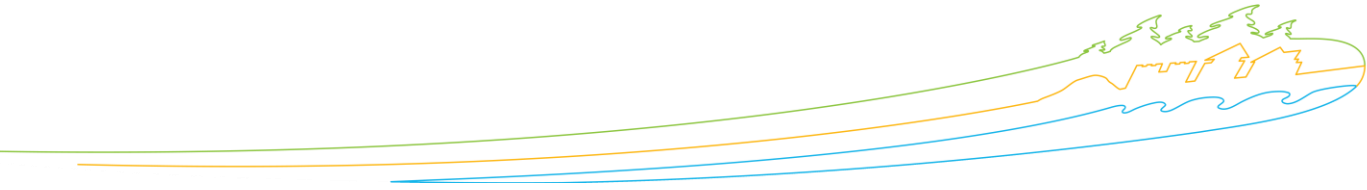




Parks Canada Parcs Canada



Evaluation of Parks Canada's National Parks Conservation

Final Report– May 16, 2014

Office of Internal Audit and Evaluation

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Her Majesty the Queen in Right of Canada, represented by
the Chief Executive Officer of Parks Canada, 2014

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EXECUTIVE SUMMARY

The National Parks Conservation sub-program involves the protection of both natural and cultural heritage resources in national parks. The sub-program accounted for an estimated 12% of the Agency's total annual expenditures. Failure to adequately manage the sub-program could result in a loss of ecological integrity of parks and the historic value of cultural resources within national parks, and ultimately impact on the ability of the Agency to sustain these protected heritage places and resources for future generations. Given the materiality of the national parks conservation sub-program and its importance to the Agency's mandate, it was identified as a priority for evaluation in Parks Canada's Evaluation Plans from 2009-2010 through 2011-2012.

Consistent with the requirements of the Treasury Board (TB) *Policy on Evaluation* and associated directives (2009), the evaluation addressed:

1. **Relevance:** Does natural and cultural resource conservation in national parks align with federal government and Agency roles, responsibilities and priorities? Is it meeting the needs of Canadians?
2. **Effectiveness:** Is natural and cultural resource management in national parks producing the intended outputs and achieving expected results?
3. **Efficiency and Economy:** Is natural and cultural resource management in national parks efficient and economical in producing the expected outputs and outcomes?
4. **Design and Delivery:** To what extent is the sub-program designed for optimum achievement of desired results?

Methodology

Data from multiple lines of evidence was collected for the evaluation. These included: a literature review; document and file review; analysis of a variety of secondary data; site visits to 12 national parks; online surveys of the Agency's Resource Conservation Managers and Cultural Resource Specialists; 20 interviews with Agency staff in National Office or service centres and 54 interviews with staff in the field; 44 individual or group interviews with partners and stakeholders; and an expert group discussion.

Over the course of the evaluation many changes were occurring in the Agency that affected the sub-program (e.g., impacts of budget reductions, renewal of specific roles and responsibilities, introduction of new policies and guidelines impacting on expectations for resource conservation). As a result, some of the information gathered in the initial stages of the evaluation regarding effectiveness became less relevant. Continued data collection and analysis throughout 2013 served to contextualize and compensate for some of the limitations of the aging data.

Relevance

We concluded that the National Parks Conservation sub-program continues to be relevant. There is evidence of continued threats to natural and cultural resources under Parks Canada's authority. Resource conservation in national parks is consistent with Parks Canada's legislative and operational mandate, and this priority is clearly reflected in the Agency's corporate and strategic documents. The sub-program is consistent with government-wide priorities and international

commitments. In general, Canadians strongly support the federal government's role in the protection of natural and cultural resources. At a local level, many Canadians are aware of and are actively engaged in the conservation of these resources.

Effectiveness

Activities and Outputs: There is considerable evidence that many expected activities take place and associated outputs are produced. This includes various kinds of ecological or cultural resource monitoring and applied research, as well as many types of management interventions to maintain or improve aspects of ecosystems, and to a lesser extent, the condition of cultural resources in national parks.

Since the modern approach to Ecological Integrity (EI) monitoring was introduced in 2006, substantial progress has been made in setting up the indicator framework, and many measures have been developed and are being tracked. As of 2011, the Agency could report on the condition of almost three quarters of the indicators in southern parks, and on both condition and trend for 61% of the indicators. For the most part, these represented initial measures of condition and trend. Significant amounts of applied research are occurring to support decision making. Information from both monitoring and applied research is being incorporated into management plans, state of the park reports and corporate reports. It is reported to influence decision making in national parks.

The Agency's approach to EI monitoring is governed by recent, detailed and comprehensive guidance to support a consistent and sustainable approach to this activity. The approach to monitoring and reporting was recognized by our panel of experts as an international best practice. In 2011, the Agency introduced new guidelines for ecological monitoring that focused monitoring requirements. At the time of the evaluation, no target date was specified for when park monitoring programs were to be compliant with these guidelines although towards the end of the evaluation management was taking steps to address this issue. Based on the relevant information system data in 2013, we found that ecosystem indicators in some parks have not yet been adjusted to match the national set of core indicators set out in the guidelines, and that some parks reported more active indicators or measures than are required. The extent to which the system data represented current ecological monitoring activities on the ground is uncertain given that not all the relevant information had been entered into the system. Again, management recognized the importance of timely data entry and was taking steps toward the end of the evaluation to address the issue.

The Agency's overall approach to ecological restoration for protected areas has also received international recognition and was viewed by our group of conservation experts as a best practice. Many active management and restoration efforts are on-going in the Agency. However, aside from the Action on the Ground projects, there is no central inventory that captures the full extent of these activities and links them to indicators or measures. Various reports of project results are available and demonstrate tangible results of Agency efforts (e.g., reports of invasive species reductions, native species reintroduction, implementation of traditional fire regimes, rehabilitation of landscapes, mitigation of contaminated sites or the impacts of infrastructure projects).

We estimated that active management and restoration efforts attempt to influence about three quarters of the ecosystems identified in southern parks, covering the full spectrum of condition and trends in condition ratings (i.e., from ecosystems in good condition with improving trend to ecosystems in poor condition with declining trend).

Unlike the situation with respect to natural resources, there is no single system that captures information on cultural resources in national parks. This creates challenges in understanding the state of knowledge with respect to these resources. The focus of most management targets and strategies at the time of the evaluation was on knowledge generation for cultural resources. Applied research and active intervention related to cultural resources does occur, but the scope and scale of these activities is small relative to the resources devoted to natural resource management in national parks. A key challenge in the future will involve developing mechanisms to identify where resources are most at risk and therefore represent the site specific priorities.

Outcomes: At the sub-program level, the Agency expects to achieve 80% of the active management targets associated with its Action on the Ground projects by March 2015. The relevant projects have a mix of 99 output or outcome targets. The number of targets associated with a project varies so that about a third of the projects account for half of the targets. As of 2013, a few projects are completed and some targets have been met (i.e., 23 or about 23%). Based on progress to date, management expects to meet its overall target by March 2015.

Action on the Ground projects, as well as other active management initiatives, are expected to contribute to achieving the Agency's target at the program level of improving one EI indicator in 20 southern parks by March 2015. Improvements in EI indicators may be realized in one of three ways: by improving the condition or trend of the indicator; by improving the condition or trend of a measure; or by meeting active management targets. Most national parks appear to have one or two indicators that they are focusing on to support achieving this target. The majority of managers and specialists believe their active management and restoration projects are making a difference either by achieving active management targets or by changing the condition or trend of a measure. Few respondents expect changes at the level of an ecosystem indicator given that ecosystems as a whole are complex and slow to change in response to management interventions. Given the extent of various active management and restoration activities in the Agency, it is reasonable to conclude that the program level target will be met.

We did not identify any unintended consequences of resource conservation activities, or of other Agency activities, on the conservation of resources in national parks.

Efficiency and Economy

For the period covered by the evaluation, the Agency did not directly track **the total** costs of the national parks resource conservation sub-program, although it will do so in the future. We estimated the sub-program costs during the period covered by the evaluation to be in the range of \$71M to \$81M per year **(i.e., about 75% of the costs are incurred in national parks and are clearly linked to the sub-program)**. The vast majority of the **total estimated costs** are for natural resource rather than cultural resource conservation in national parks. They are incurred in southern as opposed to northern parks. The single biggest expenditure for both types of

conservation is active management, followed by costs for knowledge generation. There is, as would be expected, substantial variation in recorded spending on both natural and cultural resource conservation between individual parks. We lacked data to determine whether the observed variation was reasonable in light of management objectives.

We observed a number of management practices and actions designed to impact on the efficiency and economy of the sub-program, including efforts to encourage collaboration and integration in achieving objectives, changes to focus conservation activities, changing Agency organizational structures and resourcing models for resource conservation (including seasonal alignment of the work force), and the introduction of mechanisms such as voluntary operational reviews for the ecological monitoring program, which could in principle contribute to future efficiencies. Action on the Ground projects, a key aspect of the Agency's active management of ecosystems, are managed in a way that provides assurance they are designed and executed efficiently.

Design and Delivery

The operational design and delivery of the resource conservation sub-program in national parks changed significantly over the course of the evaluation. The renewal of the resource conservation function created a nationally standardized set of organization models for the function tailored to the different field unit requirements. Under the new models, each park has a Resource Conservation Manager who is accountable for ecosystem and cultural resource management in national parks. The Resource Conservation Manager is supported by a team of Ecologist Team Leaders, who lead assigned science programs and supervise teams of Resource Conservation Technicians and Resource Management Officers. Implementation of the renewed structure took longer than planned but was completed in July 2012, and was expected to bring clarity to roles and responsibilities. It was perceived by Resource Conservation Managers to be an improved structure for program delivery. The Natural Resource Conservation Branch in national office was also realigned to support improve support to the field in the areas of ecological monitoring and information systems, active management and ecological restoration, species at risk, and environmental assessment.

Recommendations

The major issues identified during the evaluation pertain largely to the quality and accessibility of information to support conclusions about program performance (i.e., effectiveness, efficiency and economy). These issues apply to both natural and cultural resource management in national parks. However, given both the materiality of the natural resource component of the program and the fact that revisions to the Cultural Resources Management policy are relatively new, we focused our recommendations on improving the completeness, accessibility and public reporting of information related to natural resources conservation in national parks. As a result, we recommend that:

- 1** The VP Protected Areas Establishment and Conservation propose to Executive Management Committee (EMC) a timeline for entering existing monitoring information into the Information Centre on Ecosystems (ICE) database and standards for timely input of new information in the future. Progress against timelines should be monitored and reported periodically to EMC.

Agree: Field Unit Superintendents are now expected to populate the ICE database with existing data by March 2015 and to update it annually with new data in the future. The target is communicated in PCX Mandate Letters for 2014-2015 and is reflected the Agency's revised Directive on Management Planning and Reporting. FUSs will attest on how they met this mandate letter commitment as part of the annual PCX performance evaluation process.

- 2 The VP Protected Areas Establishment and Conservation, in collaboration with field unit superintendents, identify milestones and target dates for when all national parks are expected to have implemented the basic monitoring system architecture, consistent with the consolidated guidelines, and report to EMC on progress toward the target.

Agree: Field Unit Superintendents are now expected to have their monitoring programs aligned with 2011 Guidelines by March 2015. The target is communicated in PCX Mandate Letters for 2014-2015. FUSs will attest on how they met this mandate letter commitment as part of the 2015 PCX performance evaluation.

- 3 The VP Protected Areas Establishment and Conservation (PAEC), in collaboration with field unit superintendents, identify milestones and target dates for and report to EMC on when the initial ratings of condition and trend will be available for all relevant indicators and measures.

Agree: PAEC will develop, by March 2015, a dashboard interface that will allow the yearly tracking of milestones for the implementation of national park monitoring programs to ensure that information on the condition and/or trends of indicators and measures is available annually.

- 4 The Chief Administrative Officer ensures that the national five-year "State of" report communicates: the period within which the data was collected (year of initial ratings and subsequent assessments); the frequency at which indicators are assessed; and what, if anything, has changed from the previous reporting period.

Agree: Strategic Planning and Reporting will ensure that, in the future, the national five-year "State of" report provides information on when assessments were conducted, and what, if anything, has changed from previous reports. Information on the year of the original assessment of an indicator and the year of the most recent assessment will be provided on Parks Canada's website.

1. INTRODUCTION

The Parks Canada Agency's (PCA) mandate is to:

“Protect and present nationally significant examples of Canada’s natural and cultural heritage, to foster public understanding, appreciation and enjoyment in ways that ensure the ecological and commemorative integrity of these places for present and future generations.”

The Agency is responsible for three major heritage systems:

- 44 National Parks of Canada (NP)
- 167 National Historic Sites of Canada (NHS), administered by the Agency
- 4 National Marine Conservation Areas of Canada (NMCA)

PCA carries out its mandate through five programs and twenty sub-programs¹ (See Appendix A for the Program Alignment Architecture, PAA). This evaluation focuses on the National Parks Conservation sub-program of the Heritage Resources Conservation Program. PCA conducted the evaluation as part of its commitment under the *Treasury Board Policy on Evaluation* (2009) to evaluate all direct-program spending over a five-year period. The sub-program was identified as a priority for evaluation in evaluation plans from 2009-2010 through 2011-2012 due to its materiality (an estimated 12% of Agency expenditures), its importance to the Agency’s mandate and corporate risks, and because it has not been subject to previous comprehensive evaluation work by the Agency.²

Parks Canada has recognized that its ability to maintain or improve ecological integrity in national parks and meet legal requirements related to species at risk may be hindered by external environmental forces over which it has little or no control (e.g., invasive alien species, climate change, and habitat degradation outside of national parks). This is considered a key corporate risk for the Agency. Activities conducted under the resource conservation program are central to the Agency’s strategy to mitigate this risk.

2. DESCRIPTION OF NATIONAL PARKS CONSERVATION

Parks Canada has responsibilities under the *Canada National Parks Act* (2000) to protect and conserve nationally significant representative natural areas and to ensure national parks are maintained and made use of so as to leave them unimpaired for future generations. There are currently 44 National Parks and National Park Reserves.³

Conservation of natural resources involves the maintenance or restoration of ecological integrity (EI). **Ecological integrity** is defined as:

¹ We use the terms program and sub-program throughout the evaluation rather than program activity and sub-active used at the start of the evaluation. The PAA was revised during the course of the evaluation to restructure and reduce the number of sub-programs from 20 to 19.

² Other audits, evaluations and reviews on components of the program as listed in Appendix C.

³ A National Park Reserve (NPR) is an area or a portion of an area proposed for a park that is subject to a claim in respect of aboriginal rights that has been accepted for negotiation by the Government of Canada.

“A condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes”

This definition encompasses the protection of biodiversity (including species at risk), natural processes (e.g., fire and flood), interactions (e.g., predation), and the non-living materials (e.g., water and soil) on which they depend.

By the Agency’s definition, conservation of cultural resources includes the maintenance and management of “a human work, an object, or a place that is determined, on the basis of its heritage value, to be directly associated with an important aspect or aspects of human history and culture”. Cultural resources in national parks include landscapes and landscape features, buildings (including designated federal heritage buildings), engineering works, archaeological sites, historic and archaeological objects, Historic Sites and Monuments Board of Canada (HSMBC) plaques and monuments, and national historic sites (NHSs).

2.1 Expected Results and Targets

Relevant expectations and targets are shown in Table 1

Table 1. Corporate Performance Expectations and Targets related to National Parks Conservation

Level	Expected Results	Performance Expectation
Heritage Resources Conservation (Program)	Management actions result in improvements to ecological integrity indicators in national parks.	20 national parks improve one ecological integrity indicator by March 2015.
National Parks Conservation (Sub-program)	Ecosystem conservation is improved through active management.	80% of active management targets to improve ecological integrity are met by March 2015.

Source: 2013-2014 Performance Measurement Framework

Program and sub program targets in the framework focus on ecological results rather than on cultural resources in national parks. The performance expectations have existed since 2008-2009 although the specific form or the time frame to complete the actions has changed over time. The changes are reviewed below in the section on sub-program effectiveness.

The Agency also has specific goals and targets for some activities or sub-elements of the program that are not directly referenced in the corporate framework (e.g., contaminated sites, completion of SAR action plans, and fire management).

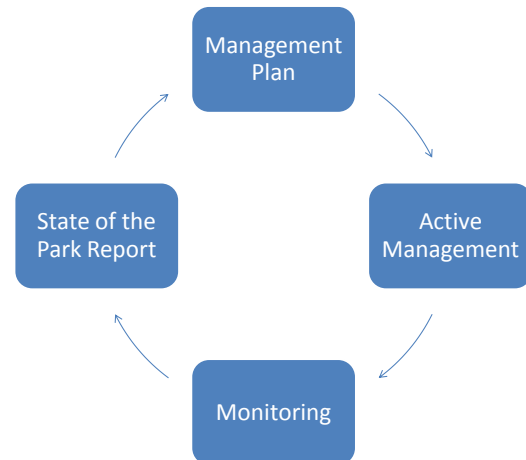
2.2 Activities and Outputs

There are three general activities associated with conservation of natural and cultural resources in national parks.

- **Knowledge Generation** – activities that produce information to help the Agency understand the quantity, location, nature and condition of resources in national parks, including inventorying resources, monitoring their condition and other applied research;

- **Planning and Reporting** – outlining objectives for conservation and strategies to achieve these objectives, and reporting on progress, including management and business planning and state of the park reporting; and
- **Active Management and Restoration** – activities related to implementing conservation interventions that maintain, improve or restore the integrity or condition of the resources.

These activities are undertaken as a continuous management cycle (see diagram). Management planning is used to identify priorities and set conservation objectives for the national park. Active management is used to implement the strategies identified to meet these objectives. Monitoring can be used to assess the effectiveness of specific management actions and investments and to identify potential issues as they emerge. This provides the context to identify and prioritize future park management activities. Public reporting of results is important not only for accountability and transparency about performance, but because public consultation and input is a key part of the management planning process.



2.3 Resources (Inputs)

2.3.1 Budget and Expenditures

National parks conservation is funded through general appropriations and special purpose funds. Starting in 2008-09, the Agency consolidated the several special purpose funds to improve the integrated delivery of the Agency's investments targeting ecological integrity in national parks including:

1. \$75 million over five years and \$25 million annually thereafter to improve and restore ecological integrity in Canada's national parks from Budget 2003;
2. \$60 million over five years and an ongoing \$15 million made available in Budget 2005.
3. Several million dollars in additional special purpose funds for specific conservation issues such as fire management, species at risk, contaminated sites and environmental assessment.

There are no special purpose funds for the conservation of cultural resources in national parks, although some funding has been made available for infrastructure projects in general, a portion of which has been allocated to improving the condition of national historic sites.

Expenditures on the sub-program are not captured directly in the Agency's financial system and had to be estimated based on available information. Over the five year period covered by the

evaluation we estimated that these expenditures ranged between \$71M to \$81M per year. Details of the analysis are presented later in the section on program efficiency and economy.

2.3.2 Human Resources

During the course of the evaluation several challenges were encountered in identifying the number of FTEs allocated to the sub-program.⁴ However, as of the 2012-2013 DPR the Agency began reporting actual FTEs by sub-program in compliance with new TB direction (i.e., 634 FTEs the year). The draft RPP for 2014-2015 shows similar levels of planned FTEs for 2014-2015 through 2016-2017. Based on likely salary expenditures associated with the sub-program during the five years prior to 2012-2013 (see section on efficiency and economy) it seems likely that the number of FTEs supporting the sub-program during this period were of a similar order of magnitude.

