

# Multi-species Action Plan for Bruce Peninsula National Park and Fathom Five National Marine Park of Canada



2016

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For copies of the action plan, or for additional information on species at risk, including COSEWIC Status Reports, residence descriptions, recovery strategies, and other related recovery documents, please visit the [Species At Risk Public Registry](#)<sup>1</sup>.

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<sup>1</sup> [www.registrelep.gc.ca/default\\_e.cfm](http://www.registrelep.gc.ca/default_e.cfm)

## Approval Statement

*The Parks Canada Agency led the development of this federal action plan under the Species at Risk Act. The relevant Field Unit Superintendent hereby approves this document indicating that the relevant Species at Risk Act requirements related to action plan development have been fulfilled in accordance with the Act.*

Approved by:

A handwritten signature in blue ink that reads "Katherine Patterson". The signature is written in a cursive style with a long horizontal stroke at the end of the name.

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Katherine Patterson  
*Field Unit Superintendent, Georgian Bay and Ontario East  
Parks Canada Agency*

## Preface

The federal, provincial, and territorial government signatories under the [Accord for the Protection of Species at Risk \(1996\)](#)<sup>2</sup> agreed to establish complementary legislation and programs that provide for effective protection of species at risk throughout Canada. Under the *Species at Risk Act* (S.C. 2002, c.29) (SARA), the federal competent ministers are responsible for the preparation of action plans for species listed as Extirpated, Endangered, and Threatened for which recovery has been deemed feasible. They are also required to report on progress five years after the publication of the final document on the Species at Risk Public Registry.

Under SARA, one or more action plan(s) provides the detailed recovery planning that supports the strategic directions set out in the recovery strategies for the species. The plan outlines what needs to be done to achieve the population and distribution objectives (previously referred to as recovery goals and objectives) identified in the recovery strategies, including the measures to be taken to address the threats and monitor the recovery of the species, as well as the proposed measures to protect critical habitat that have been identified for the species. The action plan also includes an evaluation of the socio-economic costs of the action plan and the benefits to be derived from its implementation. The action plan is considered one in a series of documents that are linked and should be taken into consideration together with the COSEWIC status reports, management plans, recovery strategies and other action plans produced for these species.

The Minister responsible for the Parks Canada Agency (the Minister of Environment and Climate Change) is the competent minister under SARA for the species found in Bruce Peninsula National Park and Fathom Five National Marine Park of Canada and has prepared this action plan to implement the recovery strategies as they apply to the parks, as per section 47 of SARA. It has been prepared in cooperation with Environment and Climate Change Canada, Fisheries and Oceans Canada and the Province of Ontario, as per section 48(1) of SARA. Parks Canada has also collaborated with Anthony Chegahno, the Chippewas of Nawash Unceded First Nation Species at Risk Representative, on the development of this plan.

Implementation of this action plan is subject to appropriations, priorities, and budgetary constraints of the participating jurisdictions and organizations.

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<sup>2</sup> [www.ec.gc.ca/media\\_archive/press/2001/010919\\_b\\_e.htm](http://www.ec.gc.ca/media_archive/press/2001/010919_b_e.htm)

## **Acknowledgments**

Special thanks are owed to Anthony Chegahno, the Chippewas of Nawash Unceded First Nation Species at Risk Representative, for his participation at the Action Plan Site-analysis Workshop. Thanks are also extended to the partners who reviewed drafts of the Action Plan: Environment and Climate Change Canada, Ontario Ministry of Natural Resources and Forestry, Nature Conservancy of Canada, Ontario Nature, and Escarpment Biosphere Conservancy. Cooperation and provision of data from the Ontario Natural Heritage Information Centre permitted the development of actions, and is greatly appreciated.

## **Executive Summary**

The *Multi-species Action Plan for Bruce Peninsula National Park and Fathom Five National Marine Park of Canada* applies to lands and waters occurring within the boundaries of Bruce Peninsula National Park (BPNP) and Fathom Five National Marine Park of Canada (FFNMP). The plan meets the requirements for action plans set out in the Species at Risk Act (SARA s.47) for species requiring an action plan that occur regularly within the parks. Measures described in this plan will also provide benefits for other species of conservation concern that regularly occur at BPNP and at FFNMP.

Where it has been determined that the park can conduct management activities to help recover and/or manage a species, park-specific objectives are identified in this plan and represent the park's contribution to objectives presented in federal recovery strategies and management plans. Species at risk, their residences, and their habitat are protected by existing regulations and management regimes in national parks as well as by SARA. Additional measures that will contribute to the survival and recovery of the species in the park are described in this plan. These measures were identified based on threats and activities outlined in federal and provincial status assessments and recovery documents, as well as knowledge of the status and needs of each species at each site. Population monitoring actions are also identified for the species for which management actions at the sites can contribute to recovery.

No critical habitat is identified in this action plan. Measures used for protection of existing critical habitat are described.

Measures proposed in this action plan will have limited socio-economic impact and place no restrictions on land use outside of BPNP or FFNMP. Direct costs of implementing this action plan will be borne by Parks Canada. Indirect costs are expected to be minimal, while benefits will include positive impacts on park ecological integrity, greater awareness and appreciation of the value of biodiversity to Canadians, and opportunities for engagement of local communities and Indigenous groups.

## Table of Contents

Preface.....	ii
Acknowledgments .....	iii
Executive Summary .....	iv
Table of Contents .....	v
1 Context .....	1
1.1 Scope of the Action Plan.....	3
2 Site-based Population and Distribution Objectives .....	6
3 Conservation and Recovery Measures .....	6
4 Critical Habitat.....	9
4.1 Proposed Measures to Protect Critical Habitat .....	9
5 Evaluation of Socio-Economic Costs and of Benefits .....	9
5.1 Costs.....	9
5.2 Benefits.....	10
6 Measuring Progress.....	11
7 References .....	11
Appendix A: Species information, objectives and monitoring plans for species at risk in BPNP and FFNMP.....	14
Appendix B: Conservation and recovery measures that will be conducted by BPNP and FFNMP. ....	18
Appendix C: Other conservation and recovery measures that will be encouraged through partnerships or when additional resources become available.....	20
Appendix D: Effects on the Environment and Other Species .....	22

## 1 Context

Bruce Peninsula National Park (BPNP) and Fathom Five National Marine Park (FFNMP) lie at the tip of the Bruce Peninsula which separates Georgian Bay from Lake Huron. The peninsula is 90 km in length and its most prominent feature is the Niagara Escarpment which runs along the entire eastern edge. Within BPNP, the escarpment forms the Georgian Bay shoreline and is recognized as part of the core area of the Niagara Escarpment UNESCO World Biosphere Reserve.

