Environment Canada Environnement Canada

CANADIAN PROTECTED AREAS

Status Report 2006–2011

Canada

ISBN: 978-1-100-23616-2
Cat. No.: En81-9/2011E-PDF

Environment Canada
Inquiry Centre
10 Wellington Street, 23rd Floor
Gatineau QC K1A 0H3
Telephone: 819-997-2800
Toll Free: 1-800-668-6767 (in Canada only)
Fax: 819-994-1412
TTY: 819-994-0736
Email: enviroinfo@ec.gc.ca

Aussi disponible en français

This report covers the period from 2006 to 2011. Since then the federal government has launched the National Conservation Plan, which provides a national vision to advance conservation efforts across the country and includes initiatives related to protected areas.

Under the National Conservation Plan, the federal government announced additional investments of $252 million over five years in three priority areas:

Conserving Canada's lands and waters: safeguarding and enhancing biodiversity and ecosystems through conservation and stewardship actions, and supporting the creation and enjoyment of protected areas and green spaces. For example, the Government of Canada is investing $100 million over five years in the Natural Areas Conservation Program, which helps non-profit, non-government organizations secure ecologically sensitive lands, in partnership with the Nature Conservancy of Canada.

Restoring Canada's ecosystems: supporting the restoration of degraded ecosystem, which, once restored, will provide habitat for wildlife and clean water, and are essential for the protection and recovery of species at risk.

Connecting Canadians to nature: leveraging existing successful initiatives to help foster an appreciation for nature and building a "community of stewards" among Canadians of all ages. For example, Environment Canada is investing in ten National Wildlife Areas to improve public access to infrastructure, create trails, and support low-impact uses. As individual sites are enhanced, they will be promoted in the nearby communities to encourage use by residents.

Results and updates with respect to the implementation of the National Conservation Plan will be included in the forthcoming *Canadian Protected Areas Status Report, 2010-2015*.

TABLE OF CONTENTS

III Preamble

III What is the Canadian Protected Areas Status Report?
III Why report on protected areas?
III Who prepared the report?
IV Protected area organizations involved in the development of this report
IV Important notes on the report's data
V Changes in this status report, as compared to 2005

VI IUCN Protected Area Management Categories (Dudley, 2008)

VII IUCN Protected Area Governance Types (Dudley, 2008)

VIII Glossary

X Highlights

X The numbers
XI Protected areas planning
XII Protected areas management

1 Introduction

3 Chapter 1: The Numbers as of 2011

3 Context
4 Extent and growth of protected areas
9 Extent of protected areas in Canada's natural regions
14 Extent of protected areas in IUCN management categories and IUCN governance types
16 A Global Perspective (2010)

18 Chapter 2: Protected Areas Planning

18 Context
19 Legislation for protected areas
19 Protected area strategies
20 Objectives for protected areas planning
21 Progress on representativity
23 Progress on protected area coverage
23 Habitat connectivity
24 Large and unfragmented habitat
26 Progress on protecting freshwater
27 Science in support of protected areas planning
27 Planning for climate change
29 Intergovernmental network and system planning
31 Aboriginal participation in protected area planning
33 Collaborative efforts with non-government environmental or conservation organizations

35 Resource industry support for protected areas
37 Integrated landscape management
39 Integrated oceans management

42 Chapter 3: Protected Areas Management

42 Context
43 Policy framework for management of protected areas
44 Management plan development and implementation
46 Managing for ecological integrity
48 Threats to Canada's protected areas
50 Science and research in support of protected areas management
51 Trends in funding for protected areas
51 Management effectiveness evaluation
53 State of protected areas reporting
53 Assessments of benefits of protected areas
55 Aboriginal participation in protected area management
57 Local communities and protected areas management

58 Appendix 1: Protected Areas Summary

58 British Columbia
60 Alberta
62 Saskatchewan
64 Manitoba
66 Ontario
68 Quebec
70 New Brunswick
72 Nova Scotia
74 Prince Edward Island
76 Newfoundland and Labrador
78 Yukon
80 Northwest Territories
82 Nunavut
84 Parks Canada Agency
86 Environment Canada
88 Agriculture and Agri-Food Canada
90 Fisheries and Oceans Canada

92 Appendix 2: Programme of Work on Protected Areas and Aichi Biodiversity Targets

92 Programme of Work on Protected Areas
93 Aichi Biodiversity Targets

95 References

PREAMBLE

WHAT IS THE CANADIAN PROTECTED AREAS STATUS REPORT?

The Canadian Protected Areas Status Report series examines the state of terrestrial and marine protected areas in Canada, including network design, system planning, and protected area establishment and management in Canada.

This report focuses on the period 2006–2011, following up on the first *Canadian Protected Areas Status Report 2000–2005* (Government of Canada, 2006) and is a collaborative effort of all provincial, territorial and federal protected area government agencies. Chapters 1 (The Numbers as of 2011), 2 (Protected Areas Planning) and 3 (Protected Areas Management) report on the status of protected areas by topic, such as their extent and diversity, protected area strategies, planning for climate change, and managing protected areas for ecological integrity. Appendix 1 provides a statistical summary and map of protected areas for each of the 17 protected areas organizations in Canada (see the list of protected area organizations, below).

WHY REPORT ON PROTECTED AREAS?

In 1992, Canada's federal, provincial and territorial Ministers of Environment, Parks and Wildlife signed A Statement of Commitment to Complete Canada's Networks of Protected Areas. There was impressive growth in protected areas throughout the 1990s and into the 2000s. In 2006, the Canadian Council of Resource Ministers approved the release of the *Canadian Protected Areas Status Report 2000–2005* and endorsed an ongoing pan-Canadian assessment of the status of Canada's protected areas networks. Accordingly, the Status Reports identify emerging opportunities and priorities regarding the important role of protected areas in conserving Canada's natural capital, and document recent successes and accomplishments. They also allow Canada to examine and report on its commitments under the *Convention on Biological Diversity* (CBD, 1992), as expressed in the *Programme of Work on Protected Areas* (CBD, 2004b) and the *Strategic Plan for Biodiversity 2011–2020, including Aichi Biodiversity Targets* (CBD, 2010).

Each chapter of this report introduces key relevant goals and targets from these documents. A summary of the Convention on Biological Diversity (CBD) Programme of Work on Protected Areas and the Aichi Biodiversity Targets is contained in Appendix 2.

WHO PREPARED THE REPORT?

Environment Canada coordinated development of the Status Report, based on information and data provided by Canada's 17 protected area organizations.

The report focuses on progress in protected areas planning and management from the perspective of Canada's federal, provincial and territorial protected areas organizations. The report also reflects the contributions of non-government partners to protected areas planning and management, including Aboriginal organizations and communities, conservation groups, and industry associations, from a government perspective.

Robert Hélie, Habitat Information Integration, Environment Canada, managed the development of this report. An Advisory Committee provided ongoing strategic and technical advice throughout the drafting of the report.

- Karen Beazley, Dalhousie University
- Tom Beechey, Ontario
- Marc André Guertin, Université de Sherbrooke and the Canadian Biosphere Reserves Association
- Christopher Lemieux, Wilfrid Laurier University
- Nikita Lopoukhine, World Commission on Protected Areas
- Lynn McIntyre, Canadian Land Trust Alliance
- Jacques Perron, Quebec
- Mary Rothfels, Fisheries and Oceans Canada
- Erik Val, Yukon
- John Vandall, Saskatchewan
- Richard Wyma, Essex Region Conservation Authority

Under the direction of the Advisory Committee, Pauline Lynch-Stewart, Lynch-Stewart & Associates, and Robert Vanderkam, Habitat Information Integration, Environment Canada, prepared the first draft of the report. Chris Lemieux, University of Waterloo, assisted in the writing of sections on protected area benefits and climate change science and adaptation. Robert Vanderkam completed all data analysis and produced the final drafts of the report. Mark Richardson prepared all maps and figures.

A Steering Committee provided high-level direction and a link to the Canadian Parks Council.

- Robert McLean (Chair) (Canadian Wildlife Service)
- Bruce Bateman (Ontario)
- Brian Bawtinheimer (British Columbia)
- Sian French (Newfoundland and Labrador)
- Peter Labor (Nova Scotia)
- David Monteith (Nunavut)
- Charlotte Price (Manitoba)
- Mary Rothfels (Fisheries and Oceans Canada)
- Nicole Sharma (Parks Canada Agency)
- Erik Val (Yukon)

PROTECTED AREA ORGANIZATIONS INVOLVED IN THE DEVELOPMENT OF THIS REPORT

	Short form used in this report	Terrestrial	Marine
Federal			
1. Agriculture and Agri-Food Canada	AAFC	✓	
2. Environment Canada	EC	✓	✓
3. Fisheries and Oceans Canada	DFO		✓
4. Parks Canada Agency	PCA	✓	✓
Provincial/Territorial			
5. Newfoundland and Labrador	NL	✓	✓
6. Prince Edward Island	PE	✓	✓
7. Nova Scotia	NS	✓	
8. New Brunswick	NB	✓	✓
9. Quebec	QC	✓	✓
10. Ontario	ON	✓	
11. Manitoba	MB	✓	✓
12. Saskatchewan	SK	✓	
13. Alberta	AB	✓	
14. British Columbia	BC	✓	✓
15. Yukon Territory	YT	✓	
16. Northwest Territories	NT	✓	
17. Nunavut	NU	✓	
Totals	**17**	**16**	**9**

See the Glossary for definitions of terms.

IMPORTANT NOTES ON THE REPORT'S DATA

Canada's 17 protected area organizations provided two main sources of information and data for this report:

1) The Conservation Areas Reporting and Tracking System (CARTS) database:

Organizations provided CARTS with geospatial boundary and attribute data (e.g., size, name and category) for protected areas, accurate as of December 31, 2011.

CARTS is a Web-based, distributed network containing authoritative protected areas data from all federal, provincial and territorial organizations. CARTS makes use of the International Union for the Conservation of Nature (IUCN) protected area definition, management categories and governance types as its standardized framework for reporting, allowing inter-organizational comparisons and national protected areas reporting and mapping. CARTS is an evolution of the Canadian Conservation Areas Database, which had been managed by the Canadian Council on Ecological Areas (CCEA) since 1998, and was formally launched in 2008 by Environment Canada and CCEA. CARTS is continuously updated and accessible through the CCEA website at www.ccea.org/en_carts.html.

2) Questionnaire responses:

Two standardized questionnaires, including one for terrestrial and freshwater protected areas and a second for marine protected areas, were completed by organizations in early 2012, accurate as of December 31, 2011.

The questionnaire sought to complement the CARTS data with additional information on the CBD's Programme of Work on Protected Areas topics such as protected areas policy, strategy and objectives; management and reporting; and integrated landscape and oceans management. The 2006–2011 version of the questionnaire included minimal updating of the version that was completed by organizations for the 2000–2005 Status Report.

Some key research reports and journal articles written during or about the reporting period and specific to the status of protected areas were also consulted to supplement the questionnaire responses and CARTS data, and to provide examples and case studies.

Interpretation of the Status Report should keep the following caveats in mind.

1. Recent introduction of CARTS:

This is the first Status Report that uses CARTS, the comprehensive and authoritative source for protected areas data in Canada. Data for 2005 contained in this Status Report draw from CARTS, which has been updated since the publication of the *Canadian Protected Areas Status Report 2000–2005*.

2. IUCN management categories:

   Each organization categorizes its protected areas according to six IUCN protected areas management categories (Ia and Ib are considered a single category) (see IUCN Protected Area Management Categories, below). Organizations review IUCN categorization of their protected areas on an ongoing basis as a result of new guidance from the international and national communities of practice. These include, for example, *IUCN Guidelines for Applying Protected Area Management Categories* (Dudley, 2008), the *Canadian Guidebook for the Application of IUCN Protected Area Categories* (CCEA, 2008) and the *Guidelines for Applying the IUCN Protected Area Management Categories to Marine Protected Areas* (Day *et al.*, 2012).

   Protected areas may be owned and managed partially or wholly outside of government agencies. Some organizations currently report on lands and waters owned and/or managed by non-government agencies or private groups, while others are considering this. For example, organizations are assessing, in consultation with non-governmental organizations (NGOs), the extent to which federal and provincial community pastures and privately administered conservation lands within their province or territory meet the IUCN protected areas categories.

3. IUCN governance types:

   Each organization also classifies protected areas by the IUCN governance types, including governance by government, shared governance, private governance, and governance by indigenous peoples and local communities (see IUCN Protected Area Governance Types, below). Currently most of the data in CARTS pertains to protected areas managed by government agencies. Some of the organizations (MB, QC, NB, PE, SK and NT) have initiated the process of recognizing other lands and waters in Canada that are non-government governance types, but it is still at an early stage.

4. Marine protected areas (MPAs):

   While federal MPAs may be entirely marine, provincial-territorial MPAs are often identified based on the presence of a shoreline/coastal zone within a larger protected area that has an established terrestrial management regime. The concept of reporting on the marine component of this kind of protected area is new. Not all protected area management issues can be characterized as terrestrial or marine (e.g., questionnaire responses related to management plans, ecological integrity measures, and threats often pertain to the protected area writ large, rather than with the marine or terrestrial component). The reader should bear these challenges in mind when interpreting the results of this status report, and recognize that marine reporting will improve and evolve over time as MPA network planning moves forward.

CHANGES IN THIS STATUS REPORT, AS COMPARED TO 2005

Content from separate chapters on "private conservation lands" and "Aboriginal involvement in protected areas" and "integrated land/ocean management" in the 2006 report is presented in the chapters on protected area planning and management in this report. The status of MPAs is reported in parallel with terrestrial protected areas, rather than in a separate chapter, and there is a focus on the national MPA network as well as individual MPAs.

IUCN PROTECTED AREA MANAGEMENT CATEGORIES (DUDLEY, 2008)

IUCN Management Categories represent the intended level of protection as demonstrated by the management plan put in place by the administrators and backed by the policy and program tools. It is not a score card on the outcome or effectiveness of the management actions, although those attributes are being considered for a revised category system.

Category Ia (Strict Nature Reserve) are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.

Category Ib (Wilderness Area) protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

Category II (National Park) protected areas are large natural or near-natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.

Category III (Natural Monument of Feature) protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

Category IV (Habitat/Species Management Area) protected areas aim to protect particular species or habitats, and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

Category V (Protected Landscape/Seascape) protected areas are where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value; and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

Category VI (Protected Area with Sustainable Use of Natural Resources) protected areas conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.

Note: These are abbreviated descriptions of the management categories. For the full descriptions and for more information, see http://data.iucn.org/dbtw-wpd/edocs/paps-016.pdf.

IUCN PROTECTED AREA GOVERNANCE TYPES (DUDLEY, 2008)

Both the IUCN and the CBD recognize the legitimacy of a range of governance types. With respect to who holds decision-making and management authority and responsibility about protected areas, the IUCN distinguishes four broad protected area governance types.

Type A: Governance by government (at federal/state/subnational or municipal level). A government body (such as a ministry or park agency reporting directly to the government) holds the authority, responsibility and accountability for managing the protected area, determines its conservation objectives (such as the ones that distinguish the IUCN categories), develops and enforces its management plan, and usually also owns the protected area's land, water and related resources.

Type B: Shared governance. Complex institutional mechanisms and processes are employed to share management authority and responsibility among a plurality of (formally and informally) entitled governmental and non-governmental actors. Shared governance, sometimes also referred to as co-management, comes in many forms.

Type C: Private governance. Private governance comprises protected areas under individual, cooperative, NGO or corporate control and/or ownership, and managed under not-for-profit or for-profit schemes. Typical examples are areas acquired by NGOs explicitly for conservation. Many individual landowners also pursue conservation out of respect for the land and a desire to maintain its aesthetic and ecological values.

Type D: Governance by indigenous peoples and local communities. This type includes two main subsets: (1) indigenous peoples' areas and territories established and run by indigenous peoples; and (2) community conserved areas established and run by local communities. The subsets, which may not be neatly separated, apply to both sedentary and mobile peoples and communities. The IUCN defines this governance type as: protected areas where the management authority and responsibility rest with indigenous peoples and/or local communities through various forms of customary or legal, formal or informal, institutions and rules.

Note: These are abbreviated forms of the governance type descriptions. For the full descriptions and for more information, see http://data.iucn.org/dbtw-wpd/edocs/paps-016.pdf.

GLOSSARY

Biological diversity or "biodiversity": The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. (CBD, 1992)

Bioregions: The spatial planning framework for Canada's national network of MPAs is 13 ecologically defined bioregions that cover Canada's oceans and the Great Lakes. The 12 oceanic bioregions were identified through a national science advisory process that considered oceanographic and bathymetric similarities, which are important factors in defining habitats and their species. Since this Status Report considers Great Lakes as terrestrial (i.e., freshwater), the Great Lakes bioregion was not considered in this report.

Connectivity: The conservation of particular areas or corridors to provide physical or functional links or contiguity between core protected areas and thereby contribute to broader-scale landscape conservation. In the marine environment, connectivity in the design of an MPA network allows for linkages where protected sites benefit from larval and/or species exchanges and functional linkages from other network sites. In a connected network, individual sites benefit one another. (CBD, 2009)

Ecological integrity: There is more than one way to define ecological integrity. A report by the Panel on the Ecological Integrity of Canada's National Parks in 2000 proposed that "an ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes." According to the *Canada National Parks Act*, it means "… a condition that is determined to be characteristic of [a park's] natural region and is likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes." (*Canada National Parks Act*, 2000, in Parks Canada Agency and Canadian Parks Council, 2008)

Ecoregions: The National Ecological Framework for Canada delineates, classifies and describes ecologically distinct areas of Canada's surface at different levels of generalization using various abiotic and biotic factors at each of the levels. This hierarchical classification evolved with seven levels of generalization. From the broadest to the smallest, they are: ecozones, ecoprovinces, ecoregions, ecodistricts, ecosections, ecosites and ecoelements. Ecoregions are subdivisions of ecoprovinces characterized by regional ecological factors. There are 194 ecoregions in Canada. (Ecological Stratification Working Group, 1995)

Ecozones: A category in the National Ecological Framework for Canada (see description in Ecoregions, above). Ecozones are the broadest or most general level. Canada has 15 terrestrial ecozones. (Ecological Stratification Working Group, 1995)

Ecosystem: A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. (CBD, 1992)

Ecosystem services: Ecological processes or functions having monetary or non-monetary value to individuals or society at large. There are: 1) supporting services, such as productivity or biodiversity maintenance; 2) provisioning services, such as food, fibre or fish; 3) regulating services, such as climate regulation or carbon sequestration; and 4) cultural services, such as tourism or spiritual and aesthetic appreciation. (IPCC, 2007c)

Geodiversity: The diversity of minerals, rocks (whether "solid" or "drift"), fossils, landforms, sediments and soils, together with the natural processes that constitute the topography, landscape and the underlying structure of the Earth. (McKirdy *et al.*, 2007)

Interim Protected Area: A protected area (see also) that has not been permanently established but that has been given interim legal protection to protect biodiversity while final establishment is completed.

Land Trust: A charitable organization which, as all or part of its mission, actively works to conserve land by undertaking or assisting in land acquisition or conservation agreements or by engaging in stewardship of such land or conservation agreements. In Quebec, land trusts are non-profit organizations that in some cases do not have charitable status. (Canadian Land Trust Alliance, 2007)

Management effectiveness: How well a protected area is being managed; primarily the extent to which it is protecting values and achieving goals and objectives. (Hockings *et al.*, 2006)

Marine: Canada's ocean jurisdiction, from the saltwater shoreline as determined by a 1:50 000- or better-scale map base layer to the outer edge of the Exclusive Economic Zone.

Marine organization: The protected area organizations (see also) that report to CARTS on the marine components of their protected areas. Of the 17 protected area organizations, 9 have protected areas under their marine jurisdiction (DFO, EC, PCA, BC, MB, QC, NB, PE and NL).

Marine protected area (MPA): Same definition as for protected area (see also), but specifically pertaining to those protected areas, or portions thereof, located in marine (see also) waters.

(Protected areas) Network: A collection of individual protected areas that operates cooperatively and synergistically, at various spatial scales, and with a range of protection levels, in order to fulfill ecological aims more effectively and comprehensively than individual sites could alone. (WCPA and IUCN, 2007)

(Protected areas) Network design: Networks of protected areas conform to network design criteria or properties such as those defined by the CBD for MPA network planning (Secretariat of the CBD, 2009). Adherence to design properties is what distinguishes a network of protected areas from a system (as defined below).

(Protected areas) Organizations: A government agency or department that has the authority to establish and manage protected areas for the conservation of biological diversity. These include all provincial and territorial governments as well as a number of federal departments and agencies.

(Protected areas) Planning: Refers to the process of planning an individual protected area, a system of protected areas or a network of protected areas.

Protected area: A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. (Dudley, 2008)

Representativity: A protected areas network or system has representativity (or is representative) when it consists of areas representing all the different biogeographical subdivisions (e.g., ecologically distinct regions or habitat types) found within the larger planning area. (Secretariat of the CBD, 2009) Representation helps ensure that the full complement of species and habitats have some level of protection.

(Protected areas) System: A collection of individual protected areas planned on a site-by-site basis to achieve site-specific conservation objectives. The *Guidelines for Applying Protected Area Management Categories* (Dudley, 2008) notes that the IUCN and the World Commission on Protected Areas characterize a protected area system as having five linked elements: 1) representativeness, comprehensiveness and balance; 2) adequacy; 3) coherence and complementarity; 4) consistency; and 5) cost effectiveness, efficiency and equity.

Terrestrial protected areas: Same definition as for protected area (see also), but pertaining specifically to those protected areas, or portions thereof, located on land or freshwater, including the Great Lakes.

Terrestrial organization: The protected area organizations (see also) that report to CARTS on the terrestrial components of their protected areas. Of the 17 protected area organizations, all except Fisheries and Oceans Canada have protected areas under their terrestrial jurisdiction.

HIGHLIGHTS

THE NUMBERS

- As of December 2011, Canada has protected 10.0% of its lands and freshwaters (8.7% in permanent protected areas and 1.3% in interim protected areas), an increase from 9.1% in 2005. Canada has protected 0.9% of its marine territory, an increase from 0.6% in 2005.

- A total of 1 197 new terrestrial and marine protected areas were added to Canada's protected areas system since 2005, covering 133 888 km^2. This brings the total number of Canada's protected areas to 5 922 sites in 2011.

- Canada's terrestrial protected area system has grown by 9.4% since the last reporting period, from 908 244 km^2 in 2005 to 993 242 km^2 in 2011. Canada's MPA system has grown by 60.0% from 30 900 km^2 in 2005 to 49 364 km^2 in 2011.

- The growth rate in the total area of the terrestrial protected area system slowed to an average of 2.8% per year in 2006–2011, from 5.3% per year in 2000–2005. In contrast, the growth rate in the total area of Canada's MPA system climbed to an average of 11.5% per year in 2006–2011, from 4.6% per year in 2000–2005.

- The proportion of total area protected has increased in all of Canada's 15 terrestrial ecozones except for the Northern Arctic, and varies from 1.8% in the Mixedwood Plain ecozone, to an average of 11.1% across the three boreal ecozones, to 26.0% of the Arctic Cordillera ecozone. The proportion of total area protected in marine bioregions varies between 0% and 5.3%, with 10 of 12 bioregions having 2.0% protection or less.

- The vast majority (94%) of Canada's terrestrial protected area fall into the IUCN management categories representing the highest protection levels (Ia/Ib to IV), which are intended to protect wilderness values. Categories V and VI recognize areas where human activities have created unique and sustainable environments over long time periods.

- The federal government administers 45% of Canada's terrestrial protected areas among four agencies (PCA, EC, AAFC and Aboriginal Affairs and Northern Development Canada) and over 90% of Canada's MPAs among three departments (DFO, PCA and EC). The provinces and territories administer the vast majority of the remaining area at 55% and 9%, respectively.

- Provincial organizations are working with non-government groups to improve the recognition of privately held conservation lands as an integral component of protected area networks. Five provinces currently report private conservation lands, totalling about 1755 km^2, and many organizations across Canada are working to include the contribution of private lands to their protected area strategies. Private lands do not extend into the marine environment, but Fisheries and Oceans Canada is examining what additional types of effective areas-based conservation measures could contribute to achieving marine protection objectives.

- Aboriginal peoples have contributed to the establishment of tens of thousands of square kilometres of protected areas designated during the reporting period 2006–2011 through modern land claims, treaties, other agreements or collaborative land-use plans. However, more work needs to be done to accurately reflect this reality within protected area accounting systems.

- Canada accounts for 5.8% of the world's terrestrial protected areas overall, up from 5.1% reported in 2005. As well, 3.4% of the world's MPAs are found in Canada, up from the 1.4% reported in 2005. Among Organisation for Economic Co-operation and Development (OECD) countries, Canada ranks 2nd out of 34 in terms of the total extent of protected areas, and 26th out of 34 in terms of the percentage of lands and freshwaters protected. Canada ranks 23rd of 34 in terms of the percentage of marine waters protected.

- Progress has been made on completing systems or networks of protected areas representative of Canada's terrestrial ecological regions and marine bioregions although much work remains. More than one third of terrestrial protected area organizations (6 of 16) have "substantially completed"[1] representation of all of their natural or ecological regions. Four of 9 marine organizations have "partially completed" their representative frameworks.

[1] Terminology throughout the report for is taken from the questionnaire that was used to survey Canadian protected area agencies and departments.

- When Canada's terrestrial protected areas are viewed within the National Ecological Framework for Canada, 70 of 194 ecoregions (36%) currently have at least 10% of their area protected; 38 of 194 ecoregions (20%) currently have at least 17% of their area protected.

PROTECTED AREAS PLANNING

- All 17 government organizations responsible for terrestrial and/or marine protected areas in Canada have enabling legislation in place for the establishment of protected areas. Four organizations updated their legislation during 2006–2011 to recognize ecological integrity as a first priority, to commit to certain coverage targets or to create new legal protected area designations.

- Three quarters of terrestrial protected area organizations (12 of 16) and more than half (5 of 9) of marine organizations have protected area strategies in place for the reporting period. Six organizations have advanced implementation of their terrestrial protected area strategies in the last 5 years and report substantial completion of their strategy. Two organizations report substantial implementation of their MPA strategy.

- Protected area strategies continue to focus on representative areas, with 11 of 17 organizations identifying this as a primary objective. More than half of organizations (9 of 17) also set objectives related to protecting a proportion of their land or ocean area. Increasing attention is being given to the protection of ecological goods and services, which is a primary or secondary objective for 5 organizations.

- Several organizations emphasized the importance of the efforts of land trusts to secure ecologically significant privately held lands.

- Almost all organizations recognize the importance of habitat connectivity among their protected areas; however, nine organizations noted the "lack of tools to improve connectivity between existing protected areas" as a serious constraint in the terrestrial environment. Provincial organizations point out the importance of private land conservation for achieving habitat connectivity objectives, particularly in their growing urbanized regions.

- There are 64 protected areas greater than 3000 km^2, including 4 in the marine environment and 1 in the Great Lakes, which is the estimated minimum size needed to guard against biodiversity loss. This accounts for almost three quarters of the total area protected in Canada. More than two thirds of organizations (12 of 16) include a primary or secondary objective in legislation or policy to protect large, intact or unfragmented areas.

- More than half of protected area organizations (9 of 16) plan for the conservation of inland freshwater ecosystems within their protected areas networks, up from 6 organizations that did so in 2005.

- Most current protected area establishment planning in Canada involves working together with Aboriginal organizations and communities to conserve both biodiversity and cultural heritage, to cooperate on protected area management and to share the benefits of protected areas. Mechanisms for this involvement include modern land claims, treaties and other agreements, collaborative land use plans, and engagement and consultation processes.

- In most organizations, leading resource industries are supporting the completion of protected area systems and networks as a means to provide certainty with respect to land use or access, and to demonstrate corporate social responsibility. Three quarters of protected area organizations (13 of 17) report ongoing working relationships in place with relevant resource sectors.

- Most provinces and territories are working to incorporate sustainable development principles and practices into land management frameworks. Integrated land use planning processes cover an estimated 17% of the total land area in Canada and, where present, provide the principal approach to identifying where new protected areas are needed.

- In the marine environment, integrated management planning has moved from the planning phase to the implementation phase in the five Government of Canada Large Oceans Management Areas. Three *Oceans Act* MPAs totalling 7878 km^2—Bowie Seamount, Musquash Estuary and Tarium Niryutait—were established between 2006 and 2011 as part of this process.

- One quarter of terrestrial organizations (4 of 16) have integrated climate change adaptation or mitigation measures into protected areas planning and management strategies, and 8 more are in the process of doing so. One third of marine organizations (3 of 9) are developing adaptation measures to integrate into network design.

PROTECTED AREAS MANAGEMENT

- Two thirds of terrestrial protected area organizations (11 of 16) have policy frameworks in place for the management of their protected areas. Six of 9 MPA organizations have such policy frameworks in place.

- Protected area organizations in Canada have developed 199 management plans since 2005, although this does not match the designation of new protected areas. Approximately 18% of protected areas have up-to-date management plans in place as of 2011, slipping from 25% in 2005.

- Increasingly, Canadian organizations are adopting ecological integrity as a foundation for protected area management, with most organizations (13 of 16 terrestrial and 5 of 9 marine) reporting that the concept is incorporated within their agency's operating principles. However, only one third of these organizations report measures in place to monitor ecological integrity, and about one half report measures to manage for ecological integrity.

- Protected area organizations report "incompatible use outside of protected areas" and "climate change" as the most serious threats to the ecological integrity of terrestrial protected areas. The most serious threats to MPAs are "climate change" and "interruption of natural cycles."

- Overall, terrestrial and marine organizations rated the availability and quality of scientific and other information in support of protected areas management as "limited to good." Organizations reported that the most readily available and highest quality information pertains to "adjacent land use activities" and "natural resource inventories." They also reported that the availability of information on ecological processes, traditional ecological knowledge and invasive species occurrence is "limited."

- The total area protected in Canada has continued to increase while funding in most organizations has stayed the same or decreased. Recent reports have expressed concern that inadequate resources have hindered the capacity of organizations to manage protected areas. Terrestrial organizations in Canada spent on average about $6.00 per ha per year on protected areas, down from about $22.00 in 2005, although expenditures for individual organizations range from less than $1.00 to almost $30.00 per ha. Financial resources for Fisheries and Oceans Canada's MPAs programs amount to roughly 1% of the amount spent on terrestrial protected area programs.

- Less than half of Canada's protected area organizations evaluate management effectiveness. Seven terrestrial and four marine organizations employ a wide range of approaches to measure the delivery of key protected area objectives.

- About half of protected area organizations—8 of 16 terrestrial organizations and 5 of 9 marine organizations—confirm that they assess and report on the state of their protected areas on a systematic basis either alone or more broadly through state of the environment reporting.

- In addition to biodiversity conservation, organizations increasingly promote protected areas for their benefits to local, regional and national economies, cultural heritage conservation, human health and well-being, climate change, clean water and other ecological services, and scientific research and education. A number of studies during 2006–2011 highlight the specific value of protected areas for a range of benefits.

- Almost all of Canada's protected area organizations are pursuing forms of Aboriginal cooperative management, particularly in the northern territories and in provinces that have vast and remote northern areas. In northern Canada, land claims and Aboriginal interests and rights with respect to protected areas and wildlife are an essential and required component of protected area management.

- Most organizations continue to work with communities on management decisions concerning their local protected areas. Two thirds of all protected areas organizations (12 of 17) have enshrined community participation in legislation or policy. In practice, more than half of all organizations (10 of 17) provide opportunities for community participation in management decisions at most or all of their protected areas.

INTRODUCTION

Protected areas are a fundamental tool in the conservation of biological diversity. Terrestrial and marine protected areas in Canada protect representative samples of ecosystems and help maintain a diversity of native species, including species at risk. While conserving biological diversity, protected areas yield additional dividends, many of which are essential for human well-being. Clean air and water, fish spawning sites, pest and disease control, crop pollination, and the genetic resource base for many pharmaceuticals are a few of the goods and services equally attributable to protected areas.

An important more recently recognized value of protected areas is their role in mitigating effects of climate change. The growing vegetation within protected areas, especially salt marshes and seagrass meadows, absorbs and stores carbon. By definition protected areas are not subject to development and exploitation. Hence, protected areas assure the retention of carbon that would otherwise add to the 20% of greenhouse gases emitted through disturbances of peat, soils and vegetation. At the same time, the undisturbed ecosystems of protected areas serve as benchmarks for research on the effects of climate change and are ideal for other studies that broaden our knowledge of natural systems.

The economic importance of protected areas can be measured tangibly and intangibly. Tourism, rural development and enhanced property values of adjoining areas are readily measurable tangible economic benefits. While mental and physical health benefits derived from connections with nature are proven, it is nevertheless difficult to derive hard statistics. Recent research shows that backpackers scored 50% better on a creativity test after spending four days in nature disconnected from electronic devices (Atchley *et al.*, 2012). Connecting Canadians and visitors with nature is an intangible benefit as important as the tangible.

Intact ecosystems within protected areas contain cultural and historic landscapes that strengthen and support Aboriginal culture. Many of Canada's recent protected areas have been established through land claim processes because there is recognition of this fundamental relationship of nature and culture among Canada's Aboriginal peoples. Protected areas assure places where this relationship can continue to flourish.

Most importantly, protected areas provide settings for some of life's most joyous moments. The aesthetic beauty, the feeling of solitude or an interaction with wildlife can trigger moments of exhilaration. Vacations centred on protected areas provide ideal times for relaxation and sharing a special moment or adventure with family and friends. These experiences become embedded as memorable moments and, for many, they can be life-transforming events.

The many attributes and values of protected areas have driven the world to establish more than 160 000 protected areas covering almost 13% of the globe terrestrially and just over 7% of marine ecosystems. Canada is lagging behind these global numbers and is further challenged by the global commitment to expand coverage to 17% terrestrial and 10% marine by 2020.

Human, financial and other resources to manage the world's protected areas are lagging. The human capacity to manage these areas is a perpetual challenge facing most countries of the world. Canada's financial resources dedicated to protected areas are without a doubt the envy of many countries. Yet Canada, like many other countries of the world, is not meeting the basic requirement of effective management of the majority of its protected areas. A fundamental tool of management is the setting out of objectives that are derived through consultation with stakeholders. Such objectives are normally captured through the preparation and approval of a park management plan. The majority of Canada's parks and protected areas do not have a management plan, and hence the purpose of management is not defined.

This is the second report on the status of Canada's protected areas, covering 2006–2011. The results captured herein are laudable. Organizations have set out for the reader a detailed litany of achievements over the past five years. The growth in number of protected areas and area covered is noteworthy, as are efforts to tackle specialised management challenges from ecological integrity to mitigating effects of climate change. Further, by comparing these achievements to targets and objectives of the International Convention on Biological Diversity, organizations acknowledge their commitment and adherence to this important global instrument to safeguard biological diversity.

This report is praiseworthy for not only providing the reader with statements of achievement over the past five years but also boldly identifying where additional work is required. By identifying gaps, it is a frank report that encourages the engagement of readers to assure that their protected areas are well managed and achieve conservation of biological diversity and other dividends enumerated above and in more detail in the report.

And finally, the challenge that this report addresses head-on is to convey to Canadians the importance of protected areas. The promise, excitement, and ecological, social, and economic benefits of protected areas must be understood and supported by Canadians; otherwise the will to protect them in the future will diminish.

Nikita Lopoukhine

(former Director General National Parks, and former Chair of the International Union for the Conservation of Nature World Commission on Protected Areas)

CHAPTER 1: THE NUMBERS AS OF 2011

CONTEXT

Protected areas represent the backbone of Canada's effort to conserve biodiversity: federal, provincial and territorial governments, private organizations and individuals, indigenous and community groups across the country protect about 1 million square kilometres of land and freshwater, totalling 10% of Canada's land mass, and nearly 50 000 square kilometres of marine waters, or approximately 1% of Canada's ocean area.

Canadians have been setting aside areas for the protection of nature since 1876 when the first park was established on Mount Royal in Montréal, Quebec. Banff, our first national park, was established in 1885, and Last Mountain Lake, our first bird sanctuary and the first wildlife reserve in North America, was established in 1887. The first marine areas protected in Canada were the marine portions of Bird Rocks Migratory Bird Sanctuary and Bonaventure Island and Percé Rock Migratory Bird Sanctuary in Quebec in 1919. Today, Canadian government organizations administer more than 5900 terrestrial and marine protected areas, including pristine wilderness areas, parks that provide conservation benefits and public enjoyment, ecological reserves for scientific study, and areas that protect unique terrestrial and marine habitats and species.

The first chapter of this status report outlines some basic facts about protected areas in Canada as of the end of 2011. It answers such questions as:

- How much do we have?
- How does this compare to the total area of our lands, freshwaters and oceans?
- How have these numbers changed since the last reporting period in 2000–2005?
- Where are the protected areas?
- Who manages them?
- How do Canada's protected areas compare to those in other countries?

INTERNATIONAL TARGETS FOR PROTECTED AREA COVERAGE

- 2002: "By 2010 at least 10% of each of the world's ecological regions should be effectively conserved"—CBD Conference of the Parties 6, The Hague, The Netherlands; Global Strategy for Plant Conservation (CBD, 2002)
- 2004: "At least 10% of each of the world's ecological regions effectively conserved"—CBD Conference of the Parties 7, Kuala Lampur, Malaysia; Decision VII/30, Target 1.1 (CBD, 2004a)
- 2004: "Adopts the programme of work on protected areas annexed to the present decision with the objective of the establishment and maintenance by 2010 for terrestrial and by 2012 for marine areas of comprehensive, effectively managed and ecologically representative national and regional systems of protected areas …"
  —CBD Conference of the Parties 7; Kuala Lampur, Malaysia; Decision VII/28 (CBD, 2004)
- 2010: "By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes."—CBD Conference of the Parties 10; Nagoya, Japan; Aichi Biodiversity Targets, Target 11 (CBD, 2010)

See Appendix 2 for the complete list of CBD Programme of Work on Protected Areas goals and Aichi Biodiversity Targets.

CANADA'S NATIONAL TARGET

In 2015 Canada adopted national biodiversity goals and targets for 2020 which complement the international goals and targets. Protected area reporting will form the basis for measuring progress toward Canada's 2020 Biodiversity Target 1: *By 2020, at least 17 percent of terrestrial areas and inland water, and 10 percent of coastal and marine areas, are conserved through networks of protected areas and other effective area-based conservation measures.*

Table 1: A sample of Canada's protected areas since confederation

Fact	Area Name
The first municipal park for conservation in Canada	Mount Royal, Montréal, Quebec (1876)
The first national park in Canada	Banff National Park, Alberta (1885)
The first waterfowl refuge in Canada	Last Mountain Lake, Saskatchewan (1887)
The first provincial park in Canada	Algonquin Provincial Park, Ontario (1893)
The first MPAs in Canada	Bird Rocks Bird Sanctuary, Quebec (1919) Bonaventure Island and Percé Rock, Quebec (1919)
The first interprovincial park in Canada	Cypress Hills Interprovincial Park, Alberta/Saskatchewan (1989)
The first offshore *Oceans Act* MPA in Canada	Endeavour Hydrothermal Vents Marine Protected Area (2003)
The largest protected area in Canada	Queen Maud Gulf Migratory Bird Sanctuary, Nunavut (6 278 200 ha)
The smallest protected area in Canada	Christie Islet Migratory Bird Sanctuary, British Columbia (0.08 ha)
Canada's most southerly protected area	Point Pelee National Park, Ontario (42° N)
The most northerly (and driest) protected area in Canada	Quttinirpaaq National Park, Ellesmere Island, Nunavut (82.06° N)
The most easterly protected area in Canada	Witless Bay Seabird Ecological Reserve, Newfoundland and Labrador (52.8° E)
The most westerly protected areas in Canada	Ivvavik National Park, Yukon (141° W) Kluane Game Sanctuary, Yukon (141° W) Kluane National Park Reserve, Yukon (141° W) Vuntut National Park, Yukon (141° W)
The highest protected area in Canada	Kluane National Park Reserve, Yukon (Mount Logan, Canada's highest peak at 5 959 metres, is found here.)

EXTENT AND GROWTH OF PROTECTED AREAS

Canada's terrestrial protected area system has grown by 9.4% since the last reporting period, from 908 244 km² in 2005 to 993 242 km² in 2011. Canada's MPA system has grown by 60.0% from 30 900 km² in 2005 to 49 364 km² in 2011 (Figure 1).[2]

- Canada has protected 10.0% of its lands and fresh waters (8.7% in permanent protected areas and 1.3% in interim[3] protected areas), an increase from 9.4% in 2005. Canada has protected 0.9% of its marine territory (including internal marine waters, territorial seas and the Exclusive Economic Zone), an increase from 0.6% in 2005 (Figure 2).

- A total of 1 197 new terrestrial and marine protected areas were added to Canada's protected areas system since 2005, covering 103 462 km². This brings the total number of protected areas to 5 922 in 2011 (Tables 2 and 3 and Map 1).

CANADA'S MARINE TERRITORY

Canada's marine territory is measured from a linear baseline created from control points along the official low-water, marine shoreline. Ocean seaward of the baseline is considered "offshore waters." This includes 0.2 million square kilometres of territorial sea that extends 12 nautical miles from the baseline, and a total of 2.9 million square kilometres for the Exclusive Economic Zone that extends 200 nautical miles from the baseline.

Marine (i.e., salt water) areas landward of the baseline are considered "internal waters," including bays and harbours, and cover 2.5 million square kilometres.

[2] Information for 2005 contained in this Status Report draws wherever possible from CARTS, which has been updated since the publication of the *Canadian Protected Areas Status Report 2000–2005*.

[3] Interim protected areas are sites that have been provided with temporary legal protection within legally described boundaries. They are included in CARTS and in this report if an agreement exists for the eventual permanent protection of the site, although final negotiations sometimes result in different boundaries and/or management policy.