2.3.3 Assets

There are two types of assets associated with the National Parks Conservation sub-program: cultural resources and contemporary assets.

Cultural resources include those assets which have been assigned historic value, as determined through a range of heritage evaluation processes. These relate primarily to the cultural resources conservation component of the sub-program but may also impact or be impacted by natural resource conservation.

Contemporary assets supporting delivery of the sub-program include a range of buildings, staff housing, roads and bridges, utilities, as well as radio communications and fire-fighting equipment. According to the Agency's Asset Management System (AMS), there are close to 900 contemporary assets associated with resource conservation in national parks.⁵ Most of these (85%) are assigned to ecosystem protection, with the remainder assigned to protection and management of cultural resources.

2.4 Roles and Responsibilities

Functional direction and support for natural resource management in the Agency is provided by Natural Resource Conservation Branch in the Protected Areas Establishment and Conservation (PAEC) Directorate in National Office. The Branch develops policy and guidelines, establishes training standards and procedures for program implementation, and provides professional science and technical support in the program areas of active management and restoration including fire management, species conservation, environmental assessment, and monitoring and ecological information.

⁴ FTE inputs for the resource conservation program as a whole (i.e., for conservation in NPs, NHSs and NMACs collectively) were documented. Counts of the number of relevant positions were also available but not linked to sub-programs (e.g., as of 2013 there were 36 resource-conservation managers, 119 scientist positions, 301 support positions including 284 dedicated positions in the science support category and 33 geomatics positions relevant for natural resources conservation).

⁵ As documented in the Evaluation of Parks Canada's Asset Management System (2009), the AMS has a number of issues with completeness, timeliness and reliability of information.

National Office also provides functional direction for cultural resource management through the Heritage Conservation and Commemoration Directorate (HCCD). Strategy and Plans Directorate provides overall coordination of management planning and state of the park reporting, as well as advice on the contaminated sites program.

On-the-ground delivery of the National Parks Conservation sub-program for both natural and cultural resources is the responsibility of Field Unit Superintendents (FUSs). A FUS has primary accountability for ensuring the implementation of the Agency's strategies, policies, and directions with respect to resource conservation within a national park, and for preparing related plans and reports.

Each national park has a Resource Conservation Manager who is accountable to deliver on the Agency's conservation mandate.⁶ This includes the development, delivery and integration of EI monitoring, applied science research, active management and restoration, and cultural resource management. They are supported by a park-specific team of ecologist team leaders, resource management officers, cultural resource specialists, technicians, and dedicated fire crews where required.

Front-line staff in national parks also has a role to play in resource conservation. For example, visitor experience personnel deliver resource conservation messages to help visitors understand their role in protecting natural and cultural resources. Law enforcement officers are responsible for following-up on incidents if preventive measures (e.g., visitor education) are not sufficient.

2.5 Stakeholders and Partners

Partners and stakeholders involved in the National Parks Conservation sub-program include:

- Visitors – Resource conservation messages that reach visitors help protect resources and build a culture of conservation. Ecological restoration activities can also be part of memorable visitor experiences
- Volunteers – People from local communities (e.g., schools and naturalist clubs) are directly engaged in activities, including citizen science programs.
- Aboriginal groups – The integration of traditional aboriginal knowledge into planning, monitoring, reporting, and active management and restoration activities is fundamental to the Agency's resource conservation work.
- External researchers - The Agency partners with external researchers to conduct research, either through long-term agreements or provision of logistical support (e.g., housing and helicopter travel).
- Non-government organizations – Groups involved nationally and locally as advocates in the protection of heritage resources in national parks and who provide relevant information, or resources to support conservation in national parks.
- Corporate Partners: Private sector organizations are involved in supporting the delivery of some Agency active management and restoration projects.

⁶ In some case the resource conservation manager position is responsible for more than one park.

- Other Government Departments -- Other federal departments and agencies, provincial and municipal governments, provide information and support active management initiatives including SAR and environmental assessment processes.

2.6 National Parks Conservation Logic Model

A logic model showing the relationship between inputs, activities, outputs, reach and outcomes is presented in Table 2.

Table 2. Logic Model for National Parks Conservation Sub-Program

Strategic Outcome: <i>Canadians have a strong sense of connection, through meaningful experiences, to their national parks, national historic sites and national marine conservation areas and that these places are enjoyed in ways that leave them unimpaired for future generations.</i>			
Inputs	Parks Canada staff (FTEs) A-base and special purpose funds Assets – cultural resources; contemporary park facilities and infrastructure		
Activities	Knowledge Generation <ul style="list-style-type: none"> • Inventorying resources and recording information in databases/systems. • Establishing the status, function or desired state of resources. • Monitoring resource condition, i.e., the collection and analysis of repeated observations or measurements to evaluate changes in condition and measure progress towards objectives. • Reporting on initial ratings of conditions and trends. 	Planning and Reporting <ul style="list-style-type: none"> • Selecting resources for intervention. • Developing active management targets for management plans. • Developing plans specific to contributing programs (e.g., remediation plans for contaminated sites, recovery strategies for species at risk, fire management plans, etc.) • Conducting environmental assessments to mitigate negative impacts of projects. 	Active Management and Restoration <ul style="list-style-type: none"> • Implementing the planned measures/actions to maintain or improve the condition of natural or cultural resources.
Outputs	<ul style="list-style-type: none"> • Inventories and databases. • Research reports, articles, records. • State of the Park Reports. • State of Canada’s National and Historic Places Report 	<ul style="list-style-type: none"> • Management and business plans, including targets. • Plans specific to contributing programs. • Cultural resource management strategies. • Environmental assessments. 	<ul style="list-style-type: none"> • Active management and restoration projects, follow-up and monitoring. • Preventive maintenance.
Reach	<ul style="list-style-type: none"> • PCA staff and managers. • Partners and Stakeholders 		
Intermediate Outcomes	<ul style="list-style-type: none"> • There is information for managing natural and cultural resources in national parks. • There are targets in place to guide active management and restoration of resources • Active management targets are achieved. 		
Long-term Outcomes	Protection for future generations of natural and cultural resources in Canada’s national parks.		

3. EVALUATION DESIGN

3.1 Evaluation Purpose and Approach

Consistent with the TB *Policy on Evaluation* (2009), the evaluation examined the relevance, performance (i.e., effectiveness, efficiency and economy), and the design and delivery of the National Parks Resource Conservation sub-program.

The evaluation excluded:

- Law enforcement and resource conservation activities in townsites within national parks, which will be subject to separate evaluations.
- Managing the environmental impact of highways in national parks, as an evaluation of Through Highway Management was completed in 2010.⁷
- Impact of other programs within the PAA (e.g., public outreach and education, visitor experience) that support the resource conservation objectives of the Agency.

The evaluation focused on the Agency's performance on the sub-program from 2008 to September 2013. The majority of the interview and survey research was conducted between July 2011 and June 2012. Subsequent analysis through the summer of 2013 focused on the review of additional documents and secondary data..

The evaluation team consisted of Parks Canada evaluation staff, supported by contracted resources. Contractors were engaged to assist with the majority of data collection (i.e., survey, site visits, key informant interviews, expert group discussion, and document and literature review). Agency evaluators designed the evaluation approach, conducted additional data collection and analysis (e.g., of financial and human resource data), and prepared the final report.

3.2 Questions, Methodology and Limitations

The evaluation's questions (n=12) and expectations (n=20) related to issues of relevance, performance, and program design were originally set out in the *Framework for the Evaluation of Conservation in National Parks* (2010). In the course of assembling evaluation evidence, we have modified and rearranged the specific questions to reduce redundancy and improve the clarity and preciseness of the presentation of findings. The revised questions are shown in Table 3 and a detailed evaluation matrix (with the core issues, questions, and expectations, indicators, and data sources) is provided in Appendix B.

⁷ Evaluation of Through Highway Management: http://www.pc.gc.ca/docs/pc/rpts/rve-par/69/index_e.asp

Table 3. Evaluation Issues and Questions

Relevance
1. To what extent is the program serving an existing need?
2. Is the program relevant to Canadians?
3. Is national park conservation relevant to wider federal government outcomes?
4. Is there a legitimate and necessary role for PCA in conservation of resources in national parks?
Performance
Natural Resource Component
5. To what extent the expected outputs being produced?
6. To what extent are targets and results being achieved?
Cultural Resource Component
7. To what extent are the expected outputs being produced?
8. To what extent are targets and results being achieved?
9. Are there any unintended impacts (positive or negative) of resource management in national parks?
Efficiency and Economy
10. To what extent is the natural resource component of the program efficient and economic?
11. To what extent is the cultural resource component of the program efficient and economic?
Design and Delivery
12. To what extent is the program designed for optimum achievement of desired results?

3.2.1 Methods

A cross-sectional multiple mixed methods approach was used to address the evaluation questions. The principal data collection methods are summarized below.

Document and File Review	A wide variety of documents were reviewed for the evaluation; including legislation, policies, plans, reports and published literature (see Appendix C for details). These documents provided both contextual information to further the evaluation's understanding of issues such as the relevance of the sub-program and secondary source data used to assess effectiveness, efficiency, economy and program design.
Analysis of Secondary Data	Our analysis included a review of secondary data from a number of Agency sources, including the Agency's financial system (STAR), activity-specific EI information management systems (including monitoring and project tracking data) and the Research and Collection Permit System. A detailed analysis of the Agency's Information Center on Ecosystems (ICE) database was completed in July 2011, and repeated in July and August 2013. Other activity-specific databases of the federal government were consulted, including the public registry for species at risk, the federal contaminated sites inventory, and the federal database of environmental assessments.
Survey of Resource Conservation Managers	An electronic survey of Resource Conservation Managers for all 42 national parks was administered from November 2011 to January 2012. The survey was completed by 30 managers, representing a response for 35 national parks (parks' response rate of 83%). ⁸ Of these, 27 were southern national parks and 8 were northern national parks. ⁹

Survey questions covered five major areas:

⁸ Two Resource Conservation Managers responded to the survey for more than one park to match their functional responsibility for the conservation program at these parks in the field. In these cases, a separate survey was completed for each park.

⁹ Surveys and key informant interviews conducted by contracted resources considered there to be ten "northern" national parks, as identified in the evaluation's framework. Their analysis excludes Kluane and Nahanni National Parks, included in the Agency's list of northern parks. Unless otherwise stated, calculations and findings regarding "northern" parks refer to 10 national parks.

- Design and implementation of the EI monitoring program;
- The extent of and resources used to complete research on natural resources;
- Design and implementation of active management and restoration projects for natural resources;
- Perceptions of program efficiency; and
- Design and implementation of cultural resources management.

Survey of Cultural Resource Specialists

An electronic survey of Cultural Resource Specialists for 42 national parks was administered from November 2011 to December 2011.¹⁰ The survey was completed by 27 specialists, representing a response for 35 national parks (parks' response rate of 83%).¹¹ Of these, 29 were southern national parks and 6 were northern national parks.

Survey questions covered four major areas for each type of cultural resource:

- Extent and availability of cultural resource inventory;
- Methods of condition monitoring and trend in condition for cultural resources;
- Extent of research on cultural resources; and
- Extent of active management and restoration activities.

In addition, questions were asked regarding the specialists' perceptions of the overall management of cultural resources (i.e., performance and delivery model).

Key Informant Interviews¹²

A total of 74 key informant interviews were conducted with staff and senior management within Parks Canada related to conservation of both natural resources (n=53) and cultural resources (n=21). This includes staff from National Office (n=12), service centres (n=8), and staff in the field (n=54). The interviews included 18 Park or Field Unit Superintendents and 7 functional specialists.

In addition, 44 key informant interviews were conducted with external partners (n=40) and stakeholders (n=4). Partners included Aboriginal groups, academics and researchers, non-government organizations, and other government organizations.

Nearly all of these interviews were conducted in person, often during site visits. The interviews explored key informants' perspectives on issues across all the evaluation's lines of inquiry.

Site Visits

The evaluation team conducted 11 site visits covering 12 national parks from August to October 2011.¹³ Parks visited include St. Lawrence Islands, Gros Morne, Torngat Mountains, Wapusk, Kejimikujik, Pacific Rim, Kootenay, Jasper, La Mauricie, Grasslands, Kluane, and Point Pelee National Park.

The purpose of these site visits was to complete an in-depth analysis of park conservation programs, including the links between activities, outputs and results, and to gather qualitative information on performance. Site visit locations were thus selected to address the range of resource conservation issues in Canada's national parks. Selection criteria included geographic and bioregional representation, stage of EI monitoring development, level of impairment to EI, amount of investment in active management and restoration and

¹⁰ Our surveys did not include responses for Sable Island NPR or Nááts'ihch'oh NPR, which were established during the course of the evaluation. Unless otherwise stated, calculations and findings regarding "all" parks refer to 42 national parks.

¹¹ Six Cultural Resource Specialists responded to the survey for more than one park to match their functional responsibility. In these cases, a separate survey was completed for each park.

¹² Certain interviews were conducted with groups of respondents. Each group interview is considered as one respondent for the purposes of this report.

¹³ One site visit covered both Gros Morne and Torngat Mountains National Park.

monitoring activities, and the cultural resource management model currently in use.

**Literature Review
and Comparative
Analysis**

The project team completed a literature review of publicly available documentation to provide an overview of the ‘state of thinking’ internationally on the management of national parks, international best practices, and international views on Parks Canada’s practices. Analyses were also completed to compare other jurisdictions’ approaches to resource conservation to practices at Parks Canada and identify possible alternative delivery approaches. Benchmarks used for natural resource conservation were Australia (New South Wales), United Kingdom (England, Scotland, Wales and Northern Ireland) and the United States. Benchmarks used for cultural resources were the United States and Australia.

**Group Discussion
with Conservation
Experts**

A group discussion with conservation experts (n=6) was held in April 2012.¹⁴ The purpose of the session was to solicit external expert input on Canada’s performance with respect to protecting natural resources in national parks, specifically to:

- Identify key areas of success and best practices achieved by Parks Canada;
- Identify challenges or areas of improvement to be addressed by Parks Canada;
- Explore how Parks Canada’s approach differs from approaches of other countries; and
- Identify ideas and approaches for national parks conservation in the future.

The experts did not address questions related to cultural resource conservation.

3.2.2 Strengths, Limitations and Mitigation Strategies

The document and file review, surveys, interviews, and site visits, conducted between 2011 and 2012, give us a good understanding of both aspects of resource conservation in national parks as it existed at the time. In general, we found more extensive and abundant Agency documentation and information related to natural resource conservation as opposed to cultural resources conservation in national parks. In consequence, our analysis of the natural resource conservation is more detailed.

During our initial work on the evaluation, aspects of the design and delivery of the resource conservation program were undergoing changes. Subsequently, additional significant changes occurred (i.e., changes to organizational models and structures, roles and responsibilities, and relevant legislation, policy and guidance). As a result, the relevance of some of the information gathered in the initial part of the evaluation decreased. We continued to document and incorporating information on the nature and extent of various changes, and to perform various secondary data analysis throughout 2013. Extensive feedback received throughout the various stages of preparing the final report also served to contextualize and compensate for some of the limitations of the aging data.

Various limitations with respect to data in relevant Agency information systems were also identified (e.g., the Information Centre for Ecosystems for information related to ecological monitoring programs in national parks; issues with how relevant expenditure data is captured and coded in the financial system). It was beyond the scope of the evaluation to compensate for the limitations of secondary data. The limitations and their implications for drawing conclusions about evaluation questions are discussed at various points in the report.

¹⁴ Experts represented national and international non-government organizations (n=5) and academia (n=1). One expert was a former Parks Canada Agency employee.

4. EVALUATION FINDINGS

4.1 RELEVANCE

Question 1	Indicators
To what extent is the sub-program serving an existing need?	<ul style="list-style-type: none"> Evidence of threats to the integrity of natural and/or cultural resources

Expectation: Natural and/or cultural resources within national parks are under threat or are in need of conservation.

Several recent iterations of the Agency's corporate risk profile identify 'Environmental Forces' (e.g., biodiversity loss, exotic and invasive species, climate change, and shoreline erosion) as a major threat. Parks Canada's *State of Canada's Natural and Historic*

Places 2011 report notes that, while 92% of the 102 park ecosystems that have been assessed are either in good or fair condition, 43% of the ecosystems in fair condition are showing a declining trend in EI.¹⁵ Key issues identified include hyperabundant species, adjacent land use, habitat loss, and long-range external stressors such as climate change.

Less data is available to confirm the state of and threats to cultural resources in Canada's national parks. The *State of Canada's Natural and Historic Places 2011* does not provide specific details for cultural resources in national parks. Rather it reports on the Agency's cultural resources as a collective, the majority of which are located at national historic sites. It notes that over 90% of Parks Canada's archaeological sites, objects and landscape features are in good or fair condition, with more than half considered to be in good condition. Further, most of Parks Canada's heritage buildings and structures are reported to be in good (39%) or fair (47%) condition. Those resources in fair or poor condition require effort to stabilize or improve. Key ongoing issues identified include erosion and the declining condition of built heritage.

Question 2	Indicators
Is the sub-program relevant to Canadians?	<ul style="list-style-type: none"> Level of public awareness and concern for the condition of natural and/or cultural resources. Level of public and stakeholder interest and involvement in the protection of natural and/or cultural resources.

Expectation: Canadians are concerned about the threats to natural and cultural resources and support/are engaged in the conservation of these resources.

Results of Parks Canada's *National Survey of Canadians* (2002, 2005, 2009 and 2012) have repeatedly shown that Canadians strongly support environmental protection and the conservation of Canada's heritage places, with a primary

emphasis on preserving these places such that they are available for present and future generations. In 2009, Parks Canada's *Stakeholder and Partner Engagement Survey* also found that 83% of park stakeholders emphasized the importance of protecting Canada's natural and cultural heritage.

¹⁵ *State of Canada's Natural and Historic Places 2011*: <http://www.pc.gc.ca/eng/docs/pc/rpts/elnhc-scnhp/index.aspx>

In the *National Survey of Canadians* (2012), 80% of respondents stated that the federal government should have “a lot” of responsibility for protection of natural areas and wilderness. The result is consistent with previous surveys. Similarly, 68% of respondents stated that the federal government should have “a lot” of responsibility for conservation of the country’s historic places.

Canadians are engaged in resource protection in national parks. In 2010-2011, at least 1,759 volunteers provided close to 30,000 volunteer hours to support ecological integrity projects in national parks. Examples of contributions of volunteers and other partnering arrangements supporting conservation in national parks can also be found in Agency publications on its Action on the Ground Projects (2005, 2008, and 2013).

Question 3	Indicator
Is national park conservation relevant to wider federal government outcomes?	<ul style="list-style-type: none"> Degree to which federal legislation and international agreements align with the protection of natural and cultural resources.

Expectation: Program objectives align with Government of Canada priorities, legislation and international agreements.

The federal government has entered into a number of international agreements related to natural and/or cultural resource conservation, including:

- the *United Nations World Heritage Convention* (1972), which confers on Canada a duty to ensure the protection, conservation, and transmission to future generations of its cultural and natural heritage, and
- the *United Nations Convention on Biological Diversity* (1994), which commits Canada to regulate or manage biological resources important for the conservation of biological diversity, whether within or outside protected areas, and to ensure their conservation and sustainable use.