BPNP was established by the federal government in 1987 to protect a representative example of the Great Lakes/St. Lawrence Lowlands natural region. Because of the fragmented nature of the park properties, many of the stresses on the park's ecosystem originate from outside its boundaries. For this reason, First Nations, local residents, non-governmental organizations, and other groups and land users play an important role in managing, restoring, and protecting the northern Bruce ecosystem.

Bruce Peninsula National Park contains the largest contiguous forest in southwestern Ontario. It also protects globally-rare ecosystems such as limestone barrens (alvars) and cliff-edge forests. For these reasons, the park is a mecca for bird watchers, botanists, and nature enthusiasts and the surrounding area is a high priority for regional, provincial, and national conservation organizations. Some of the natural values that make the park special include:

- Ancient eastern white cedar trees growing on the cliffs of the Niagara Escarpment. Many of these trees are over 1000 years old – the oldest trees in eastern North America;
- An isolated and genetically distinct population of black bear;
- Ontario's only venomous snake, the Eastern Massasauga Rattlesnake;
- 43 species of orchids; and,
- Extensive karst landform features including caves, sinkholes and disappearing streams.

Fathom Five National Marine Park was established in 1987 as part of the BPNP planning process to represent the Georgian Bay Marine Region. The park represents the amalgamation of the former Fathom Five Provincial Park and local islands of Georgian Bay Islands National Park (GBINP) and is renowned for its scenic water-and-island setting, dramatic "Niagara Escarpment" landscape, historic shipwrecks, and world-class scuba diving opportunities. Fathom Five is part of the Niagara Escarpment Plan and World Biosphere Reserve, consisting of a series of over 100 parks and protected areas stretching from Queenston to Tobermory, linked by the Bruce Trail. As the northernmost park in the chain, and the only protected marine area, Fathom Five is an important element in the system. The aquatic portion of the park represents an oligotrophic ecosystem; i.e. waters are clear, well oxygenated, low in nutrients, with relatively low productivity. There is no evidence of significant pollution. The islands, like the mainland, experienced heavy disturbance at the turn of the 19<sup>th</sup> century and the pre-European forests have since been lost to settlement, logging, and wildfire.



The two parks also hold significant cultural value. The Bruce Peninsula, including the islands of Fathom Five lie within the area identified by the Saugeen Ojibway Nation as their traditional territory, known as *Anishinaabekiing*. The *Anishnaabe* of the Saugeen Ojibway Nation (SON) have lived in *Anishinaabekiing* and participated in harvesting and management activities, including hunting, fishing, trapping, and gathering for the purpose of sustenance, ceremony, and commerce since time immemorial; and continue to do so. Many archaeological sites in the park show evidence of human occupation dating to the Archaic period (8000-2000 Before Common Era (BCE)) through the Woodland period (1000 BCE – 1000 Common Era (CE)). Europeans settled in the upper portions of the Bruce Peninsula in the late 19th century, and some landscapes in BPNP are also of regional significance for their representation of early settler and agricultural history on the peninsula.

The health and viability of the Saugeen Ojibway Nation communities, their places of cultural and spiritual significance, and economic opportunities, are inextricably linked to the health of the lands and waters of *Anishinaabekiing*, which include BPNP, FFNMP, and the surrounding waters. The Saugeen Ojibway Nation consists of the Chippewas of Nawash Unceded First Nation, located approximately 70 km southeast of the park near Wiarton, Ontario, and the Chippewas of Saugeen First Nation, located 85 km to the southwest, near Southampton, Ontario. When working together on matters of mutual interest, they are collectively identified as the Saugeen Ojibway Nation. In the former St. Edmunds Township, they share a hunting reserve that is bordered on three sides by Bruce Peninsula National Park. Many shared interests exist between the Saugeen Ojibway Nation and Parks Canada, including the protection of natural and cultural heritage on the peninsula and the desire to build appreciation of the natural and cultural resources and to share this knowledge. The development of this action plan was strengthened by the participation of the Chippewas of Nawash Unceded First Nation Species at Risk Representative, who contributed to Parks Canada's current understanding of areas of mutual interest.

Maintenance and restoration of ecological integrity is the first priority of national parks (*Canada National Parks Act* s.8(2)). Species at risk (SAR), their residences, and their habitat are therefore protected by existing national park regulations where these apply in Bruce Peninsula National Park and Fathom Five National Marine Park. In addition, the *Species at Risk Act* (SARA) prohibitions protecting individuals and their residences apply on federal lands and waters automatically when a species is listed, and all critical habitat must be protected

Recovery measures for species at risk will be integrated within the framework of Parks Canada's ongoing ecological integrity programs. Parks Canada's ecological integrity programs make contributions to the recovery of species at risk by providing inventory and monitoring data, and through the implementation of habitat restoration projects and other conservation measures. The species-directed measures outlined in this plan will in turn contribute to maintaining and improving ecological integrity at both parks by improving the conservation status of native species and their habitat and maintaining biodiversity.

A number of federal and provincial recovery strategies and plans, management plans, and action plans have been prepared for species considered in this action plan. Along with status assessments, those documents provide guidance for the recovery of individual species, including strategic directions, recovery objectives, critical habitat, and threats. This action plan was developed and will be implemented in a manner that is consistent with those recovery documents, and should be viewed as part of this body of linked strategies and plans.

