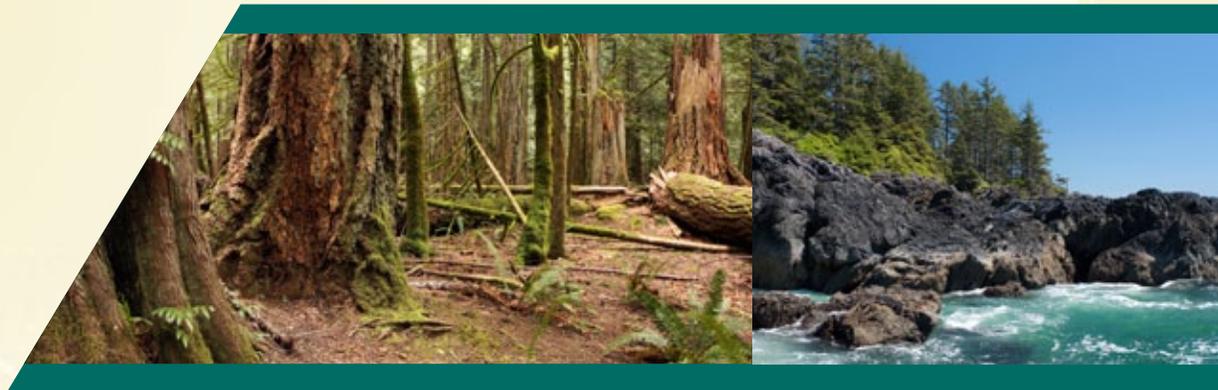


Report 3: August 2010

CONSERVATION OF ECOLOGICAL INTEGRITY IN B.C. PARKS AND PROTECTED AREAS

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The Honourable Bill Barisoff
Speaker of the Legislative Assembly
Province of British Columbia
Parliament Buildings
Victoria, British Columbia
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Dear Sir:

I have the honour to transmit herewith to the Legislative Assembly of British Columbia my 2010/11 Report 3: Conservation of Ecological Integrity in B.C. Parks and Protected Areas.

John Doyle, MBA, CA
Auditor General

Victoria, British Columbia
August 2010

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JOHN DOYLE, MBA, CA
Auditor General

CONSISTENT WITH OTHER leading jurisdictions, the province has identified ecological integrity as a key focus. Ecological integrity of parks and protected areas is integral to the quality of life in British Columbia. These areas regulate our climate, purify the water, provide habitat to rare and endangered species and contribute to our responsibility to protect the last remnants of wilderness.

The Ministry of Environment has a vision to, “create the best park system in the world” and a goal to be recognized for its leadership in the proactive stewardship of ecological integrity. Currently, the ministry is not successfully meeting this goal.

BC Parks will celebrate their 100th anniversary in 2011. Taking action now to ensure ecological integrity for the next 100 years will ensure that “Beautiful BC’s” parks and protected areas are available for future generations to enjoy.

I am impressed to see the commitment that ministry staff have and their acceptance of our recommendations. I look forward to receiving updates on plans and actions for implementation through our follow-up process.

My thanks to everyone involved for the cooperation and assistance they provided to my staff during this audit.

A handwritten signature in black ink that reads "John Doyle". The signature is written in a cursive, flowing style.

John Doyle, MBA, CA
August 2010

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EXECUTIVE SUMMARY

BRITISH COLUMBIA'S PARKS and protected areas – about 1,000 in all – are integral to the quality of life in this province. These areas help purify the water, provide habitat to rare and endangered species, regulate climate, and contribute to British Columbians' physical, mental, economic, social and spiritual well-being.

A key aim for the majority of our provincial parks and protected areas is the conservation of their ecological integrity and the Parks and Protected Areas Division (BC Parks), within the Ministry of Environment, is the agency responsible for this. Since 1993, ecological integrity has featured prominently in BC Parks planning. Today, the goal in the BC Parks Program Plan (2007–2012) is that “BC Parks is recognized for its leadership in the proactive stewardship of ecological and cultural integrity.”

To assess whether the Ministry of Environment is meeting the goal of ecological integrity, we examined whether: the ministry has a vision, plans and operational policies in place for the conservation of ecological integrity; the ministry is ensuring that ecological integrity is being conserved in Class A parks and ecological reserves; and the ministry is reporting on the state of ecological integrity in parks and protected areas.

Despite its declared intentions and clear vision to conserve the ecological integrity in British Columbia's parks and protected areas, the Ministry of Environment is not successfully meeting this goal. Specifically,

- ◆ program plans are incomplete and lack adequate performance measures;
- ◆ conservation policies are not being consistently upheld;
- ◆ the parks and protected area system has not been designed to ensure ecological integrity;
- ◆ management plans are dated and incomplete; and
- ◆ little action has been taken to ensure the conservation of ecological integrity.

We also found that the ministry is not publicly reporting on its progress in conserving ecological integrity in the province's parks and protected areas system.

WE RECOMMEND THAT:

- 1** the ministry update its BC Parks Program Plan so that it includes clarification of ecological integrity and performance targets that adequately address the ministry's goal of proactive stewardship of ecological integrity.
- 2** the ministry complete the strategic direction and procedural guidelines for its Conservation Management Program and ensure that the Conservation Program policies are consistently upheld.
- 3** government develop a plan to address current gaps in the parks and protected areas system.
- 4** the ministry obtain the information it needs in order to determine management actions for the conservation of ecological integrity and ensure that its policy of developing a five-year conservation management activities plan (research, inventory and monitoring) is met.
- 5** the ministry review and update its Master Plans Policy to clarify what type of management plan is required for each park and protected area, how ecological integrity in each area will be conserved and when each plan should be reviewed and updated.
- 6** the ministry conduct annual planning for each park and protected area to determine what actions are needed to address conservation objectives, threats and stressors, determine priorities from this plan, and monitor and evaluate action items against conservation objectives.
- 7** the ministry report periodically to the Legislative Assembly and public on how it is conserving ecological integrity in the province's parks and protected areas system.

THANK YOU for the recommendations arising from your audit of conservation in British Columbia parks and protected areas. Amongst other things, the report serves to remind us of the great legacy we have created in this province through a provincial protected area system that encompasses 13.1 million hectares or 13.6 per cent of the province¹ - more than any other province in Canada and the third largest protected area system in North America (following US National Parks and Parks Canada). It is equally remarkable that less than 260,000 hectares has facility development within it and the vast majority of the land (12.84 million hectares) remains, for the most part, free from human alteration.

No protected area system can stand by itself in protecting ecological systems and even this large land base is not sufficient to ensure environmental integrity within the province; that is why we have worked so hard to create resource management frameworks that protect and conserve key resource values outside of our protected area system. Only together, through protection and conservation in and outside of protected areas, will we hope to sustain the environmental, social and economic benefits within this great province.