National park resource conservation contributes to government-wide outcomes for ‘A clean and healthy environment’ and ‘A vibrant Canadian culture and heritage’, as identified in the *Whole of Government Framework*.

Resource conservation in national parks supports and advances a variety of federal legislation, strategies and policies including the *Parks Canada Agency Act* (1998), the *Canada National Parks Act* (2001), the *Historic Sites and Monuments Act* (1985), the *Species at Risk Act* (2002), the *Canadian Environmental Assessment Act* (2012), the *Federal Sustainable Development Strategy* (2010), the *Federal Contaminated Sites Action Plan* (2005), and the *TB Policy on Management of Real Property* (2006), which governs the conservation of the heritage character of federal buildings throughout their life cycle.

Question 4	Indicator
Is there a legitimate and necessary role for PCA in conservation of resources in national parks?	<ul style="list-style-type: none"> Degree to which the sub-program aligns with PCA mandate, policy and strategic direction. Extent to which others duplicate the role of PCA in resource conservation in protected places.

Expectation: The program is clearly aligned with Parks Canada’s mandate, policies and priorities.

Expectation: No other organizations currently fulfill the same role as PCA with respect protected areas.

Conservation of natural resources has been integral to the legislative mandate for Canada’s national parks since 1930. Over time, Parliament has amended the *Canada National Parks Act* to emphasize the concept of ecological integrity and to expand the legislative tools to achieve it. In 2001, the Act was amended to clarify that: “*Maintenance or restoration of ecological integrity, through the*

protection of natural resources and natural processes, shall be the first priority of the Minister when considering all aspects of the management of parks.” The preamble to the Act also recognizes the importance of cultural resource conservation. This mandate is in turn reflected in the *Parks Canada Charter* (2002) which commits “to protect, as a first priority, the natural and cultural heritage of our special places and ensure that they remain healthy and whole.” These commitments are integrated into the Agency performance framework and corporate plans and reports.

While other federal government organizations manage networks of protected areas (e.g., Environment Canada networks of Migratory Bird Sanctuaries and National Wildlife Areas) these systems do not have the same role as the national park system (i.e., they are much more focused on protection of specific species, be it migratory bird or species at risk) and do not duplicate the Agency’s mandate with respect to national parks.

OVERALL FINDING: RELEVANCE

The National Parks Conservation sub-program continues to be relevant. There is evidence of continued threats to natural and cultural resources under Parks Canada’s authority. Resource conservation in national parks is consistent with Parks Canada’s legislative and operational mandate, and this priority is clearly reflected in the Agency’s corporate and strategic documents. The sub-program is consistent with government-wide priorities and international commitments. In general, Canadians strongly support the federal government’s role in the protection of natural and cultural resources. At a local level, many Canadians are aware of and are actively engaged in the conservation of these resources.

4.2 EFFECTIVENESS

This section of the report is sub-divided into three parts. The first part focuses on activities, outputs, targets and results for natural resource management. The second part focuses on the same elements for cultural resource management. The third part addresses questions of unintended positive or negative impacts of both natural and cultural resource management.

4.2.1 Natural Resource Management

Question 5	Indicators
To what extent are the expected outputs being produced?	<ul style="list-style-type: none"> • Number of parks with monitoring programs that meet program criteria and guidelines. • Number of parks where monitoring program is being implemented as designed (i.e., measures are monitored, and condition and trend data is collected and recorded). • Number of relevant research activities undertaken. • Extent to which available information (i.e., results of monitoring and research) is being used to support natural resource management.

4.2.1.1 Ecological Integrity (EI) Monitoring

The Agency defines **ecological integrity monitoring** as “the collection and analysis of repeated observations or measurements to evaluate changes in condition, and progress towards meeting a management objective”. Ecological integrity monitoring and reporting provides managers with information to make informed decisions in support of Agency objectives, and to communicate the ecological state of national parks to decision-makers and Canadians. Ecological integrity monitoring should answer two key questions: (1) what is the state of park ecological integrity and how is it changing; and (2) what are the results of management actions to improve ecological integrity?

Definitions of key terms and concepts for understanding EI monitoring at the Agency are shown below.

Indicator	EI indicators represent the major ecosystems that occur in a park (i.e., forests, tundra, shrublands, wetlands, grasslands, freshwater, coastal/marine and glaciers). Each EI indicator is a composite index of a small suite of EI measures.
Measure	EI measures are selected to track key biodiversity and ecological processes for the major park ecosystems (e.g., water quality, moose density, soil decomposition, landscape connectivity, etc.).
Condition Monitoring	An assessment of the ecological condition of a park, based on EI indicators.
Effectiveness Monitoring	An assessment of the ecological outcomes of specific management actions; provides information to report on the ecological effectiveness of actions and investments.
Condition	The condition of each EI indicator (good, fair or poor EI) is derived from a rule-based assessment of its suite of related EI measures.
Trend	A change, over time, of the ecological integrity of an EI indicator or EI measure. Trends may be positive, negative or stable based on direction of movement from a defined threshold.
Threshold	Monitoring thresholds are established to assess and report the condition of each measure. They are the levels of an EI measure that represent good, fair or poor EI.
Target	Targets are ecologically-based management goals, for a particular EI indicator or management action.

Our literature review found that designing and implementing credible, sustainable monitoring programs has been a challenge internationally. Monitoring programs are frequently initiated but discontinued due to the costs, particularly in northern environments. The focus group of conservation experts and the external stakeholders agreed that PCA is regarded as a world leader in developing its ecological integrity monitoring program.

Framework for EI Monitoring at Parks Canada: The Agency initially set out its modern framework for EI monitoring in national parks in 2005 and 2007.¹⁶ During the course of the evaluation, this guidance was consolidated and updated (see *Consolidated Guidelines for Ecological Integrity Monitoring in Canada's National Parks*, October 2011). Key changes from the earlier guidance include:

- a greater emphasis on developing sustainable, credible EI monitoring activities within the context of specific field unit management objectives and fiscal realities;
- clear direction on the expected number of core indicators and measures; and
- the introduction of voluntary operational reviews of national park EI monitoring activities.

The Consolidated Guidelines also integrate additional guidance (approved by the CEO in March 2011) that creates distinct requirements for northern parks based on their unique challenges, such as the large size and difficulties in accessing these places. The guidelines specify that remote sensing, supported by a core suite of ground sampling measures, will be the cornerstone for monitoring EI in northern parks.

Under the guidelines, EI monitoring information (i.e., indicators, measures, protocols, dataset and other relevant reports and documents) is expected to be recorded in the Information Centre for Ecosystems (ICE), a centralized, internet based database. The use of ICE is intended to: ensure the maintenance, sharing and transmission of information; reduce field unit reporting demands; and streamline Agency planning and reporting functions. While monitoring guidelines outline the data entry and maintenance responsibility for Field Unit Superintendents and Resource Conservation Managers, no specific timelines for data entry was included. During the evaluation, senior managers indicated that they expect the data to be updated at least once a year to meet requirements for corporate reporting.

We found the revised guidance to be detailed, practical and comprehensive. No target date for when monitoring systems were expected to be compliant was specified when they were issued. Management recognized the importance of setting targets for achieving compliance with the guidelines and began taking steps in the latter stages of the evaluation to address the issue.

Scope of the Monitoring System: The original guidance for EI monitoring directed each national park to develop six to eight indicators. No guidance was provided on the number of measures required to support each indicator. Under this guidance, all national parks developed five-year monitoring plans in 2008.

Under the new guidelines, each southern national park is now expected to monitor three to four indicators, based on a national suite of major park ecosystems (see Appendix D). Selected indicators should represent major national park ecosystems (generally > 5%) of the national park lands. Smaller ecosystems may be included only if they have conservation values important to specific, established national park management objectives. The guidelines recommend, but do not require, five measures per indicator to ensure credibility of scientific monitoring activities and to mitigate the risk of false findings. Northern national parks are expected to monitor two

¹⁶ Parks Canada's Monitoring and Reporting Ecological Integrity in Canada's National Parks Volume I: Guiding Principles (2005) and Volume 2: A Park-Level Guide to Establishing EI Monitoring (2007).

indicators, with a similar number of measures as southern national parks. To date, the Agency has developed 14 measurement protocols for satellite-based monitoring in the North some of which are already in use.

The guidance sets some general parameters for how much monitoring activity is expected in the Agency. In the 30 southern national parks, we would expect approximately 90 to 120 indicators and up to 600 measures (i.e., assuming all parks had five measures per indicator). In the 12 northern national parks, we would expect up to 24 indicators and up to 120 measures. The overall effect of the new guidelines is to focus monitoring activities on key indicators and measures relative to previous expectations.

We did not expect that monitoring systems would conform to the new guidance at the time of the evaluation. Instead we sought to quantify the gap between what existed and what was expected in order to understand the extent of the work that remained to be completed to fully implement the framework.

Expectation: EI monitoring programs are designed according to program criteria and guidelines.

Expectation: Reasonable progress is being made in implementing the monitoring program as designed.

Progress in Implementing the EI Monitoring

Framework: As noted, all national parks developed five-year monitoring plans in 2008. In its 2008-2009 Performance Report, the Agency reported that 32 of 42 national parks (76%) had met the initial conditions for a functioning ecological integrity monitoring and reporting system.¹⁷ Subsequently, management conducted an internal review (i.e., PCA EI Monitoring

and Reporting Program: Accomplishments, Program Status, and Going Forward, March 2010) which found uneven progress across national parks in implementing the monitoring program due in part to a lack of mandatory reporting on program status and a lack of program performance targets. Among other things, it recommended a national review of the status of individual monitoring programs. The 2011 *Consolidated Guidelines* were developed to address these concerns and help focus ecological monitoring efforts.

To evaluate the current state of the monitoring program, we conducted an analysis of the information in the ICE database, as mid-2013, concentrating on the indicators that the Agency publicly reported against in the 2009 and 2011 State of Reports.¹⁸

We were able to identify the relevant indicators and the associated measures in the ICE system, although the process of doing this was not easy as the system does not have user friendly tools for making queries and extracting summary reports. It was also reported by various sources that the information in the system is not kept up to date (i.e., it does not yet provide an authoritative system of record for EI monitoring information as is intended) and that additional relevant

¹⁷ To meet initial conditions, national parks required: (a) a plan to monitor all major park ecosystems, including identification of related measures with clear monitoring questions; (b) each measure and its preliminary thresholds recorded in ICE; and (c) a costed monitoring implementation plan.

¹⁸ As well as the publically reported indicators, ICE contains data for indicators and measures which do not align with the current set of core indicators, are no longer considered active, or are relate to monitoring in NHS or historic canals (i.e., a total of 204 indicators and 1,077 measures as of December 2012).

information existed at the field unit level. Assembling and documenting the full extent of additional data was beyond the scope of the evaluation. Management recognized the importance of timely data entry and began taking steps in the latter stages of the evaluation to address the issue. The implications of missing data in ICE for our findings are reviewed below.

Indicators: In 2009, the Agency reported on 180 indicators for 42 national parks. In 2011, this changed to 177 indicators (i.e., 129 in southern national parks and 48 in northern national parks) as a result of several national parks adding or deleting a single indicator.

The 2011 indicators are shown in Appendix E rearranged to fit the new set of major ecosystems and indicators shown in Appendix D.¹⁹ Our analysis below concentrates on the 129 indicators from southern national parks, because we expect northern national parks indicators to change under the new guidance and because the Agency's performance targets are concentrated in southern parks.

About 61% of the 129 indicators in southern national parks report both condition and trend information, 12% report only condition, and 27% have neither condition or trend information. The Agency has not stated precisely when it expects condition and trend data to be available for all relevant indicators. In the 2011 State of Canada's National and Historic Places Report, it was reported that it would take several years to complete the required assessments.

With respect to implementation of the 2011 monitoring guidelines, we noted the following:

- Eleven active indicators in ICE did not match the current set of core indicators;
- The number of indicators reported by southern national parks varies from three to eight compared to the current target of approximately three to four (i.e., about a third of the parks have five or more indicators) so that some parks may need to reduce the number of indicators they track or seek an exemption as per guidelines; and
- Many existing indicators represent small ecosystems (i.e., 40 out of 108 ecosystems represent less than 5% of the park area).²⁰ Current guidelines suggest that these ecosystems should only be monitored if they have conservation values important to specific established management objectives. Information verifying that this in fact the case is not readily available. Functional management indicated it would require a detailed review of management plans against indicators in ICE to verify if these indicators align with plan objectives. .

Measures: For the 129 indicators in southern national parks, we counted 601 active condition measures and 196 management effectiveness measures. In many cases, management effectiveness measures are a sub-set of the condition measures for a particular indicator. In addition to condition and effectiveness measures, some parks list other types of measures (i.e., related to Action on the Ground Projects described below, measures related to species at risk, and in a few cases measures related to research). In some cases, the same measure is repeated in several categories.²¹

¹⁹ Mount Revelstoke and Glacier National Parks share indicators and measures but are shown separately.

²⁰ In most parks a single indicator/ecosystem accounts for 50% of the park area and two indicators/ecosystems account for 75% or more of the park area.

²¹ For example in one national park, elk abundance is cited as a measure of condition, effectiveness, AoG and research.

With respect to monitoring guidelines, we noted the following:

- Two national parks had not entered any data on measures, although information on condition and trend of indicators was available in the database. Other national parks have little or no measurement information entered in ICE for some indicators (e.g., 23% of the indicators we reviewed have either one or no condition measures recorded in the database). Where limited information is recorded in ICE, there is a risk that conclusions about condition or trend may not be scientifically credible as defined in the Agency guidelines (i.e., be based on sufficient measures). However, functional management does not believe that this is the case and there are some procedures in place to mitigate this risk (i.e., attestation by local management that monitoring is consistent with guidelines, verification of information outside the ICE system to support national reporting); and
- About a third of the indicators are associated with more than the recommended five measures (i.e., 26 active condition measures for an indicator in one case, and up to 12 effectiveness measures for an indicator). This may or may not be reasonable, depending on the costs and value added of the measures. In principle, a national park having more than the suggested number of measures would seek an exemption according to the Guidelines.

Repeated Measures of Condition or Trend: Repeated measures of ecosystem condition and trend over time are important for demonstrating progress against the Agency's performance expectations. How frequently assessment of condition or trend will take place depends on the nature of what is being measured, and may only occur over periods of several years.

As of 2013, several national parks had entered repeated assessments of the condition or trend of either indicators or measures (e.g., one park entered data for from 2008 and 2011 for all its measures and several other parks had two or more data points for some of their indicators and/or measures). However, the vast majority of data in ICE on condition and trend was reported for a single point in time (i.e., the initial rating). For about half the national parks (14), the assessments date from 2008 or earlier. The other half (15) have assessments dating from 2009 to 2012. One southern national park had entered assessment data from 2013 for one indicator.

We also noted that public reporting of condition and trend data in the 2009 National State of Protected Heritage Area Report included information on the date of assessment, but this information was not included in the 2011 Report (i.e., in many cases, the 2011 report drew on the same assessments as the 2009 Report). Both reports essentially present a static picture at a point in time of the condition and trend in ecosystems without reference to what, if anything, has changed and why. As a result, the significance of reported conditions or trends is unclear.

Other System Components: Although we did not attempt to quantify the extent to which other components of the ICE data (i.e., measurement protocols, measurement thresholds and datasets) were populated in the database, it is clear from visual inspection that this information has been entered for only a portion of the active measures we identified. In many cases, the absence of this information in ICE likely reflects lack of timely data entry.

Overall Evaluation of Progress in Implementing the Monitoring Program: Prior to 2011 management found that progress in implementing EI monitoring systems across national parks was uneven and that attention was required to ensure systems were being implemented as

intended. In 2011, new guidance was issued that focused monitoring requirements on a core set of nationally consistent indicators with more precise specification of how much measurement was required to support reporting on indicators. At the time of the evaluation, no target date was specified for when monitoring systems were to be compliant with the new guidelines.

We did not expect that monitoring systems would be fully compliant with the new guidelines; instead we sought to identify the state of progress and how much work remained to be done. Our analysis was based on data in the ICE system as of the summer of 2013. We found that ecological integrity indicators in some national parks had not yet been adjusted to match the national set of core indicators, and that some national parks reported more active indicators and measures than is required. Assessments of condition and trend for both indicators and measures in the database are largely from a single point in time, much of it several years old at the time of our review.

The extent to which these findings represent the current reality of progress in ecological monitoring is uncertain given the existence of relevant information at the park level not yet entered into ICE. Management recognized the importance of timely data entry, and toward the end of the evaluation, was taking steps to address the issue.

Expectation: Natural science research is being undertaken in national parks aligned with stated priorities and management information needs.

Natural Science Research: Natural science research is intended to advance the understanding of the status, function or desired state of an ecosystem or its components beyond what is provided by or as a complement to ecosystem monitoring. To be of

maximum benefit, research must be applied rather than theoretical and be provided in a timely manner to decision-makers and be managed to ensure that its contributions remain strategic, relevant and focussed on the Agency's priorities. Where relevant, the results of this research are also integrated into Parks Canada's inventory of natural resources (see text box below).

Since 2004, all natural, social and archaeological research and/or collection activities, whether carried out by Parks Canada or external researchers, requires a research and collection permit. These are processed through Parks Canada's web-based Research and Collection Permitting System (RCPS). Research permit applications are required to specify how the proposed research is relevant to Parks Canada's priorities. Each national park is supposed to maintain an up-to-date, publicly available listing of its research priorities to assist researchers in identifying relevant topics. These are to be posted on the Agency's RCPS website. In regards to these requirements, we found the following:

- Most national parks (79%) have posted their research priorities on the Agency's RCPS website;
- A total of 2,673 research permits issued from 2004 to 2011 were identified in the RCPS database and 80% of which were for natural science research in national parks, with more research occurring in some national parks than in others;

- We found that 87% of the research carried out in 2011 was conducted by or with external partners. External researchers were affiliated with universities, federal or provincial government institutions, non-governmental organizations and industry within Canada. This finding is consistent with survey and interview data which indicated that only half the national parks conduct in-house research, and that most research is done either by or with external partners; and
- A review of the research permit applications confirmed that close to 87% of the applications specified how the research is relevant to Parks Canada's published priorities. In addition, more than two-thirds of survey respondents indicated that the majority (75 to 100%) of natural science research was aligned with the national park's research priorities. However, survey and interview data suggested that the information generated is sometimes of limited value for park management (i.e., does not directly inform management decision making).

4.2.1.2 Information for Decision-Making

Expectation: Knowledge generated from monitoring and research is being used to generate other outputs and to influence outcomes.

The majority of key informants and survey respondents in southern national parks reported using monitoring information for decision-making on conservation issues. A majority also reported that research projects have contributed to identifying condition and trend of measures, to support active management targets and related projects, and/or to better understand stresses on park resources. By contrast, half of the respondents for northern national parks indicated that they almost never or never use monitoring or research information generated in the park for decision making given the state of monitoring and internal research at the time, although they have information from other sources (e.g., other government departments).

Natural Resource Inventory

An inventory of plant and animal species in national parks is maintained in the *Biotics* information system. This system is part of a shared network developed by an international non-government organization (NatureServe) and is based on common standards that allow a wide range of people to enter data in a consistent format. For national parks, information is largely entered by Agency ecologists in the field and external researchers that have completed research in a park, including work on species at risk. Thousands of new or updated observations are added to the database every year.