### **1.1 Scope of the Action Plan**

The geographic scope of this action plan includes all lands and waters managed by BPNP and FFNMP (Figure 1). This multi-species action plan has been written specifically for these two sites because the Parks Canada Agency (PCA) has special responsibilities and management authority for species at risk on PCA lands and waters and has the ability to take direct conservation action.

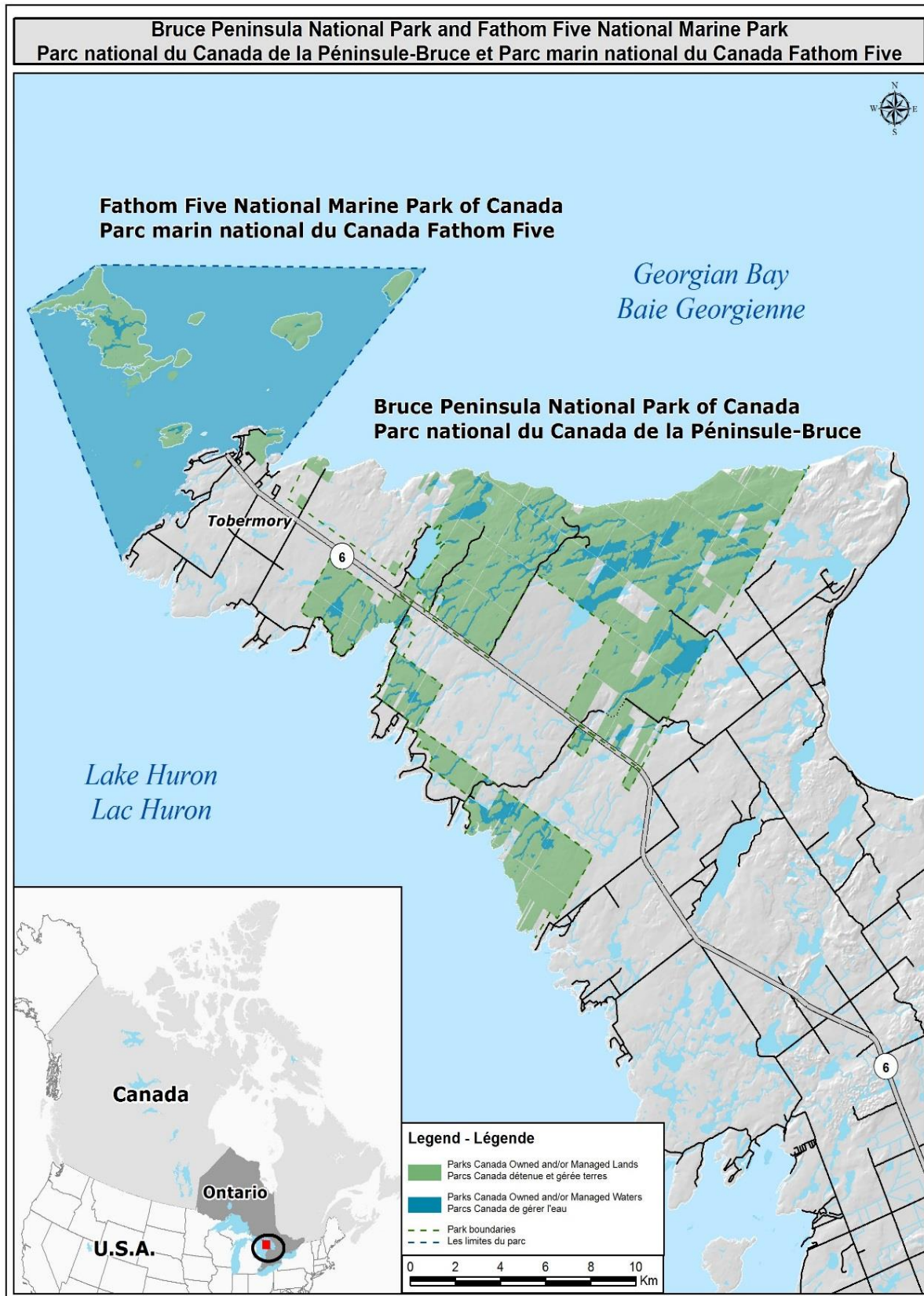


Figure 1. Geographic scope for the Multi-species Action Plan for Bruce Peninsula National Park and Fathom Five National Marine Park of Canada.

This action plan addresses SARA-listed species that regularly occur in BPNP and FFNMP which require an action plan under SARA (s.47), as well as other species of conservation concern (Table 1). This approach both responds to the legislated requirements of the SARA and provides the Parks Canada Agency with a comprehensive plan for species conservation and recovery at these sites. The plan will be amended as required to meet SARA requirements for action planning.

Table 1. Species at Risk included in the action plan.

Species	Scientific Name	COSEWIC status	SARA Schedule 1 status
Eastern Prairie Fringed-orchid	<i>Platanthera leucophaea</i>	Endangered	Endangered
Lakeside Daisy	<i>Tetraneuris herbacea</i>	Threatened	Threatened
Little Brown Myotis	<i>Myotis lucifugus</i>	Endangered	Endangered
Northern Myotis	<i>Myotis septentrionalis</i>	Endangered	Endangered
Queensnake	<i>Regina septemvittata</i>	Endangered	Endangered
Blanding's Turtle (Great Lakes/St. Lawrence population)	<i>Emydoidea blandingii</i>	Threatened	Threatened
Canada Warbler	<i>Cardellina Canadensis</i>	Threatened	Threatened
Common Nighthawk	<i>Chordeiles minor</i>	Threatened	Threatened
Eastern Whip-poor-will	<i>Antrostomus vociferous</i>	Threatened	Threatened
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Threatened	Threatened
Hill's Thistle	<i>Cirsium hillii</i>	Threatened	Threatened
Least Bittern	<i>Ixobrychus exilis</i>	Threatened	Threatened
Massasauga (Great Lake/St. Lawrence population)	<i>Sistrurus catenatus</i>	Threatened	Threatened
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Threatened	Threatened
Western Chorus Frog (Great Lakes/St. Lawrence-Canadian Shield population)	<i>Pseudacris triseriata</i>	Threatened	Threatened
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Threatened	Threatened
Chimney Swift	<i>Chaetura pelagica</i>	Threatened	Threatened
Deepwater Sculpin	<i>Myoxocephalus thompsonii</i>	Special Concern	Special Concern
Dwarf Lake Iris	<i>Iris lacustris</i>	Threatened	Threatened
Eastern Ribbonsnake (Great Lakes population)	<i>Thamnophis sauritus</i>	Special Concern	Special Concern
Hill's Pondweed	<i>Potamogeton hillii</i>	Special Concern	Special Concern
Eastern Milksnake	<i>Lampropeltis triangulum</i>	Special Concern	Special Concern
Monarch	<i>Danaus plexippus</i>	Special Concern	Special Concern
Peregrine Falcon (anatum/tundrius)	<i>Falco peregrinus anatum</i>	Special Concern	Special Concern
Rusty Blackbird	<i>Euphagus carolinus</i>	Special Concern	Special Concern
Snapping Turtle	<i>Chelydra serpentina</i>	Special Concern	Special Concern
Tuberous Indian-plantain	<i>Amoglossum plantagineum</i>	Special Concern	Special Concern
American Black Bear	<i>Ursus americanus</i>	Not assessed	Not Listed

