Appendices

Appendix A: Methods – How the Panel Worked

In 1998, the Minister of Canadian Heritage, the Honourable Sheila Copps, asked a panel of Canadians with expertise in ecological sciences and related fields, *"to assess the strengths and weaknesses of Parks Canada's approach to the maintenance of ecological integrity in Canada's national parks and, based on this assessment, provide advice and recommend how best to ensure that ecological integrity is maintained across the system of Canadian National Parks."*

The Panel was asked to focus on the following areas:

- Programs – review existing programs' approaches in planning, organization, management and control of inventorying, development, protection, restoration and monitoring of national parks' ecosystems.
- Technology – review available technologies (remote sensing, databases, geographic information systems, and ecological and statistical models) for possible application within national parks.
- Partnerships – ensure that individual parks are integrated within their regional ecosystems in such a way that ecological integrity can be maintained, both inside and outside of parks, over the long term. The Panel reviewed Parks Canada's capability in ecosystem-based management, with the goal of enhancing relationships with adjacent land management agencies, stakeholders, First Nations and universities.
- Level of Investment – review priorities in investment in personnel, science, technology and communications.
- Integration – review Parks Canada's decision-making processes and management tools (planning processes, Park Management Plans, Conservation Plans, Business Plans, and so on) to integrate the management of national parks into their regional environment while ensuring the maintenance of their ecological integrity. Review how Parks Canada can draw on the naturalized knowledge of Aboriginal peoples and integrate this knowledge in the management of park ecosystems.
- Awareness – determine what improvements are needed in interpretation and outreach programs to promote increased knowledge and better understanding of the role of the national parks and the concept of safeguarding ecological integrity.

Within the allotted time frame of one year, the Panel used a sampling approach to understand the issues relevant to ecological integrity and national parks. We visited a total of nine focus parks and held regional workshops in eight cities (Figure 1-1). The focus parks were scattered across Canada and represented the range of sizes, levels of ecological impairment, visitation patterns and management complexity. In the regional workshops, we had presentations from the other parks in the region. In each place we heard from a wide range of people: park staff, local residents, researchers, stakeholder groups, non-governmental organizations, First Nations, federal, provincial, and municipal government organizations and citizens.

In addition to the specific presentations and discussion formats outlined above, the Panel invited an open submission of short briefs from the public at large. In total we had 286 presentations from park employees and 318 presentations from other interested groups and individuals. The Panel received 60 written briefs and held individual meetings with a total of 82 organizations, including First Nations, government departments and national and regional non-government organizations. Individual Panel members also met with park and non-park staff during the research and writing or this report. As Panel Chair Jacques Gérin put it, the Panel was open 24 hours a day.

Organization of the Panel and Secretariat

The Panel comprises 11 independent professionals led by the Chair, reporting to the Minister of Canadian Heritage, the Honourable Sheila Copps. There were also two special advisors to the Panel. Panel members were selected for their background understanding of natural and social sciences as these apply to managing protected areas, and their understanding of Parks Canada's mandate.

The Ecological Integrity Panel members:

Jacques Gérin, Chair
Pamela Wright, Vice-chair
Louis Bélanger
Stephanie Cairns
Luise Hermanutz
Michael Hough
F. Henry Lickers
Thomas D. Nudds
Juri Peepre
Paul F. Wilkinson
Stephen Woodley

Special Advisors:

John Dennis,
United States National Park Service

Harold Eidsvik
International Advisor

The Panel was assisted by a professional secretariat of Parks Canada staff seconded to the Panel for the duration of the project. In addition to co-ordination, the Secretariat provided administrative, professional, technical and research support to the Panel.

Secretariat members:

Alain Dufresne, Executive Secretary

Louise Blais, Administrative Assistant

Judith Froome, Communications

Luc Foisy, Eastern Co-ordinator

Paul Tarleton, Western Co-ordinator

The Panel on the Ecological Integrity of Canada's National Parks, Advisors and Secretariat

Back Row: Stephanie Cairns, Juri Peepre, Pamela Wright; Second Row: Tom Nudds, Judith Froome, Stephen Woodley; Third Row: Luc Foisy, Jacques Gérin, Alain Dufresne; Fourth Row: Paul Wilkinson, John Dennis, Henry Lickers; Fifth Row: Harold Eidsvik, Louis Bélanger, Michael Hough, Paul Tarleton; Bottom Row: Luise Hermanutz, Louise Blais

Appendix A: 2

Biographies

Panel Members

Jacques Gérin – Chair

Jacques Gérin is a civil engineer with a Master's degree in regional planning. He is currently a consultant on Environment and Sustainable Development at Hatch and Associates, a Canadian consulting firm.

He served in the government of Canada as Vice President of the Canadian International Development Agency (CIDA), Secretary to the Cabinet Committee on Priorities and Planning, Deputy Minister of the Environment and Deputy Minister of Northern Affairs.

He is Chair of the Board of the International Institute for Sustainable Development (IISD), a Governor of the International Development Research Centre (IDRC) and a former member of the Advisory Committee to the North American Commission for Environmental Co-operation. He was the 1997 recipient of the Air and Waste Management Association's Richard Beatty Mellon Award.

Pamela Wright – Vice-chair

Dr. Wright holds undergraduate degrees from Lakehead University in Ontario and a MSc. and Ph.D. in the School of Natural Resources of the Ohio State University. Dr. Wright served as Assistant Professor in the graduate School of Resource and Environmental Management at Simon Fraser University in Burnaby, B.C., specializing in protected areas research and management. More recently Dr. Wright served as the director of a university field school in coastal B.C. Dr. Wright is principal of Confluence Resource and Environmental Management, a research and planning consultant working on a range of resource and environmental issues.

Dr. Wright studies and teaches about protected areas and sustainable forestry within an ecosystem-based management approach. She has been trained in both the ecological and social sciences. Dr. Wright is currently working on a multi-year project with the U.S. Forest Service on establishing a system-wide monitoring program for sustainable forest management. She continues to serve as an adjunct faculty member at Simon Fraser University.

Louis Bélanger

Louis Bélanger is a professor at Université Laval's Faculté de foresterie et de géomatique in Québec City, from which he holds a Ph.D. in Forest Management and Silviculture. He teaches sustainable forestry and applied ecology. He is chair of the Forêt Montmorency research forest and vice-president of the Waswanipi Cree Model Forest. He is active in the Union québécoise pour la conservation de la nature.

His research activities deal primarily with the development of sustainable management strategies for Québec's major forests. In co-operation with the provincial departments responsible for forests, wildlife and the environment, these projects aim to develop forest practices that are socially acceptable and ecologically viable.

Dr. Bélanger has participated for many years in Parks Canada's ecosystem conservation program in Forillon and La Mauricie national parks. His interests include the integration of such protected areas within landscapes dedicated to forest management. He has undertaken with his graduate students studies on the parks' primitive forests and their present level of alteration.

Stephanie Cairns

Stephanie Cairns has a B.A. in environmental policy from the University of Toronto and an M.Sc in pollution prevention and corporate environmental management from the International Institute for Industrial Environmental Economics at Lund University in Sweden. She works as an Associate with the environmental policy consulting firm Resource Futures International (RFI), and as an Associate with the Pembina Institute, a national non-governmental organization specializing in energy and climate change issues.

Ms. Cairns has been advancing environmental issues in the non-governmental, political, and private sectors for over 15 years. She has been the senior manager of several national and international environmental groups, including the Canadian Environmental Network and the Friends of the Earth International

Network. She has also been deeply involved in the policy development and production for the two federal Liberal election platform "Red Books," first in the early 1990s as the environmental analyst for the federal Liberal Caucus, and in 1996/97 as the advisor on strategic planning in the Policy Section of the Prime Minister's Office.

Luise Hermanutz

Dr. Hermanutz holds a Ph.D. in Plant Ecology from the University of Western Ontario and is presently on the faculty of the Biology Department of Memorial University where she teaches Boreal Ecology, Community Ecology and Conservation Biology. She has been a Visiting Fellow at the Department of Biological Sciences, University of Wollongong, Australia.

Dr. Hermanutz is interested in population processes of native and non-native plant species which affect their long-term viability and persistence. Together with her students, she is investigating how non-native species may compromise the ecological integrity of natural communities in Terra Nova and Gros Morne national parks; how disturbances and herbivores affect the biodiversity in Terra Nova National Park; and the population consequences of pathogen-plant interactions in arctic-alpine plants in protected areas throughout insular Newfoundland. She is the co-chair of the Recovery Team of an endangered plant species (Braya longii) and a member of the scientific advisory boards of the Atlantic Canada Conservation Data Centre and the Newfoundland Rare Plant Project.

Michael Hough

Michael Hough is a Professor at the Faculty of Environmental Studies at York University and is a principal and founding partner in the landscape architecture firm of Hough Woodland Naylor Dance Leinster Limited in Toronto. Mr. Hough has conducted extensive applied research in ecological restoration, including the woodland restoration project for the National Capital Commission, Ottawa that began 1983. He is a consultant in the field for a number of government and non-government organizations both in Canada and abroad.

His recent awards include the International Society for Landscape Ecology (US Branch) "Distinguished Practitioner" award, 1997; the Lieutenant Governor's Conservation, Award, 1993; the Toronto Arts Award for Architecture and Design from the Arts Foundation of Greater Toronto, 1991; and the American Society of Landscape Architects Bradford Williams Medal for journalistic excellence, 1989. Mr. Hough is a past president of the Canadian Society of Landscape Architects, a member of the American Society of Landscape Architects, and a member of the Royal Canadian Academy of Arts.

F. Henry Lickers

Mr. Lickers is the Director of the Department of the Environment of the Mohawk Council of the Akwesasne. He is a biologist by training and has appeared widely as expert witness in many public hearings. He lectures on the value of indigenous knowledge.

Mr. Lickers has served on the International Joint Commission, Science Advisory Board and as scientific co-chair of the Haudenosaunee Environmental Task Force and the Assembly of First Nations Environmental Committee. Mr. Lickers also serves on the Environment Canada Research and Development Advisory Committee. He has been principal investigator for the Effect of Aboriginals of Great Lakes Environment (EAGLE) which looks at contaminant effects on Great Lakes area Aboriginal peoples.

Mr. Lickers is active in Canada and Mexico studying and promoting the value of indigenous naturalized knowledge systems with a focus on the principle of "community." In collaboration with the University of Ottawa Mr. Lickers is also involved in a project involving indigenous communities in Mexico.

Thomas D. Nudds

Dr. Nudds is a professor in the Department of Zoology at the University of Guelph, where he teaches population and community ecology, conservation biology, and landscape ecology. His interest in national parks began when he conducted fieldwork in Point Pelee National Park for an M.Sc. degree from the University of Windsor. He subsequently earned a Ph.D. from the University of Western Ontario. With the help of graduate students, he has pursued research related to the measurement, prediction and conservation of species diversity and its implications for the design of protected areas.

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His recent work with Parks Canada includes the re-introduction and monitoring of southern flying squirrels in Point Pelee National Park; participation in the early development of the Greater Ecosystem Initiative at Georgian Bay Islands National Park; and biological inventories of Fathom Five National Marine Park and Georgian Bay Islands National Park. He has been visiting faculty in the departments of Wildlife Ecology, Swedish University of Agricultural Sciences, and Fisheries, Wildlife and Conservation Biology, University of California at Davis; and associate editor of The Journal of Wildlife Management and the Canadian Journal of Forest Research.

Juri Peepre

Mr. Peepre obtained a Bachelor's degree in Landscape Architecture from the University of Guelph, and a Master of Science degree from the University of British Columbia, where he specialized in the rehabilitation of disturbed landscapes. He has been a consultant on protected areas, wilderness, recreation and conservation issues in western and northern Canada since 1981. Prior to moving north, he was the chair of the Outdoor Recreation Council of British Columbia and was an adjunct lecturer in the Natural Resources Management Program at Simon Fraser University. He now lectures part-time at Yukon College, in the Renewable Resources Management Program.

Mr. Peepre is a national trustee and past president of the Canadian Parks and Wilderness Society (CPAWS). He is also the Yukon co-ordinator for the Endangered Spaces Campaign led by World Wildlife Fund Canada and chairs the Yukon chapter of CPAWS. He is a past board member of the Wildlands Project and is a member of the World Commission on Protected Areas. He is also active with the Yellowstone to Yukon Conservation initiative.

Paul F. Wilkinson

Dr. Wilkinson holds a Ph.D. in Geography from University of Toronto. He is a Professor with the Faculty of Environmental Studies and Graduate Program in Geography at York University. Professor Wilkinson's research interests include tourism policy and planning, resource and environmental management, and urban open space planning. Dr. Wilkinson has undertaken research in Canada, Europe, the Caribbean, and Indonesia.

Professor Wilkinson is actively involved with two other organizations at York: the Centre for Research on Latin America and the Caribbean (CERLAC) and the University Consortium on the Environment (UCE). He has also been a visiting professor at universities in Indonesia, France, Kenya, and California. Dr. Wilkinson is on the Board of Directors of the Canadian Association for Leisure Studies and the Ontario Research Council on Leisure.

Stephen Woodley

Dr. Stephen Woodley holds a Ph.D. in Environmental Studies from the University of Waterloo. Dr. Woodley is a forest ecologist for Parks Canada at the National Office in Ottawa who was on leave from Parks Canada for the duration of the Panel's term. He is a member of the World Conservation Union (IUCN) World Commission on Protected Areas. He works on a number of issues related to ecological integrity, including developing techniques for monitoring and assessing ecological integrity. He is also responsible for the national fire management program within Parks Canada.

Dr. Woodley is Chair of the Greater Fundy Ecosystem Research Group. This group has developed a set of guidelines to conserve biodiversity and recently published an extensive study assessing the state of the Greater Fundy ecosystem. Dr. Woodley was also the Team Leader of the North American Test of Indicators of Sustainable Forestry. The Indonesian-based Centre for International Forest Research is conducting worldwide tests of criteria and indicators of sustainable forests.

Special Advisors

John Dennis, United States National Park Service

John Dennis is a biologist in the Natural Resource Directorate of the United States National Park Service. Dr. Dennis earned his B.A. in biology at Dartmouth College and his Ph.D. in Botany at Duke University. He did post-doctoral work at the University of Calgary. He has participated in field surveys or ecological research projects in New Hampshire, northern Alaska, southwestern Alaska, southwestern Alberta, and the Thelon Game Sanctuary in the Northwest Territories. He has participated in interdisciplinary groups such as the International Biological Program Tundra Biome Research Program, Hawaii Tropical Forest Recovery Task Force, Keystone Center national policy dialogues on biological diversity and on ecosystem management, and the United States Man and Biosphere Program National Committee. Since October 1974, he has worked in the Washington Office of the U.S. National Park Service addressing natural resource policy, science, and program development issues.

Harold Eidsvik, International Advisor

Harold Eidsvik has a BSF from the University of British Columbia and an MF from Michigan State University. Following a career in national parks, he retired as the Director of Policy for Parks Canada. During his career Mr. Eidsvik served from 1983-1990 as IUCN's chair of the World Commission on Protected Areas; subsequently, he was in charge of the Natural Heritage Program of the World Heritage Convention at UNESCO in Paris. For his work in park planning he received the Gold Medal of the Royal Canadian Geographic Society (1995). He is, in theory, retired but continues to manage a consulting firm, PARCS International, in Sidney, British Columbia.

Secretariat Members

Louise Blais

Louise joined Parks Canada in 1992 as Assistant to the Director of Park Establishment Branch. As administrative support, she has participated in the creation of new parks and celebrated many other successes. A new challenge came along with having to organize 11 Panel members, four employees and two advisors for a year — taking her mobile office from coast to coast.

Alain Dufresne

Alain Dufresne graduated from Laval University in 1972 with an undergraduate degree in wildlife ecology. Since then he has worked in various capacities within Parks Canada. He started as a Chief Park Warden in Kouchibouguac National Park, then Resources Inventory Co-ordinator Québec Region, and then as Chief, Ecosystem Conservation Service in Québec. In this capacity he developed the ecosystems conservation programs for the national parks in Québec in co-operation with the field staff, ranging from policy and guidelines development and implementation, to project development and program evaluation.