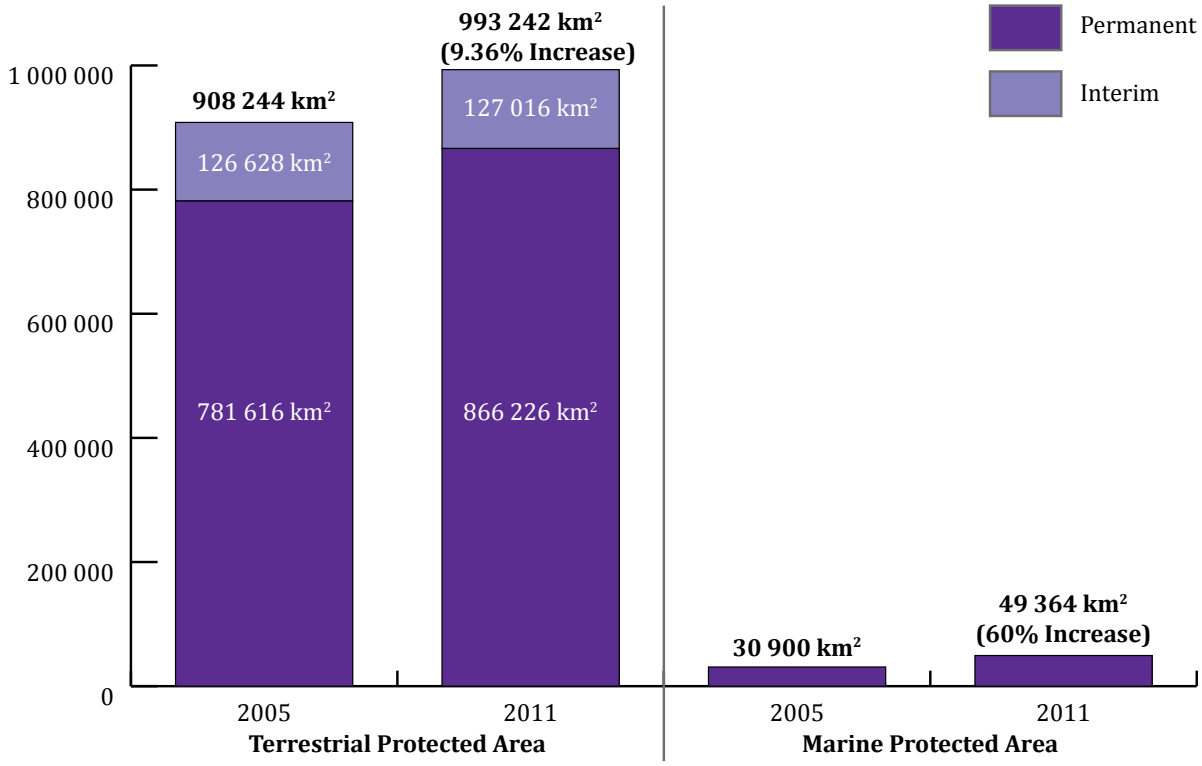


Figure 1: Extent and growth of protected areas

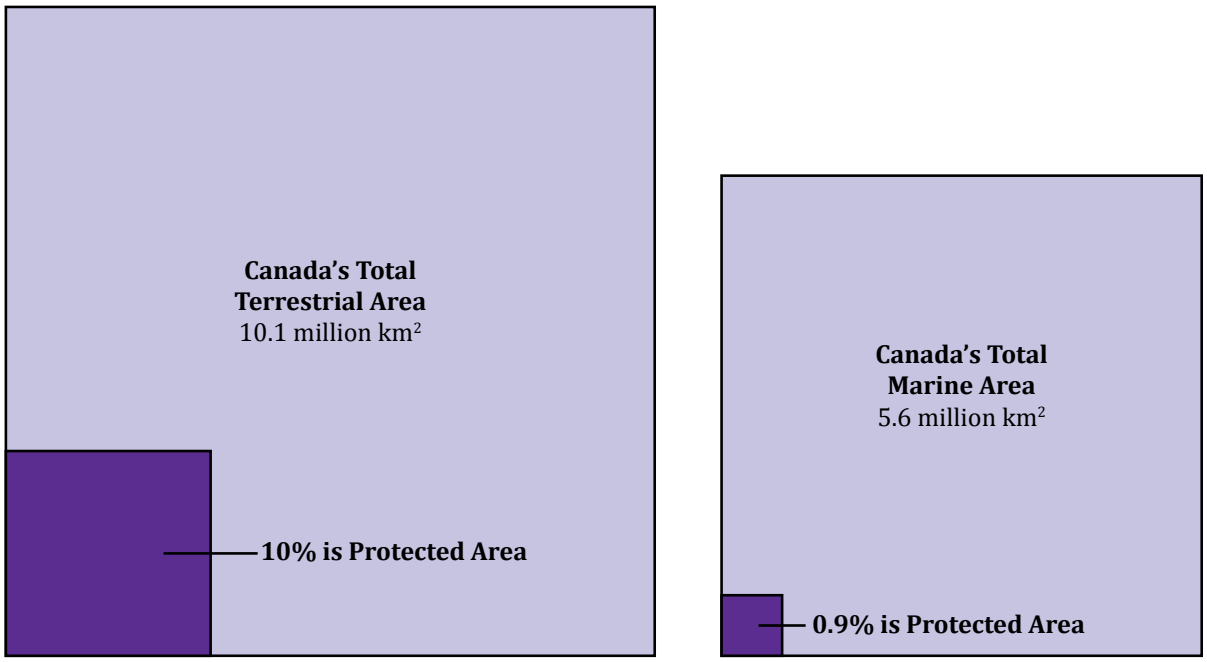


Figure 2: Canada's 2011 protected terrestrial and marine area in proportion to total area

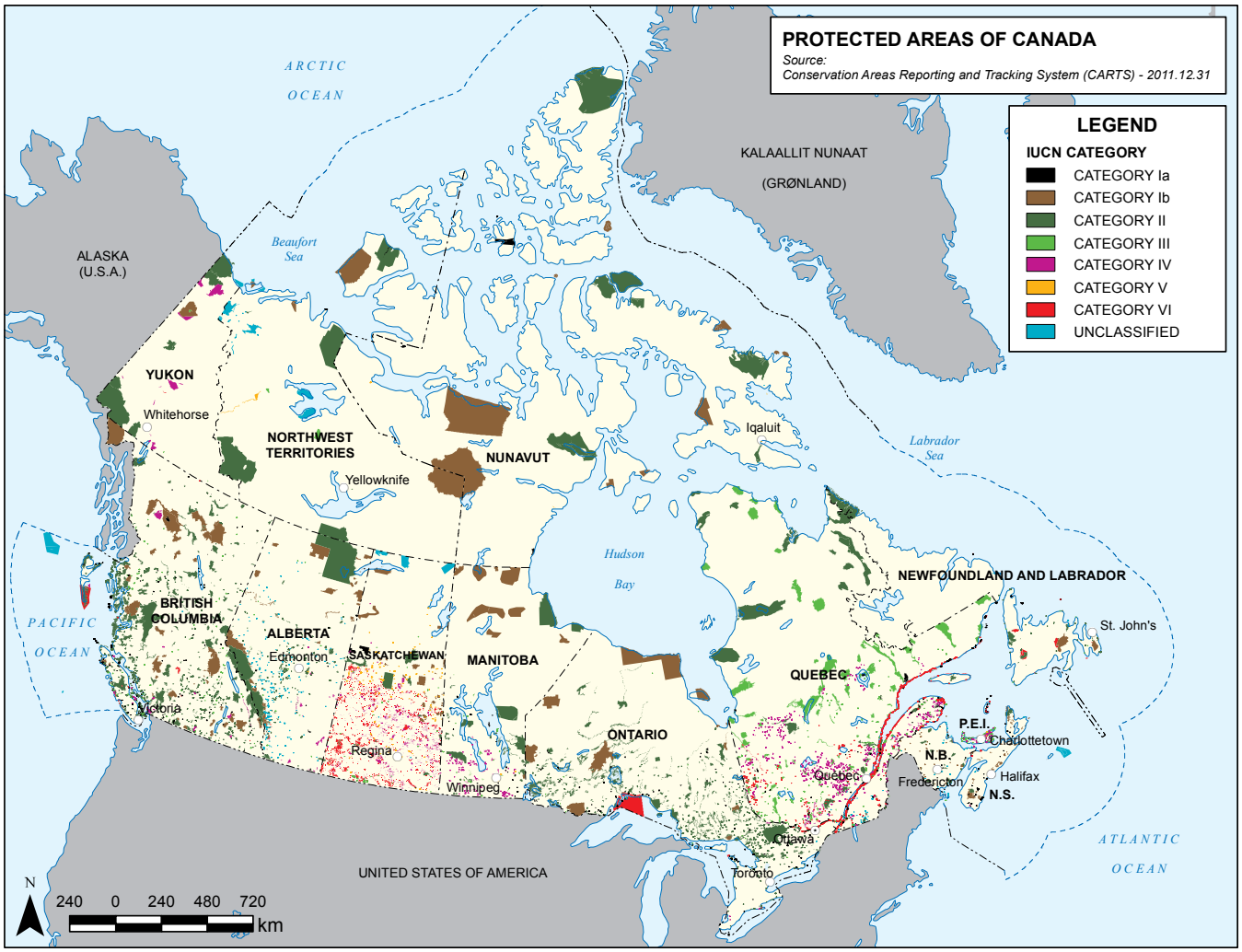
Table 2: Summary of terrestrial protected areas in each province and territory[4]

Provincial and territorial organizations	Number of protected areas	Area permanently protected (km²)	Area under interim protection (km²)	Total area protected (km²)	Percent of terrestrial territory protected
Alberta[5]	263	82 140	—	82 140	**12.4%**
British Columbia	1 035	135 145	696	135 841	**14.4%**
Manitoba[6]	306	62 701	3 250	65 951	**10.2%**
New Brunswick	73	2 234	—	2 234	**3.1%**
Newfoundland and Labrador	63	18 535	—	18 535	**4.6%**
Northwest Territories	32	119 205	940	120 145	**8.9%**
Nova Scotia	74	4 598	—	4 598	**8.4%**
Nunavut	29	208 588	—	208 588	**10.0%**
Ontario	665	109 922	—	109 922	**10.2%**
Prince Edward Island	134	159	—	159	**2.8%**
Quebec	2 439	20 582	113 543	134 125	**8.9%**
Saskatchewan	751	51 588	—	51 588	**7.9%**
Yukon	22	48 708	8 587	57 295	**11.9%**
Parks Canada Agency[7]	1	10 000	0	10 000	**not applicable**
Canada Total (Terrestrial)	**5 884**[8]	**873 967**	**13 473**	**993 243**[9]	**10.0%**

Table 3: Summary of marine protected areas in Canada

Administrator	Number of MPAs	Marine area protected (km²)	Proportion of total MPA[10]
British Columbia	179	2 786.0	5.6%
Manitoba	1	82.2	0.2%
Quebec	441	3 452.0	7.0%
Prince Edward Island	47	13.6	0.0%
New Brunswick	2	0.4	0.0%
Newfoundland and Labrador	6	152.0	0.3%
Quebec and Parks Canada Agency	1	1 245.3	2.5%
Environment Canada	57	19 589.0	39.7%
Parks Canada Agency	14	11 642.7	23.6%
Fisheries and Oceans Canada	8	10 406.5	21.1%
Canada Total	**756**[11]	**49 369.7**	**100.0%**

4 See the Preamble for an explanation of which private protected areas are included.
5 Alberta does not recognize or count Agriculture and Agri-Food Canada's community pastures at this time.
6 Manitoba does not recognize or count Agriculture and Agri-Food Canada's community pastures at this time.
7 Parks Canada Agency is listed separately to include Lake Superior National Marine Conservation Area, which is located in freshwater, and therefore listed as terrestrial, but is not within the geographic extent of a provincial or territorial government.
8 This number cannot be added to the total number of MPAs to get a national total, since many are portions of protected areas that are partly marine and already counted in the terrestrial columns. The total area, however, can be summed.
9 This total for Canada is slightly different from the total found elsewhere in the document due to rounding differences.
10 The proportion is shown here rather than the percentage of a particular geographic/political area, since no geographic areas within Canada's marine waters have targets or totals reported.
11 This number cannot be added to the total number of terrestrial protected areas in Canada to find the total because some of the MPAs are part of single protected areas that are partially marine and partially terrestrial. Counting both components would double count those sites. The area totals can be summed, however.



Map 1: Canada's Protected Areas Network

- The federal government administers 42% by area of Canada's terrestrial protected area among three agencies: Parks Canada Agency, Environment Canada, and Agriculture and Agri-Food Canada. The provinces and territories administer most of the remainder (Figure 3).

- The federal government administers over 90% by area of Canada's MPA among three departments: Fisheries and Oceans Canada, Parks Canada Agency and Environment Canada. The provinces administer most of the remaining (Table 3).

- Provincial governments are increasingly recognizing privately held and managed conservation lands as an integral component of protected area networks. However, formal reporting of protected areas within this governance type is not yet systematic.[12] To date, five provinces report private conservation lands totalling about 1755 km^2 in their protected areas systems or networks, and many organizations across Canada are working to identify and add the contribution of private lands to protected area strategies.

- Aboriginal peoples have contributed to the establishment of tens of thousands of square kilometres of protected areas designated during the reporting period 2006–2011, through modern land claims, treaties, other agreements or collaborative land use plans; examples are described throughout this report. In fact, most current protected area establishment in Canada involves working together with Aboriginal organizations and communities to conserve biodiversity and cultural heritage, to cooperate on protected area management and to share the benefits of protected

[12] Private conservation lands contribute more to Canada's total protected area than indicated in Figure 3. However, as discussed elsewhere, only five provinces (SK, MB, QC, NB and PE) include private lands as part of their protected area network in CARTS at this time.

areas. However, more work needs to be done to accurately reflect this reality within protected area accounting systems.

- The growth rate of the terrestrial protected area system slowed to an average of 2.8% per year in 2006–2011, from 5.3% per year in 2000–2005. In contrast, the growth rate of Canada's MPA system climbed to an average of 11.5% per year in 2006–2011, from 4.6% per year in 2000–2005. Figure 4 illustrates the cumulative growth over time for terrestrial and marine protected areas combined.

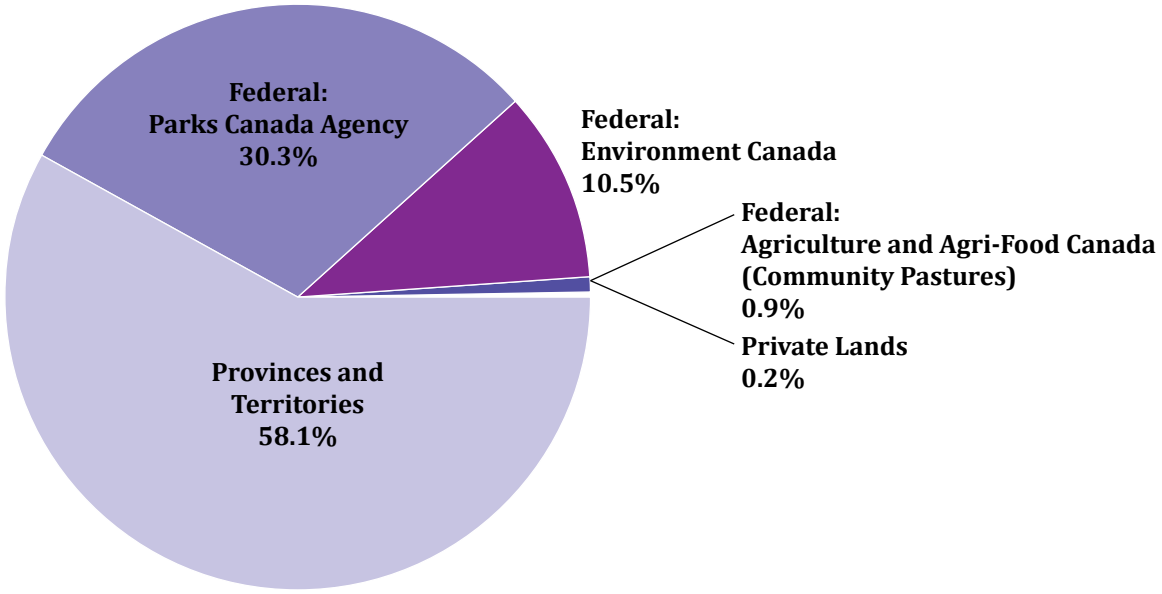


Figure 3: Who manages terrestrial protected area in Canada?

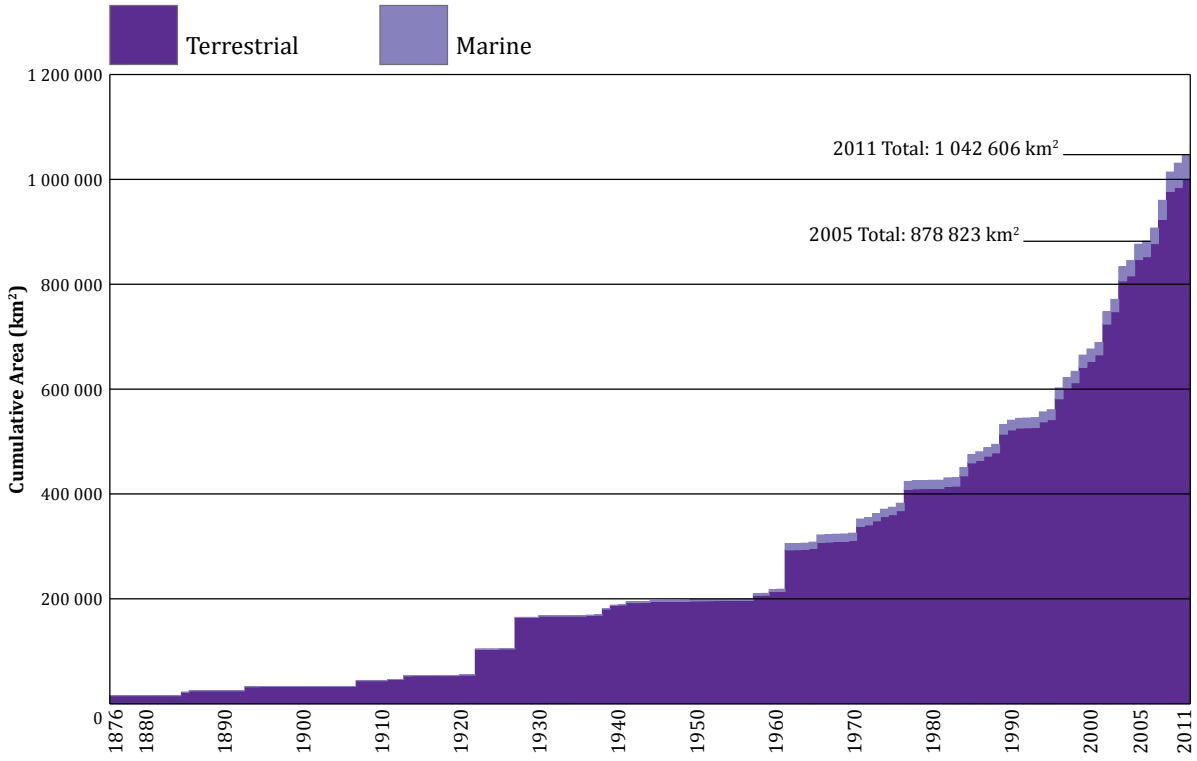


Figure 4: Growth of Canada's total marine (light purple) and terrestrial (dark purple) protected area over time

EXTENT OF PROTECTED AREAS IN CANADA'S NATURAL REGIONS

The proportion of protected area in terrestrial ecological regions varies from 1.8% in the Mixedwood Plain ecozone, to an average of 11.1% across the 3 boreal ecozones, to 26.0% in the Arctic Cordillera ecozone. The amount of protected area in marine bioregions varies between 0% and 5.3%, with 10 of 12 bioregions having 2.0% protection or less (Tables 4 and 5, and Maps 2 and 3).

- Almost half of Canada's terrestrial ecozones (7 of 15), primarily in the north and west of the country, have at least 10% of their area conserved by protected areas. A comparable area, including the interior boreal zones and much of the arctic barrens, is included in another 6 of the 15 ecozones (Table 4 and Map 2).

- All but one of Canada's 15 terrestrial ecozones (the exception is the Northern Arctic ecozone[13]) have shown an increase in the percentage of total area protected since 2005, as shown in Table 4. The largest increase was in the Pacific Maritime ecozone, which changed from 12.4% to 20.3% protected, an increase of nearly 8%. The average change since 2005 was approximately +2% (Table 4).

- Canada's marine bioregions include 4 (of 12) with more than 2% protected (all off the west coast) and 3 others with between 0.5 and 2% protected. Two marine bioregions have relatively minor amounts protected (Table 5 and Map 3).

- The overall amount of marine area protected has more than doubled between 2005 and 2011, from an average of 0.8% to 1.7%. The greatest relative change was in the Northern Shelf marine bioregion, which grew from 0.4% to 5.3%. The average change was 0.9% total area protected, with various amounts of change occurring around the country.

CANADA'S NATURAL REGIONS

A number of spatial frameworks have been created over the years to better understand, plan and manage natural regions across Canada. This report uses two such frameworks:

- **National Ecological Framework for Canada:** A hierarchical classification of ecosystems including ecozones, ecoprovinces, ecoregions and ecodistricts. Canada is subdivided into 15 terrestrial ecozones on the basis of ecological characteristics. For more information, see http://sis.agr.gc.ca/cansis/publications/ecostrat/cad_report.pdf

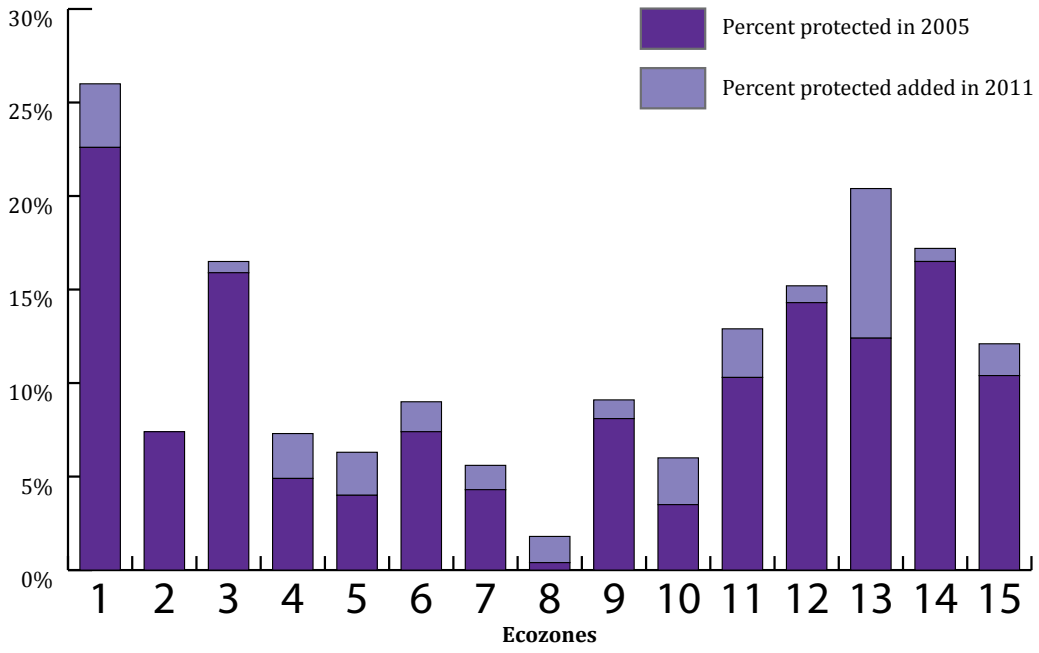
- **Canada's Marine Bioregions:*** High-level spatial units that have been identified for each of Canada's three oceans and are based on oceanographic and bathymetric similarities. For more information, see www.dfo-mpo.gc.ca/CSAS/Csas/Publications/SAR-AS/2009/2009_056_e.pdf

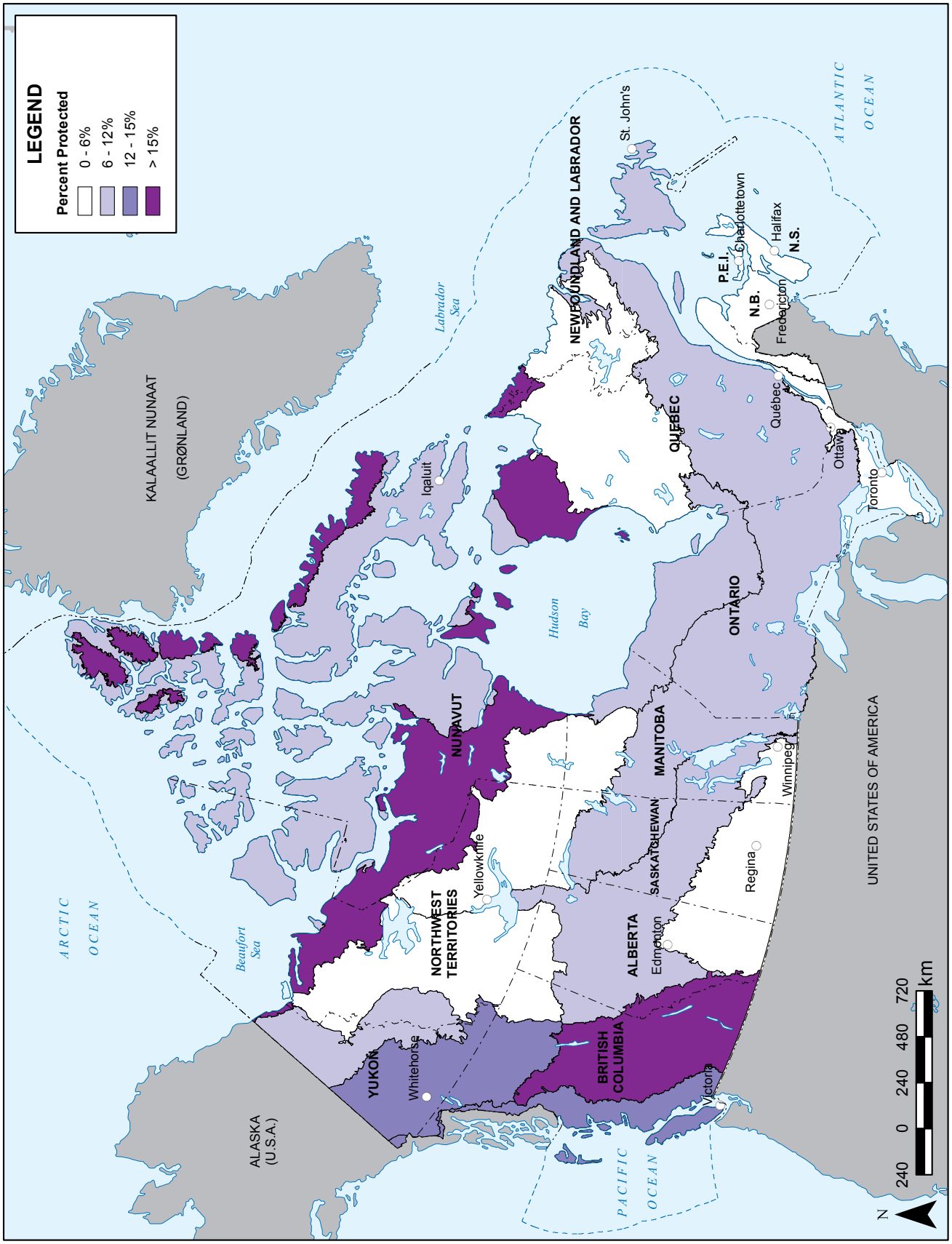
* The Great Lakes Marine bioregion is not included in this report because it is freshwater, although it is included in national MPA network planning.

[13] The decrease in protected area in the Northern Arctic ecozone was likely due to the final boundary adjustments to large interim protected areas during the final stages of their establishment process.

Table 4: Percent of Canada's 15 terrestrial ecozones protected

Ecozone name	Percent protected in 2005	Percent protected in 2011	Change
1. Arctic Cordillera	22.6%	26.0%	3.4%
2. Northern Arctic	7.4%	6.8%	-0.6%
3. Southern Arctic	15.9%	16.5%	0.6%
4. Taiga Plains	4.9%	7.3%	2.4%
5. Taiga Shield	4.0%	6.2%	2.3%
6. Boreal Shield	7.4%	8.9%	1.6%
7. Atlantic Maritime	4.3%	5.6%	1.3%
8. Mixedwood Plain	0.4%	1.8%	1.4%
9. Boreal Plains	8.1%	9.1%	1.0%
10. Prairie	3.5%	6.0%	2.5%
11. Taiga Cordillera	10.3%	12.8%	2.6%
12. Boreal Cordillera	14.3%	15.2%	0.9%
13. Pacific Maritime	12.4%	20.3%	8.0%
14. Montane Cordillera	16.5%	17.2%	0.7%
15. Hudson Plains	10.4%	12.1%	1.7%

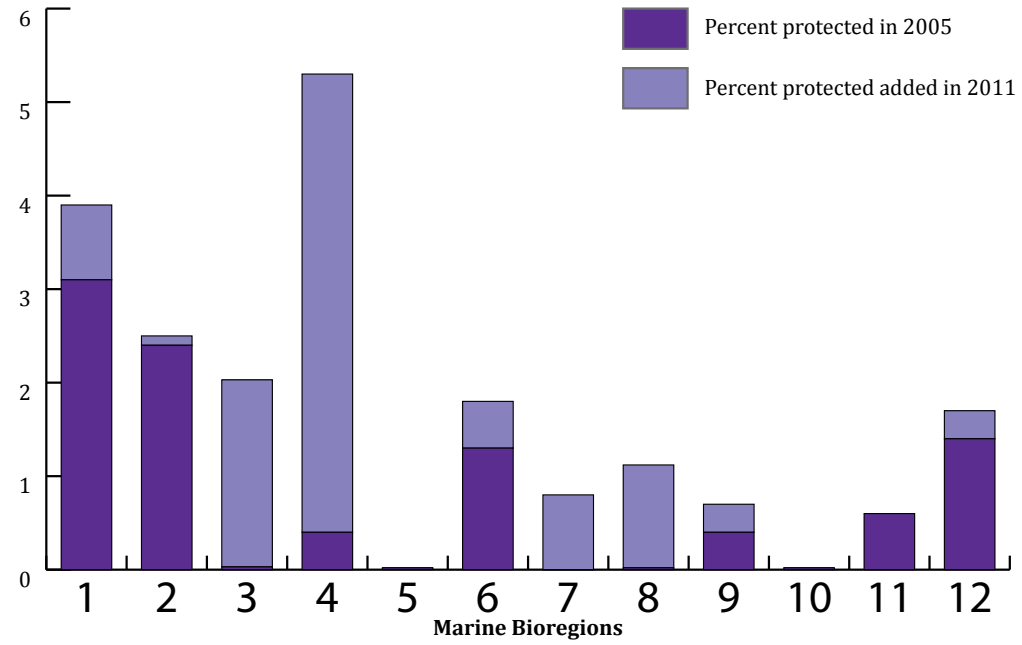




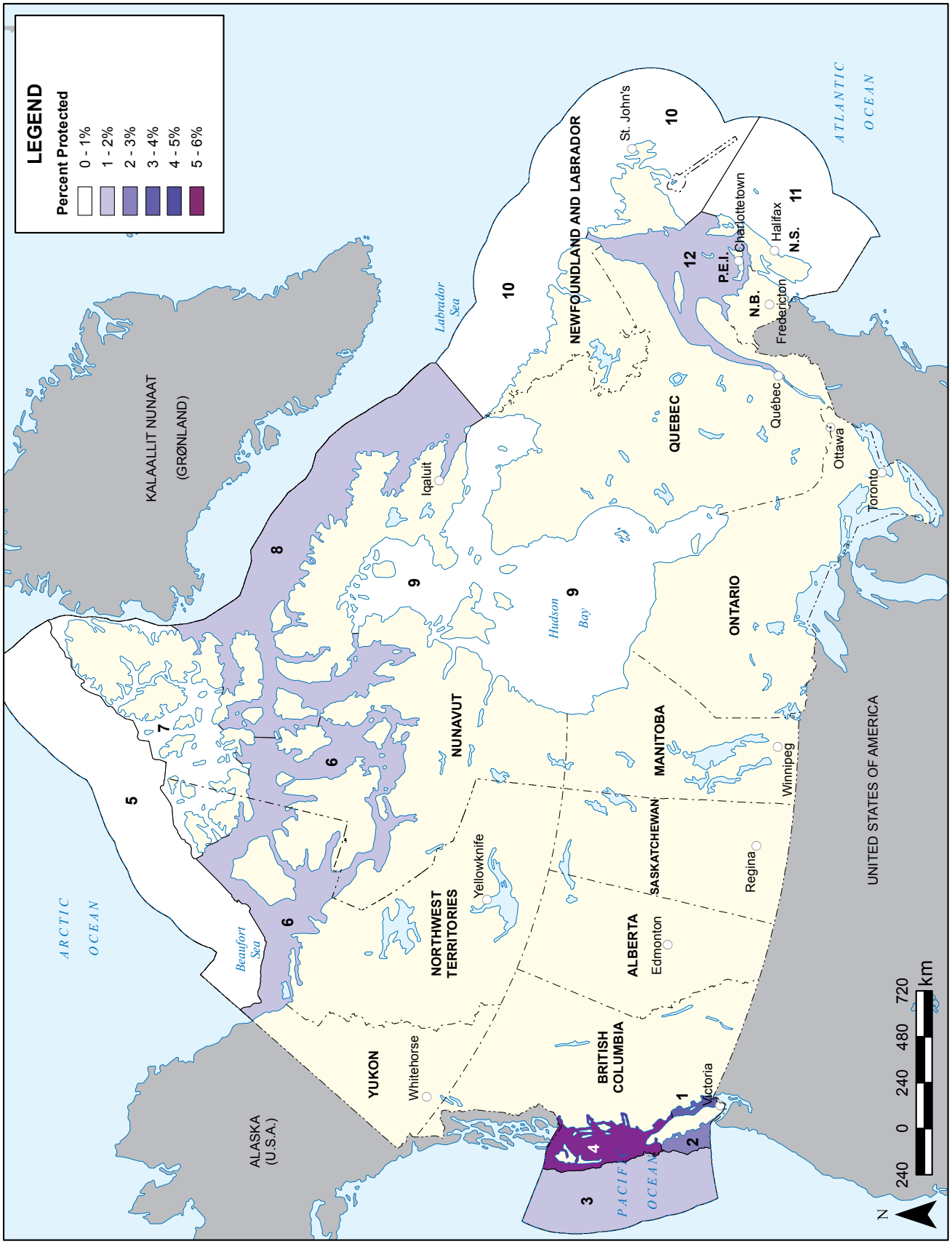
Map 2: Percent of Canada's terrestrial ecozones protected in 2011

Table 5: Percent of Canada's 12 marine bioregions protected

Bioregion name	Percent protected in 2005[14]	Percent protected in 2011[15]	Change
1. Strait of Georgia	3.1%	3.9%	+0.8%
2. Southern Shelf	2.4%	2.5%	+0.1%
3. Offshore Pacific	0.03%	2.0%	+2.0%
4. Northern Shelf	0.4%	5.3%	+4.9%
5. Arctic Basin	0.02%	0.02%	0%
6. Western Arctic	1.3%	1.8%	+0.5%
7. Arctic Archipelago	0.00%	0.8%	+0.8%
8. Eastern Arctic	0.02%	1.1%	+1.1%
9. Hudson Bay Complex	0.4%	0.7%	+0.3%
10. Newfoundland-Labrador Shelves	0.02%	0.02%	0%
11. Scotian Shelf	0.6%	0.6%	0%
12. Gulf of Saint Lawrence	1.4%	1.7%	+0.3%



[14] Data for 2005 are from CCEA.
[15] Data for 2011 are from www.ec.gc.ca/indicateurs-indicators/default.asp?land=en&n=c31b289d-1.



Map 3: Percent of Canada's marine bioregions protected in 2011

EXTENT OF PROTECTED AREAS IN IUCN MANAGEMENT CATEGORIES AND IUCN GOVERNANCE TYPES[16]

The vast majority (94%) of Canada's terrestrial protected area falls into the IUCN management categories representing the highest protection levels (Ia to IV) (Figures 5 and 6). These categories intend to provide the most rigorous land and water access and use constraints and prohibit industrial activities or commercial resource extraction. This compares to 95% of lands within Canada's terrestrial protected areas that were classified within IUCN management categories I–IV in 2005.[17]

- More than half (52%) of terrestrial protected areas are classified within IUCN management category II. These are primarily comprised of large national, provincial and territorial parks and other conservation areas with public access as a key function.
- More than 37% of terrestrial protected areas are in category Ib, a high level of protection that intends to recognize and retain large wilderness areas where natural ecosystem processes still function with little disturbance. These include a number of large federal bird sanctuaries as well as numerous provincial and territorial parks across the country.
- Approximately 5% of Canada's terrestrial protected areas are in category V or VI. These categories permit a limited amount of resource extraction or industrial activity with the proviso that these activities conform with the overall intent to keep biodiversity conservation as the primary management goal for the area (Figures 5 and 6).
- Fisheries and Oceans Canada MPAs fit the IUCN definition of a protected area but have not yet been categorized into specific categories due to the unique, multi-dimensional complexities of ocean zone planning and management. These areas are included in the "category not yet known" parts of Figures 5 and 6. New guidelines for applying IUCN categories to marine areas were released by the IUCN in 2012 and will inform the next version of CCEA's guidelines for applying IUCN categories in the Canadian context.
- Many of the remaining MPAs are portions or zones of protected areas that also have large terrestrial components. In those cases, the entire protected area has been given the IUCN category of the terrestrial component. In most cases, this is done because the marine zones do not have a separate management plan.
- In 2008, the IUCN provided guidance for the first time on categorizing protected areas according to the type of governance (see Preamble). Current reporting indicates that the vast majority (95.5% by area) of terrestrial protected areas in Canada fall into the IUCN governance category of "governance by government" (Figure 7). It is anticipated that these numbers will change in the future as organizations update their reporting mechanisms to better reflect the protected areas that fall within shared governance, private governance, and governance by indigenous peoples and local communities.

PRAIRIE ECOSYSTEM PROTECTION IN SASKATCHEWAN USING IUCN MANAGEMENT CATEGORY VI

A unique aspect of protected areas in Saskatchewan is the higher-than-average percent of areas in IUCN management category VI. Efforts to protect prairie ecosystems have resulted in setting aside nearly 15 000 km^2 of Crown land dedicated to protection and management for agriculture and wildlife. These lands include predominantly native prairie or parkland ecosystems, mostly leased for grazing cattle. They are legally protected to conserve native habitat with strict guidelines for select development and may not be sold. Likewise, approximately 3 300 km^2 of provincially operated community pastures are managed for grazing and biodiversity. Prairie ecosystems were once home to massive herds of bison. These wild animals have been replaced by domestic cattle, which now simulate the disturbance bison once provided and utilize a valuable natural resource.

[16] See the Preamble for a description of these IUCN classification systems.

[17] This decrease is likely due to changes in boundaries of protected lands and waters during final negotiations in the establishment of large protected areas in the north.