Species	Scientific Name	COSEWIC status	SARA Schedule 1 status
Barn Swallow	<i>Hirundo rustica</i>	Threatened	Not Listed
Bank Swallow	<i>Riparia riparia</i>	Threatened	Not Listed
Big Brown Bat	<i>Eptesicus fuscus</i>	Not assessed	Not Listed
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Not Listed
Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	Not Listed
Eastern Small-footed Myotis	<i>Myotis leibii</i>	Not assessed	Not Listed
Eastern Wood-pewee	<i>Contopus virens</i>	Special Concern	Not Listed
Lake Sturgeon (Great Lakes – Western (Upper) St. Lawrence populations)	<i>Acipenser thompsonii</i>	Threatened	Not Listed
Shortjaw Cisco	<i>Coregonus zenithicus</i>	Threatened	Not Listed
Deepwater Sculpin (Great Lakes – Western (Upper) St. Lawrence populations)	<i>Myoxocephalus thompsonii</i>	Special Concern	Special Concern
Silver Lamprey	<i>Ichthyomyzon unicuspis</i>	Special Concern	Not Listed
Wood Thrush	<i>Hylocichla mustelina</i>	Threatened	Not Listed
Grasshopper Sparrow	<i>Ammodramus savannarum pratensis</i>	Special Concern	Not Listed

## 2 Site-based Population and Distribution Objectives

The potential for PCA to undertake management actions at BPNP and FFNMP that will contribute to the recovery of each species was assessed. Site-specific population and distribution objectives were developed (Appendix A) to identify the contribution that these sites can make towards achieving the national objectives presented in federal recovery strategies and management plans. Because they are directly linked to the site-based population and distribution objectives, monitoring activities are reported in Appendix A rather than in the tables of recovery measures (Appendices B & C). If there is little opportunity for the park to contribute to the recovery of a species, site-specific objectives and conservation actions may be limited to protection measures in place under the *Canada National Parks Act* and SARA, population monitoring, habitat maintenance, and restoration through the existing park management regime. For many species, site-specific population and distribution objectives for BPNP and FFNMP are not meaningful at the scale of this action plan for various reasons, including 1) threats cannot be controlled in the park or do not exist in the sites (e.g., wide-spread disease, loss of overwintering habitat, hay harvesting); 2) species is only transient or does not occur on land or waters over which the park has jurisdiction (e.g., migrates through park, breeding is not confirmed); 3) population within the park is a very small part of the Canadian distribution or is unknown or unconfirmed.

## 3 Conservation and Recovery Measures

Both BPNP and FFNMP play critical roles in the conservation and protection of some of Canada's most rare species and their habitats. BPNP represents the largest tracts of contiguous forest in southwestern Ontario and contains globally-rare ecosystems, such

as alvars and cliff edge forests. FFNMP is one of the largest marine protected areas on the Great Lakes, which includes important fish spawning and nursery habitats, and productive coastal wetlands. Together the two national parks support over 25 species currently at risk in Canada, including several that are endemic to the Great Lakes region and many of global conservation concern (NatureServe 2015).

Past and present ecological impacts on these species include over-harvesting, habitat destruction, non-native invasive species, and human persecution. These impacts have resulted in the extirpation of several species (e.g., Blackfin Cisco (*Coregonus nigripinnis*), Upper Great Lakes Kiyi (*Coregonus reighardi*), and Shortnose Cisco (*Coregonus kiyi kiyi*)); highlighting the need for and importance of conservation areas like BPNP and FFNMP. Since the late 1980s, both BPNP and FFNMP have worked with partners and volunteers to improve the ecological integrity of the parks and to contribute to the recovery of many listed species. In addition, the site has played an important role in promoting awareness and appreciation of SAR, as well as providing opportunities for academic research and studies that inform management and restoration efforts.

This action planning process identified measures to achieve the site-based population and distribution objectives, along with measures required to protect the species and learn more about them. The process of determining which measures will be conducted by the Park (Appendix B) and which measures will be encouraged through partnerships or when additional resources come available (Appendix C) involved a prioritization process. The process primarily considered ecological effectiveness of measures, and also included consideration of opportunities to increase the value of visitor experience to the park, opportunities to increase awareness through external relations, and budgetary opportunities and constraints. Wherever possible, Parks Canada is taking an ecosystem approach, prioritizing actions that benefit numerous species at once to effectively and efficiently protect and recover species at risk.

Four themes emerge from these measures: active management, monitoring and surveys, collaboration, and research.

### **Active Management**

Invasive species represent the most significant threat to many of the SAR in the two parks. To date, the inland lakes within BPNP are free from aquatic invasives, a truly remarkable state in Southern Ontario, and the park intends to maintain this by continuing to implement the measures of their Aquatic Invasive Species Strategy. These measures help ensure species, such as the Rusty Crayfish (*Orconectes rusticus*), which could impact the native crayfish populations and may therefore negatively affect the Queensnake that relies on those crayfish for the majority of their diet, do not enter our inland lakes. The sites intend to continue their invasive management programs, which have had a great deal of success in controlling Phragmites and reducing other invaders such as Spotted Knapweed and Garlic Mustard.