Mr. Dufresne has also been involved in many international projects dealing with park management, and system planning and evaluation, in many developing countries. From 1994-97, he was the host country co-ordinator in charge of the organization of the IUCN World Conservation Congress held in October 1996 in Montréal. He is still working with IUCN in various advisory capacities concerning the management and protection of national parks and other protected areas.

Luc Foisy

Luc Foisy graduated from Laval University with a degree in Forestry in 1971. He has more than 29 years in the field of conservation in Canada's national parks. During his career as an ecologist he has worked as project co-ordinator and as administrator at the regional scale for the management of ecosystems and natural resources of Forillon and La Mauricie national parks, Mingan Archipelago National Park Reserve, the Saguenay -Saint-Lawrence Marine Park as well as national historic sites and historic canals in Québec. He was involved in the establishment and the development of protected areas, in the management of numerous research contracts aiming to increase knowledge of park ecosystems, the management of vegetation and wildlife restoration and protection project and co-ordinating environmental assessments. In recent years Mr. Foisy has participated in several federal-provincial inter-ministerial round tables relating to the elaboration of strategies for sustainable development and to the preservation of Canadian biodiversity.

Judith Froome

Judith Froome's career has gone from radio and retail copywriting, to printing sales, to exhibit planning and beyond. In 1988, after many years in the private sector, she joined the Public Service as Exhibits and Audio/Visual Officer for the then Department of Communications. In 1993 she became part of the new Department of Canadian Heritage as a Communications Advisor.

Ms. Froome is on assignment to the Panel from the Communications Branch of Parks Canada at the National Office (Ottawa) where she serves as Communications Advisor for National Historic Sites and, at times, corporate memory.

She says that her year with the Panel has provided her with opportunities few headquarters people, or Canadians, would ever have. Experiences such as spending the summer equinox north of 60°, and seeing the Northern Lights like never before while in Gros Morne, have provided lifetime memories. She has met the strength of Parks Canada, its people, throughout the country, and applauds their dedication.

Paul Tarleton

Paul Tarleton has worked in national parks since 1983, first in Prince Albert National Park and then in Riding Mountain. He has held various positions including Park Warden and Assistant Chief Park Warden; he is currently Manager, Ecosystem Secretariat for the Riding Mountain and Manitoba Field Unit. He obtained a B.Sc. in wildlife biology from the University of Guelph, Ontario, and a Master of Natural Resources Management from the University of Manitoba.

APPENDIX B: Glossary

Throughout this report, the Panel uses certain words and phrases in a particular and specific way that may be slightly different from other usage for these words and phrases. The glossary below defines meanings for words and phrases as used in this report.

Aboriginal

For the purpose of this report, the terms "Aboriginal" and "Aboriginal peoples" apply to Inuit, Métis, non-status and status Aboriginal peoples.

Aboriginal Secretariat

A branch of Parks Canada, established in 1999 and reporting directly to the Chief Executive Officer. The Secretariat provides information and policy advice on Aboriginal issues across Canada and how these may apply to Parks Canada, including partnerships, economic development, and employment opportunities with Parks Canada for Aboriginal peoples.

Adaptive Management

Adaptive management is done whenever the dual goals of achieving management objectives and gaining reliable knowledge are accomplished simultaneously; it is a scientifically defensible means of learning while doing.

Advocacy

Verbal support or argument for a cause, policy, etc. (Canadian Oxford Dictionary).

Alien species, exotic species

A species that was not originally found in a given area but is now found there as a direct or indirect consequence of human activity (Parks Canada terminology bulletin 236).

Allowable use/activity

One which does not contravene the national parks act and regulations for Parks Canada and which may also be appropriate to the conditions in a specific heritage area (State of the Parks 1997 Report).

Appropriate use/activity

An activity that is consistent with these [Parks Canada policies] and the protection of ecological and/or commemorative integrity of protected heritage areas; is especially suited to the particular conditions of a specific protected heritage area and provides the means to appreciate, understand and enjoy protected heritage area themes, messages, and stories (Parks Canada, Guiding Principles and Operational Policies, 1994, p 118).

Backcountry

Portions of a park not accessible by private vehicles. Backcountry areas are usually kept in a pristine state and may offer minimal facilities such as hiking trails, primitive campsites, shelters and portages (Parks Canada's terminology bulletin 236).

Benchmark areas, Ecological benchmark

Reference areas within national parks used for comparing the natural evolution of a park's ecosystems to the evolution of similar ecosystems in "working" landscapes outside of national parks.

Biological diversity, Biodiversity

The variety of life, from genes and species to communities, ecosystems, functions and processes (from Protecting Canada's Endangered Spaces, Hummel, 1995)

Biosphere Reserve

A representative example of a landscape, with its characteristic plants, animals and human uses, which has been given an international designation under UNESCO's Man and the Biosphere (MAB) program (Parks Canada's terminology bulletin 236).

Buffer zone
A part of the land that serves to alleviate the adverse effects of the use of one area upon another (Parks Canada's terminology bulletin 236).

Canadian Parks Partnership
A nation-wide alliance of volunteer co-operating associations that supports national parks, national historic sites and historic canals across Canada (Parks Canada terminology bulletin 236).

Conservation
The implementation of measures for the rational use, maintenance and rehabilitation or restoration of natural resources (Parks Canada terminology bulletin 236).

Conservation Data Centres
Co-operative organizations aimed at providing critical biological information for conservation programs. Data centres operate by gathering, interpreting and distributing standardized information on the ecological status of wild species and communities.

Conservation easement
A right-of-way or similar right, over another's land (Concise Oxford Dictionary) for purposes of conserving ecosystem components.

Co-operating association
A registered, non-governmental and non-profit corporation that provides services to the public at national parks, national historic sites or historic canals (Parks Canada terminology bulletin 236).

Critical habitat
A habitat that is essential to the survival of a species. Critical habitats may include breeding grounds, areas that provide year-round support for a large portion of the entire population of a particular species, winter feeding grounds, feeding stations used year-round or during periods of migration, or areas used by many species at least part of the year (Parks Canada terminology bulletin 236).

Cumulative effects
The effects on the environment, over a certain period of time and distance, resulting from effects of a project when combined with those of other past, existing, and imminent projects and activities (from the Canadian Environmental Assessment Act, Responsible Authority's Guide).

Ecological Integrity
The Panel's detailed and specific definition of ecological integrity is contained in Chapter 2, Volume II of this report. In short, the Panel defines ecological integrity as follows:

> "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."

In plain language, ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact.

Ecological Integrity Statement
The purpose of Ecological Integrity Statements is to develop a common understanding of the state of ecological integrity in the park and of what needs to be done to maintain or restore it.

Ecosystem
An interdependent system of living organisms with their physical and geographical environment (Parks Canada terminology bulletin 236).

Appendix B: 2

Ecosystem-based management
The management of human activities so that ecosystems, their structure, function, and composition, and the physical, chemical and biological processes that shaped them, continue at appropriate temporal and spatial scales. Ecosystem-based management is an approach with an aim to integrate parks into their surrounding landscapes so that they do not function as isolated habitat islands. Ecosystem-based management accounts for the range of complex interactions that occur at different temporal and spatial scales and sustainably incorporates a range of human values into the protection and use of the landscape (Parks Canada terminology bulletin 236).

Ecosystem Conservation Plan
The Ecosystem Conservation Plan is a dynamic document which develops and proposes specific goals for the maintenance of park ecological integrity and management of the park's ecosystems. The goals are based upon the objectives identified in the Park Management Plan. The Ecosystem Conservation Plan describes problems, issues and concerns relating to the conservation of the park's ecosystems. It defines needed ecosystem management actions and presents a documented prioritized plan to implement them.

Ecosystem Management Plan
A management document that contains objectives and action plans for the protection and management of a park's natural ecosystems and components.

Ecosystem Secretariat
An organizational grouping in the national parks of western and northern Canada, with expertise in ecology, planning, environmental assessment and information management. The purpose of the Secretariat is to provide necessary elements for an ecosystem-based approach to management.

Ecotourism
An ecotourist might be more environmentally responsible or aware than an ordinary tourist, but to be truly less harmful than mass tourism, the Panel argues that true ecotourism would:

- be defined clearly as a particular bundle of allowable and appropriate recreational activities and related facilities and services;
- cause minimal negative effects in terms of environmental, social and economic impacts;
- include types and levels of activities that are appropriate to the local setting and to regional/national interests;
- use facilities designed and constructed to be locally appropriate, with an emphasis on local materials and skills;
- cause or use developments appropriate to the needs of the local community;
- provide local people with maximum opportunities for employment at all levels, from ownership to management to operation;
- incorporate an educational component.

Environmental assessment
An assessment of the environmental effects of a project that is conducted in accordance with the Canadian Environmental Assessment Act and its regulations.

Environmental impact
The effects of human intervention on natural and cultural resources (Parks Canada terminology bulletin 236).

External Relations Branch
Reporting to the Director General, National Historic Sites, the External Relations Branch is the marketing branch of Parks Canada, serving both national parks and national historic sites.

Field Unit
An administrative division developed by Parks Canada, combining the management and administration of one or more national park(s), national historic site(s) or historic canal(s). There are 32 Field Units across Canada.

First Nations, First Nation governments
In this report, these terms are applied specifically to governments of status Aboriginal peoples.

Frontcountry
Portions of a park that are accessible by a motor vehicle or boat and which contain a concentration of services and facilities (Parks Canada terminology bulletin 236).

Greater ecosystem, Greater park ecosystem, Regional ecosystem
A geographic depiction of an ecosystem of a scale appropriate to understanding and management of ecosystem components. Greater ecosystems frequently cross jurisdictional boundaries.

Habitat
The particular environment or place where an organism or species tends to live (Parks Canada terminology bulletin 236).

Habitat fragmentation
The process of dividing a continuous habitat into non-continuous, smaller sub-units (Parks Canada terminology bulletin 236).

Heritage presentation
An educational or recreational activity that contributes to a better understanding, appreciation and enjoyment of heritage resources (Parks Canada terminology bulletin 236).

Heritage protection
"Protection" refers to regulatory measures, resource management and public education programs aimed at ensuring that ecosystems are maintained in as natural a state as possible. "Heritage" is the cultural and natural resources that are passed down from generations and that must be protected for future generations (Parks Canada terminology bulletin 236).

Impair, Impairment
To change the ecological structure or function of a given area so it no longer performs at an ecological optimum (Parks Canada terminology bulletin 236).

Implementation (Business) Plans
Plans currently developed at Parks Canada's second tier of planning. These plans contain Parks Canada's capital plans and satisfy all the criteria and policy requirements for Long Term Capital Plan (LTCP) as set out in the Treasury Board Manual, Chapter1-1 and Appendix B. Business Plans describe how Parks Canada's financial requirements, including those of a capital nature, will be managed according to the five investments streams :

- ongoing operations
- non-depreciable heritage assets
- depreciable contempory assets
- new investments in existing parks and historic sites
- investments in new parks and new historic sites

Infrastructure
The basic structural foundations of a society or enterprise; a substructure or foundation such as roads, bridges, sewers (Concise Oxford Dictionary).

Interpretation
An educational activity whose objective is to reveal meanings and relationships through the use of artifacts, illustrative media and first-hand experiences rather than by simply communicating factual information (Parks Canada terminology bulletin 236).

ISO 14000 Series
Standards created by the International Organization for Standardization. The ISO 14000 series of standards is the world's first internationally-accepted standard for environmental management. ISO 14001 standards include a provision for registering goals and associated activities for achievement, and certification by a third party. ISO 14004 standards include provisions for conducting environmental audits but do not include certification.

Land Claims
In 1973, the Canadian federal government recognized two broad classes of claims: comprehensive and specific. Comprehensive claims are based on the recognition that there are continuing Aboriginal rights to lands and natural resources. These kinds of claims come up in those parts of Canada where Aboriginal title has not previously been dealt with by treaty and other legal means. The claims are called "comprehensive" because of their wide scope. They include such things as land title, fishing and trapping rights and financial compensation. Specific claims deal with specific grievances that First Nations may have regarding the fulfillment of treaties. Specific claims also cover grievances relating to the administration of First Nations lands and assets under the Indian Act.

Metadata
Metadata sets include facts describing the nature of the data and circumstances of the data at the time of recording.

Mitigation
The elimination, reduction or control of the adverse environmental effects of a project, use or activity.

Native Species
Organisms that occur naturally in a particular area instead of being introduced, directly or indirectly, by human activity.

National Documentation Centre, Resource Centre
A repository located at Parks Canada's National Office in Ottawa, dedicated to the management of all reports and studies generated by or for national parks.

National Marine Conservation Area
A designated marine area set aside in accordance with the National Marine Conservation Area Policy.

National park
Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations; (b) exclude exploitation or occupation inimical to the purposes of designation of the area; and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

Source: "Guidelines for Protected Areas Management Categories" – IUCN – The World Conservation Union (1994).

In Canada, the word also means a national park as described in Schedule 1 of the National Parks Act. It is an area which has been identified as a natural area of Canadian significance, which has been acquired by Canada and designated by Parliament as a national park, and over which Parks Canada has been given administration and control under the authority of the National Parks Act. It is managed for the benefit, education and enjoyment of Canadians so as to leave it unimpaired for future generations.

Natural processes
Ecological processes that support life, such as solar energy, climate processes, geologic and geomorphologic processes, water cycles, fire cycles, wildlife population dynamics, and so on.

Natural regions (terrestrial)
Canada is subdivided in 39 distinct natural terrestrial regions based on geology, physiography and vegetation. The system of Canadian national parks is designed to protect representative natural areas of national significance in each of these 39 natural regions.

Natural Resources Management Process
Directly connected to the Park Management Planning Process, the Natural Resource Management Process identifies the main steps and products required to ensure the preservation of the parks' resources based on the objectives of the Park Management Plan. The main steps of that process are:

- resource conservation management guidelines
- basic resource inventory
- resource description and analysis
- ecosystem conservation plan
- resource management studies
- resource management plans
- monitoring

Naturalized knowledge
An understanding of the land and interrelationships that comes from a long and intimate association — knowledge that comes from being part of an ecosystem. Naturalized knowledge includes traditional knowledge that is part of Aboriginal communities as well a informal knowledge from ranchers, farmers, fishers and naturalists.

Outreach program
An off-site interpretation program that encourages and facilitates public understanding and appreciation of Canada's natural and cultural heritage. Intended to foster active involvement in heritage preservation and protection (Parks Canada terminology bulletin 236).

Park Management Plan
Each park management plan contains a statement of park purpose and objectives that reflects the role of the park in the system of national parks, and in the natural region in which the park is located. The plan provides the framework for further detailed sub-plans concerning ecosystem management, interpretation, visitor services and visitor risk management. Park Management Plans are required to be tabled in Parliament every five years.

Park visitor
Any person who does not reside within a national park, who travels to a national park for purposes of recreation, business, education or other activities. Parks visitors may be tourists or recreationists.

Parks Canada Agency
The Parks Canada Agency is a public agency created by an Act of Parliament dated February 1998 (Bill C-29). The Agency has the mandate to conserve, protect and present nationally significant natural and cultural heritage. The Agency reports directly to the Minister of Canadian Heritage.

Parks Canada
While there are branches of the Parks Canada Agency concerned with national historic canals, national historic sites, and other locations or structures, in this report the term "Parks Canada" is used specifically with reference to those areas of the Parks Canada Agency with jurisdiction over national parks.

Preservation
All actions taken to retard deterioration of, or to prevent damage to, a natural or a cultural resource. Preservation encompasses conservation activities that consolidate and maintain the existing form, material and integrity of a resource. Preservation includes short-term protective measures as well as long-term actions (Parks Canada terminology bulletin 236).

Protection
With respect to ecosystems, protection means regulatory, resource management and public education programs aimed at ensuring ecosystems are maintained in as natural a state as possible. In the context of this report, protection refers to activities within a national park or other protected area, while "sustainability" refers to broader landscape activities that extend beyond park boundaries.