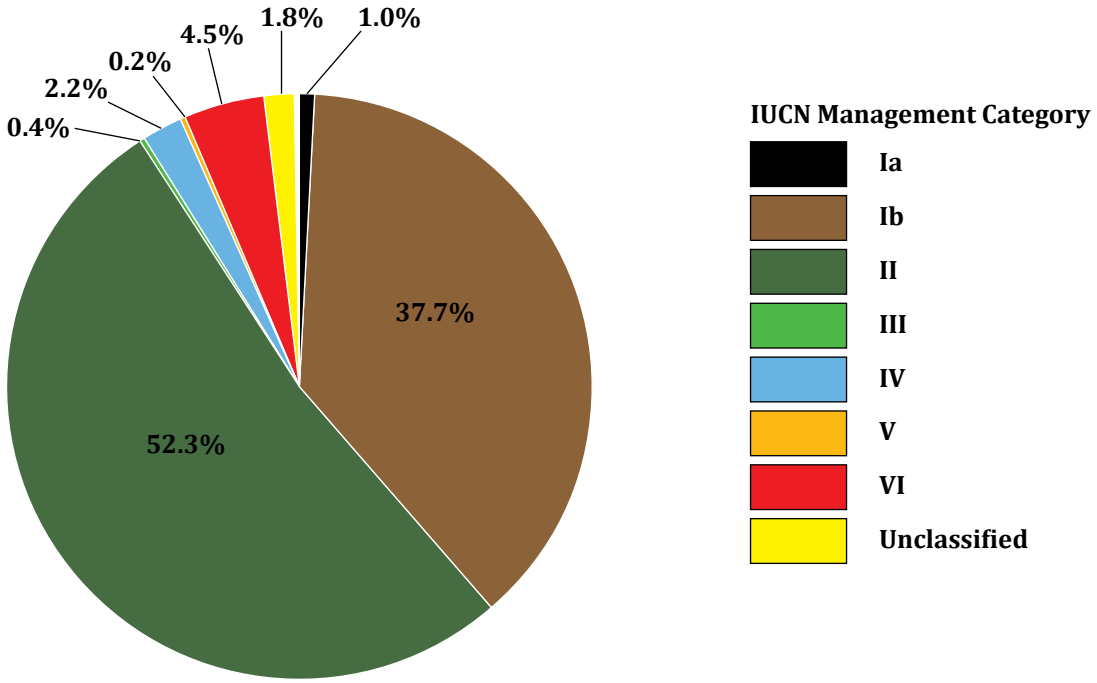


Figure 5: Terrestrial protected area by IUCN management category

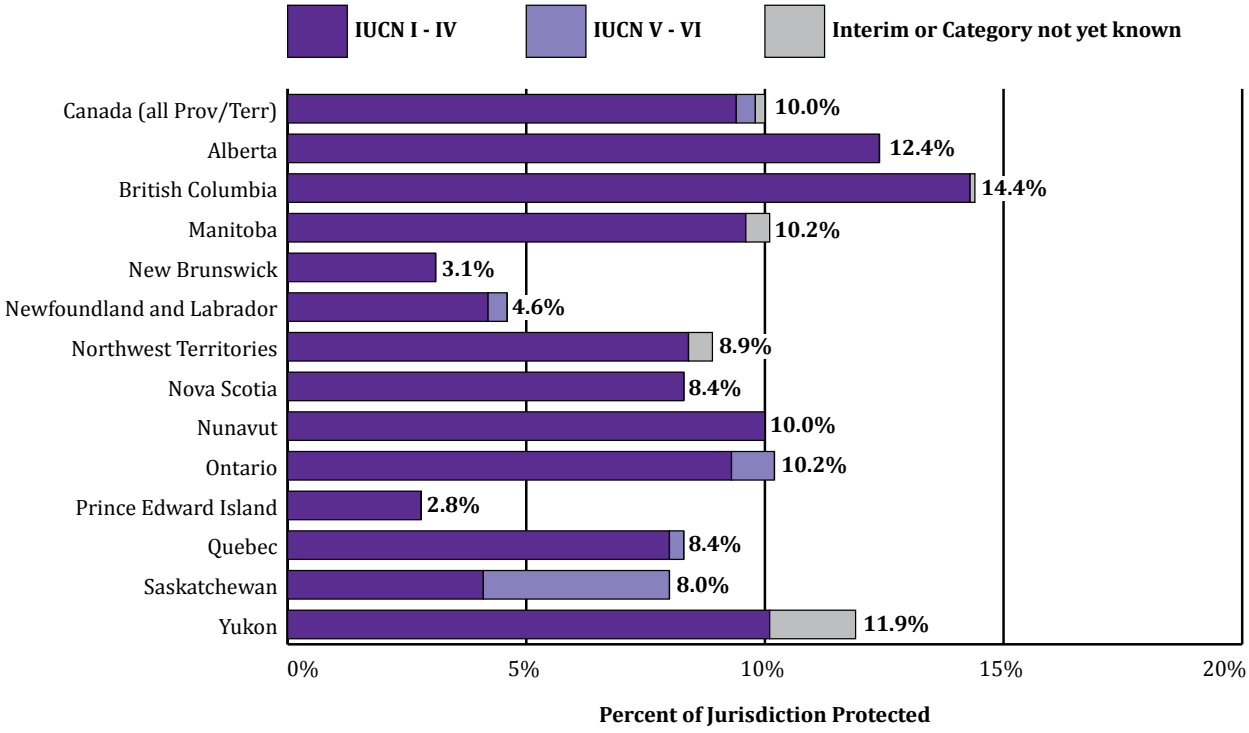


Figure 6: Marine and terrestrial protected areas by IUCN management category

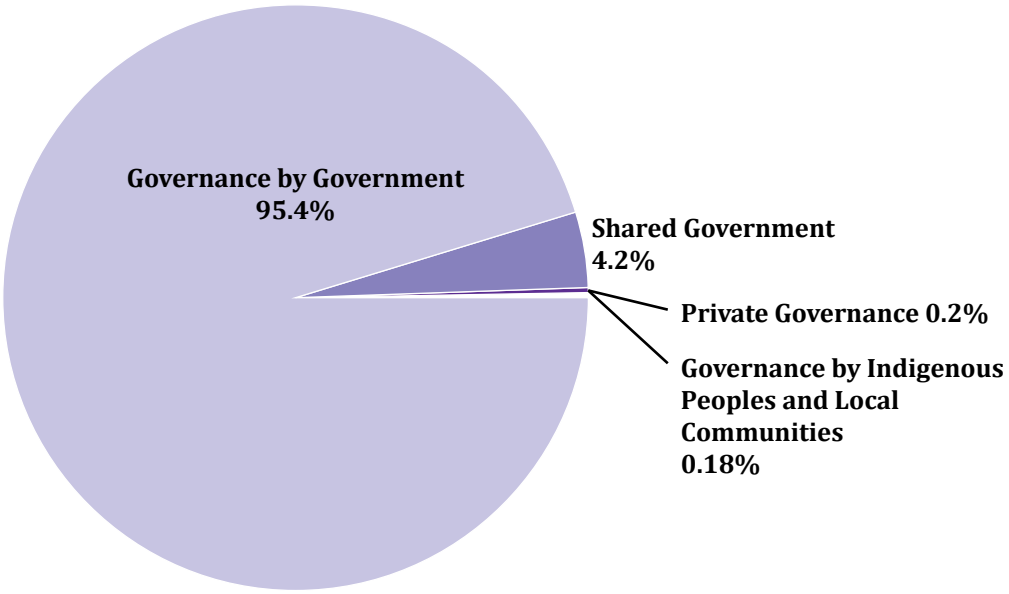


Figure 7: Proportion by area of terrestrial protected areas by IUCN governance type

A GLOBAL PERSPECTIVE (2010)[18,19]

Canada ranks 26th out of 34 OECD countries in terms of the percent of terrestrial area (i.e., lands and freshwater) protected, above the 29th position it held in 2005. Canada ranks 23rd out of 34 OECD countries in terms of the percent of marine area protected, which is the same relative standing as in 2005.

- Canada manages 5.8% of the world's terrestrial protected areas, up from 5.1% reported in 2005. Canada manages 3.4% of the world's MPAs, up from 1.4% as reported in 2005.
- Among OECD countries, Canada ranks second out of 34 in terms of the total extent of protected areas, with 975 816 km^2 of lands and freshwaters protected in 2010. The United States ranks first with 1.16 million km^2 set aside, and Australia is third with 814 699 km^2.
- Among OECD countries, Canada ranks 26th out of 34 in terms of the percent of lands and freshwaters protected, with 9.7%, behind the United States, which is ranked 22nd with 12.4%, Mexico with 11.1%, and Australia with 10.6%. Germany is ranked first with 42.4% protected (Figure 8).
- Canada ranks 23rd among 34 OECD countries in terms of percent of marine waters protected, with 0.9%, behind the United States, which is ranked second with 28.6%, Australia with 28.3%, and Mexico with 16.7%. Germany is ranked first with 40.3% (Figure 9).
- While many countries around the world currently report on the full suite of IUCN protected areas categories, the community of practice in Canada has not yet fully assessed protected areas in Category V and VI. Ongoing work in Canada in this respect, led by the CCEA, will enable reporting on the full extent of our protected area networks.

[18] Statistics included in this section are calculated using **CARTS data for Canada for 2010** (v. 2010.10.10), and **Millennium Development Goals Indicators data for 2010** for other OECD countries (UN, no date).

[19] The previous protected areas status report included a comparison of the percentage of highly protected lands (i.e., IUCN categories I to IV), but the source data have not been updated since then, so no similar comparison can be made for this report.

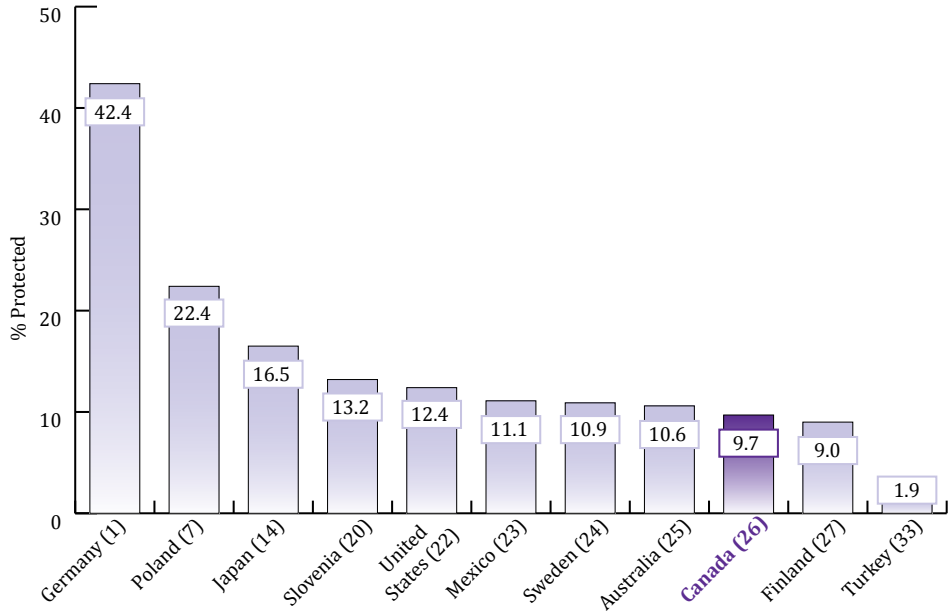


Figure 8: Terrestrial protected areas—Global comparison of per cent of land and fresh water protected by various OECD Countries (country name labels show their rank from among a sample of 34 OECD countries) (See footnote 18 on page 16 for reference information.)

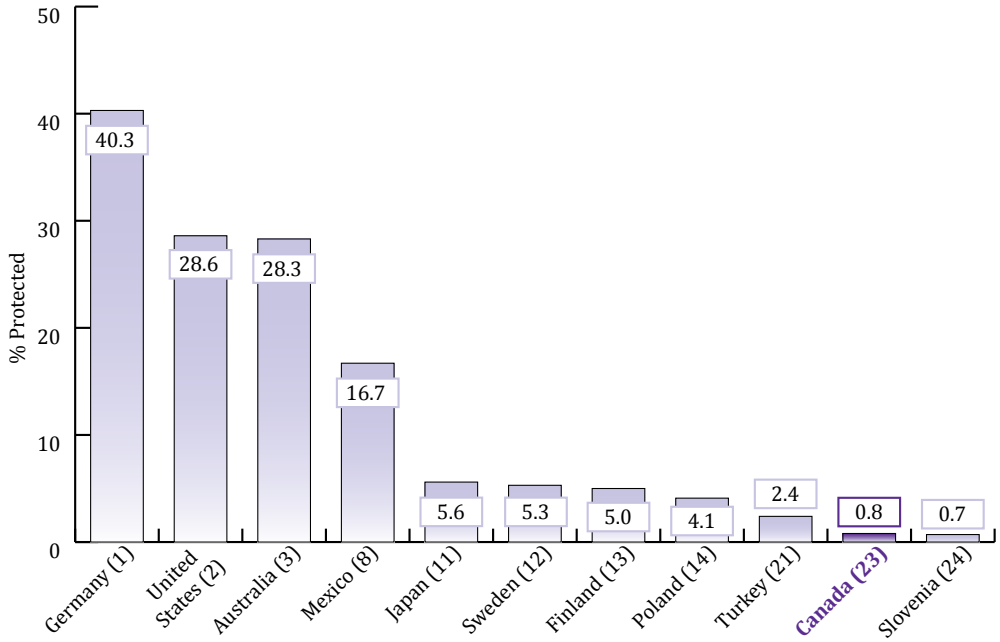


Figure 9: Marine protected areas—Global comparison of per cent of marine waters protected (country name labels include their rank among 34 OECD countries) (See footnote 18 on page 16 for reference information.)

CHAPTER 2: PROTECTED AREAS PLANNING

CONTEXT

Protected areas planning in Canada is rooted in legislation at all levels of government, but it continues to be shaped by commitments aimed at stemming or halting the loss of ecosystem integrity, biodiversity, and ecological goods and services. Chapter 1 reviewed national and international targets for protected area coverage; this discussion focuses on those targets related to national systems/networks and representativity as a context for reviewing the status of protected areas planning.

In 1992, federal, provincial and territorial ministers signed *A Statement of Commitment to Complete Canada's Networks of Protected Areas* (CCME, CPC and WMCC, 1992) to "make every effort to complete Canada's networks of protected areas representative of Canada's land-based natural regions by the year 2000." The *Statement of Commitment* called for each organization to "adopt frameworks, strategies and time frames" to meet this goal. A few years later, the goal was reiterated by the *Canadian Biodiversity Strategy* (Government of Canada, 1995).

Also in 1992, the CBD (CBD, 1992) was adopted, which underlined the importance of "national systems of protected areas" in the conservation of biodiversity. More than a decade later, the parties to the CBD adopted the most comprehensive blueprint for protected areas ever made by the international community. Called the *Programme of Work on Protected Areas* (PoWPA) (CBD, 2004b), it comprises 16 goals covering topics such as planning and management, involvement of indigenous and local communities, and scientific knowledge. The overall purpose of PoWPA is "to support the establishment and maintenance by 2010 for terrestrial and by 2012 for marine areas of comprehensive, effectively managed, and ecologically representative national and regional systems of protected areas ..." (CBD, 2004b).

In 2010, the CBD parties adopted the *Strategic Plan for Biodiversity for the 2011–2020 period, including the Aichi Biodiversity Targets* (CBD, 2010), many of which deal with strategic issues relevant to protected areas, such as loss of natural habitats, safeguarding of essential services, and climate change mitigation and adaptation. Target 11 focuses on the conservation of "effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures ... integrated into the wider

NATIONAL AND INTERNATIONAL COMMITMENTS RELATED TO PROTECTED AREA SYSTEMS/NETWORKS AND REPRESENTATIVITY

- 1992: "National systems of protected areas" —*Convention on Biological Diversity* (CBD, 1992)
- 1992: "Make every effort to complete Canada's networks of protected areas representative of land-based natural regions by the year 2000, and accelerate the protection of areas that are representative of marine natural regions"—*A Statement of Commitment to Complete Canada's Network of Protected Areas* (Canadian Council of Ministers of the Environment, Canada Parks Council and Wildlife Ministers Council of Canada, 1992)
- 2002: "Establish representative networks of marine protected areas by 2012"—*Report of the World Summit on Sustainable Development* (WSSD, 2002)
- 2004: "Comprehensive, effectively managed and ecologically representative systems of protected areas"—*Programme of Work on Protected Areas* (CBD, 2004b)
- 2004: The *Programme of Work on Protected Areas* (CBD, 2004b) also includes the following goals.
  - Goal 1.2: To integrate protected areas into broader land- and seascapes and sectors so as to maintain ecological structure and function
  - Goal 2.2: To enhance and secure involvement of indigenous and local communities and relevant stakeholders
  - Goal 3.1: To provide an enabling policy, institutional and socio-economic environment for protected areas
  - Goal 3.2: To build capacity for the planning, establishment and management of protected areas
  - Goal 4.4: To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and protected area systems
- 2015: "*By 2020, at least 17 percent of terrestrial areas and inland water, and 10 percent of coastal and marine areas, are conserved through networks of protected areas and other effective area-based conservation measures.*" (Canada, 2015)

See Appendix 2 for the complete list of PoWPA goals and Aichi Biodiversity Targets.

landscapes and seascapes." The Conference of the Parties (COP 10) also aligned the targets of PoWPA with specific indicators and timelines that are based on the Aichi Biodiversity Targets and the Strategic Plan.

Appendix 2 summarizes the main goals of PoWPA as well as the Aichi Biodiversity Targets.

This second chapter of the status report answers such questions as:

- What is the legal and policy framework that enables the establishment of protected areas in Canada, and how has it evolved since the last report?
- What are the goals of protected areas planning, and how well are they being accomplished?
- How do private lands contribute to Canadian efforts on protected areas and biodiversity conservation?
- Is the planning and design of Canada's systems and networks informed by a strong scientific foundation?
- To what extent are climate change adaptation or mitigation measures being integrated into protected areas planning?
- What is the role of Aboriginal peoples and local communities in protected areas planning, and how is this evolving?

LEGISLATION FOR PROTECTED AREAS

All 17 protected area organizations responsible for terrestrial or marine protected areas in Canada (see Glossary) have enabling legislation in place for the establishment of protected areas; 4 organizations updated their legislation during 2006–2011 (BC, MB, ON and NS).

- Four organizations across the country updated legislation to enshrine new targets and approaches for protected area planning: (1) British Columbia amended the *Park Act* in 2006 to create a new protected area designation—called a "Conservancy"; (2) Manitoba amended *The Crown Lands Act* through *The Save Lake Winnipeg Act* in 2011 to allow for the legal designation of significant provincial wetlands, and passed *The East Side Traditional Lands Planning and Special Protected Areas Act* in 2009 to enable First Nations and Aboriginal communities on the east side of Lake Winnipeg to engage in land use and resource management planning for designated areas of Crown land that they traditionally used; (3) Ontario passed the new *Provincial Parks and Conservation Reserves Act*, making ecological integrity a first priority, and the *Far North Act* (and concomitant changes to *The Mining Act of Ontario*), committing at least 50% of the province's north to protected areas; and (4) Nova Scotia committed in the *Environment Goals and Sustainable Prosperity Act* to ensure that 12% of its land area was legally protected by the year 2015.
- Nunavut, Canada's newest territory, identifies development of a new *Territorial Parks Act* as a priority for the next five years, to clarify the roles for parks and conservation areas and reflect the Nunavut Land Claims Agreement and the Inuit Impact and Benefits Agreement for Territorial Parks.
- The Canadian Land Trust Alliance reports that all provinces have legislation in place enabling private land conservation. During the reporting period, changes were made to the federal *Income Tax Act* to promote private land conservation. (See Collaborative efforts with non-government conservation organizations, below.)

LEGISLATIVE AMENDMENT IN BRITISH COLUMBIA CREATES A NEW CONSERVANCY PROTECTED AREA DESIGNATION

British Columbia's new Conservancy designation was developed in collaboration with coastal First Nations to protect special areas on the central and north coasts of the province. The Conservancy designation explicitly recognizes the importance of a protected area to First Nations for social, ceremonial and cultural uses. It has been used to establish new protected areas in the Great Bear Rainforest, Haida Gwaii and the Sea to Sky Corridor.

PROTECTED AREA STRATEGIES

Three quarters of terrestrial protected area organizations (12 of 16) have protected area strategies in place. More than half of MPA organizations (5 of 9) have protected area strategies in place (Figure 10).

- British Columbia, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia and New Brunswick have all advanced implementation of their terrestrial protected area strategies in the last five years, and now join Parks Canada Agency in reporting substantial completion of their strategy. In 2007, Nova Scotia legislated a goal to legally protect 12% of the province by 2015, and this was followed by the release of *Our Wild Spaces* (2011), providing a public review of nearly 220 000 hectares of land under consideration of protection. Parks

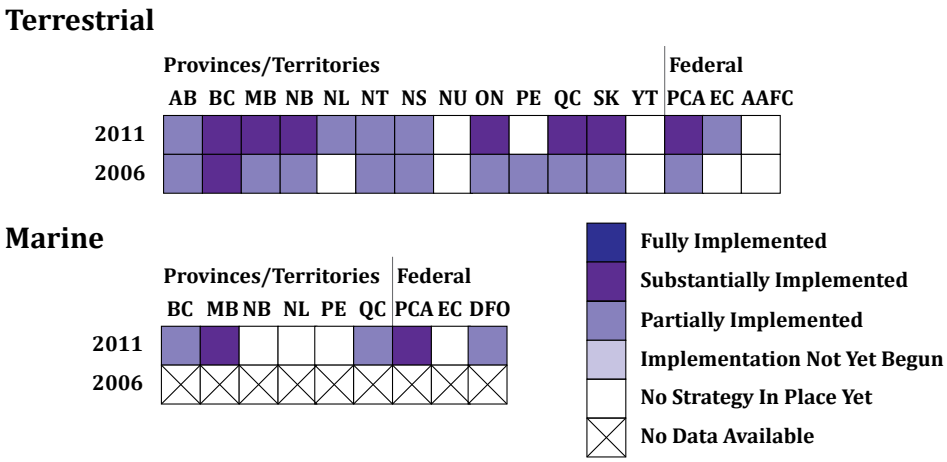


Figure 10: Progress on protected area strategies

Canada Agency and Manitoba also report substantial implementation of their MPA strategy (Figure 10).

- Alberta, Manitoba, Ontario and Quebec have completed protected areas strategies; however, new strategies have been developed to further grow their protected areas systems. Alberta approved the 2009 *Plan for Parks*, a major strategic policy document that provides the foundation for comprehensive policy development. Manitoba completed its ambitious *Green and Growing* strategic framework protecting more than one million hectares of Crown land in five new major protected areas. During the reporting period, Quebec completed its *Strategic Action Plan 2002–2009*, with an objective to increase protected area to 8% of Quebec's territory by 2009, and in 2011 adopted new protected area guidelines that increased the objective to 12% of Quebec's territory by 2015.

Individual protected areas opportunities are being considered in Yukon through the land claims process. Yukon considers new protected areas under approved regional land use plans. The Nunavut government supports the development of a protected areas strategy but feels that the federal Aboriginal Affairs and Northern Development Canada department is best placed to lead the development of a strategy.

OBJECTIVES FOR PROTECTED AREAS PLANNING

Protected area organizations continue to focus on representative areas, with the majority of organizations (11 of 17) identifying this as a primary objective. More than half of organizations (9 of 17) also set objectives related to protecting a proportion of their land or ocean area. Increasing attention is being given to the protection of ecological goods and services, which is a primary or secondary objective for 5 organizations.

- Eleven of 17 protected area organizations have as a primary objective to protect representative samples of their natural or ecological regions (PCA, NT, BC, SK, MB, ON, QC, NB, PE, NS and NL). Fisheries and Oceans Canada and Newfoundland and Labrador note that while their legislation for MPAs does not specify this objective, these areas can contribute to representation through conserving habitats in the context of MPA network planning.

- More than half of organizations (9 of 17) also set objectives of protecting a proportion of their land and ocean area (PCA, DFO, BC, SK, ON, QC, NS, NB and PE).

PRIVATE CONSERVATION LANDS PLAY AN IMPORTANT ROLE IN DELIVERING CONSERVATION OBJECTIVES

Government or public protected areas cover 10.0% of Canada's land mass.

Private land conservation is particularly important: 1) in areas of intense urban and resource development; 2) in those provinces or regions where a high percentage of the land base is under private ownership; and 3) when areas of high conservation value are located on private land.

Protected areas on private land can target key ecological functions or values, including securing habitat, safeguarding water sources, providing corridors and buffers to maintain connectivity and viability of existing protected areas, and contributing to goals for representative areas. They are often located in highly settled regions that also have high concentrations of fragmented habitats and species at risk.

Examples of protected area coverage objectives include the following:
- British Columbia is working towards protecting 10% of coastal and marine areas by 2020;
- Nova Scotia will ensure that 12% of its land area is legally protected by the year 2015;
- Prince Edward Island has committed to protect 7% of the province; and
- Quebec has committed to protect 10% of marine areas by 2015.

- A total of 15 of 17 organizations identify biodiversity conservation in general as the primary (9) or secondary (6) objective of protected areas as identified in legislation or policy. Yukon and Nunavut are the two exceptions: although not an objective in Yukon park legislation, biodiversity conservation is mentioned; Nunavut stresses the need for new legislation and programs that reflect Inuit rights, values and principles and demonstrate the benefits each designation can bring to local communities.

- New Brunswick flags "ecological goods and services" as a primary objective in its protected area legislation and policy, and four other organizations (PCA, DFO, NS and PE) identify it as a secondary objective. Five other organizations mention this objective, and others note that although it is not referenced directly, it may fall within the scope of other criteria. Fisheries and Oceans Canada notes that *Oceans Act* MPAs contribute to protecting and conserving ecological goods and services. A recent overview of parks and protected areas in Canada observes this trend and explains that the "increasing interest in the value of ecosystem services provided by protected areas reflects greater scientific understanding of ecosystem linkages and heightened public and political awareness of environmental degradation in general" (Dearden and Rollins, 2009).

- Private conservation lands play an important role in delivering conservation objectives, as do some contributory sites in the marine environment.

"CONTRIBUTORY SITES" IN THE MARINE ENVIRONMENT

"Contributory sites" in the marine environment contribute to achieving the objectives of the MPA network, although they fall short of meeting the definition of an MPA.

For example, contributory sites would include an area where critical habitat is protected under the provisions of the *Species at Risk Act*, and some areas where fishing activities are restricted under the *Fisheries Act*. Contributory sites can be considered some of the "other effective area-based conservation measures" that will be identified under Aichi Target 11.

TRADITIONAL APPROACHES TO PROTECTED AREAS IN AN ERA OF CLIMATE CHANGE

"Traditional approaches to protected areas, together with the guiding principles of 'ecoregional representation' and 'ecological integrity', have played and will continue to play an important role in protected areas planning, management and operations in the future. However, these approaches and principles may need to be refined and enhanced if the primary roles of protected areas systems are to be achieved in an era of climate change. While current system-wide goals are likely to remain as valid as ever, more careful consideration will have to be assigned to individual protected areas since climate change impacts may be highly variable depending upon the nature of the environments, ecosystems and species housed in specific areas." (Lemieux *et al.*, 2010)

For more information, see www.ccea.org/Downloads/en_papers_occasional19.pdf.

PROGRESS ON REPRESENTATIVITY

Progress has been made on completing systems or networks of protected areas representative of Canada's terrestrial and marine ecological regions, although much work remains.

- More than one third of terrestrial protected area organizations (6 of 16) have substantially completed representation of all of their natural or ecological regions (PCA, BC, AB, SK, MB and QC). Four of 9 marine organizations have substantially or partially completed their representative frameworks (DFO, BC, MB and QC). When Canada's terrestrial protected areas are viewed within the National Ecological Framework for Canada,[20] 70 of 194 ecoregions (36%) currently have at least 10% of their area protected; 38 of 194 ecoregions (20%) currently have at least 17% of their area protected (Map 4).

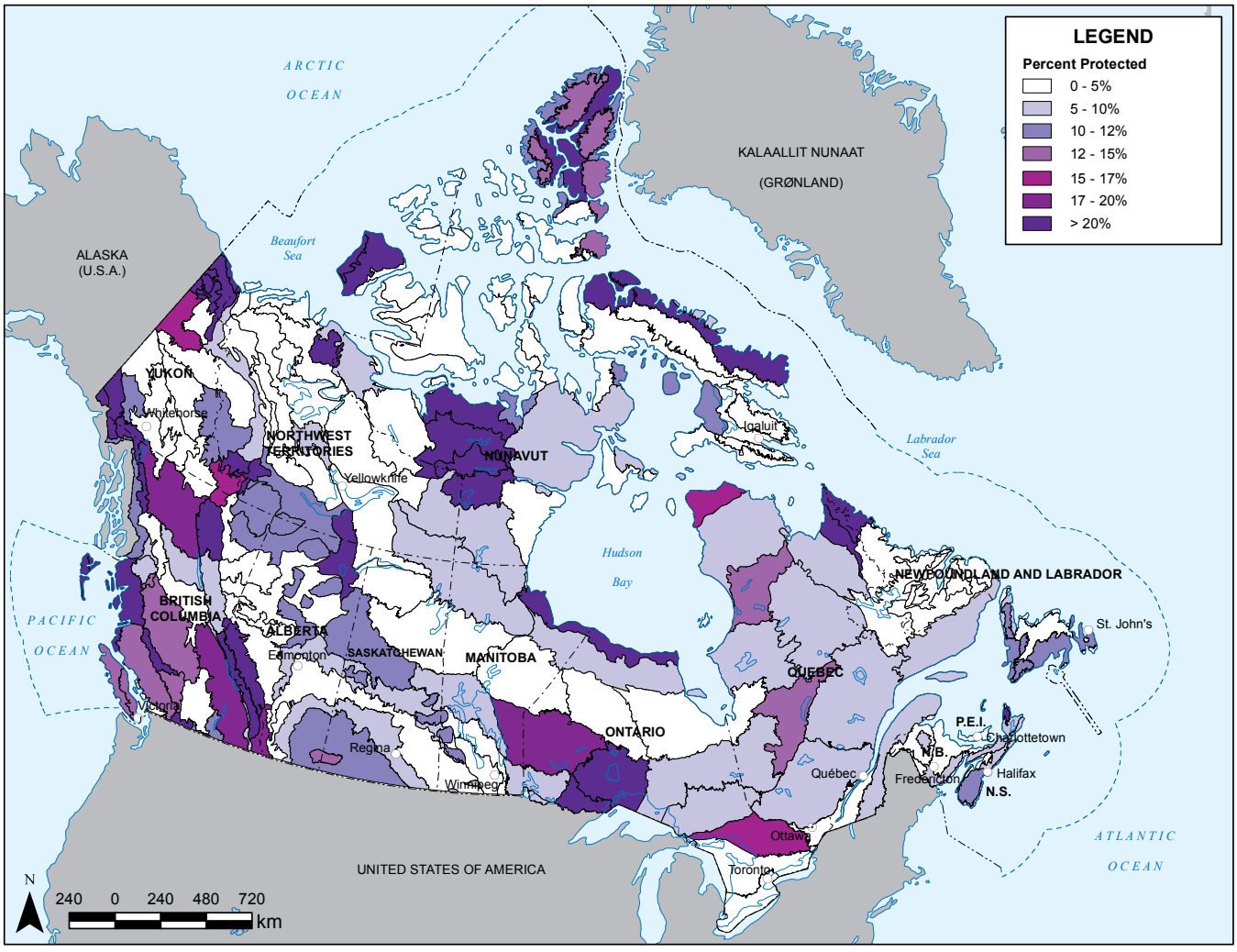
[20] The National Ecological Framework for Canada delineates, classifies and describes ecologically distinct areas of the earth's surface at different levels of generalization using various abiotic and biotic factors at each of the levels. This hierarchical classification evolved with seven levels of generalization, including ecozones, ecoprovinces, ecoregions and ecodistricts (Ecological Stratification Working Group, 1995). There are 194 ecoregions in Canada.

ECOLOGICAL FRAMEWORKS FOR PROTECTED AREAS PLANNING

Most jurisdictions aim to protect representative samples of their ecological diversity by establishing at least one protected area within each unit of an ecological framework. Most terrestrial protected area organizations refer to the National Ecological Framework for Canada at the ecoregion level to guide representation of terrestrial areas. British Columbia also applies a biogeoclimatic system to define its framework; Parks Canada Agency uses natural regions and plans to add a new terrestrial region to their framework. The framework for selection and design of protected areas in Ontario is based on an ecological framework (14 site regions and 65 site districts), a geological framework with thematic targets, and cultural heritage themes.

In Canada's marine environment, 12 bioregions have been delineated on the basis of oceanographic and ecological information, and 1 has been established in the Great Lakes in the context of Canada's network of MPAs. Each of these large regions will be subdivided into several smaller representative types. Parks Canada Agency has identified 29 distinct marine regions for its representative system. MPAs established under these two frameworks will contribute to marine representativity at different scales.

Some private land conservation is guided by an ecological framework as well: The Nature Conservancy of Canada, for example, purchases lands using a science-based process that starts with an ecoregional assessment that identifies biodiversity attributes of highest conservation value.



Map 4: Percentages of terrestrial ecoregions protected in Canada

- Ecoregions form the basis of Nature Conservancy Canada's (NCC) conservation planning at the highest level, known as their "conservation blueprints." NCC has made a priority of assessing Canada's southern ecoregions where biodiversity, and threats to it, are highest. Each conservation blueprint identifies priority areas, in concert with existing protected areas, which could best support biodiversity of the ecoregion.

- As a priority in the next 3 to 5 years, the Northwest Territories intends to work towards gaining support for large areas where no development will be allowed, an important goal of its ecologically representative areas. Parks Canada Agency aims to increase by one the number of terrestrial regions represented in the national park system. Yukon seeks to protect 1 representative core area within each of its 20 ecoregions.

PROGRESS ON PROTECTED AREA COVERAGE[21]

As stated in Chapter 1, Canada has protected 10.0% of its lands and fresh waters (8.7% in permanent protected areas and 1.3% in interim protected areas), an increase from 9.1% in 2005. Canada has protected 0.9% of its marine territory (including internal marine waters, territorial seas and the Exclusive Economic Zone), an increase from 0.6% in 2005.

- See Chapter 1: Extent and growth of protected areas for more information on protected area coverage in 2006–2011.

- Several organizations emphasized the difficulty of completing their terrestrial protected areas systems or networks on publicly owned "Crown" lands alone. The efforts of land trusts in securing ecologically significant privately held lands are of critical importance.

HABITAT CONNECTIVITY

Almost all organizations recognize the importance of their protected areas for habitat connectivity—either explicitly as a secondary protected area objective, inferred as an aspect of "ecological integrity" or "maintenance of ecological processes," or as a driver of candidate site designation.

- However, in practice, nine organizations noted "lack of tools for connectivity between existing protected areas" as a serious constraint. Quebec's new strategic guidelines (2011) highlight the importance of consolidating its network by maintaining or improving connectivity between the different protected areas.

THE MYTH OF PLENTY?

There is a perception that the Arctic contains vast areas of lands available for protected areas. However, much of the potentially available land has been reserved or claimed for prospecting and exploration.

For example, in the last decade, Nunavut has been subject to the most extensive mineral rush in Canadian history. Currently, there are over 3 300 active prospecting permits, and mineral and coal leases, as well as 250 000 km^2 devoted to mineral claims, committing over 630 000 km^2—or one-third of the territory's total area—to potential development.

—NU protected areas jurisdiction representative

- Nova Scotia and Alberta note the intensification of land use or resource development surrounding protected areas, making the maintenance of ecological connectivity a major challenge in the next five years. Nova Scotia and Newfoundland and Labrador highlight the need to work with other land users or land trusts to secure areas of high conservation value on private land. Newfoundland and Labrador will continue to work with Fisheries and Oceans Canada on Seabird Ecological Reserves, designed to maintain connectivity between terrestrial and marine habitats.

- Provinces emphasize the importance of private land conservation for achieving habitat connectivity objectives in their urbanized regions. For example, Nature Conservancy of Canada and other NGOs can purchase private lands or easements for habitat areas and corridors for species at risk.

PRIVATE LAND CONSERVATION IMPROVES LANDSCAPE CONNECTIVITY IN MANITOBA

Between 2005 and 2008, grants from the Government of Manitoba to the NCC's National Campaign for Conservation have helped the NCC purchase private lands protected near Riding Mountain National Park to provide corridors of habitat allowing wildlife to move freely through the region. Moose, elk, black bear, grey wolf and cougar use these pockets of habitat to move through their ranges. Barred owl, bobolink and a variety of grassland birds can also be found in the area.

[21] Tracking protected area coverage has been suggested as one of the provisional indicators for assessing progress towards the 2010 biodiversity target (CBD Decision VIII/15, 2006). Protected area coverage is also one of the indicators for the achievement of the Millennium Development Goals at the national level (Indicator 7.6: Proportion of terrestrial and marine area protected). (Coad *et al.*, 2009)

LARGE AND UNFRAGMENTED HABITAT

Almost three quarters of the total area protected in Canada is now found within a relatively small number of protected areas (64) that are larger than 3000 km², which is a roughly estimated minimum size needed to guard against biodiversity loss (Figure 11).[22]

- More than three quarters of organizations (13 of 16) include a primary or secondary objective in legislation or policy to protect large, intact or unfragmented areas (PCA, AAFC, EC, NT, BC, SK, MB, ON, QC, NB, PE, NS and NL).

- Five organizations (MB, QC, EC, DFO and PCA) established protected areas more than 3000 km² in size, or expanded existing ones with additions to more than 3000 km² in size, bringing the total number of these large protected areas to 64 (Table 6).

- Recent strategic guidelines for Quebec intend to consolidate its network of protected areas by protecting core conservation areas capable of safeguarding wildlife species that are particularly sensitive to human activities. In this regard, Quebec will aim to protect a large land area that matches the conservation requirements of a particular species, such as woodland caribou, and will assess opportunities to extend protection to an additional large "wilderness" area covering more than 10 000 km².

- As the "last frontier," the marine environment offers an opportunity to establish large protected areas with unfragmented habitat. Countries such as the United States of America, Australia and South Africa have designated individual MPAs greater than 150 000 km² in area (Marine Affairs Research and Education, 2011). Fisheries and Oceans Canada has identified seven additional Areas of Interest under active consideration as potential MPAs, including two that are anticipated to exceed 3 000 km².

- Parks Canada Agency, Environment Canada, Saskatchewan, Quebec, and Newfoundland and Labrador are advancing a total of 15 candidate terrestrial protected areas greater than 3 000 km². For example, Parks Canada Agency and the Łutsel K'e Dene First Nation committed in 2010 to negotiate a park agreement for the establishment of Thaidene Nene National Park Reserve, the proposal stretching for 33 000 km² on the East Arm of Great Slave Lake. Parks Canada Agency and Newfoundland and Labrador announced in 2008 a commitment to establish a national park reserve in the wilderness area of the Mealy Mountains in Labrador, which at 10 700 km² will be the largest National Park in eastern Canada.

- Quebec continues to create vast parks in Nunavik, occupying the northern third of the province and homeland of the Inuit of Quebec. Kuururjuaq National Park, created in 2009, covers an area of 4 460 km² and protects 98% of the Koroc River watershed. The Tursujuq National Park Project will add more than 10 000 km² to Lacs-Guillaume-Delisle-et-a-l'Eau-Claire National Park Reserve, to total 26 107 km². Quebec also plans to add 354 km² to Ulittaniualik (Monts-Pyramides) National Park Reserve, which already covers 1 935 km².

SIX-FOLD EXPANSION OF NAHANNI NATIONAL PARK RESERVE IN THE NORTHWEST TERRITORIES

The Nahanni National Park Reserve was expanded to six times its former size in 2009, making it Canada's third largest national park. This achievement has been called the greatest conservation gain in a generation.

Among the first UNESCO World Heritage Sites, Nahanni National Park Reserve is renowned for its wild white-water river and spectacular canyons, but until recently it encompassed only the lower reaches of the South Nahanni River, not its broader watershed or the river's upper reaches. The massive expansion in 2009 increased the park reserve to protect over 30 000 km² of spectacular mountain terrain, unique geological landforms and critical wildlife habitat—almost the size of Vancouver Island.

This tremendous growth could not have happened without the strong vision and leadership of the Dehcho First Nations and their steadfast desire to protect this area of enormous significance. Together with Parks Canada Agency, the Dehcho people have worked tirelessly to ensure that a major portion of the watershed has been conserved and managed collaboratively in ways that honour and conserve the traditional Dehcho knowledge and culture.

—Parks Canada Agency (2011c)

For more information, see www.pc.gc.ca/agen/wwf/conservation/nahanni.aspx.

[22] The 3000 km² figure is taken from Wiersma *et al.* (2005). This minimum reserve area is estimated based on historical species distributions in terrestrial areas. It should be noted that in the highly fragmented landscapes of southern Canada, many species that were historically present and that required large tracts of unfragmented habitat have been extirpated, and remaining wildlife may have smaller area requirements.

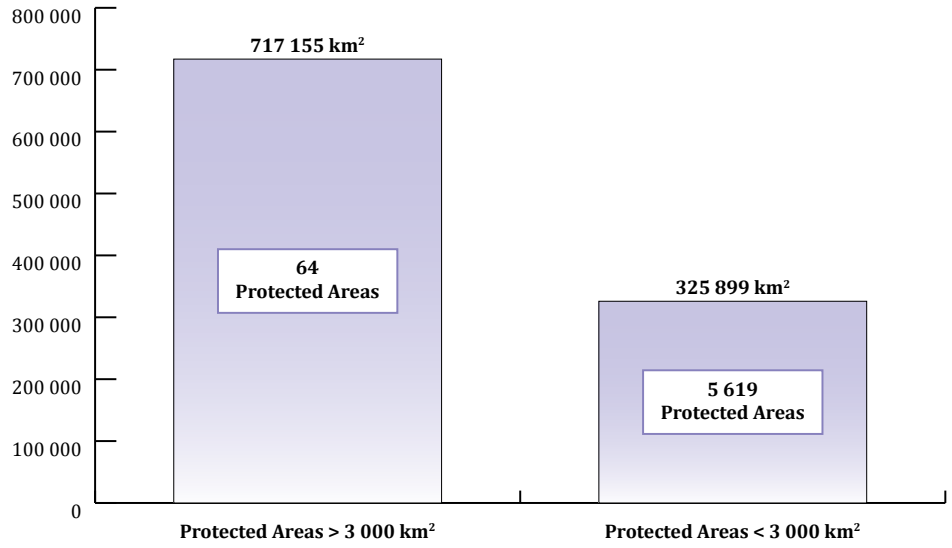


Figure 11: Total lands in protected areas larger and smaller than 3000 km²

Table 6: Protected areas >3000 km² designated 2006–2011

Managing agency	Name	Total km²	Date
Parks Canada Agency	Lake Superior National Marine Conservation Area	10 000	2007
Fisheries and Oceans Canada	Bowie Seamount Marine Protected Area	6 131	2008
Parks Canada Agency	Nahanni National Park Reserve of Canada (Extension)	25 000	2009
Quebec Department of Sustainable Development, Environment, Wildlife and Parks	Kuururjuaq National Park	4 460	2009
Parks Canada Agency	Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site	3 500	2010
Environment Canada	Ninginganiq National Wildlife Area	3 364	2010
Government of Manitoba	Nueltin Lake Provincial Park	4 472	2010
Government of Manitoba—Poplar River First Nation	Asatiwisipe Aki Traditional Use Planning Area	8 076	2011

Source: CARTS version 2011.12.31

PROTECTED AREAS AND SPECIES AT RISK

Protection of habitat can help recover species at risk and protect some species before they start declining to critical levels. Protected areas can secure a wide range of habitat requirements, from a small area covering a unique occurrence of a plant, to critical spawning and rearing grounds in the marine environment, to large expanses of wilderness required by a species to survive.

Examples of protected areas that were established, expanded or adopted new management measures to benefit species at risk during the 2006–2011 reporting period include:

- **Greenbush Lake Protected Area** (BC)—created to provide areas with no motorized access for the protection of habitat for Mountain Caribou, an ecotype of Woodland Caribou.
- **Tarium Niryutait Marine Protected Area** (DFO)—created to conserve and protect Beluga Whales and other marine species (anadromous fishes, waterfowl and seabirds), their habitats and their supporting ecosystem.
- **Mealy Mountains** (NL)—created to protect most of the range of a threatened herd of woodland caribou.

Recent research (Deguise and Kerr, 2006) concludes that although protected area networks will play a useful role in conserving endangered species that occur within them, reducing extinction rates will require integrating conservation strategies with agricultural and urban land-use plans outside formally protected areas.

LAKE SUPERIOR NATIONAL MARINE CONSERVATION AREA: THE LARGEST FRESHWATER PROTECTED AREA IN THE WORLD

In 2007, the governments of Canada and Ontario announced the creation of the largest freshwater protected area in the world: the 10 000 km^2 Lake Superior National Marine Conservation Area. First Nations, other government partners, communities and stakeholders all contributed to this achievement.

Lake Superior has been home to First Nations for thousands of years, and it continues to be culturally and spiritually significant to Aboriginal people in the region. Herons, peregrine falcons and bald eagles soar overhead, and the shoreline provides habitat for white-tailed deer, moose and caribou. Some 70 species of fish live in Lake Superior, and the marine conservation area includes the spawning grounds of whitefish, lake herring, walleye, coaster brook and lake trout. Numerous shipwrecks found in the cold, clear waters are a legacy to the great lake's maritime history and its ferocious storms.