In addition to controlling invasive species, there are other measures that the sites intend to put in place to address some of the threats facing SAR in the area. Road mortality is one of the greatest threats to Massasauga, and other reptiles and amphibians on the Bruce Peninsula (Stinnissen, 2015). Implementing measures to slow traffic, raise visitor awareness, and provide safe corridors in the park can help reduce this threat. The plan also has measures to address illegal off-road vehicle activity in the park that, in addition to damaging the critical habitat and causing the direct mortality of several species, provides a vector for invasive species to spread into the park.

### **Monitoring and Surveys**

The Bruce Peninsula and eastern Georgian Bay populations of Massasauga are believed to be the largest and most secure found anywhere across its range. The largest continuous population of Dwarf Lake Iris in Canada is found on PCA and provincial lands on the north Bruce Peninsula. BPNP supports some of the northernmost populations in Canada of Queensnake and Eastern Prairie-fringed Orchid (EPFO), with the latter being one of the largest known in the country, and contains nearly 30% of the known populations of Hill's Pondweed. Given BPNP significance to multiple SAR, the monitoring that occurs here is critical to better understanding their population dynamics and recovery. In addition, targeted surveys are needed to determine the presence and/or distribution of species like Shortjaw Cisco, Common Nighthawk, Whip-poor-will, and Western Chorus Frog, and better identify the role and importance of BPNP and FFNMP to the protection and recovery of these species.

Lastly, the caves within the boundaries of BPNP and FFNMP provide some of the largest, known natural hibernacula in the country for bats, including Little Brown and Northern Myotis (Geomatix International Inc. and Buck, 1997). To date, White-Nose Syndrome has not been detected in the colonies using these hibernacula; however, continued monitoring and the implementation of best management practices are planned.

### **Research**

Both BPNP and FFNMP present opportunities for research to fill gaps in the knowledge base necessary to build effective recovery programs for several SAR. This plan has measures to examine the response of Hill's Thistle to fire and mechanical clearing, the potential for in-vitro propagation and long term conservation (cryopreservation) of Eastern Prairie Fringed Orchid and Hill's Thistle, and the continued research into the genetics of the isolated Black Bear population on the Bruce Peninsula. These studies will help us better understand the population dynamics, threats, and management options for these species. Many of these measures will require partnerships and/or additional funding and will benefit from the opportunity to work with the academic community and conservation partners.

### **Collaboration**

The range of many SAR extend beyond the park boundaries, and while the two parks can increase habitat suitability and provide protection within their boundaries, this is only part of the solution. Multiple measures in this plan involve engaging key

conservation partners (e.g., SON and Ontario Ministry of Natural Resources and Forestry, Fisheries and Oceans Canada) and park user groups (Ontario Access Coalition) to raise public awareness of the challenges facing our SAR and engage them in citizen science (e.g., through the development of apps to report SAR sightings). BPNP & FFNMP will engage the SON to collaboratively develop and implement methods to meaningfully incorporate Indigenous Traditional Knowledge into management practices to conserve SAR.

## 4 Critical Habitat

Critical habitat is “the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species’ critical habitat in the recovery strategy or in an action plan for the species” (SARA s.2(1)). At the time of writing of this document, it was not possible to identify any additional critical habitat in the parks beyond that already identified in related documents. Critical habitat has already been identified in the park in recovery strategies for Dwarf Lake Iris, Eastern Prairie Fringed-Orchid, Hill’s Thistle, Lakeside Daisy, and Massasauga, and more will be identified in the future when possible. Where critical habitat identification is not complete, it will be identified in an upcoming or revised action plan or revised recovery strategy; refer to the schedule of studies in relevant recovery strategies for further details.

### 4.1 Proposed Measures to Protect Critical Habitat

Parks Canada will ensure that critical habitat identified at the Bruce Peninsula National Park and Fathom Five National Marine Park is protected.

## 5 Evaluation of Socio-Economic Costs and of Benefits

The Species at Risk Act requires the responsible federal minister to undertake “*an evaluation of the socio-economic costs of the action plan and the benefits to be derived from its implementation.*”

### 5.1 Costs

The total cost to implement the action plan will be borne by Parks Canada out of existing salaries and goods and services dollars. This includes incremental salary costs, materials, equipment, and contracting of professional services for measures outlined in Appendices B and C. No major socio-economic costs to partners, stakeholders or Indigenous groups are expected as a result of this action plan. Additional resources or partnerships will be sought to support the measures outlined in Appendix C.

Many of the proposed measures will be integrated into the operational management of BPNP and FFNMP and there will be few new costs. These costs to the government will be covered by prioritization of existing funds and salary dollars at the site and thereby will not result in additional costs to society.

The action plan applies to lands and waters in BPNP and FFNMP, and does not bring any additional restrictions to land and water use outside the parks. As such, this action plan will place no socio-economic costs on the public. However, minor restrictions may



be placed on visitor activities on park lands and waters to protect and recover species at risk.

## 5.2 Benefits

Measures presented in this action plan for BPNP and FFNMP will contribute to meeting recovery strategy objectives for threatened and endangered species, and will also contribute to meeting management objectives for species of special concern. These measures are expected to have an overall positive impact on ecological integrity and enhance opportunities for appreciation of the sites and the species by visitors and the general public. This action plan includes measures that could result in benefits to Canadians, such as positive impacts on biodiversity and the value individuals place on preserving biodiversity.

The proposed measures seek a balanced approach to reducing or eliminating threats to SAR populations and habitats, and include protection of individuals and their habitat (e.g., restrictions to human activities within areas occupied by the species, combined with ongoing research and monitoring), and increasing public awareness and stewardship (e.g., signage, visitor programs, and highlights in communication media).