The 1993 provincial Protected Areas Strategy recognized that it would not be possible to achieve 100 per cent representation and protection of our ecosystems given human settlement patterns and economic and social conditions in the province. The outcomes of the regional land use planning processes affirm this assertion, but work continues to acquire key properties as they become available and affordable.

The 2010 Office of the Auditor General audit highlights a significant challenge facing many jurisdictions managing protected area systems in the 21st century. There are many demands on government today and any request to improve inventories, planning or management in protected areas must be weighed against society's increasing demands in health care and education, and against other environmental challenges, such as the effort to reduce greenhouse gas emissions to mitigate the rate of climate change.

Implementing the recommendations outlined in the audit report would create an enormous fiscal challenge. The recommendations for significant increases in inventory, monitoring and planning work could cost as much as \$155 million over the next decade. Continued acquisitions of privately-owned land for inclusion in the protected area network could add another \$200 million to that cost, for a total extra expenditure of \$355 million over the next ten years. Given the Province's projected 2010/2011 deficit of \$1.715 billion, legislated requirements to balance the provincial budget by fiscal 2013/14, government's increased spending on health care, education, and supports for children and families, and the public's lack of enthusiasm for higher levels of taxation, it will be challenging to accommodate the extra spending required to implement all of the recommendations.

This dilemma, of protecting significant areas for ecological representation and finding operational resources to manage them, exists across North America. British Columbia made a conscious decision to invest in creating an extensive protected area system and ensure these areas can be enjoyed and appreciated by the public through quality visitor experiences. This decision was based on the premise that securing the land base is the first and fundamental step in protecting the values on the land whether they are biological, cultural or recreational. Designating these lands for protection addresses the largest and most immediate risks posed from landscape alteration and alienation.

The audit recognizes the provincial protected areas system has been assembled over the past 100 years. It is a reflection of our history and societal wishes over time. This approach epitomized in the regional Land and Resource Management Planning processes that identified and recommended establishment of many of the protected areas, has enabled a strong community connection. The resulting mosaic is a reflection of our desire for a protected areas system that fulfills multiple objectives. Managing for biodiversity and functioning ecosystems is one of several key protected areas management objectives with the primacy of the objectives determined through planning processes.

The audit makes a number of recommendations to improve program performance:

¹When federal protected areas are added within British Columbia, 13.5 million hectares or 14.27% of the province is in protected area status.

RECOMMENDATION 1: *We recommend that the ministry update its BC Parks Program Plan so that it includes clarification of ecological integrity and performance targets that adequately address the ministry's goal of proactive stewardship of ecological integrity.*

The BC Parks Program Plan identifies ecological integrity as a first principle. This principle will be maintained and a definition and context added to clarify how ecological integrity will be considered at the system and the individual protected area level.

Recognizing the historic growth of the system, the dual mandate of conservation and recreation, and the built environment that facilitates public access and appreciation of the system, the plan will clarify where ecological integrity objectives drive management decisions and acknowledge that in some areas (particularly roadside picnic and camping areas) site specific ecological integrity is a lower priority.

Case Study: Mount Robson Provincial Park

Area: Moose Valley; in 2004 the Ministry, in partnership with provincial and federal agencies, undertook prescribed burns in this area of the park to restore the ecosystem and return fire as a key component of ecosystem health. In this area of the park, ecological integrity is of prime importance to provide ecosystem health and wildlife habitats.

Area: Visitor's Centre; the Mount Robson visitor's centre is a focal point of visitation of the park by nearly 44 thousand visitors annually. The built environment does not provide ecological integrity, but rather this area of the park is a significant place for appreciation of the spectacular views, ability to learn about the park and provide rest and relaxation for the travelling public. It is designed to concentrate use and protected the surrounding landscape from human impacts

The draft performance measures related to ecological integrity and conservation objectives are outlined in the Program Plan. Those measures will be reviewed and refined as necessary to a final state.

Response to Recommendation 1:

The BC Parks Program Plan will include a definition of ecological integrity and will clarify how ecological integrity will be

considered at a system level as well as an individual protected area level. The program plan performance measures will be updated by the spring of 2011.

RECOMMENDATION 2: *We recommend that the ministry complete the strategic direction and procedural guidelines for its Conservation Management Program and ensure that the Conservation Program policies are consistently upheld.*

The Ministry will review the components of the Conservation Management Program. Policy updates are a key priority; they will start 2010/11 and be complete within two years. The BC Parks Program Plan, together with the recently completed Ecosystems Program Plan, will describe how, at a broad level, the agency will deliver on conservation commitments. Procedural guidelines will continue to be developed and will reflect, based on priority, the approach to managing for conservation outcomes.

Response to Recommendation 2:

BC Parks Conservation Management policy will be updated by the end of the 2011/12 fiscal year.

RECOMMENDATION 3: *We recommend that government develop a plan to address current gaps in the parks and protected areas system.*

The Province is nearing completion of the terrestrial protected areas system at the broad level. The land use planning process, active over the last two decades, has resulted in extraordinary growth, with new protected areas identified to protect representational areas and special features. While 1.9 million hectares have been added since 2001 through the creation of 65 new parks, 144 conservancies, 2 ecological reserves, 9 protected areas and the expansion of more than 60 parks and 6 ecological reserves, it may not be feasible to protect 12 per cent of all biogeo climatic zones in all areas of the province. In the more populated portions of the province, large representative areas of Crown land are not available for protection. In some areas, land values make it cost prohibitive and in other areas, society, through regional land use planning has indicated it does not consider ecological representation a higher priority over other land uses. The Province continues to use and develop tools and approaches to manage for key conservation objectives outside the protected areas system. These include approaches such as:

- ◆ Outcome based management practices through tools such as the Forest and Range Practices Act, Wildlife Habitat Areas, and the Environmental Protection Management Regulation;

- ◆ Riparian Area Regulations to manage near sensitive wetlands and water bodies;
- ◆ Setting regional land use objectives in policy and legislation;
- ◆ Improvements to legislation requiring stewardship responsibilities (i.e. Oil and Gas Activities Act and associated regulation, Species at Risk Act); and
- ◆ Establishing specific policies and regulations to conserve targeted managing ecological systems (i.e. mountain caribou habitat, grizzly bear management areas, Coastal Douglas-fir management strategy, vehicle closures under the Wildlife Act).

The Ministry will continue to consider key environmentally sensitive lands through the BC Parks land acquisition program as funding permits. Examples include the recent Denman Island acquisition, which will protect lands that contribute to the under-represented Coastal Douglas-fir biogeoclimatic zone. Where there are approved Land Use Plans that include protected area designations, Government does not intend to reconsider recommendations or restart broad scale protected area planning.

Response to Recommendation 3:

The Ministry will maintain the land acquisition program and ensure that ecological representation continues to be a primary consideration in the prioritization of properties. Work will continue with other provincial resource management ministries to use a variety of land management tools to manage for ecological function across regional landscapes. This includes specific identification and protection of rare and endangered habitats.