Participation in NatureServe was identified as a best practice for leveraging resources and results. While the network cost millions to develop, Parks Canada only pays a small licensing fee. In 2008, Parks Canada was commended by the Office of the Auditor General for progress achieved by working with NatureServe towards developing a comprehensive inventory of species at risk.

The inventory of species in national parks currently consists of thousands of native and exotic plants and animals, including at least 175 species at risk. Data contained in the inventory is both tabular and spatial, allowing parks to identify not only the species that exist but also where they occur. It is also linked with monitoring information in the Agency's ICE database.

We also reviewed park management plans and SoPRs for evidence that monitoring or research was incorporated into the documents.²² We found evidence of use of data on indicator conditions and trends, to report on current state and progress toward targets, to inform the development of strategies in management plans and for the development of new targets and priorities for active management and restoration (e.g., information on grizzly bears and caribou used to set active management targets in Banff National Park).

Question 6 To what extent are targets and results being achieved?	Indicators
	<ul style="list-style-type: none"> • Relevant active management targets are identified. • Number of active management targets met and number where progress is reported • Number of parks with improved EI indicators or measures

4.2.1.3 Targeted Results for Active Management

Expectation: Reasonable progress is being made towards achieving the expectation that 80% of active management targets to improve EI are met.

The Agency defines active management as active interventions in ecosystems or their components to achieve a desired state. This includes ecological restoration (e.g., reintroduction of species, fire management, and contaminated site remediation) and mitigation (e.g., management of use and activities, prevention of human/wildlife conflict, and control of invasive species). The overall approach to ecological restoration for protected areas in the Agency has received international recognition²³ (i.e., it was the basis for the 2012 IUCN Guidelines on ecological restoration for protected areas) and was viewed as a best practice by our panel of experts.

There is no authoritative inventory of all major or significant active management and restoration initiatives occurring at a particular point in time across all national parks.²⁴ In our survey of RCMs, southern national parks reported undertaking between one and 20 initiatives in their national parks between 2009 and 2011 (i.e., 170 projects in total) with several national parks noting they were only reporting their major initiatives. Functional management suggested in 2013 that construction of a comprehensive inventory could not be done using existing information systems but would require detailed consultations with individual parks.

Although a complete inventory was not available, there are many reports available²⁵ on particular projects which demonstrate tangible results (e.g., reports of invasive species reductions, native species reintroduction, implementation of traditional fire regimes, rehabilitation of landscapes, mitigation of contaminated sites or the impacts of infrastructure projects).

²² Management plans are public documents required under the Canada National Parks Act that outline the management vision for each national park and the strategic actions required to achieve this vision, including measurable objectives with targets.

²³ Ecological Restoration for Protected Areas: Principles, Guidelines and Best Practices - http://www.iucn.org/knowledge/publications_doc/publications/?uPubsID=4710

²⁴ The Agency has an ecological integrity project tracking system (EIPT) which lists projects for which a park required external funding for the period 2005-2006 to 2009-2010. This system is not a complete inventory of all major active management projects.

²⁵ Available reports include those for Action on the Ground Projects (2005, 2008, 2013) as well as Agency performance reports, State of Park Reports, as well as some park management plans.

From 2009 to 2012, the Agency's performance expectation with respect to active management was to achieve 80% of active management targets to improve EI by March 2014. Starting in 2012-2013, the date to achieve the result was changed to March 2015. The relevant targets are associated with Action on the Ground (AoG) projects (see text box). While these projects have been identified in the Agency's corporate plans and public reporting as important, the exclusive use of their associated targets for this performance expectation has not been clearly communicated in public reporting.

As of February 2013, the Agency confirmed that there were 99 relevant active management targets, associated with 32 AoG projects funded since 2009 (see Appendix F). The projects are occurring in 20 southern national parks and two northern national parks, with many engaged in two projects. It was reported that three projects were complete, 24 were ongoing but showing progress, and that five required scrutiny given ambitious targets or requiring partner funding to achieve results.

The AoG targets are all EI focused and include a mixture of outputs (e.g., releasing a species, burning a prescribed area of land, removing specific infrastructure, remediating a contaminated site, planting native species) and outcomes (e.g., successful reintroduction of a species, re-establishment of watershed connectivity, reduction or elimination of an invasive species).

We noted that the number of targets varies by project (range 2 to 9) so that projects with more targets contribute more to the outcome (i.e., nine of the 32 projects account for about 50% of the targets). This effectively gives more weight to some projects in achieving the target. There is no clear rationale for why this should be the case. A few of the project targets specify completion dates that are after the due date for achieving the corporate target (i.e., March 2015).

As of February 2013, 23 of the 99 targets are reported as being met (i.e., 23%), with some projects not expected to report on meeting their targets until completion of the work.

4.2.1.4 Targeted Results for Ecological Integrity

The Agency's commitment to improve a single ecological integrity indicator in a group of national parks has existed since 2008, although it has been adjusted over time as shown in the table below. The effect of the changes is to reduce the number of parks expected to demonstrate an improvement and/or increase the timelines to reach the target.

Action on the Ground

This program was initiated in 2009-2010 to consolidate several funding sources with the intent to improve the integrated delivery of the Agency's programs and facilitate multi-year investments targeted at ecological integrity issues in national parks. To date, 32 projects in 24 southern and two northern national parks have been supported by these investments. Some projects involve several parks and some parks are involved in two or three AoG projects. The relevant period for achieving the targets is 2009 to 2015.

These projects are intended to serve resource conservation, public understanding and appreciation as well as visitor experience objectives with portions of the budgets assigned to each of these program activities (i.e., the resource conservation portion ranges from 30% to 91% of the project budget).

Table 4. Revisions to Performance Expectation for Ecological Integrity Improvement (2008-2013)

Corporate Plan	Performance expectation: To improve at least one EI indicator...
2008-2009	... in 90% of parks (i.e., 27 southern national parks) by March 2013.
2009-2010	... in 80% of southern parks (i.e., 24 national parks) by March 2013.
2010-2011	... in 20 southern national parks (i.e., 66.7%) by March 2014.
2012-2013	... in 20 southern national parks (i.e., 66.7%) by March 2015.

Source: Adapted from PCA Corporate Plans

The 2012-2013 target of improving ecological integrity in 20 southern national parks by March 2015 continues to be in place in the 2013-2014 and 2014-2015 Corporate Plans.

Expectation: Reasonable progress is being made towards achieving the expectation that 20 national parks will improve one EI indicator.

Currently, all national parks that have received funds for an AoG project are expected to demonstrate improvements by March 2015, as well as national parks that highlighted non-AoG projects in their business plans.

How Improvement Is Measured: The Agency has indicated that the target for improving an ecological integrity indicator can be achieved by:

- Improving the condition or trend of the indicator;
- Improving the condition or trend of a measure associated with the indicator; or
- Meeting active management targets related to the indicator or measure.

The approach allows for improvement at multiple levels, within the timeframe set out in the performance expectation, ranging from large scale ecosystem changes (indicators), through changes in components of ecosystems (measures), to tangible changes on the ground that may not yet have measurable impacts on the condition or trend of measures or indicators (active management targets). The approach takes account of the fact that ecosystems as a whole are complex and often slow to change as a result of management interventions.

In this context, there is no set list of which active management targets are to be met in order to demonstrate improvement in an indicator. The intent is to assess the extent to which projects as a whole have met objectives and draw conclusions based on the preponderance of evidence for the whole set of project targets.

What Will Improve: The Agency does not maintain a national inventory of which ecosystem indicators are targeted for improvement. As a result, we used our survey of RCMs²⁶, ecosystems identified in AoG projects, and the list of ecosystems with management effectiveness targets in ICE to compile an inventory of targeted ecosystems.²⁷ Collectively these sources suggest that the

²⁶ We asked RCMs in southern national parks which indicator(s) they targeted for improvement in relation to the corporate expectation and to list up to three additional indicators they were trying to influence with active management. Results were provided for 26 southern national parks, 22 of which (85%) identified a target indicator they were trying to influence relative to the corporate expectation and 16 of which (62%) listed one to three other indicators they were trying to influence.

²⁷ We found that 75 of the 122 indicators (61%) in southern national parks had one or more management effectiveness measures.

majority (73%) of the 129 indicators are targeted for improvement or will be influenced by active management efforts. All southern national parks had interventions to influence at least two of their ecosystems while seven national parks had interventions directed toward four or five ecosystems.

Interventions are not necessarily targeted at the ecosystems in the poorest condition or with declining trends in condition. This approach is deliberate. Management invests where it believes it can make tangible and measurable impacts on natural resource conditions. This may not be in an ecosystem with a poor condition or declining trend as the Agency may have no or little control over the factors influencing the condition or trend. The Agency may also choose to invest in ecosystems in good condition to ensure they do not deteriorate and require costly interventions in the future). In the case of AoG projects, the Agency also aims to achieve other corporate objectives, such as improved visitor experience and engaging partners, stakeholders and specific target audiences, which in turn contributes to longer term conservation goals.

Although managers seek to influence many ecosystems, changes are likely to be more significant or important in some ecosystems. This is consistent with the approach to AoG projects in the Agency and the fact that most RCMs could identify one or two ecosystems associated with the corporate expectation to improve at least one EI indicator. We identified these ecosystems either based on RCMs self reports in the survey or through a review of management and business plans, state of the park reports and AoG project reports. The identified indicators are shown as the shaded boxes in Appendix E.

From our survey of RCMs in southern national parks early in the evaluation process, we found 63% reported they were on track to see improvements in their targeted indicator, and 67% reported that the majority of their active management projects were contributing to improving their target indicator(s).

As noted previously, for the most part, the ICE database does not yet contain the required time series data to demonstrate changes in condition or trend of indicators or measures. Where the data does exist, the recorded changes are not always in a positive direction, or in some cases, shows a pattern of decrease and return to an initial state (e.g., the latter where three data points are reported). In both interviews and surveys, it was clear that most respondents thought that improvements would be at the level of measures or specific project outcomes, rather than changes at the ecosystem level.

OVERALL FINDING: EFFECTIVENESS – NATURAL RESOURCES

Since the current approach to EI monitoring was introduced in 2006, substantial progress has been made in setting up the indicator framework. Many measures have been developed and are being tracked. As of 2011, the Agency could report on the condition of almost three quarters of the indicators in southern national parks and on both condition and trend for 61% of the indicators, although for the most part these represented initial ratings of condition and trend. Significant amounts of applied research are occurring to support decision making. Information both from monitoring and applied research is being incorporated into management plans and

state of the park reports as well as corporate reports and is reported to influence decision making in national parks.

In 2011, the Agency introduced new guidelines for ecological monitoring that served to focus monitoring requirements. At the time of the evaluation, no target date was specified for when national park monitoring programs were to be compliant with these guidelines although toward the end of the evaluation management was addressing the issue. Based on the ICE system data in 2013, we found that ecosystem indicators in some national parks have not yet been adjusted to match the national set of core indicators, and that some national parks have more active indicators or measures than are required. The extent to which these findings represent the current reality of progress in ecological monitoring activity on the ground is uncertain given that not all relevant information has been entered into system. Management has recognized the importance of timely data entry and toward the end of the evaluation was taking steps to address the issue.

Many active management and restoration efforts are on-going in the Agency. However with the exception of the Action on the Ground Projects, there is no central inventory that captures the full extent of these activities and links them to ecosystems or measures. Various reports of project results are available, demonstrating tangible impacts of Agency efforts (e.g., reports of invasive species reductions, native species reintroduction, implementation of traditional fire regimes, rehabilitation of landscapes, mitigation of contaminated sites or the impacts of infrastructure projects). Active management and restoration efforts attempt to influence about three quarters of the ecosystems identified in southern national parks, covering the full spectrum of condition and trends in condition ratings (i.e., from ecosystems in good condition with improving trend to ecosystems in poor condition with declining trend).

At the sub-program level, the Agency has set an expectation of achieving 80% of the active management targets associated with its Action on the Ground projects by March 2015. The relevant projects have a mix of 99 output or outcome targets. The number of targets associated with a project varies so that about a third of the projects account for half of the targets. As of 2013, a few projects are completed and 23 targets (i.e., 23%) are already met. Based on progress to date, management expects to meet its overall target by March 2015.

Action on the Ground projects, as well as other active management initiatives, are expected to contribute to achieving the Agency's program level target of improving one EI indicator in 20 southern national parks by March 2015. Improvements in ecological integrity indicators may be realized in one of three ways: by improving the condition or trend of the indicator; by improving the condition or trend of a measure; or by meeting active management targets. Most national parks appear to have one or two indicators that they are specifically focusing on to support achieving this target. The majority of managers and specialists believe their active management and restoration projects are making a difference either by achieving active management targets or by changing the condition or trend of a measure. Few respondents expect changes at the level of an ecosystem indicator given that ecosystems as a whole are complex and slow to change in response to management interventions. Given the extent of various active management and restoration activities in the Agency, it is reasonable to conclude that the program level target will be met.

4.2.2 Cultural Resource Management

The Agency's expectations with respect to cultural resource management in national parks changed significantly over the course of the evaluation with the introduction of a revised *Cultural Resource Management (CRM) Policy* in January 2013 to replace a policy dating from 1994. The key change in the policy is to place less emphasis on a comprehensive inventory of all resources with associated plans and interventions to a more risk based focus on site-specific considerations, management priorities, and the resources under the most significant threats. The new policy identifies key considerations to help managers determine priorities for investment. It recognizes there will be resources for which the Agency does not have sufficient funds to invest in their conservation, and outlining options to ensure that these are treated in a respectful manner. Additional guidance to aid in interpreting and applying the policy at the field level was planned but not available at the time of the evaluation.

The data collected for the evaluation represents the situation with respect to cultural resource management as it existed prior to the approval of the new policy.

Question 7	Indicators
<p>To what extent are the expected outputs being produced?</p>	<ul style="list-style-type: none"> • Extent of inventorying, monitoring, and research on cultural resources in national parks. • Extent to which available information (i.e., inventories, monitoring and research) is accessible and is being used.

Expectation: Parks have or are in the process of generating relevant knowledge on the extent and condition of cultural resources

Expectation: Information on cultural resources is accessible and aligned with management needs.

Unlike the ICE database that is intended as single system of record for ecological information, there is no single, authoritative inventory system for cultural resource information in national parks or other locations managed by the Agency. It is estimated that more than 40 separate databases exist for various cultural resources. These databases do not communicate and are not readily accessible to all staff. Certain cultural resources,

such as those related to the commemorative integrity of National Historic Sites in national parks, are systematically inventoried and monitored over time.²⁸ Monitoring of other kinds of resources is more ad hoc and their condition or changes to their condition are not consistently tracked.²⁹

We drew data from several sources in 2010 as a precursor to the evaluation to obtain an estimate of the scope of inventory of cultural resources in national parks. At the time, we found 20 National Historic Sites within park boundaries (18 administered directly by the Agency); 43 Historical Sites and Monuments Board of Canada monuments or plaques (24 of which were

²⁸ Commemorative integrity evaluations rate three elements: resource condition, effectiveness of communicating the reasons for commemoration, and selected management practices.

²⁹ Condition ratings exist in the Agency's national inventory of historic objects (AIS) and in the asset management system (AMS) for historic objects, federal heritage buildings, other built heritage assets and HSMBC monuments and plaques. However, previous evaluation work identified issues with the completeness, reliability and timeliness of this data. There are no national systems tracking the condition of the other types of cultural resources.

associated with a NHS within the park); 185 designated Federal Heritage Buildings; over 10,000 archaeological sites and over 7,000 historic objects on site. We were unable to obtain estimates of the number of other historic structures and buildings or the number of culturally significant landscapes and landscape features (see Appendix G for definitions and details on various cultural resources).

We found that 20 national parks have posted research priorities related to cultural resources on the Agency's RCPS website, and that, for example, about 30 archaeological research applications or permits were approved per year. Evidence of the integration of cultural resource information into planning and reporting is more limited. We found that less than a third of national parks had specified cultural resource targets in their management plan or SoPRs. Many of the existing targets focused on development of inventories or condition ratings of the resources rather than active management.

Question 8	Indicators
To what extent are targets and results being achieved?	<ul style="list-style-type: none"> • Condition of cultural resources. • Extent of management activities to maintain or improve priority cultural resources and progress to achieve relevant targets.

State, Strategies, Active management

- From surveys, it was reported that most cultural resources were in fair to good condition and their condition was viewed as stable. However, the trend was seen to be deteriorating for 'other historic buildings and structures' and there was insufficient data to determine the trend in condition of landscapes and landscape features.
- Five national parks (14%) reported having an overall cultural resource management strategy in place. Existing strategies were developed through the Agency's Cultural Resource Values Statements (CRVS) pilot project. The draft CRVS tool was designed to help managers identify which resources should be managed as cultural resources and ensure the strategic investment of available time and resources. A significant majority (70%) of respondents to the CRM survey reported that they were developing or planned to develop a strategy.
- Most parks reported having engaged in one or more projects for the active management of cultural resources from April 2008 to December 2011. The survey did not request the details of specific projects. However, during site visits, we identified some examples of recent projects, including the restoration of heritage buildings and cottages, remediation of contaminated sites, and the identification and management of artefacts around a building site.

Expectation: Active management is contributing to maintaining/improving the condition of priority cultural resources.

OVERALL FINDING: EFFECTIVENESS – CULTURAL RESOURCES

The Agency made significant changes to its CRM policy during the course of the evaluation, which served to focus cultural resource management less on comprehensive inventorying and planning for all resources and more on site-specific analysis and local management priorities based on the identification of those resources most at risk.

We found that there is no single system of record for cultural resources in national parks which

creates challenges in understanding the state of knowledge with respect to these resources. Applied research and active intervention related to cultural resources does occur, but the scope and scale of these activities is small relative to the resources devoted to natural resource management in national parks. A key challenge in the future will involve developing mechanisms to identify where resources are most at risk, and represent the site specific priorities.

4.2.3 Unintended Impacts

Question 9 Are there any unintended impacts (positive or negative) of resource conservation in national parks?	Indicator
	<ul style="list-style-type: none"> Evidence of unintended impacts of resource conservation.

Expectation: Unintended positive or negative impacts of resource conservation are documented and shared.

Unintended or unanticipated impacts are defined as outcomes that are not the ones intended by a purposeful action. The unintended outcome may be beneficial/positive or detrimental/negative. A classic

example of negative unintended impacts in park resource conservation experienced decades ago was the long standing policy in many parks organization of forest fire suppression which led to increased fuel load and resulted in growth conditions that made those fires which did occur much larger and potentially more damaging. In consequence, most parks organizations, including Parks Canada, now encourage active fire management, including use of prescribed burns as an instrument for achieving ecological objectives.

We asked the key informants to identify unexpected or unintended impacts related to managing natural/cultural resources on site or resulting from the conservation program in general.³⁰ Less than half of the respondents provided a response. When respondents did describe impacts they often referred to consequences that are in fact anticipated or known (i.e., delivery of the natural resource conservation program through engaging researchers, Aboriginal Peoples, and local communities, and visitors enhances conservation success while failure to engage early can lead to local concerns or resistance).³¹

A few respondents suggested the Agency objective of encouraging greater visitor use of national parks could potentially have negative impacts on resource conservation. In this case, the consequence for the environment stems not from resource conservation activities per say but from other Agency programming. While the issue was raised, no specific examples of how this was occurring or could occur were identified.