Recreation
A wide range of human activities that are undertaken for the pleasure of the persons involved. Recreational activities range from relatively structured games to individualized actions which are informal, spontaneous, and variable in location.

Recreationist
A person taking part in some form of recreation. Tourists are recreationists when they hike or bird-watch in a national park, but not all recreationists in national parks are tourists. Many park users — including permanent or seasonal residents of park communities, regional residents, or true tourists on a day-trip through a park — do not meet the above definition of tourist.

Restoration
The process of restoring an area, a natural resource or an ecosystem to a specified state or condition; accomplished passively through natural processes or actively by human manipulation (Parks Canada terminology bulletin 236).

Round Table
A general term used to describe a variety of multi-stakeholder participatory processes that are typically advisory bodies to decision makers. Round tables may also be referred to as "consensus' processes" or "shared decision-making: processes."

Service Centres
Parks Canada service bureaus, which offer support to Field Units in terms of professional and technical services.

Species re-introduction
The process of reintroducing species that were formally part of an ecosystem but were extirpated, usually because of the actions of humans.

Species restoration
The act of restoring a species to its full ecological role in a community. Restoration may include re-introduction of extirpated species or enhancing an existing population that is unnaturally low.

State of the Parks Report
Following the 1988 amendment to the federal National Parks Act, the State of the Parks Report is intended to be a historical record of the parks' and historic sites' state. Produced by Parks Canada, this report is to be presented to Parliament every two years.

Stewardship
Management of heritage resources in such a way that they can be passed on with integrity to future generations (Parks Canada terminology bulletin 236).

Sustainable use, Sustainability, Sustainable manner

"Sustainable use" means that people can gain direct and indirect benefits from national parks and protected areas over the long term, without destroying them. "Sustainability" refers to decisions and actions outside of national parks that support the concept that resources should be developed or used in a way that does not impair their use by future generations. "Sustainable manner" means the use of resources in a way that ensures their integrity is not destroyed.

Tourism

Either:

a) the sum of the ... elements (travel, destination areas, tourist), resulting from the travel of non-residents (tourist, including excursionist) to destination areas, as long as their sojourn does not become a permanent residence. (Murphy 1985) or

b) the sum of phenomena and relationships arising from the interaction of tourists, business suppliers, host governments, and host communities in the process of attracting and hosting these tourists and other visitors. (McIntosh and Goeldner 1986).

Tourist

A person travelling for a variety of reasons, such as education, religion, health, sports, business, recreation, and so on (IUOTO 1968) staying at least one night (UNCTAD 1971).

Trophic level

The position of a species on an ecosystem's food web. Trophic levels range from primary producers (green plants) to top carnivores.

Wilderness

An enduring natural area of sufficient size to protect pristine ecosystems which may serve physical and spiritual well being. It is an area where little or no persistent evidence of human intrusion is permitted so that ecosystems may continue to evolve (National Wilderness Colloquium, 1988).

Wildlife corridor

A strip of land through which wild animals can move safely from one protected area to another (Parks Canada terminology bulletin 236).

Zoning

The national park zoning system is an integrated approach by which the land and water areas within a park are classified according to ecosystem and cultural resource protection requirements, and their capability and suitability to provide opportunities for visitors experiences. The national park zoning system comprises the following five zones :

- Zone I Special preservation
- Zone II Wilderness
- Zone III Natural environment
- Zone IV Outdoor recreation
- Zone V Park services

Appendix C: Report of the Sierra Legal Defense Fund to the Panel

Improving the National Parks Act to Support Ecological Integrity

This appendix summarizes the changes to the National Parks Act that were considered by the Panel to help maintain ecological integrity. The appendix provides background information and proposed legal language in support of recommendations made in the body of the report. The appendix also contains additional legal analysis that provides suggested directions for the future, while specific recommendations were not included in the Panel report. Some issues, such as legal surveys of designated wilderness zones, appear to have been resolved since the analysis was completed. The Panel thanks the Sierra Legal Defense Fund for their assistance with this legal review.

The Panel believes that the present references to ecological integrity in the National Parks Act and the Parks Canada Agency Act are not adequate to fully implement ecological integrity objectives in the parks. To better maintain and restore EI, the Panel suggests that many of the changes set out below be incorporated into Bill C-70 (or its successor) immediately. Other proposals will require further consideration and incorporation into future Parks Act amendments.

None of the proposed changes constitutes a fundamental change in direction for park management, but together they should provide the necessary legislative basis for consolidating the gains that have been made on ecological integrity and ensuring that further progress is mandated. For the most part the Panel recommends improvements to the National Parks Act so that the legislation "catches up" with the progress already made on ecological integrity in policy and operations. This will help ensure that the principle of ecological integrity is mandated more clearly by law (which will give park managers a stronger platform from which to implement ecological integrity-friendly decisions) and that progress made by Parks Canada to date is not eroded without legislative scrutiny. Other changes, such as those respecting wilderness areas, are intended to expedite the effective use of existing legislative tools to protect ecological integrity.

This appendix discusses changes to the National Parks Act in the following subject areas: (A) Ecological Integrity (Generally), (B) Management Plans and ecological integrity Indicators, (C) Wilderness Areas, (D) Regional Integration, and (E) Resource Harvesting. Finally in section (F), we provide our thoughts on two items in the current Bill that may adversely affect parks.

PROPOSED LEGISLATIVE CHANGES TO BILL C-70

A) *Ecological Integrity:* To ensure EI is the overriding priority in all parks management and decision-making, the Panel recommends that the general provision (s. 8 of Bill C-70) respecting the management and administration of parks be amended to include two new subsections. The revisions would help the Bill reflect the significant advancements already made in Parks Canada Policy and be consistent with the reflection of EI as the central mandate as set out in the new Agency legislation. The new proposed section 8 would build on the reference to EI currently in section 11 of the Bill (and also the current Act) and set out explicit provisions for ensuring that park management decisions respect EI. Exceptions could be made for emergencies.

Ecological Integrity

8. (2) Maintenance and restoration of ecological integrity, including the protection of natural resources, shall be the overriding priority in the management and administration of the parks, such that no management plan, permit, licence, lease, agreement, or other authorizing instrument may be issued under this Act or the regulations

(a) if the matter in question, taking into account existing stressors on park ecological integrity, will

(i) impair the ecological integrity of a park;

(ii) diminish the population, range or habitat of an extirpated, endangered, threatened, or vulnerable species[1] or interfere with the recovery of such a species;

(iii) diminish the population, range or habitat of any other species indigenous to a park to an extent that the population of such a species is no longer healthy, viable and well-distributed in a park; (iv) impair a natural ecological process in a park; or

(v) result in a net environmental impact.[2]

or

(b) if it would enable development or activities to proceed beyond those basic and essential services[3] that are required for the enjoyment of the parks in a state that leaves them unimpaired for the enjoyment of future generations.

Exceptions

8. (3) Subsection (2) does not apply to emergency situations involving the protection of national security, human safety or human health.

B) *Management Plans and EI Indicators:* The Panel recommends that the Bill set out in more detail the basic requirements of the park management plan and that the Bill mandate the continuation of an EI indicator program (already put in place by Parks Canada through policy). Section 11 of the Bill would be replaced by the following new section. This would help modernize the Bill to bring it up to date with current Parks Canada Policy and practice.

[Note: Subsection 11(3) of the current Bill, which is the only section that currently refers to EI, should only be removed if the more widely applicable proposed EI section above (8(2)) is adopted in its place. If the above changes to section 8 are not forthcoming, then subsection 11(3) should be amended, not deleted, as set out in this footnote,[4] and the subsections of section 11 renumbered to reflect its inclusion.]

Management Plans
11. (1) The Minister shall, within five years after a park is established, prepare a management plan for the park which shall be tabled in each House of Parliament.

[remains as is in Bill C-70] Review of Plans
11. (2) The Minister shall review the management plan for each park every five years, and any amendments to a plan shall be tabled with the plan in each House of Parliament.

Management Plan Contents [5]
11. (3) The Minister shall include in each management plan

(a) provisions for the protection of park values and visitor use;
(b) park zoning provisions including wilderness zones that exist in a natural state or that are capable of returning to a natural state, and special preservation zones that require more stringent restrictions on use than wilderness zones in order to protect park resources;
(c) a long-term ecological vision of the park that reflects ecological time frames and is based on the state of the ecosystem deemed representative of the natural region or regions in which the park is situated;[6]
(d) a conceptual model of the park's ecological system;
(e) an evaluation of the park's present state;
(f) a statement that maintaining and restoring ecological integrity is the overriding priority of the plan, and that all activities and projects contemplated by the plan are compatible with that goal;
(g) a specific set of goals and measurable objectives that a provide a long-term direction for maintaining and restoring ecological integrity;
(h) a comprehensive group of performance targets related to the goals and objectives and tied to a monitoring and evaluation program;
(i) a list of indicators designed to adequately assess the ecological integrity of parks, which will be monitored throughout the implementation of the plan;
(j) an ecosystem conservation strategy that follows ecosystem-based management principles;
(k) where visitor use is a threat to ecological integrity, provisions for overall visitor limits as well as specific limits for sensitive areas; and
(l) such other provisions as the Minister considers appropriate.

Ecological Integrity Indicators
11. (4) The Minister shall monitor the indicators referred to in subsections 11(3)(i) and 11(5) in each park to assist in assessing the degree to which ecological integrity is being successfully maintained and restored.

List of Indicators
11. (5) The list of indicators shall be prescribed by the Minister within two years of the coming into force of this Act and will include indicators relating to biodiversity, ecosystem stressors, ecosystem functions, and any others that the Minister considers appropriate.

Updating Indicators
11. (6) The Minister shall, at least every five years, review the indicators prescribed under subsection (5) and prescribe any changes to the list to ensure that the indicators are reflective of scientific advancements.

Development of Indicators
11. (7) The Minister shall appoint a panel of scientific advisors with expertise in ecological integrity to advise on the development of the indicators referred to in subsection (5) and the periodic review referred to in subsection (6).

Management to Consider Monitoring Program
11. (8) In managing the parks, the Minister shall consider the results of the monitoring program in subsection (4) and take such steps as are necessary to best maintain and restore the ecological integrity of the parks.

Results in Management Plan
11. (9) The results of the monitoring program in the previous five-year period shall be reported in the management plan for each park together with a statement summarizing the changes in the indicators and the steps required to be taken to maintain and restore ecological integrity in the next five year period.

Report
11. (10) The report prepared under subsection 12(2) shall contain a national summary of the results referred to in subsection (9).

C) *Wilderness Areas:* To remove barriers to and encourage the development of wilderness areas regulations, the Panel recommends that section 14 be replaced by the following. As noted in Parks Policy, wilderness designations are excellent means of protecting ecosystems. Nevertheless, no wilderness area has been legally designated and Parks Canada continues to rely on "wilderness zones" in park management plans. These "zones" do not benefit from the added protections in the Act that apply to "wilderness areas". The Panel therefore recommends that these zones (in addition to any others the Minister considers appropriate) be designated as official wilderness areas after the coming into force of the Act so that they will afforded legal protection and further the maintenance of EI in parks. We also recommend that the Governor in Council only be required to be involved in removing a wilderness area, and that a straightforward Ministerial regulation suffice for adding areas.

[Note: Subsection (5) is intended to remove a perceived barrier to wilderness areas designation (i.e. the cost of surveys). We have been advised that a legal survey is not needed and that other means, such as maps are often used under other legislation and regulations. As well, we have been advised that a series of GPS points would also suffice. Nevertheless, out of abundance of caution, we recommend the inclusion of subsection (5) to make it very clear that the cost of surveys will no longer constitute a barrier to designation.]

Wilderness Areas
14. (1) The Minister may, by regulation, declare any area of a park that exists in a natural state or that is capable of returning to a natural state to be a wilderness area.

[remains as is in Bill C-70] Maintaining character
14. (2) The Minister may not authorize any activity to be carried on in a wilderness area that is likely to impair the wilderness character of the area.

[remains as is in Bill C-70] Exceptions
14. (3) Notwithstanding subsection (2) but subject to any conditions that the Minister considers necessary, the Minister may authorize activities to be carried on in a wilderness area for purposes of

(a) park administration;
(b) public safety;
(c) the provision of basic user facilities including trails and rudimentary campsites;
(d) the carrying on of activities in accordance with regulations made under section 18; or

Designation
14. (4) Within one year of the coming into force of this Act, the Minister shall ensure that all wilderness and special preservation zones designated as such in an approved park management plan at the time this Act comes into force are designated under subsection (1), in addition to any other wilderness areas the Minister designates.

[The Panel recognizes that the Minister might not be comfortable with automatically designating all of the current wilderness zones as wilderness areas. If so, an avenue such as the following could be used to allow the Minister to revise the zones.]
Designation Exception
Notwithstanding subsection (4), the Minister may, in exceptional circumstances, elect not to designate portions of the zones referred to in subsection (4) if they are imminently required for other park purposes. Prior to making such an election, the Minister shall provide public notice and an opportunity for public comment on the proposed decision.

Description of Areas
14. (5) The approximate boundaries of areas established under subsection (1) may be described in the regulations through the use of maps, plans, charts, surveys, or latitude and longitude coordinates, or by reference to features, developments, utility and transportation corridors, landmarks, landforms, waterbodies, natural or cultural characteristics, or any other means the Minister considers appropriate.

Consent of Governor in Council
14. (6) No amendment may be made by the Minister to a regulation under subsection (1) for the purpose of removing any wilderness area or portion thereof unless the Governor in Council, by order, concurs with the removal. Prior to seeking the concurrence of the Governor in Council, the Minister shall provide public notice and an opportunity for public comment on the proposed decision.

D) *Regional Integration:* To encourage the regional integration of park management with the surrounding landscape, the Panel believes that a general provision should be added to section 8. Additionally, because the Panel has found that many threats to park EI emanate from development beyond park boundaries, and that such development often engages areas of federal jurisdiction, we propose consequential amendments to CEAA. These changes would further the consideration of effects on parks in environmental assessments and minimize the adverse effects of other federal decisions on parks. These are key changes required to help deal with one of the greatest threats to EI.

Bill C-70 Changes

Regional Integration
8. (4) The Minister shall actively seek to maintain and restore the ecological integrity of the parks by working in cooperation with adjacent landowners, and by participating in regional land use planning, environmental assessments, and other decision-making processes whose outcomes are reasonably expected to affect the ecological integrity of a park.

CEAA Changes

A new section allowing the Minister to require environmental assessment of projects affecting parks: The section set out below would require environmental assessments of those projects that may adversely affect parks, but would otherwise not trigger an environmental assessment under section 5 of CEAA. The Panel believes that this section will be one important means of ensuring that parks EI is better integrated with decisions outside park boundaries.

Environmental effects on parks

48.1. (1) Where no power, duty or function referred to in section 5 is to be exercised or performed by a federal authority in relation to a project that is to be carried out in Canada and the minister designated as the responsible minister for the National Parks Act is of the opinion that the project may cause adverse environmental effects on a park or park reserve under the National Parks Act, or areas under consideration by that minister for designation as a park or park reserve under the National Parks Act, or wildlife that frequents such a park or park reserve that minister shall refer the project to a mediator or a review panel in accordance with section 29 for an assessment of the environmental effects of the project on those areas.

Initiative for reference

48.1. (2) The minister designated as the responsible minister for the National Parks Act shall consider whether to make a reference pursuant to subsection (1)

(a) on the request of the government of any interested province, territory, or municipality;
(b) on his or her own initiative; or
(c) on receipt of a petition that is
  (i) signed by one or more persons, and
  (ii) accompanied by a concise statement of the evidence supporting the contention of the petitioner that the project may cause adverse environmental effects in respect of which a reference may be made pursuant to subsection (1).

Notice

48.1. (3) At least ten days before a reference is made pursuant to subsection (1) or (2), the minister designated as the responsible minister for the National Parks Act shall give notice of the intention to do so to

(a) the proponent of the project;
(b) the governments of all interested provinces; and
(c) any person who signed a petition considered by the that minister pursuant to subsection (2).[7]

No limitation

48.1. (4) Nothing in this section limits the authority of the Minister to act under section 48 in respect of the areas referred to in subsection (1).