RECOMMENDATION 4: *We recommend that the ministry:*

- ◆ *obtain the information it needs in order to determine management actions for the conservation of ecological integrity;*
- ◆ *and ensure that its policy of developing a five-year conservation management activities plan (research, inventory and monitoring) is met.*

Gathering detailed information of all conservation values, processes and risks across a large and extensive protected area system would be an extremely intensive and expensive initiative. Cost estimates for creating a baseline inventory for the existing protected areas system at 1:20,000 scale for terrestrial, aquatic marine and freshwater systems is estimated at \$103 million. Ongoing systematic monitoring is

estimated to cost \$3.5 million annually, or more than 10 per cent of the BC Parks annual operations budget.

The size of the provincial protected area system is currently 13.1 million hectares or 13.6 per cent of the provincial land base. Less than 2 per cent of the system, or 260,000 hectares, has facility development within it. The vast majority of human use in parks occurs on these developed lands. The remaining 12.84 million hectares of land remains, for the most part, free from human alteration. Historically the threats to ecological integrity in the medium and large parks in the interior and northern part of the province have been low. For this reason, funding of broad inventories has not been a high priority.

There are threats to the ecological integrity of our parks; these include climate change, invasive plants and animals, and human encroachment. Inter-agency work on climate change monitoring and adaptation is underway, and the ministry has made monitoring and response to trespasses into protected areas a priority. BC Parks, with assistance from academic institutions, is developing a Citizen Science Monitoring Program that will facilitate a relatively low-cost monitoring approach that can be implemented by field staff and stewardship groups.

The Ministry recognizes there are also some larger protected areas adjacent to population centres that have existing or growing threats to ecological integrity from human use and/or the introduction of invasive species. Recent changes in budget priorities have realigned resource expenditures to begin to address those pressures. The facility management program and the invasive plant management program are important activities used in minimizing the human footprint and displacement of native species on the protected area landscape.

In the absence of a detailed base line inventory, BC Parks uses a risk management framework for identifying and developing management actions to ensure ecological process are maintained and risks to conservation values are addressed. The Conservation Risk Assessment Process (CRA) was developed to ensure ecological information was assessed, analysed and priority actions developed to reduce risks in a prioritized manner. This information provides a sound base to identify management actions and helps BC Parks identify key information gaps. There have been challenges in applying this tool consistently and systematically and a re-training program will occur in the next 12 months to address these deficiencies. As part of the Conservation Program Policy Review, BC Parks will update policies to reflect advancements in the CRA model.

Response to Recommendation 4:

Staff training will occur on the use of the CRA tool and annual business plans will be updated to include targets for completion of the risk assessments. BC Parks will update its policies to reflect advancements in the CRA model. The ministry will continue to develop the Citizen Science Monitoring Program for protected areas and pilot this approach in regions in 2011/12.

RECOMMENDATION 5: *We recommend that the ministry review and update its Master Plans Policy to clarify;*

- ♦ *what type of management plan is required for each park and protected area;*
- ♦ *how ecological integrity in each area will be conserved; and*
- ♦ *when each plan should be reviewed and updated.*

Management planning is a fundamental component of park and protected area management. Plans guide management and decision making. Over the last decade, they have evolved from prescriptive to outcome-based policy statements addressing natural, cultural and recreation values.

The audit acknowledges that approximately 80 per cent of Class A parks and ecological reserves have some level of management direction. The adequacy of this direction varies plan by plan and BC Parks acknowledges that some plans as well as planning policy need to be updated. A number of factors have transformed the management planning process in the past 20 years requiring greater time commitments and complexity. One of the more significant advances is in First Nation collaborative arrangements and consultation. Currently, approximately 650 plans exist for areas managed by BC Parks (including conservancies and protected areas under the Environment and Land Use Act). We are reviewing and updating the management planning policy framework and believe with almost 1,000 protected areas, having full scale management plans for each area or group of areas is not feasible or necessary². The revised framework will provide for a “sliding scale” of plans, whose content reflects the local conditions and complexity of the conservation and recreation management issues. The revised policy will outline the content, priority and update frequency for management plans.

Response to Recommendation 5:

By the end of 2011/12 the Management Plan policy will be updated to reflect current approaches. This will include the shift

from prescriptive to outcome based direction. Management plans will be developed and reviewed on a priority basis using a risk management approach subject to available funding.

RECOMMENDATION 6: *We recommend that the ministry:*

- ♦ *conduct annual planning for each park and protected area to determine what actions are needed to address conservation objectives, threats and stressors;*
- ♦ *determine priorities from this plan; and*
- ♦ *monitor and evaluate action items against conservation objectives.*

Determining annual management activities in each park or protected area is done through the Annual Management Plan (AMP) process. AMP's are conducted on a regional basis and consider the key management priorities in relation to the budget, and where appropriate, a multi-year approach is now utilized. A recent review has resulted in regions piloting management plans on a bi-annual basis or undertaking management activity planning on a priority basis over a two or three year period.

Response to Recommendation 6:

BC Parks will revise the AMPs process using best practices by the end of 2011/12. The revised process will assist the agency in identifying key priorities to undertake and include a process to evaluate and monitor progress.

RECOMMENDATION 7: *We recommend that the ministry report periodically to the Legislative Assembly and public on how it is conserving ecological integrity in the province's parks and protected areas system.*

The BC Parks Annual Report has grown over the last few years from its initial basis of an annual attendance report. This year's report (reporting out for 2009/10) will include additional information in the management planning, land acquisition and conservation management programs, including key outcomes and expenditures. The reports are available to the public through the BC Parks website (www.bcparks.ca).

While there is no legislative requirement to report to the legislature on park management outcomes, each year Members of the Legislative

² Comprehensive plan development and review for 1,000 protected areas is estimated to cost \$1.6 million annually and in perpetuity based on 100 plans delivered per year for 10 years before repeating this cycle.

Assembly have an opportunity to ask questions about the annual service plan and BC Parks' budget through the estimates process. The Minister uses the annual service plan report to highlight the accomplishments of ministry programs in delivering on government objectives as required under the Balanced Budget and Ministerial Accountability Act. The ministry will consider including more performance based outcomes in reporting on the protected areas program outcomes.

Response to Recommendation 7:

The ministry will consider options for enhanced reporting of parks program performance measures. The annual report published on the web will include more comprehensive information on all measurable program outcomes.

ECOLOGICAL INTEGRITY EXPLAINED

One way to understand the concept of ecological integrity is to compare it to human health. If we are in good physical condition and free of illness or injury, we are able to function normally and we say we are in good health. On the other hand, if we are injured, sick or overly stressed, we might have difficulty functioning. The same holds true for parks and protected areas. If they are stressed, or their physical structure or processes are impaired, their ecological integrity is compromised.