—Parks Canada Agency (2011a)

For more information, see www.pc.gc.ca/agen/wwf/conservation/superieur-superior.aspx.

PROGRESS ON PROTECTING FRESHWATER

More than half of protected area organizations (9 of 16) plan for the conservation of inland freshwater ecosystems within their protected areas networks, up from 6 organizations that did so in 2005.

- Environment Canada, British Columbia, Alberta, Saskatchewan, Manitoba, Quebec, New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland and Labrador all report the inclusion of freshwater conservation as part of their protected area planning.
- Organizations are improving their capacity to measure inland freshwater ecosystems and plan for the identification and establishment of freshwater protected areas.

Table 7: Proportion of total freshwater included in protected areas

Proportion of total freshwater included in protected areas	Organizations
30% or greater	
20–29%	
10–19%	BC, PE, SK
0–9%	YT, NT, AB, ON, QC, NB, NS
Unknown or undetermined	PCA, EC, AAFC, NU, MB, NL

- Two thirds of all organizations (11 of 16) submitted estimates of total area of freshwater protected, amounting to some 75 000 km^2. Total area of freshwater for Canada is estimated at 8.9 million km^2 (Statistics Canada, 2005).
- Fifteen federal and 48 provincial protected areas encompass over 10 850 km^2 of waters or coastal wetlands of the Great Lakes.[23] One of these, the Lake Superior National Marine Conservation Area, is 10 000 km^2.
- Actions are being taken across the country to represent freshwater ecosystems in protected area systems and networks:
  - Parks Canada Agency's National Marine Conservation Area's (NMCA) system plan provides for five NMCAs to represent the Great Lakes freshwater ecosystem. In 2007, the Lake Superior NMCA was established and joined Fathom Five National Marine Park as the first two NMCAs in the Great Lakes.
  - The Northwest Territories Protected Area Strategy includes coarse-scale freshwater classification, and methods are being developed for using it as a basis for analyzing freshwater ecosystem representation.
  - Alberta completed the Aquatic Environment Significant Areas report in 2011, which informs protected areas system planning by identifying the most significant wetlands.
  - One of the objectives set by Quebec is to ensure the protection of one large river in each natural province of the ecological framework.

[23] Canada's bioregional units for MPA network planning include a Great Lake bioregion, and Great Lake sites are considered as part of their network. However, for the purposes of this status report, Great Lakes areas are considered freshwater and not marine.

SCIENCE IN SUPPORT OF PROTECTED AREAS PLANNING

Decades of research have expanded the scientific foundation for protected areas planning, but there is still much to learn, particularly related to the consequences and implications of climate change on the conservation of ecological integrity.

- Almost two thirds of terrestrial organizations (10 of 16) have enough or substantial scientific information for planning representative protected areas systems or networks. However, the same number of terrestrial organizations lack information to plan networks or systems for achieving biodiversity objectives, reporting that scientific information is partially or not available. Almost all terrestrial organizations (14 of 16) report that scientific information is partially or not available for achieving objectives related to the conservation of ecological goods and services.

- The majority of marine organizations reported that scientific information was lacking for the design of networks based on a wide range of features and properties.

- From a list of resources for protected areas planning, terrestrial and marine organizations identified the two that represented the most serious limitations for network or system planning as (1) inventory and monitoring; and (2) stress assessments and indicators. Capacity related to (1) traditional ecological knowledge; and (2) identification of areas of cultural importance to Aboriginal communities were moderately limiting but have both improved since the last status report.

- Most protected area organizations reported having adequate capabilities with respect to (1) GIS mapping and analysis; and (2) identifying and evaluating candidate areas.

- A survey of Canada's protected areas sector revealed that lack of scientific information is limiting some adaptation actions on climate change. Specifically, all agencies said they would like more scientific information on the ecological consequences of climate change, and almost all (94%) indicated they would like more information on the implications of climate change for policy, planning and management strategies (Lemieux *et al.*, 2010).

PLANNING FOR CLIMATE CHANGE

Protected area organizations have initiated work to begin dealing with climate change. One quarter of terrestrial organizations (4 of 16) have integrated climate change adaptation or mitigation measures into protected areas planning and management strategies (AAFC, BC, NB and PE), and 9 more are in the process of doing so (PCA, YT, NT, AB, SK, MB, ON, NS and NL). One third of marine organizations (3 of 9) are developing adaptation measures to integrate into network design (PCA, DFO and BC).

- This marks progress since the last reporting period, when five protected area agencies were "beginning to assess potential impacts of climate change and considering adaptation strategies." However, protected areas agencies are still largely focused on developing a comprehensive understanding of the impacts of climate change and are only in the very preliminary stages of developing strategic responses (Lemieux *et al.*, 2010).

- A recent study commissioned by CCEA (Lemieux *et al.*, 2010) points out that incremental adaptation to climate change within Canada's protected areas agencies is occurring to some extent, but there remains an important gap between the perceived importance of the issue and the capacity (funding, staff expertise, etc.) of protected areas agencies and organizations to respond.

PROTECTED AREAS AS A SOLUTION TO CLIMATE CHANGE

Organizations across Canada are promoting the role of protected areas in helping ecosystems, species and human communities adapt to and mitigate climate change. Efforts by government, private and Aboriginal agencies to increase the number, size, density and connectedness of protected areas are all part of the solution to climate change. The protection of large, intact terrestrial and marine ecosystems will provide refuges for wildlife, including species at risk. Connectivity between protected areas facilitates species movement and gene flow, and this resilience will be particularly important in mitigating the effects of climate change.

- Examples of organizational actions on integrating climate change adaptation or mitigation measures in protected areas planning and management strategies include:
  - Parks Canada Agency: The day-to-day management and operation of protected areas addresses climate change, working with partners at the landscape level to manage escalating outbreaks of insect pests, conduct active management and ecological restoration to help build resilient ecosystems, and address changing visitor interests and demands at various sites across the country.
  - British Columbia: Acquisition of private lands considers connectivity to further strengthen capacity of ecosystems to adapt to climate change; carbon financing (credits) was used to complete a land acquisition transaction.
  - Manitoba: Part of Kaskatamagan Wildlife Management Area was protected in 2009 to protect coastal migration routes, and maternity denning areas for polar bears. The western Hudson Bay sub-population of polar bears was recently listed as threatened in *The Endangered Species Act* of Manitoba.
  - Nova Scotia: The province has been working with others in the Chignecto Isthmus with the goal of helping to build and maintain a natural, protected corridor along its axis.

- The Canadian Parks Council has prepared a framework for collaborative action on climate change. Parks Canada Agency has established a Climate Change Working Group that is developing a strategy on climate change mitigation and adaptation.[24] A research partnership established between the University of Waterloo, the Centre for Applied Sciences in Ontario Protected Areas and the Ministry of Natural Resources has helped Ontario Parks understand the implications of climate change for the protected areas system and to identify and evaluate adaptation options. Fisheries and Oceans Canada, Environment Canada, and Parks Canada Agency participated in an international effort to produce the *Scientific Guidelines for Designing Resilient Marine Protected Area Networks in a Changing Climate* (Brock *et al.*, 2012), which provides advice on MPA network design processes that adapt to and mitigate anticipated effects of climate change on marine ecosystems.

- Manitoba, Ontario and Quebec have recently taken significant steps and made significant achievements in protecting the boreal's massive carbon stores,

THE 2007 PROTECTED AREAS AND CLIMATE CHANGE SURVEY

The University of Waterloo and CCEA carried out a collaborative Protected Areas and Climate Change (PACC) Survey in 2007 (updated in 2009) to assess the state of current efforts on climate change adaptation employed by Canadian protected areas agencies and organizations. Among their key findings (Lemieux *et al.*, 2010):

- No agencies surveyed currently have a climate change adaptation strategy or action plan in effect.
- Agencies expressed a need for more information on the ecological consequences of climate change and the implications of climate change for policy, planning and management strategies.
- A large majority (94%) of the respondents indicated that they wanted "much more" or "some more" information on strategies for managerial response (adaptation) to climate change impacts and strategies for effective communication of climate change issues respectively.
- While the PACC Survey did reveal a strong motivation by protected areas agencies and organizations to move forward on climate change adaptation, most acknowledged that they are uncertain about how to proceed.
- 91% of agencies took the position that they currently do not have the capacity necessary to deal with climate change issues.
- The PACC Survey revealed a clear disconnect between the perceived salience of the possible impacts of climate change on protected areas and a lack of available resources to address the issue (e.g., specifically, there is a shortage of financial resources, staffing and scientific expertise).
- Case studies on current Canadian initiatives relevant to protected areas and climate change revealed wide-ranging activities across the country, but no unified comprehensive approach to climate change.

For more information, see www.ccea.org/Downloads/en_papers_occasional19.pdf.

[24] www.parks-parcs.ca/english/CPC%20Climate%20Change%20Report%20FINAL%20engLR.pdf

increasing the protected proportion of the boreal from 7.3% to 9.0% since 2005.
  - Manitoba protected over 19 000 km^2 of boreal forest, adding four large northern protected areas, permanently protecting Birch Island Provincial Park and designating two traditional use planning areas in the boreal forest on the east side of Lake Winnipeg. The Asatiwisipe Aki and Pimitotah traditional use planning areas were designed and designated in conjunction with Poplar River First Nation and Bloodvein First Nation respectively.
  - In 2008, Ontario announced the intent to permanently protect more than half of its northern boreal forest in collaboration with local indigenous communities, highlighting the important role protecting these natural carbon sinks represents in mitigating the worst impacts of climate change.
  - Quebec announced the Plan Nord in 2011, an exemplary, sustainable development project covering the northern two thirds of Quebec's total territory, or 1.2 million km^2. The Plan Nord will reserve 50% of the area for non-industrial uses such as environmental and biodiversity protection. Also, Quebec has proposed the creation of Albanel-Temiscame-Otish National Park (provisional name), a large park of over 11 000 km^2 located in the boreal forest.

- Coastal organizations note that protected area planning must consider the potential impacts of sea level rise on shoreline and upland ecosystems, including susceptibility to erosion and loss along coastal stretches, as well as the future conservation of ecosystems that may form with rising sea levels (e.g., coastal bogs transitioning to salt marshes, drumlins transitioning to islands).

INTERGOVERNMENTAL NETWORK AND SYSTEM PLANNING

MPA organizations are leading the way in intergovernmental network planning with the 2011 National Framework for Canada's Network of Marine Protected Areas. Almost all terrestrial organizations cooperate with neighbouring organizations or federal agencies on establishment of protected areas.

Marine Protected Areas

- Intergovernmental cooperation is a fundamental tenet of planning Canada's MPA network. As part of the National Framework for Canada's Network of Marine Protected Areas[25] led by Fisheries and Oceans Canada, marine organizations work together through an MPA Network Community of Practice.

- In Quebec, collaboration on MPA network planning is undertaken via the Bilateral Group on Marine Protected Areas established in 2007 and, more recently, through the framework of the 2011–2026 St. Lawrence Action Plan.

- Specific examples of intergovernmental cooperation in MPA network planning include:
  - Canada and Quebec recently signed the 2011–2026 St. Lawrence Action Plan. The Coordination Committee on MPAs under the Agreement, co-led by Fisheries and Oceans Canada and the Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs du Québec, and involving Parks Canada Agency and Environment Canada among others, will be responsible for MPA network planning in the St. Lawrence Estuary and part of the Gulf.
  - Multiple federal agencies and provincial ministries have established a federal-provincial working group called the Marine Protected Areas Implementation Team to deliver Canada's Oceans Strategy on the Pacific Coast.
  - Nova Scotia and Fisheries and Oceans Canada have collaborated on the identification and implementation of the St. Ann's Bank Area of Interest.

NATIONAL FRAMEWORK FOR CANADA'S NETWORK OF MARINE PROTECTED AREAS

On September 1, 2011, Canada's federal, provincial and territorial members of the Canadian Council of Fisheries and Aquaculture Ministers reviewed and approved in principle the National Framework for Canada's Network of Marine Protected Areas.

This represents an important step towards achieving the CBD international target of conserving at least 10% of coastal and marine areas by 2020.

The Framework provides strategic direction for the design of a national network of MPAs that will be composed of 13 bioregional networks covering Canada's oceans and Great Lakes.

[25] The chairs of three federal-provincial-territorial councils signed the Framework: Canadian Council of Ministers of the Environment, the Canadian Parks Ministers' Council and the Wildlife Ministers' Council of Canada. Although the Government of Quebec supports the principles underpinning the National Framework, it did not participate in the Oceans Task Group that reports to this Council. Quebec contributes by sharing information and best practices for MPAs.

STUDY REGARDING THE ESTABLISHMENT OF A MARINE PROTECTED AREA AROUND THE ÎLES-DE-LA-MADELEINE

The governments of Canada and Quebec agreed that it is in their mutual interest to ensure adequate protection of marine biodiversity in the Gulf of St. Lawrence, specifically the Îles-de-la-Madeleine maritime plateau. Parks Canada Agency and the Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs du Québec are working in partnership with a multidisciplinary team from the Université du Québec à Rimouski and the Centre de recherche sur les milieux insulaires et maritimes to assess the possibility of establishing an MPA around the Îles-de-la-Madeleine. This study will take into account the views of local communities by including local ecological knowledge and calling on experts from the community.

Researchers will develop an overview of the marine elements of the area and scenarios for the protection and heritage preservation of this marine environment. The cooperation of a number of departments and community organizations, which are contributing their expertise and providing data, is essential to the success of this project.

An advisory committee composed of community members has been formed to involve interested organizations and provide a forum for locals to express their concerns. Aboriginal communities with interests in the study area will also be consulted.

The study will take two years to complete. The findings, expected in the spring of 2014, will help governments to determine if an MPA proposal is feasible and, if so, under what conditions.

Terrestrial protected areas

- Establishing national parks in Canada typically involves years of significant collaboration with provincial and territorial governments and Aboriginal groups. For example, Parks Canada Agency is working closely with Newfoundland and Labrador towards the establishment of the proposed Mealy Mountains National Park and an adjacent provincial park, and with Nova Scotia on the establishment of a national park on Sable Island.

- A number of new interprovincial protected areas were established in 2006–2011, including the Kakwa-Willmore Interprovincial Park designated in 2006 between Alberta and British Columbia, and the Manitoba-Ontario Interprovincial Wilderness Area in 2008, encompassing more than 9400 km^2 of existing protected areas and park lands. The latter initiative is in collaboration with First Nations and contributed to the proposed Pimachiowin Aki World Heritage Site.

- All protected area organizations are members of the Canadian Parks Council (with the exception of Fisheries and Oceans Canada), the Canadian Heritage Rivers Program (with the exception of Quebec and Fisheries and Oceans Canada), and CCEA. Others participate in a number of international initiatives, including the IUCN, Circumpolar Protected Area Network of the Arctic Council, the Commission on Environmental Cooperation, and the North American Intergovernmental Committee on Cooperation for Wilderness and Protected Area Conservation.

- CARTS was formally launched in 2008 in its present form, providing a Web-based platform to which all federal, provincial and territorial protected area organizations in Canada provide basic data on protected areas, such as size, location, boundaries and IUCN management categories.

PIMACHIOWIN AKI WORLD HERITAGE SITE PROJECT

This project is a collaboration of five First Nations—Bloodvein River, Little Grand Rapids, Pauingassi, Pikangikum and Poplar River—and the governments of Manitoba and Ontario.

The Pauingassi and Little Grand Rapids community-based land use plans contribute to protection of 34 500 km^2 and support the Pimachiowin Aki bid for World Heritage Site proclamation by UNESCO.

The project's goal is to secure world heritage status for the largest protected-area network in the North American boreal shield. After five years of planning and research, as of December 2011 the group was poised to submit a nomination to recognize Pimachiowin Aki as a UNESCO World Heritage Site. The nomination is the first that Canada has submitted based on both natural and cultural heritage values.

For more information, see www.pimachiowinaki.org.

NORTH AMERICAN PROTECTED AREAS JURISDICTIONS WORKING TOGETHER: PROTECTED AREAS AS NATURAL SOLUTIONS FOR CLIMATE CHANGE

The North American Intergovernmental Committee on Cooperation for Wilderness and Protected Area Conservation has a bold vision encompassing networks of protected lands and waters that connect and restore important habitats, provide safe havens for species under changing environmental conditions, and enable ecosystems and people to respond and adapt to change.

Delivering on this vision requires an unprecedented level of collaboration at local, regional and continental scales. Through the Committee, Mexico, the United States and Canada will share knowledge about how protected areas will help us respond to climate change, which will inform work in North America and hopefully inspire other countries to develop nature-based solutions to climate change. It will also increase partnerships for development of protected areas networks in areas of shared habitat such as marine systems, grasslands, wetlands and coastal mountains.

For more information, see http://cambioclimatico.conanp.gob.mx/documentos/folleto_NAWPA.pdf.

TRACKING CANADA'S PROTECTED AREAS

CCEA leads the maintenance and continuing development of CARTS, a national portal to enable standardized compilation and mapping of Canada's protected areas data, as well as public access to the data. CARTS evolved from previous registries managed by the CCEA since 1982.

CARTS enables both scientists and policy-makers to assess Canada's growing network of protected areas using a single, authoritative database. It also helps Canada to fulfill national and international reporting obligations.

The CARTS project is a partnership of federal, provincial and territorial protected areas organizations via the CCEA, and is managed by Environment Canada.

For more information, see www.ccea.org/en_carts.html.

ABORIGINAL PARTICIPATION IN PROTECTED AREA PLANNING

Aboriginal peoples have participated in the establishment of tens of thousands of square kilometres of protected areas designated during the reporting period 2006–2011, through modern land claims, treaties, other agreements or collaborative land use plans (Table 8).

- Most current protected area establishment processes in Canada involve working together with Aboriginal organizations and communities to conserve biodiversity and cultural heritage, to cooperate on protected area management and to share the benefits of protected areas. These organizations and communities traditionally place high importance on conservation of natural and cultural heritage, and therefore are often the strongest proponents of protected areas.

ABORIGINAL PEOPLES AND CANADA'S PARKS AND PROTECTED AREAS

The Canadian Parks Council recently published a compendium of case studies that demonstrates the unique and substantial contribution of Aboriginal people to diverse areas of protected areas planning and management. The compendium is entitled *Aboriginal Peoples and Canada's Parks and Protected Areas* (CPC, 2011a).

The case studies provide insights and lessons that can contribute to building and enhancing collaborative relationships between Aboriginal peoples and parks agencies.

Parks agencies identified three main factors in the success of the initiatives featured in the case studies:

- Community leadership in articulating a vision for the sustainable use and protection of their traditional lands;
- Time, patience, trust and dedication in developing and nurturing a meaningful partnership between the parks agency and the Aboriginal community(ies); and
- Recognition of the importance of cultural resources and traditional knowledge as an expression of Aboriginal peoples' history and relationship to the land.

For more information, see www.parks-parcs.ca/english/cpc/aboriginal.php.

- Mechanisms for this involvement include modern land claims, treaties and other agreements, collaborative land use plans, and engagement and consultation processes. The federal, provincial and territorial governments in Canada also have a duty to consult on resource decisions that impact Aboriginal peoples. During the reporting period:
  - Five new protected areas proposed for the Northwest Territories under its Protected Areas Strategy were championed by First Nations, and seen as partial fulfillment of the recommendations made by the Mackenzie Valley Pipeline Inquiry.
  - The establishment of new protected areas in Nunavut was guided by the Nunavut Land Claim Agreement and the subsequent Inuit Impact and Benefits Agreements for Parks and Conservation Areas. The 2007 Inuit Impact and Benefit Agreement for Environment Canada protected areas led to the creation of three new National Wildlife Areas on Baffin Island totalling 4554 km^2.
  - In the Northwest Territories, British Columbia, Ontario and Manitoba, new protected areas were identified jointly by Aboriginal peoples and governments through community-based land use planning (see Integrated landscape management, below). Organizations count these land use plans among their most significant protected areas achievements over the past five years.
- Two organizations established protected areas under new designations that recognize the importance of areas to First Nations, and collaborative working relationships with them: Manitoba created "Traditional Use Planning Areas," and British Columbia created a new "Conservancy" designation.
- Yukon, British Columbia, Saskatchewan and Quebec identify collaborative relationships with Aboriginal peoples among the top priorities for the next five years.

STEWARDSHIP IN THE WHITEFEATHER FOREST PLANNING AREA IN NORTHWESTERN ONTARIO—A COLLABORATIVE APPROACH

"Our customary stewardship approach (Ahneesheenahbay kahnahwaycheekahwin) has some important implications for conservation practices (kaysheebeemahcheecheekahtahk) in the Whitefeather Forest Planning Area...

"We have always managed our Ahneesheenahbay otahkeem as a whole. We have never divided our land into zones that are either set aside for development or for protection...

"Stewardship and Protection activities in the Whitefeather Forest Planning Area will be developed out of a collaborative approach that integrates the Ahneeshsheenahbay kahnahwaycheekahwin of Pikangikum First Nation and the ecosystem-based resource stewardship approach of the Ontario Ministry of Natural Resources."

From *Keeping the Land—A Land Use Strategy for the Whitefeather Forest and Adjacent Areas* (Pikangikum First Nation and Ontario Ministry of Natural Resources, 2006)

For more information, see www.whitefeatherforest.com/wp-content/uploads/2008/08/land-use-strategy.pdf.

Table 8: Examples of protected areas resulting from a modern land claim, treaty, agreement or land use plan in 2006–2011

Organization	Protected area(s) and year of designation	Total area designated
DFO	Tarium Niryutait MPA (2010)	1 740 km^2
DFO	SGaan Kinghlas—Bowie Seamount MPA (2008)	6 131 km^2
PCA	Gwaii Haanas National Park Reserve (1996)	1 474 km^2
PCA	Torngat Mountains National Park Reserve (2005)	9 700 km^2
MB	Poplar River First Nation Traditional Use Planning Area	8 076 km^2
MB	Bloodvein First Nation Traditional Use Planning Area	1 326 km^2
ON	Five designated Protected Areas under the *Provincial Parks and Conservation Reserves Act* (various dates)	3 495 km^2
ON	Dedicated protected areas under the *Far North Act, 2010* (not yet designated)	7 930 km^2
QC	Kuururjuaq National Park (2009)	4 460 km^2
QC	Assinica National Park Reserve (2011)	3 193 km^2
QC	Pingualiut National Park (2004)	1 134 km^2
EC	Ninginganiq National Wildlife Area (2010)	3 364 km^2
EC	Akpait National Wildlife Area (2010)	792 km^2
EC	Qaqulluit National Wildlife Area (2010)	398 km^2
Total		**53 213 km^2**

DEFINING AN APPROACH TO CULTURAL LANDSCAPE PLANNING IN CANADA'S NORTH

Nunavut Parks and Special Places recently initiated a "cultural landscape-based approach" to protected areas planning that emphasizes the integration of humans and nature. Nunavut Parks has been working with Inuit and residents of Clyde River to create a model for a proposed Territorial Park that may be used to assess the value of cultural landscapes across Nunavut.

In 2006, following several years of research and assessment, the Inuit and local residents of Clyde River recommended a park boundary for a proposed Territorial Park. The proposed park would protect important archaeological and cultural sites, valuable wildlife habitat, and significant tourism and recreation opportunities. In keeping with the Umbrella Inuit Impact and Benefits Agreement, the next step in park establishment will involve a cultural heritage assessment (unique to Environment Canada) that will capture Inuit Traditional Knowledge and maintain a record of oral histories and knowledge related to park landscapes.

For more information on this case study, see *Aboriginal Peoples and Canada's Parks and Protected Areas* (CPC, 2011a) at www.parks-parcs.ca/english/cpc/aboriginal.php.

COLLABORATIVE EFFORTS WITH NON-GOVERNMENT ENVIRONMENTAL OR CONSERVATION ORGANIZATIONS

Across Canada's highly populated southern landscapes, provincial governments are increasingly recognizing privately held conservation lands as an integral component of their protected area networks.

- Five provinces (SK, MB, QC, NB and PE) formally include private conservation lands in their protected areas systems or networks (totalling 1151 km^2), while others are exploring ways to account for the contribution of private lands to protected area strategies. For example, with less than 10% provincially owned land in Prince Edward Island, that province relies on private landowners to achieve the goal of protecting 7% of its land area.

- New partnerships with private land conservation agencies were counted among organizations' most significant protected areas achievements over the past five years:
  - Manitoba signed Memoranda of Agreement with three conservation agencies to ensure that their private lands in the protected area network meet Manitoba's standard of protection, including the permanent withdrawal of subsurface mineral rights.
  - A partnership between Newfoundland and Labrador and the NCC resulted in the Conservation Blueprint Project, compiling background data on natural features and land use information for Labrador.
  - The Nature Conservancy of Canada (PEI) Corporation was established and began partnering with the province to acquire and protect natural areas.

- New Brunswick, Nova Scotia and Prince Edward Island (where between 50–90% of the land base is privately held [Table 9]) report that protection of private lands is among their top priorities for the next three to five years, due to intense competition for land use, large proportions of privately owned properties and high conservation value of areas on private land. In 2008, Nova Scotia established the Nova Scotia Crown Share Land Legacy Trust to provide $23.4 million as partial funding to Land Trusts to secure and protect

NATURAL AREAS CONSERVATION PROGRAM

The Government of Canada announced a $225 million investment in the Natural Areas Conservation Program in 2007. The program helps non-profit NGOs to secure ecologically sensitive lands.

Based on an agreement between Environment Canada and the NCC, NCC will acquire full or partial interest in those nationally or provincially significant lands that protect habitat for species at risk and migratory birds, or that enhance connectivity or corridors between existing protected areas such as National Wildlife Areas, National Parks and Migratory Bird Sanctuaries. NCC will also partner with non-government conservation organizations such as Ducks Unlimited Canada, Conservation Authorities (Ontario) and other qualified land trusts to implement the program. These organizations will provide matching funds for the federal investment.

As of December 2011, the Program had protected 3278 km^2 of habitat including habitat for 117 species at risk.

Table 9: Private lands in provincial protected areas systems or networks

Province	Proportion of overall land area that is privately held	Degree that private lands are accounted for in provincial protected areas system or network
BC	6%	A small number of private lands are leased to the Ministry of Environment to manage and incorporate in a protected area designation. A larger number of lands have been leased to the province as part of the conservation lands system. These lands are not formally recognized as part of the Province's Protected Areas Strategy.
AB	28%	Not formally recognized as part of PAS.
SK	5% in north; 80% in south	Conservation easements on private lands make up 1.5% of protected areas. These lands are becoming increasingly important in the southern agricultural portion of the province.
MB	15%	Private sites include those administered by a number of NGOs and formally recognized as part of the protected areas network.
ON	13%	Properties that are formally identified for regulation as provincial parks or conservation reserves are also formally recognized as part of PAS. Broader arrays of secured lands are recognized as contributing significantly to the overall natural heritage areas system but are not included in calculations of life science representation.
QC	8%	Private land conservation part of QC's strategy, under legal designation of "Nature Reserve." Other private sites administered by a number of NGOs and dedicated to the protection of biodiversity and natural process are recognized as Natural Areas Under Private Stewardship, contributing to the province's 12%-by-2015 goal.
NB	50%	Private properties are accounted for only if they are designated by regulation under the *Protected Natural Areas Act*. NB currently has one private land protected area.
NS	70%	Lands secured by land trusts and which are primarily dedicated to the protection of native biodiversity and natural processes are recognized as contributing to the province's 12%-by-2015 goal.
PE	90%	Collaboration with NGOs, land trusts and private individuals are key elements of PE's protected area effort.
NL	<5%	Where private lands administered by an NGO have been selected based on compatible criteria, and where a management regime is in place. A number of such sites are awaiting mineral exempt status before being listed as protected areas.

MAJOR PLAYERS IN PRIVATE LAND CONSERVATION IN CANADA

The **Nature Conservancy of Canada (NCC)** (www.natureconservancy.ca) secures important natural areas through purchase, donation or other mechanisms, and manages these properties for the long term. The NCC has **protected 10 000 km²** across the country since it was established in 1962.

Ducks Unlimited Canada (DUC) (www.ducks.ca) conserves, restores and manages wetlands and associated habitats for North America's waterfowl. By the end of 2011, DUC had **secured 25 000 km²** through land purchase, management agreements, conservation easements and leases since it was founded in 1938.

Together, the NCC and DUC make up almost 60% of all of the private land conservation holdings in Canada.

Collectively, Ontario **Conservation Authorities** own and protect approximately **1440 km²** (mostly in southern Ontario, where 90% of Ontario's population lives), more land than the Ontario Ministry of Natural Resourcesowns in southern Ontario including forests, wetlands, areas of natural and scientific interest, recreational lands, natural heritage and cultural sites as well as land for flood and erosion control.

There are about 140 land trusts in Canada. The **Canadian Land Trust Alliance (CLTA)** (www.clta.ca) was established in 2006 to strengthen and promote voluntary conservation of private property. CLTA membership represents 55 groups including provincial land trust alliances, watershed trusts and community-based land trusts, which have collectively **protected over 25 000 km²** of land.

Environment Canada's Ecological Gifts Program (www.ec.gc.ca/pde-egp/default.asp?lang=En) offers significant tax benefits to landowners who donate land or a partial interest in land to a qualified recipient, including federal or provincial governments and environmental NGOs such as those described above, to ensure that the land's biodiversity and environmental heritage are conserved in perpetuity.

LONG-TIME BARRIER TO PROTECTION OF AMERICAN-OWNED LAND IN CANADA REMOVED

American Friends of Canadian Land Trusts is a charity established by land conservation leaders on both sides of the border to provide the legal mechanism needed to make "cross border" land conservation possible. However, until recently, Americans who wished to protect land in Canada were required to pay Canadian capital gains tax on their conservation gift. In October 2010, the Government of Canada modified *Income Tax Act* regulations to remove the capital gains tax on cross-border gifts of lands to the American Friends of Canadian Land Trusts.

The associated Cross Border Land Conservation Program opens the door for Canadian land trusts to protect more of Canada's natural legacy.

ecologically significant, threatened and irreplaceable natural areas on private lands by 2023. These secured lands are to be protected according to IUCN standards for Category I, II or III protected areas, and are intended to help meet the province's protected area goal.

- Government-environmental NGO partnerships continue to leverage public funds to implement stewardship agreements on private lands throughout southern Canada. For example, the federal government announced a $225 million investment in the Natural Areas Conservation Program in 2007.

- A number of important government incentives exist to facilitate private land securement:
  - In the last five years, Environment Canada's Ecological Gifts Program has almost doubled the number of donations or easements to more than 950, and tripled the total area to over 1449 km^2 of ecologically sensitive lands. More than one third of these ecological gifts contain areas designated as being of national or provincial significance, and many are home to species at risk.
  - Tax benefits for land donations are in place in half of Canada's protected area organizations to facilitate land trust organizations or others in securing private lands of ecological significance. Saskatchewan and Nova Scotia have joined the federal government and five other provinces (British Columbia, Manitoba, Ontario, Quebec and Prince Edward Island) since 2005, reporting that they now have these measures in place.
  - In 2007, the Government of Canada removed a long-time barrier to the protection of lands in Canada owned by citizens of the U.S.
  - In 2009, Manitoba agreed to provide $7.0 million in support of the Natural Areas Conservation Program, which resulted in $21 million in total spending, including contributions from the NCC, private donors and the federal government.
  - New Brunswick committed $1.5 million in 2010 to be matched by NCC and federal funding.
  - Saskatchewan, NCC and matching federal dollars protected Big Valley Property in Saskatchewan's Qu'Appelle Valley.
  - Nova Scotia created its *Conservation Property Tax Exemption Act* in 2008, which eliminates property taxes paid by private land owners who legally protect their lands for ecological protection. The provincial government pays municipalities a grant in lieu so that the tax revenue is not lost to them.

- Agriculture and Agri-Food Canada administers the Community Pasture Program, which manages nearly 10 000 km^2 in 85 pastures in Alberta, Saskatchewan and Manitoba. The pastures represent some of the largest contiguous blocks of grasslands in Canada and are examples of functional prairie ecosystems. The pastures contribute to international conservation objectives related to biological diversity, climate change and protected areas (AAFC, 2005).

- The Canadian protected areas community, including the CCEA, and NGOs are in discussions regarding the tracking of conservation areas that are important to biodiversity conservation and can be reported nationally even if they do not meet the IUCN standards for international reporting.

RESOURCE INDUSTRY SUPPORT FOR PROTECTED AREAS

In most organizations, leading resource industries in various sectors are supporting the completion of protected area networks as a means to provide protection certainty and demonstrate corporate social responsibility, although temporary measures are often preferred over permanent instruments.

- Three quarters of protected area organizations (13 of 17) report ongoing relationships in place with relevant resource sectors (EC, DFO, NT, NU, BC, AB, SK, MB, ON, QC, NB, NS and NL).

- Resource industries in the Northwest Territories, Saskatchewan, Manitoba, and Newfoundland and Labrador have specifically endorsed the government's protected areas strategy. In some organizations,

industry representatives participate on committees that advise on the protected area strategy (DFO, NT, SK and NB).

- Many provinces and territories (BC, AB, SK, MB, ON and QC) report that the resource industry and Crown energy corporations are engaged in land use planning processes where candidate protected areas are identified. Some terrestrial organizations report that resource development companies have voluntarily withdrawn land or access rights to allow the establishment of protected areas (PCA, NT, BC, AB, SK, MB and NS). Some of these are temporary measures intended to allow further discussions, as trade-offs are part of the final boundary delineation. As well, companies generally prefer temporary measures for the protection of lands that contain highly valuable surface or subsurface resources.

THE COAST FOREST CONSERVATION INITIATIVE: AN UNPRECEDENTED COLLABORATION FOR MANAGING THE BRITISH COLUMBIA COAST

In 1995, five British Columbia forest products producers—BC Timber Sales, Catalyst Paper Corporation, Howe Sound Pulp and Paper, International Forest Products, and Western Forest Products—set out to support development of an ecosystem-based conservation and management plan for a region of British Columbia encompassing the Central Coast and North Coast. The region is often referred to as the Great Bear Rainforest, and contains one of the largest intact temperate rainforests in the world.

Almost 15 years later, after an independent comprehensive scientific study of the region and much multi-interest negotiation, a plan to protect this globally significant temperate rainforest region on Canada's Pacific Coast was endorsed by the British Columbia government, First Nations, environmental groups, forest companies and coastal communities. These parties continue to collaborate on the implementation of the plan.

The forest and paper industry praised the achievement as one that would bring certainty for businesses operating in the area and certainty for customers seeking environmentally appropriate forest products.

The process and final plan for the region informed establishment of protected areas, including 115 Conservancies with a total area of 1 360 000 hectares, legislated between 2006 and 2008. In total, over 2.1 million hectares are protected throughout the Central and North Coast region.

For more information, see www.coastforestconservationinitiative.com.

HELP FROM THE FOREST INDUSTRY IN ACHIEVING NOVA SCOTIA'S 12% PROTECTED AREA GOAL

Nova Scotia needs to protect about 1500 km^2 of additional lands to reach its goal of legally protecting 12% of the province's land area by 2015, as outlined in its *Environmental Goals and Sustainable Prosperity Act 2007*.

In November 2009, the government received the *Colin Stewart Forest Forum Final Report* (Colin Stewart Forest Forum Steering Committee, 2009), prepared by the province's four largest forestry companies (Bowater Mersey, JD Irving Ltd., Northern Pulp and NewPage Port Hawkesbury) and the leading environmental NGOs operating in Nova Scotia (Ecology Action Centre, Canadian Parks and Wilderness Society, Nova Scotia Nature Trust, and Nature Conservancy of Canada). Preparation of the report sought to resolve some of the conflict between industry and environmental interests over wilderness lands, by recommending 2690 km^2 of high conservation value land that might be considered for the protected area network, including provincial Crown lands and some lands owned by major forestry companies.

The recommended areas became, in large part, lands now under review in the provincial government's 12%-by-2015 process.

For more information, see www.gov.ns.ca/nse/12percent/making.it.happen.asp.

INTEGRATED LANDSCAPE MANAGEMENT

Most provinces and territories are working to incorporate sustainable development principles and practices into land management frameworks. Few incorporate all the elements of integrated landscape management (ILM) systems. However, integrated land use planning processes—an important decision-making component of ILM—cover an estimated 17% of the total land area in Canada and, where they are present, provide the principal approach to identifying protected areas.

- British Columbia, Ontario and Quebec report almost all of their territory covered by an integrated land use planning process. The Northwest Territories, Alberta, Manitoba, New Brunswick and Nova Scotia have completed, or are in the process of completing, integrated land use plans for between one and two-thirds of their area (Figure 12).

- In all three northern territories, integrated land use planning is underway or being planned through land claim processes. Land use planning processes are underway for about two-thirds of the Northwest Territories. The Nunavut Planning Commission, established under the Nunavut Land Claims Agreement, is working with the territorial and federal governments and other interested parties to establish broad planning policies, objectives and goals for Nunavut.

WHAT IS INTEGRATED LANDSCAPE MANAGEMENT?

Integrated landscape management enables decision makers, and society as a whole, to set and achieve landscape-level objectives for sustainable development and sustainable ecosystems over appropriate spatial and temporal scales.

—Canadian Integrated Landscape Management Coalition (2005)

In Yukon, Land Use Planning Commissions recommend comprehensive land use plans to Yukon Government and respective First Nations for final approval.

- Landscape connectivity measures used to increase the effectiveness of protected areas vary among organizations. Less than one third (5 out of 16) report using direct measures such as protected buffers, corridors or stepping stones. More than half of terrestrial organizations use indirect measures, such as the environmental assessment process that considers impact on protected areas and non-regulatory designations (World Heritage Site, model forest, etc.), which can contribute to connectivity if used appropriately (Table 10).

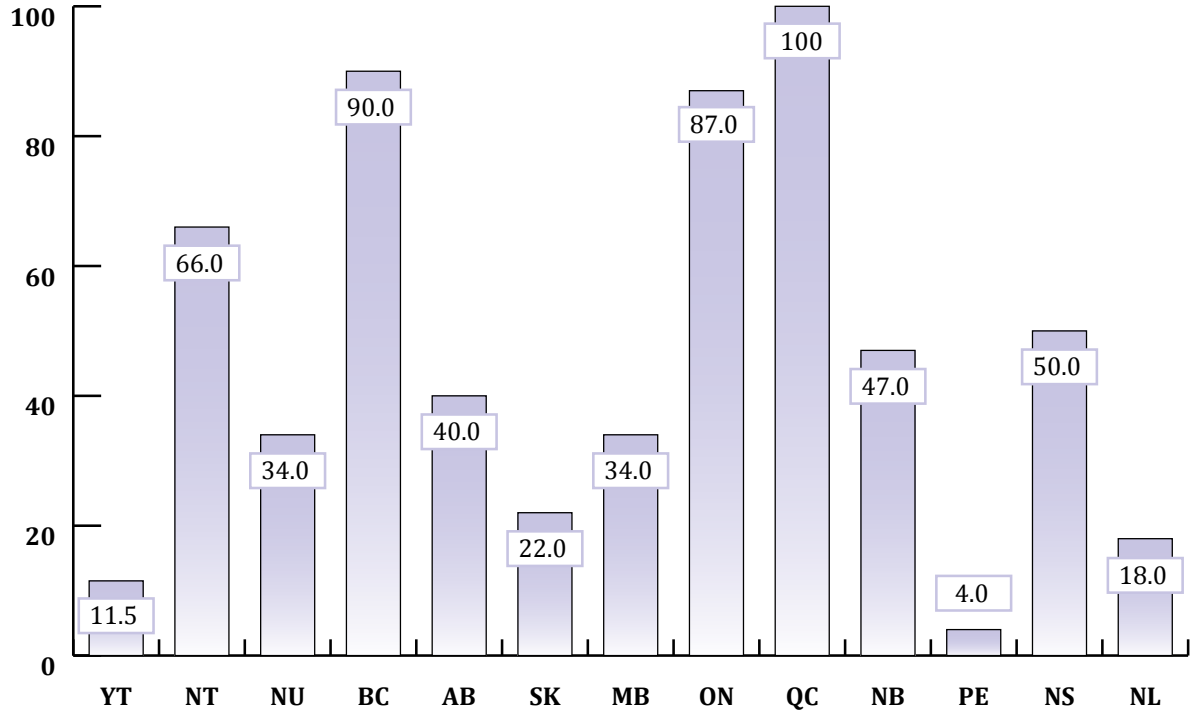


Figure 12: Percent of jurisdictional territory covered by integrated land use planning processes

Table 10: Landscape/seascape connectivity measures in place around protected areas

Landscape connectivity measures	Terrestrial organizations reporting having the measure in place		Marine organizations reporting having the measure in place	
	Number (Total of 16)	Name	Number (Total of 9)	Name
Protected area(s) used for corridors/buffers/stepping stones	5	EC, YT, BC, ON, NS	1	BC
Legislated/regulatory-based buffer measures	5	YT, NU, AB, NB, PE	1	DFO
Policy guidance for networking protected areas	7	EC, YT, NT, BC, ON, NS, NL	2	DFO, BC
Non-regulatory designation (World Heritage Site, model forest, etc.)	9	PCA, EC, YT, BC, AB, SK, ON, QC, NS	1	BC
Environmental assessment process that considers impact on protected areas	10	YT, NT, BC, AB, MB, ON, QC, PE, NS, NL	5	DFO, BC, MB, QC, NL
Policy guidance to government on activities around protected areas	6	YT, BC, AB, MB, PE, NS	2	BC, MB
Policy guidance to industry on activities around protected areas	5	YT, BC, AB, MB, PE	3	DFO, BC, MB

PROTECTED AREA DESIGNATION THROUGH INTEGRATED LAND USE PLANNING PROCESSES: SOME EXAMPLES

- More than 90% of British Columbia has strategic land use plans approved or being developed. In July 2011, the Atlin Taku Land Use Plan was approved by the Province of British Columbia and the Taku River Tlingit First Nation. The Atlin-Taku region covers 30 000 km^2—nearly the size of Vancouver Island—and is characterized as "virtually pristine," with few roads intruding on its high alpine landscapes, wild rivers, boreal wilderness and temperate rainforests. About 18% of the Atlin-Taku planning area, or 5 650 km^2, was recommended for designation as new protected areas, bringing the total in the land use planning area to 26%, protecting areas of exceptional conservation value and strong Aboriginal and community interest. For more information, see www.ilmb.gov.bc.ca/slrp/lrmp/smithers/atlin_taku/index.html.
- As of December 2011, land use planning processes are underway for about two thirds of the Northwest Territories. These land use planning processes are carried out in a broader context of resource co-management. The Dehcho Region (16% of the Northwest Territories) and Sahtu Settlement Area (21% of the Northwest Territories) are currently completing land use processes. The linkage between land use planning processes and the establishment of formal protected areas varies from region to region. The draft land use plans for the Dehcho and Sahtu regions recognize areas that are going through the protected areas designation process and explicitly link the establishment of conservation zones with the potential for permanently protected areas. In contrast, the Gwich'in Settlement Area's land use plan does not address the possibility of any of the identified conservation zones becoming permanently protected areas. For more information, see www.enr.gov.nt.ca/_live/pages/wpPages/soe_protected_areas_land_use_plans.aspx.
- The Labrador Inuit Settlement Area Draft Land Use Plan is currently under development by the Regional Planning Authority established under the Labrador Inuit Land Claims Agreement. This plan will cover northern Labrador, comprising 72 520 km^2 or approximately 18% of the province, and guide the use of land, water and natural resources; and optimize social, cultural and economic benefits for the Labrador Inuit and other residents. Land use designations include National Park Designation—the area encompasses the Torngat Mountains National Park and the proposed Mealy Mountains National Park—and an Environmentally Sensitive Area Designation. For more information, see www.lisaplan.ca.
- The pending Pink Lake Representative Area Ecological Reserve resulted in a land use planning process and will be the largest provincially designated protected area in Saskatchewan.