The Agency seeks to identify and mitigate many kinds of potential impacts through the legally required environmental assessment process. In the Agency's case, environmental assessments (or more recently environmental impact analysis) takes into consideration not only environmental impacts of a proposed policy, program or project, but also impacts on cultural resources and visitor experience. We noted that more than 2,650 EAs for projects in national

³⁰ In total 44 Agency personnel at various levels and 41 partners/stakeholders were asked these questions.

³¹ An example cited by one respondent was the resistance of local NGOs to using fire management approach developed at another park. This resistance was resolved through discussion and adaptation of the fire management plan to the local conditions.

parks were completed between 2005 and 2012, and that as a result, many potential impacts are anticipated, documented and mitigated.³²

OVERALL FINDING: UNINTENDED IMPACTS

We did not identify any unintended impacts or consequences, either positive or negative, for resource conservation activities per say, or of other aspects of Agency programming, on the condition of resources in national parks.

4.3 EFFICIENCY AND ECONOMY

A program is **efficient** to the extent a greater level of output is produced with the same level of input, or a lower level of input is used to produce the same level of output. Changes in the level of input and output could be increases or decreases in quantity, quality, or both. A program is **economical** to the extent the cost of resources used approximates the minimum amount needed to achieve expected outcomes.

In the case of the National Parks Resource Conservation, inputs consist of budgets, staff and contemporary and cultural assets. Outputs include information, decisions, plans and reports, as well as active management and restoration projects in place at national parks. Outcomes are the results of initiatives to maintain or improve the ecological integrity of national parks and the condition of cultural resources within parks.

This section of the report is divided into three parts, the first focuses on a description of the nature and pattern of relevant expenditure data (i.e., inputs), the second part reviews qualitative information from surveys with respect to the evaluation questions, the final part summarizes various management actions undertaken to improve efficiency and economy of the program.

In this section we have integrated our discussion of the natural and cultural aspects of resource conservation in national parks to simplify reporting.

Questions 10/11	Indicators
To what extent is the natural resources component (cultural resources component) of the program efficient and economical?	<ul style="list-style-type: none"> • Costs of activities and outputs are identify • Outputs are produced on time and on budget and in sufficient quantities to achieve results • Evidence of a commitment to improve efficient of operations

Expectation: Costs of producing outputs and results are known and verified.
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4.3.1 Description of Expenditures

For the period covered by the evaluation, expenditures on **natural resource conservation** were coded to five general activities shown below.³³

³² Parks Canada's environmental assessment process was significantly revised in July 2012 in accordance with changes to the *Canadian Environmental Assessment Act* (2012). Under the new process environmental impact analysis (EIA) replaces the former environmental assessment process. Our data is specific to the former process.

- **Applied Science** (i.e., costs of research on ecosystems or their components);
- **Monitoring and Reporting** (i.e., costs of EI monitoring, constructing ecological inventories and database maintenance);
- **Environmental Assessment** (i.e., costs of planning and coordinating the process, preparing assessments, and monitoring impacts and results);
- **Active Management and Restoration** (i.e., costs of all types of interventions, including projects like AoG, work to manage the human dimensions of park ecosystems such as the impacts of townsites, resource extraction activities, pollution control, management of insect infestations, and flood protection and control); and
- **Fire Management** (i.e., fixed and variable costs associated with planning and maintaining a state of fire readiness, as well as costs associated with prescribed burns and emergency fire suppression).

Expenditures for **cultural resource conservation** were coded to three activities:

- **Inventory and evaluation** (i.e., costs to evaluate if a resource has heritage value and to inventory known resources);
- **Monitoring and reporting** (i.e., costs of establishing, tracking and reporting the condition of cultural resources and components); and
- **Conservation and mitigation** (i.e., costs to conserve cultural resources and to mitigate threats or address impairments affecting the resources).

These activities link directly to the Heritage Conservation Program in the Agency's financial system but do not link directly to relevant sub-programs (i.e., conservation of NPs, NHSs, NMCAs). As a result, the total costs of resource conservation in the national parks sub-program were not available. At the conclusion of the evaluation, management had restructured the PAA and was in the process of aligning activity codes to sub-programs so that this information would be available in the future.

To estimate sub-program costs for the relevant period, we obtained expenditure data by activity code and organizational levels and locations.³⁴ From this, we could identify and eliminate costs directly linked to NHSs and NMCAs. The remaining activity costs are either linked to a national park or to other organizational levels (i.e., field unit offices, service centers, national office). The total relevant expenditures by year are shown in Table 5.³⁵

³³ A sixth activity, law enforcement, is also linked to resource conservation but was excluded from the evaluation.

³⁴ The expenditures data used for the analysis was provided by the Finance Directorate in National Office at several points in time from 2011 to 2013.

³⁵ Our expenditure analysis assumes that Agency costs are accurately coded to the relevant activities. Functional management for the natural resources component of the sub-program expressed reservations about this assumption. For example, they reported that costs coded to ecosystem monitoring and reporting are systematically over stated relative to true costs. There is no easy way to verify if and to what extent this is true without a detailed analysis of specific expenditures coded to activities which we did not undertake.

Table 5. Relevant Activity Expenditures by Organizational Level

Linked to	2007-08	2008-09	2009-10	2010-11	2011-2012	Total
National Parks	57,418,439	51,375,186	56,616,804	51,116,403	50,797,800	267,324,632
Other organizational levels	39,796,389	44,489,058	38,985,805	42,149,064	36,379,587	201,799,903
Total	97,214,828	95,864,243	95,602,608	93,265,467	87,177,387	469,124,534

The total expenditure (i.e., \$469M) is composed of salaries (59%), good and services (35%), capital expenditures (4%) and contributions (2%). Total yearly expenditures decreased by about 10% over the five year period.

There is variation in spending by organizational level on different activities. For example, 80% of the costs of fire management were directly coded to national parks. Just under two thirds of the applied research, monitoring and reporting and active management for natural resource conservation were linked with national parks, as were 47% of the costs of environmental assessments. In contrast, only 13% of the expenditures for cultural resource conservation were coded to national parks.

The actual sub-program costs are those linked directly to national parks, plus an unknown portion of the costs at “other” levels in the Agency that contribute to conservation in national parks, as opposed to conservation in NHSs or NMCAs.

In the absence of precise information that would allow us to identify the correct portion of “other” level costs associated with national parks, we modeled different scenarios based on two simple assumptions:

- 1) 80% to 95% of the natural resource conservation expenditures supported national parks
- 2) 10% to 20% of the cultural resources expenditures supported national parks

The analysis suggested likely average yearly expenditures of between \$71M and \$81M (i.e., roughly 12% of overall Agency expenditures). In 2012-2013, the Agency began estimating the sub-program costs for public reporting in response to changing Treasury Board requirements (i.e., \$88.9M for the year). This estimate includes costs coded directly to internal services but which are allocated back to specific programs and sub-programs. We did not have the information required to make this adjustment to our estimates.

Expenditures by Parks: The expenditures directly coded to national parks (i.e., Table 5 row 1) are subdivided in Table 6 into expenditures for natural and cultural resource conservation.

Table 6. Park Level Expenditures on Natural and Cultural Resource Conservation

Type	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Natural Cons	53,794,617	48,055,988	53,562,524	48,286,528	47,343,906	251,043,563
Cultural Cons	3,623,822	3,319,198	3,054,279	2,829,875	3,453,894	16,281,069
Total	57,418,439	51,375,186	56,616,804	51,116,403	50,797,800	267,324,632

On average, 94% of the resource conservation expenditures directly coded to national parks are related to natural rather than cultural resource conservation. Average expenditures over five years by individual national park and by type of natural resource conservation activity are shown in Appendix H.

A review of the pattern of expenditures found that:

- Southern national parks account for 90% of park level expenses for natural resource conservation;
- Average expenditures on natural resource conservation vary significantly among national parks from just over \$100K to \$950K in northern national parks, and from about \$550K to more than \$5M in southern national parks;
- 38% of the expenditures directly coded to national parks were for active management and restoration (i.e., not including the environmental assessment process or the fire program), while 36% were for knowledge generation (i.e., applied science, monitoring and reporting);
- Fire management is a significant cost in several of the southern national parks, accounting for between 25% and almost 75% of the total resource conservation expenditures coded to the park for the period; and
- Expenditures on applied research, monitoring and reporting are reasonably strongly correlated with spending on active management and restoration (i.e., the more you spend on knowledge generation activities the more you spend on active management).

All the national parks also recorded expenditures for **cultural resource conservation**, although this varied from a few hundred dollars to over \$1.2M. Again, the vast majority (i.e., 86%) of these expenditures were reported in southern national parks. Seven national parks with expenditures near or more than \$1M accounted for almost three quarter of all expenditures. Across all national parks, the majority of the expenditures (70%) were for conservation and mitigation, with 16% for monitoring and reporting and remainder for inventory and evaluation.

The fact that spending on both natural and cultural resource conservation varies widely between individual national parks is not surprising given the numerous factors that can impact these expenditures (e.g., geography, remoteness and accessibility; extent of in-house expertise; the current state of and trends with resources; and various events such as fire or flood). We lacked the necessary data to determine whether the observed variation in spending was reasonable in light of management objectives.

4.3.2 Perceived Efficiency of Natural Resource Conservation³⁶

Respondents to our survey of RCMs were asked to rate the efficiency of nine different components of their natural resource conservation activities.³⁷ ‘Efficiency’ was defined in the survey as “getting the most output (i.e., products) for the money and human resources invested”.

The majority of respondents reported most components of their program to be efficient, although certain components were more likely to be rated as efficient. For example, 75% of the

³⁶ We did not obtain similar information with respect to cultural resource management in national parks.

³⁷ Components rated: (1) Producing inventories; (2) Implementing monitoring programs; (3) Producing research reports; (4) Maintaining databases; (5) Developing action plans; (6) SOPR; (7) Recovery strategies for SAR; (8) Implementing active management and restoration; and (9) EA.

respondents rated monitoring and reporting as efficient, compared to less than half who rated producing recovery strategies for species at risk as efficient.³⁸ Results were similar for both southern and northern national parks, although northern national parks perceived the production of research reports to be more efficient than did southern national parks.

We also asked survey and interview respondents to identify barriers to achieving results. Not surprisingly³⁹, the perceived lack of resources (i.e., personnel and financial) was the most frequently cited barrier. Although the finding was consistent across several groups of respondents, it should be noted that the responses were obtained before many changes in program requirements and delivery structure were implemented (e.g., changes to EI monitoring guidelines, CRM policy; completion of the Resource Conservation Renewal initiative; impacts stemming from Budget 2012). Many of these changes were intended to focus activities on a smaller set of priorities and align the Agency's capacity with this more focused set of objectives. As such, reports of resource constraints should be treated cautiously.

4.3.3 Management Actions to Support Efficient Operations

Expectation: Management demonstrates a commitment to improve efficiency of operations

Prior to and during the course of the evaluation, management took a number of actions designed to improve the efficiency of the national parks conservation sub-program. These include:

- **Emphasizing Collaboration and Integration:** To reduce costs, management has explicitly encouraged internal collaboration through a bioregional approach to both monitoring and active management of ecological integrity (e.g., to share expertise, identify optimal and common approaches, minimize duplication of work, and ensure cross-functional synergies). In the survey of Resource Conservation Managers, nearly all national parks reported some level of bioregional collaboration for monitoring. AoG projects also encourage internal collaboration to achieve objectives.⁴⁰ Both survey and interview respondents identified the bioregional approach and the AoG projects as practices that contributed to efficiency of operations.

Our literature review found that working with external partners and stakeholders is an international best practice used increasingly to leverage resources, share knowledge, and build relationships critical to long-term achievement of conservation objectives. In our interviews and surveys, all national parks reported some form of external partnering to

³⁸ The Horizontal Evaluation of Programs and Activities in Support of the Species at Risk Act (2012), which included the Agency, reported mixed results on the overall efficiency and economy including issues with timely delivery of required outputs and concerns about the sufficiency of resources to achieve results in the long term. The evaluation noted several factors that impact on timely production of outputs including workload increases as species are added to the legal list; costs of doing research on large ranging species, the complexity of consultations required under the Act, and legal challenges to various decisions and activities. Methods to improve the efficiency of the process were also identified (e.g., simultaneous production of a recovery strategy and an action plan for the Banff Springs Snail by PCA).

³⁹ Management self reports that they lack sufficient resources and information for achieving objectives are a common finding in our evaluation work across many programs in the Agency.

⁴⁰ Seven AoG projects are joint initiatives involving two or more national parks.

achieve conservation objectives. Identified types of partners include other federal departments and agencies, provincial and municipal governments, non-governmental organizations, industry and Aboriginal organizations. The use of external researchers and the involvement of volunteers and visitors in citizen science⁴¹ were also noted as good practices. Use of external resources contributes not only to knowledge generation but also to project resources and execution as is seen in some of the AoG projects (see text box for an example).

Initiatives like citizen science and the AoG projects are explicitly intended to achieve not only conservation objectives but also Agency outreach, public appreciation and visitor experience objectives. Another variation of the theme of integration is evident in the development of SAR recovery strategies that cover more than a single species, or which combine steps in the process (e.g., simultaneously producing recovery strategies and action plans). In each case, achievement of multiple objectives through the same project expenditures is intended to increase the efficiency and economy of Agency operations.

- **Focusing Activities Required to Achieve Results:** The 2011 *Consolidated Guidelines for Ecological Integrity Monitoring* (2011) were intended to focus monitoring programs on a national, consistent, and reduced set of indicators that would serve Agency information needs as efficiently as possible. The revisions to the CRM Policy in 2013 also served to focus efforts in cultural resource conservation in national parks on core priorities and higher risks. Recent changes to federal government requirements with respect to environmental impacts assessments will also serve to focus these activities where there is value added from a conservation perspective. In all these cases, the Agency seeks to minimize its costs while continuing to produce key outputs and results.
- **Changing Program Design and Resourcing Models:** Several changes in the resource conservation delivery model starting in 2009 were intended, in part at least, to minimize inputs and improve the efficiency of operations. Additional details on some of these changes are presented below in the section on program design. At this point we simply note the following:
 - Starting in 2009, the Agency launched an initiative to renew the resource conservation function, which aimed to clarify and update accountabilities, roles and responsibilities,

**Canadian Pacific Railway and Parks
Canada Agency Partner to Reduce
Mortality of Grizzly Bears in National
Parks**

Starting in 2010, the Agency partnered with Canadian Pacific Railway and the Universities of Alberta and Calgary to develop a five-year joint action plan to mitigate railway-related grizzly bear mortality in national parks. Through this partnership, Canadian Pacific is investing \$1M to launch a research-based program to explore grizzly behavior and potential mitigating technologies and practices. Preliminary results suggest that multiple factors contribute to grizzly bear mortalities and that a suite of mitigations will be required to reduce mortality risk. Ongoing research projects will help understand how grizzly bear motivation for using the railroad changes throughout the year and what mitigations will be most effective at reducing mortality.

⁴¹ In total, 46% of parks responding to the survey reported using citizen scientists and 69% reported using volunteers to collect monitoring data.

- and to create a nationally standardized set of organizational models for the function tailored to different field unit requirements
- As a result of 2012 budget reductions, the Agency's national office and service centers were amalgamated into a significantly streamlined and reduced structure. This involved, among other changes, reorganizing and repositioning the role the Natural Resource Conservation Branch in the PAEC Directorate in National office, so that it was better positioned to support field unit conservation objectives.
 - Budget 2012 also resulted in Agency wide efforts to better align the seasonality of the Agency's work force, including the conservation function, to focus work on periods of high demand, which in principle serves to reduce costs while ensuring that key outputs and results are still achieved.
- **Operational Reviews:** As noted previously, the 2011 *Consolidated Guidelines for Ecological Integrity Monitoring* introduced the concept of voluntary operational reviews of individual national park monitoring programs. The concept of these reviews is modelled on the already existing approach for voluntary operational reviews of environmental assessment activities in a particular national park (see *Operational Review Guide for Environmental Assessment* June 2010). Use of these reviews provides a mechanism to assist national park management at the local level in assessing the efficiency of their monitoring activities (i.e., both in helping to identify the minimal set of relevant indicators and measures that meet standards of scientific credibility, and as a means for sharing best practices). At the end of the evaluation, management indicated that operational reviews had been piloted in a few national parks.
 - **Action on the Ground Projects:** The AoG initiatives were one of the few instances where information was readily available with regard to project level budgets, expenses and progress to date. We reviewed details of 26 projects in 2012, with budgets ranging from \$655.8K to \$6.5M. The process of project selection and oversight for these initiatives is rigorous (e.g., funding is centralized, there are several levels of review of project proposals, approval of projects is at the level of the Agency's Executive Management Committee; there is yearly monitoring of progress against expected results). This level of oversight provides some assurance that the projects are efficiently designed and executed. We did note that many projects, as of 2012, have experienced delays in meeting their original spending profiles. This is explained in part by fiscal restraint in the Agency, which has resulted in the re-profiling of some funding to future years. Other reported events accounting for delays on several projects include: weather conditions, which impact the ability to carry out activities such as prescribed burns; changes to project scope or design; lack of continuity of staff; challenges related to external relations, partnerships, or legal disputes. To date, these events have had limited impact on the total estimated cost of projects, although timeframes for completion of the work have been extended. As a result, the Agency changed its performance target to achieve 80% of the active management targets associated with these projects from March 2014 to March 2015.

OVERALL FINDING: EFFICIENCY & ECONOMY

For the period covered by the evaluation, the Agency did not directly track the costs of the

resource conservation in national parks sub-program, although it will do so in the future. Based on some simple assumptions, estimated the sub-program costs during this period were in the range of \$71M to \$81M per year. The vast majority of these costs are for natural resource rather than cultural resource conservation. They are incurred in southern as opposed to northern national parks. The single biggest expenditure for both types of conservation is active management, followed by costs for knowledge generation. There is, as would be expected, substantial variation in recorded spending on both natural and cultural resource conservation between individual national parks. We lacked the necessary data to determine whether the observed variation was reasonable in light of management objectives.

Survey and interview data from early in the evaluation process suggested that the majority of managers perceived most components of their natural resource management programs to be efficient. At the time, adequacy of resources was frequently seen as a barrier to achieving long term conservation results. We noted that Agency expectations and requirements changed over time to become more focused on key objectives and risks aligned with available resources.

We also observed a number of management practices and actions designed to impact on the efficiency and economy of the sub-program. These included efforts to encourage collaboration and integration in achieving objectives, changes to focus requirements, changing Agency structures and resourcing models including seasonal alignment of the workforce and the introduction of mechanisms such as voluntary operational reviews for the ecological monitoring program which could in principle contribute to future efficiencies. Action on the Ground projects, a key aspect of the Agency active management of ecosystems are managed in a way that provides assurance they are designed and executed efficiently.

4.4 DESIGN AND DELIVERY

Question 11	Indicators
To what extent is the program designed for optimum achievement of desired results?	<ul style="list-style-type: none"> Extent to which Agency staff consider current and emerging resource arrangements to be practical and efficient.

This section of the report provides more descriptive detail on some changes to the program design over the course of the evaluation. For the most part, it was too early to assess the impacts of these changes for achieving results.