The importance of conserving ecological integrity in British Columbia's parks and protected areas

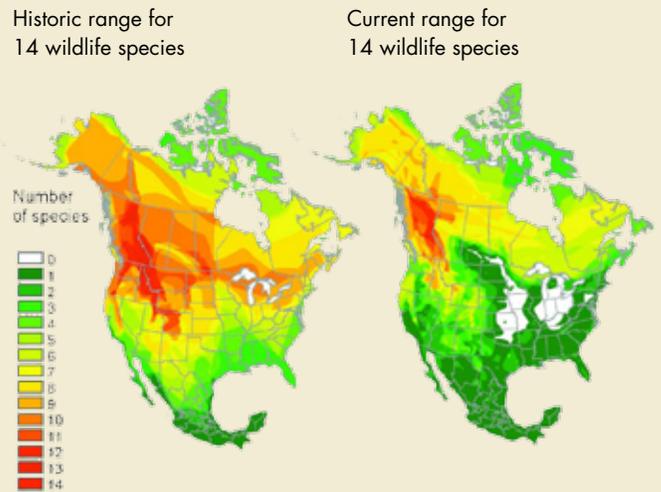
The ministry's Environmental Trends in British Columbia: 2007 report lists a variety of reasons for protecting areas, many of which are related to ecological integrity and include:

- ♦ Ecosystem services include food production, water purification, waste treatment, oxygen production, climate regulation, flood protection, erosion control, and many other services.
- ♦ *To protect biodiversity:* Many protected areas in British Columbia include habitat for rare and endangered species, important genetic resources, and unique botanical or zoological phenomena.
- ♦ *To preserve wilderness:* Protection allows species the best possible circumstances to live and adapt to long-term changes such as global climate change.

In addition to the reasons stated above, ecological integrity of B.C.'s parks and protected areas is important as these areas are the last refuge for many species in North America. A continent wide analysis of sensitive species (i.e., those that have undergone significant range contractions) of carnivores and ungulates (hoofed animals) in North America shows B.C. to be one of the remaining areas with the highest number of these species, both historically and currently (Exhibit 1).

For example, British Columbia has the largest population of grizzly bears (an estimated 17,000) of any province or state in North America

Exhibit 1: North American wildlife species have experienced substantial range loss over time



Source: Laliberté, A.S. and W.J. Ripple. 2004. *Bioscience* 54:123-138

apart from Alaska. California, which once had an estimated 10,000 grizzlies, now has none.

The approach to conserving ecological integrity in the province's parks and protected areas has evolved

British Columbia's first provincial park was Strathcona on Vancouver Island, established in 1911 with the hope of starting a tourist boom in the western reaches of the continent. Other small parks were added to fill public demands for recreation and tourism.

The first large parks created not for tourism but to protect natural environments were established in the 1960s. The Park Act, originally passed in 1965, states that Class A parks are "dedicated to the preservation of their natural environments for the inspiration, use and enjoyment of the public." The ministry interprets this statement to mean that the ministry has a dual mandate – conservation and recreation – and that both should be considered equally. The Ecological Reserves Act passed in 1971 reserved Crown land specifically for ecological purposes. Ecological reserves were to be the most highly protected of these areas and subject to the least human influence.

DETAILED REPORT

In 1987, the World Commission on Environment and Development (known more commonly as the Brundtland Commission) issued a special report to the United Nations called Our Common Future. The commission estimated that, at the time, only 3% of the world was protected and that nations of the world should consider protecting four times this amount or 12%.

In 1993, the British Columbia government took up the challenge of not only meeting this 12% goal but also ensuring that its parks and protected areas would conserve ecological integrity through the Protected Areas Strategy. Although the Park Act does not specifically address ecological integrity (as for example, Ontario's Provincial

Parks and Conservation Reserves Act), the ministry has determined that it allows the ministry to pursue the conservation of ecological integrity. From this point forward, ecological integrity has featured prominently in the ministry's documents (see Exhibit 2).

Out of all the provinces in Canada, B.C. has the highest percentage of land base protected. Today the Ministry of Environment manages a parks and protected area system encompassing approximately 1,000 designated areas and approximately 13 million hectares. These areas are comprised of: Class A parks, Class C parks, conservancies, recreation areas, ecological reserves and "protected areas" established under the Environment and Land Use Act (see Exhibit 3).

Exhibit 2: Ecological integrity features prominently in ministry documents

1993

Protected Areas Strategy

The first guiding principle for protected areas is that "The first priority in the use and management of protected areas is to protect their ecological viability and integrity."

1997

Conservation Management Program

The BC Parks Conservation Management Program outlines the direction for conservation of natural values within the provincial protected areas system. The program states that "BC Parks will move towards an ecosystem management approach for protected areas under its stewardship, using the highest level of ecosystem knowledge available with the goals of maintaining the ecological integrity of the ecosystem".

1999

Report from the BC Parks Legacy Panel

Appointed by the minister, nine non-government individuals conducted a comprehensive study to provide direction and guidance for planning and management of BC Parks. Although not formally endorsed by government, the report concluded that protection and maintenance of ecological integrity should be the priority in managing and planning for B.C.'s protected areas system.

2000

Conservation Principles

The second of nine conservation principles developed by BC Parks to uphold its "commitment to protect, present and manage, for all time, the natural and cultural heritage conserved in the provincial protected areas system" calls for the "[maintenance of] essential ecological processes and variety in nature through the conservation and management of complete and functioning ecosystems."