COMMUNITY-BASED LAND USE PLANNING IN THE FAR NORTH OF ONTARIO

Ontario announced in 2008 a land use planning initiative for the province's Far North that accounts for 42% of the province's territory. The initiative will involve the protection of at least 225 000 km^2—an area three times the size of Lake Superior—in a network of conservation lands. The *Far North Act, 2010* was passed in 2010 to provide for community-based land use planning that directly involves First Nations in the planning, and supports the environmental, social and economic objectives for land use planning for the peoples of Ontario.

As of December 2011, four plans have been approved totalling more than 12 000 km^2 of dedicated protected area, which prohibits: prospecting, mining claim staking and mineral exploration; opening a mine; commercial timber harvesting; and oil and gas exploration or production. Following approval of the plans, First Nations' councils may request regulation of the Designated Protected Areas under Ontario's *Provincial Parks and Conservation Reserves Act, 2006*, which requires that the area have management direction. For example, completion of *Keeping the Land—A Land Use Strategy for the Whitefeather Forest and Adjacent Areas* (Pikangikum First Nation and Ontario Ministry of Natural Resources, 2006), and regulation of five Designated Protected Areas within it under the *Provincial Parks and Conservation Reserves Act*, added 3 495 km^2 of regulated provincial park to Ontario's protected areas system.

The Pauingassi and Little Grand Rapids community-based land use plans support the Pimachiowin Aki bid for World Heritage Site proclamation.

For more information, see www.mnr.gov.on.ca/en/Business/FarNorth.

Protected area designations in community land use plans under the *Far North Act, 2010*

Community-based land use plans	Plan area	Dedicated protected areas
A Land Use Strategy for the Whitefeather Forest and Adjacent Areas (June 2006) (grandfathered)	12 217 km^2	4 360 km^2 (36%)
Pauingassi Community Based Land Use Plan (July 2011)	1 388 km^2	321 km^2 (77%)
Little Grand Rapids Community Based Land Use Plan (July 2011)	1 887 km^2	1 887 km^2 (100%)
Cat Lake-Slate Falls Community Based Land Use Plan (July 2011)	15 120 km^2	5 063 km^2 (34%)
Total	**30 613 km^2**	**12 377 km^2 (40%)**

- Saskatchewan, Ontario, Nova Scotia, and Newfoundland and Labrador have used forest management planning in certain areas to identify protected areas opportunities. These planning processes account for other potential land uses (oil and gas, mining, etc.). Saskatchewan uses landscape-level integrated land use planning that includes zoning areas for various activities, including oil and gas, mining and industrial development as well as forest management planning.
- In addition to protecting valuable natural assets, the 1151 km^2 of private conservation lands in Canada may provide buffers, and connecting corridors within systems and networks of government protected areas, helping to protect biodiversity and facilitate the movement of species across the landscape.

INTEGRATED OCEANS MANAGEMENT

Integrated management planning has moved from the planning phase to the implementation phase in the five pilot Government of Canada Large Oceans Management Areas. Three *Oceans Act* MPAs totalling 7878 km^2—Bowie Seamount, Musquash Estuary and Tarium Niryutait—were established between 2006 and 2011 as part of this process.

- About 40% of Canada's Exclusive Economic Zone, which falls under Fisheries and Oceans Canada jurisdiction, has undergone integrated oceans management planning in five Large Ocean Management Areas (LOMAs): the Beaufort Sea, Gulf of St. Lawrence, Pacific North Coast, Placentia Bay/ Grand Banks and Eastern Scotian Shelf. Fisheries

WHAT IS INTEGRATED OCEANS MANAGEMENT?

Integrated management is the current approach to managing Canada's ocean resources. It is a collaborative way of making decisions on how Canada's marine resources can best be developed and protected.

—Fisheries and Oceans Canada
(retrieved from DFO website 2013-10-10)

For more information, see www.dfo-mpo.gc.ca/oceans/management-gestion/integratedmanagement-gestionintegree/index-eng.htm.

and Oceans Canada *Oceans Act* MPAs have been identified and established in the context of integrated oceans management, with three established between 2006–2011. Implementation of integrated oceans management will generally be risk-based with more targeted engagement, and will likely extend beyond LOMAs into bioregions over time as resources allow.

- British Columbia has completed eight coastal and marine plans and is currently engaged in three integrated marine planning processes: the Marine Planning Partnership for the North Pacific Coast, Pacific North Coast Integrated Management Area and West Coast Aquatic. In Quebec, the planning framework for the future MPA network is the St. Lawrence Action Plan 2011–2026. Newfoundland and Labrador published its Provincial Coastal and Oceans Management Strategy and Policy Framework in 2010, which includes a strategic objective "to maintain and protect coastal ecosystems, particularly regions of significant ecological importance."

- Environmental assessment is considered the most commonly reported measure in place, with potential relevance to assure connectivity among MPAs (Table 10). Contributory sites may also promote connectivity within the existing MPA network.

INTEGRATED OCEANS MANAGEMENT AND MARINE PROTECTED AREA ESTABLISHMENT IN THE BEAUFORT SEA

The Beaufort Sea Large Ocean Management Area is one of five priority areas identified for integrated ocean management planning by the Government of Canada. It covers the marine portion of the Inuvialuit Settlement Region, more than 1 million square kilometres.

Several years of planning effort by multiple parties—including Aboriginal, territorial and federal government departments, coastal community residents, industry, NGOs, and academia—resulted in the *Integrated Oceans Management Plan for the Beaufort Sea* (Beaufort Sea Partnership, 2009). The Plan considers all users of the Beaufort Sea resources and marine environment, as well as the interactions among human activities and between those activities and the marine environment. The participating organizations agreed to collaborate in decision-making processes that influence the future of the Beaufort Sea region.

Establishing MPAs within the context of integrated oceans management facilitates stakeholder input and the consideration of broader ecological, social, cultural and economic factors. It provides an opportunity to reinforce conservation measures with complementary management regimes in surrounding areas, including linkages with land-based initiatives such as habitat protection, pollution control and the establishment of coastal terrestrial parks. This approach of nesting MPAs within broader planning initiatives helps maintain the integrity and long-term viability of the MPA.

Announced in August 2010, the Tarium Niryutait Marine Protected Area in the Beaufort Sea is Canada's first arctic MPA and covers 1740 km^2 of the Mackenzie River Delta and estuary in the Beaufort Sea. The purpose of the MPA is to conserve and protect its biological resources and to support the viability of a healthy population of beluga whales.

For more information, see www.beaufortseapartnership.ca.

STRATEGIC ENVIRONMENTAL ASSESSMENT RESULTS IN LEGAL PROTECTION OF THE GULF OF ST. LAWRENCE

Given the ecological, economic, social and cultural significance of the Gulf of St. Lawrence, there are major concerns for an adequate environmental framework to better protect the marine environment from exploration works and oil and gas operations. Concerns about the impact of these operations on ecologically and biologically sensitive areas are instrumental in the establishment of MPAs.

In September 2010, following analysis of the first strategic environmental assessment results, the Government of Quebec decided not to allow exploration or oil or gas operations in the marine territory of the Lower St. Lawrence Estuary and the northwestern Gulf of St. Lawrence. The government adopted the *Act to Limit Oil and Gas Activities* in 2011, which prohibits exploration works and oil and gas operations in the section of the St. Lawrence River located upstream of the western portion of Anticosti Island as well as on the islands in this part of the river, up to the Ontario border in Cornwall.

The second strategic environmental assessment covers the Baie des Chaleurs, Anticosti and Magdalen Islands basins. The final report should be submitted by 2013.

CHAPTER 3: PROTECTED AREAS MANAGEMENT

CONTEXT

With more than 6000 terrestrial and marine protected sites covering 10.0% of Canada's land area and 0.9% of its marine territory, it is important to ask how well these protected areas are being managed.

Once protected areas are established, organizations have the responsibility to develop management policies and guidance, carry out management planning, conduct scientific research and monitoring programs, and enforce rules and regulations.

As demonstrated in Chapter 2, protected area organizations in Canada aspire to complex management goals such as "maintaining ecological integrity," "conserving biodiversity" and/or "protecting ecological goods and services." Management becomes even more challenging in the face of surrounding land use pressures, climate change, invasive species and other threats. For example, protected areas managers are currently dealing with large infestations of mountain pine beetle in western parks, the restoration of fire and grazing to grasslands in the prairies, invasive species such as the Emerald Ash Borer in Ontario, and threats to nesting sites of the endangered piping plover on coastal beaches in Atlantic Canada. Given the range of issues in protected areas, it is increasingly clear that just leaving nature alone will not be adequate to conserve biodiversity and many of the other values associated with protected areas (Graber *et al.*, 2009).

> "We clearly need to put as much effort into achieving sound and effective management of protected areas as into setting up new areas."
>
> Hockings *et al.* (2006)

Science plays a crucial role in supporting protected areas management. It helps managers to understand the ecology and ecological integrity of their protected areas, the nature and extent of the real and anticipated impacts of various threats on that ecological integrity, and the best ways to prevent or respond to these impacts so that protected area objectives can best be achieved.

The CBD PoWPA addresses a number of topics relevant to protected areas management, including mitigation of negative threats, involvement of Aboriginal and local communities, financial sustainability, and management effectiveness.

This third chapter of the status report addresses such questions as:

- What is the policy framework for protected areas management in Canada, and how has it evolved since the last report?
- What is the status of management plans, and to what extent are they being implemented?

PROGRAM OF WORK ON PROTECTED AREAS: SAMPLE GOALS FOR PROTECTED AREAS MANAGEMENT

Goal 1.4: To substantially improve site-based protected area planning and management

Goal 1.5: To prevent and mitigate the negative impacts of key threats to protected areas

Goal 2.1: To promote equity and benefit-sharing

Goal 2.2: To enhance and secure involvement of indigenous and local communities and relevant stakeholders

Goal 3.1: To provide an enabling policy, institutional and socio-economic environment for protected areas

Goal 3.4: To ensure financial sustainability of protected areas and national and regional systems of protected areas

Goal 3.5: To strengthen communication, education and public awareness

Goal 4.2: To evaluate and improve the effectiveness of protected areas management

Goal 4.3: To assess and monitor protected area status and trends

Goal 4.4: To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and protected area systems

See Appendix 2 for the complete list of PoWPA goals and Aichi Biodiversity Targets.

- What are the most serious threats to protected areas, and are mechanisms in place to prevent and mitigate them?
- Is the effectiveness of protected areas management being evaluated? Is it improving?
- Are financial and other resources sufficient to effectively manage protected areas?
- What is the role of Aboriginal peoples and local communities in protected areas management, and how is this evolving?
- Has there been any progress in terms of assessing the benefits of protected areas?

POLICY FRAMEWORK FOR MANAGEMENT OF PROTECTED AREAS

Two thirds of terrestrial protected area organizations (11 of 16) have policy frameworks for the management of their protected areas in place, 7 of which are being updated. Two other organizations have frameworks under development. Six of 9 MPA organizations also have such policy frameworks in place.

- Twelve organizations (PCA, DFO, EC, AAFC, YT, BC, SK, MB, ON, QC, NB and NS) have policy frameworks that guide management of their protected areas and are described as, or include elements of, the following: management planning guides, management policies, guiding principles, program and operational policies, action plans, etc.

WHAT IS A "POLICY FRAMEWORK" FOR THE MANAGEMENT OF PROTECTED AREAS?

Policy frameworks are statements of intent that provide direction for the management of protected areas, and can include such elements as a philosophy of approach, guiding principles, and direction on when management plans should be prepared, what should be considered, and who should be involved.

For example, Parks Canada Agency's Guiding Principles and Operational Policies contain the National Parks Policy and National Marine Conservation Areas Policy. Overarching guiding principles for both include the following concepts:

- Protecting ecological integrity and ensuring commemorative integrity take precedence;
- Decision-making must be based on an understanding of surrounding environments and their management;
- Management decisions are based on the best available knowledge; and
- Public involvement is a cornerstone of policy, planning and management practices.

For more information, see www.pc.gc.ca/docs/pc/poli/princip/index.aspx.

The Fisheries and Oceans Canada-led National Framework for Establishing and Managing Marine Protected Areas applies to MPAs under the *Oceans Act* and is currently being updated. Steps 4 and 6 of the Framework concern the development of a management plan for the candidate MPA site, and the management of the MPA once designated, and include the following direction:

- The management plan for an MPA will state the reasons for the MPA, its goals and objectives, how the goals and objectives are to be reached, and how the success of the MPA will be measured.
- Management planning will proceed by working with other federal agencies, provincial agencies, local governments, Aboriginal communities and organizations, non-government stakeholders, and the public.
- Scientific research, MPA management (including monitoring) and educational activities may be allowed to occur throughout the MPA via the activity approval provision, which allows them to occur in a manner consistent with the conservation objective of the MPA. It also provides a means for ongoing information sharing and knowledge gap assessments.
- Each MPA will be evaluated periodically, with input from the public, to determine whether it is fulfilling its purposes.

For more information, see www.dfo-mpo.gc.ca/oceans/publications/mpaframework-cadrezpm/index-eng.asp.

- Nunavut and Alberta have frameworks under development. Nunavut is in the draft stages of the development of a Park Program as well as Master and Management Planning frameworks in keeping with the Nunavut Land Claims Agreement. Under the Alberta Plan for Parks, approved in 2009, the policy framework is due for completion in 2012.

- The Northwest Territories and Prince Edward Island do not have frameworks for protected area management per se. The Northwest Territories Protected Area Strategy sets out a process to ensure a management framework is established for each protected area. Prince Edward Island incorporates areas of ecological significance into its protected areas network as they become available, and relies on private landowners to contribute to the protected area system in that province.

MANAGEMENT PLAN DEVELOPMENT AND IMPLEMENTATION

Although protected area organizations in Canada have developed numerous management plans since 2005, management planning is not keeping pace with the designation of new protected areas. Approximately 18% of Canada's protected areas have up-to-date[26] management plans in place as of 2011, slipping from 25% in 2005.

- Among the 12 terrestrial organizations that reported in both 2005 and 2011, seven had increases in the total number of their protected areas that have management plans (PCA, BC, AB, SK, MB, QC and NL). However, management planning is lagging behind the designation of new protected areas (Figure 13).

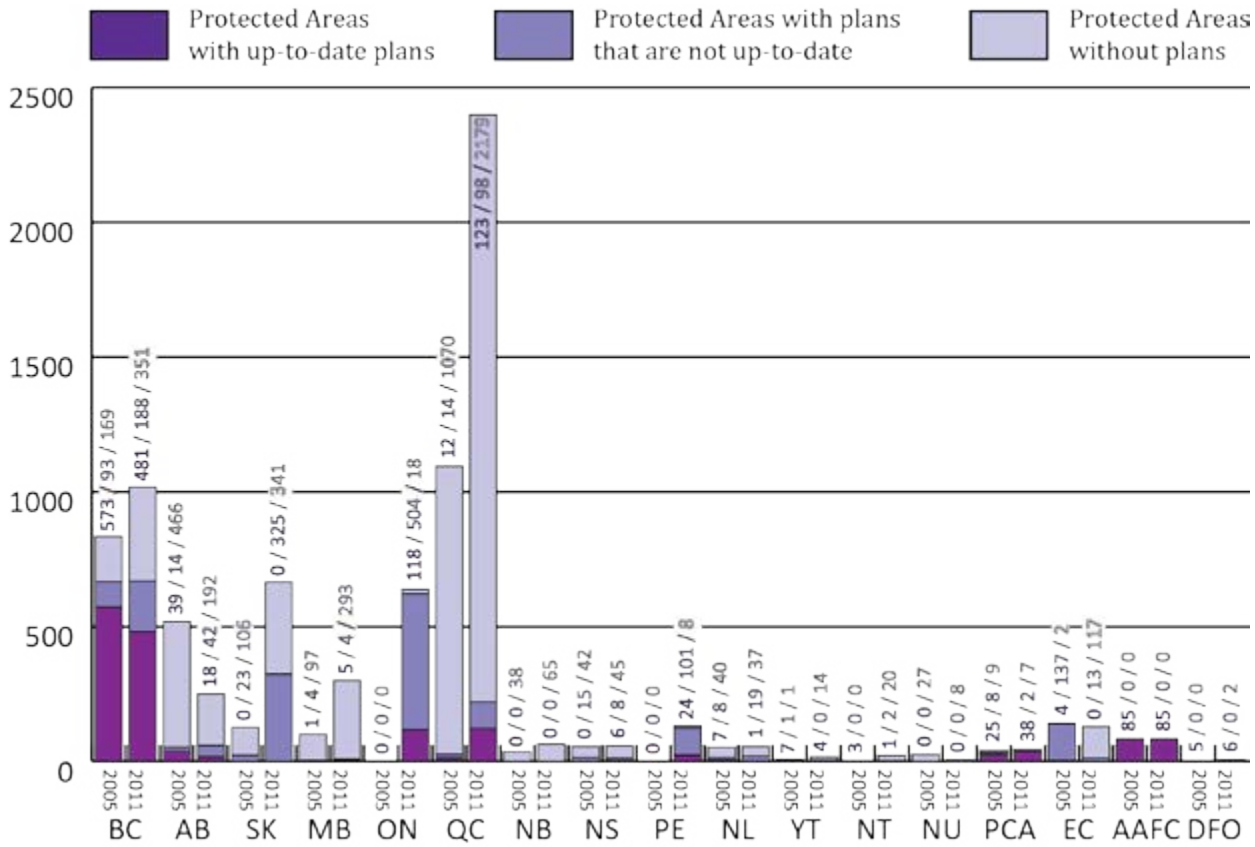


Figure 13: Number of protected areas with up-to-date management plans compared with those without up-to-date plans and without plans, for 2005 and 2011

[26] "Up-to-date" management plans were defined in the *Canadian Protected Areas Status Report 2000–2005* (Government of Canada, 2006) as those "less than 10 years old." This definition has been applied here for the sake of consistency, although it is recognized that protected areas organizations may have a different schedule for updating management plans.

- For federal organizations, Parks Canada Agency has up-to-date management plans in place for 81% of its 47 national parks and marine conservation areas, up from 60% in 2005; Fisheries and Oceans Canada now has management plans for 6 of its 8 MPAs, in comparison with 5 of 5 that were completed or in development in 2005; and Agriculture and Agri-Food Canada maintains up-to-date management plans for all 85 of its community pastures. Less than one in ten of Environment Canada's National Wildlife Areas or Migratory Bird Sanctuaries has a management plan, and none of the plans are less than 10 years old, down from 4 up-to-date plans in 2005 (Table 11).

- Among the other terrestrial organizations, British Columbia, Saskatchewan, Ontario, Prince Edward Island and the Northwest Territories report management plans for at least two thirds of all their protected areas in 2011. However, 66–80% of management plans in Ontario, Prince Edward Island and the Northwest Territories are 10 years old or more (Table 11).

Table 11: Extent that management plans are in place and being implemented

Government Organization	Number of protected areas with management plans in place		Number of protected areas with management plans less than 10 years old		Extent that management actions are being implemented
	Number/Total	Percent	Number/Total	Percent	
Terrestrial protected areas					
Provincial and territorial protected area agencies					
BC	669/1020	65.6%	481/1020	47.2%	Not Known
AB	60/252	23.8%	18/252	7.1%	Partially
SK	625/666	93.8%	0/666	0.0%	Not Known
MB	9/302	3.0%	5/302	0.0%	Substantially
ON	622/640	97.2%	118/640	18.4%	Partially
QC	207/2400	8.6%	179/2400	7.5%	Not Known
NB	0/65	0.0%	0/65	0.0%	Not Known
NS	14/59	23.7%	6/59	10.2%	Not Known
PE	125/133	94.0%	24/133	18.0%	Not Known
NL	17/60	28.3%	1/57	1.8%	Not Known
YT	4/18	22.2%	4 /18	22.2%	Not Known
NT	3/23	13.0%	1/23	4.3%	Not Known
NU	0/8	0.0%	0/8	0.0%	Not Known
Federal protected area agencies					
PCA	40/47	85.1%	38/47	80.9%	Substantially
EC	13/130	10.0%	0/130	0.0%	Not Known
AAFC	85/85	100%	85/85	100%	Fully
DFO	DNR	DNR	DNR	DNR	DNR
Marine protected areas					
Provincial and territorial protected area agencies					
BC	Included in Terrestrial protected areas above				
MB	No information provided				Not Known
QC	14/466	3.0%	11/466	2.4%	Not Known
NB	0/1	0.0%	0/1	0.0%	Not Known
PE			Included in Terrestrial		
NL	3/6	50%	0/6	0.0%	Substantially
Federal protected area agencies					
PCA	Included in Terrestrial protected areas above				
EC	Included in Terrestrial protected areas above				
DFO	6/8	75%	6/8	75%	Substantially

- Among non-federal marine organizations reporting their MPAs separately, Newfoundland and Labrador has management plans for 3 of its 6 MPAs, although none are less than 10 years old. Most of Quebec's MPAs do not yet have management plans (Table 11).

- Since 2005, Manitoba and Quebec join Parks Canada Agency in reporting an increase in the proportion of protected areas with up-to-date management plans. Eight other organizations experienced a decline in the proportion of protected areas with up-to-date management plans (Figure 13). Note that management plans would probably not be available for those protected areas just established.

- Almost one third of terrestrial protected area organizations (5 of 16) monitor implementation of their management plans. Agriculture and Agri-Food Canada reports fully implementing management actions, Parks Canada Agency and Manitoba report substantial implementation. On the marine side, Fisheries and Oceans Canada and Newfoundland and Labrador both report that management actions in these plans are substantially implemented (Table 11).

MANAGING FOR ECOLOGICAL INTEGRITY

Increasingly, Canadian organizations are adopting ecological integrity as a foundation for protected area management, with most organizations (13 of 16 terrestrial and 4 of 9 marine) reporting the concept incorporated within their operating principles. However, about one third of protected area organizations report measures in place to monitor ecological integrity, and about one half report having measures in place to manage for ecological integrity. These statistics indicate that although there has been some improvement since the last reporting period, a gap persists between intention and reality.

- For 13 terrestrial organizations (EC, AAFC, YT, NT, BC, AB, SK, MB, ON, QC, NB, NS and NL) and 4 marine organizations (PCA, BC, MB and QC), the concept of ecological integrity is captured within their protected areas legislation, policy, or operational principles, plans or procedures.

- Parks Canada Agency is a global leader in managing for ecological integrity. Other organizations have recently adopted the concept in a more formal way to guide

PARKS CANADA AGENCY: A LEADER IN MANAGING FOR ECOLOGICAL INTEGRITY

The expert Panel on Ecological Integrity released its report in 2000 entitled *Unimpaired for Future Generations? Conserving Ecological Integrity in Canada's National Parks* (Parks Canada Agency, 2000a), and PCA continues to work to implement its recommendations. For example:

- The Ecosystem Integrity (EI) Monitoring Framework was developed by Parks Canada Agency to provide a conservation science context for comprehensive EI monitoring and reporting in national parks. The EI monitoring framework divides park ecological integrity into two components: plant and animal diversity, and ecosystem processes. The framework also identifies categories that describe the principal stressors that affect park ecosystems. Parks Canada Agency uses the framework to regularly monitor the state of EI and publishes the results for each national park every five years. The information is also summarized every other year in the State of Canada's Natural and Historic Places Report (www.pc.gc.ca/eng/docs/pc/rpts/elnhc-scnhp/index.aspx). For more information, see www.pc.gc.ca/progs/np-pn/eco/eco3.aspx.

- *Principles and Guidelines for Ecological Restoration in Canada's Protected Natural Areas* (Parks Canada Agency and the Canadian Parks Council, 2008) was developed to guide policy-makers and practitioners in their efforts towards the improvement of ecological integrity in Canada's protected natural areas. It sets out national principles and guidelines for ecological restoration and provides a practical framework for making consistent, credible and informed decisions regarding ecological restoration in protected natural areas. These principles and guidelines were developed on behalf of the Canadian Parks Council by a multi-jurisdictional, multi-functional working group led by Parks Canada Agency. For more information, see www.pc.gc.ca/docs/pc/guide/resteco/guide_e.pdf.

- *Action on the Ground Report II: Working with Canadians to Improve Ecological Integrity in Canada's National Parks* (Parks Canada Agency, 2008) highlights progress made by Parks Canada Agency in improving ecological integrity, with particular emphasis on actions taken on the ground that engage Canadians in a range of activities across the national parks system. For more information, see http://publications.gc.ca/collections/collection_2009/pc/R62-372-2008E.pdf.

all of their management efforts. For example, British Columbia developed a set of conservation management principles to help ensure the ecological integrity of their diverse system. With Ontario's new *Provincial Parks and Conservation Reserves Act*, ecological integrity will have first priority when planning and managing provincial parks and conservation reserves in that province. It should also be noted that MPA network planning has been designed to enhance the network's overall ecological integrity.

- About one third of terrestrial (6 of 16) and marine (3 of 9) organizations are conducting at least some monitoring for aspects of ecological integrity in their protected areas. Parks Canada Agency began to implement its ecological integrity monitoring program in 2008, and a national framework now guides data collection in every national park. In addition to Parks Canada Agency, Agriculture and Agri-Food Canada and Yukon report monitoring ecological integrity at all or most of their terrestrial protected areas. Fisheries and Oceans Canada carries out some monitoring at some MPAs (Table 12).

- More than half of terrestrial organizations (9 of 16) and one third of marine organizations (3 of 9) have measures in place to manage ecological integrity. Parks Canada Agency manages for ecological integrity in all of its terrestrial and marine protected areas, as does Agriculture and Agri-Food Canada in all of its community pastures. Seven additional terrestrial organizations (YT, BC, SK, MB, ON, NB and NS) and 2 additional marine organizations (BC and MB) have measures partially in place to manage ecological integrity (Table 13).

- Independent audits of protected area agencies across Canada and in the United States have consistently revealed that these agencies do not have the capacity to manage for ecological integrity or climate change (Lemieux *et al.*, 2010). Despite British Columbia's declared intentions and clear vision to conserve ecological integrity in protected areas, its Auditor General concluded in 2010 that the province is not successfully meeting this goal (Office of the Auditor General of British Columbia, 2010). In 2006, the Ontario Parks Board stated that "a commitment to ecological integrity (in the new *Provincial Parks and Conservation Reserves Act*) will require more spending on protected areas," and subsequently the Office of the Environment Commissioner of Ontario expressed concern about the difficulty of adequately administering and enforcing the new Act without an increase in funding (Office of the Environmental Commissioner of Ontario, 2007).

ECOLOGICAL INTEGRITY IN CANADA'S NETWORK OF MARINE PROTECTED AREAS

A living guidance and best practices document is being developed to guide MPA network planning in Canada's oceans and Great Lakes.

The document adopts internationally recognized network design properties with the aim of enhancing the network's overall ecological integrity and coherence.

For example, having a well-connected network made up of adequate and viable MPAs ensures that MPAs have the size, spacing and management needed to maintain the ecological integrity of the feature(s) for which they were selected, and of the marine environment overall.

Table 12: Extent of monitoring of ecological integrity

	Full monitoring at all protected areas	Some monitoring at most protected areas	Some monitoring at some protected areas	Sporadic monitoring	Little or no monitoring	Not applicable
Terrestrial	PCA, AAFC	YT	EC, SK, QC	NT, BC, ON, NB, NS, NL	NU, AB, MB, PE	
Marine	PCA		EC, DFO	BC, QC, NL	MB, NB	PE

Table 13: Measures are in place to manage ecological integrity

	Yes	Partially	In development	No	Not applicable
Terrestrial	PCA, AAFC	YT, BC, SK, MB, ON, NB, NS	None	EC, NT, NU, AB, QC, PE, NL	
Marine	PCA	BC, MB		DFO, EC, QC, NB, NL	PE

THREATS TO CANADA'S PROTECTED AREAS

Most organizations conduct some assessment of principal threats, and report "incompatible use outside of protected areas" and "climate change" as the most serious threats to the ecological integrity of terrestrial protected areas. It was more difficult to pinpoint the most serious threats for MPAs.[27]

- Terrestrial organizations identified the following as the principal threats to protected areas, although they are recognized as overlapping and interrelated issues. Table 14 (below) compares principal threats from 2005 and 2011.
  - **Incompatible uses or activities outside of protected areas** (such as mining, forestry, oil and gas, agriculture, transportation, and urban development) was reported as an issue in the majority of organizations and rated as the most serious threat to maintaining ecological integrity. This threat was also reported as the most serious for the 2000–2005 reporting period.
  - **Climate change**, with associated issues such as sea-level rise and loss of coastal areas, changing fire risk, insect outbreaks, and shifts in species ranges, was reported as a serious threat in six organizations; however, implications are not yet well understood, as five others identified the level of threat as "unknown." Climate change did not make the list of the top threats in the previous reporting period.
  - **Species population declines** such as woodland caribou, sage grouse, burrowing owl and whitebark pine may be range-wide and not driven by local conditions, but are still reported as a serious threat to Canada's protected areas in eight organizations.
  - **Invasive species** such as leafy spurge, purple loosestrife, hybrid cattail, scotch broom and green crabs require collaboration with other agencies also dealing with the issue, as is the case with other threats. Ten organizations reported invasive species as a serious threat.
  - **Cumulative impacts** of numerous activities inside and outside of protected areas are not well understood by many organizations. While six of them reported the threat of cumulative impacts as serious, five others indicated it was "unknown."
- Among those organizations that specifically highlighted threats facing their protected areas in the marine environment, British Columbia reported the interruption of natural cycles (e.g., effects of decline in spawning salmon on nutrient cycles), climate change effects (e.g., sea-level rise) and catastrophic events such as oil spills as most serious, while Manitoba registered the most concern about climate change and, specifically, the longer ice-free season in Hudson Bay. Fisheries and Oceans Canada identified population declines, cumulative impacts and loss of habitat as main issues facing existing *Oceans Act* MPAs, while recognizing that MPAs face different threats depending on their location and conservation objectives. In the context of Canada's national MPA network, Fisheries and Oceans Canada reported that climate change and cumulative impacts from human uses are considered significant issues.

Table 14: Principal threats to Canada's terrestrial protected areas

2000–2005 Principal threats	2006–2011 Principal threats
1. Incompatible land uses adjacent to protected areas	1. Climate change
2. Habitat fragmentation	2. Cumulative impacts
3. Invasive species	3. Incompatible land uses adjacent to protected areas
4. Increasing visitor use	4. Population declines
	5. Invasive species

THE STATE OF CLIMATE CHANGE ADAPTATION IN CANADA'S PROTECTED AREAS SECTOR (FROM LEMIEUX *ET AL.*, 2011)

"Although there is much uncertainty about the timing, extent, and manner in which ecosystems and other protected areas assets (e.g., recreational opportunities) might respond to evolving climatic conditions, it is critically important that natural asset management agencies begin to identify, assess, and implement adaptation options that could reduce the vulnerability of Canada's protected areas (and their constituent biodiversity) to climate change... Considering the short-term projections of species turnover and loss resulting from climate change, the potential for non-linear ecological responses (in other words, ecological surprises), the length of time required for species and ecosystem response to management interventions, and the relatively slow process of implementing new policies within protected areas agencies, the time to begin developing proactive and integrative climate change adaptation strategies is now."

[27] Organizations ranked threats from a list that contained the following: loss of habitat, species extirpations, population declines, invasive species, habitat fragmentation, interruption of natural cycles, increased visitor use, changing visitor use, compromised air quality, compromised water quality, climate change, incompatible uses outside of protected areas, cumulative impacts, overuse of natural resources, catastrophic events, "other (identify)."

Table 15: Organizational characterization of terrestrial threat management

Threats	Examples of management measures	Factors affecting capacity to manage
1. Climate change	Designation of additional protected areas; securing land for connecting corridors; ecological monitoring; guidance on sea-level rise; planting of tree species better adapted to anticipated conditions	Lack of knowledge, land use competition makes designation and securing corridors difficult; outdated management plans; lack of capacity and funding for research and management; management priority focused on more immediate threats; climate change acceleration
2. Cumulative impacts	Permits and management guidelines for activities in/near protected areas; integrated land use planning; environmental impact/review processes	Outdated management plans; lack of capacity and funding to monitor permits and contribute to planning and review processes; lack of knowledge and experience
3. Incompatible uses adjacent to protected areas	Establishment of larger protected areas to buffer impacts; partnerships to acquire private lands; permits for activities in/near protected areas; monitoring, communication and outreach with surrounding users; voluntary stewardship agreements; planning (zoning); integrated land use planning; environmental review process	Limited land availability or simple mechanism or funding to acquire buffers; lack of influence on external land uses; sharing of legislative responsibilities between government authorities; limited capacity to monitor permits or contribute to planning and review processes
4. Population declines	Designation of additional protected areas; medical interventions to address disease; habitat inventory; population monitoring; visitor access controls	Lack of staff time and funding; conflicts between industry and conservation interests; external conditions beyond control of protected area staff; lack of visitor cooperation
5. Invasive species	Management guidelines restricting introductions; mitigative measures added to permits; control measures to kill them and prevent spreading (physical removal, prescribed burning, pesticides, use of other living organisms); partnerships with other departments or jurisdictions directly responsible for invasive species	Extent of issue largely unknown; biology and demographics of invasive species; lack of capacity and funding to conduct research and enforce permits, monitor establishment, and implement controls, develop partnerships; limited technical capacity to monitor and deal with invasive species; expense and difficulty of access to invasive species

MANAGEMENT CHALLENGES IN CANADA'S PROTECTED AREAS: SOME EXAMPLES FROM 2006–2011

- Yukon's Tombstone Territorial Park features 2200 km^2 of stunning and rugged arctic tundra landscape north of Dawson City along the Dempster Highway. Mining claims adjacent to the Territorial Park, and persistent applications for mineral exploration within park boundaries, continue to threaten park ecology.

- A long history of tourism development in the Banff and Jasper National Parks epitomizes the ongoing challenge to balance visitor interests and the maintenance of ecological integrity. The 2011 site guidelines for development and use at Banff's Mount Norquay allows for proposals for summer sightseeing and adventure activities, drawing thousands more visitors to the area between June and October.

- About 70% of Ontario's Algonquin Park is open to commercial timber harvesting. In 2009, the Minister of Natural Resources asked the Ontario Parks Board and the Algonquin Forestry Authority Board to work together to develop joint recommendations to lighten the ecological footprint of logging in Algonquin Park. Their recommendations, which have been accepted by the Minister, would result in 49% (approximately 3712 km^2) of the total park area that would not be available for forest management. These changes are awaiting legislated amendments to the park management plan. For more information, see www.ontarioparks.com/english/planning_pdf/algo/algo_background_amendment.pdf.

- Basin Head Marine Protected Area is a shallow coastal lagoon located on the eastern tip of Prince Edward Island. An ecological assessment concluded in 2008, reporting a large decline in a distinct form of Irish moss in Basin Head from 110 tonnes in 1980 to just over 1 tonne in 2008. Factors in the decline include the cumulative effects of: a) inputs of nutrients into the basin with subsequent annual green algal blooms and poor water quality; and b) the invasion of green crab and its intensive predation on blue mussels that anchor the moss. For more information, see www.dfo-mpo.gc.ca/CSAS/Csas/Publications/SAR-AS/2008/SAR-AS2008_059_e.pdf.

- Although these threats are significant, organizations are implementing measures to address some of them. The main factors affecting capacity to manage threats include lack of influence on land uses and activities beyond protected area borders, lack of capacity and funding, and inadequate scientific understanding of an issue or the technical capacity to deal with it. For each of the top five issues, examples of management measures and factors affecting capacity to manage are presented in Table 15.

- Some specific examples of management challenges in Canada's protected areas during the reporting period 2006–2011 are described above.

SCIENCE AND RESEARCH IN SUPPORT OF PROTECTED AREAS MANAGEMENT

Overall, terrestrial and marine organizations rated the availability and quality of scientific and other information in support of protected areas management as "limited to good."[28]

- Organizations reported that the most readily available and highest quality information pertains to "adjacent (human) land use activities" and "natural resource inventories," with about three quarters of terrestrial organizations rating the availability and quality of these resources as "good" or "excellent." In addition to these types of information, marine organizations rated as "high" the availability and quality of information on community structure and function.

- Organizations also reported that availability of information on ecological processes, traditional ecological knowledge and invasive species occurrence is "limited."

- Alberta, Nova Scotia, Newfoundland and Labrador, and the northern territories indicated the most limitations in terms of quality and availability of information.

"It is now clear that science must and can play a fundamental role in maintaining ecological integrity."

—Parks Canada Agency, 2000b

IMPROVING KNOWLEDGE FOR MANAGEMENT DECISIONS: A SAMPLE OF PROJECTS 2006–2011

- Citizen science programs engage the public in collecting data to support management decisions. Parks Canada Agency has coordinated public volunteers to measure salamander abundance and the rate of soil decay in Kejimkujik National Park, and to monitor aquatic invertebrates in Gros Morne National Park. Results from these programs are integrated into the ecological integrity monitoring and reporting program. For more information, see http://publications.gc.ca/collections/collection_2009/pc/R62-372-2008E.pdf.

- Ontario Parks published a report in 2006 entitled *Natural Fire Regimes in Ontario*, which analyzes natural fire regimes and fire effects for forest regions in Ontario. It provides a summary of how ecosystems interacted with fire in the past, under a minimum of human influence, and how fire processes can be used to help restore ecological integrity to protected area landscapes. The report will inform decisions in protected areas regarding preliminary fire management goals, objectives and options for maintaining and restoring fire-dependent ecosystems. For more information, see www.ontarioparks.com/english/pdf/fire_research_2006.pdf.

- The Prairie Adaptation Research Collaborative reported in 2006 on its work to model the impacts of climate change on 19 protected areas in the prairie ecozone in Saskatchewan. The report assesses the capacity of current protected areas policies to represent and sustain ecological health under future climate scenarios, proposes climate change responses for Saskatchewan's protected areas, and provides a template that can be used to review protected area policy in other jurisdictions. For more information, see www.parc.ca/pdf/research_publications/summary_docs/SD2008-02.pdf.

[28] Organizations were asked to rate the availability and quality of the following types of information: natural resource inventories, community structure and function, ecological processes, traditional ecological knowledge, visitor use/impacts, invasive species occurrence, and adjacent land use activities.

TRENDS IN FUNDING FOR PROTECTED AREAS

Terrestrial organizations in Canada spent on average about $6.00 per ha per year on protected areas, down from about $22.00 in 2005, although expenditures for individual organizations range from less than a dollar per ha to almost $30.00. Financial resources for Fisheries and Oceans Canada's MPA programs amount to roughly 1% of the amount spent on terrestrial protected areas programs.

- The total area protected in Canada has continued to increase (9.4% increase in lands to 993 242 km^2 and 60.0% increase in marine waters to 49 354 km^2 as of 2011). Funding per square kilometre varies by organization, but on average it has dropped from about $22.00 in 2005 to approximately $6.00 in 2011.

- Eight of 16 terrestrial organizations and 2 of 3 marine organizations (the remaining marine organizations do not assess this separately from their terrestrial program) have assessed resources required to deliver their protected areas program.

- Recent reports have expressed concern that inadequate funding and staffing of protected area programs has hindered the capacity of organizations to manage protected areas. For example, according to its own analyses, Environment Canada has allocated insufficient human and financial resources to address urgent needs or activities related to the maintenance of sites and enforcement of regulations in National Wildlife Areas and Migratory Bird Sanctuaries (Office of the Auditor General of Canada, 2008). The Environmental Commissioner of Ontario observed that the Ontario parks system has been underfunded for many years, to the point where the ministry has not been able to meet its legislated responsibilities (Office of the Environmental Commissioner of Ontario, 2007). A recent *Evaluation of the Health of the Oceans* reported that partners and stakeholders identified insufficient resources as one of three key challenges in the establishment and management of MPAs (Fisheries and Oceans Canada, 2012). Parties to the CBD identified at their 2010 Conference in Nagoya, Japan, that "sustainable finance" was the top protected areas issue requiring greater attention.

- The Office of the Auditor General of Canada plans to release a report in 2013 on ecological integrity in federal terrestrial protected areas, and has released (in 2013) an audit of Fisheries and Oceans Canada's and Parks Canada Agency's MPAs and the national MPA network.