A new subsection requiring environmental assessment decisions to protect parks (to be added to sections 20 and 37 of CEAA): The section set out below would ensure that those environmental assessments for projects affecting parks that are already triggered under CEAA would result in decisions that would better protect the EI of parks.

Course of Action Affecting Parks
20/37. (4) In carrying out a course of action in respect of a project that is likely to cause adverse environmental effects on a park or park reserve under the National Parks Act or wildlife that frequents such a park or park reserve, the responsible authority shall ensure that the matter in question will not result in any of the impacts set out in subsections 8(2)(a)(i-v) of the National Parks Act. [8]

E) *Resource Harvest:* It is well recognized that where permitted, the harvesting of resources in a park must be consistent with resource conservation principles. In order to properly assess the limits that may be needed on harvest, the Panel believes that a monitoring and management program should be required. A further subsection to section 18 is therefore recommended:

Monitoring and Management
18. (6) Where resource harvesting activities otherwise permitted under this Act are carried out in a park, the Minister shall institute and carry out an ongoing monitoring and management program for each resource being harvested to ensure that each resource being harvested is conserved and maintained at a level that leaves the resource unimpaired for the enjoyment of future generations and maintains the ecological integrity of the park.

F) *Other Items:* The Panel has concerns about two provisions in the current Bill that may adversely affect parks EI. We recommend that they be revisited in the context of how they can be amended to better ensure that EI is maintained.

(i) Sunshine Ski Area: It is our understanding that when the Act last went through revision, Sunshine was given (at the Committee stage) a temporary exception from the requirement for legislated ski area boundaries. It has now been over ten years and two plans later and the Bill still does not establish the boundaries. To be consistent with the purposes of the Act and the treatment given the other ski areas, we suggest that the exception given to Sunshine in subsection 37(2) be considered for removal and instead have its current leasehold interest legislated under Schedule 5.

(ii) Water Exports: It would appear to the Panel that subsections 10(2)(b) and (c) of the Bill are wider than necessary for allowing water exports. Additionally, they are arguably inconsistent with the need to manage the parks for parks purposes not other purposes. The Panel suggests that these sections be revisited in order to best maintain EI. If the development of such water export agreements is to be terminated, a grandparenting provision may be necessary to protect current interests.

Footnotes

[1] A definition would likely be necessary to accompany the wording of this section:

Definitions

#. (1). A species is deemed to be extirpated, endangered, threatened or vulnerable,

(a) if it is designated as such by or under any of the following:

(i) the most current published list of the Committee on the Status of Endangered Wildlife in Canada;

(ii) any Act of Canada concerning the protection of wild fauna and flora; and

(iii) any Act of a relevant province or territory, in which a park occurs or to which it abuts, concerning the protection of wild fauna and flora; or

(b) if the superintendent of a park or the Minister determines that a species is extirpated, endangered, threatened or vulnerable in a park.

(2) A superintendent of a park or the Minister shall designate a species under subsection (1)(b) if the superintendent or Minister believes that the species in question is at risk in one or more parks, having regard to available scientific and other information.[1]

(3) "species" means a species, subspecies or geographically or genetically distinct population of animal, plant or other organism that is wild by nature and

(a) is native to Canada; or

(b) extended its range into Canada without human intervention and has been present in Canada for at least 50 years.

For the purposes of this definition, a species, subspecies or geographically distinct population is, in the absence of evidence to the contrary, presumed to have been present in Canada for at least 50 years.

[2] A definition of "net environmental impact" would be necessary to accompany the wording of this section. The Panel needs to discuss further the wording of such a definition, but the Panel believes that the items listed below need to be considered in arriving at a definition:

(i) increases in emissions of greenhouse gases as defined in the Kyoto Protocol;

(ii) displacement of any native species of plant or animal directly or indirectly;

(iii) disruption of wildlife movement corridors;

(iv) creation of a visual impact on park resources;

(v) increased use of water whether through the consumption of water or discharge of water or substances into water;

(vi) synergistic or cumulative effects on infrastructure; and

(vii) other impacts identified by the Minister as an unacceptable environmental impact.

[3] A definition of "basic and essential" could accompany the wording of this section. The Panel is presently discussing what constitutes "basic and essential" services and will offer its thoughts, which could be used in formulation of legal definition at a later date.

[4] The following is a proposed replacement for subsection 11(3) if changes to section 8 (above) are not adopted:

Ecological Integrity

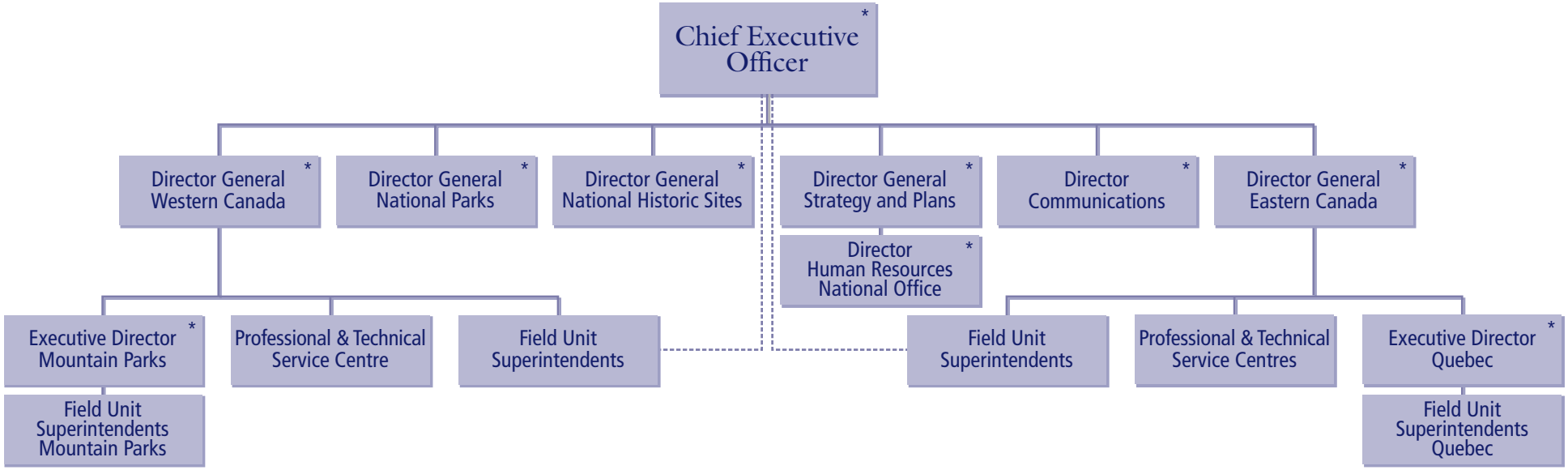
11. (3) Maintenance and restoration of ecological integrity, including the protection of natural resources, shall be the overriding priority in all aspects of park management and decision-making.

[5] This is the current list of key management plan contents under discussion by the Panel. Parks Canada is also revising its park management plan content list. Though the Panel recommends that these minimum contents be included in the legislation, it is not necessarily a final and complete list and may be worthy of further additions based on the Panel's and Parks Canada's ongoing work. Naturally, further plan content requirements may be added in policy.

[6] The wording of this section tracks the Panel's revised definition of EI.

[7] Note that the list of sections referred to in ss. 49, 50, 51, 53 of CEAA would also have to be amended to add the new s. 48.1 and clarify that it would be the Minister responsible for National Parks that would be involved in respect of issues arising under s. 48.1.

[8] This section references the proposed new subsection 8(2) above.



Appendix D: Parks Canada Agency — Organization Chart

Note: Dotted lines refer to accountability for Business Plan through the Executive Board which is clarified by the Chief Executive Officer

*Member of Executive Board

Appendix E: Significant Aboriginal Rights Cases

The law of Canada concerning the rights of Aboriginal peoples has changed radically in the past 20 years. The Constitution Act, 1982, entrenched existing treaty and Aboriginal rights, and many of the crucial cases give meaning to that protection — but other cases do not involve the constitution at all, but expand and bring into focus rights that flow from the common law or from federal legislation. The following cases are all from the Supreme Court of Canada:

Gérin v. The Queen (1985) – the first strong declaration that the Crown has a fiduciary (trust-like) obligation in dealings with the lands of Aboriginal peoples.

Sparrow v. The Queen (1990) – clarified that the fiduciary obligation is general, and extends to any Crown dealngs with Aboriginal rights.

Sioui v. The Queen (1990) – confirmed that courts will follow liberal rules of treaty interpretation, resolving ambiguities in favour of Aboriginal peoples, taking notice of historical context and facts. Treaty obligations are unaffected by the passage of time or a lack of use or enforcement.

Adams v. The Queen (1996) – established that it is possible to have constitutionally protected Aboriginal rights (to fish, for example) in places where Aboriginal title might not exist or cannot be proved.

The "VanderPeet Trilogy" (1996) – three cases that confirm that Aboriginal rights are those activities which are integral to a people's distinctive society at the time of their first contact with Europeans. These can include commercial rights.

Blueberry River Band v. Canada (1997) – said that courts looking a surrenders and treaties will not take a tight technical approach, but will enforce the Indian understanding of the transaction, to honour and give effect to the intentions of Aboriginal peoples.

Maldvik v. The Queen (1998) – deals with obligations of the Crown under a modern treaty, the James Bay Agreement. It requires good faith consultations where Aboriginal or treaty rights are affected by government initiatives.

Delgum'uukw v. Auditor General of British Columbia. (1997) – addressed Aboriginal title. Since Aboriginal title is an interest in land within the British common law system, the "magic date" for a court to examine whether Aboriginal title exists is the date of the assertion of British Crown sovereignty in an area. The case also affirms that both Canadian law and the laws of the Aboriginal nations involved must be considered in providing definition to Aboriginal rights and title.

Marshall v. The Queen (1999) – confirmed that historical evidence and oral tradition that provide context to a transaction, as well as guide to the way the Aboriginal peoples understood the treaty is always admissable to help a court interpret a treaty. It confirmed that the Mi'kmaq have a treaty right to gain a modest livelihood by fishing.

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APPENDIX G: SUMMARY OF RECOMMENDATIONS

CHAPTER 1: A Sacred Trust

1-1. We recommend this revised definition of ecological integrity:

"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."

In plain language, ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact.

For national parks, this characteristic state must respect the following criteria:

- ecological integrity should be assessed with an understanding of the regional evolutionary and historic context that has shaped the system;
- because ecosystems are dynamic, conservation strategies should maintain or restore key ecological processes within their natural range of variability;
- ecosystems are multi-scaled and conservation should be considered at many scales. National parks are part of larger ecosystems and must be managed in that context;
- functional connections between parks and equivalent protected areas within the regional ecosystem should be maintained or restored, to allow wildlife movement;
- populations of species should be managed to levels that have a high likelihood of persistence;
- ecosystems have characteristic rates of change. Understanding rates and direction are critical to understanding the system;
- parks have a finite capacity to withstand use. Human use and facilities should be compatible with park ecosystem protection in type, amount, and timing;
- ecological integrity must be assessed and understood at a landscape scale. While ecological integrity cannot be assessed at the scale of a single forest stand, campground, or parking lot, it can be compromised at any scale. Even small scale impacts can have cumulative effects and should be considered in this light;
- the goal of conserving ecological integrity is best addressed by maintaining or restoring the diversity of genes, species and communities native to the region. It is simply consistent with the vision of integrity, which is "wholeness" — if parts are missing, the ecosystem is not whole.

CHAPTER 2: Toward a Culture of Conservation

The overriding objective behind every recommendation in our report is to firmly and unequivocally establish ecological integrity as the core of Parks Canada's mandate. To do so, Parks Canada must transmit the key message to every member of the organization and its partners that:

- ecological integrity is everyone's job;
- ecological integrity is the primary criterion to be used in all decisions;
- the purpose of national parks is to protect ecological integrity.

2-1. To assist in transmitting this message we recommend that the Minister ensure that Bill C-70, or its successor, states clearly and without qualification that protecting ecological integrity is the first priority of national parks and that Parks Canada can achieve this purpose through managing for ecological integrity. (The Panel's suggested wording for various sections of Bill C-70 is contained in Appendix C.)

2-2. In accordance with section 16 (1) of the Parks Canada Agency Act, we recommend that within a six-month time frame, Parks Canada initiate the revision of the existing draft Charter that addresses the core values of the organization as they relate to the primary objectives and core mandate. For the National Parks Directorate of the Parks Canada Agency these core values should revolve around the concept of ecological integrity. To ensure that this Charter is understood and adopted by all staff and is reflective of the primary objective, Parks Canada should adopt a bottom-up process for developing the Charter by seeking input from staff at all levels of the organization.

2-3. We recommend that within six months Parks Canada begin a process to move away from the language of business and adopt a language that emphasizes ecological integrity and conservation.

2-4. We recommend that Parks Canada develop a detailed and ongoing program for ecological integrity orientation and training, with initial delivery to be completed within 18 months by all current employees (including contract employees, co-operating associations, partners, and co-operators such as commercial operators within parks). Make this training part of every new employee's orientation package. Conduct a third-party audit of the orientation program after three years to assess the status and future needs for the program.

This basic training program is to be supplemented by more advanced and targeted training programs covering skills needed for maintaining and restoring ecological integrity. For example, a training program should be developed to strengthen the capacity of regional Service Centre staff to participate in regional and provincial/territorial co-operative management efforts by:

- enhancing skills and responsibilities in liaison and co-operative management with provincial and territorial governments, Aboriginal peoples, communities, industry and other public or private agencies; and
- providing increased training in community liaison, negotiation, and communications.

We do not feel that Parks Canada's existing structure serves ecological integrity well. We heard from park staff that they feel that the current organization does not support their fundamental beliefs about the importance of ecological integrity and that while tired of change, they would welcome changes that would move Parks Canada toward achieving its core purpose.

2-5. We recommend that Parks Canada examine and evaluate the existing structure and its implications for achieving ecological integrity requirements for national parks. In any structural re-organization we suggest the following guiding criteria be used to achieving the objectives required of ecological integrity:

- ensure that ecological integrity is central to everyone's job;
- ensure that Parks Canada is represented in regions, provinces and territories by senior parks representatives who can speak for the Parks Canada Agency in establishing agreements, partnerships, and policies in any given area;
- provide these senior representatives with the appropriate authority and professional staff that go along with the responsibility to accomplish their tasks;
- provide parks with enough staff to carry out their responsibility but at the same time ensure a co-ordination of those specialists that could work better as teams and provide leading-edge expertise to parks;
- ensure that an adequate focus in the Field Unit Superintendent's responsibilities and time is devoted to national parks;
- establish networks in discipline areas (similar to the Fire Management group) to parks;
- provide Service Centers with a clear definition of roles, responsibilities and authorities in specific fields;
- provide for clear accountability and recognition mechanisms for achieving ecological integrity.

The following recommendations arise from the need to redress existing staffing to provide a strong base for ecological integrity protection. As ecological integrity becomes central to the operations and decisions of Parks Canada, these actions may be reviewed and phased out.

2-6. We recommend that Parks Canada take steps associated with staffing and training to ensure that protecting ecological integrity becomes the primary concern of every person in the organization. Such steps include:

- use a demonstrated commitment to the mandate of protecting ecological integrity as a criterion for staffing throughout the organization;
- ensure that the majority of management positions are filled with persons skilled and trained in ecological integrity. Understanding of and experience with managing ecological integrity should be among the selection criteria for all senior managers. Senior management should also have a demonstrated prior

commitment for the values of ecological integrity and national parks. In the short term, existing staffing should be examined, and training and transition strategies developed;

- create the position of National Science Advisor or Director General of Ecological Integrity. This position should be parallel to the position of Director General of National Parks and should report directly to the Chief Executive Officer. The person selected for the position should have proven expertise in ecosystem science and protected areas strategies, and would act as the scientific advisor to the Chief Executive Officer, be a member of the Executive Board, co-ordinate the overall national park science strategy, and manage a formal program of external outreach to universities and research agencies. We suggest the following criteria for this position:
  - at least at Master's-level degree in a field related to ecological integrity, with an understanding of relevant social science areas;
  - experience in protected areas management and research;
  - national reputation in their field (in order to work credibly with senior science representatives from other government departments and to develop partnerships with universities and other researchers);
  - an understanding and appreciation of naturalized knowledge systems;
  - an understanding and appreciation of adaptive management;
  - the ability to develop a research agenda, to provide mechanisms to incorporate knowledge into decision-making.
- ensure there is adequate science advice at all decision-making forums in the organization, including park management teams and scientific advisors to the Directors General East and West and Executive Directors of Québec and the Mountain Parks.