4.4.1 Resource Conservation Renewal

Expectation: Resource conservation renewal is underway and demonstrates an improved structure for program delivery.

In 2009, the Agency launched a renewal process to move the existing human resource model for resource conservation towards a more specialized function, with clarified and updated accountabilities, roles and responsibilities, under new organizational models.

Initial timelines for the renewal expected the field unit implementation by Summer/Fall 2011. However, the renewed structure was not implemented until July 2012.⁴²

Under the new model, each park has a Resource Conservation Manager who is accountable to deliver on the roles and responsibilities outlined in their specific Field Unit Functional Model for ecosystem and cultural resource management in national parks, as well as other related activities (e.g., fire operations, geomatics services, and field unit communications). The Resource conservation manager position is a key point of integration for both natural and cultural resource conservation in a park.

The Resource Conservation Manager is supported by a team of Ecologist Team Leaders, who lead assigned science programs and supervise teams of Resource Management Technicians and Resource Management Officers. The functional model also includes Cultural Resource Management Advisors to provide advice and support the management of projects and initiatives related to Parks Canada's CRM policy.⁴³

The size and specific composition of the resource management team varies from park to park, consistent with each park's resource conservation challenges and needs in accordance with the national models. For example, all national parks have staff within the national park and/or field unit dedicated to the day-to-day management of natural resources. However, only national parks where fire management is an important activity will have staff dedicated to this function. Similarly, given the differing level of need for cultural resource management, most field units have at least one staff member dedicated to providing advice on cultural resource management, but few national parks have on-site staff dedicated to the day-to-day management of cultural resources.

We interviewed resource conservation managers before this process was complete and found that at that time the majority indicated that completion of the process was an important step to stabilize the function and they expected it would bring clarity to roles and responsibilities and provide an improved structure for program delivery.

4.4.2 National Office Reorganization

In 2011, the Natural Resource Conservation Branch in Protected Areas Establishment and Conservation Directorate (PAEC) was restructured. The renewed Branch has four relevant divisions⁴⁴ focused on providing functional leadership, science and technical support to field units in the areas of:

- **Monitoring and Ecological Information**, including ecological integrity monitoring and reporting systems, managing and maintaining ICE, and delivering spatial mapping requirements for protected areas establishment and resources conservation projects;

⁴² As a result of Budget 2012, the renewed resource conservation models did not change but some of the proposed inputs were impacted (i.e., more use of seasonal positions).

⁴³ The existing environmental assessment process and the completion of park management plans were also identified as activities that contributed to integrated resource management.

⁴⁴ A fifth division focuses on national marine conservation areas and is not relevant for the evaluation.

- **Active Management and Ecological Restoration**, including supporting major projects such as AoG initiatives, other priority ecosystem management issues, as well as policy and support for the fire management program. This division is an amalgamation of the former fire management and ecological restoration functions;
- **Species Conservation & Management**, including all aspects of species protection, conservation and management related to SARA implementation and interventions; and
- **Environmental Assessment**, including all activities related to the application of the Canadian Environmental Assessment Act (CEAA) and northern environmental assessment regimes.

OVERALL FINDING: DESIGN AND DELIVERY

The operational design and delivery of the resource conservation program in national parks changed significantly over the course of the evaluation. The renewal of the resource conservation function created a nationally standardized set of organization models for the function tailored to the different field unit requirements. Under the new models, each park has a Resource Conservation Manager who is accountable for ecosystem and cultural resource management in national parks. The Resource Conservation Manager is supported by a team of Ecologist Team Leaders, who lead assigned science programs and supervise teams of Resource Conservation Technicians and Resource Management Officers. Implementation of the renewed structure took longer than planned but was completed in July 2012 and was expected to bring clarity to roles and responsibilities. It was perceived by Resource Conservation Managers to be an improved structure for program delivery. Nationally, the Natural Resource Conservation Branch in national office was also realigned to support ecological monitoring and information systems, active management and ecological restoration, species at risk, marine policy and environmental assessment activities in the field.

5. CONCLUSIONS AND RECOMMENDATIONS

The National Parks Conservation sub-program represents an estimated 12% of the Agency's total annual expenditures. If the sub-program is not well managed, it could result in the loss of ecological integrity of natural resources and the historic value of cultural resources in national parks, and ultimately impact on the ability of the Agency to sustain these protected heritage places and resources for future generations. Given the materiality of the investment and its importance to the mandate, it was identified as a priority for evaluation in Parks Canada's Evaluation Plans from 2009-10 to 2011-12.

The evaluation addressed:

1. **Relevance:** Does natural and cultural resource conservation in national parks align with federal government and Agency roles, responsibilities and priorities? Is it meeting the needs of Canadians?
2. **Effectiveness:** Is natural and cultural resource management in national parks producing the intended outputs and achieving expected results?
3. **Efficiency and Economy:** Is natural and cultural resource management in national parks efficient and economical in producing the expected outputs and outcomes?
4. **Design and Delivery:** To what extent is the program designed for optimum achievement of desired results?

Document and file review, surveys, interviews, and site visits, during 2011 and 2012 give us a good understanding of resource conservation in national parks as it existed at the time. During that period and subsequently, many significant changes occurred affecting all aspects of the sub-program (i.e., changes to organizational models and structures, roles and responsibilities, and relevant legislation, policy and guidance). As a result some of the information regarding sub-program effectiveness, gathered in the initial stages of the evaluation, became less relevant. Continued document and file review and analysis of secondary data, as well as discussions with functional management, throughout 2013 served to contextualize and compensate for some of the limitations of the aging data.

Relevance

We concluded that the National Parks Conservation sub-program continues to be relevant. There is evidence of continued threats to natural and cultural resources under Parks Canada's authority. Resource conservation in national parks is consistent with Parks Canada's legislative and operational mandate, and this priority is clearly reflected in the Agency's corporate and strategic documents. The program is consistent with government-wide priorities and international commitments. In general, Canadians strongly support the federal government's role in the protection of natural and cultural resources. At a local level, many Canadians are aware of and are actively engaged in the conservation of these resources.

Effectiveness

Activities and Outputs: There is considerable evidence that many expected activities take place and associated outputs are produced. This includes various kinds of ecological or cultural resource monitoring and applied research, as well as many types of management interventions to

maintain or improve aspects of ecosystems, and to a lesser extent, the condition of cultural resources in national parks.

Since the modern approach to Ecological Integrity (EI) monitoring was introduced in 2006, substantial progress has been made in setting up the indicator framework, and many measures have been developed and are being tracked. As of 2011, the Agency could report on the condition of almost three quarters of the indicators in southern parks, and on both condition and trend for 61% of the indicators. For the most part, these represented initial ratings of condition and trend. Significant amounts of applied research are occurring to support decision making. Information from both monitoring and applied research is being incorporated into management plans, state of the park reports and corporate reports. It is reported to influence decision making in national parks.

The Agency's approach to EI monitoring is governed by recent, detailed and comprehensive guidance to support a consistent and sustainable approach to this activity. The approach to monitoring and reporting was recognized by our panel of experts as an international best practice. In 2011, the Agency introduced new guidelines for ecological monitoring that focused monitoring requirements. At the time of the evaluation, no target date was specified for when park monitoring programs were to be compliant with these guidelines although towards the end of the evaluation management was taking steps to address this issue. Based on the relevant information system data in 2013, we found that ecosystem indicators in some parks have not yet been adjusted to match the national set of core indicators set out in the guidelines, and that some parks reported more active indicators or measures than are required. The extent to which the system data represented current ecological monitoring activities on the ground is uncertain given that not all the relevant information had been entered into the system. Again, management recognized the importance of timely data entry and was taking steps toward the end of the evaluation to address the issue.

The Agency's overall approach to ecological restoration for protected areas has also received international recognition and was viewed by our group of conservation experts as a best practice. Many active management and restoration efforts are on-going in the Agency. However, aside from the Action on the Ground projects, there is no central inventory that captures the full extent of these activities and links them to indicators or measures. Various reports of project results are available and demonstrate tangible results of Agency efforts (e.g., reports of invasive species reductions, native species reintroduction, implementation of traditional fire regimes, rehabilitation of landscapes, mitigation of contaminated sites or the impacts of infrastructure projects).

We estimated that active management and restoration efforts attempt to influence about three quarters of the ecosystems identified in southern parks, covering the full spectrum of condition and trends in condition ratings (i.e., from ecosystems in good condition with improving trend to ecosystems in poor condition with declining trend).

Unlike the situation with respect to natural resources, there is no single system that captures information on cultural resources in national parks. This creates challenges in understanding the state of knowledge with respect to these resources. The focus of most management targets and

strategies at the time of the evaluation was on knowledge generation for cultural resources. Applied research and active intervention related to cultural resources does occur, but the scope and scale of these activities is small relative to the resources devoted to natural resource management in national parks. A key challenge in the future will involve developing mechanisms to identify where resources are most at risk and therefore represent the site specific priorities.

Outcomes: At the sub-program level, the Agency expects to achieve 80% of the active management targets associated with its Action on the Ground projects by March 2015. The relevant projects have a mix of 99 output or outcome targets. The number of targets associated with a project varies so that about a third of the projects account for half of the targets. As of 2013, a few projects are completed and some targets have been met (i.e., 23 or about 23%). Based on progress to date, management expects to meet its overall target by March 2015.

Action on the Ground projects, as well as other active management initiatives, are expected to contribute to achieving the Agency's target at the program level of improving one EI indicator in 20 southern parks by March 2015. Improvements in EI indicators may be realized in one of three ways: by improving the condition or trend of the indicator; by improving the condition or trend of a measure; or by meeting active management targets. Most national parks appear to have one or two indicators that they are focusing on to support achieving this target. The majority of managers and specialists believe their active management and restoration projects are making a difference either by achieving active management targets or by changing the condition or trend of a measure. Few respondents expect changes at the level of an ecosystem indicator given that ecosystems as a whole are complex and slow to change in response to management interventions. Given the extent of various active management and restoration activities in the Agency, it is reasonable to conclude that the program level target will be met.

We did not identify any unintended consequences of resource conservation activities, or of other Agency activities, on the conservation of resources in national parks.

Efficiency and Economy

For the period covered by the evaluation, the Agency did not directly track the costs of the national parks resource conservation sub-program, although it will do so in the future. We estimated the sub-program costs during this period to be in the range of \$71M to \$81M per year. The vast majority of these costs are for natural resource rather than cultural resource conservation in national parks. They are incurred in southern as opposed to northern parks. The single biggest expenditure for both types of conservation is active management, followed by costs for knowledge generation. There is, as would be expected, substantial variation in recorded spending on both natural and cultural resource conservation between individual parks. We lacked data to determine whether the observed variation was reasonable in light of management objectives.

We observed a number of management practices and actions designed to impact on the efficiency and economy of the sub-program, including efforts to encourage collaboration and integration in achieving objectives, changes to focus conservation activities, changing Agency organizational structures and resourcing models for resource conservation (including seasonal

alignment of the work force), and the introduction of mechanisms such as voluntary operational reviews for the ecological monitoring program, which could in principle contribute to future efficiencies. Action on the Ground projects, a key aspect of the Agency's active management of ecosystems, are managed in a way that provides assurance they are designed and executed efficiently.

Design and Delivery

The operational design and delivery of the resource conservation program in national parks changed significantly over the course of the evaluation. The renewal of the resource conservation function created a nationally standardized set of organization models for the function tailored to the different field unit requirements. Under the new models, each park has a Resource Conservation Manager who is accountable for ecosystem and cultural resource management in national parks. The Resource Conservation Manager is supported by a team of Ecologist Team Leaders, who lead assigned science programs and supervise teams of Resource Conservation Technicians and Resource Management Officers. Implementation of the renewed structure took longer than planned but was completed in July 2012, and was expected to bring clarity to roles and responsibilities. It was perceived by Resource Conservation Managers to be an improved structure for program delivery. The Natural Resource Conservation Branch in national office was also realigned to support improve support to the field in the areas of ecological monitoring and information systems, active management and ecological restoration, species at risk, and environmental assessment.

Recommendations

The major issues identified during the evaluation pertain largely to the quality and accessibility of information to support conclusions about sub-program performance (i.e., effectiveness, efficiency and economy). These issues apply to both natural and cultural resource management in national parks. However, given both the materiality of the natural resource component of the program and the fact that revisions to the CRM policy are relatively new, we focused our recommendations on improving the completeness, accessibility and public reporting of information related to natural resources conservation in national parks.

Lack of timely data entry in the ICE system hinders tracking of performance with respect to implementing the basic ecological monitoring system architecture and assessing the extent that results data exists. To address this issue we recommend:

- 1** The VP Protected Areas Establishment and Conservation (PAEC) propose to EMC for approval a time line for entering existing monitoring information into the ICE database and standards for timely input of new information in the future. Progress against time lines should be monitored and reported periodically to EMC.

Agree: Field Unit Superintendents are now expected to populate the ICE database with existing data by March 2015 and to update it annually with new data in the future. The target is communicated in PCX Mandate Letters for 2014-2015 and is reflected the Agency's revised Directive on Management Planning and Reporting. FUS will attest on how they met this mandate letter commitment as part of the annual PCX performance evaluation process.

At the time of the evaluation the Agency had not set a clear target for when EI monitoring systems at each park were expected to be compliant with the new guidelines (e.g., local indicators aligned with the core indicator set, and the number of active indicators and measures aligned with guidelines). To address this we recommend:

- 2 The VP Protected Areas Establishment and Conservation (PAEC) in collaboration with field unit superintendents identify target dates for when all parks are expected to have implemented basic system architecture consistent with the consolidated guidelines and report to EMC on progress toward the target.

Agree: Field Unit Superintendents are now expected to have their monitoring programs aligned with 2011 Guidelines by March 2015. The target is communicated in PCX Mandate Letters for 2014-2015. FUS will attest on how they met this mandate letter commitment as part of the 2015 PCX performance evaluation.

There is no clear long plan plan or target for when the monitoring system will achieve the objective of reporting at least the intital ratings of condition and trend for all relevant indicators and measures. To address this we recommend:

- 3 The VP Protected Areas Establishment and Conservation (PAEC) in collaboration with field unit superintendents identify milestones and target dates for and report to EMC on when the initial ratings of condition and trend information well be available for all relevant indicators and measures.

Agree: PAEC will develop, by March 2015, a dashboard interface that will allow the yearly tracking of milestones for the implementation of national park monitoring programs to ensure that information on the condition and/or trends of indicators and measures is available annually.

Public reports of the condition and/or trend of EI indicators have not in the past communicated important information to help a read/user understand the significant of what is being reported (i.e., whether an assessment represents a initial ratings of condition and trend, the age of the assessment, and the nature of changes, at least at a high level, in condition and trend across the full suite of indicators from one reporting period to another). To address this issue we recommend:

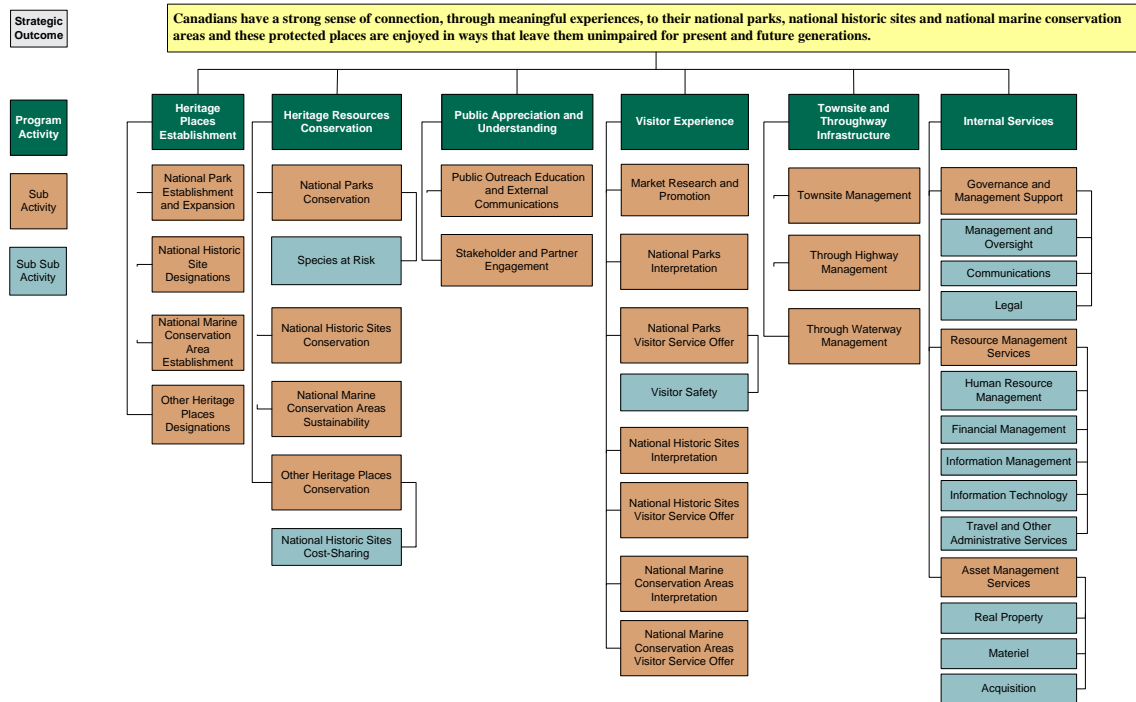
- 4 The Chief Administrative Officer ensure that the national five-year "State of" report communicates the period within which the data was collected (year initial year of assessment and subsequent assessments); the frequency at which indicators are assessed; and what, if anything, has changed from the previous reporting period.

Agree: Strategic Planning and Reporting will ensure that, in the future, the national five-year "State of" report provides information on when assessments were conducted, and what, if anything, has changed from previous reports. Information on the year of the original assessment of an indicator and the year of the most recent assessment will be provided on Parks Canada's website.

Appendix A. Strategic Outcome and Program Alignment Architecture

Parks Canada Strategic Outcome and Program Activity Architecture 2012-13

Updated on November 7, 2011



Appendix B. EVALUATION MATRIX

A. RELEVANCE: NATURAL AND CULTURAL RESOURCES				
Does the sub-program align with federal government and Agency roles, responsibilities and priorities? Is it meeting the needs of Canadians?				
Core Question	Specific Questions	Expectations	Indicators	Data Sources/Methods
1. To what extent is the program serving an existing need?	<ul style="list-style-type: none"> To what extent do the problems/issues the program is addressing continue to exist? 	<ul style="list-style-type: none"> Natural and/or cultural resources in national parks are under threat or in need of conservation. 	<ul style="list-style-type: none"> Evidence of threats to the integrity of natural and/or cultural resources – i.e., proportion of resources in poor or deteriorating condition. 	<ul style="list-style-type: none"> Document and literature review.
2. Is the program relevant to Canadians?	<ul style="list-style-type: none"> To what extent are Canadians aware of, supportive of and/or engaged in national parks conservation? 	<ul style="list-style-type: none"> Canadians are concerned about the threats to natural and cultural resources in parks and support/are engaged in the conservation of park resources. 	<ul style="list-style-type: none"> Level of public awareness and concern for the condition of natural and/or cultural resources. Level of public and stakeholder interest and involvement in the protection of natural and/or cultural resources. 	<ul style="list-style-type: none"> Document and literature review. Key informant interviews. Expert group.
3. Is national park conservation relevant to wider federal government outcomes?	<ul style="list-style-type: none"> To what extent is the program aligned with federal government roles, responsibilities and priorities? 	<ul style="list-style-type: none"> Program objectives align with Government of Canada priorities, legislation and international agreements. 	<ul style="list-style-type: none"> Degree to which federal legislation and international agreements align with the protection of natural and cultural resources. 	<ul style="list-style-type: none"> Document and literature review.
4. Is there a legitimate and necessary role for PCA in conservation of resources in national parks?	<ul style="list-style-type: none"> To what extent is the program aligned with Agency roles, responsibilities and priorities? To what extent could another organization assume the roles and responsibilities for these activities? 	<ul style="list-style-type: none"> The program is clearly aligned with Parks Canada's mandate, policies and priorities. No other organizations currently fulfill the same role as PCA with respect to protected areas. 	<ul style="list-style-type: none"> Degree to which the program aligns with PCA mandate, policy and strategic direction. Extent to which others duplicate the role of PCA in resource conservation in protected places 	<ul style="list-style-type: none"> Document and literature review. Comparative analysis. Key informant interviews. Expert group.
B1. PERFORMANCE: NATURAL RESOURCES				
Is the sub-program producing the intended outputs and achieving its results?				