"DOING LESS WITH LESS": THE IMPACT OF BUDGET SHORTFALLS ON FULFILLING THE PARKS MANDATE IN ONTARIO

Excerpt from a case study featured in *Doing Less with Less*: *How shortfalls in budget, staffing and in-house expertise are hampering the effectiveness of Ontario Ministry of the Environment and Ontario Ministry of Natural Resources* (Office of the Environmental Commissioner of Ontario, 2007)

"The public has a strong and emotional connection to Ontario's parks, conservation reserves and wilderness areas; even those residents that aren't regular park visitors expect the system (of both operating and non-operating parks) to be protected and properly maintained. Unfortunately, the parks system has been underfunded for many years, to the point where the ministry has not been able to meet its legislated responsibilities, or to provide adequate services to the public. [Ministry of Natural Resources (MNR)] does not have the capacity to manage the system, which is growing in size and complexity. Over the past few years, the number and area of protected areas has grown substantially, and new parks legislation has added a new scientific mandate and more rigorous requirements. At the same time, the amount of money allocated from general revenues to protected areas has been cut repeatedly. While park revenues have increased, they have not been sufficient to offset the combination of severe cuts in government funding, the dramatic growth of the parks system and the expanded responsibilities of MNR."

For more information, see www.eco.on.ca/uploads/Reports-special/2007-Less-with-Less/Less%20with%20Less%20report.pdf.

MANAGEMENT EFFECTIVENESS EVALUATION

Less than half of Canada's protected area organizations evaluate management effectiveness. Seven terrestrial and four marine organizations employ a wide range of approaches to management effectiveness evaluation.

- Ontario and British Columbia focus on the maintenance of ecological integrity to determine management effectiveness within their protected area frameworks, as does Fisheries and Oceans Canada, which uses results from scientific monitoring, where possible, and routine

strategic planning and reporting processes. Agriculture and Agri-Food Canada, Alberta, and Saskatchewan also use routine business or strategic planning and reporting processes to evaluate management effectiveness. Parks Canada Agency measures the delivery of key protected area objectives.

- The results of the *2007 Protected Areas and Climate Change Survey* (see Chapter 2), and the findings of independent audits on the management effectiveness of protected areas agencies indicate that there is an over-riding need for more resources to build capacity for effective management within protected areas institutions (Lemieux *et al.*, 2010).

MANAGEMENT EFFECTIVENESS IN PROTECTED AREAS

"Protected areas will only be able to significantly contribute to biodiversity conservation if they are managed effectively. Standardised repeat assessments of management effectiveness have become a powerful tool to support adaptive and effective management of protected areas over time. They help to ensure that protected areas meet their conservation objectives and deliver the desired conservation outcomes."

—World Conservation Monitoring Centre

For more information, see http://old.unep-wcmc.org/protected-areas-management-effectiveness_412.html (retrieved August, 2013).

- In Canada, an ecosystem-based management system has been proposed to guide protected area management evaluation in Canada. Designed to reflect the diversity of natural and socio-economic conditions of protected areas throughout the country, and consistent with the IUCN definition of management effectiveness evaluation, it focuses on the achievement of targets for objectives rather than on pre-determined indicators alone (Sammett and Quinn, 2009).

WHAT IS MANAGEMENT EFFECTIVENESS EVALUATION?

The IUCN defines management effectiveness evaluation as the assessment of how well protected areas are being managed—primarily the extent to which management is protecting values and achieving goals and objectives.

The term management effectiveness reflects three main "themes" in protected area management:

1. design issues relating to both individual sites and protected area systems;
2. adequacy and appropriateness of management systems and processes; and
3. delivery of protected area objectives including conservation of values.

—Hockings *et al.*, 2006

For more information, see http://data.iucn.org/dbtw-wpd/edocs/PAG-014.pdf.

INTERNATIONAL EFFORTS ON PROTECTED AREA MANAGEMENT EFFECTIVENESS EVALUATION

The IUCN World Commission for Protected Areas released the second edition of a framework for management effectiveness (Hockings *et al.*, 2006) to provide a consistent basis for designing assessment systems, provide guidance about what to assess and broad criteria for assessment. Based on this Framework, different systems that apply a range of evaluation 'tools' can be used to conduct evaluations at different scales and depths.

For more information, see http://data.iucn.org/dbtw-wpd/edocs/PAG-014.pdf.

The global study into management effectiveness evaluation (Leverington *et al.*, 2010) was conducted between late 2005 and 2010. The study aimed to strengthen the management of protected areas by compiling the existing work on management effectiveness evaluation, review and summarize methodologies, find patterns and common themes in evaluation results, and investigate the most important factors leading to effective management.

Programme of Work on Protected Areas Target 1.4 states that all IUCN protected areas should have effective management by 2012. Decision X/31.19 invites Parties to "continue to expand and institutionalize management effectiveness assessments to work towards assessing 60 per cent of the total area of protected areas by 2015 using various national and regional tools and report the results into the global database on management effectiveness maintained by the World Conservation Monitoring Centre".

For more information, see Leverington *et al.*, 2010 (Management effectiveness evaluation in protected areas—a global study).

STATE OF PROTECTED AREAS REPORTING

About half of protected area organizations—8 of 16 terrestrial organizations and 5 of 9 marine organizations—confirm that they assess and report on the state of their protected areas on a systematic basis either alone or more broadly through state of the environment reporting.

- At the present time, eight protected area organizations (PCA, AAFC, BC, SK, MB, ON, QC and PE) implement measures in order to report on a regular basis on the state of their protected areas reporting. For all of these organizations except Agriculture and Agri-Food Canada, BC and MB such reporting is entrenched in legislation. For EC and YT, measures to require protected areas reporting are sporadic. This compares to only three organizations that legislated such reporting in 2005. On the marine side, Parks Canada Agency, Fisheries and Oceans Canada, British Columbia, Manitoba and Quebec report on the state of their protected areas, with all but Manitoba complying with a legislative or policy requirement to do so.

- Nunavut's ongoing legislative review recommends that state of parks reporting be included in the new *Territorial Parks Act*. British Columbia is in the process of developing a more comprehensive annual report that would feature information from the long-term ecological monitoring framework, and the threat assessments in the B.C. Parks Conservation Risk Assessment would provide information to assess and report on the state of protected areas. British Columbia is in the process of developing a more comprehensive annual report that would feature this type of information.

- Within Fisheries and Oceans Canada bioregions, Marine Protected Area Advisory Committees share progress reports with the broader stakeholder community, and review annual work plans and performance reports.

ASSESSMENTS OF BENEFITS OF PROTECTED AREAS

In addition to biodiversity conservation, organizations increasingly promote protected areas for their benefits to local, regional and national economies, cultural heritage conservation, human health and well-being, climate change adaptation and mitigation, clean water and other ecological services, and scientific research and education. A number of studies during 2006–2011 highlight the specific value of protected areas for a range of benefits.

- Economic impact studies conducted on Canada's national, provincial and territorial protected areas concluded that they are vital contributors to tourism and the economy. Spending by governments and by the visitors that come to protected areas has a substantial and recurring impact, producing tax revenue for governments, creating jobs, and generating income for local businesses, particularly in rural and remote areas of Canada (CPC, 2011b). A study of Prairie Farm Rehabilitation Area-managed community pastures revealed annual benefits of almost $55 million (Kulshreshtha *et al.*, 2008) (Table 16).

- MPAs have been shown to generate many benefits, including the stabilization of fish stocks, spill-over of fish into adjacent fishing areas, ecological resilience and sustainable tourism (e.g., Fisheries and Oceans Canada,

RACE ROCKS ECOLOGICAL RESERVE: EDUCATION AND RESEARCH ON THE LOCAL AND GLOBAL LEVELS

Race Rocks Ecological Reserve was established in 1980 under British Columbia's *Ecological Reserve Act*. Located in the strong tidal currents of Juan de Fuca Strait, the rocks lie where nutrient-rich coastal waters mix with oceanic influences. The site is unique in rarity, abundance and diversity of benthic invertebrates and reef fish, and is a meeting and breeding place for marine mammals and seabirds.

MPA status has focused government and public attention to protect nature through access management, best practices for allowable activities and harvest restrictions. Local tourism and marine educators visit Race Rocks to provide their clients with direct observations of nature.

Ecological and geophysical scientists have conducted research in the reserve. Restricted access for harvesting and time-series environmental data has established Race Rocks as an ecological benchmark site.

In addition, Race Rocks Ecological Reserve is virtually accessible to the world over the Internet. Interactive cameras and webcasts both on land and underwater provide education and research opportunities for people around the globe.

For more information, see www.racerocks.com.

Table 16: Studies/literature reviews of protected areas benefits from 2006 to 2011

The Economic Impact of Canada's National, Provincial and Territorial Parks in 2009 **(CPC, 2011b)**	Spending associated with national, provincial and territorial parks in 2009: • Added $4.6 billion to Canada's Gross Domestic Product; • Generated $2.9 billion in labour income (the equivalent of over 64 000 full time jobs); and • Provided $337.1 million in tax revenue to governments. For more information, see www.parks-parcs.ca/english/pdf/research_bulletin_2011_web.pdf.
Economic Impact of Parks Canada **(The Outspan Group Inc., 2011)**	Spending associated with National Parks, National Historic Sites and National Marine Conservation areas in 2008–2009: • Added $3.0 billion to Canada's Gross Domestic Product; • Generated $1.9 billion in labour income; and • Provided $217.9 million in tax revenue to governments. For more information, see www.pc.gc.ca/docs/bib-lib/econo2011.aspx.
Distribution of Public and Private Benefits on Federally Managed Community Pastures in Canada **(Kulshreshtha *et al.*, 2008)**	For all the Prairie Farm Rehabilitation Administration-managed community pastures, annual benefits to society (including patrons of the community pastures) are estimated at $54.9 million, yielding a ratio of benefits to costs of 2.5 to 1. For more information, see www.bioone.org/doi/pdf/10.2111/1551-501X%282008%2930%5B3%3ADOPAPB%5D2.0.CO%3B2.
Marine Protected Areas and MPA Networks: The Benefits and Costs to the Fishing Industry **(Draft) (Fisheries and Oceans Canada, 2010)**	The following benefits to fish harvesters of MPA establishment have been well documented in the scientific literature: • increased size, abundance and diversity of fish (including other marine organisms); • stability for fish harvesters through replenishment of stocks; • protection of marine habitats and biophysical processes; • improved ecological resilience to resist or recover from disturbances; • fostered sustainable tourism including activities such as recreational fishing, scuba diving and kayaking; • buffering of coastal communities from storm impacts; and • protection of spiritual or cultural heritage value such as archaeological sites, shipwrecks and traditional use areas.
Human health and well-being motivations and benefits associated with protected area experiences: an opportunity for transforming policy and management in Canada **(Lemieux *et al.*, 2012)**	The perceived benefits received from the experiences were substantial. Visiting protected areas can be considered a highly positive life experience, and the greatest well-being benefits were perceived to be psychological/emotional, social, cultural and environmental. Visitation to parks was perceived to have important benefits for child development, especially in terms of physical development, social knowledge and competency, and cognitive learning and language. For more information, see https://cmsdata.iucn.org/downloads/parks_lemieux.pdf.

"MY HEAD IS BREATHING OUT HERE"

Alberta reports that persons with disabilities have expressed an increase in self-confidence and a positive sense of interdependence through programs such as "Push to Open Nature." Canmore Nordic Centre Provincial Park has identified benefits to athletes who train in a natural setting versus a more urban setting. New Canadian participants in a "Nature as a Second Language" program have recognized that their experiences in parks helped them relax and feel more welcome in their new homeland. One participant commented: "I feel like my head is breathing out here."

2010). A study focused on human health and well-being motives and benefits associated with visitation to and experiences provided by protected areas concluded that these benefits were substantial (Lemieux *et al.*, 2012) (Table 16). Ontario is working on quantifying ecosystem service benefits (e.g., watershed protection, carbon sequestration and waste assimilation) to help develop and maintain its Natural Heritage System.

- Organizations report many examples of additional benefits of protected areas. British Columbia highlights the scientific and educational value of protected areas. Alberta emphasizes the social benefits to a wide range of Canadians, including persons with disabilities, new Canadians and athletes. Newfoundland and Labrador points to the story of Witless Bay Ecological Reserve, where boat tours of globally significant seabird colonies have helped to revive the local economy after the 1990s fishery collapse. Organizations from east to west highlight the benefits of protected areas for providing clean water to municipalities.

ABORIGINAL PARTICIPATION IN PROTECTED AREA MANAGEMENT

Almost all of Canada's protected area organizations are pursuing forms of Aboriginal cooperative management, particularly in the northern territories and in provinces that have vast and remote northern areas.

- In northern Canada, land claims and Aboriginal interests and rights with respect to protected areas and wildlife are an essential and driving component of protected area management in the territories. Organizations operating in northern Canada (i.e., PCA, EC, DFO, YT, NT and NU) most often work with Aboriginal communities through formal cooperative management agreements or advisory structures such as management boards.

- In the south, land claims play a more limited role, but other agreements, legislation and policy provide for increasing levels of Aboriginal participation in protected area management.

- Some provincial jurisdictions report advances in Aboriginal involvement in protected areas: British Columbia has 35 collaborative management agreements with First Nations governing the management of protected areas; under the *Manitoba East Side Traditional Lands Planning and Special Protected Areas Act*, land management plan implementation agreements reached with First Nations provide for the establishment of management boards with equal Manitoba-First Nation representation; Nova Scotia and the Assembly of Nova Scotia Mi'kmaq Chiefs established The Mi'kmaq–Nova Scotia Protected Areas Selection and Management Technical Advisory Group to assist in advancing Mi'kmaw and provincial goals with respect to protected areas planning and management; Quebec parks in its northern territory protect biodiversity and help to preserve traditional activities while at the same time sharing this way of life with visitors.

- Other provincial cooperative management efforts involve implementation of park operations, participation in management committees, and design and implementation of monitoring programs. Collaboration generates economic benefits such as jobs and contract services as well as hunting and fishing rights; and benefits to visitors such as guiding, outfitting, campgrounds and interpretation programs.

- One third of organizations (YT, BC, NU, SK, NS and QC) identify Aboriginal partnerships for protected area management as a priority for the next five years.

QUEBEC PARTNERSHIP WITH INDIGENOUS PEOPLE FOR THE DEVELOPMENT AND MANAGEMENT OF NORTHERN PARKS

A necessary adaptation to respect differences

The Quebec government recognizes the rights of indigenous people on territory covered by agreements, treaties and conventions. National (provincial) Parks that are located on the territory covered by the Convention of the James Bay and Northern Quebec Agreement (JBNQA) give beneficiaries certain rights, ensuring the Inuit and Cree can continue traditional activities such as hunting, fishing, trapping and establishment of camps. This facilitates the acceptance of park projects as they do not interfere with the rights of indigenous peoples.

Within the territories under the JBNQA in Quebec, parks not only protect a territory, but they help to preserve traditional activities while at the same time sharing this way of life with visitors.

Shared vision with partners in Aboriginal communities

The Quebec government ensures the involvement of the community by entrusting the operation of parks to the Kativik Regional Government (KRG) and the corresponding Cree community for each park in the area covered by the JBNQA.

Today, Pingualuit National Park (established in 2004) and the National Park Kuururjuaq (created in 2009) are operated by the KRG, and many employees come from host villages. There are 6 permanent and several part-time jobs that are generated within each of the national parks, and a team of 10 administrative employees. Local knowledge is emphasized in the activities and services offered in these parks.

The proposed national park Tursujuq is the result of a concerted effort between the Government of Quebec, the Inuit and the Cree, who participated in all stages of park planning. Community support and understanding of the local context are being sought. Respect for cultures, protection of natural heritage park, and employment and training are under discussion.

COLLABORATIVE OPPORTUNITIES ASSOCIATED WITH PROTECTED AREAS 2006–2011

From case studies featured in
Aboriginal Peoples and Canada's Parks and Protected Areas
(Canadian Parks Council, 2011)

Katannilik Park Knowledge Camp: With 60% of its population under the age of 25, Nunavut is by far the "youngest" province or territory in Canada. Both challenges and opportunities exist in developing programs and activities for youth, particularly in smaller communities. Nunavut Parks has developed a "Knowledge Camp" for Katannilik Territorial Park, to establish connections between youth and Elders, and extend traditional knowledge and skills through generations. Opportunities to develop similar camps in other territorial parks in Nunavut are being explored. For more information, see www.parks-parcs.ca/english/pdf/aboriginal/02NU%20CPC%20CaseStudies.pdf.

Grizzly Bear Viewing in Ni'iinlii'Njik (Fishing Branch)—A cooperative Eco-Tourism Venture with the Vuntut Gwitchin First Nation, Vuntut Development Corporation, Yukon Parks and Bear Cave Mountain Eco-Adventures: The case study of Ni'iinlii'Njik illustrates the positive role that land claims can have in conservation and the effectiveness of partnership in management especially as it relates to the developing of a new, highly specialized activity within the eco-tourism industry. With effectively managed viewing opportunities, public appreciation of grizzly bears and bear ecology may increase, tourism activity could provide economic benefits, while at the same time protecting the bears and their habitat. For more information, see www.parks-parcs.ca/english/pdf/aboriginal/06YK%20CPC%20CaseStudies.pdf.

Tsleil Waututh Nation and BC Parks—Collaborative Management of Say Nuth Khaw YumHeritage Park/Indian Arm Provincial Park: A collaborative management agreement signed between the Tsleil-Waututh Nation and the Province of British Columbia forms the foundation of a relationship that has brought both parties forward in a spirit of cooperation and mutual respect. Under the agreement, both the Tsleil-Waututh Nation and the province (represented by BC Parks) are active participants in the planning, management and operations of the park. In September 2006, the Tsleil-Waututh Nation and B.C. Parks celebrated the completion of the Bioregional Inventory Atlas and the end of Phase 1. The second stage of the planning process is currently focused on drafting the Park Management Plan. For more information, see www.parks-parcs.ca/english/pdf/aboriginal/22BC%20CPC%20CaseStudies.pdf.

AkKutiliuk—Making a Path: Torngat Mountains National Park Reserve of Canada: During the summer of 2006, the first official operating season for this park, Parks Canada Agency organized a base camp on Shuldham Island in Saglek Bay at the southern entrance to the Park Reserve. One of the objectives of the base camp, which was managed by Inuit from Nain, was to explore ways to maximize the presence of Inuit in the park and to ensure the participation of Inuit in park management by merging agendas and objectives of Parks Canada Agency and Inuit as the first step to a productive and long-term cooperative management relationship. For more information, see www.parks-parcs.ca/english/pdf/aboriginal/14PCAeng%20CPC%20CaseStudies.pdf.

LOCAL COMMUNITIES AND PROTECTED AREAS MANAGEMENT

Most organizations continue to work with communities on management decisions concerning their local protected areas.

- Two thirds of all protected areas organizations with responsibility for marine and/or terrestrial protected areas (13 of 17) have enshrined community participation in legislation, policy, land claims agreement or impact and benefits agreement (PCA, EC, DFO, YT, NT, BC, AB, SK, MB, ON, QC, NS and NL).
- In practice, all but two of these organizations provide opportunities for community participation in management decisions at most or all of their protected areas; those two organizations seek local participation rarely.

LOCAL COMMUNITY PARTICIPATION IN PROTECTED AREA MANAGEMENT DECISIONS—ORGANIZATIONAL COMMENTS

Nunavut: "In the past, park establishment and management stakeholders have involved community committees adjacent to the parks including representatives from the Hamlet, Tourism Associations, Hunters and Trappers Associations, Elders and Youth, Heritage Societies, and Community Land and Resource Committees."

Alberta: "An online consultation and notification process called 'Involving Albertans' was developed in 2009 to provide further opportunities to provide feedback and input into management decisions of all types... Opportunities for public involvement are provided on designation of new parks or addition of lands to existing parks, boundary amendments, facility development and park management. Locally held consultation mechanisms such as open houses, information sessions or public/stakeholder meetings are also used wherever warranted."

Manitoba: "Community participation in management decisions varies by site... Local communities with Resource Co-Management Boards participate in protected area management decisions for sites falling within their Resource Management Areas (RMAs). The Resource Co-Management Boards review and provide recommendations on all proposed activities within the RMA, which includes those protected areas located within the RMA. The boards are made up of members from the First Nation and the Government of Manitoba."

APPENDIX 1: PROTECTED AREAS SUMMARY

BRITISH COLUMBIA

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	147	1 092.7	0.1%
	IUCN Category Ib	45	58 757.5	6.2%
	IUCN Category II	696	66 859.2	7.1%
	IUCN Category III	104	498.1	0.1%
	IUCN Category IV	25	2 138.0	0.2%
	IUCN Category V	0	—	0.0%
	IUCN Category VI	2	277.0	0.0%
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	4	13.39	0.0%
	IUCN Category Ib	—	—	—
	IUCN Category II	7	6 190.3	0.7%
	IUCN Category III	1	3.5	0.0%
	IUCN Category IV	1	7.5	0.0%
	IUCN Category V	1	2.9	0.0%
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Total	**1 033**	**135 840.3**	**14.4%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Provincial)	—	2 785.7	
	All (Federal)	—	3 663.9	

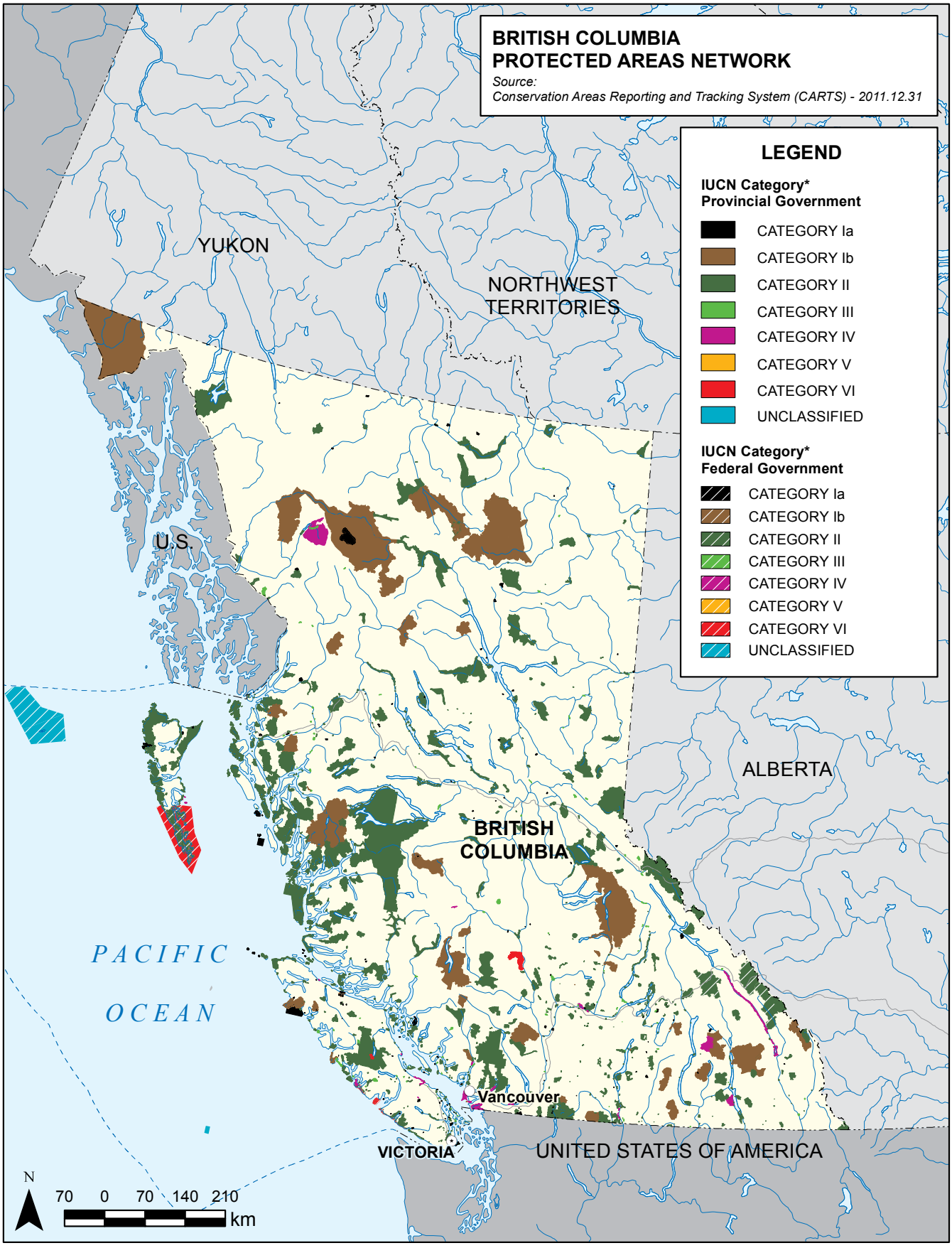
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- Conservancy designation and collaborative working relationships with First Nations.
- BC Parks 100th birthday.
- Additions to the BC parks and protected areas system.

Three major planning issues and priorities over the next three to five years:

- Planning and management with respect to climate change.
- Collaborative work with First Nations.
- Management plans for newly established protected areas.



Map 5: British Columbia

ALBERTA

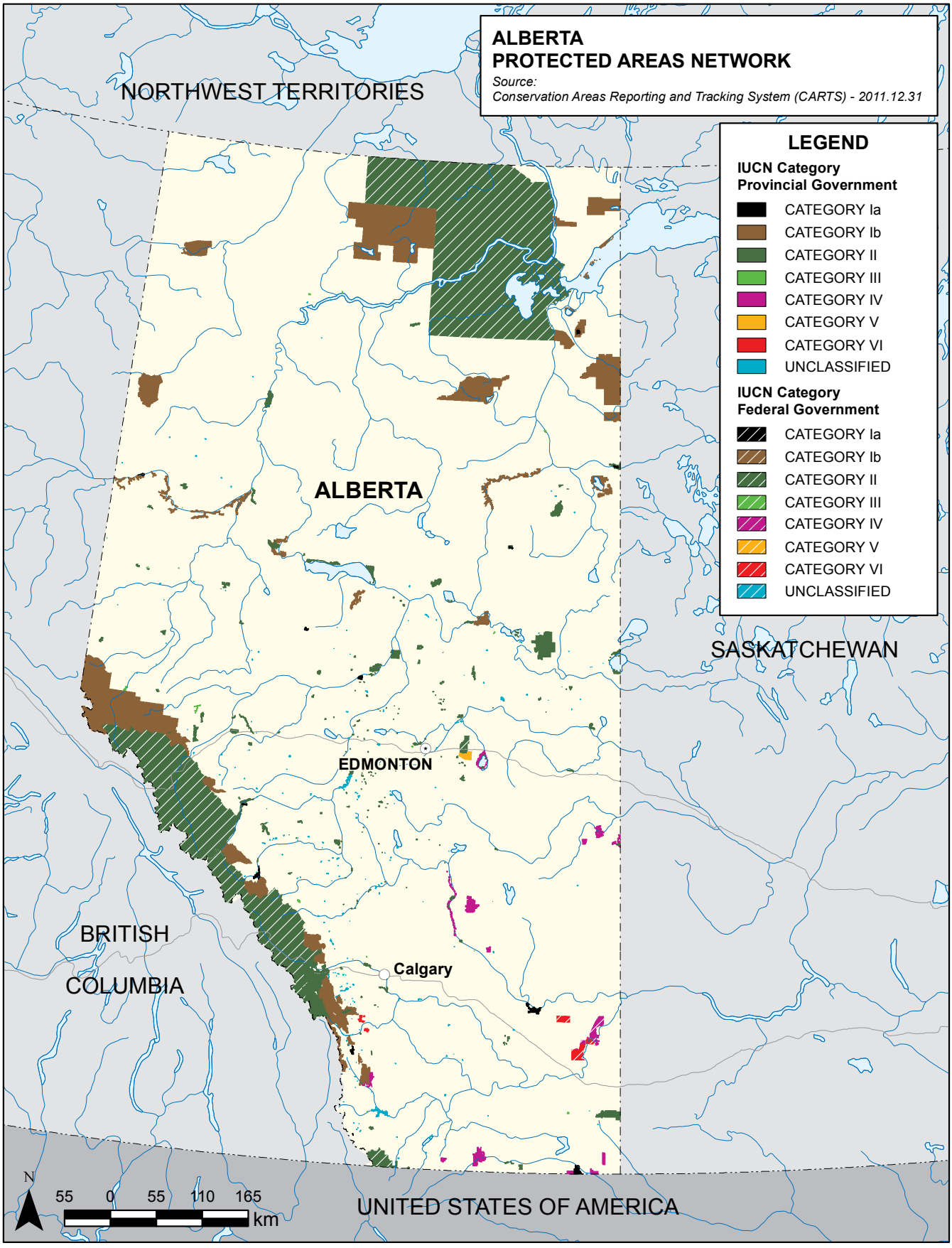
Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	14	325.8	0.0%
	IUCN Category Ib	30	22 131.0	3.3%
	IUCN Category II	178	3 860.2	0.6%
	IUCN Category III	15	50.3	0.0%
	IUCN Category IV	13	999.5	0.2%
	IUCN Category V	1	98.8	0.0%
	IUCN Category VI	1	42.7	0.0%
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	2	1.6	0.0%
	IUCN Category Ib	1	108.0	0.0%
	IUCN Category II	5	54 050.0	8.2%
	IUCN Category III	1	11.5	0.0%
	IUCN Category IV	2	460.5	0.1%
	IUCN Category V	—	—	—
	IUCN Category VI	3	413.5	0.1%
	IUCN Category not determined	—	—	—
	Total	**266**	**82 553.4**	**12.5%**

Most significant achievements in the last five years:

- Development and approval of the Plan for Parks—major strategic policy guidance—Alberta Parks has not has a strategic guiding policy since the 1970s.
- Addition of over 11 000 ha of lands.
- Approval to move forward on the development of new/consolidated Parks legislation.

Three major planning issues and priorities over the next three to five years:

- Development and approval of updated legislation and supporting zoning and policies.
- Development of a business case to fund responsible development of Park capital infrastructure to address Alberta's growing population and recreation trends/needs.
- Continue to partner with other government agencies to address the need for biodiversity monitoring and the development of indicators and targets as a means to address ecosystem health issues such as the control of invasive species, climate change adaptation, etc.



Map 6: Alberta

SASKATCHEWAN

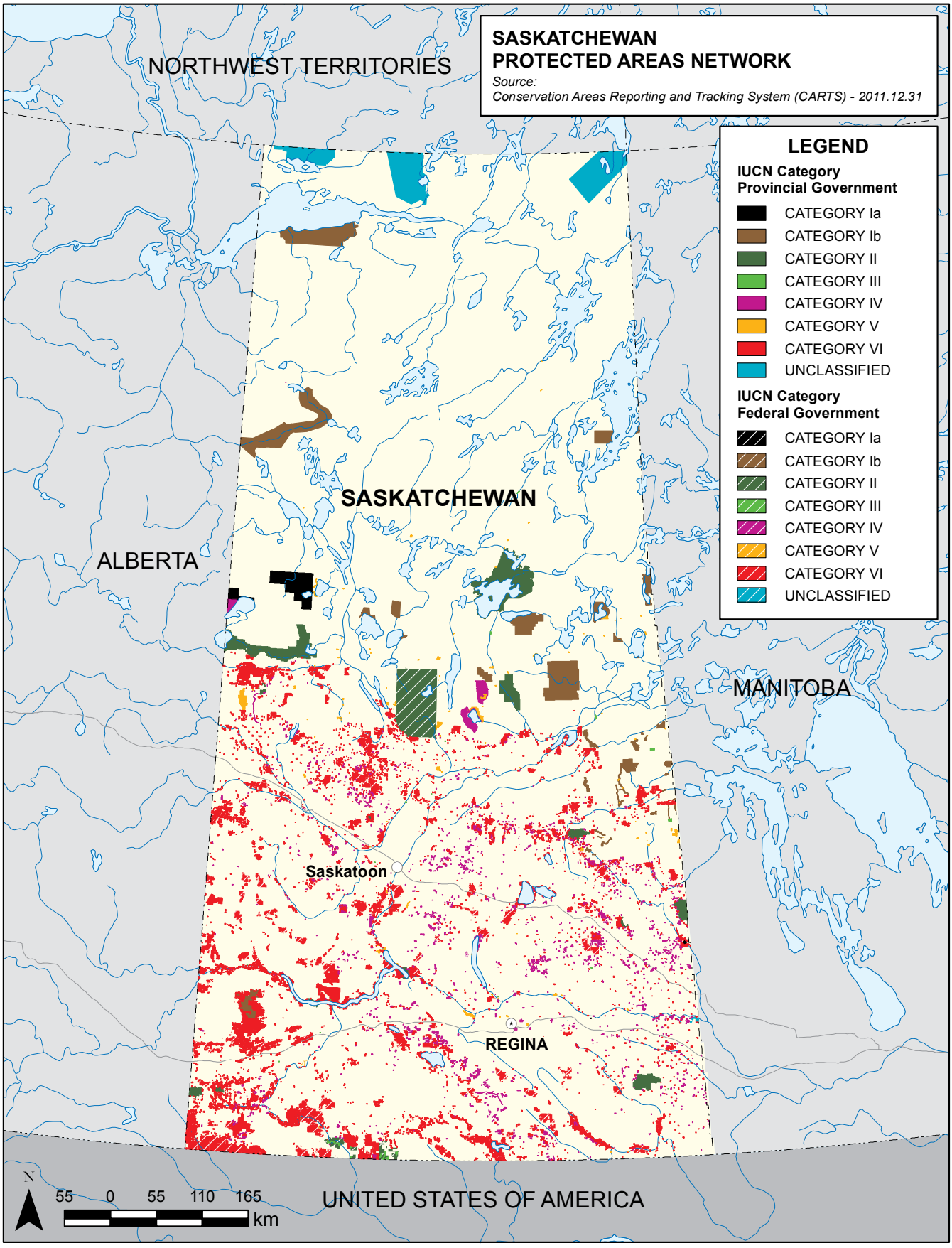
Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	26	1 598.9	0.2%
	IUCN Category Ib	350	9 644.6	1.5%
	IUCN Category II	11	6 750.0	1.0%
	IUCN Category III	33	61.2	0.0%
	IUCN Category IV	66	2 878.3	0.4%
	IUCN Category V	124	592.3	0.1%
	IUCN Category VI	57	17 496.5	2.7%
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	—	—	—
	IUCN Category Ib	—	—	—
	IUCN Category II	3	4 833.7	0.7%
	IUCN Category III	—	—	—
	IUCN Category IV	15	655.3	0.1%
	IUCN Category V	2	20.5	0.0%
	IUCN Category VI	90	7 032.5	1.1%
	IUCN Category not determined	—	—	—
	Total	**777**	**51 563.8**	**7.9%**

Most significant achievements in the last five years:

- Additional protected areas are moving forward as Saskatchewan is nearing the conclusion/approval of two land use plans that identify sites or zones for inclusion in the Representative Area Networks (RAN) and two new candidate provincial park areas are undergoing public consultation processes.
- In parklands conservation and scientific research has been enhanced (increase in monitoring; implementation of ecosystem management plans; increased inventory work; enhanced capital to complete this work).
- Increased capital funding has improved facilities for the public to experience and enjoy the park system, which can influence and build stronger public support for parks.

Three major planning issues and priorities over the next three to five years:

- The approval and implementation of two land use plans and the completion of consultation for two proposed provincial parks will add protected areas to the RAN.
- Identify biodiversity and ecological issues and recommend actions to address these issues by concluding and implementing an update to the Biodiversity Action Plan.
- Cultivate closer working relationships and grow partnerships with First Nation and Métis communities to enhance and support research to identify traditional knowledge and improve understanding, support and expansion of the protected areas network.



Map 7: Saskatchewan

MANITOBA

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	21	268.8	0.0%
	IUCN Category Ib	10	29 680.0	4.6%
	IUCN Category II	28	20 683.0	3.2%
	IUCN Category III	32	537.2	0.1%
	IUCN Category IV	230	1 130.6	0.2%
	IUCN Category V	7	11.9	0.0%
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	—	—	—
	IUCN Category Ib	—	—	—
	IUCN Category II	2	13 639.5	2.1%
	IUCN Category III	—	—	—
	IUCN Category IV	2	0.6	0.0%
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Total	**332**	**65 951.5**	**10.1%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Provincial)	—	82.2	
	All (Federal)	—	803.3	

* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

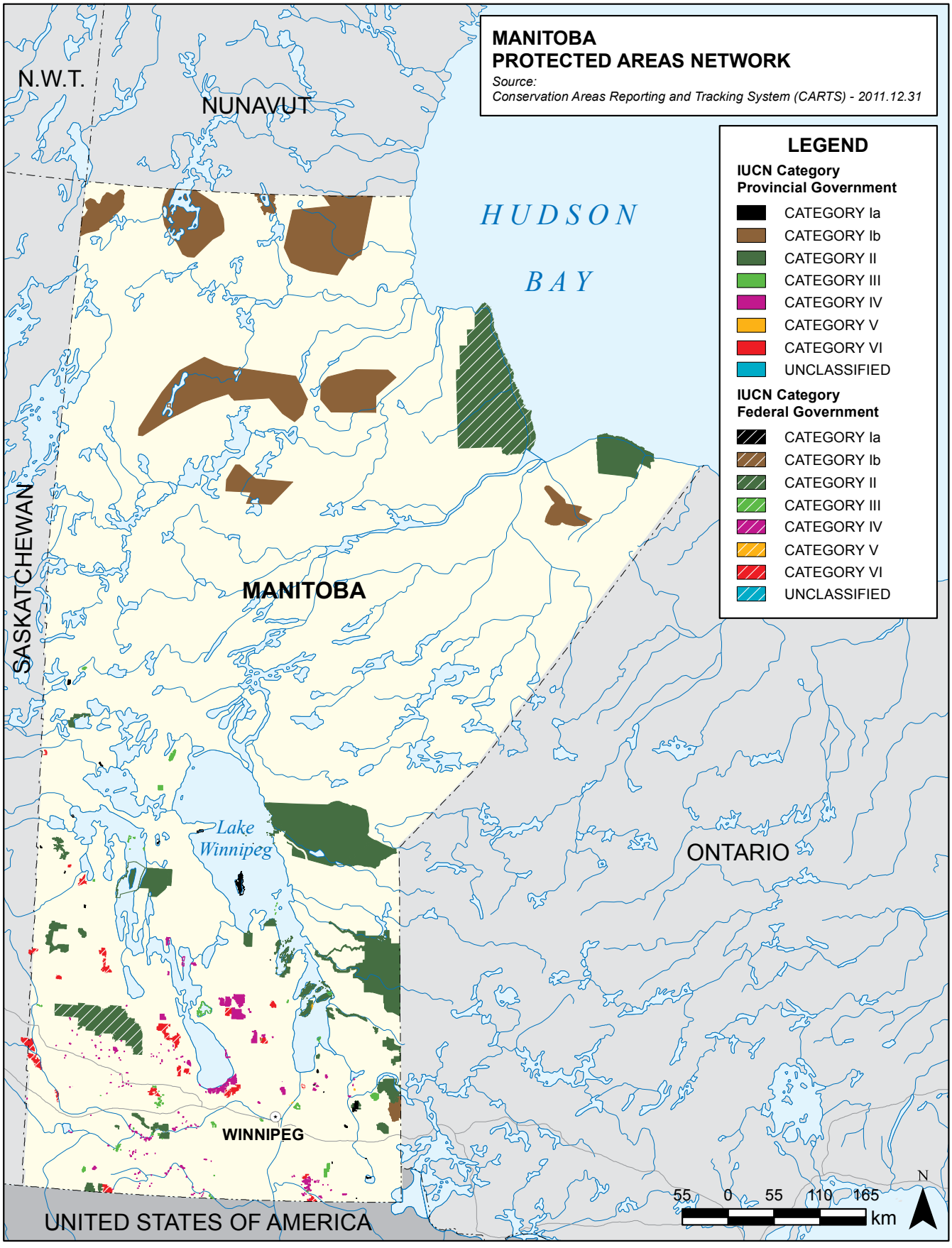
Most significant achievements in the last five years:

- Manitoba's *Green and Growing Strategy* (2006) strategic framework set a goal of designating five new major protected areas by 2010 and continuing to increase its number of ecological reserves, designate new wildlife management areas, and expand the number of rivers with special status. To fulfill this commitment, Manitoba designated five major protected areas covering more than 1 million hectares throughout northern and central Manitoba.
- Manitoba also completed work in Tembec's Forest Management License #1 in Natural Region 4c with the designation of Observation Point Wildlife Management Area (6010 ha). The recently designated Whitemouth Bog Ecological Reserve (5020 ha) is the third largest ecological reserve in the province, and it is buffered by the Whitemouth Bog Wildlife Management Area (3010 ha).
- Manitoba also designated the first two traditional use planning areas (TUPAs) under *The East Side Traditional Lands Planning and Special Protected Areas Act* (passed in 2010). The Asatiwisipe Aki (7 896 485 ha) and Pimitotah (132 575 ha) TUPAs were designed and designated in conjunction with Poplar River First Nation and Bloodvein First Nation respectively.

Three major planning issues and priorities over the next three to five years:

- Little Crown land remains available for protection in municipal Manitoba, or in areas with high resource extraction potential.
- As the pressures from human activity on natural habitat increase, the stakes for protecting nature continue to grow as well.
- Completing the unfinished portion of the protected areas network will take time, and in the interim, over 100 candidate areas will continue to have no formal protection from development.
- Lack of legislative tools to effectively protect endangered and threatened species habitat.

Priority areas include Agro-Manitoba (southern Manitoba), Natural Region 5c (southeast Manitoba) and the Hudson Bay Coastline.