2007

Parks for People Strategy

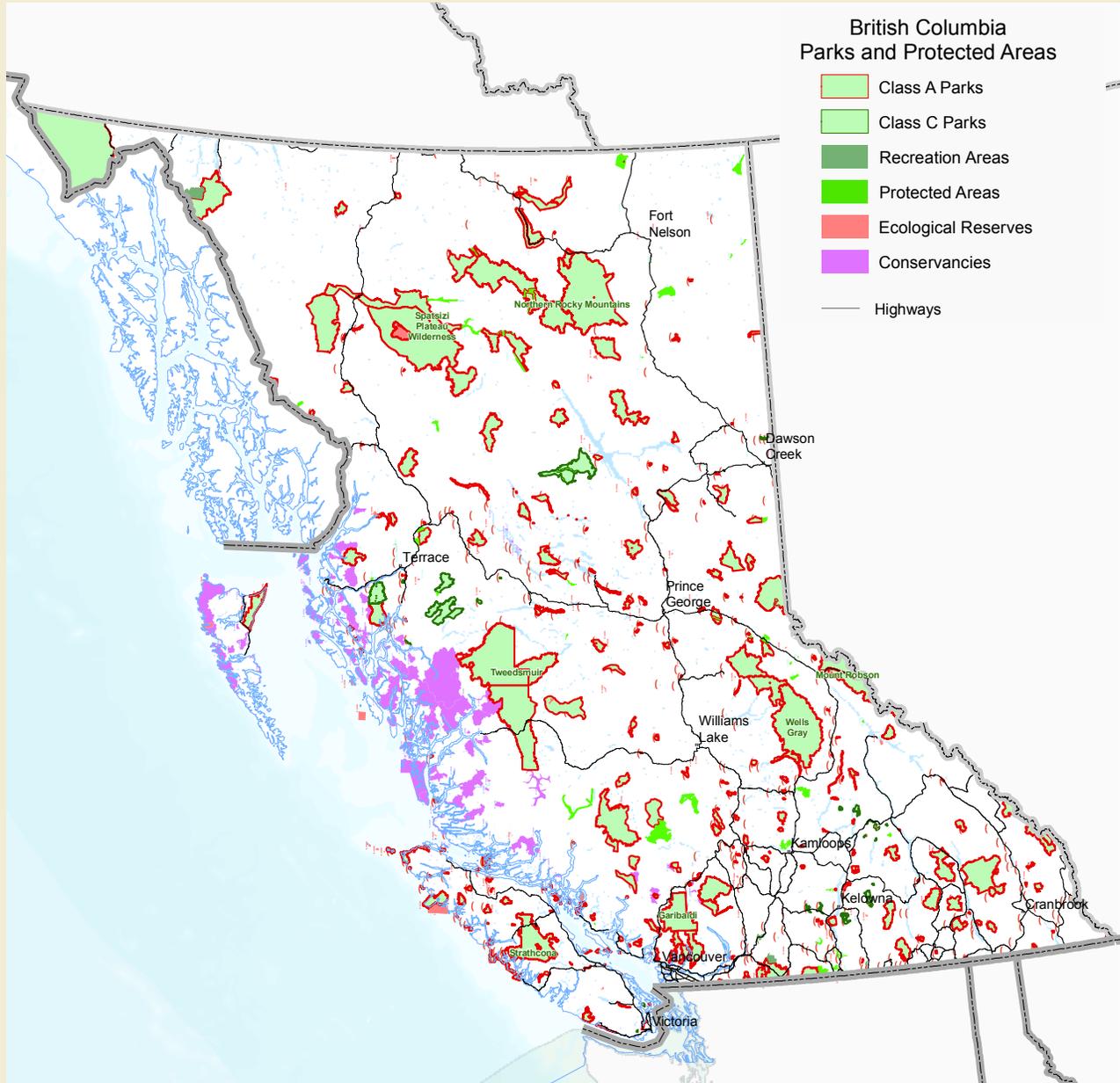
In this strategy the ministry articulated the provincial government's direction to be the best park system in the world by stating, "the vision of the Parks for People Strategy is to create the best park system in the world."

2007-2010

BC Parks Program Plan

In order to achieve the vision outlined in the Parks for People Strategy, the Ministry created the BC Parks Program Plan to provide direction over the next five years (2007-2012). Goal 1 of the plan states: "BC Parks is recognized for its leadership in the proactive stewardship of ecological and cultural integrity."

Exhibit 3: Parks and protected areas in British Columbia



Source: Integrated Land Management Bureau, using data supplied by the BC Ministry of Environment

The BC Parks and Protected Areas Division (BC Parks) within the BC Ministry of Environment has the responsibility for administering the above noted areas. Over the last ten years, the land administered by BC Parks has grown significantly – from 9.6 million hectares of land

in 1999 (approximately 10% of the land base) to its current total of approximately 13 million hectares of land (approximately 14% of the land base). BC Parks’ net operating budget for 2009 was \$31.58 million.

AUDIT PURPOSE AND SCOPE

We undertook this audit to assess whether the Ministry of Environment is conserving ecological integrity in British Columbia's parks and protected areas. We set out to find answers to the following questions:

1. Does the ministry have a vision, plans and operational policies for conserving ecological integrity in the parks and protected areas system?
2. Is the ministry ensuring that ecological integrity is being conserved in the province's Class A parks and ecological reserves?
3. Is the ministry reporting on the state of ecological integrity within the parks and protected areas system?

For question 2, we assessed the management only of Class A parks and of ecological reserves. Class A parks make up the majority of all parks under the provincial Park Act and the uses permitted of them are limited. Ecological reserves are lands set aside for ecological purposes.

We did not assess the management of areas created under the Environment and Land Use Act; Class C parks as they were not created for the conservation of ecological integrity; or conservancies as they are recent additions to the parks and protected areas system and may not yet have management plans in place.

In carrying out our audit, we took into account that the ministry has a dual mandate for conservation and recreation in parks and protected areas and that, in some parks, recreation may be the ministry's main objective. We also understood that many of the province's parks were originally created to fulfill the public's desire for roadside picnic grounds and it may be impractical to make ecological integrity a priority for these small areas.

We conducted this audit in accordance with section 11 (8) of the Auditor General Act and the standards for assurance engagements established by the Canadian Institute of Chartered Accountants. Our audit focused primarily on activities during the period from April 2008 through March 2010. Subsequently, we conducted analyses to determine our findings, reviewed these with the ministry and drafted the report.

FINDINGS AND RECOMMENDATIONS

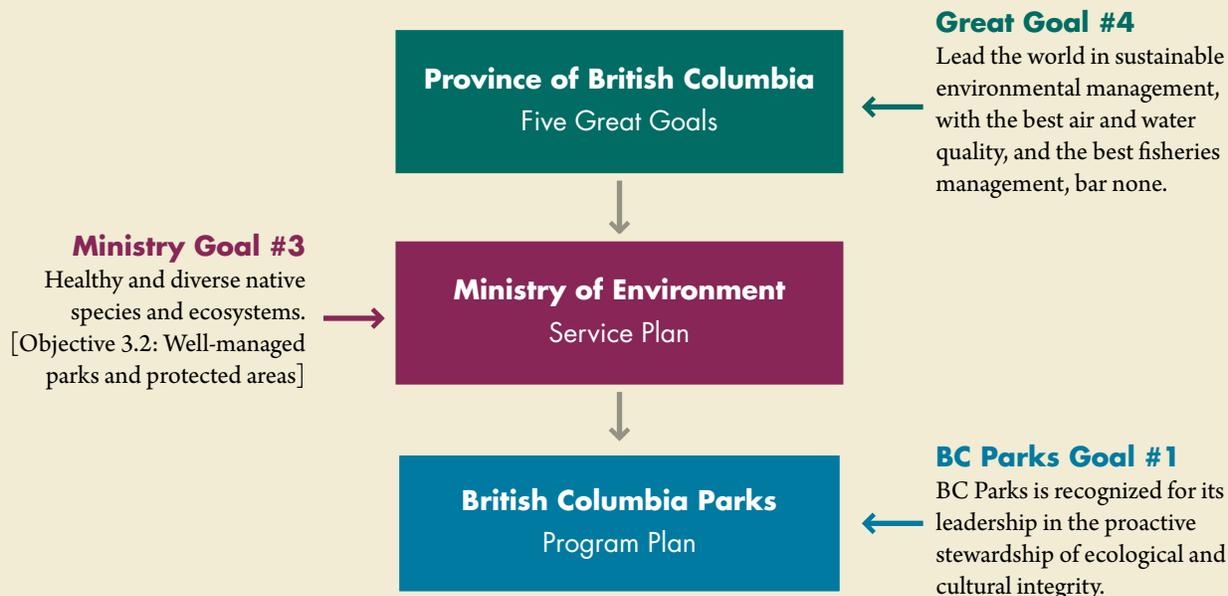
The ministry has a clear vision for conserving ecological integrity in the province's parks and protected areas but its plans for doing so are incomplete and dated and the related operational policies are not being consistently upheld

The ability to visualize and articulate a possible future state for an organization has always been a vital component of successful leadership. So are plans and policies to realize that vision. We therefore expected the Ministry of Environment to have a clear vision, plans and operational policies in place for conserving ecological integrity. In addition, we expected these plans to include appropriate objectives, timelines and performance measures and the operational policies to be upheld.