2-7. We recommend that Parks Canada improve accountability mechanisms within the organization to ensure progress toward the goal of protecting ecological integrity. Mechanisms include:

- revise and clarify accountability mechanisms at the park level. Specifically, we recommend that Parks Canada adopt new or revised accountability mechanisms such as park-level State of the Park Reports, budgeting and accounting principles, transparent decision-making processes, and other ideas developed in later sections of this report;
- use regular reporting mechanisms, evaluations, bonuses, raises, and awards to make all staff accountable for ecological integrity. Clarify the role and responsibility of all staff at all levels of the organization for implementation of ecological integrity, provide them with adequate professional support and hold them accountable for measurable results. Within a one-year time frame, institute an award program for excellence in work by park staff and partners towards ecological integrity.

2-8. At all levels of decision making, we recommend that Parks Canada adopt a transparent and open decision-making process including formal records of decision and a strategy to communicate the rationale for decisions.

2-9. We recommend that Parks Canada open dialogue about the management and maintenance of ecological integrity by:

- giving staff guidelines, principles and tools that enable Parks Canada to open the dialogue on ecological integrity;
- allowing alternate views to be expressed in a professional manner and respected, as evidence of positive organizational change;
- making management accountable for creating a climate of openness, critique and internal advocacy;
- adopting the adaptive management process to facilitate this free exchange of opinions;
- affirming and communicating the recognition that advocacy on issues that affect parks is necessary and expected;
- clearly communicating corresponding policy direction and guidelines to all park staff.

CHAPTER 3: Planning for Ecological Integrity

3-1. We recommend that Parks Canada adopt an adaptive management approach (as conceptualized in Figure 3-3) at both national- and park-level scales of planning and management, such that:

- the planning framework at each scale is consolidated around the main accountability tools at each tier (a strategic plan, an implementation plan and an evaluation report) and documents peripheral to this core are phased out;
- the planning system explicitly links the various components in the framework, both within and between national and park scales;
- the planning system makes increased and effective use of regional Service Centres to co-ordinate between national- and park-scale planning, management, and reporting so that ecological integrity objectives at both scales are mutually supportive. This will relieve Field Units of some of the present burden (Chapter 2) imposed by too much planning that leaves insufficient time for plan implementation, and will facilitate regional consultation and co-ordination (Chapters 7, 8, and 9);
- the planning framework provides for feedback, through monitoring and evaluation, about the adequacy of management practices for achieving ecological integrity objectives.

3-2. We recommend that Parks Canada simplify the parks planning process, similar to Figure 3-3, to:

- ensure that the legal requirement to maintain and enhance ecological integrity is carried down the entire process as the overriding priority;
- improve the efficiency of planning activities and thus free staff time for implementation;
- provide for fewer, but analogous, strategic and implementation planning and reporting cycles, with complementary, commensurate time lines, at each of national and park (regional ecosystem) scales.

3-3. We recommend that the Park Management Plan become a fundamentally new document, such that:

- it incorporates an Ecological Integrity Statement and the strategic aspects of Ecosystem Conservation Plans;
- all other planning is thus focused by the requirement to manage the ecosystem for ecological integrity first;
- the management planning process becomes, de facto, an ecosystem conservation planning process and its product, the Park Management Plan becomes, de facto, an ecosystem conservation plan;
- conservation scientists play a fundamental role on the management planning team (Recommendation 8-7).

3-4. We recommend that, with respect to strategic planning at the national level, Parks Canada establish a new strategic plan for managing the national system of parks for ecological integrity (see Recommendation 8-2).

3-5. We recommend that Parks Canada establish formal, mandatory monitoring and evaluation processes Recommendation 6-8) at the scale of individual parks prior to each new cycle of park management planning, by requiring a report from each park about the state of ecological integrity in the park and the surrounding greater ecosystem, to:

- track progress toward the maintenance or restoration of ecological integrity in parks and in the greater ecosystems that surround them;
- assess the effectiveness of specific management actions toward achieving the vision, objectives and goals in parks and in greater ecosystems;
- monitor the implementation of new strategic Park Management Plans for ensuring the maintenance of ecological integrity;
- indicate the proposed direction and management actions to respond to the present states of ecological integrity in parks and in greater ecosystems.

This report should undergo a third-party audit.

3-6. We recommend increased funding for renewing a planning core within Parks Canada (Recommendations 4-1 and 13-2) that is:

- competent in conservation science as well as planning for carrying out Parks Canada's mandate to maintain and enhance ecological integrity in greater park ecosystems;
- competent to meet the greater needs of enhanced consultation with the public and other agencies as demanded by ecosystem-based management.

3-7. We recommend that Parks Canada phase out separate Ecological Integrity Statements and Ecosystem Conservation Plans when they become integral to new, revised Park Management Plans (Recommendation 3-3). By this action, maintenance of ecological integrity will become the fundamental goal of park management planning, and the strategic plan will be linked explicitly to policy.

The revised Park Management Plan should include:

- the long-term ecological vision of the park in its greater ecosystem, reflecting ecological time frames, and based on the state of the ecosystem deemed representative of the natural region in which the park situated;
- a conceptual model of the park's ecological system;
- an evaluation of the park's present ecological state;
- a specific set of goals and measurable objectives that provide a long-term direction toward maintenance or restoration of ecological integrity (the incorporated strategic aspects of the Ecosystem Conservation Plan);
- a comprehensive group of indicators and performance targets related to the goals and objectives and tied to a monitoring and evaluation program;
- strategic plans for resource protection, visitor use and management, active management, and interpretation and outreach given the performance targets for ecological indicators and how each of these activities contributes to conserving or restoring ecological integrity;
- a statement about how visitor use stresses the park's ecological integrity and how such stresses are being eliminated or mitigated (Recommendation 11-3 and 11-4).

3-8. We recommend that Parks Canada provide guidelines on how to develop adequate objectives and indicators for individual parks, which will permit an effective evaluation of progress toward the vision and goals of the Park Management Plan. Conservation scientists should be part of the team that prepares the Park Management Plan. Clearly-defined and measurable objectives will assure the quality of the plan as an accountability tool and the implementation of an adaptive management approach. Formulation of objectives should take long-term outcomes into account to assess progress toward the park vision, and outline medium-term targets to implement specific actions.

3-9. We recommend that Parks Canada develop national guidelines and associated training for planners and senior managers to successfully protect and integrate the primary objective of Parks Canada's mandate into public involvement processes, that meet the following criteria:

- ensure partnerships with First Nations and incorporate Aboriginal approaches to forming partnerships;
- prior to the decision by any potential partners to participate in a specific process, they receive adequate information about the concept of ecological integrity and its implications for planning and management from Parks Canada;
- all participants agree to abide by the legislative and policy requirements respecting ecological integrity;
- all facilitators and mediators have a clear understanding of the mandate of Parks Canada with respect to ecological integrity;
- conservation scientists and other appropriate specialists from within and outside Parks Canada are active participants in the process;

- formal criteria and tests be developed to ensure that any decisions made through public involvement will uphold the maintenance and restoration of ecological integrity;
- formal evaluations of these new and innovative ways to involve the public be conducted by Parks Canada staff and third parties outside of specific processes.

3-10. We recommend that Parks Canada revise the present zoning system and methods for zoning in order to help designate, through planning, areas within parks based principally on their significance for maintaining or restoring ecological integrity and on their ecological sensitivity.

3-11. We recommend that within six months, there be an Order-in-Council to convert existing wilderness zones (Zone 2 areas) in national parks into legally designated wilderness as provided by the National Parks Act.

3-12. We recommend that the Minister seek, through Bill C-70 or its successors, to amend Section 14 of the National Parks Act to empower the Minister to make the necessary wilderness regulations rather than requiring an Order-in-Council through Cabinet Committee. We further recommend that an Order-in-Council be required to remove any wilderness designated through these regulations. Suggested wording for Bill C-70 is in Appendix C.

3-13. We recommend that Parks Canada fold the strategic components of Ecosystem Conservation Plans, with Ecological Integrity Statements, from this tier into revised Park Management Plans (Recommendation 3-3) at the strategic tier and discontinue the use of Ecosystem Conservation Plans and Ecological Integrity Statements as separate documents.

By this action, ecosystem management for ecological integrity would no longer be side-lined from the main planning process. The Panel cautions that the recommendations to phase out Ecosystem Conservation Plans and Ecological Integrity Statements must not be taken out of context. It is not our intent that ecosystem conservation planning be dropped. It is our intent that ecosystem conservation planning and ecological integrity achieve the status of a legislated role by embedding them in the Park Management Plan (Recommendation 3-3). Recommendation 3-13 cannot be implemented without also implementing Recommendation 3-3 to substantially revise the composition of management planning teams; these actions go hand-in-hand and reflect a major shift in planning processes consistent with legal requirements and policy commitments to manage principally for ecological integrity.

3-14. In an effort to move away from the language of business, we recommend that Parks Canada stop using the term “Business Plan” and refer instead to “Implementation Plans” (Chapter 2).

3-15. We recommend that Parks Canada revise the present format of Implementation (Business) Plans to also become comprehensive accountability tools for maintenance and restoration of ecological integrity. The tactical components of Ecosystem Conservation Plans should be outlined in the Implementation Plan and elaborated in individual Operational Plans for specific projects as means to achieve and maintain ecological integrity. Operational Plans should be considered appendices to the Implementation Plan, thus making explicit the links from the Guiding Policies and Principles and strategic Park Management Plans to action-oriented work plans through Implementation Plans (Figure 3-3). The Implementation Plan should describe:

- clear linkages to the strategic Park Management Plan in sufficient detail to be meaningful;
- progress to the goals described in the Park Management Plan;
- how the park will monitor implementation of aspects of the Implementation Plan related to ecological integrity;
- business and service lines that can be used to more readily distinguish the financial and human resources specifically allocated to ecological integrity with clear information on funding for salaries, goods and services, and others such as emergency funds (Chapter 13).

3-16. We recommend that Parks Canada review the length of the cycle for implementation planning with a view to making it commensurate with the length of the cycle for strategic planning, such that each new implementation planning cycle immediately follows and is guided by new Park Management Plans. This will facilitate better linkages between strategic and implementation planning.

3-17. We recommend that Parks Canada designate stand-alone work plans as "Operational Plans" under the umbrellas of the strategic and implementation plans to facilitate better linkage between strategic directions and on-the-ground activities to achieve ecological integrity objectives. This can be done by adding Operational Plans as appendices to the Implementation Plan, thus forcing the Implementation Plan to refer explicitly to them as well as to strategic Park Management Plans.

3-18. We recommend that Parks Canada annually report about progress to maintaining and restoring ecological integrity in individual parks to provide a short-term feedback loop at the park level (Figure 3-4). A formal, mandatory Annual Plan Implementation Report should be available to the public using appropriate public involvement mechanisms. (This report could be simply a compendium of the annual reports on individual Operational Plans.) The Annual Plan Implementation Report should be short and designed to facilitate easy "roll up" into a mandatory five-year report on the state of ecological integrity in the park (Recommendation 3-5) prior to the beginning of the next park management planning cycle.

3-19. We recommend that the basic elements of a new National Strategic Plan should be similar to those proposed for revised Park Management Plans (see above), but scaled to the national level, and particularly include:

- the strategy that Parks Canada will follow to best position and manage its protected areas in relation to those of its neighbours in a greater, national protected areas network (Chapters 8 and 9);
- the targets for verifiable indicators that the greater protected areas networks, of which national parks are a component, adequately protect Canada's ecological integrity and biodiversity;
- the extent to which national-level indicators of ecological integrity meet targets.

3-20. With respect to implementation planning at the national level, we recommend that Parks Canada revise the Corporate Plan along lines conceptually similar to those suggested for Implementation (Business) Plans (Recommendation 3-15), especially so that business lines and service lines better reflect the principal objective of national parks with respect to ecological integrity and to better track the allocation or resources to the maintenance and restoration of ecological integrity. Develop Corporate Plans to achieve national-level targets for indicators of ecological integrity.

3-21. With respect to evaluation and reporting at the national scale, we recommend that Parks Canada continue to produce the State of the Parks Report, but:

- plan ahead to eventual revision and adaptation of the State of the Parks Report to address progress to the goals and objectives of a new strategic plan for managing the system of national parks for ecological integrity at the national-level (Recommendations 3-5 and 3-19);
- better align strategic planning with evaluation and reporting to ensure up-to-date information is available at the beginning of each new planning cycle. Consider changes to the National Parks Act that would eventually bring the required report production cycle (currently every two years) in line with the new cycle of strategic planning at the national level, which will necessarily be longer (minimally five years). In the three-year gap created by extending the reporting cycle for the State of the Parks Report from two to five years, the new, mandatory Annual Plan Implementation Reports at the park level (Recommendation 3-18) and annual reports on Corporate Plan implementation (as required now by the Parks Canada Agency Act) would fill the need for more frequent public reporting locally and nationally;
- ensure that the State of the Parks Report is reviewed by the Standing Committee on Canadian Heritage.

3-22. To those ends, we recommend that Parks Canada create an enhanced role for regional Service Centres to ensure that national-, regional- and park-level planning, implementation, evaluation and reporting is co-ordinated and mutually supportive (Chapters 2 and 4).

CHAPTER 4: Building Capacity for Learning and Education

4-1. We recommend that Parks Canada significantly upgrade internal learning capacity, including the natural sciences and social sciences, planning, interpretation, environmental assessment, and the capacity to effectively build regional liaisons (Figure 4-1).

This upgrade will require an investment similar to the magnitude of the national park allocation of the Green Plan. Parks Canada cannot hope to understand and manage for ecological integrity with current level of investment in science expertise. Upgraded internal science capacity is required at all levels — the National Office, regional Service Centres and park level. The Panel estimates the cost of this significant upgrade in science capacity to be $28 million per year in additional funding (Chapter 13).

In the Panel's opinion, improving Parks Canada's science capacity is a critical step. Methodological issues such as monitoring, data management and research will automatically improve once science capacity is upgraded. (These issues are discussed further in Chapter 6).

4-2. We recommend that Parks Canada manage and upgrade its science capacity by:

- developing a National Science Strategy including external national and regional Scientific Advisory Boards to guide national park use of science, including acquisition and evaluation of scientists, funding of science, and standards such as peer review;
- revitalizing the regional Service Centres as regional Ecological Centres to support park programs and develop and implement regional integration programs;
- creating a clear path for internal upgrading of existing national park staff to attain advanced degrees and help fill the science needs of Parks Canada, including a formally supported education leave program (estimated cost $2 million per year to allow 20 staff to take advanced degrees at one time);
- hiring scientific staff positions using external competitions, to rapidly upgrade scientific capacity and access to the best possible expertise.

4-3. We recommend that Parks Canada significantly increase formal contact with Canadian universities by establishing a system of 10 co-operative study units specializing in ecosystem science and protected area management (estimated cost $3 million per year, Chapter 13).

These units should include partnerships with conservation-mandated agencies such as Environment Canada, Canadian Forest Service, Canadian Wildlife Service, as well as appropriate provincial and territorial agencies. Parks Canada should seek to establish Chairs of Protected Area Management including ecological integrity, human dimensions, and interpretation, financed through the creation of new research Chairs announced in the October 1999 federal Speech from the Throne.