Map 8: Manitoba

ONTARIO

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	109	1 147.4	0.1%
	IUCN Category Ib	8	48 198.4	4.5%
	IUCN Category II	500	44 416.7	4.1%
	IUCN Category III	17	75.7	0.0%
	IUCN Category IV	5	3 494.8	0.3%
	IUCN Category V	—	0.0	—
	IUCN Category VI	—	0.0	—
	IUCN Category not determined	—	0.0	—
	Federally Administered			
	IUCN Category Ia	7	6.7	0.0%
	IUCN Category Ib	2	212.6	0.0%
	IUCN Category II	8	2 107.3	0.2%
	IUCN Category III	1	25.7	0.0%
	IUCN Category IV	6	17.1	0.0%
	IUCN Category V	—	—	—
	IUCN Category VI	4	10 134.7	0.9%
	IUCN Category not determined	—	—	—
	Total	**667**	**109 837.2**	**10.2%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Provincial)	—	—	
	All (Federal)	—	5.44	

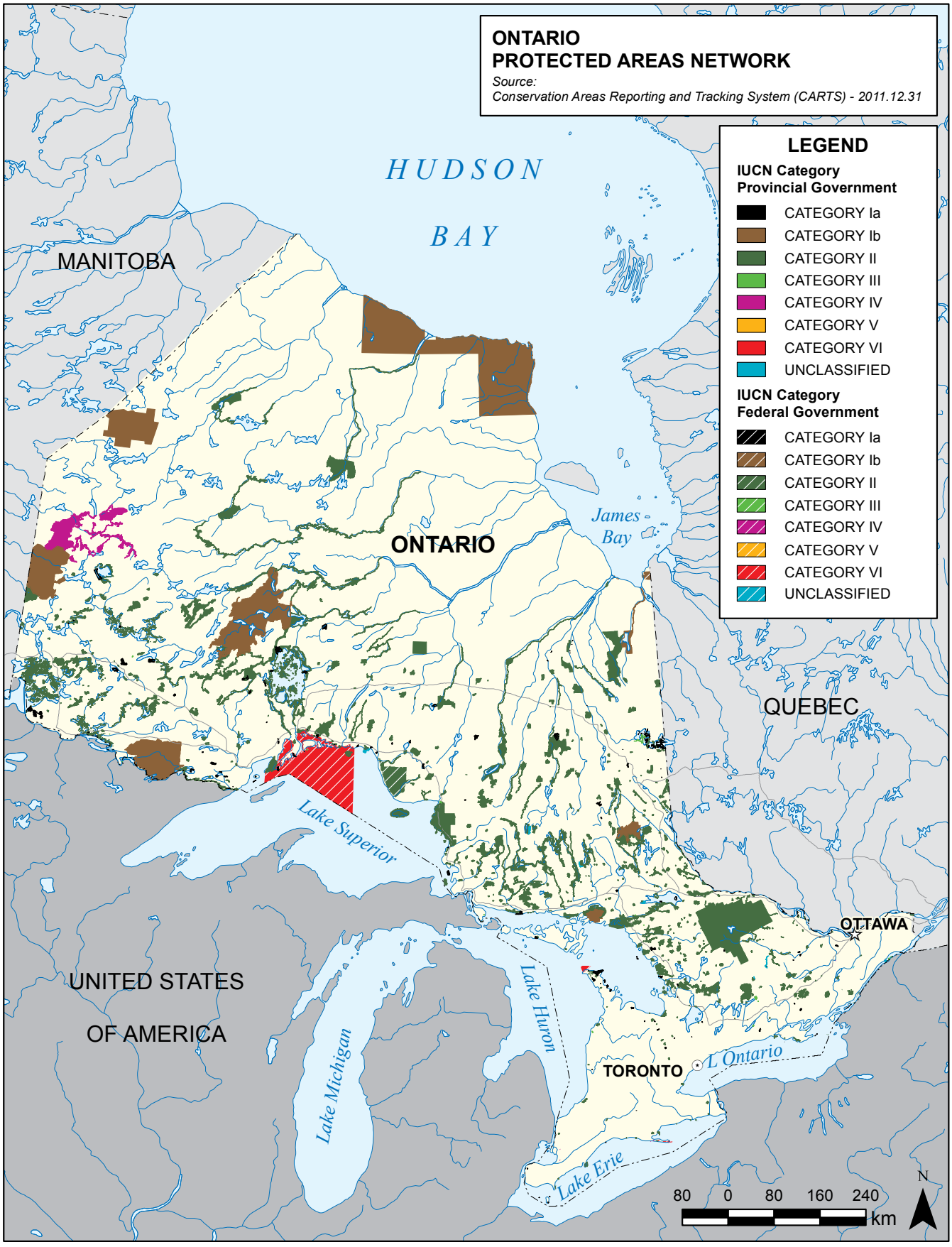
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- Completion of the Whitefeather Forest Land Use Plan, and regulation of the five Designated Protected Areas within it under the *Provincial Parks and Conservation Reserves Act*. This added 349 481 hectares of regulated provincial park to the system.
- Joint approval of three Far North community-based land use plans (Cat Lake/Slate Falls, Little Grand Rapids and Pauingassi) in 2011. These added nearly 793 064 hectares of dedicated protected areas in approved land use plans under the *Far North Act, 2010*.
- The Pauingassi and Little Grand Rapids community-based land use plans contribute to protection of 34 500 square kilometres and support Pimachiowin Aki bid for World Heritage Site proclamation by UNESCO.

Three major planning issues and priorities over the next three to five years:

- Full adoption of the relatively new Ontario Protected Areas Planning Manual and its associated guidelines, with their higher degree of rigour and focus on ecological integrity.
- Continuing the planning efforts in light of reduced funding and staff over the next three years.
- Refocussing planning priorities where they are most needed as the program downsizes.



Map 9: Ontario

QUEBEC

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	159	1 625.7	0.1%
	IUCN Category Ib	—	—	—
	IUCN Category II	40	59 571.8	3.9%
	IUCN Category III	398	67 211.9	4.4%
	IUCN Category IV	639	3 181.3	0.2%
	IUCN Category V	—	—	—
	IUCN Category VI	1 102	1 356.3	0.1%
	IUCN Category not determined	61	33.9	0.0%
	Federally Administered			
	IUCN Category Ia	17	154.1	0.0%
	IUCN Category Ib	—	—	—
	IUCN Category II	3	898.8	0.1%
	IUCN Category III	14	69.3	0.0%
	IUCN Category IV	4	28.9	0.0%
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Total	**2 437[+]**	**134 131.9[++]**	**8.9%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Provincial)	—	5 036.0	
	All (Federal)	—	1 244.7***	

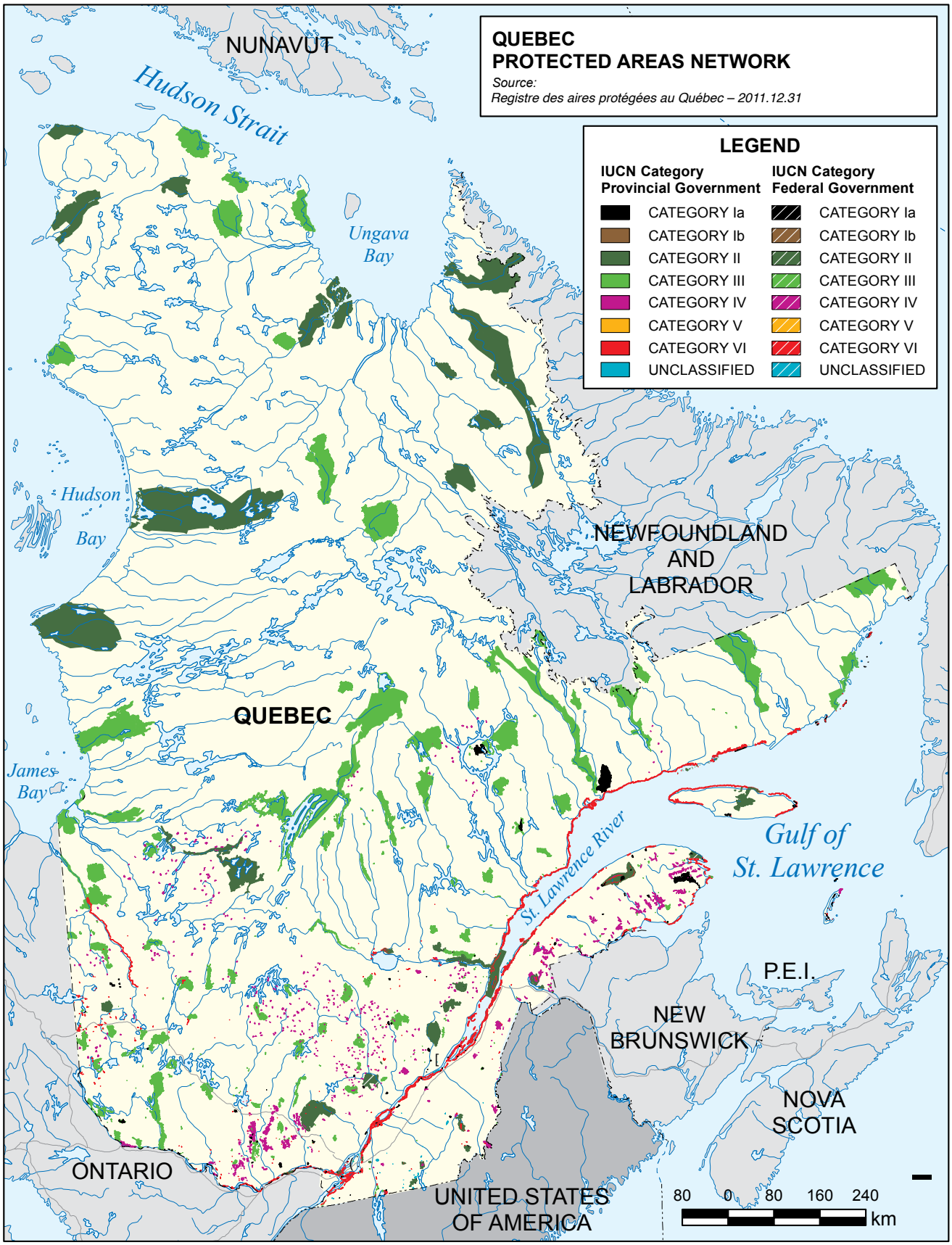
[+] Includes 276 private protected areas.
[++] Includes 245.85 km^2 in private land.
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.
*** Saguenay Marine Park, which is managed by Quebec and Parks Canada, is also included in the provincial total.

Most significant achievements in the last five years:

- Reaching, in March 2009, the objective of 8% representative protected areas, which had initially been set by the government in its 2002 strategic action plan.
- Creation, in May 2009, of Kuururjuaq National Park, a large northern park. With an area of 446 080 ha, this national park protects nearly the entire watershed of the Koroc River, giving this territory a high degree of protection. Kuururjuaq National Park is operated by the Kativik Regional Government.
- Publication, in May 2010, of the *Overview of Quebec's Protected Areas Network—Period 2002–2009*, a unique work on the protection of biodiversity in Quebec. With more than 190 maps and many tables, this document presents the findings and important achievements in regard to nature conservation over the last few years, while clearly identifying the gaps in the current network, and paves the way to reaching the new objective of creating protected areas on 12% of the territory of Quebec by 2015.

Three major planning issues and priorities over the next three to five years:

- Expanding the network of protected areas to 12% of Quebec's territory by 2015.
- Obtaining social acceptance for protected area projects, including acceptance from Aboriginal communities.
- Ability to use different types of management for the network's protected areas according to the usage context of local or regional renewable resources.



Map 10: Quebec

NEW BRUNSWICK

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	4	10.4	0.0%
	IUCN Category Ib	41	71.4	0.1%
	IUCN Category II	20	1689.2	2.3%
	IUCN Category III	—	—	—
	IUCN Category IV	—	—	—
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	2	25.0	0.0%
	IUCN Category Ib	—	—	—
	IUCN Category II	2	404.6	0.6%
	IUCN Category III	1	0.1	0.0%
	IUCN Category IV	2	14.0	0.0%
	IUCN Category V	—	—	—
	IUCN Category VI	1	19.4	0.0%
	IUCN Category not determined	—	—	—
	Total	**73**	**2234.1**	**3.1%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Provincial)	—	0.5	
	All (Federal)	—	54.2	

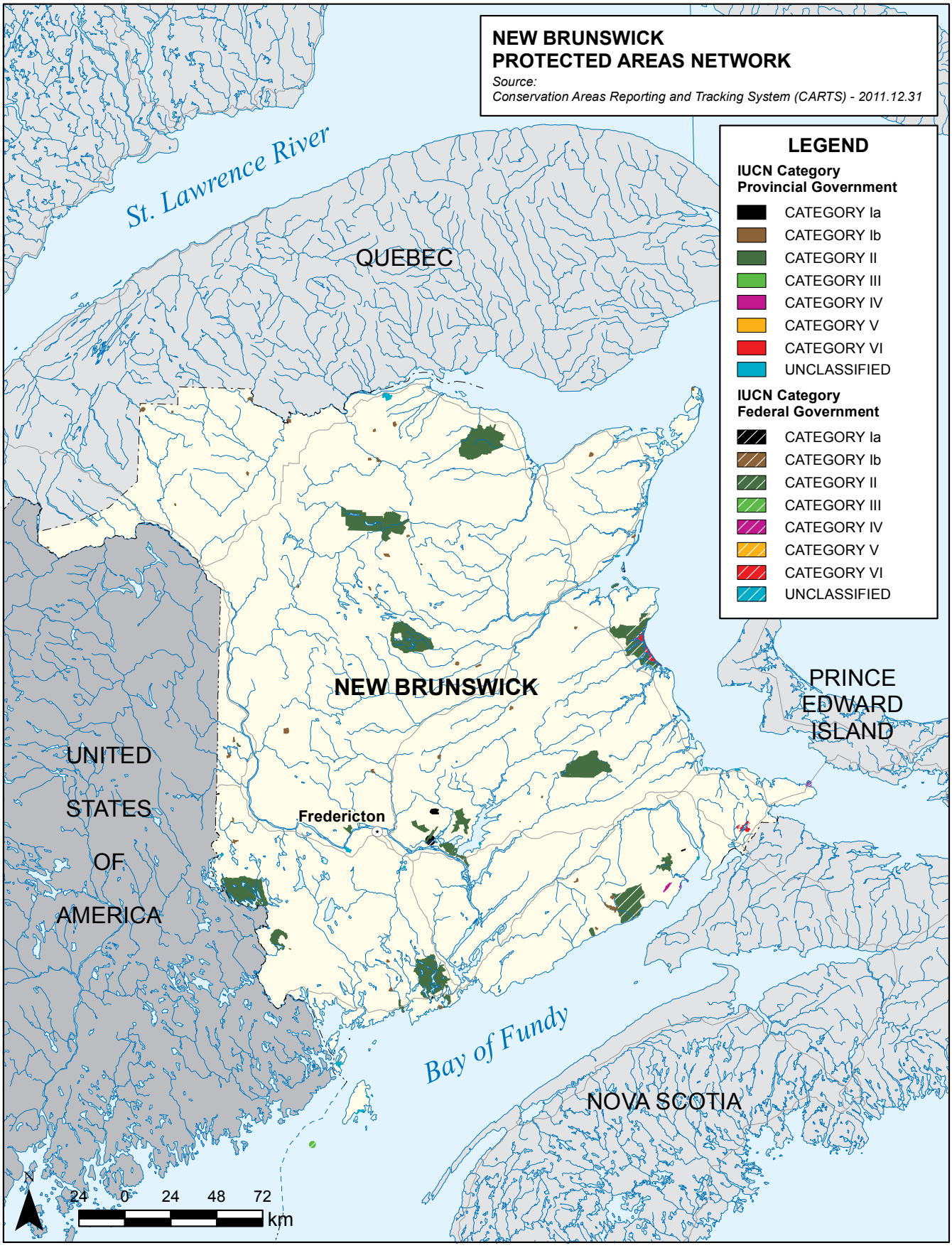
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- Protected a private land Protected Natural Area (PNA) in 2008.
- Increased the PNA on Crown network by 5000 ha in 2008.
- Identified candidate sites for the purpose of adding 122 000 ha to the PNA network.

Three major planning issues and priorities over the next three to five years:

- Designation of 122 000 ha of new PNA.
- Designation of four new private land PNAs and increasing the size of one private land PNA.
- Considering the inclusion of intertidal zones in the PNA network and will initiate a plan for implementation.



Map 11: New Brunswick

NOVA SCOTIA

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	26	50.0	0.1%
	IUCN Category Ib	37	3147.7	5.7%
	IUCN Category II	—	—	—
	IUCN Category III	—	—	—
	IUCN Category IV	—	—	—
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	7	34.1	0.1%
	IUCN Category Ib	—	—	—
	IUCN Category II	3	1349.0	2.5%
	IUCN Category III	—	—	—
	IUCN Category IV	3	9.8	0.0%
	IUCN Category V	—	—	—
	IUCN Category VI	2	7.4	0.0%
	IUCN Category not determined	—	—	—
	Total	**78**	**4598.0**	**8.4%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Provincial)	—	—	
	All (Federal)	—	22.2	

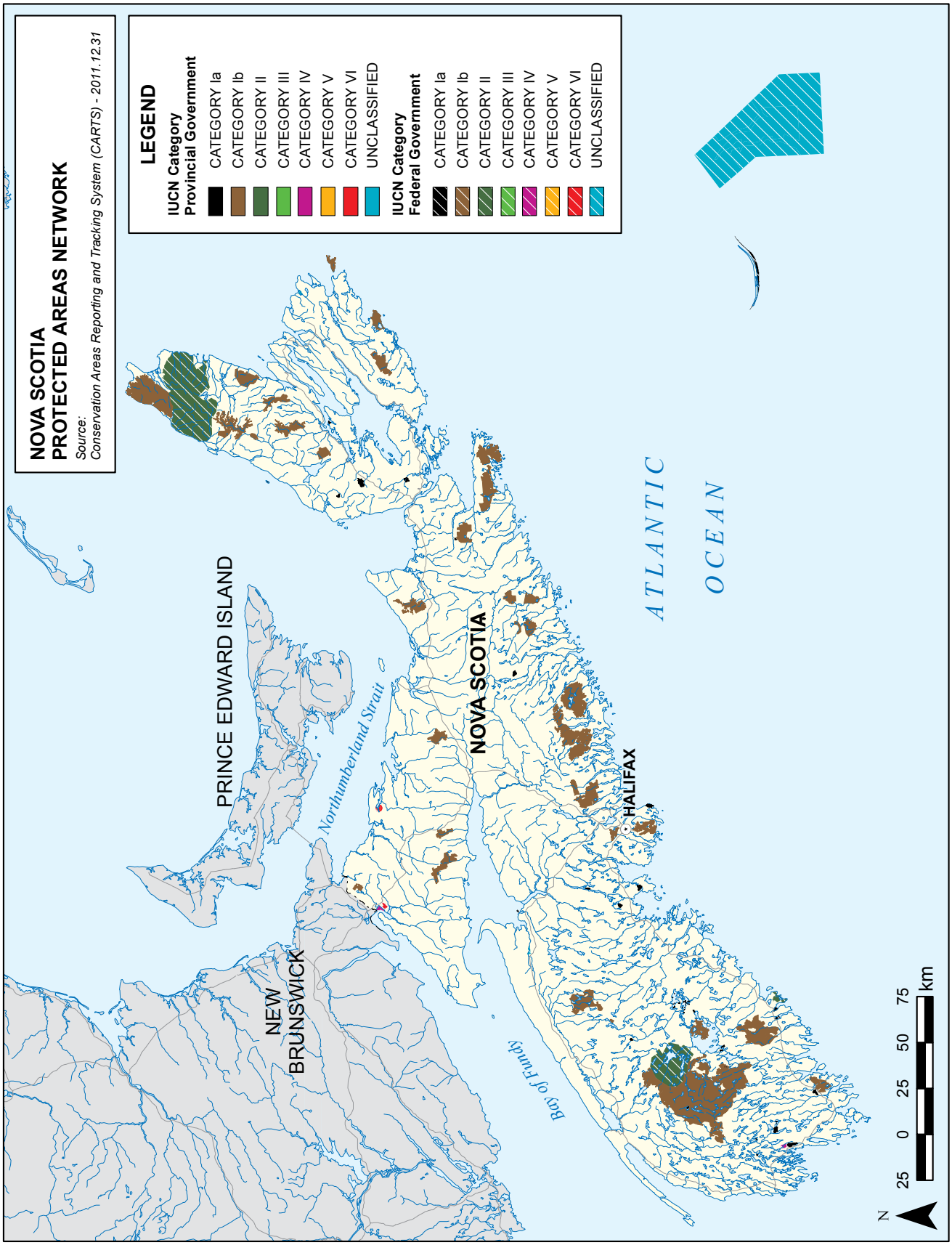
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- Establishment of the 12%-by-2015 goal in legislation, and its associated process.
- The dedication of $160 million by the province to land acquisition over the past five years, primarily for protection.
- The establishment of four wilderness areas and seven nature reserves, totalling 20 250 ha, and the pending designation of three additional wilderness areas and numerous wilderness area additions comprising approximately 39 000 ha. (Of the 39 000 ha, the 5 000 ha of wilderness area additions were designated in June 2012.)

Three major planning issues and priorities over the next three to five years:

- Achieving the Province's 12%-by-2015 protected areas involves a great deal of work in the areas of land securement, mitigation of impacts, planning and review, consultation, and many other activities. It is our top priority until it is achieved.
- As noted previously, land-use and land-use competition are very intense in Nova Scotia, and 70% of the province is privately owned. Many areas of high conservation value occur only on private land. Regardless of whether or not the provincial government adopts additional protection goals after 2015, there will be an ongoing need to continue and expand efforts to secure high-priority conservation lands in private ownership.
- Working in partnership with non-governmental land trusts will continue to be a priority.
- Pressures on Nova Scotia's land base are growing, because of increasing demand for resources, shifts in the viability of some traditional industries, development of new kinds of industries, demand for coastal and waterfront property and second/seasonal residences, rising fuel and food costs favouring local food production, rising commodity prices and consequent growth in interest in Nova Scotia's mineral, oil and gas resources. Protected areas are often surrounded by land under intensive industrial uses, and maintaining ecological connectivity and viability is a major challenge. Currently available tools are inadequate to maintain connectivity across the landscape, which is also important for climate change adaptation. A priority following achievement of the 12%-by-2015 target will be to find ways to address this issue.



Map 12: Nova Scotia

PRINCE EDWARD ISLAND

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	—	—	—
	IUCN Category Ib	—	—	—
	IUCN Category II	6	790.8	0.1%
	IUCN Category III	58	3 607.6	0.6%
	IUCN Category IV	59	8 677.8	1.5%
	IUCN Category V	2	95.0	0.0%
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	—	—	—
	IUCN Category Ib	—	—	—
	IUCN Category II	1	2 700	0.5%
	IUCN Category III	—	—	—
	IUCN Category IV	—	—	—
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Total	**126**	**15 871.2**	**2.8%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Provincial)		13.6	
	All (Federal)			

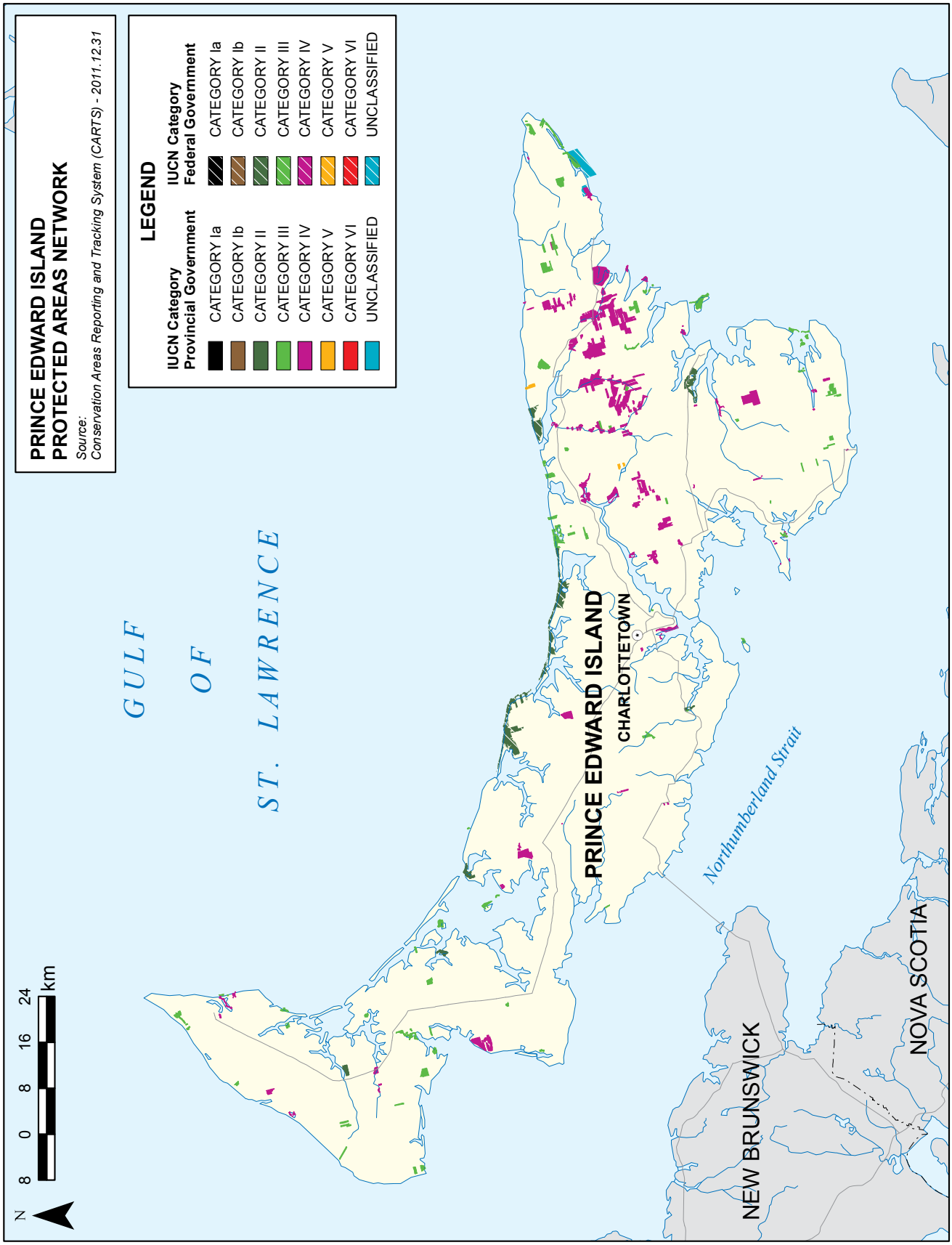
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- 1278.1 ha designated under the *Natural Areas Protection Act*, 2006–2011.
- In 2007, the *Lands Protection Act* was amended to remove the 3000-acre limit on land ownership in Natural Areas.
- Nature Conservancy of Canada (PEI) Inc. was established and began a partnership relationship with the province to acquire and protect natural areas.

Three major planning issues and priorities over the next three to five years:

- Present a major plan for protection of forested areas. This requires input and approval from land managers.
- Forecast how and when the province will meet its initial goal of 7% protected areas.
- Plan a rotation of visitation and inspection of protected areas, identifying any problems that need correction.



Map 13: Prince Edward Island

NEWFOUNDLAND AND LABRADOR

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Provincially Administered			
	IUCN Category Ia	3	7.2	0.0%
	IUCN Category Ib	2	3 965.0	1.0%
	IUCN Category II	45	1 230.5	0.3%
	IUCN Category III	6	2.9	0.0%
	IUCN Category IV	16	1 424.4	0.4%
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	2	0.2	0.0%
	IUCN Category Ib	—	—	—
	IUCN Category II	3	11 904.9	2.9%
	IUCN Category III	—	—	—
	IUCN Category IV	—	—	—
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Total	**77**	**18 535.0**	**4.6%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Provincial)	—	152.0	
	All (Federal)	—	13.4	

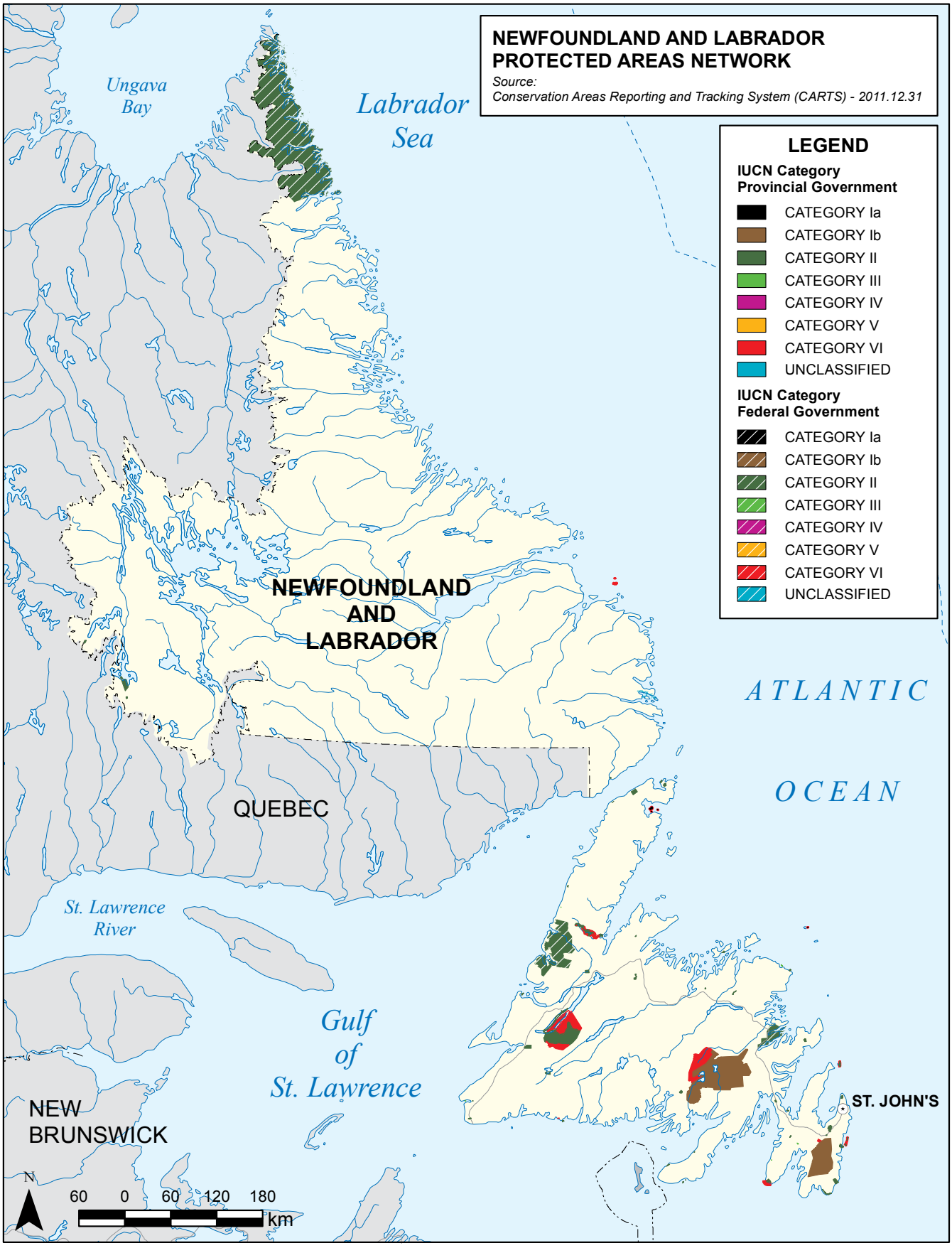
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- In 2009, a partnership between the provincial Department of Environment and Conservation and the Nature Conservancy of Canada resulted in a three-year Conservation Blueprint Project in Labrador. This project is compiling background data on natural feature and land use information for Labrador, which will be an invaluable information source for conservation and other land use planning in that part of the province.
- In 2009, Main River Waterway Provincial Park was established. This park, which is also a Canadian Heritage River, is the first Waterway Provincial Park established in the province and is now protected as a 152 square kilometre park with an additional 49 square kilometre special management area, where only selective forest harvesting is permitted.
- In 2010, an agreement was made to take the necessary steps to establish a new national park reserve in the Mealy Mountains area of Labrador. The park reserve will protect roughly 10 700 square kilometres. The provincial government also announced its intent to establish a waterway provincial park to protect the Eagle River, adjacent to the proposed national park reserve. Together, these areas will protect over 13 000 square kilometres and will be second in size only to Quebec's Lacs-Guillaume-Delisle-et-a-l'Eau-Claire National Park Reserve.
- In 2011, the Nature Conservancy of Canada protected the Grassy Place—the largest piece of private property in Newfoundland and the largest NCC property in Atlantic Canada. The Grassy Place protects 3691 acres (1494 ha) of virtually pristine habitat at the headwaters of Robinsons River in southwest Newfoundland. There was substantial public support for and financial contribution to this initiative.

Three major planning issues and priorities over the next three to five years:

- Release of the Natural Areas System Plan (for establishment of new protected areas) for Newfoundland and identification of potential protected area sites in Labrador.
- Prioritize inventory and management activities for the existing protected areas system; link to partners and existing monitoring initiatives.
- Work with other land users to investigate and establish landscape connectivity links with protected areas (existing and proposed).



Map 14: Newfoundland and Labrador

YUKON

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Territorially Administered			
	IUCN Category Ia	—	—	—
	IUCN Category Ib	1	5 355.0	1.1%
	IUCN Category II	4	8 229.0	1.7%
	IUCN Category III	2	185.2	0.0%
	IUCN Category IV	10	7 360.0	1.5%
	IUCN Category V	—	—	—
	IUCN Category VI	1	33.3	0.0%
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	—	—	—
	IUCN Category Ib	—	—	—
	IUCN Category II	3	36 078.0	7.5%
	IUCN Category III	1	54.8	0.0%
	IUCN Category IV	—	—	—
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Total	**22**	**57 295.3**	**11.8%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Territorial)	—	—	
	All (Federal)	—	78.0	

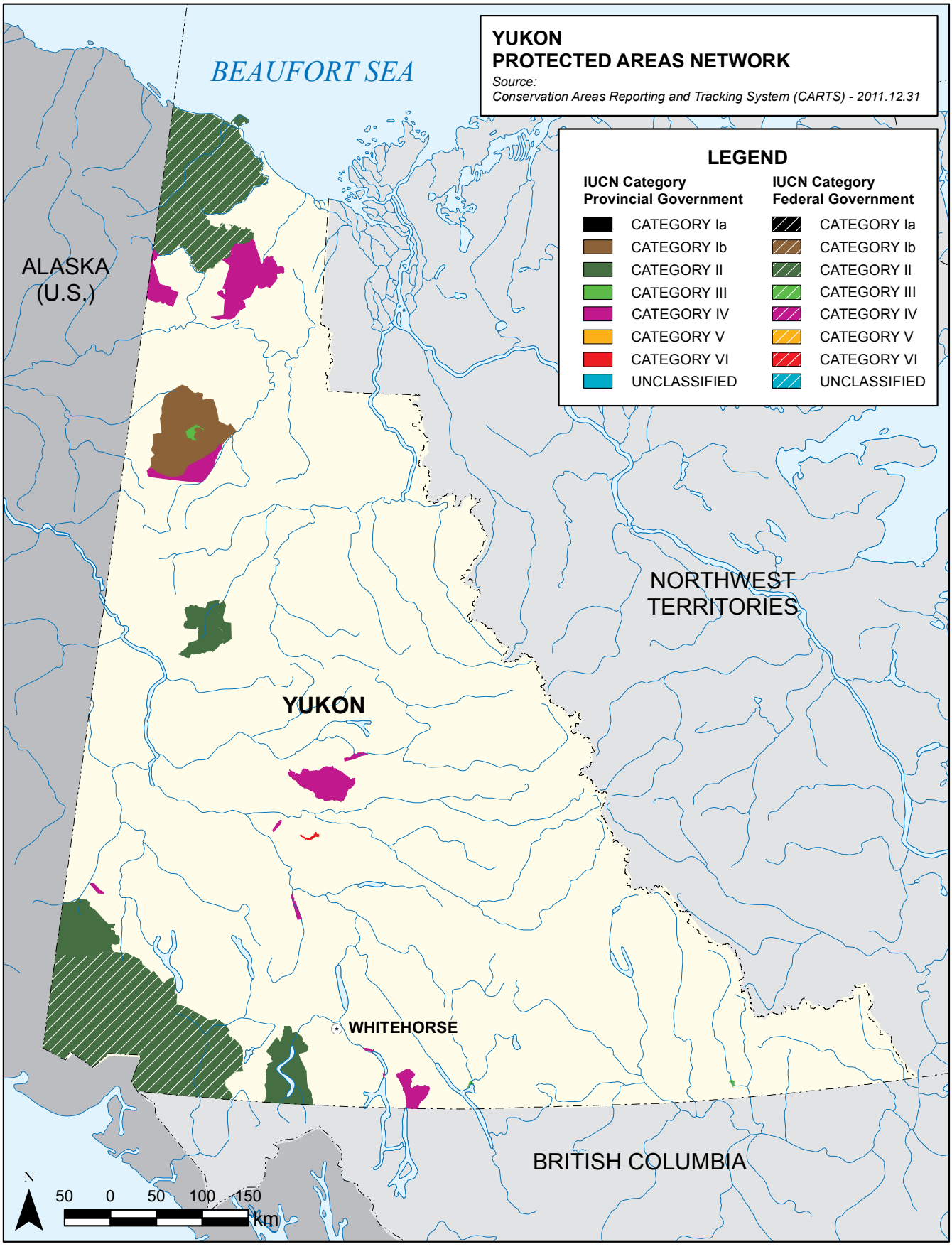
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- June 2009: identification of a territorial park at Summit Lake-Bell River through the approval of the North Yukon Land Use Plan.
- July 2009: Approval of Tombstone Park Management Plan.
- August 2009: official opening of the Tombstone Interpretive Centre.

Three major planning issues and priorities over the next three to five years:

- Building effective cooperative relationships with First Nations partners for the establishment, planning, management and operation of territorial parks.
- Protection of **1** representative core area within each of the 20 ecoregions that are located primarily within the Yukon.
- Yukon Government and Yukon First Nations agreement on allocation of protected area(s) in the Peel Watershed regional planning area.


YUKON
PROTECTED AREAS NETWORK
Source:
Conservation Areas Reporting and Tracking System (CARTS) - 2011.12.31
LEGEND
IUCN Category
Provincial Government
CATEGORY Ia
CATEGORY Ib
CATEGORY II
CATEGORY III
CATEGORY IV
CATEGORY V
CATEGORY VI
UNCLASSIFIED
IUCN Category
Federal Government
CATEGORY Ia
CATEGORY Ib
CATEGORY II
CATEGORY III
CATEGORY IV
CATEGORY V
CATEGORY VI
UNCLASSIFIED
BEAUFORT SEA
ALASKA
(U.S.)
NORTHWEST
TERRITORIES
YUKON
WHITEHORSE
BRITISH COLUMBIA
N
50 0 50 100 150
km

Map 15: Yukon

NORTHWEST TERRITORIES

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Administered within the Territory			
	IUCN Category Ia	—	—	—
	IUCN Category Ib	1	21 270.00	1.6%
	IUCN Category II	2	146.15	0.0%
	IUCN Category III	2	1 647.60	0.1%
	IUCN Category IV	—	—	—
	IUCN Category V	1	940.10	0.1%
	IUCN Category VI	—	—	—
	IUCN Category not determined	17	5 910.51	0.4%
	Federally Administered			
	IUCN Category Ia	2	110.7	0.0%
	IUCN Category Ib	3	20 875.9	1.6%
	IUCN Category II	5	69 244.0	5.2%
	IUCN Category III	—	—	—
	IUCN Category IV	—	—	—
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Total	**33**	**120 145.0**	**8.9%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Territorial)	—	—	
	All (Federal)	—	1 252.20	

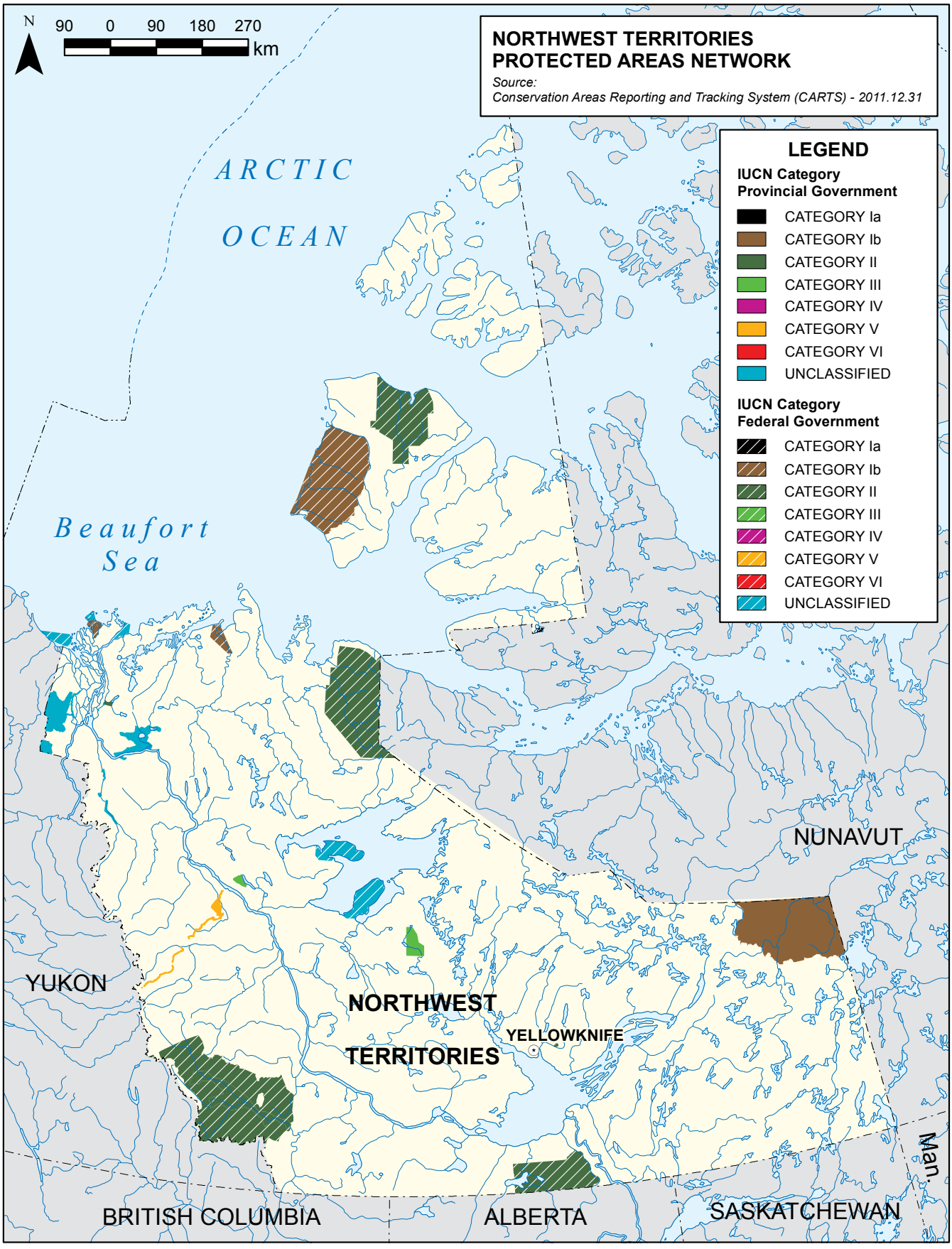
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- In 2009 Saoyú/?ehdacho protected National Historic Site became the first area established through the PAS process.
- A Recommendations Report for Edéhzhíe was jointly submitted by the Dehcho First Nations and the Tłı̨chǫ Government to the federal Minister of Environment as part of their formal request to establish Edéhzhíe National Wildlife Area (NWA) under the *Canada Wildlife Act*. Key recommendations include a final boundary option and the establishment of a co-management agreement based on the partner communities' and Environment Canada's shared vision for the Edéhzhíe NWA.
- Four additional areas being sponsored as Candidate NWAs by Environment Canada and two areas being sponsored by the Government of the Northwest Territories (GNWT).

