn help underscore the relevance of protected areas to Canadian society.

Addressing these challenges will also require greater collaboration between governments, Aboriginal communities, and others to look beyond existing protected area boundaries towards larger more integrated networks and broader regional planning exercises both on land and at sea. Over time, these efforts will help foster connectivity, ecological resilience, and species migration.

In recent years, protected areas agencies across the country have begun to assess potential impacts of climate change and to consider potential adaptation strategies. Parks Canada first developed a climate change impact assessment for national parks in Canada in 2000. Ontario and New Brunswick have also undertaken comprehensive vulnerability assessments of their protected areas networks.

Parks Canada is improving its understanding of future climate change scenarios for the natural systems it protects and manages and is incorporating indicators of the impacts of climate change into its ecological integrity monitoring program.

Parks Canada and other protected areas agencies have also taken steps to reduce its greenhouse gas emissions. The PCA has already met its internal greenhouse gas reduction target to reduce emissions by 5.2% from 1998 levels by 2011. According to a 2008 survey, Parks Canada is the only protected area agency in the world to achieve or even set formal emission reduction targets.

However, much work remains. Researchers from the University of Waterloo and the Canadian Council of Ecological Areas recently completed a collaborative Protected Areas and Climate Change (PACC) Survey. They found that while protected areas managers strongly believe climate change is an important management issue, relatively little progress has been made to date in developing relevant climate change strategies or policies.

The vast majority of protected area agencies across the country have not yet completed comprehensive assessments of potential climate change impacts or implications for areas under their management, although many agencies have initiated studies and/or pilot projects to inform longer-term adaptation strategies. Respondents to the PACC Survey also underscored the fact that protected areas agencies do not currently have the capacity to meaningfully plan for or manage the potential impacts of climate change. Developing this capacity will be an essential building block for future efforts in this area.

10. Conclusions

Protected areas represent one of many conservation tools available to protect and maintain biodiversity in Canada. We are only just beginning to understand the true value these areas provide, not only in terms of their economic and social benefits, but also in terms of the ecosystem services they nurture and sustain.

Significant progress has been made in recent years, both in terms of the amount of land and aquatic systems contained in protected areas, but also with respect to the types of partnerships and more integrated approaches that are now being employed in their planning and management.

Protected areas agencies are in the process of transforming their relationships with Aboriginal peoples, through formal consultations and agreements, as well as through new efforts to integrate Aboriginal knowledge and practices into protected area planning and management decisions. At the same time, Aboriginal communities are increasingly embracing the potential that protected areas represent to protect not only ecological values, but also cultural values and practices. This is one of the most significant areas of progress in Canada in recent years.

In addition, integrated management planning is emerging as a crucial mechanism for both identifying where to establish protected areas, and ensuring that resource use in adjacent areas is compatible with overall conservation goals. These processes also provide an important mechanism for involving a broader spectrum of interests in planning and management decisions.

Moving forward, renewed focus will be required in Canada's northern and boreal regions, where governments have a unique opportunity to protect intact functioning ecosystems. At the same time, innovative approaches will be required to use protected areas and other tools to maintain ecological integrity in the southernmost part of the country where these values are most threatened. Further efforts to properly understand and value the ecosystem services these areas represent will help contribute to these conservation efforts in years to come.

Given the later start of marine protected areas establishment efforts, development of a national network of marine protected areas is a key priority over the next five years. These will require both accelerated efforts at the federal level, as well as a greater focus on partnership efforts with provincial and territorial governments.

New challenges will face Canadian protected areas agencies in coming years. Flexible and proactive approaches will be required to address key challenges such as climate change and invasive species throughout the protected areas network. In particular, protected areas agencies can contribute to the development and implementation of climate change adaptation strategies that recognize the critical role protected areas play in helping whole ecosystems and the species within them adapt to the impacts of climate change.

At the same time, ongoing efforts will be required to ensure that protected areas remain relevant and meaningful to Canadians, that they continue to provide us with opportunities to experience and enjoy nature, and that these personal connections lead to an ongoing ethic and commitment to stewardship of our natural resources. This is an essential ingredient to the long-term health of our protected areas and our natural world and ultimately to our own health and well-being.