The role of these co-operative study units would be to connect Parks Canada to the larger research community, provide science advice to park managers, provide training for Parks Canada staff, and conduct high quality research on key issues. The development of co-operative study units could be further enhanced by:

- inviting universities to submit proposals to a national program, which would be partially funded by Parks Canada. Host universities should be chosen from those that have a diverse faculty with a commitment to conservation research, a history of Parks Canada involvement, and a supportive administration willing to modify accounting and tenure practices to ensure the unit's success. Each university participating in co-operative study units would have a Unit Chair who would be jointly supported by Parks Canada, its partners and the host university, with respect to salary and grants to support research and students;
- creating a new National Science Advisory Committee, headed by the National Science Advisor or Director General of Ecological Integrity (Chapter 2) and including the Unit Chairs;

- forming partnerships with other relevant conservation-oriented governmental and non-governmental agencies with mutual interests (such as Environment Canada, Natural Resources Canada, North American Wetlands Council of Canada, Model Forests, World Wildlife Fund) in supporting co-operative units. This approach has been used successfully by the United States National Park Service;
- inviting Aboriginal peoples to be an integral part of co-operative units, to provide expertise and open lines of communication through joint understanding of park ecosystems;
- emulating existing successful models, including the NSERC/SSHRC Industrial Chair program. A possible template could be the NSERC Industrial Chairs sponsored by the Canadian Wildlife Service (Environment Canada), which resulted in the Atlantic Co-operative Wildlife Ecology Research Network.

4-4. We recommend that Parks Canada facilitate contact with the larger university and education community by:

- amending Parks Canada's financial procedures to allow grants to university graduate students and researchers, as opposed to contracts;
- establishing a student internship program to provide seed funding for research in protected areas and increase the profile of Parks Canada to all students (39 graduate internships — one for each existing park — of $10,000 each, and 39 university and high school internships of $3000 each for a total cost of approximately $500,000/year. This figure will increase as new parks are added to the national system);
- requiring all parks to post updated lists of their key research needs on the Internet;
- revising the current national park research permit to create a nationally standard document with clear rules and procedures designed to assist researchers, and recognize the regional Service Center as the official links with universities;
- having accessible and well-documented data bases for use by external researchers;
- using the proposed "Exchanges Canada" presented in the October 1999 federal Speech from the Throne to introduce students to parks throughout Canada.

4-5. We recommend that Parks Canada re-establish and/or revitalize memoranda of understanding or research agreements with government research agencies to expand research capacity and ensure that joint projects receive stable funding.

4-6. We recommend that Parks Canada establish partnership agreements with interested Aboriginal peoples, enabling national parks to co-operate with Aboriginal peoples to increase knowledge and understanding of ecological integrity in national parks and historic sites.

4-7. We recommend that Parks Canada work with partners in provincial, territorial, and municipal park systems, universities, non-governmental organizations and the private sector to collectively fund the systematic establishment of regional science advisory committees, and to participate in annual "Parks Research Forum" series across Canada, based on the Ontario model.

CHAPTER 5: The Need for Active Management and Restoration

5-1. We recommend that Parks Canada formally reaffirm that active management is an important part of conserving ecological integrity in all national parks. Active management can be used as a fundamental conservation tool as long as the following conditions are met:

- the goals for active management are explicitly defined and reviewed by knowledgeable persons;
- active management occurs within the context of an adaptive management framework;
- the active management program is formally evaluated at fixed intervals.

5-2. We recommend that, in appropriate parks, Parks Canada actively manage to restore fire, within an adaptive management framework, to 50 per cent of the long-term average, using the following means:

- create a fire restoration fund to complete the task of re-establishing this essential natural process to national parks. The level of funding should be based on internal Parks Canada calculations to restore fire to 50 per cent of the long-term average through a combination of prescribed fire and zoning. (Cost: $6 million per year in addition to the current levels of funding);
- make fire restoration a management accountability by setting fire restoration targets as part of the Park Management Plan in appropriate parks as was done in the Banff Management Plan;
- where possible Parks Canada should work with Aboriginal peoples to understand the history of Aboriginal fire use and its application to prescribed fire.

5-3. We recommend that Parks Canada be active in species restoration and that Parks Canada must have the required new resources.

5-4. We recommend that Parks Canada establish a set of guidelines for site restoration, in order to guide the many questions that remain at the field level regarding restoration. The guidelines should include targets for acceptable levels of toxic substances, restoration of landforms and hydrological patterns. The guidelines should also include guidance of the removal or remodeling of historical structures in order to meet site rehabilitation needs.

5-5. We further recommend that Parks Canada establish a dedicated site restoration fund of $5 million per year to ensure that funds are available and that restoration is not directly competing with other immediate priority issues. The fund should be allocated based on a national priority list for site restoration in national parks. As there are a limited number of sites that need restoration, the fund can be re-evaluated after five years to see if it has met its objective.

5-6. We recommend that Parks Canada develop a national policy and guidelines on the definition of invasive alien species and appropriate criteria for control and removal methods.

5-7. We further recommend that Parks Canada improve the management of alien species by working with local experts, museums, universities and other government departments to routinely monitor for new species invasions. In addition, improved management of alien species will result from implementing recommendations made in Chapter 12 concerning the elimination of non-native plant species in parks. To foster public support for the elimination of alien plant species from national parks, we recommend that Parks Canada design and implement interpretive programs and other information as recommended in Chapter 10.

5-8. We recommend that Parks Canada establish guidelines for the management of any harvested populations in a park. We recommend that no harvest be allowed to occur unless these guidelines are met and that any harvest under the jurisdiction of Parks Canada that does not meet these principles should be discontinued. We note that some harvest regimes within some national parks are not under the jurisdiction of Parks Canada and thus Parks Canada could advocate a position in these cases.

We recommend the following principles for harvesting within national parks:

- all harvest levels should be based on an ongoing assessment of basic population parameters, including population size, sex ratio, age class distribution and age-specific birth and mortality rates;
- all harvested population should have an ongoing assessment of age-specific and sex-specific harvest rates as well as location;
- for all harvested populations, there should be areas of the park where harvest is not permitted, designed to act as benchmark areas.

5-9. We recommend that Parks Canada confirm the role for control of hyperabundant species in national parks through active management, to maintain or restore ecological integrity, as long as the following conditions are met:

- the reasons for the hyperabundance are well understood;
- there are clear objectives and numerical targets for the control program;
- the impacts of the control measures are predicted;
- there is a monitoring system in place to examine the causes of hyperabundance, the dynamics of the population being controlled and the predicted impacts of the control measures;
- the management program is conducted under an adaptive management framework where the original assumptions are subject to review.

CHAPTER 6: Tools for Understanding and Assessing Ecological Integrity

6-1. We recommend that Parks Canada develop national guidelines for ecological inventories: inventories specifying the type, scale, resolution and frequency of the information required. All parks should then review their current inventories against these guidelines.

6-2. We recommend that Parks Canada incorporate the costs of developing an adequate ecological inventory as part of new park establishment. As a general rule, the average cost of an inventory will be approximately $250,000 per park to cover a basic inventory of vegetation, topography, linear features, invertebrates and vascular plants. There are currently 14 unrepresented natural regions and five northern parks with inadequate basic inventories. The total cost to complete a basic inventory of each of these (14 new parks and five existing northern parks) would be $4.75 million.

6-3. We recommend that Parks Canada establish an emerging issues research fund of $1 million per year to deal with threats to ecological integrity that occur outside the normal management planning and business planning cycles. The National Office should administer the fund, with proposals for access based on peer review and expressed emergency need.

6-4. We recommend that Parks Canada integrate monitoring within the management accountability framework. Specifically, we recommend that Parks Canada:

- explicitly recognize monitoring as a tool for adaptive management;
- the lack of a complete suite of indicators or the inability to measure specific indicators (because of methods or costs) are not valid excuses to delay monitoring. All parks should begin reporting on at least some ecological integrity indicators immediately;
- at all levels of Parks Canada, link accountability to both implementation of a monitoring program and the results (outputs) obtained from the monitoring program.

6-5. We recommend that Parks Canada further develop the program for ecological monitoring and assessment in national parks. Specifically, we recommend the following actions:

- appoint a permanent, full-time national Ecological Integrity Monitoring Co-ordinator to assist and guide parks through the development and implementation of monitoring programs (Figure 4-1 in Chapter 4). This must include the development of an on-line catalogue of protocols that can be used by individual parks. Develop customized protocols for each park as needed;
- in each park, review and evaluate existing monitoring programs based on the national monitoring framework to identify current monitoring projects that fit the framework or can be modified to fit the framework and those that should be discontinued;
- base monitoring programs on a hypothesis of how monitored elements will change as a result of stresses;
- re-organize the existing ecological monitoring framework around the model of principles, criteria, indicators and targets;

- develop a clear understanding on which indicators of ecological integrity can be aggregated to national-level reporting; and which are unique to a given park and should be assessed at the park level. Develop corresponding mechanisms for measuring and aggregating these indicators;
- incorporate both quantitative and qualitative techniques in monitoring, as they best fit the measurement of the indicators;
- develop specific methods for incorporating naturalized knowledge and scientific knowledge to improve the comprehensiveness of monitoring programs;
- design monitoring protocols simultaneously with data management and retrieval strategies;
- ensure all monitoring protocols and the design of the basic program are subject to external peer review.

6-6. We recommend that Parks Canada support ongoing regional and national monitoring initiatives with monitoring data at the park level by:

- establishing a dedicated ecological integrity monitoring envelope of $3.9 million per year to allow parks to proceed with the development of their essential monitoring programs. This will vary from park to park but is based on an average cost of $100,000 annually for each park;
- working with other agencies, industries, universities, non-governmental organizations, Aboriginal peoples, park visitors and community groups for data collection and reporting. Where appropriate and feasible, design monitoring protocols for application (and in consideration of) across park boundaries and monitor accordingly;
- establishing a resource library of measurement protocols and targets (also called verifiers) for parks within their ecoregion and across regions. Co-ordinate development of measurement protocols and verifiers with other local and regional monitoring programs including provincial and federal state of the environment reporting and local, regional and national state of the forest reporting (such as Model Forest Criteria and Indicator projects).

6-7. Correct the absence of an atmospheric monitoring program by establishing a network of six monitoring stations in national parks, in co-operation with the Atmospheric Environment Branch of Environment Canada.

For sites with no existing instruments, the cost to establish a base monitoring station would be $200,000. Annual operating costs would be approximately $150,000 per year including staff. The total program costs would be $1.2 million for establishment and $1.2 million per year for operations. If split with the Atmospheric Environment Branch of Environment Canada, operating costs would be $600,000 for establishment and $600,000 per year for Parks Canada.

6-8. We recommend that Parks Canada establish an ongoing park-based monitoring report of the state of each individual park's ecological integrity (see for example the State of Greater Fundy Ecosystem Report or Waterton's State of the Crown of the Continent Report). As outlined in recommendation 3-3, these reports should be done every five years, prior to management plan review. In addition, these reports should undergo a third-party review/audit and be made publicly available as part of an annual public reporting process. In using this report, the revised Park Management Plan should demonstrate how the proposed direction and specific management actions respond to the state of ecological integrity within the park (Chapter 3).

The park-based State of the Park Report should include:

- a description of how the ecosystem functions and a list of the key drivers;
- a description of the current ecosystem conditions and stressors;
- a summary of changes of key indicators over time;
- an overview of the state of the regional ecosystem including a discussion on the most significant regional stressors;
- results of past management practices;

- a projection of future conditions in the absence of management changes;
- a proposed park zoning system based on ecological sensitivities;
- responses required by the management plan.

6-9 . We recommend that Parks Canada continue to produce the national-level State of Parks Report with the following changes. The Minister should affirm that the primary purpose of the State of the Parks Report is to report on ecological integrity, regardless of whether the State of the Parks Report includes other integrated information. In addition the State of Parks Report should:

- be subject to a third-party scientific review and audit;
- be reviewed by the House of Commons Standing Committee on Canadian Heritage.

6-10. We recommend that Parks Canada develop a formal and rigorous data collection approach for State of the Parks Reports. Specifically we recommend that Parks Canada:

- define linkages between park-level monitoring and national-level monitoring;
- develop common methodologies and protocols that are ecologically appropriate to each park but capable of being aggregated to national-level reporting;
- establish a national database for national State of the Parks Reports;
- dedicate staff at the National Office to the task assembling a national database for State of Parks Reports.

6-11. In recognition that data and information are different, we recommend that prior to any data collection program, Parks Canada formally define what information is required for management. Formally define information needs by asking what is required, what level of precision is required, how current does the information need to be and what scale of resolution is required. The information needs analysis should be conducted in all parks using the model established in Jasper National Park (Thomlinson, 1997).

6-12. We recommend that Parks Canada establish a system-wide data management and archiving system. These could include:

- establishing guidelines and standards that will ensure long-term survival of data and documentation and easy retrieval for all potential users;
- establishing national guidelines and standards for data repositories and for metadata description of all data sets;
- ensuring copies of all documents related to park management and ecosystem conservation are deposited at Parks Canada's National Documentation Centre. Develop a National Data Repository to complement the Documentation Centre;
- each park should ensure that in-house and contracted research data and reports are deposited at the Parks Canada National Documentation Centre and the regional Service Centres. Establish guidelines for the deposition of natural specimens at appropriate facilities.

6-13. We recommend that Parks Canada make Field Unit Superintendents responsible for the protection of park ecological data and documentation. Through regular audits, evaluate the state of ecological data sets and documentation. As a first step, Parks Canada should have Statistics Canada conduct an audit on data management and storage mechanisms.

6-14. We recommend that Parks Canada report the condition of ecological data sets in the national parks in the national- and park-level State of the Park(s) Reports.

6-15. In all parks, design data management plans to organize, protect and make data accessible. These plans should be considered a key product of the ecosystem conservation program, while Park Management Plans should include the park's data management strategy.

6-16. We recommend that Parks Canada assign professional geographic information officers to each national park, to maintain a professional database and ensure public access. These data managers should work in close partnership with external partners in regional Conservation Data Centres.

6-17. We recommend that Parks Canada invest in the existing network of Canadian Conservation Data Centres, through direct funding, by:

- investing or becoming a partner with Conservation Data Centres. Parks Canada could ensure standardization and further the cause of ensuring the availability of conservation data in Canada. Parks Canada could also contribute to the evolving standards for spatial conservation data (estimated cost: $300,000 per year at $50,000 per centre);
- assist the development of Conservation Data Centres in the Yukon, Nunavut and Northwest Territories through provision of funding and expertise. In the long term, such regional databases will be an invaluable asset to Parks Canada. (Estimated cost: $150,000 per year at $50,000 per centre.)

6-18. We recommend that Parks Canada make suitable Parks Canada databases publicly available on the Internet. This will ensure data standards are maintained and allow researchers to conduct additional analysis that can benefit Parks Canada.

6-19. We recommend that Parks Canada enhance its ability to manage and share information at the National Office, Service Centres and national parks, so that Parks Canada can share data and information "vertically" within the organization and "horizontally," at appropriate scales, with external partners, as follows:

- the National Office requires the enhanced ability to share information with other federal departments and international agencies, and to provide information about national ecological integrity issues to Service Centres and national parks;
- Service Centres require the enhanced ability to share information with provincial ecosystem management agencies, non-governmental organizations, and private organizations, and to support data management and analysis in national parks;
- national parks require the ability to share information with partners on the scale of the greater ecosystem, and to send critical information up through the Parks Canada system.

6-20. We recommend that Parks Canada become an active partner in ongoing national efforts to establish a Biodiversity Resource Network. Parks Canada's involvement could range from cataloguing its databases for network access to participating in the design of the Network's structure to ensure the Network will meet Parks Canada's needs.

CHAPTER 7: Working with Aboriginal Peoples

The Panel believes there is a genuine desire within Parks Canada to make progress toward integrating Aboriginal naturalized knowledge and values into park management, as evidenced by the creation of the Aboriginal Secretariat and a growing number of specific co-operative endeavours at the park level. But all this is taking place under the caveats which govern Canada's policies dealing with claims and First Nations, and patterns of asserting rights through court claims. The Panel therefore proposes that the policies and actions recommended below be implemented without prejudice by either party's positions or interests that can be expressed through legal means or through the claims process.