Three major planning issues and priorities over the next three to five years:

- Move the five identified Candidate NWAs and the 2 GNWT-sponsored Candidate sites (Candidate Critical Wildlife Area and Candidate Cultural Conservation Area) through to establishment under the NWT PAS.
- Priorities: complete assessments for one Candidate NWA, develop remaining Recommendation Reports (boundary and management recommendations), gain First Nations and partner agency support for recommended boundaries and management plans, final establishment.
- Complete assessments for GNWT sponsored sites, finalize Recommendations Report for Candidate Critical Wildlife Area and develop Recommendations Report for Candidate Cultural Conservation Area.
- Evaluate up to four additional territorial candidate sites.
- Priorities: secure funding, identify areas, gain support, identify appropriate designations, and advance areas through the PAS process.
- It is anticipated that some of these areas will be ecologically representative areas to meet the second goal of the NWT PAS.
- Priorities/issues: identify areas in those ecoregions that are underrepresented, gain support for large areas where no development will be allowed, identify/improve legislation framework to enable GNWT-sponsored ecologically representative areas.



Map 16: Northwest Territories

NUNAVUT

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	Territorially Administered			
	IUCN Category Ia	—	—	—
	IUCN Category Ib	—	—	—
	IUCN Category II	1	1 420.8	0.1%
	IUCN Category III	—	—	—
	IUCN Category IV	—	—	—
	IUCN Category V	7	112.1	0.0%
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Federally Administered			
	IUCN Category Ia	4	2 659.3	0.1%
	IUCN Category Ib	11	100 660.8	4.8%
	IUCN Category II	5	103 735.2	5.0%
	IUCN Category III	—	—	—
	IUCN Category IV	—	—	—
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Total	**28**	**208 588.1**	**10.0%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Territorial)	—	—	
	All (Federal)	—	24 992.2	

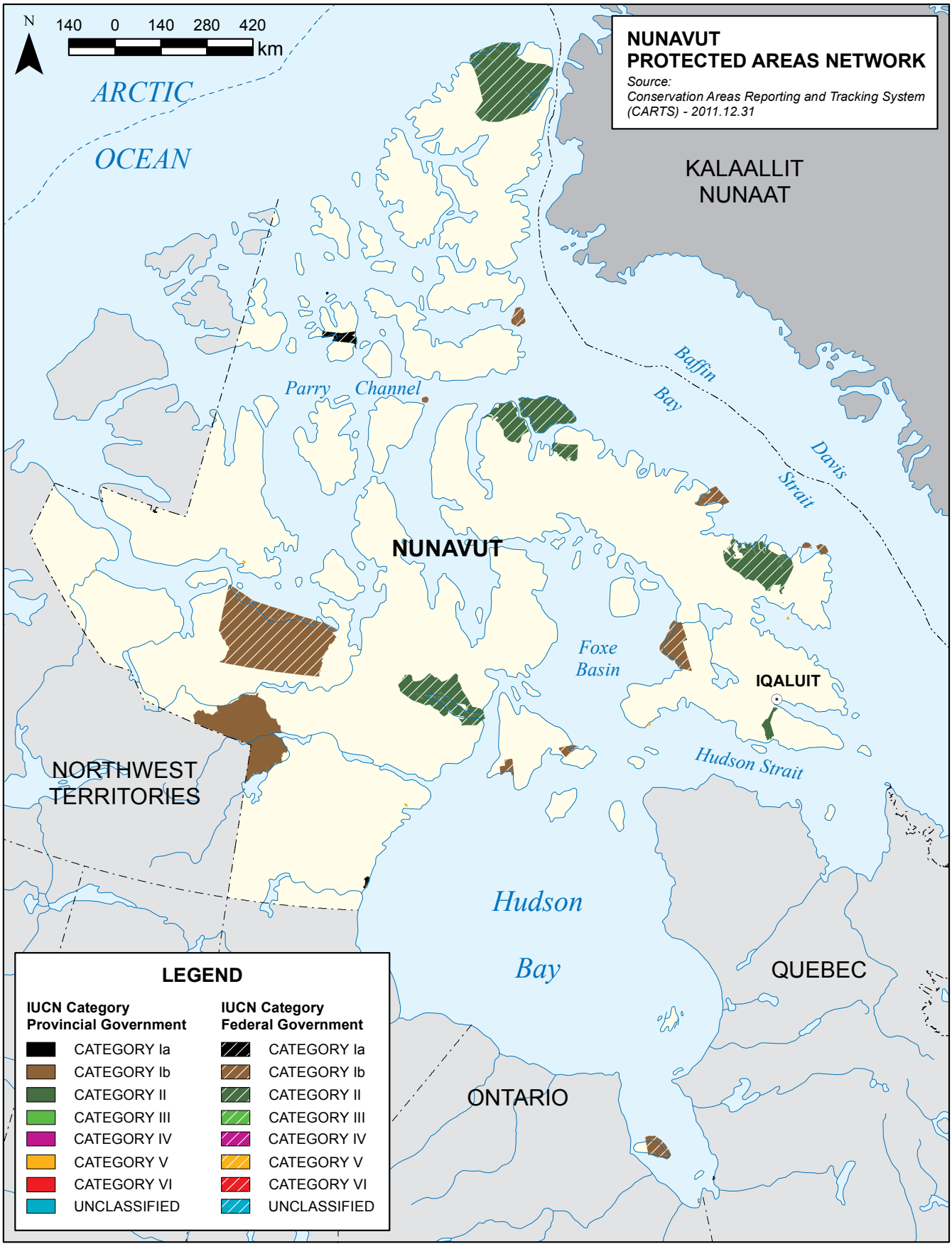
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- Completion of Territorial Parks Inuit Impact and Benefits Agreement (IIBA)—this fulfills Nunavut Land Claims Agreement (NLCA) obligations related to Territorial Parks, but also further supports park establishment, and establishes meaningful joint management at community and territorial levels. Documents are still being developed and finalized for the IIBA.
- Continued Support for a new Territorial Parks Act (TPA)—The draft parks program has been developed and will serve as a framework for the new Act. As well, a legislative review for the new Act has been completed.
- Continued Support for National Protected Areas—Department of Environment, with Nunavut Parks acting as the lead, has provided support for many federal protected area initiatives in Nunavut. We have supported feasibility studies for Ukkusiksalik National Park and Tuktusiuqvialuk National Park on Bathurst Island. We have also supported the feasibility study and development of the Lancaster Sound Marine Conservation Area. Our involvement at the federal level also includes support for the 2011 National Framework for Canada's Network of Marine Protected Areas with the Department of Fisheries and Oceans.

Three major planning issues and priorities over the next three to five years:

- New Parks Act/Program—Continue to identify roles for parks and special places in Nunavut, ensure classifications appropriate for Nunavut, provide for a zoning system (there is currently no zoning system in TPA or regulations), reflect Inuit Qaujimajatuqangit, reflect the NLCA and IIBA, and be based on legislative and regulatory "best practices" including principles/purposes and authorities.
- Implementation of IIBA—Pending adequate funding from Canada through NLCA Implementation Contracts. NU will facilitate the establishment of Community and Nunavut Joint Planning and Management Committees, completion of Parks Act/Program, Management Plan Frameworks, management plans, master plans and resource inventories.
- Devolution—Will allow Nunavut a greater say in how lands are managed.



Map 17: Nunavut

PARKS CANADA AGENCY

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	IUCN Category Ia	—	—	—
	IUCN Category Ib	—	—	—
	IUCN Category II	45	293 336.2	2.9%
	IUCN Category III	—	—	—
	IUCN Category IV	—	—	—
	IUCN Category V	—	—	—
	IUCN Category VI	2	10 100.0	0.1%
	IUCN Category not determined	—	—	—
	Total	**47**	**303 436.2**	**3.0%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	
	All (Federal)	—	12 882.5	0.2%

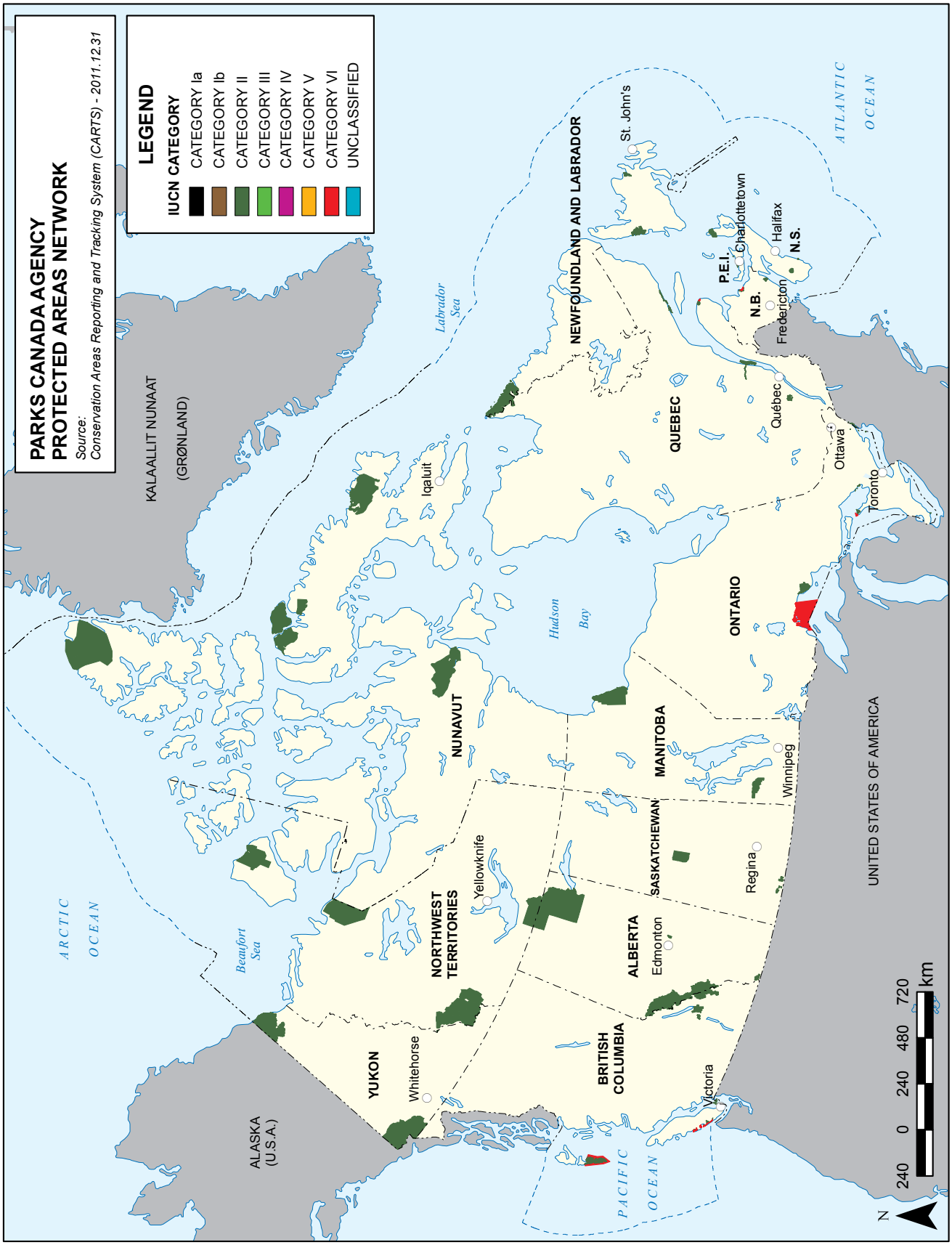
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- Nahanni expansion: Parks Canada worked closely with the Deh Cho First Nations and the Northwest Territorial Government to significantly expand Nahanni National Park Reserve to protect over 30 000 km^2 of crucial habitat for grizzly bears, woodland caribou and Dall's sheep. The six-fold expansion will help to protect the length of the South Nahanni River in the Dehcho, the highest mountains and largest glaciers in the Northwest Territories and the deepest canyons in Canada. The globally unique caves, canyons, rock towers, poljes and sinkholes of the Nahanni North Karst will be inside the new park boundary.
- Saoyú-ʔehdacho: In 2009, two peninsulas bordering on Great Bear Lake, an area of 5565 km^2 (or approximately the size of Prince Edward Island) were permanently protected as Saoyú-ʔehdacho National Historic Site. This site protects a cultural landscape of great importance to the people of Great Bear Lake (Sahtu). Saoyú-ʔehdacho is the first northern cultural landscape protected as a national historic site and cooperatively managed by Parks Canada and an Aboriginal group.
- Sable Island: In October 2011, the governments of Canada and Nova Scotia signed an agreement to establish Sable Island National Park Reserve. Located 290 kilometres offshore from Halifax, Sable Island is a windswept crescent-shaped sandbar 42 kilometres long that emerges from the Atlantic Ocean near the edge of the Continental Shelf. The island's sand dunes and fresh water ponds are home to over 400 wild horses and numerous migrant and breeding birds, including the rare Ipswich Savannah sparrow.

Three major planning issues and priorities over the next three to five years:

- Establishing additional National Parks and National Marine Conservation Areas.
- Conserving Canada's Heritage Places.
- Increasing Canadians' connection with Parks Canada Places.



Map 18: Parks Canada Agency

ENVIRONMENT CANADA

Terrestrial	IUCN Category	No. of Protected Areas	Area Protected (km^2)	% of Total
	IUCN Category Ia	46	3 005.0	0.0%
	IUCN Category Ib	16	89 280.6	0.9%
	IUCN Category II	5	11 126.0	0.1%
	IUCN Category III	19	165.0	0.0%
	IUCN Category IV	33	1 193.8	0.0%
	IUCN Category V	3	23.4	0.0%
	IUCN Category VI	6	106.7	0.0%
	IUCN Category not determined	—	—	—
	Total	**128**	**104 900.6**	**1.1%**
Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	% of Total
	All (Federal)	—	19 589.0	0.3%

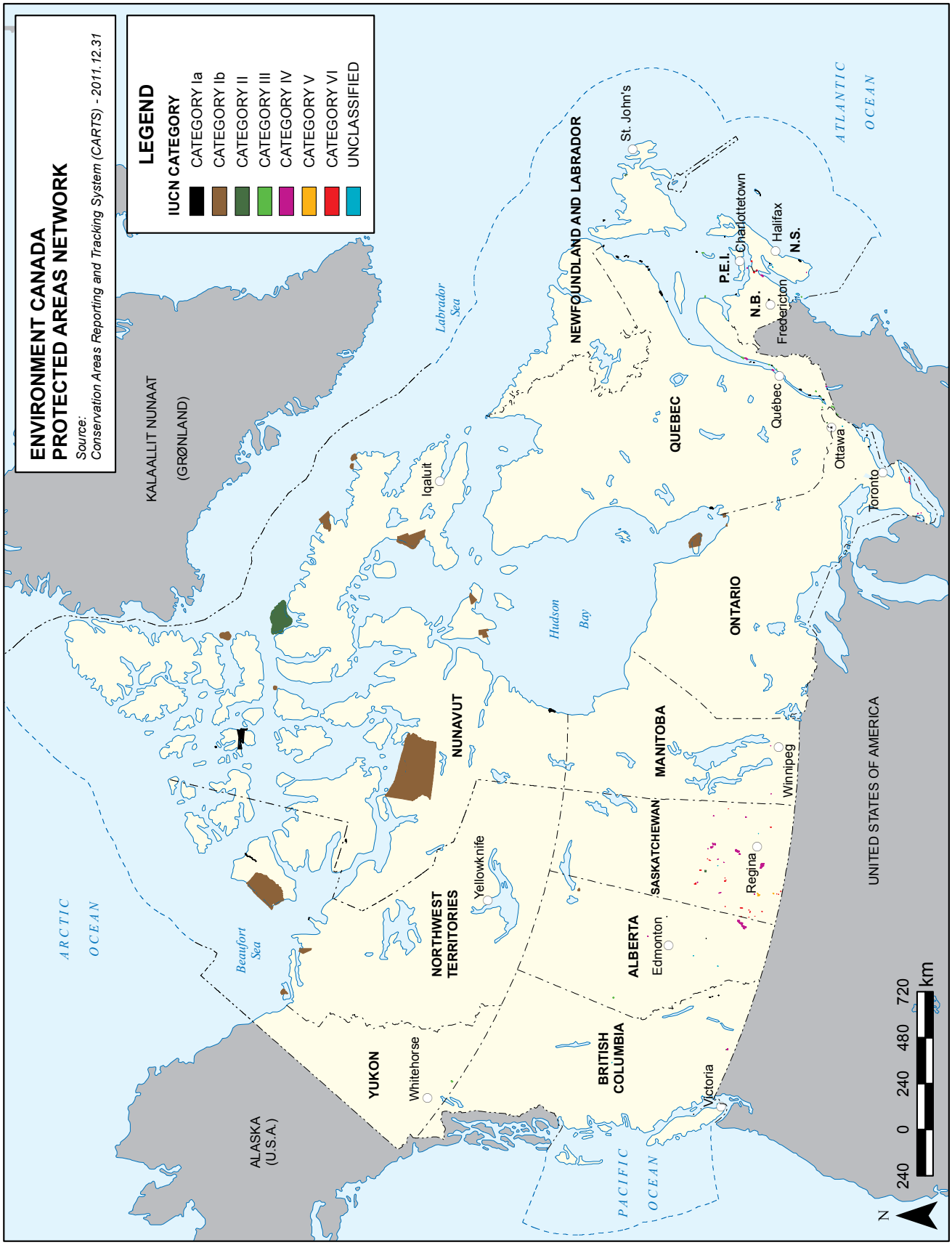
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- Establishment of three new NWA sites on Baffin Island in Nunavut. Akpait, Qaqulluit and Ninginganiq NWA fulfilling agreed-upon goals of the IIBA signed between the Inuit and Canada.
- Commencement of management planning for protected areas in Canada including the drafting of 11 management plans for NWA sites in Canada.
- Approval of a policy with respect to permitting in NWA and Migratory Bird Sanctuary sites.

Three major planning issues and priorities over the next three to five years:

- Prioritization of candidate sites and the evaluation of those sites for establishment as NWA, MBS or Cooperative Wildlife Management Areas.
- Completion of management planning for protected areas sites under the administration and control of Environment Canada.
- Completion of legal revisions and regulatory amendments that affect the boundaries of protected areas in Canada.



Map 19: Environment Canada

AGRICULTURE AND AGRI-FOOD CANADA

Terrestrial	IUCN Category*	No. of Protected Areas	Area Protected (km^2)	% of Total
	IUCN Category Ia	—	—	—
	IUCN Category Ib	—	—	—
	IUCN Category II	—	—	—
	IUCN Category III	—	—	—
	IUCN Category IV	90	9103.2	0.1%
	IUCN Category V	—	—	—
	IUCN Category VI	—	—	—
	IUCN Category not determined	—	—	—
	Total	**90**	**9103.2**	**0.1%**

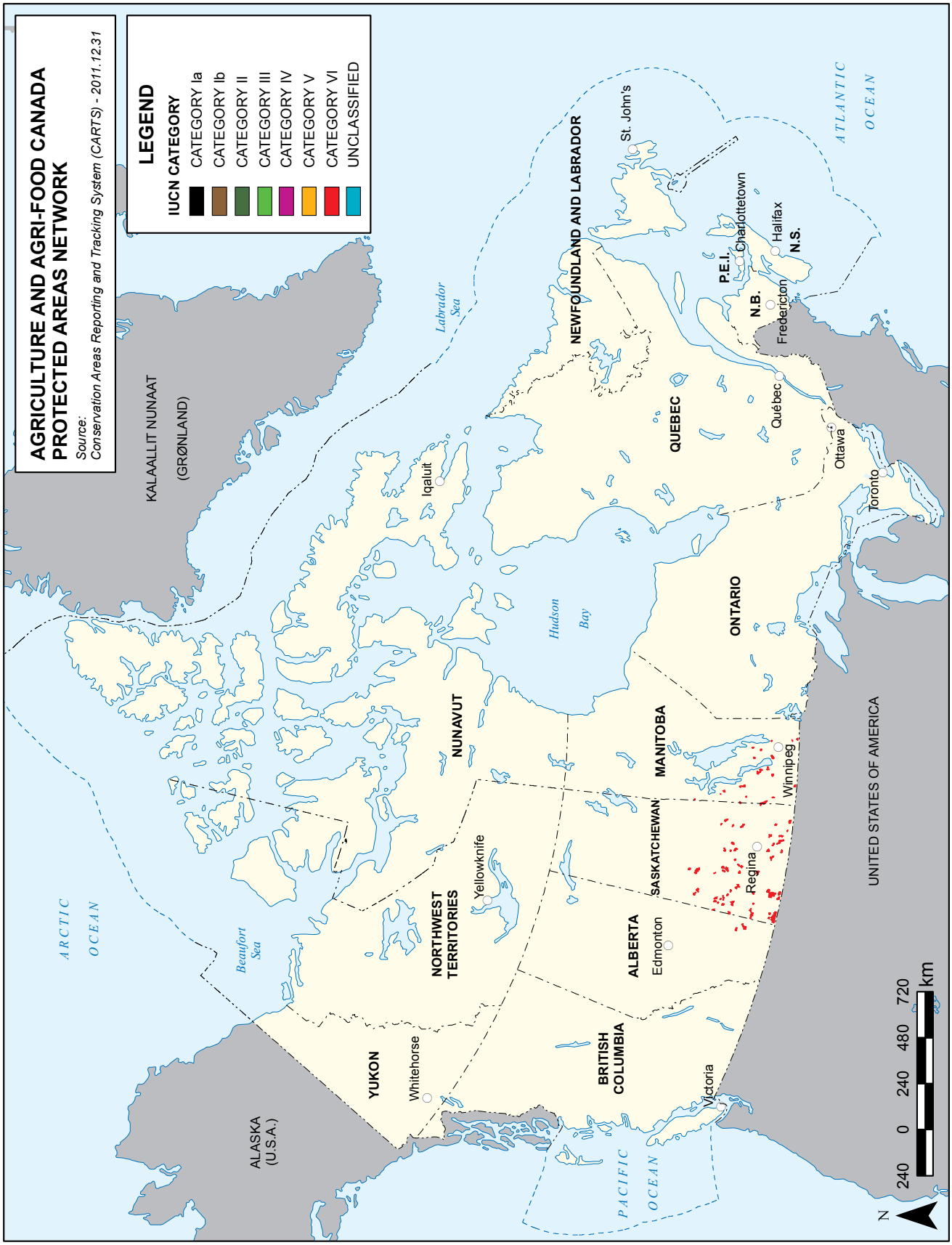
* Marine protected areas have not yet been categorized in Canada.

Most significant achievements in the last five years:

- Range health measured at over 85%.
- Renew Representative Areas Network Memorandum of Understanding.
- Collaboration with Environment Canada on species at risk research and recovery.

Three major planning issues and priorities over the next three to five years:

- Pressure for land to be used for resource development (oil and gas), no guidelines to reduce impact.
- Meeting legislation regulations for species at risk and environmental assessment.



Map 20: Agriculture and Agri-Food Canada

FISHERIES AND OCEANS CANADA

Marine	IUCN Category*	No. of Protected Areas**	Area Protected (km^2)	% of Total
	IUCN Category not determined	—	10 406.5	0.2%

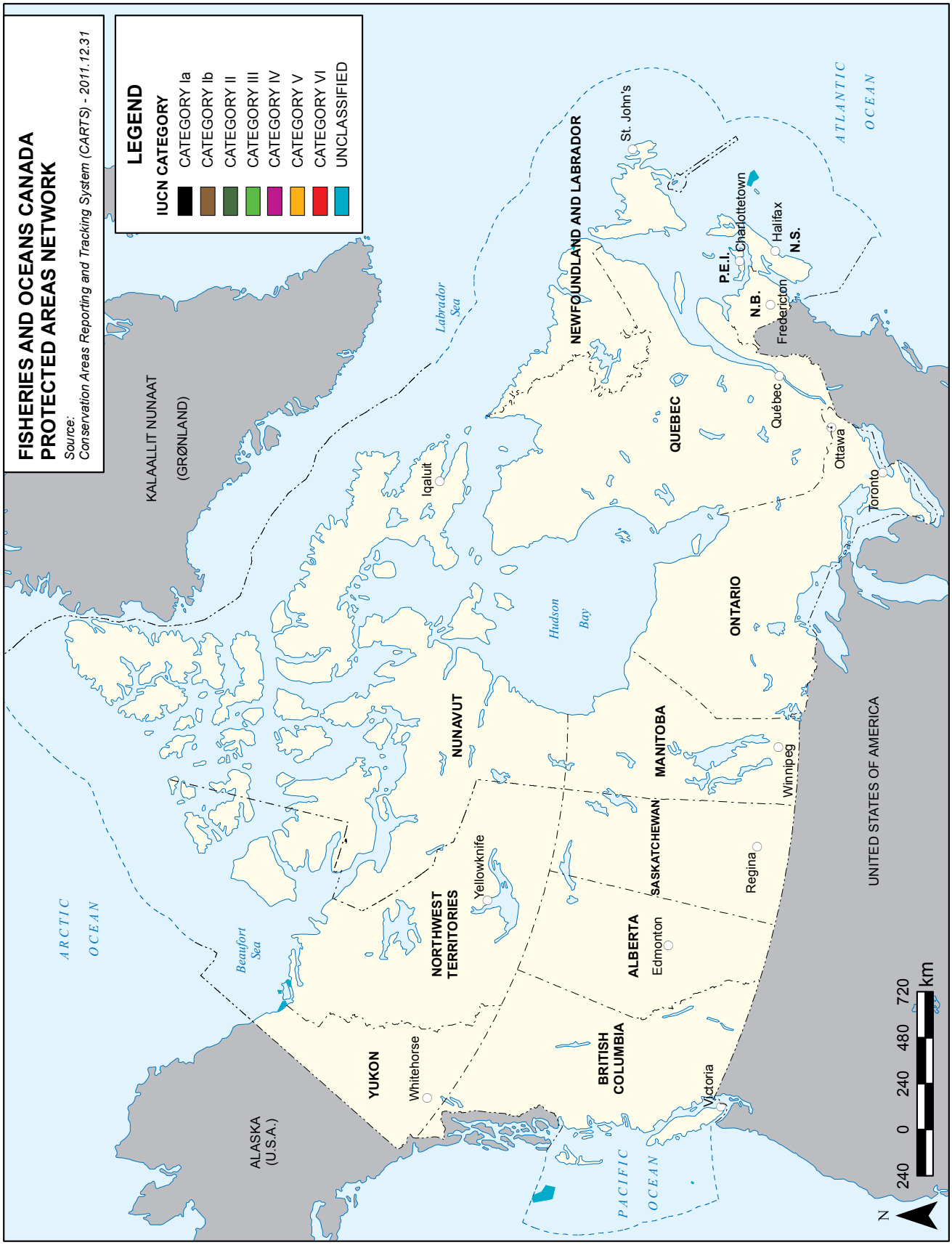
* Marine protected areas have not yet been categorized in Canada.
** Most marine protected areas are not counted separately from their terrestrial part.

Most significant achievements in the last five years:

- Three new *Oceans Act* MPAs were established:
  - Musquash Estuary (2007)
  - Bowie Seamount (2008)
  - DFO's first Arctic MPA, Tarium Niryutait (2010)
- Management Plans have been developed (if not published) for all eight *Oceans Act* MPAs.
- Multi-stakeholder public advisory bodies have been created for all eight *Oceans Act* MPAs.
- The *National Framework for Canada's Network of Marine Protected Areas* was "approved in principle" by Ministers in September 2011 and was subsequently published to the DFO's website.
- A new fifteen-year Canada-Quebec agreement on the St. Lawrence (the 2011–2026 St. Lawrence Action Plan) was signed by the federal and provincial governments in November 2011.

Three major planning issues and priorities over the next three to five years:

- Proceed with bioregional MPA network planning on five priority bioregions (Pacific Northern Shelf, Western Arctic [Beaufort Sea], Gulf of St. Lawrence, Scotian Shelf and Newfoundland-Labrador Shelves) progressing through the process described in the National Framework for Canada's Network of Marine Protected Areas.
- Enhance management, compliance and ecological monitoring of existing *Oceans Act* MPAs.
- Advance seven Areas of Interest as future *Oceans Act* MPAs through the MPA establishment process.



Map 21: Fisheries and Oceans Canada

APPENDIX 2: PROGRAMME OF WORK ON PROTECTED AREAS AND AICHI BIODIVERSITY TARGETS

PROGRAMME OF WORK ON PROTECTED AREAS[29,30]

Goal 1.1: To establish and strengthen national and regional systems of protected areas integrated into a global network as a contribution to globally agreed goals
Target: By 2010, terrestrially, and 2012 in the marine area, a global network of comprehensive, representative and effectively managed national and regional protected area system is established as a contribution to (i) the goal of the Strategic Plan of the Convention and the World Summit on Sustainable Development of achieving a significant reduction in the rate of biodiversity loss by 2010; (ii) the Millennium Development Goals—particularly goal 7 on ensuring environmental sustainability; and (iii) the Global Strategy for Plant Conservation.

Goal 1.2: To integrate protected areas into broader land- and seascapes and sectors so as to maintain ecological structure and function
Target: By 2015, all protected areas and protected area systems are integrated into the wider land- and seascape, and relevant sectors, by applying the ecosystem approach and taking into account ecological connectivity and the concept, where appropriate, of ecological networks.

Goal 1.3: To establish and strengthen regional networks, transboundary protected areas and collaboration between neighbouring protected areas across national boundaries
Target: Establish and strengthen by 2010/2012 transboundary protected areas, other forms of collaboration between neighbouring protected areas across national boundaries and regional networks, to enhance the conservation and sustainable use of biological diversity, implementing the ecosystem approach, and improving international cooperation.

Goal 1.4: To substantially improve site-based protected area planning and management
Target: All protected areas to have effective management in existence by 2012, using participatory and science-based site planning processes that incorporate clear biodiversity objectives, targets, management strategies and monitoring programmes, drawing upon existing methodologies and a long-term management plan with active stakeholder involvement.

Goal 1.5: To prevent and mitigate the negative impacts of key threats to protected areas
Target: By 2008, effective mechanisms for identifying and preventing, and/or mitigating the negative impacts of key threats to protected areas are in place.

Goal 2.1: To promote equity and benefit-sharing
Target: Establish by 2008 mechanisms for the equitable sharing of both costs and benefits arising from the establishment and management of protected areas.

Goal 2.2: To enhance and secure involvement of indigenous and local communities and relevant stakeholders
Target: Full and effective participation by 2008 of indigenous and local communities, in full respect of their rights and recognition of their responsibilities, consistent with national law and applicable international obligations, and the participation of relevant stakeholders in the management of existing, and the establishment and management of new, protected areas.

Goal 3.1: To provide an enabling policy, institutional and socio-economic environment for protected areas
Target: By 2008, review and revise policies as appropriate, including use of social and economic valuation and incentives, to provide a supportive enabling environment for more effective establishment and management of protected areas and protected areas systems.

[29] As adopted by the Seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity, 9–20 February 2004, Kuala Lumpur, Malaysia, COP 7 Decision VII/28.

[30] See the Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity, 18–29 October 2010, Nagoya, Aichi Prefecture, Japan, COP 10 Decision X/31 to align the targets of the Programme of Work on Protected Areas with specific indicators and timelines that are based on the Aichi Biodiversity Targets and the Strategic Plan for Biodiversity 2011–2020.

Goal 3.2: To build capacity for the planning, establishment and management of protected areas
Target: By 2010, comprehensive capacity-building programmes and initiatives are implemented to develop knowledge and skills at individual, community and institutional levels, and raise professional standards.

Goal 3.3: To develop, apply and transfer appropriate technologies for protected areas
Target: By 2010, the development, validation and transfer of appropriate technologies and innovative approaches for the effective management of protected areas is substantially improved, taking into account decisions of the Conference of the Parties on technology transfer and cooperation.

Goal 3.4: To ensure financial sustainability of protected areas and national and regional systems of protected areas
Target: By 2008, sufficient financial, technical and other resources to meet the costs to effectively implement and manage national and regional systems of protected areas are secured, including both from national and international sources, particularly to support the needs of developing countries and countries with economies in transition and small-island developing States.

Goal 3.5: To strengthen communication, education and public awareness
Target: By 2008, public awareness, understanding and appreciation of the importance and benefits of protected areas is significantly increased.

Goal 4.1: To develop and adopt minimum standards and best practices for national and regional protected area systems
Target: By 2008, standards, criteria and best practices for planning, selecting, establishing, managing and governance of national and regional systems of protected areas are developed and adopted.

Goal 4.2: To evaluate and improve the effectiveness of protected areas management
Target: By 2010, frameworks for monitoring, evaluating and reporting protected areas management effectiveness at sites, national and regional systems, and transboundary protected area levels adopted and implemented by Parties.

Goal 4.3: To assess and monitor protected area status and trends
Target: By 2010, national and regional systems are established to enable effective monitoring of protected-area coverage, status and trends at national, regional and global scales, and to assist in evaluating progress in meeting global biodiversity targets.

Goal 4.4: To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and protected area systems
Target: Scientific knowledge relevant to protected areas is further developed as a contribution to their establishment, effectiveness, and management.

AICHI BIODIVERSITY TARGETS

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.

Target 4: By 2020, at the latest, governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use
Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 6: By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7: By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 10: By 2015, the multiple anthropogenic pressures on coral reefs and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 12: By 2020, the extinction of known threatened species has been prevented, and their conservation status, particularly of those most in decline, has been improved and sustained.

Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

Target 17: By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011–2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

REFERENCES

Brock, R.J., E. Kenchington, and A. Martinez-Arroyo, 2012. *Scientific Guidelines for Designing Resilient Marine Protected Area Networks in a Changing Climate.* Commission for Environmental Cooperation. Montreal, Canada. 95 pp.

Canadian Council of Ministers of the Environment, Canada Parks Council and Wildlife Ministers Council of Canada, 1992. *A Statement of Commitment to Complete Canada's Networks of Protected Areas.*

Canadian Council on Ecological Areas, 2008. *Canadian Guidebook for the Application of IUCN Protected Area Categories.* Canadian Council on Ecological Areas Occasional Paper #18, 66 pp.

Canadian Land Trust Alliance, 2007. *Canadian Land Trust Standards and Practices.*

Canadian Parks Council, 2011a. *Aboriginal Peoples and Canada's Parks and Protected Areas.*

Canadian Parks Council, 2011b. *The Economic Impact of Canada's National, Provincial and Territorial Parks in 2009.*

Coad L., N.D. Burgess, B. Bomhard, and C. Besancon, 2009. *Progress on the Convention on Biological Diversity's 2010 and 2012 Targets for Protected Area Coverage.* A technical report for the IUCN International workshop "Looking to the Future of the CBD Programme of Work on Protected Areas", Jeju Island, Republic of Korea, 14–17 September 2009. UNEP-WCMC, Cambridge, UK.

Day J., N. Dudley, M. Hockings, G. Holmes, D. Laffoley, S. Stolton, and S. Wells, 2012. *Guidelines for applying the IUCN Protected Area Management Categories to Marine Protected Areas.* Gland, Switzerland: IUCN. 36 pp.

Deguise, I., and J.T. Kerr. 2006. Protected areas and prospects for endangered species conservation in Canada. *Conservation Biology* 20(1):48–55.

Dudley, N. (Ed.), 2008. *IUCN Guidelines for Applying Protected Area Management Categories.*

Ecological Stratification Working Group, 1996. *A National Ecological Framework for Canada.*

Fisheries and Oceans Canada, 2010. *Marine Protected Areas and MPA Networks: The Benefits and Costs to the Fishing Industry (Draft).*

Government of Alberta, 2009. *Plan for Parks.*

Government of Canada, 1995. *Canadian Biodiversity Strategy.*

Government of Canada, 2006. *Canadian Protected Areas Status Report 2000–2005.*

Government of Manitoba, 2005. *Green and Growing.*

Government of Nova Scotia, 2011. *Our Wild Spaces.*

Government of Quebec, 2002. *Protected Areas Strategic Action Plan 2002–2009.*

Hobbs, Richard J., David N. Cole, Laurie Yung, Erika S. Zavaleta, Gregory H. Aplet, F. Stuart Chapin III, Peter B. Landres, David J. Parsons, Nathan L. Stephenson, Peter S. White, David M. Graber, Eric S. Higgs, Constance I. Millar, John M. Randall, Kathy A. Tonnessen, and Stephen Woodley. 2009. Guiding concepts for park and wilderness stewardship in an era of global environmental change. *Frontiers in Ecology and the Environment e-View.* On-line at www.esajournals.org/doi/abs/10.1890/090089

Hockings, M., S. Stolton, N. Dudley, F. Leverington, and J. Courrau, 2006. *Evaluating effectiveness: a framework for assessing the management of protected areas*, 2nd edn. IUCN, Gland, Switzerland, 105 pp.

Kulshreshtha, S., G. Pearson, B. Kirychuk, and R. Gaube, 2008. *Distribution of Public and Private Benefits on Federally Managed Community Pastures in Canada*.

Lemieux, C., P.F.J. Eagles, D.S. Slocombe, S.T. Doherty, S.J. Elliott, and S.E. Mock, 2012. *Human health and well-being motivations and benefits associated with protected area experiences: an opportunity for transforming policy and management in Canada.* Parks, 2012, Vol. 18.1.

Lemieux, C.J., T.J. Beechey, D.J. Scott, and P.A. Gray. 2010. *Protected Areas and Climate Change in Canada: Challenges and Opportunities for Adaptation.* Canadian Council on Ecological Areas (CCEA) Occasional Paper No. 19. CCEA Secretariat, Ottawa, Ontario, Canada. xii + 170 pp.

Marine Affairs Research and Education, 2011. On-line at www.marineaffairs.org/about.html in 2011.

McKirdy, A., J. Gordon, and R. Crofts, 2007. *Land of Mountain and Flood. The Geology and Landforms of Scotland.* Birlinn Ltd.

Office of the Auditor General of British Columbia, 2010.

Office of the Environmental Commissioner of Ontario, 2007. *Doing Less with Less: How shortfalls in budget, staffing and in-house expertise are hampering the effectiveness of Ontario Ministry of the Environment and Ontario Ministry of Natural Resources.*

Ontario Parks, 2006. *Natural Fire Regimes in Ontario.*

Parks Canada Agency and the Canadian Parks Council, 2008. *Principles and Guidelines for Ecological Restoration in Canada's Protected Natural Areas.* Available online at www.pc.gc.ca/eng/progs/np-pn/re-er/index.aspx

Parks Canada Agency, 2000a. *Unimpaired for Future Generations? Conserving Ecological Integrity in Canada's National Parks*.

Parks Canada Agency, 2000b. *Report of the Panel on the Ecological Integrity of Canada's National Parks.*

Parks Canada Agency, 2008. *Action on the Ground Report II: Working with Canadians to Improve Ecological Integrity in Canada's National Parks.*

Parks Canada Agency, 2011a. *Lake Superior National Marine Conservation Area.*

Parks Canada Agency, 2011b. *Aboriginal Peoples and Canada's Parks and Protected Areas.*

Parks Canada Agency, 2011c. *Six-fold expansion of Nahanni National Park Reserve in the Northwest Territories.*

Pikangikum First Nation and Ontario Ministry of Natural Resources, 2006. *Keeping the Land—A Land Use Strategy for the Whitefeather Forest and Adjacent Areas.*

The James Bay and Northern Quebec Agreement (JBNQA), 1975.

The Outspan Group Inc., 2011. *Economic Impacts of Parks Canada.*

United Nations Secretariat of the Convention on Biological Diversity, 2009. *Network Design.*

United Nations, no date. *Millennium Development Goals Indicators*, data for 2010.

United Nations, 1992. *Convention on Biological Diversity.*

United Nations, 2002. *Convention on Biological Diversity, Programmes, Global Strategy for Plant Conservation.*

United Nations, 2004a. *Convention on Biological Diversity Conference of the Parties 7*, Kuala Lampur, Malaysia; Decision VII/30, Target 1.1.

United Nations, 2004b. *Programme of Work on Protected Areas* (PoWPA).

United Nations, 2006. *Convention on Biological Diversity Conference of the Parties 8*, Curitiba, Brasil, Decision VIII/15.

United Nations, 2010. *Strategic Plan for Biodiversity 2011–2020*, including Aichi Biodiversity Targets.

Wiersma, Y.F. T.J. Beechey, B.M. Oosenbrug, J.C. Meikle. 2005. *Protected areas in northern Canada: designing for ecological integrity. Phase 1 report.* CCEA Occasional Paper No. 16. Canadian Council on Ecological Areas, CCEA Secretariat, Ottawa, Ontario, Canada.

www.**ec.gc.ca**

Additional information can be obtained at:

Environment Canada
Inquiry Centre
10 Wellington Street, 23rd Floor
Gatineau QC K1A 0H3
Telephone: 1-800-668-6767 (in Canada only) or 819-997-2800
Fax: 819-994-1412
TTY: 819-994-0736
Email: enviroinfo@ec.gc.ca