Core Question	Specific Questions	Expectations	Indicators	Data Sources/Methods
5. To what extent are the expected outputs being produced?	<ul style="list-style-type: none"> To what extent do monitoring and research activities produce relevant, credible information to understand the nature, number and condition of resources? To what extent is available information being accessed and used to develop plans/set targets? 	<ul style="list-style-type: none"> EI monitoring programs are designed according to program criteria and guidelines. Reasonable progress is being made to implement the monitoring programs as designed. Natural science research is being undertaken in national parks aligned with stated priorities and management information needs. Knowledge generated by research and monitoring is being used to generate other outputs and to influence outcomes. 	<ul style="list-style-type: none"> Number of parks with monitoring programs that meet program criteria and guidelines. Number of parks where monitoring program is being implemented as designed (i.e., measures are monitored; condition and trend data is collected and recorded). Number of relevant research activities undertaken. Extent to which available information (i.e., results of monitoring and research) is being used to support natural resource management. 	<ul style="list-style-type: none"> Document and literature review. Database analysis (ICE, RCPS, Biotics, SARA public registry, EA, etc.). Survey of Resource Conservation Managers. Key informant interviews. Site visits. Expert group.
6. To what extent are targets and results being achieved?	<ul style="list-style-type: none"> To what extent is progress being made to achieve 80% of active management targets to improve ecological integrity? To what extent is progress being made to achieve the target that 20 national parks improve one ecological integrity indicator? 	<ul style="list-style-type: none"> Reasonable progress is being made towards achieving the expectation that 80% of active management targets to improve EI are met. Reasonable progress is being made towards achieving the expectation that 20 national parks will improve one EI indicator. 	<ul style="list-style-type: none"> Relevant active management targets are identified. Number of active management targets met and number where progress is reported Number of parks with improved EI indicators or measures 	<ul style="list-style-type: none"> Document and literature review. Database analysis (ICE – effectiveness measures). File review – Action on the Ground. Survey of Resource Conservation Managers. Key informant interviews. Site visits.
B2. PERFORMANCE: CULTURAL RESOURCES				
Is the sub-program producing the intended outputs and achieving its results?				
Core Question	Specific Questions	Expectations	Indicators	Data Sources/Methods
7. To what extent are expected outputs being	<ul style="list-style-type: none"> To what extent are knowledge generation 	<ul style="list-style-type: none"> Parks have or are in the process of generating 	<ul style="list-style-type: none"> Extent of inventorying, monitoring, and research 	<ul style="list-style-type: none"> Document and literature review.

produced?	<p>activities (inventorying, monitoring, research) taking place?</p> <ul style="list-style-type: none"> To what extent is available information being accessed and used to develop plans and set targets? 	<p>relevant knowledge on the extent and condition of cultural resources.</p> <ul style="list-style-type: none"> Information on cultural resources is accessible and aligned with management needs. 	<p>on cultural resources in national parks.</p> <ul style="list-style-type: none"> Extent to which available information (i.e., inventories, monitoring and research) is accessible and is being used. 	<ul style="list-style-type: none"> Database analysis (RCPS, AMS, AIS, etc.). Survey of Resource Conservation Managers. Survey of Cultural Resource Specialists. Key informant interviews. Site visits.
8. To what extent are targets and results being achieved?	<ul style="list-style-type: none"> To what extent management has set expectations and targets with respect to cultural resources? To what extent are these expectations and targets being met or are likely to be met? 	<ul style="list-style-type: none"> Active management is contributing to maintaining/improving the condition of priority cultural resources. 	<ul style="list-style-type: none"> Condition of cultural resources. Extent of management activities to maintain or improve priority cultural resources and progress to achieve relevant targets. 	<ul style="list-style-type: none"> Document and literature review. Survey of Resource Conservation Managers. Survey of Cultural Resource Specialists. Key informant interviews. Site visits.
B3. PERFORMANCE: UNINTENDED IMPACTS – NATURAL AND CULTURAL RESOURCES				
Is the sub-program producing unintended consequences?				
Core Question	Specific Questions	Expectations	Indicators	Data Sources/Methods
9. Are there any unintended impacts (positive or negative) of resource conservation in national parks?	<ul style="list-style-type: none"> Have any unintended impacts been observed or experienced as a result of program activities? 	<ul style="list-style-type: none"> Unintended positive or negative impacts of resource conservation are documented and shared. 	<ul style="list-style-type: none"> Evidence of unintended impacts of resource conservation. 	<ul style="list-style-type: none"> Document and literature review. Key informant interviews. Expert group.
C. EFFICIENCY AND ECONOMY – NATURAL AND CULTURAL RESOURCES				
Is the sub-program efficient and economical?				
Core Question	Specific Questions	Expectations	Indicators	Data Sources/Methods
10. To what extent is the natural resources component of the program efficient and economical?	<ul style="list-style-type: none"> What management flexibilities/constraints influence the program's efficiency/economy? How do costs compare among outputs? Were inputs of sufficient quality and quantity to support expected results? 	<ul style="list-style-type: none"> Costs of producing outputs and results are known and verified. Management demonstrates a commitment to improve efficiency of operations 	<ul style="list-style-type: none"> Costs of activities and outputs are identify Outputs are produced on time and on budget and in sufficient quantities to achieve results Evidence of a commitment to improve efficient of operations 	<ul style="list-style-type: none"> Database analysis. Document and literature review. Comparative analysis. Key informant interviews. Survey of Resource Conservation Managers.

	<ul style="list-style-type: none"> • How do costs compare against benchmarks? 			
11. To what extent is the cultural resources component of the program efficient and economical?	<ul style="list-style-type: none"> • What management flexibilities/constraints influence the program's efficiency/economy? • How do costs compare among outputs? • Were inputs of sufficient quality and quantity to support expected results? • How do costs compare against benchmarks? 	<ul style="list-style-type: none"> • Costs of producing outputs and results are known and verified. • Management demonstrates a commitment to improve efficiency of operations 	<ul style="list-style-type: none"> • Costs of activities and outputs are identify • Outputs are produced on time and on budget and in sufficient quantities to achieve results • Evidence of a commitment to improve efficient of operations 	<ul style="list-style-type: none"> • Database analysis. • Document and literature review. • Comparative analysis. • Key informant interviews. • Survey of Resource Conservation Managers.
D. DESIGN AND DELIVERY – NATURAL AND CULTURAL RESOURCES				
Does the sub-program design contribute to achieving results?				
Core Question	Specific Questions	Expectations	Indicators	Data Sources/Methods
12. To what extent is the program designed for optimum achievement of desired results?	<ul style="list-style-type: none"> • To what extent are the Agency's renewal initiatives contributing to enhanced delivery of the national parks conservation program? • To what extent do natural and cultural resource management effectively share resources, activities and outputs? 	<ul style="list-style-type: none"> • Resource conservation renewal is underway and demonstrates an improved structure for program delivery. 	<ul style="list-style-type: none"> • Extent to which Agency staff consider current and emerging resource arrangements to be practical and efficient. 	<ul style="list-style-type: none"> • Document and literature review. • Database analysis. • Survey of Resource Conservation Managers. • Survey of Cultural Resource Specialists. • Key informant interviews • Site visits. • Comparative analysis.

Appendix C. KEY DOCUMENTS CONSULTED

Legislation

- *Canada National Parks Act* (2001)
- *Parks Canada Agency Act* (1998)
- *Historic Sites and Monuments Act* (1985)
- *Species at Risk Act* (2002)
- *Canadian Environmental Assessment Act* (2012)

Government of Canada Policies and Guidelines

- Treasury Board. *Whole of Government Framework* (2012).
- Treasury Board. *Policy on Evaluation* (2009) and related directives.
- Treasury Board. *Policy on Management of Real Property* (2006).
- Environment Canada. *Federal Sustainable Development Strategy* (2010).
- Environment Canada. *Federal Contaminated Sites Action Plan* (2005).

Parks Canada Policies and Guidelines

- Parks Canada. *Guiding Principles and Operational Policies* (1994), including:
 - National Parks Policy
 - Federal Heritage Buildings Policy
 - Cultural Resource Management Policy

Parks Canada Agency Corporate Documents

- Parks Canada. *State of the Parks Report* (1997).
- Parks Canada. *The Parks Canada Charter* (2002).
- Parks Canada. *Financial Coding Manual* (2008-09).
- Parks Canada. *Corporate Plans* (2008-09 to 2012-13).
- Parks Canada. *Departmental Performance Reports* (2008-09 to 2011-12).
- Parks Canada. *Stakeholder and Partner Engagement Survey* (2009).
- Parks Canada. *State of Protected Heritage Areas Report* (2009).
- Parks Canada. *Program Alignment Architecture* (2009-10).
- Parks Canada. *Corporate Risk Profile* (2011-12).
- Parks Canada. *State of Canada's Natural and Historic Places* (2011).
- Parks Canada. *Investment Plan, 2011-12 to 2015-16* (2011).
- Parks Canada. *Performance Measurement Framework* (2011-12, 2012-13, and 2013-14)
- Parks Canada. *National Survey of Canadians* (2002, 2005, 2009 and 2012).
- Parks Canada. *National Park Management Plans* (various).
- Parks Canada. *State of the Park Reports* (various).

Parks Canada Agency Program Documents

- Parks Canada. *Action on the Ground: Ecological Integrity in Canada's National Parks* (2005).
- Parks Canada. *Monitoring and Reporting Ecological Integrity in Canada's National Parks, Volume I: Guiding Principles* (2005).
- Parks Canada. *National Fire Management Strategy* (2005).
- Parks Canada. *Establishing Park EI Monitoring and Reporting Programs – Assuring Success in 2008* (2006).
- Parks Canada. *Monitoring and Reporting Ecological Integrity in Canada's National Parks, Volume II: A Park-Level Guide to Establishing EI Monitoring* (2007).

- Parks Canada. *Action on the Ground II: Working with Canadians to Improve Ecological Integrity in Canada's National Parks* (2008).
- Parks Canada. *Guide to Management Planning* (2008).
- Parks Canada. *Report on Natural Science Research* (2007, 2008 and 2009).
- Parks Canada. *Ecological Integrity Monitoring in Northern National Parks: The Path Forward to 2014* (2010).
- Parks Canada. *EI Monitoring and Reporting Program: Accomplishments, Program Status and Going Forward* (2010).
- Parks Canada. *Resource Conservation Functional Model* (2010).
- Parks Canada. *Consolidated Guidelines for Ecological Integrity Monitoring in Canada's National Parks* (2011).
- Parks Canada. *Contaminated Sites Management Plan* (2009 and 2011).
- Parks Canada. *Guide to Preparing Cultural Resource Values Statements for National Parks and National Marine Conservation Areas* (draft).
- Parks Canada. *Action on the Ground: Annual Progress Reports* (various).
- Parks Canada. *Request for Project Approvals* (various).

Past Audits and Evaluations

- [CESD Chapter 2 – Ecological Integrity in Canada's National Parks](#) – Office of the Auditor General of Canada, September 2005*
- [CESD Chapter 5 – Ecosystems: Protection of Species at Risk](#) – Office of the Auditor General of Canada, March 2008*
- [CESD Chapter 1 – Applying the Canadian Environmental Assessment Act](#) – Office of the Auditor General of Canada, Fall 2009
- [CESD Chapter 3 – Federal Contaminated Sites and Their Impacts](#) – Office of the Auditor General of Canada, Spring 2012
- Interdepartmental [Evaluation of Programs and Activities in Support of the Species at Risk Act](#) (December 2012).
- Interdepartmental *Evaluation of the Federal Contaminated Sites Action Plan* (ongoing) – Led by EC, an interdepartmental evaluation including Parks Canada.
- Report of the Panel on the Ecological Integrity of Canada's National Parks (2000)

Other Documents

- *United Nations World Heritage Convention* (1972).
- *United Nations Convention on Biological Diversity* (1994).
- Canadian Parks Council, *Principles and Guidelines for Ecological Restoration in Canada's Protected Natural Areas* (2007).
- US Department of Interior. *Funding the Natural Resource Challenge* (2009).
- *Standards and Guidelines for the Conservation of Historic Places in Canada* (2010).
- IUCN. *Ecological Restoration for Protected Areas: Principles, Guidelines and Best Practices* (2012).

Appendix D. MAJOR PARK ECOSYSTEMS AND CORE EI INDICATORS

Parks Canada's *Consolidated Guidelines for Ecological Integrity Monitoring in Canada's National Parks* (2011) provides direction on how Field Unit Superintendents are to select ecological integrity indicators. Parks are to select three to four key indicators from the suite of major park ecosystems and approved 'core' indicators identified in the following table.

Ecosystem	Core Indicator(s)	
Forests	• Forest	• Woodlands
Tundra	• Arctic Tundra	• Alpine Tundra
Shrublands	• Shrublands	• Barrens
	• Alvars	• Landres
Wetlands	• Wetlands	• Deltas
	• Floodplains	
Grasslands	• Grasslands	• Badlands
Freshwater	• Streams	• Lakes
Coastal/Marine	• Marine	• Islets
	• Coastal	• Sub-tidal
	• Inter-tidal	
Glaciers	• Glaciers	

The following direction is also provided:

- Select major park ecosystems as EI indicators if they represent a significant proportion (generally > 5%) of the park.
- Select major park ecosystems as EI indicators that are small in area (<5%) only if they have conservation values important to specific, established park management objectives.
- Where feasible, each EI indicator to be assessed should include measures of biodiversity, ecological process, and stressor(s)/driver(s) acting on the major park ecosystem.
- Parks currently using different indicators are expected to find an appropriate method align those with the ecosystems and indicators presented in the above table.







Field Unit Superintendents who believe their park circumstances may warrant varying from this direction must consult the Vice President, Protected Areas Establishment and Conservation.

Appendix E. CONDITION AND TREND OF EI INDICATORS IN NATIONAL PARKS

Ecoregions	Parks	Ecosystems and Indicators															
		Forest	Freshwater		Wetlands		Shrublands		Tundra	Coastal				Glaciers	Grasslands		Other
			Lakes	Streams/ Rivers	Wetlands	Deltas	Shrub lands	Barrens		Coastal	Inter-tidal	Islets	Sub-Tidal		Grasslands	Badlands	
Atlantic Quebec	Gros Morne	■↓	●↔	▼↓				▼↓	▼↑								
	Terra Nova	●↑	●↑	NR				NR	●↔								
	Prince Edward Island	■↓	●↔	●↓					▼↓								
	Cape Breton Highlands	▼↓	●↓	NR				NR	●↔								
	Kejimikujik	●	●	NR					■								
	Fundy	▼↔	▼↔	●↔					▼↔								
	Kouchibouguac	NR	●↔	●↔					●↔								
	Forillon	●↓	●↔						▼↓				▼↓				
	La Mauricie	▼↓	▼↓	▼↓													
	Mingan Archipelago (Reserve)	●↔		NR				NR	NR		NR						
Great Lakes	Bruce Peninsula	●↔	NR	▼	●												NR
	Georgian Bay Islands	●	NR		NR				●								
	Point Pelee	▼↔			▼↓				■↓								▼↓
	Pukaskwa	●	NR	NR					▼								
	St. Lawrence Islands	●↔		●	▼												
Interior Plains	Riding Mountain	▼↔	▼↔	▼↔	▼↔											▼↓	
	Grasslands	NR		▼↔	NR		NR								▼↔	NR	
	Prince Albert	●	●		NR										NR		
	Elk Island	●↔	▼↓		NR										NR		
	Wood Buffalo	●↔	NR	■↓	NR										NR		●↓
Montane-Cordillera	Banff	▼↓		▼↔													▼↔
	Jasper	▼↔		▼↑													▼↔
	Waterton Lakes	■↓		●↓													●↔
	Kootenay	▼↓		●↔													▼↔
	Yoho	▼↓		▼↑													▼↓

Ecoregions	Parks	Ecosystems and Indicators															
		Forest	Freshwater		Wetlands		Shrublands		Tundra	Coastal				Glaciers	Grasslands		Other
			Lakes	Streams/ Rivers	WetLands	Deltas	Shrub lands	Barrens		Coastal	Inter-tidal	Islets	Sub-Tidal		Grasslands	Badlands	
	Mount Revelstoke & Glacier	▼↓	●↓														▼↔
Pacific Coast	Gulf Islands (Reserve)	NR	▼	NR						NR	NR	NR	●				NR
	Pacific Rim (Reserve)	●↔		▼↔						▼↔	▼↔		■↓				
	Gwaii Haanas (Reserve)	▼↓	NR	●						●↔	NR		■↔				

Ecoregions	Parks	Ecosystems and Indicators															
		Forest	Freshwater		Wetlands		Shrublands		Tundra Badlands	Coastal				Glaciers	Grasslands		Other
			Lakes	Streams/ Rivers	WetLands	Deltas	Shrub lands	Barrens		Coastal	Inter-tidal	Islets	Sub-Tidal		Grasslands	Badlands	
	Tornгат Mountains		●				●	▼					NR				
	Wapusk	NR	NR	NR			NR	NR				NR					
	Ivvavik	NR	NR				NR	NR									
	Kluane (Reserve)	▼↓	NR	NR			●↓						▼				
	Vuntut	NR		●↔			NR										
	Aulavik		NR				▼	NR									
	Nahanni (Reserve)	●↔	●↔	NR			▼↓						▼↓				
	Tuktut Nogait		NR				NR										
	Auyuittuq		NR				NR	NR					NR				
	Quittinirpaaq		NR				NR	NR					NR				
	Sirmilik		NR	NR			NR	NR					NR				
	Ukkusiksalik		NR				NR	NR									

LEGEND TO TABLE			
Indicator State		Indicator Trend	
	Good		Improving
	Fair		Stable/No Change
	Poor		Declining
NR	Not Rated		Not Rated/Not Applicable
[shaded box]	Indicator Targeted for EI Improvement		
Indicator Condition		Description (<i>Consolidated Guidelines for EI Monitoring, 2011</i>)	
Good EI	The ecosystem is presently secure, is likely to persist, and contains a healthy composition and abundance of native species and biological communities, rates of change and supporting processes. No major management actions are required.		
Fair EI	The ecosystem is presently vulnerable and does not contain a completely healthy composition and abundance of native species and biological communities, rates of change and supporting processes. Management actions may be required but may not be feasible.		
Poor EI	The ecosystem is presently impaired and does not contain a healthy composition and abundance of native species and biological communities, rates of change and supporting processes. Significant and ongoing management actions are required but may not be feasible.		
Not Rated	There is presently not enough information available to provide a condition rating for the indicator.		