These recommendations are offered in the spirit of friendship and responsibility for ecological integrity. We acknowledge that the actions embodied in some of these recommendations demand substantial funding and long-term commitment. We believe that Parks Canada will be substantially stronger and more capable to protect ecological integrity with the help and support of Aboriginal peoples.

7-1. To foster the development of relationships based on trust and respect between Parks Canada and Aboriginal peoples, we recommend that Parks Canada initiate a process of healing between Aboriginal peoples and Parks Canada.

Through this process Parks Canada will:

- recognize that the interpretation and acknowledged history of national parks must reflect the past and present occupation and use by Aboriginal peoples;
- recognize the historical presence, occupation and use by Aboriginal peoples as an inherent component of the greater park ecosystems of national parks;
- solicit Aboriginal peoples' involvement in Parks Canada's activities;
- sponsor a series of healing conferences to begin the process of healing, moving from confrontation to collaboration. Note that by "sponsoring" we mean "fostering" or "facilitating," not necessarily "organizing." The notion of true partnership can begin with the respectful meeting of the two sides in a mutually acceptable healing process;
- acknowledge that the healing process offers potential for research and co-operative ventures.

7-2. We recommend that Parks Canada adopt clear policies to encourage and support the development and maintenance of genuine partnerships with Aboriginal peoples in Canada.

Through these policies, Parks Canada will:

- enhance its commitment to Aboriginal peoples by providing the newly-created Aboriginal Secretariat with the resources required to stimulate expressions of genuine partnership at the local, regional and national levels (see Chapter 13 for more discussion regarding funding of the Aboriginal Secretariat). Parks Canada will initiate national, regional and site projects with Aboriginal peoples, which will create an atmosphere of co-operation;
- enhance relationships with the historical occupants of national park lands;
- re-affirm that no new national parks will be established without the involvement of First Nations of the area.

7-3. We recommend that Parks Canada, together with Aboriginal communities, develop mutually-reinforced educational projects that will lead to better mutual understanding and joint action toward protection of ecological integrity in national parks.

Through these educational projects Parks Canada will:

- provide opportunities for park staff to learn the history and culture of the Aboriginal peoples in their areas;
- give specific mandates to Field Unit Superintendents and adequate information about the Aboriginal history of the region that will enable them to initiate dialogue with the Aboriginal peoples of the area;
- work with Aboriginal people to develop an outreach program to Aboriginal communities, schools and First Nation governments;
- as part of the outreach and awareness program, support the cultural translation of parks materials, including publishing materials in the local Aboriginal language, and using Aboriginal names for places and species in materials published or printed in English, French and other languages;
- as a sign of respect, encourage the use of Aboriginal names for places, plants and animals;
- acknowledge and integrate the knowledge and experience of Aboriginal peoples into efforts to conserve the ecological integrity of Canadian national parks;
- work together with Aboriginal peoples to re-integrate Aboriginal harvest in national parks, on a case-by-base basis, to mutually acceptable levels based on traditional use and the common goal of protecting ecological integrity, including the mutual determination of areas that will remain free of any harvest (Chapter 6).

7-4. We recommend that Parks Canada ensure protection of the current cultural sites, sacred areas and artifacts that are under the auspices of Parks Canada.

As part of this process, Parks Canada will:

- return to First Nations all sacred artifacts and human remains currently in Parks Canada's possession, using proper ceremonies and rites;
- negotiate agreements for the use of Aboriginal artifacts in education and interpretive programs;
- work with Aboriginal peoples to create a secure and private inventory of sacred areas, so that they can be better protected;
- facilitate the execution of ceremonies and rites that Aboriginal peoples believe necessary for their culture;
- empower and enable First Nations people to tell their own stories in the parks, including direct participation in interpretive program planning and delivery;

CHAPTER 8: National Parks In The Canadian Protected Areas Network

8-1. We recommend that the Minister seek provincial and territorial co-operation on finishing, by the end of 2003, the implementation of the Statement of Commitment to Complete Canada's Networks of Protected Areas, endorsed by the Tri-Council of Environment, Parks and Wildlife Ministers in 1992; work towards a comprehensive national protected areas system plan based on co-operation between the Government of Canada, provinces and territories.

The Panel has not identified costs associated with this multi-jurisdictional recommendation.

8-2. We recommend that Parks Canada, in co-operation with other jurisdictions, complete a nation-wide protected areas gap analysis that will guide completion of the national protected areas system, of which national parks represent an essential component. Base the gap analysis on the principles of conservation biology and the maintenance of ecological integrity (Recommendation 3-4).

8-3. We recommend that the Minister expand the national park system to include ecological representation of all 39 natural regions as defined by Parks Canada. We recommend that the Minister ensure sufficient funds are allocated for new park establishment, and that new parks have sufficient funds for planning, operations and ecosystem management, without reducing funds of existing parks (Recommendation 13-4).

8-4. We recommend that Parks Canada negotiate park establishment agreements that give the highest priority to maintaining ecological integrity by seeking boundaries that meet ecological integrity objectives. Ensure regional co-operation measures are in place to support ecological integrity objectives.

8-5. We recommend that Parks Canada improve local support and future regional co-operation for candidate park sites by:

- promoting a common vision, with the province or territory, for land use in the prospective greater park ecosystem, within which a new national park will play a key role;
- facilitating agreement on a common greater ecosystem vision and park ecological integrity goals among its negotiating partners and the public;
- showing how complementary conservation objectives for surrounding lands can assist other jurisdictions in meeting their mandates;
- demonstrating how maintaining ecological integrity and appropriate visitor use will support diversified local economies;
- directing more human and financial resources toward First Nations and local communities to help them assess the impacts and secure the benefits of new national parks.

8-6. We recommend that Parks Canada increase the resources available to conduct biophysical inventories and greater park ecosystem analyses, to ensure that proposed park boundaries are based on the best available conservation science (Recommendations 6-2 and 13-2).

8-7. We recommend that Parks Canada appoint conservation scientists to new park establishment negotiating teams in order to help provide convincing arguments for boundaries based on ecological integrity criteria. Ensure that park planners and conservation scientists who participated in the park establishment phases are available to take part in new park management planning efforts (Recommendation 3-3).

8-8. We recommend that Parks Canada reach agreement with the provinces, territories and other federal departments to use their legislative powers to withdraw candidate national park sites from development as early as possible to preserve their ecological integrity during the planning process. For example, with respect to the boreal forest, urge the responsible governments not to issue timber or other development permits in candidate park sites on federal lands (as recommended by the Senate Subcommittee on the Boreal Forest in Competing Realities: The Boreal Forest at Risk, 1999).

CHAPTER 9: From Islands to Networks

9-1. We recommend that the Minister work with the provinces and territories to protect the ecological integrity of the national, provincial and territorial network of protected areas through formal agreement. In developing the agreement, include First Nations governments, municipalities, non-government organizations and industry as partners in the discussions.

We recommend that the Minister initiate a federal inter-departmental memorandum of understanding to support the maintenance of ecological integrity of national parks by ensuring consistent policies and plans with respect to lands under federal jurisdiction in greater ecosystems that include national parks.

9-2. We recommend that the Minister requests the Government of Canada to use existing federal government authority within its jurisdiction regarding fisheries, endangered species, migratory birds, long range air pollution, navigable waters and environmental impact assessment to support the maintenance of ecological integrity in national park ecosystems. (A similar action was also recommended with respect to boreal forest management by the Senate Subcommittee on the Boreal Forest, 1999.)

9-3. At the provincial and territorial level, we recommend that Parks Canada undertake regular and continuing dialogue among senior executives of federal, provincial and territorial agencies responsible for land and resource management to support improved co-operation on the maintenance of ecological integrity in national parks and other protected areas. For example:

- encourage the establishment of co-operative planning structures to address regional integration of national parks. When such an inter-agency co-ordination structure is created, focus on providing guidance and resources needed to sustain on-the-ground efforts, rather than on imposing a new hierarchy to oversee all aspects of work;
- support adoption of provincial legislation on conservation easements where it is absent;
- participate in regional sustainable development strategies and in regional management plans where they may affect a national park's ecological integrity. Promote the maintenance of biodiversity and ecological processes within greater park ecosystems as underlying principles of these strategies.

9-4. We recommend that Parks Canada, in partnership with the provinces and territories where appropriate, improve regional co-operation with Aboriginal peoples in two ways:

- use co-operative management arrangements set out in existing land claim agreements or treaty provisions, to work with First Nations on maintaining ecological integrity in greater park ecosystems.
- where land claim agreements do not exist, explore ways to establish other arrangements such as memoranda of understanding, joint advisory bodies, or other arrangements to provide an interim means of maintaining ecological integrity, without prejudice to future land claim agreements.

9-5. We recommend that Parks Canada increase its participation in specific local resource management arrangements with provincial or territorial agencies that have jurisdiction in greater park ecosystems. Systematically participate in municipal and regional government planning and regulatory processes. Adopt a supporting role in the conservation of lands around national parks by:

- initiating studies of habitat protection opportunities outside park boundaries in greater park ecosystems and beyond. Co-operate with neighbouring jurisdictions to provide supplementary wildlife habitat outside of park boundaries;
- working with neighbouring jurisdictions and industry to develop co-ordinated access management plans (such as road and trail density standards) on lands in and around the park;
- working with neighbouring jurisdictions and industry to develop resource use or operating conditions on lands around national parks that support the maintenance of ecological integrity and address industry requests for secure tenure.

9-6. We recommend that the Minister launch a national partnership program to protect the ecological integrity of national parks, by establishing a Partnership Fund of $20 million per year.

Apply the Partnership Fund to a broad range of co-operative agreements to help maintain the ecological integrity of national parks and other federally administered conservation areas, such as Canadian Heritage Rivers. The Panel recommends that the Fund be administered by Parks Canada and that:

- a board be appointed to make recommendations on the criteria for the Partnership Fund, the annual distribution of grants, and performance measurement;
- the Fund include support for a full range of co-operative arrangements, acquisition of wildlife habitat, conservation easements, industry and private landowner partnerships, participation by Aboriginal peoples and non-governmental organizations;
- the Government of Canada seek matching private funding, for example through private land trusts or industry;
- the Fund be competitive in nature and focused on measurable results toward maintaining the ecological integrity of the national park system and other federally-administered protected areas;
- as part of the Partnership Fund initiative, publish national guidelines for establishing co-operative management arrangements, including co-financing, that support the maintenance of ecological integrity.

We recommend that the key target for the $20 million Partnership Fund be to support co-operative agreements for all existing and proposed national parks. The Fund could secure key supplementary habitat around national parks and also help sustain co-operating associations. Following new park establishment, the Partnership Fund could help secure appropriate community benefits from new parks, for example training or development of services that support the maintenance of ecological integrity.

9-7. We recommend that Parks Canada use the full range of existing regional co-operation models to enhance maintenance of biodiversity and ecological processes in the greater ecosystem of each national park. Evaluate the effectiveness of each model for its potential contribution to land use change in support of maintaining ecological integrity. Example models include:

- Biosphere Reserve (such as Waterton and Riding Mountain);
- special management zones (Muskwa-Kechika region of British Columbia);
- Model Forest (such as Fundy and Jasper);
- “Inhabited Forest” (La Mauricie);
- greater ecosystem planning projects (Fundy);
- regional planning commissions or advisory boards.

9-8. We recommend that Parks Canada develop and support partnerships with First Nations, conservation groups, co-operating associations and the business community to assist in a variety of research, monitoring and public education activities in support of maintaining ecological integrity in greater park ecosystems.

9-9. We recommend that Parks Canada develop partnerships with charitable land trusts to secure habitat adjacent to Canada's national parks, in co-operation with private landowners to acquire critical habitat adjacent to national parks or using conservation easements to create zones of co-operation around parks.

9-10. We recommend that the Minister require Parks Canada to maintain and enhance the ecological integrity of the parks by working in co-operation with adjacent landowners, and by participating in regional land use planning, environmental assessments, and other decision-making processes where outcomes are reasonably expected to affect the ecological integrity of a national park.

9-11. We recommend an amendment to the National Parks Act to incorporate a consequential amendment to the Canadian Environmental Assessment Act, requiring the Minister responsible for national parks to undertake an environmental assessment when adverse environmental impacts on a national park are expected to occur. (Such an assessment could be done on the initiative of a request by a provincial or territorial government, members of the public, or on the Minister's own initiative. The federal Environment Minister would retain authority to require an environmental assessment under an existing provision of Canadian Environmental Assessment Act.) Suggestions for specific wording of the National Parks Act are contained in Appendix C.

9-12. We recommend that the Minister advise the government of Canada to amend the Income Tax Act to exempt ecological gifts from capital gains tax and allow for the part sale/part donation ("bargain sale") of land.

9-13. We recommend that Parks Canada use the State of the Parks Report to measure progress toward the implementation of those portions of the Canadian Biodiversity Strategy that are within Parks Canada's mandate.

CHAPTER 10: Interpretation and Outreach

10-1. We recommend that Parks Canada add ecological integrity to the "Statement of Purpose for Interpretation and Outreach" as the core purpose of interpretation and outreach. In order to formally entrench the importance of ecological integrity in interpretation, this Statement should be backed by a clear policy that all national, regional, and individual park publications, interpretation programs and facilities reflect the ecological integrity obligation.

10-2. For each park, we recommend that Parks Canada develop an ecological integrity interpretation and outreach strategy that confirms ecological integrity as the prime objective, presents clear and consistent messages about ecological integrity, balances plans for both interpretation and outreach, and has measurable goals and objectives that can be evaluated on a regular basis (for example, in Implementation Plans or State of the Park Reports).

This strategy requires the following elements:

- programs that reflect a focus on ecological sustainability in each park, including messages about the design or retrofitting of infrastructure facilities to reflect Parks Canada's commitment to ecological integrity;
- a content analysis of each park's interpretation program (including museum displays, information signs, brochures, presentations) to measure the degree to which ecological integrity is being communicated;
- research on the reasons for low visitor involvement in interpretation activities and subsequent actions to increase involvement;
- interpretation programs with a focus on outdoor experiences and learning;
- integration of natural history education and broader information on the whole national park system, present and future challenges and opportunities, dissemination of literature, the results of scientific research in both natural and social sciences, and visitor research information;

- programs that include messages that accurately discuss human/animal conflicts, visitor use patterns, and the implications for ecological integrity.

10-3. We recommend that Parks Canada make essential interpretation information available to all park visitors at no charge (excluding park entrance fees).

10-4. We recommend that Parks Canada expand national parks interpretation programs to reinforce efforts aimed at traditional target audiences and to include new strategic target audiences and media. Support strong interpretation programs in terms of personnel, budget, and training. Acknowledge and support the professional status of those who work in interpretation through a national training program focusing on ecological integrity, funding for research and development of presentation programs, and a process for career advancement. Provide funds for interpretation and outreach programs for research, staff, and renewal of these programs to meet interpretation objectives. (Chapter 13.)

This would entail:

- working in collaboration with tourist operators and other visitor service providers to provide pre-trip information with a strong ecological integrity focus via the Web, maps, audio-tapes, CD-ROMs, video-tapes, and other media;
- in each park that contains one or more park communities, developing an interpretation program that is aimed explicitly at park community residents and their special relationship to ecological integrity. The linkages between interpretation and park residents should focus on environmental stewardship and working toward developing environmentally-friendly communities;
- promoting ecological integrity as the concern of all Parks Canada staff. Ensure that all staff are involved, empowered, and trained regarding communicating goals, objectives and messages, particularly as they apply to ecological integrity. Communicate the ecological integrity mandate more effectively within Parks Canada as a whole and especially at the individual park level;
- developing an education program on ecological integrity, aimed at politicians and other decision-makers in the federal government and other levels of government;
- developing interpretation and outreach programs specifically aimed at audiences in the regions surrounding national parks, including school systems, corporations, local governments, regional residents and others;
- making integration of Aboriginal history, culture, and relationship to the land a major priority in interpretation programs. Work with Aboriginal communities to allow Aboriginal peoples to tell their own stories and to build understanding and trust concerning traditional Aboriginal activities in national parks;
- focusing interpretation concerning ecological integrity on young people and educators, particularly through the formal curriculum;
- setting up programs and activities to bring national parks and their ecological integrity issues to major Canadian cities, particularly through collaboration with municipal parks departments;
- developing interpretation and outreach programs specifically tailored to businesses, corporations and industry associations (such as the Canadian Pulp and Paper Association, the Canadian Association of Petroleum Producers or the Canadian Tourism Commission) to communicate the need to protect ecological integrity in national parks through sustainable activities outside of national parks;
- providing funding for research and development of the Internet and other media.