Potential economic benefits of the recovery of the species at risk found in BPNP and FFNMP cannot be easily quantified, as many of the values derived from wildlife are non-market commodities that are difficult to appraise in financial terms. Wildlife, in all its forms, has value in and of itself, and is valued by Canadians for aesthetic, cultural, spiritual, recreational, educational, historical, economic, medical, ecological and scientific reasons. The conservation of wildlife at risk is an important component of the Government of Canada's commitment to conserving biological diversity, and is important to Canada's current and future economic and natural wealth.

Implementing this action plan is expected to have positive benefits for park visitors, local residents, and the Saugeen Ojibway Nation. Some activities in the plan may create opportunities for local residents to become involved in the recovery of species at risk and for cooperation and community partnerships in SAR recovery. Benefits should be relatively evenly distributed across individuals in local communities, and opportunities for involvement will be available to all local residents. These include opportunities to learn about and take part in the recovery of culturally important species at risk, opportunities for visitors and local communities to be involved in conservation issues, opportunities for integration of Indigenous Traditional Knowledge into conservation issues in BPNP/FFNMP, and greater awareness of Indigenous values and culture among local residents and visitors to the parks. Where possible, BPNP/FFNMP will incorporate traditional knowledge in the implementation of actions that protect species at risk. In doing so the plan supports the goals under the Species at Risk Act "*the traditional knowledge of the indigenous peoples of Canada should be considered in the assessment of which species may be at risk and in developing and implementing recovery measures.*"

## 6 Measuring Progress

Reporting on implementation of the action plan (under s. 55 of SARA) will be done by assessing progress towards implementing the measures. Reporting on the ecological impacts of the action plan will be done by assessing progress towards meeting the site-based population and distribution objectives.

## 7 References

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## Appendix A: Species information, objectives and monitoring plans for species at risk in BPNP and FFNMP.

Species	National objectives <sup>3</sup>	Site-based population & distribution objectives	Population trend in BPNP and FFNMP <sup>4</sup>	Population monitoring <sup>5</sup>	General information and broad park approach
American Black Bear	Not applicable	Maintain current population.	Small population possibly in decline.	DNA mark-recapture protocol to provide population estimate every five years.	This protocol is implemented in cooperation with the province for the entire Bruce Peninsula.
Dwarf Lake Iris	Maintain long-term, self-sustaining, viable populations of Dwarf Lake Iris in its current range in Ontario	Maintain index of area of occupancy within the park of 25km <sup>2</sup> .	Unknown	Monitoring of presence across the 25 1X1 km NTS grid cells which captures the distribution of Dwarf Lake Iris at BPNP on a five year cycle.	Focus is on protecting and maintaining existing habitat.
Eastern Prairie Fringed-Orchid	1) To maintain the 16 populations believed to be extant. 2) To reverse the declining population trends at extant locations.	Maintain the area of occupancy in BPNP.	Unknown	Perform a complete population census annually, but continue to correlate with high water levels to optimize survey efforts.	This population shows extremely high natural inter-annual variability in numbers due to flooding regime, therefore it is difficult to detect any long-term trends. Focus is on protecting and maintaining existing habitat.

<sup>3</sup> National objectives as per most recent version of relevant recovery document found in References section.

<sup>4</sup> Population trend is from 2009-2014.

<sup>5</sup> Where population and distribution objectives have been established for BPNP & FFNMP, monitoring is designed to directly measure success in achieving those goals.

Species	National objectives <sup>3</sup>	Site-based population & distribution objectives	Population trend in BPNP and FFNMP <sup>4</sup>	Population monitoring <sup>5</sup>	General information and broad park approach
Eastern Ribbonsnake	Conserve the Eastern Ribbonsnake (Great Lakes population) and the habitat where it is known to occur; to gain a sufficient understanding of the distribution and abundance of the Eastern Ribbonsnake (Great Lakes population) to better inform conservation efforts; and to mitigate known threats to this population in Canada.	Maintain occupancy in each of the 2x2 km NTS grid cells with recent records.	Unknown	Monitor occurrences within grid cells. Data will be compiled on a 5 year cycle.	A program will be initiated using social media and mobile apps to make it easy for visitors, staff, & members of the local community to provide incidental observations to us.
Hill's Pondweed	Maintain current distribution and number of occurrences for the next 10 years, or until reassessed as Not at Risk by COSEWIC.	Maintain 8 known occurrences.	Unknown	Monitor for presence of Hill's Pondweed at each of the eight known locations on a five-year cycle.	Populations of Hill's Pondweed are dynamic, so monitoring of known populations should be combined with surveys for new populations and potential habitat as per the monitoring protocol developed in 2011 (Kirk et al).
Hill's Thistle	Maintain self-sustaining populations.	Maintain index of area of occupancy within the park of 17 km <sup>2</sup> .	Unknown	Each of the one km grid squares containing Hill's Thistle will be visited at least once every five years to confirm occupancy.	Focus is on protecting and maintaining existing habitat.
Lakeside Daisy	Maintain self-sustaining populations in current range.	Maintain index of area of occupancy within the park of 11 km <sup>2</sup> .	Stable	Each of the one km grid squares containing Lakeside Daisy will be visited at least once every five years to confirm occupancy.	Focus is on protecting and maintaining existing habitat.

Species	National objectives <sup>3</sup>	Site-based population & distribution objectives	Population trend in BPNP and FFNMP <sup>4</sup>	Population monitoring <sup>5</sup>	General information and broad park approach
Massasauga	Maintain the current extent of occurrence and area of occupancy throughout the Bruce Peninsula regional population.	Maintain occupancy in the 46 2X2 km NTS grid cells within the boundary of BPNP and FFNMP.	Unknown	Monitor occurrences within grid cells. Data will be compiled on a 5 year cycle.	The large, relatively undeveloped landscape, with low road density, is the most important component of critical habitat for Massasauga at BPNP. The Park is the cornerstone to one of the two largest and healthiest populations range-wide for the species. A program will be initiated using social media and mobile apps to make it easy for visitors, staff, & members of the local community to provide incidental observations to us.
Eastern Milksnake	Maintain populations throughout the known range and fill knowledge gaps.	Maintain occupancy in each of the 2x2 km NTS grid cells with recent records.	Unknown	Monitor occurrences within grid cells. Data will be compiled on a 5 year cycle.	A program will be initiated using social media and mobile apps to make it easy for visitors, staff, & members of the local community to provide incidental observations to us.
Monarch	Mitigate threats to Monarch and ensure that there is habitat in Canada to maintain the current Canadian contribution to the overall North American Monarch population.	Maintain extent of suitable habitat.	Unknown	Measure extent of suitable habitat on a 5-year cycle.	Parks will continue to protect individuals and habitat, restore habitat, take actions to mitigate threats to species, and contribute to drafting of recovery plans.