We found that the BC Parks' goal relating to the protection of ecological integrity was established to align with the ministry goal to protect native species and ecosystems, which in turn was adopted to align with the provincial government's goal of leading the world in sustainable environmental management (Exhibit 4).

This establishes a clear vision for conserving ecological integrity in the province's parks and protected areas but its plan for doing so is incomplete. The BC Parks Program Plan (2007-2012) has not defined ecological integrity, performance targets and baseline information are incomplete, and the performance measures used do not adequately address the ministry's goal of proactive stewardship of ecological integrity.

Exhibit 4: Linkages among provincial goals for conserving ecological integrity



Source: BC Parks Conservation Program Plan 2007–2012, adapted by the Office of the Auditor General of British Columbia

RECOMMENDATION 1: We recommend that the ministry update its BC Parks Program Plan so that it includes clarification of ecological integrity and performance targets that adequately address the ministry’s goal of proactive stewardship of ecological integrity.

In addition, the ministry committed in 1997 to developing a Conservation Management Program which was to be presented in three parts:

- ◆ *Part 1 – policy statements* are intended for BC Parks’ staff who manage British Columbia’s parks and ecological reserves system and for the information of other agencies and the public.
- ◆ *Part 2 – strategic direction* is intended to help BC Parks face the challenge of managing and protecting the natural and cultural values found in the province’s protected areas system. This direction is meant to enable BC Parks to set priorities for conservation management within the management cycle of the agency, including the annual operating plan.
- ◆ *Part 3 – procedural guidelines* are intended to assist managers responsible for operating the park and ecological reserves system. It is to be a dynamic document, which contains contemporary conservation management methods and techniques consistent with approved policies.

Part 1 was concluded in 1997 with the Conservation Program Policies. According to the ministry, the purpose of these policies is to provide a comprehensive guide for BC Parks’ managers, and further, a public measure that ensures provincially consistent standards are followed and that field activities reflect the overall goals and objectives of BC Parks and the province. These policies guide conservation management efforts at the provincial, district, and protected area levels for the management of vegetation, wildlife, geologic, marine system, and cultural heritage.

In our review of a sample of management planning documents, we found that 44% of the documents lacked objectives for monitoring, inventory and research. As a result, we concluded that the ministry was not meeting the following of its own conservation policies:

- ◆ “Each significant park and ecological reserve should set a high priority for monitoring of specific keystone species, indicator species, significant features, and environmental trends.”
- ◆ “BC Parks will endeavor to identify and inventory plant species and communities in parks and ecological reserves to determine where conservation management measures are most required (i.e., biodiversity “hotspots” and special habitats).”
- ◆ “BC Parks will encourage acquiring and sharing of knowledge gained through conservation research in parks and ecological reserves.”

Recently, the ministry has made an effort to complete part 2 of this program through the drafting of the BC Parks and Protected Areas Conservation Strategy, but this document has been in a draft format since 2008. As for part 3 of the program, there currently are no procedural guidelines in place. The result is that well over a decade later, the Conservation Management Program has not been completed and the ministry continues to lack adequate strategic direction, procedural guidelines and implementation of its policies for the conservation of ecological integrity in the parks and protected areas system.

RECOMMENDATION 2: *We recommend that the ministry complete the strategic direction and procedural guidelines for its Conservation Management Program and ensure that the Conservation Program policies are consistently upheld.*

Weaknesses in planning for the overall parks and protected areas system may be putting the conservation of ecological integrity at risk

The provincial parks and protected areas system has been built on a variety of objectives since 1911. In some decades, tourism and recreation was a priority, in other times conservation, wilderness and representation was a priority. The result is that the current parks and protected areas system is fragmented.

In the early 1990s, the government launched a major land use planning process with one of the primary outputs being the identification of new areas for protection as parks or other designations. Responsibility for this land use planning process was assigned to the Land Use Coordination Office, and now resides within the Integrated Land Management Bureau. BC Parks has played a supporting role in this process.

We expected, but did not find, a system plan in place so that the ministry would know what gaps the current system had and when the system was complete. In particular, we expected the system plan to be considering and ensuring viable representation of British Columbia's biogeoclimatic zones, adequate land sizes and adequate connectivity between protected areas. We also expected measures to be in place within the system to address the effects of climate change. Instead, we found otherwise and discuss this in the text that follows.

The province's biogeoclimatic zones are inadequately represented in the system

The focus of the government's Protected Areas Strategy released in 1999 was to protect 12% of the province – lands made up of viable, representative examples of natural diversity in the province, representative of the major terrestrial, marine and freshwater ecosystems. To date, the ministry has protected approximately 14% of the province and considers the land-based portion of the parks and protected areas system to be near completion. Nevertheless, we found that several biogeoclimatic zones remain significantly under-represented (Exhibit 6).