10-5. We recommend that Parks Canada include the regional dimension in interpretation programs in order to place ecological integrity messages into regional, national, and global contexts. Make each park the regional focal point for public education programs in protected areas networks and ecosystem management.

This would entail:

- increasing interpretation efforts to educate community and regional stakeholders on Parks Canada's ecological integrity mandate and on the specific ecological integrity objectives of each park;
- targeting these efforts in support of regional integration;
- changing the thinking that it is only Parks Canada's job to protect ecological integrity to a view that it is everyone's job;
- discussing broader environmental themes (such as global climate change) that are threats to ecological integrity and link these themes to national parks;
- reinforcing interpretation in the field by reinstating interpretation staff.

10-6. We recommend that Parks Canada increase and support the role of partners, particularly volunteer associations, in interpretation and outreach as an enhancement to, but not replacement of, the work of core professional full-time staff.

10-7. We recommend that Parks Canada immediately cease the product marketing of national parks in general and the product marketing which attempts to increase overall use of parks or divert demand to shoulder seasons or so-called "under-used" parks in particular. Concentrate instead on social marketing, policy marketing, and de-marketing aimed at appropriate target audiences with messages focusing on ecological integrity.

10-8. We recommend that Parks Canada work with regional and provincial bodies involved in tourism product marketing to educate them about the stresses on ecological integrity caused by current or increased levels of use and to encourage them to incorporate appropriate ecological integrity messages in their marketing programs.

CHAPTER 11: Enjoyment and Appropriate Use

11-1. We recommend that Parks Canada develop a formal assessment program for assessing activities in national parks with ecological integrity as the determining factor.

This assessment should:

- assess each activity nationally for allowability, with the assessment to be approved by the Director General of Ecological Integrity;
- assess each allowable activity at each national park for appropriateness, with the assessment to be approved by the Field Unit Superintendent with guidance from the Director General of Ecological Integrity;
- not allow or consider any new activities as allowable or appropriate without undergoing an assessment at the national level;
- using the Banff-Bow Valley Round Table process as an example, develop a set of conditions and standards to determine whether a particular activity and a particular level of use are appropriate in specific situations in terms of ecological integrity;
- use the precautionary principle as the primary guide in determining the appropriateness of types of activities and levels of use in national parks;
- use the following criteria as measures of the appropriateness of each allowable activity:
  - appropriate in terms of "basic and essential" services;
  - appropriate in terms of local environmental, social, and economic conditions;
  - appropriate in terms of numbers of visitors and timing;
  - appropriate in terms of demand for long-term use.

The framework proposed by Nilsen (1994) is a useful starting point for developing these policies and programs.

11-2. We recommend that Parks Canada phase out inappropriate recreational uses of national parks, over time and as opportunities arise, including those that are deemed "non-conforming uses." (See also recommendations in Chapter 12.)

Note: this recommendation is related to recreational activities and does not include traditional activities that are part of a park establishment agreement.

11-3. We recommend that Parks Canada adopt demand management as an explicit policy, provide increased support for social and natural science research related to demand management, and address demand management in each park's Park Management Plan and interpretation programs, so that visitors and other audiences can understand why they should support demand management.

11-4. We recommend that Parks Canada develop a national directive to define "basic and essential services." Suggested wording appears in Appendix C.

CHAPTER 12: Shrinking the Ecological Footprint

Approaches to facility and community developments in national parks need to be updated to reflect a broader ecological and social view of sustainable development and practice.

12-1. We recommend that Parks Canada establish a highly qualified core design/planning group within Parks Canada's National Office or in regional Service Centres, to be responsible for developing ecologically sensitive design criteria to ensure that ecologically sustainable design and management in all development projects in national parks is realized on the ground.

12-2. We recommend that Parks Canada procure all professional services on an open and competitive basis, emphasizing environmental performance criteria as much as other criteria such as design quality, cost, and timeliness of delivery.

12-3. We recommend that Parks Canada assess any capital redevelopment of facilities, accommodations and infrastructure belonging to both Parks Canada and to private or commercial operators.

This should be based on the following principles:

- maintenance of ecological integrity must be the first priority in all redevelopment decisions;
- apply the principle of "no net negative environmental impact" to all redevelopment decisions;
- conduct a needs analysis on all facilities, accommodations and infrastructure to determine whether they are required in the park and still acceptable, given current ecological understanding;
- all facilities, accommodations and infrastructure should be models of environmental management, including water and energy conservation, use of biocides, transportation and waste management;
- consider cumulative effects of facilities, accommodations and infrastructure at local and regional scales;
- most parks should not experience any increase in the present facility footprint;
- ensure that any redevelopment is consistent with the Park Management Plan and, if applicable, the community plan;
- facilities, accommodations and infrastructure developments should be responsible for providing staff accommodation so as to avoid undue burdens on park communities. This principle especially applies to accommodations for seasonal staff.

12-4. Over a long-term, programmed time frame, we recommend that Parks Canada redesign, replace, rebuild or remove existing facilities and infrastructure in national parks to reduce their ecological footprints.

Such improvements include:

- removing barriers to wildlife habitat and movement corridors, compacting and intensifying park communities, and using space with greater economy;

- applying ecologically-sensitive site planning for roads, parking areas and pedestrian traffic, pedestrian spaces and park arrival areas, consistent with best management practices and ecological design principles;
- modifying maintenance practices for manicured areas such as lawns, picnic sites, campgrounds and park arrival areas to a natural regime with native plants. Communicate the reasons for a "wild" or "unmanaged" appearance to park staff and to the public;
- eliminating alien, non-native plant species in park communities and open spaces;
- upgrading assets and facilities in the context of ecological integrity;
- making resources and skilled staff available in each park to conduct an environmental assessment prior to upgrading or decommissioning any asset or facility.

12-5. We recommend that Parks Canada use environmental management systems as integral to conducting daily operations in keeping with the preservation of ecological integrity.

The widespread adoption of the environmental management system could be facilitated by:

- communicating the importance of environmental management to all staff and contractors, and communicating the results of environmental management to the public through interpretation and outreach programs;
- including an environmental management system section, listing objectives, targets and progress indicators, in the State of the Park(s) reporting documents. Set environmental performance objectives in Park Management Plans and report on attainment in State of the Park Reports.

12-6. We recommend that Parks Canada, over time, incorporate sustainable infrastructure, energy systems, materials and practices in park management and activities. There are many ways to achieve this recommendation, such as:

- using benign technologies for energy systems (photo-voltaic solar power, wind turbines) or purchasing "green power" (electricity generated using renewable sources such as solar and wind) where this option is available;
- reducing vehicle emissions through a number of means from ensuring regular maintenance to using natural gas-powered or other low-emission vehicles;
- making tertiary treatment of sewage effluent in park communities and related park developments a priority and incorporate tertiary treatment systems as existing sewage treatment facilities require replacement;
- using water and energy conservation measures in all park buildings and communities; collaborate with residents and tourism facility operators to develop such conservation measures and systems;
- changing from environmentally harmful cleaning materials and procedures to benign products and procedures;
- incorporating composting systems and recycling programs in all park communities, park arrival areas, and recreation facilities where supporting recycling industries are available. Where these are not available, provide leadership to develop appropriate recycling industries working in collaboration with local and regional jurisdictions or waste management operators;
- sharing advice and expertise among parks and park staff, incorporating ideas from all staff levels to improve design, maintenance and procedures.

12-7. We recommend that Parks Canada closely track the implementation of the new policy review component of environmental assessment at all national parks, in order to evaluate its effectiveness in enhancing decision-making related to the scale and appropriateness of proposed projects. Policy review should produce a record of decision that describes project objectives, evaluates alternatives (particularly non-development alternatives), demonstrates concordance with all relevant national park policies and identifies measures for evaluating the success of the project's implementation and operation. Information from the evaluation should be used adaptively to improve future projects and future environmental assessments.

12-8. We recommend that Parks Canada adopt the principle of integrating environmental considerations into all projects. Include environmental assessment practitioners in all phases of a project, from concept to final construction, in partnership with the project manager. As a means of ensuring that ecological integrity becomes everyone's job, project managers, not the environmental assessment practitioner, must be responsible for meeting ecological integrity objectives related to their project.

12-9. We recommend that Parks Canada enhance its expertise in understanding and managing cumulative effects (Chapter 4).

12-10. We recommend that Parks Canada provide individual national parks with the authority to set an annual date beyond which project proposals will not be accepted. this will enable environmental assessment staff to organize their workload and will provide a reference point as an aid in evaluating cumulative effects. Park Management Plans should provide an assessment of cumulative effects and identify quantitative targets for limiting cumulative effects over the period of the Park Management Plan (Chapter 3).

12-11. We recommend that Parks Canada provide training in environmental assessment for all prospective project managers, and provide professional development and networking opportunities for specialist and practitioner positions.

12-12. We recommend Parks Canada establish a policy formally adopting the precautionary principle to ensure that risk to national park ecosystems is reduced. Park Management Plans should contain a statement describing how the park will apply the precautionary principle in managing development proposals.

CHAPTER 13: The Need for Committed Investment

13-1. We recommend that Parks Canada take the following first steps to implement improved management and accountability for ecological integrity in national parks before the allocation of additional resources to maintain and restore ecological integrity.

The first steps proposed by the Panel have been chosen to be seminal in setting a new direction for Parks Canada at both symbolic and operational levels. These first steps are measures that have been recommended previously in this report:

- reforms to bring science advice and information to the Chief Executive Officer and into the Executive Board through the appointment of a national Director General of Ecological Integrity (Chapters 2 and 4);
- initiation of a participatory process to develop an Agency Charter, which would lay out the core values of the organization as they relate to its primary objective of ecological integrity (Chapter 2);
- development and early implementation of a detailed and ongoing training and orientation program focused on ecological integrity (Chapter 2);
- revisions to planning guidelines to make ecological integrity the core and overarching theme of future Park Management Plans (Chapter 3);
- gazetting the wilderness zones in at least two national parks in order to give them legal designation, and announcing the intention to gazette wilderness zones in all parks within five years (Chapter 3);
- establishing written guidelines for the re-orientation of the external relations (marketing) department from a focus on mass tourism product marketing to a focus on social marketing, policy marketing, and de-marketing with messages focusing on ecological integrity (Chapter 10);
- strengthening systems to enable public transparency on spending of all additional resources in business plans and public estimates, to make readily identifiable the budgets for: ecosystem research, monitoring and management; the Partnerships Fund and expanded partnerships with Aboriginal peoples; and national parks interpretation;
- development of a strategic plan for moving beyond these first steps to address the longer-term issues essential for the re-orientation of the Parks Canada Agency's national parks components toward the ecological integrity objective, including:
    - a detailed budget plan for expenditure of all additional resources given for ecological integrity purposes;

- specific accountability goals for the ecological integrity mandate, including regional integration at national, Field Unit and individual park levels;
- initiation of communications with Aboriginal peoples on how to undertake a healing process;
- a plan to refocus the interpretation and outreach programs on ecological integrity as the primary message, and to widen the audiences for these programs.

13-2. We recommend that the Minister of Canadian Heritage seek additional resources to implement the recommendations of the Panel as follows (see Figure 13-4 for specific dollar amounts):

- to upgrade the internal knowledge capacity of Parks Canada, and enable co-operation with external science programs (Chapter 4) as follows:
  - increase internal capacity in the natural and social sciences and in planning.
  - fund education leaves to upgrade the knowledge of existing staff.
  - funding support for external researchers through 10 co-operative study units and student internship programs in each park.
  - a Conservation Data Centre Partnership.
  - an emerging issues research envelope.
- to supplement and expand active management programs (Chapter 5) as follows:
  - a dedicated site restoration envelope to ensure there are funds available and that restoration is not directly competing with other immediate priority issues.
  - to supplement the existing fire restoration program so that fire can restored to 50 per cent of its long term average.
- to supplement and stabilize ongoing funding for ecological monitoring activities (Chapter 6) as follows:
  - an ecological integrity monitoring envelope.
  - atmospheric monitoring in co-operation with the Atmospheric Environment Branch of Environment Canada.
- to improve relations between Aboriginal peoples and Parks Canada (Chapter 7):
  - for liaison officers and activities in aboriginal communities and in Parks Canada.
- to contribute to partnerships that will support the ability to maintain the ecological of national parks:
  - for a Partnership Fund to be applied to a broad range of co-operative agreements with respect to maintaining the ecological integrity of national parks and other national conservation areas (Chapter 9).
- to approximately double Parks Canada's budget for presentation of heritage resources (interpretation and outreach) by the national parks in order to expand national park interpretation programs to strategic new audiences, new media, and educational institutions, and with a greater focus on ecological integrity (Chapter 10):
  - work in collaboration with tourism operators and other groups to make ecological integrity messages available to people planning trips to national parks.
  - develop interpretation programs aimed at specific strategic audiences such as park community residents, national park staff, politicians and decision-makers in various levels of government, regional communities, youth and educators, and the private sector.
  - develop outreach programs to bring parks to people, especially in urban areas.
  - develop means to involve Aboriginal people in interpretation and outreach programs.

13-3. We recommend that the Minister of Canadian Heritage support proposals currently being made to the Minister of Finance by environmental non- governmental organizations to change the Income Tax Act to exempt ecological gifts from capital gains tax and allow for the part sale/part donation of land (Chapter 9).

13-4. We recommend that funding for new park establishment should include:

- an associated increase in base appropriations for subsequent park operations;
- the costs of developing an adequate ecological inventory. As a general rule, the cost of a basic inventory are estimated to be $250,000 per park on average. This is over and above any other inventories such as the Mineral and Energy Resources Assessment process in the northern territories. There are currently 14 unrepresented regions and five northern parks with inadequate basic inventories. The total cost to complete a basic inventory of a completed national park system would be approximately $5 million.

13-5. We recommend that Parks Canada divide project funds using an "envelope" system of fiscal management with one of these envelopes being for activities related to ecosystem research, monitoring, and management at both national and regional levels, and one envelope for projects under other program areas.

13-6. We recommend that Parks Canada initiate, within two years, an investigation of the infrastructure of each national park, to determine the capital funding required with respect to:

- current conditions of infrastructure facilities in relation to their impacts on ecological integrity and the need for replacement and/or upgrading;
- determination of appropriate design for environmentally sustainable technologies to meet ecological integrity objectives;
- a phased implementation program and identification of priority sites.

13-7. In keeping with the public trust to protect, conserve and interpret Canada's natural heritage, and to contribute towards the protection of global biodiversity as established in the Parks Canada Agency Act, we recommend that Parks Canada undertake pilot projects to adopt a revised definition of assets that would include the following elements:

- the condition of the natural assets (natural resources) as indicated from park-level monitoring reports (State of Park Reports) and the costs associated with restoration and maintenance of these assets;
- knowledge assets such as data (inventory, monitoring, research), metadata, libraries, photo collections, specimen collections (including the value added from having a multi-year data base).

13-8. We recommend that Parks Canada require Field Units to include a specific examination of the implications of revenue forecasting and targets on maintenance and restoration of ecological integrity in their Implementation (Business) Plans.

13-9. We recommend that Parks Canada enable management decisions in support of ecological integrity to be separated from revenue implications and to accomplish this, through clarifying and publicizing that the need to protect ecological integrity is included in the revenue policy interpretation of "extraordinary circumstances" under which relief from revenue targets can be obtained.

13-10. We recommend that Parks Canada establish a consistent set of rules to be used in full cost accounting for all projects or activities with full cost recovery objectives.