Species	National objectives <sup>3</sup>	Site-based population & distribution objectives	Population trend in BPNP and FFNMP <sup>4</sup>	Population monitoring <sup>5</sup>	General information and broad park approach
Queensnake	To halt further decline and to achieve stable or increasing populations of Queensnake throughout the species' current Canadian distribution.	Maintain occupancy in each of the currently occupied watersheds.	Unknown	Monitor Queensnake occurrences within each watershed. Data will be compiled on a 5 year cycle.	A program will be initiated using social media and mobile apps to make it easy for visitors, staff, & members of the local community to provide incidental observations to us.
Snapping Turtle	Implement measures to address the main threats and document population trends across Canada.	Maintain occupancy in each of the 2x2 km NTS grid cells with recent records.	Unknown	Monitor occurrences within grid cells. Data will be compiled on a 5 year cycle.	Parks will continue to protect individuals and suitable habitat, restore habitat, take actions to mitigate threats to species, and contribute to drafting of recovery plans.
Tuberous Indian-plantain	Maintain, and where feasible increase its current abundance and distribution in Canada and improve knowledge on populations and threats.	Maintain index of area of occupancy within the park.	Unknown	Each of the one km grid squares containing Tuberous Indian-plantain will be visited at least once every five years to confirm occupancy.	Parks will continue to protect individuals and habitat, restore habitat, take actions to mitigate threats to species, and contribute to drafting of recovery plans.
Canada Warbler, Common Nighthawk, Blanding's Turtle, Deepwater Sculpin, Eastern Whip-poor-will, Golden-winged Warbler, Least Bittern, Peregrine Falcon, Red-headed Woodpecker, Rusty Blackbird, Western Chorus Frog, Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-Pewee, Wood Thrush, Lake Sturgeon, Shortjaw Cisco, Deepwater Sculpin, Little Brown Myotis, Northern Myotis, Big Brown Bat, Eastern Small-footed Myotis, Olive-sided Flycatcher, Bank Swallow, Chimney Swift, Grasshopper Sparrow.		No objective established: because no threats known in parks or no PCA management actions can contribute to conservation within the parks or BPNP/FFNMP are of limited importance to the species' national recovery.	Unknown	Record incidental observations.	The parks will continue to protect individuals and protect suitable habitat on park lands/waters and support partners where feasible on recovery and protection of these species. Additionally, the parks will work with partners to conduct opportunistic surveys for under-surveyed species in the park and adjust management approaches appropriately when new populations are found.



## Appendix B: Conservation and recovery measures that will be conducted by BPNP and FFNMP.

Species	Measure #	Measure	Desired Outcome	Threat or recovery measure addressed <sup>6</sup>	Timeline
All snakes and SAR turtles	1	Lower speed on park roads and raise awareness among park visitors using signs and speed bumps.	The rate of road mortality of snakes and turtles is reduced.	Road mortality has been identified as one of key causes of Massasauga declines, and it's known as one of the major factors causing declines of large snakes generally in Ontario.	2017
All snakes and SAR turtles	2	Mitigate road mortality through the installation of eco-passages and fencing.	The rate of road mortality of snakes and turtles is reduced.	Road mortality.	2017-2019
Massasauga	3	Work with other jurisdictions as opportunities arise to develop best management practices for activities that occur in the park and greater ecosystem.	Threats to the Massasauga from human activities are reduced.	Protect and manage Massasauga habitat throughout the Bruce Peninsula.	2019
Massasauga	4	Relocate snakes from private properties adjacent to the park when requested and use these opportunities to deliver stewardship messages.	Community members are more accepting of Massasauga and understand how to coexist with the species. Intentional killing of snakes is thereby reduced.	Intentional killing	Ongoing
Queensnake	5	Implement the Aquatic Invasive Species Strategy for BPNP with associated communication outreach to target audiences.	Rusty Crayfish does not become established in the inland lakes of BPNP.	Invasive Species (Rusty Crayfish)	Ongoing
All plants and reptiles	6	Implement measures to prevent illegal off-road vehicle activity in the park.	Direct and indirect impacts to species at risk due to off-road vehicle use are reduced.	Exotic and invasive species. Direct impacts (mortality and habitat destruction).	2020
All plants	7	Assess and control alien invasive plant risks adjacent to populations of the five SAR plants.	Invasive plant populations adjacent to populations of SAR plants are reduced.	Exotic and invasive species	ongoing
Hill's Thistle	8	Perform experimental management to determine response of Hill's Thistle to fire and mechanical clearing.	Our understanding of the role of disturbance in maintaining populations of Hill's Thistle is improved.	Limited suitable habitat	2020

<sup>6</sup> Threat or recovery measures as per most recent versions of relevant recovery documents found in References section.