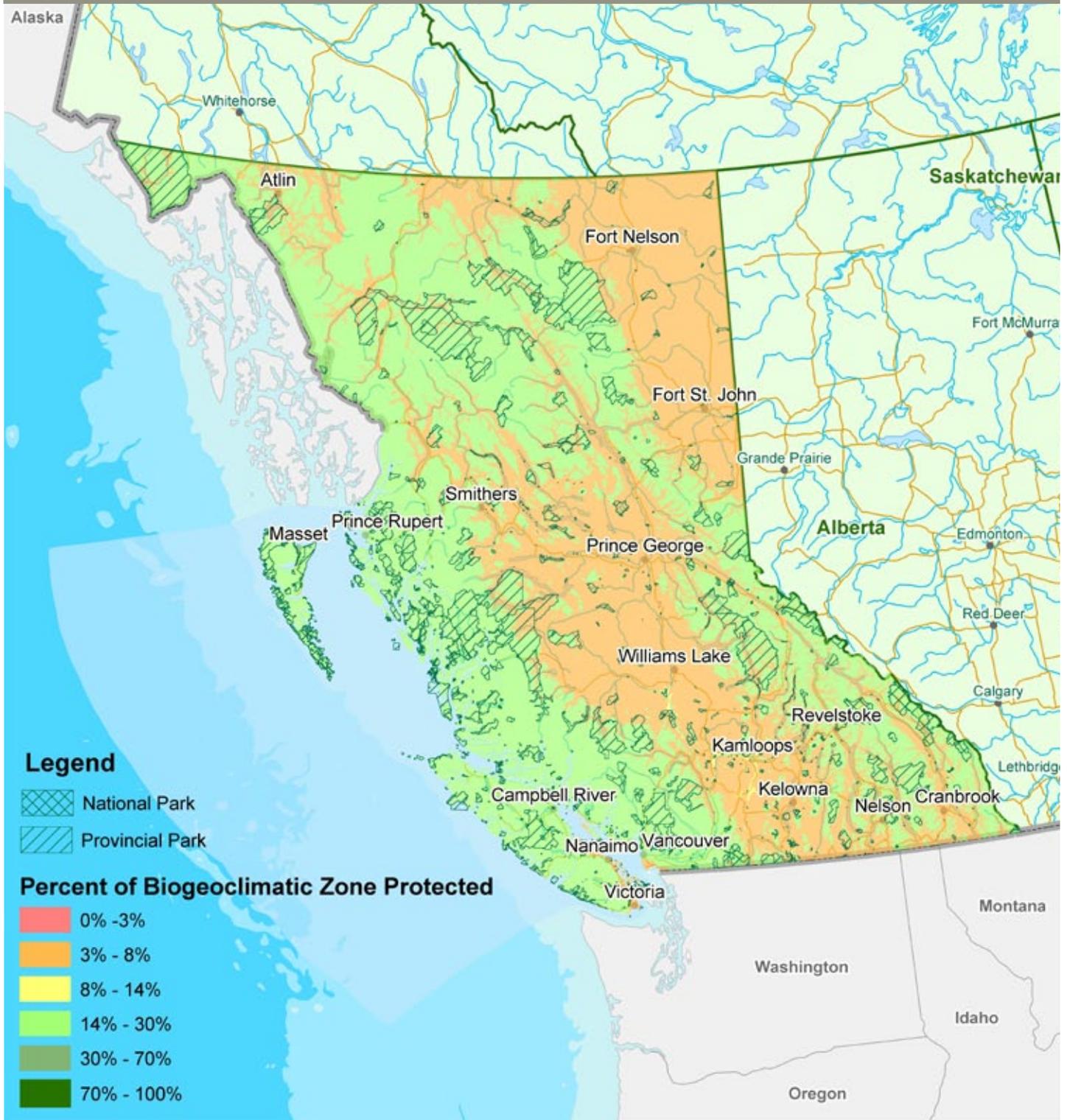
Along the southwest coast and in much of the Interior and northeast portion of the province, for example, only 3–8% (shown in orange in Exhibit 6) of these regions' biogeoclimatic zones has been included in the protected areas system. Of particular note is the lack of representation in the severely impacted and endangered Coastal Douglas-fir biogeoclimatic zone (only 4% of the zone is currently protected); and in the Bunchgrass biogeoclimatic zone (only 10% of the zone is protected). Both of these zones include some of the rarest and most endangered species in Canada according to the ministry's Conservation Data Centre.

The size of many parks and most ecological reserves is too small

Size determines the viability and likelihood of long-term survival of many species, especially large mammals that require large home ranges or that rely on several different habitats throughout their life cycle. A large protected area also has greater resilience and better ability to withstand changes (gradual or sudden and immediate) than a small area does. According to the ministry, however, many Class A parks do not meet the minimum size suggested by science to maintain ecological integrity, and most ecological reserves are also too small to ensure their ecological viability.

DETAILED REPORT

Exhibit 6: Not all of British Columbia's biogeoclimatic zones are adequately represented in the province's parks and protected areas



Source: BC Ministry of Environment

Parks and protected areas are not adequately connected to other protected areas

Connectivity refers to the degree to which protected areas are linked to other protected areas, buffer zones, corridors or “stepping stones” for migratory species. As the ministry’s *Environmental Trends in British Columbia: 2007* states, “The effectiveness of protection depends on the proximity to other protected areas, quality of the environment around the protected area, and the impact of internal and external stressors on the protected area.”



Courtesy: Ministry of Environment Landscape fragmentation by clear-cutting

From recent scientific research we reviewed, it was apparent that the conservation of biodiversity will become more at risk in the future due to the inadequate connectivity of parks and protected areas.

Parks planning is not adequately addressing climate change

We found that while climate change as a stressor to the parks system has been recognized by the ministry, the potential implications have not been contemplated in an overall plan for the parks system.

RECOMMENDATION 3: *We recommend that government develop a plan to address current gaps in the parks and protected areas system.*

The ministry is not ensuring that ecological integrity is being conserved in the province’s Class A parks and ecological reserves

Class A Parks are “dedicated to the preservation of their natural environments for the inspiration, use and enjoyment of the public” and ecological reserves are set aside for ecological purposes. These areas need to be well managed if the purposes for which they have

been created are to be realized. We therefore expected the ministry to be ensuring that ecological integrity is being conserved in the province’s parks and protected areas by having:

- ♦ sufficient and reliable information on the ecology and conservation values for each park and protected area, and on the threats or stressors to those values; and
- ♦ complete management plans based on the above information.

In addition, we expected the ministry to be producing annual management plans that develop responsive strategies to ensure progress towards achieving conservation objectives and in addressing threats. We also expected the ministry to be carrying out regular monitoring and evaluation of conservation actions to ensure that objectives are being met. Instead, we found otherwise and discuss this in the text that follows.

The ministry does not have sufficient and reliable information to determine what the management actions should be for the conservation of ecological integrity

Complete inventory information is the cornerstone of preparing an effective management plan and successfully managing for ecological integrity within British Columbia’s parks and protected areas. We found, however, that the ministry does not have that information for all Class A parks and ecological reserves, lacking important detail on species, ecosystems and ecological processes – data necessary to determine the status of ecological integrity. Neither is there a strategy in place to collect this information. Staff we interviewed at BC Parks’ regional offices and the Environmental Stewardship Division told us that this lack of information makes it difficult to manage Class A parks and ecological reserves to conserve their ecological integrity.

RECOMMENDATION 4: *We recommend that the ministry obtain the information it needs in order to determine management actions for the conservation of ecological integrity and ensure that its policy of developing a five-year conservation management activities plan (research, inventory and monitoring) is met.*

Many Class A parks and ecological reserves lack management plans or management direction statements

Government made a commitment in 1993 to provide management plans for all protected areas. According to the Protected Areas Strategy for British Columbia report, “A protected area management plan will be prepared with public involvement for each area designated and will provide the objectives and guidelines by which the area is managed.”