Appendix F. ACTION ON THE GROUND PROJECTS AND TARGETS

#	Title	Park	Budget	PA2 % Budget	# of Targets	Active Management Targets
1	Restoring Stream Connectivity in Atlantic NPs	Gros Morne Terra Nova Kejimkujik PEI Fundy	0.35	91	1	1. Aquatic connectivity is measurably improved in 5 national parks
2	Involving Canadians to Recover the Piping Plover	Kejimkujik Prince Edward Island Kouchibouguac	0.66	50	1	2. Increase or maintain Plover productivity of 1.65 fledglings per pair in each of three Atlantic Parks
3	Leadership in Fire Management and Ecosystem Restoration	Cape Breton Highlands Kejimkujik Fundy	0.94	40	1	3. Prescribed burns in Kejimkujik and Cape Breton
4	Ensuring the future of the American Eel	Kouchibouguac, Cape Breton, Fundy, PEI, Kejimkujik	0.56	34	3	4. In CBH, by 2013, all occurrences will be protected and managed following approaches stemming from and validated by the traditional knowledge and science components of this project. 5. In Fundy, by 2013, all occurrences will be protected and managed following approaches stemming from and validated by the traditional knowledge and science components of this project. 6. In Kouchibouguac, by 2013, all occurrences will be protected and managed following approaches stemming from and validated by the traditional knowledge and science components of this project.
5	Restoring Forest Health	Gros Morne	1.96	51	3	7. Increase in the growth of balsam fir and white birch saplings from 0 cm/yr (red) to >15cm/yr (yellow) in our pilot area by 2013 8. Reduce moose densities in a pilot area of the park and adjacent enclaves (445 km ²) from 5.9 moose/km ² (red) to 1.9 moose/km ² (green) by 2012 9. By 2013, we will have restored the process of forest regeneration across much of our pilot area as measured by increased cover on SPOT-5 remote sensing and aerial

#	Title	Park	Budget	PA2 % Budget	# of Targets	Active Management Targets
						photography
6	Restoring EI in Park	Prince Edward Island	5.72	95	3	10. Recolonize St. Lawrence Aster 11. Restore Dalvay Lake aquatic connectivity 12. Restore campground and road
7	Restoring Forest Health	Terra Nova	1.8	90	4	13. 80% of area burned results in suitable seed bed b) regeneration of 80% of suitable area with ≥ 3600 seedlings/ha by year 5 14. 75% survival rate of planted Black Spruce and Balsam fir seedlings by 2013. 60% survival for fill planting areas 15. a) 25 % increase in density of bF trees (between 10-30 cm in height) for balsam fir areas where the current density is < 4000 stems/ha in heavily impacted bF study areas b) 50% of the exiting bF saplings (trees ≥ 30 cm, but < 250cm) are ≥ 80 cm in height by 2013 on all severely impacted bF study areas c) the number of bF saplings double by 2013 (compared to 2008 counts) on all severely impacted bF study areas d) total % browse of hardwood stems decreases by 15% in severely impacted bF areas and decreases by 20% in heavily impacted bF areas by 2013 (compared with 2006 data). 16. Maintain Newfoundland marten population between 25-40
8	Connecting with Canadians at Kejimikujik: Handson species at Risk Recovery and habitat Restoration	Kejimikujik	1.19	30	2	17. Release of 250 captive-reared blanding's turtles 18. Nest protection for 50% of known females
9	Water for Life: Improve EI in Aquatic Eco System	Fundy	1.31	40	3	19. By 2013, the restored portion of Dickson Brook will have measurable improvements in brook trout abundance and condition, benthic invertebrate-based water quality measures, and water chemistry than the same measurements taken prior to the restoration work. 20. By 2013, the hydrological quality will improve on Dickson Brook compared to index values taken prior to the restoration project. 21. By 2013, the Point Wolfe and Upper Salmon Rivers will show an increasing trend of adult salmon returns from the ocean leading toward its Minimum Viable Population target of between 300 and 475 spawning individuals entering each

#	Title	Park	Budget	PA2 % Budget	# of Targets	Active Management Targets
						river annually.
10	Improving Health of Estuaries	Kouchibouguac	1.52	65	4	22. Reduce by-catch of non-targeted finfish by 80% of actual level by 2013 23. 7 of 30 clam beds meet sustainable harvest criteria (12 mature and 100 total clams /m ²) 24. Increase populations of finfish by (10%) by reducing impacts on biomass of targeted and non-targeted species by 2013. 25. Restore population of Salmon to natural levels in Richibucto and Kouchibouguac Rivers (24 parrs/100m ²) by 2013
11	Reducing the risk of serious Human-Coyote encounters in CBH	Kouchibouguac	?	?	2	26. Increase in fear response as indicated by reduced encounters 27. Increase in fear response as indicated by increased stress response to aversion techniques
12	Amenagement integre de Penouille	Forillon	4.5	30	2	28. Infrastructure footprint having a significant effect on coastal sedimentation will be eliminated 29. Reduction of 20% in the effects of foot traffic
13	Restoration integrity des basins	La Maurice	3.2	88	5	30. 13 lakes & 2 streams with restored hydrological regimes 31. 3 restored populations of brook trout 32. 100 wood turtles/yr introduced 33. 426 Ha of prescribed burns in a range of forest types (50% with moderate severity) 34. 275 ha of prescribed burns in white and red pine
14	Conserving Canada's Carolinian NP	Point Pelee	3.13	50	8	35. Increase savannah by 10 ha 36. Increase area of occupancy by five lined skink 37. Number of shaded cactus decreases by 5% 38. Increasing trend for open habitat birds 39. Butterfly diversity shows increasing trend 40. Reduce cormorant nests to 30-60/ha 41. Updated SAR plant inventory shows halt in decline 42. Reversal in trend of rapid loss of healthy forest canopy
15	Improving EI of Coastal Ecosystem	Pukaskwa	1.14	70	2	43. Caribou population stable or increasing 44. Restored populations of Pitcher's Thistle by 2013
16	Leadership on the Landscape: Restoring the Role of Fire	Pukaskwa	0.83	70	1	45. Trend towards 50% of historic annual area burned
17	Keeping the Clear in Clear Lake	Riding Mountain	1.59	65	2	46. Water quality within guidelines (<10 ug/L of Phosphorus, <2.5 ug/L of chlorophyll, <20/100 ml of coliforms, >4 m

#	Title	Park	Budget	PA2 % Budget	# of Targets	Active Management Targets
						Secchi disk depth)
18	Restoring the Balance	Riding Mountain	2.67	65	3	47. Slimy sculpin population stable 48. Ungulate and wolf population are within acceptable range (from yellow to green) 49. Disease levels (apparent prevalence) in elk and deer declining 50. Area of disease distribution remaining unchanged or decreasing
19	Prairie Restored: Building the Grasslands Experience	Grasslands	5.15	45	6	51. Fall population of 20 black-footed ferrets, mostly wild-born by 2014 52. Crested wheat grass reduced by 5 ha per year (less than 1% cover of cwg) 53. All cultivated fields revegetated by 2015 54. Prescribed burns average 75 ha/yr 55. Prescribed stocking rates achieved for grazing on Larson, The Nose, North Gillespie, Gene Anderson and ungrazed areas by 2014 56. 300-350 bison by 2014
20	Reconnecting Grasslands, Bison and People	Prince Albert	4	35	6	57. 50% increase in extent of targeted rough fescue grasslands (through 5000 ha of prescribed fire) 58. 20% decrease in targeted shrub and aspen cover 59. 15-20% reduction in extent and density (50-80% reduction) of targeted invasive species 60. restoration of borrow pits with 100% vegetative cover (25% of area in invasive species) by 2017 61. 400-600 bison by 2016/17 62. 50% reduction in problem bison excursions from park

#	Title	Park	Budget	PA2 % Budget	# of Targets	Active Management Targets
21	Mountain Park Caribou Recovery	Jasper Banff Mount Revelstoke Glacier	2.22	60	9	63. Jasper elk population is < 450 64. Fewer winter trails into caribou habitat (Banff & Jasper) 65. Jasper road mortality of caribou decreased by 50% 66. Prescribed burns in Jasper and Banff are farther from caribou habitat than previously 67. 36-54 surviving caribou post-translocation to Banff 68. By 2014, no human use recorded on Mt. Klotz in MRNP during winter 69. Caribou recorded on Mt. Klotz in MRNP during winter 70. By 2012, MR & GNP old forest loss slows to 5% per 20 year interval 71. MR & GNP 20 year fragmentation measure improves
22	Restoring and Reconnecting Our Waters	Banff Jasper Kootney Yoho Waterton Lakes Mount Revelstoke Glacier	0.86	40	2	72. Mitigate (replace with sufficient water volume and reduced hang height and velocity) two culverts in each of seven parks. 73. 14 culverts replaced with Aug-Sept hang height, water flow and depth suitable for supporting fish movement.
23	Fire Restoration in Contiguous Mountain Parks	Banff Jasper Kootney Yoho	5.65	50	1	74. 10 year rolling average is 10% of historical annual area burned (partly successful); 20% of historical annual area burned (successful)
24	Ecological Connectivity: Highway 93S Wildlife Crossing Project	Kootenay	4.88	50	2	75. Contaminated site remediated 76. Demonstrated use of underpass by large mammals
25	Working Together to Restore Terrestrial Ecosystems	Waterton Lakes	6.56	76	5	77. 50% of historic annual area burned 78. Significant reduction in distribution of non-native plants 79. Reversal in decline of grassland areas in the park 80. Increased regeneration of rare pines 81. <80 % of 1999 extent of disturbed area
26	Garry Oak Ecosystems SAR Recovery	Gulf Islands	2.58	40	3	82. Non-native deer herbivory on Eagle islet is to reduce it by 100% within one year and maintain that level. This will be measured and reported through pellet count surveys. 83. % cover of target non-native invasive shrubs, grasses and

#	Title	Park	Budget	PA2 % Budget	# of Targets	Active Management Targets
						forbs reduced to < 5% over 10 years 84. Targets will be to maintain a population of 20 plants for 2 species at risk within five years
27	Dune Ecosystem Restoration	Pacific Rim	0.93	68	4	85. Decline in area covered by European dune grass 86. Shift in diversity to native plant species (including increased area covered by native dune species) 87. Shift in diversity to species tolerant of sand movement 88. Pink verbena is established in 3 locations
2	Restoring Salmon Streams for People and Wildlife	Pacific Rim	0.93	45	3	89. Salmonids access 0.7 km of reconnected tributaries and a major wetland 90. Salmon fry productivity has increased to 0.75 fry/m ² 91. 5 ha of riparian zone are occupied by red cedar and western hemlock saplings
29	Yahgudang dljjuu A Respectful Act Lyell Island	Gwaii Haanas	0.81	60	3	92. 80% of large woody debris placements meet performance expectations for salmon habitat 93. Difference in species composition between restored and unrestored riparian areas 94. Return of introduced salmon to their "foster" stream
30	SGiN Xaana Sdiihl't'ixa (Night Birds Returning) in Gwaii Haanas National Park Reserve	Gwaii Haanas	1.5	50	3	95. 840 ha of rat-free nesting habitat (three islands) 96. Increased abundance of seabird nesting burrows or increased observation of seabirds (esp. Ancient Murrelet) 97. Increased abundance of Black Oyster Catchers on restored islands
31	Non FCASP related Waste Clean-Up and Associated Costs with Contaminated Sites	Quttinirpaaq	0.18	63	1	98. Excess garbage and soil quality threats removed from Ward Hunt Island
32	SAR training for elders	Ukkusiksalik	0.11	40	1	99. Teach course in 3 Inuit settlements

Appendix G. ESTIMATED INVENTORY OF CULTURAL RESOURCES IN NATIONAL PARKS

The inventory presented in the following table was developed in support of the Framework for the Evaluation of Conservation in National Parks (2010). Some of the data contained in this table has been updated with input from HCCD. While this gives a general indication of the cultural resources found in national parks, we were not able to verify the accuracy of this inventory as part of the evaluation.

PCA's *CRM Policy* (2013) identifies two categories of cultural resource. **Cultural resources of national historic significance** (formerly Level I) are those that have a direct relationship with the reasons for designation of a NHS. **Cultural resources of other heritage value** (formerly Level II) are those not associated with a NHS but that relate to important aspects of the cultural significance of a PCA protected heritage place. Most resource types identified in this table will include some resources in both categories.

Resource Type	Description of Resource	Inventory System	Estimated Inventory
National Historic Sites (NHS)	Designated by the Minister on recommendation from the HSMBC, these are sites of national historic significance.	<ul style="list-style-type: none"> Canadian Register of Historic Places 	There are 20 NHS in national parks, 18 of which are administered by the Agency.
HSMBC Monuments and Plaques	Designated by the Minister on the recommendation of the HSMBC, these mark a person, place or event of national historic significance (but may or may not themselves be considered cultural resources).	<ul style="list-style-type: none"> Directory of Federal Heritage Designations Database of HSMBC monuments and plaques GPS database of historic designations 	There are reportedly 43 national designations (commemorating a historic person, place or event) in national parks. Many of these (24 of 43) are associated with a NHS within the park. Most national designations in national parks have a plaque in place.
Federal Heritage Buildings (FHBRO)	Buildings owned by the federal government, 40 years of age or older, whose heritage character is "classified" / "recognized" under the TB <i>Policy on the Management of Real Property</i> .	<ul style="list-style-type: none"> Inventory maintained by Federal Heritage Building Review Office Canadian Register of Historic Places 	There are reportedly 185 federal heritage buildings in national parks.
Historic Structures and Buildings	Other buildings or structures (e.g., bridges) owned by Parks Canada with historic value which do not have status as Federal Heritage Buildings.	<ul style="list-style-type: none"> For townsites, Built Heritage Resource Description and Analysis (BHRDA) inventory. Outside townsites, system unknown. 	Unknown. Many buildings with heritage values have not yet been formally evaluated for FHBRO status (applies to any building >40 years).
Archaeological	Archaeological sites range	<ul style="list-style-type: none"> Inventories 	Based on data maintained

Resource Type	Description of Resource	Inventory System	Estimated Inventory
Sites and Objects	from Aboriginal villages and hunting camps to European fur trade and military posts, battlefields, shipwrecks, and domestic or industrial sites. Archaeological objects include related specimens and records that represent a cross-section of human habitation and activities.	<p>maintained at former service centres.</p> <ul style="list-style-type: none"> • Other local systems. 	by service centres, there are more than 10,000 archaeological sites in national parks. There are reported to be >30M objects.
Historic Objects	Objects that date from the 10 th century to the present, including ethnographic material, civilian, military and fur trade items, furniture, furnishings, tools, photographs and documents.	<ul style="list-style-type: none"> • Artifact Information System (AIS) 	Within parks, estimate of about 7,000 objects. An additional 160,000 objects maintained in collections associated with parks and other sites maintained at former service centres.
Landscapes and Landscape Features	Any geographic area that has been modified, influenced or given special cultural meaning by people (cemeteries, gardens, etc.).	<ul style="list-style-type: none"> • No national inventory; possible local systems. 	Unknown; some anecdotal description for some parks but no inventory available.

**Appendix H. AVERAGE YEARLY NATURAL RESOURCE EXPENDITURES BY NATIONAL PARK
(2007-2008 to 2011-2012)**

National Park	Applied Science	Monitoring and Reporting	Environmental Assessment	Active Management and Restoration	Fire Total	5 Year Average
Aulavik		84,311	578	28,900		113,789
Auyuittuq	552	185,519		13,474		199,545
Ivvavik	3,587	363,304	11,021	151,755	744	530,411
Kluane	28,354	275,166	9,089	553,544	83,323	949,476
Nahanni	17,812	455,328	42,578	393,339	42,264	951,321
Quttinirpaaq	4,240	95,659	70	172,709		272,677
Sirmilik	7,904	107,765	323	21,264		137,256
Torngat Mountains	30,995	109,825	3,978	51,726		196,523
Tuktut Nogait		145,917	1,262	22,175		169,354
Ukkusiksalik	16,503	75,746		60,736		152,985
Vuntut	5,969	226,710	139	110,340		343,157
Wapusk	54,047	743,826	500	22,397		820,770
Total Northern Parks	169,961	2,869,075	69,537	1,602,359	126,332	4,837,265
Banff	330,152	711,844	202,584	1,875,308	1,221,346	4,341,233
Bruce Peninsula ^a	173,756	263,314	2,206	86,373	25,549	551,199
Cape Breton Highlands	91,665	351,620	54,920	373,903	124,730	996,838
Elk Island	102,459	220,607	150	938,935	61,592	1,323,743
Forillon	73,643	91,938	66,960	351,920	6,770	591,231
Fundy	51,294	240,048	24,586	749,061	12,492	1,077,480
Georgian Bay Islands	23,580	217,462		193,669	137	434,848
Grasslands	217,940	172,391	21,632	1,218,241	151,622	1,781,825
Gros Morne	276,049	367,076	51,586	280,391	3,610	978,712
Gulf Islands	79,326	284,596	105,140	193,015	66,079	728,155
Gwaii Haanas ^b	277,373	339,523	34,675	1,108,623		1,760,194
Jasper	385,231	357,970	214,524	2,315,618	1,278,589	4,551,933
Kejimikujik	212,827	261,663	43,936	218,355	261,371	998,153
Kouchibouguac	3,712	546,582	1,248	399,728	14,294	965,564
La Mauricie	162,690	431,038	16,079	382,450	418,864	1,411,119
Mingan Archipelago	90,304	312,646	34,103	91,361	60	528,474
Mount Revelstoke & Glacier	78,921	612,745	47,960	112,723	392,190	1,244,539
Pacific Rim	74,575	461,134	65,622	404,731		1,006,062
Point Pelee	205,448	349,328	40,247	159,992	8,477	763,491
Prince Albert	217,353	395,030	44,447	467,423	1,150,916	2,275,170
Prince Edward Island	69,645	222,844	58,746	162,338	58,073	571,646
Pukaskwa	118,038	567,933	696	84,238	378,756	1,149,660
Riding Mountain	377,111	455,619	68,599	1,301,673	329,194	2,532,195
St. Lawrence Islands	88,329	163,450	2,264	283,259	35,065	572,367
Terra Nova	106,389	316,234	48,116	362,773	122,428	955,939
Waterton Lakes	146,872	211,425	21,044	794,305	381,932	1,555,578
Wood Buffalo	105,606	586,115	76,068	690,050	3,936,806	5,394,643
Yoho, Kootney & Lake Louise ^c	336,395	553,989	182,371	2,105,447	1,151,254	4,329,456
Total Southern Parks	4,476,682	10,066,163	1,530,508	17,705,903	11,592,193	45,371,448
Total All Parks	4,646,643	12,935,238	1,600,045	19,308,262	11,718,525	50,208,713
a - Financial data combined for Bruce Peninsula NP and Fathom Five NMCA						
b - Financial data combined with Haida Heritage Site						
c - Financial data combined for Yoho, Kootenay and Lake Louise						