Species	Measure #	Measure	Desired Outcome	Threat or recovery measure addressed <sup>6</sup>	Timeline
Hill's Pondweed	9	Develop and implement a best management practice for road widening and maintenance to limit or prevent impacts to Hill's Pondweed.	Impacts to Hill's Pondweed are reduced.	Road widening or maintenance.	2017
Lakeside Daisy	10	Work with the Ontario Access Coalition to increase awareness of Lakeside Daisy at Halfway Log Dump, including installing signs.	The rock climbing community is aware of Lakeside Daisy and therefore direct impacts from bouldering are reduced.	Direct impacts	2016-2020
Monarch	11	Wherever possible, manage for milkweed through existing ecological restoration program, e.g. planting milkweed on sites that are being restored as alternative to maintained non-native grassed areas.	Existing habitat for Monarch in the two Parks is increased by opportunistic planting.	Availability of egg-laying sites and larval food plant.	2020
All bat species	12	Implement BMPs for maintenance of infrastructure used by roosting bats, restrict access to hibernacula, and monitor for the presence of White-Nose Syndrome (WNS).	Bat BMPs are in use, strategies to collaborate with private landowners to restrict access to known hibernacula are in place and accessible hibernacula are monitored for the presence of WNS.	Protection of individuals and residences from White-nose Syndrome.	2016
American Black Bear	13	Work with partners to reduce human-induced mortality of bears by raising awareness in the local community about the uniqueness and vulnerability of this population.	Human-induced mortality is reduced as greater appreciation is realized for the importance of conserving the Bruce Peninsula population.	Human-induced mortality	2020
All species	14	Engage the SON to collaboratively develop and implement methods to meaningfully incorporate ATK into management practices for SAR at BPNP & FFNMP.	The SON is actively engaged in SAR management in BPNP and FFNMP and ATK is incorporated.	Several recovery documents note the importance and utility of including ATK in recovery strategies	Ongoing

## Appendix C: Other conservation and recovery measures that will be encouraged through partnerships or when additional resources become available.

Species	Measure #	Measure	Desired Outcome	Threat or recovery action addressed <sup>7</sup>
SAR plants	14	Update and implement the vegetation management plan for BPNP.	SAR plants are managed within the context of vegetation management at the park level.	Habitat suitability for several SAR plants.
Hill's Pondweed	15	Perform surveys in suitable habitat in BPNP to search for new populations.	Existing populations in BPNP are discovered.	Conduct surveys to verify the presence of Hill's Pondweed at locations which need reconfirmation or additional field work.
Eastern Prairie Fringed Orchid and Hill's Thistle	16	Collect seed and send to Gosling Institute for preservation.	Seeds of these two species are conserved for the long-term.	N/A
Monarch	17	Maintain non-personal interpretive station featuring the rearing of live Monarchs in the visitor centre.	Visitors have increased awareness of the plight of the monarch.	Support the development and implementation of education, outreach and public engagement activities to promote awareness of the Monarch and of threats to the species and its habitat..
Massasauga and other snake and turtle species.	18	Initiate a program using social media and mobile apps to make it easy for visitors, staff, & members of the local community to provide incidental observations of these sometimes cryptic species to PCA.	Incidental observations are increased, and thereby the number of management triggers is decreased.	N/A
Massasauga	19	Work with partners to monitor southern edge of Massasauga range on Bruce Peninsula to detect range contraction or expansion.	Range contraction/expansion is detected.	Encourage and support surveys, inventories and citizen science data collection programs such as the Ontario Reptile and Amphibian Atlas (ORAA) to improve knowledge of species occurrence on the landscape, and promote province-wide submission of Massasauga observation data to the NHIC or ORAA (Parks Canada 2015).
Common Nighthawk	20	Perform surveys to determine status in BPNP and FFNMP.	Status in BPNP and FFNMP is determined.	N/A

<sup>7</sup> Threat or recovery actions as per most recent versions of relevant recovery documents found in References section.

Species	Measure #	Measure	Desired Outcome	Threat or recovery action addressed <sup>7</sup>
Deepwater Sculpin, Shortjaw Cisco, Lake Sturgeon, Silver Lamprey, Whip-poor-will	21	Perform surveys in suitable habitat to determine status in FFNMP.	Status in FFNMP is determined.	N/A
Western Chorus Frog	22	Perform surveys in suitable habitat to determine status in BPNP.	Determination as to whether Boreal Chorus Frog, Western Chorus Frog, or both, occur in BPNP.	Conduct surveys to more precisely identify the area occupied by the Great Lakes/St. Lawrence-Canadian Shield (GLSLCS) population (Environment Canada 2014c).
All turtles	23	Identify and protect turtle nests from egg predation by human-subsidized predators.	Egg predation on turtle nests is reduced.	Egg predation.
All turtles and snakes	24	Engage in community outreach to raise awareness of the conservation importance of these species.	Human-induced mortality of snakes and turtles is reduced.	Human persecution, road mortality.

## Appendix D: Effects on the Environment and Other Species

A strategic environmental assessment (SEA) is conducted on all SARA recovery planning documents, in accordance with the *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*. The purpose of a SEA is to incorporate environmental considerations into the development of public policies, plans, and program proposals to support environmentally sound decision-making and to evaluate whether the outcomes of a recovery planning document could affect any component of the environment or achievement of any of the [Federal Sustainable Development Strategy](#)'s<sup>8</sup> goals and targets.

Recovery planning is intended to benefit species at risk and biodiversity in general. However, it is recognized that recovery measures may also inadvertently lead to environmental effects beyond the intended benefits. The planning process, which is based on national guidelines, directly incorporates consideration of all environmental effects, with a particular focus on possible impacts upon non-target species or habitats. The results of the SEA are incorporated directly into the plan itself, and are summarized below.

Overall, it is anticipated that implementation of this action plan will have a beneficial impact on non-target species, ecological processes, and the environment in BPNP and FFNMP. This plan puts into practice recovery goals presented in recovery documents already developed for some of the species at risk in this plan, which were subject to SEAs during the development of those documents. Further, this action plan was developed to benefit all species at risk that regularly occur in BPNP and FFNMP; all of these species were considered in the planning process, any potential secondary effects were considered and mitigated, and where appropriate, measures were designed to benefit multiple species. The planning process was also guided by priorities identified in the park's ecological integrity monitoring program and the management plans for the two parks (Parks Canada Agency, 1998 & 2013). Consequently measures outlined in this plan address key management priorities aimed at improving the broader ecological health of the park. Finally, this plan outlines stewardship measures, educational programs, and awareness initiatives that will involve park visitors, local residents, Indigenous organizations, and the general public. This will lead to greater appreciation, understanding, and action towards the conservation and recovery of species at risk in general.

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<sup>8</sup> [www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1](http://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1)