Exhibit 7: Very few class A parks and ecological reserves meet the BC Parks’ Master Plans Policy requirements (2010 data)

Management planning products for 611 Class A parks

Type	Number	Percentage
Management plan	144	24
Management direction statement	118	19
Subtotal	262	43
Purpose statement	261	43
No plan	88	14
Subtotal	349	57
Total	611	100

Management planning products for 148 ecological reserves

Type	Number	Percentage
Management plan	14	9
Management direction statement	20	14
Subtotal	34	23
Purpose statement	102	69
No plan	12	8
Subtotal	114	77
Total	148	100

Source: BC Ministry of Environment, adapted by the Office of the Auditor General of British Columbia

The ministry currently uses three types of management plans for protected areas:

- ♦ management plans (or “master plans”),
- ♦ management direction statements, and
- ♦ purpose statements.

BC Parks’ Master Plans Policy (1992) states, “Master plans or general management statements (management direction statements) are required for all provincial parks and recreation areas.”

Nevertheless, we found that fewer than half of all Class A parks and only one-quarter of all ecological reserves have either a management plan or management direction statement. Instead, most have purpose statements for management planning. While purpose statements provide a high-level overview of protected area values and their significance, identify key known management issues and responses, and establish a zoning plan, they do not identify detailed management objectives, strategies or outcomes – nor are they adequate to resolve difficult management issues or user conflicts. They also do not provide any opportunity for public input (Exhibit 7).

We also found that, of the management plans that do exist, many are more than 10 years old (78% for Class A parks and 71% for ecological reserves). We recognize that some parks may not require significant changes to their management plans and may only need to be reviewed on a timely basis. As well, some parks may not require a full management plan but this view is not supported in the Master Plans policy.

Pinecone Burke Provincial Park was established in 1995 as a provincial park. This park protects old-growth forest and nationally recognized wetlands and provides habitat to many important and vulnerable species such as the grizzly bear, tailed frog and Great Blue Heron. Reported risks to this park’s ecological integrity include damage from recreational users and aggressive invasive species. However, no management plan is in place for this park.

RECOMMENDATION 5: We recommend that the ministry review and update its Master Plans Policy to clarify what type of management plan is required for each park and protected area, how ecological integrity in each area will be conserved and when each plan should be reviewed and updated.

Annual management planning activities do not adequately address the conservation of ecological integrity

Annual management planning is the process of reviewing and selecting high priority management actions to be undertaken in the fiscal year. We expected the ministry to be conducting annual planning for each park and protected area to determine what actions are needed to address conservation objectives.

We found, however, that annual management planning does not exist in every region; and when priority action plans are created, little progress is being made to address conservation objectives and ensure an effective response to threats or stressors.

Threats and stressors to the biodiversity in Class A parks and ecological reserves are increasing but we found that the ministry was not adequately addressing the following:

- ◆ *Human use as a threat.* In 2008/09, an estimated 19.6 million people visited one or more provincial parks. Although the ministry has the dual mandate of providing recreational opportunities and conservation, it recognizes in its Conservation Risk Assessment tool that the greatest risk to British Columbia's parks is from inappropriate and/or unmanaged recreational use. Public understanding of the conservation values and the potential impact that improper use can have on them is therefore critical to reducing this threat and to building support for BC Parks' efforts to meet ecological integrity objectives. However, in 2002 the ministry made the decision to discontinue its interpretation program – a move that, at the time, made the province one of only two jurisdictions in North America without such a program.
- ◆ *Invasive species as a threat.* A 2006 ministry survey of 189 protected lands determined that 98% of these lands contained invasive plants – more than 70 species in all. Yet, we could not find evidence of a long-term plan outlining a consistent approach to address invasive species.
- ◆ *Adjacent land use activities as a threat.* Activities such as mining, logging and land development are increasing adjacent to parks and protected areas in several areas of the province and, in some cases, are eroding the ecological integrity of these lands. Although the ministry does not have the power to direct British Columbia's other natural resource ministries about matters that can impact ecological integrity, the ministry can, through its involvement with the Integrated Land Management Bureau

Board of Directors, ensure that these issues are considered in natural resource management planning decisions.

The opinion of regional staff we interviewed was that this lack of progress in addressing threats and undertaking conservation projects was due to the lack of resources and expertise.

As resources have declined, the ministry has turned increasingly to volunteers to achieve some of its conservation objectives. However, the ministry does not have a volunteer program with assigned resources to supervise and manage volunteers. In addition, current volunteers we interviewed felt that volunteer assistance to the parks is declining as a result of volunteers aging as well as becoming disappointed by what they perceive as a decline in the state of British Columbia's parks and the limited support they receive.

Expertise has also been an issue in achieving conservation objectives. In 2001, the ministry course "Managing for Ecological Integrity in BC's Parks and Protected Areas" was attended by all BC Parks staff, but since then the course has not been mandatory for staff or for Park Facility Operators. BC Parks relies on staff in the Environmental Stewardship Division to assist it in providing scientific expertise, though the latter told us that they do not have adequate capacity to offer the assistance that is needed.

What is a Park Facility Operator?

Operation of BC Parks' visitor facilities and services has been delivered by the private sector since the early 1980s. These contractors are called Park Facility Operators. Some manage a single park; others manage a group of parks in a specific location. The park land still belongs to the Province of British Columbia, and the Park Facility Operators are required to adhere to specific standards and guidelines approved by British Columbia Parks.

Finally, as with any stated government objective, we expected the ministry to be monitoring and evaluating the effectiveness of its management activities in conserving ecological integrity. Monitoring is a vital component of responsive, pro-active protected areas management. We found however, that the ministry currently has no regular monitoring and evaluation taking place.

RECOMMENDATION 6: *We recommend that the ministry conduct annual planning for each park and protected area to determine what actions are needed to address conservation objectives, threats and stressors, determine priorities from this plan, and monitor and evaluate action items against conservation objectives.*

The ministry is not publicly reporting on its conservation efforts within the province’s parks and protected areas system

Reporting on the environmental state of parks and protected areas is essential to inform the Legislative Assembly and public about how the ministry has met its ecological goals and objectives. An ecological integrity report should present an assessment and evaluation of the progress the ministry is making in achieving the protected areas system’s objectives – one of which includes the Parks Management Plan Goal 1, “... being a leader and a proactive steward of ecological integrity.”

We expected to find that the Ministry of Environment was reporting regularly on the state of ecological integrity within the parks and protected areas system.

The ministry’s service plan report notes an objective of having “well-managed parks and protected areas,” but there are no performance measures to indicate how well this objective is being met in the area of conservation of ecological integrity.

Although the ministry produces the BC Parks Year End Report, that document focuses almost exclusively on recreation. It provides no information on the conservation of ecological integrity.

We noted that the federal government reports periodically on the ecological integrity of its national parks, and that Ontario’s Provincial Parks and Conservation Reserves Act requires the Minister to publicly report at least every five years on the health of parks and protected areas in that province.

RECOMMENDATION 7: *We recommend that the ministry report periodically to the Legislative Assembly and public on how it is conserving ecological integrity in the province’s parks and protected areas system.*