Proposed

Species at Risk Act
Action Plan Series

Multi-Species Action Plan for Mount Revelstoke National Park of Canada and Glacier National Park of Canada [proposed]

Canada

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For copies of the action plan, or for additional information on species at risk, including Status Reports from the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), residence descriptions, recovery strategies, and other related recovery documents, please visit the Species At Risk Public Registry[1].

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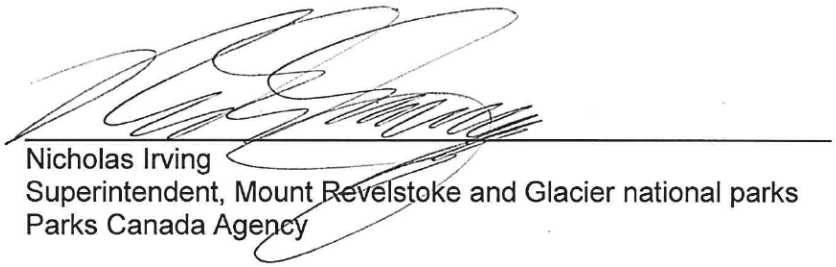
[1] http://www.registrelep.gc.ca/default.asp?lang=En&n=24F7211B-1

Recommendation and approval statement

The Parks Canada Agency led the development of this federal action plan, working together with the other competent minister(s) under the Species at Risk Act. The 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:



Nicholas Irving
Superintendent, Mount Revelstoke and Glacier national parks
Parks Canada Agency

Preface

The federal, provincial, and territorial government signatories under the Accord for the Protection of Species at Risk (1996)[2] 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 direction 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 has 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 the Environment and Climate Change) is the competent minister under SARA for the species found in Mount Revelstoke National Park of Canada and Glacier National Park of Canada and has prepared this action plan to implement the recovery strategies as they apply to the two parks, as per section 47 of SARA. It has been prepared in cooperation with Indigenous partners, Environment and Climate Change Canada and the province of British Columbia as per section 48(1) of SARA.

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

Acknowledgments

Special thanks go out to all of those who added to the content of this plan and especially those who participated in the site analysis workshop in 2015 and contributed their time, expertise and information.

[2] www.ec.gc.ca/media_archive/press/2001/010919_b_e.htm

Executive summary

The Multi-Species Action Plan, Mount Revelstoke National Park of Canada and Glacier National Park of Canada applies to lands and waters occurring within the boundaries of Mount Revelstoke and Glacier national parks (MRG). The plan meets the Species at Risk Act action plan requirements for Schedule 1 listed endangered and threatened species that regularly occur in the parks. Measures described in this plan will also provide benefits for other species of conservation concern in MRG.

Where it has been determined that the sites can conduct management activities to help recover and/or manage a species, site-specific objectives are identified in this plan and represent the site'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 and national historic sites as well as by SARA. Additional measures that will contribute to the survival and recovery of the species at the sites are described in this plan. These measures were identified based on threats and actions 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 measures are also identified for the species for which management activities at the sites can contribute to recovery.

No new critical habitat is identified in this action plan. Measures used for protection of existing critical habitat are described. Critical habitat has been identified in recovery strategies for woodland caribou, little brown myotis and northern myotis.

Measures proposed in this action plan will have limited socio-economic impact and place no restrictions on land use outside of MRG. 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 ecological integrity, greater awareness and appreciation of the value of biodiversity to Canadians, and opportunities for engagement of local communities and Indigenous groups.

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1. Context

Canada's national parks protect a country-wide system of representative natural areas of Canadian significance. Parks Canada is responsible for managing these special places for the benefit, education and enjoyment of Canadians, while ensuring that they are protected and maintained so that they are left unimpaired for future generations. With over a century of accomplishments in establishing and protecting national parks, Parks Canada is a recognized world leader in conservation. Canada's national parks afford a high level of protection to plant and wildlife species that rely upon these lands for their habitat. National parks also provide a unique opportunity to engage Canadians in learning and stewardship activities focused on species at risk. The conservation of species at risk, using both ecological measures and educational programs, is an important part of the day-to-day work of Parks Canada.

This multi-species action plan describes the work that Parks Canada is doing as part of the larger national park conservation program to put vulnerable species on the path to recovery. It is one of the tangible ways Parks Canada protects species at risk, while providing ways to connect and educate Canadians about the endangered wildlife and plants found in these special places. Parks Canada will take a leadership role in implementing this action plan, but its full potential will be achieved by working with others, including park visitors, neighboring landowners, businesses, local residents and other Canadians.

Mount Revelstoke and Glacier national parks (MRG) protect significant examples of the Columbia Mountains Natural Region. Glacier National Park, originally established in 1886 as two small park reserves encompassing the areas around the "Great Glacier" (Illecillewaet) and the summit of Rogers Pass, now protects 1350 sq. km of the Selkirk and Purcell mountain ranges. Mount Revelstoke National Park, established in 1914, protects 260 sq. km of the Selkirk Range and features the Meadows in the Sky Parkway that climbs through rainforest and "snowforest" lifezones to bring visitors to the subalpine meadows at the summit – the only mountain-top in the national parks system accessible by vehicle.

The discovery and opening of Rogers Pass was a critical milestone in Canadian nation building. The completion of the Canadian Pacific Railway line through Rogers Pass fulfilled a promise made by Prime Minister John A. Macdonald when British Columbia entered the Canadian Confederation in 1871. One hundred years later, the Historic Sites and Monuments Board of Canada designated Rogers Pass and several other mountain passes as national historic sites to commemorate the critical role of the passes in the building of Canada.

In Mount Revelstoke, Glacier and Rogers Pass, nature and culture have evolved together. These iconic places offer Canadians and international visitors a chance to connect with the wonder of the Columbia Mountains environment and to discover the evolving relationship of people with the land. The parks protect and preserve the globally important wilderness and biodiversity that define the essential character of this

natural environment. Known as the Interior Wet Belt, the forests within the Columbia Mountains contain the greatest diversity of coniferous tree species in Canada, and are considered to be the second most productive forest zone in Canada. Characterized by tremendous precipitation (both rain and snow), a portion of this unique inland temperate cedar/hemlock rainforest is protected within the parks. Wildlife, including grizzly bears, wolverines and southern mountain caribou share the steep, narrow valleys and avalanche terrain with the people who travel through, visit and live in this area. The TransCanada Highway and Canadian Pacific Railway pass through both parks. These vital links in Canada's national transportation corridor are kept open in winter by the world's largest mobile avalanche control program. Outside the park, the surrounding lands in the province of British Columbia are impacted by intensive use, including forestry, mining and recreation (both motorized and non-motorized).

Parks Canada engages with Indigenous communities that have documented historical associations with Mount Revelstoke and Glacier national parks. These diverse peoples have strong and unique historical and cultural connections to this land, and knowledge of its plants, animals, and waters. Many shared interests exist between these Indigenous communities and Parks Canada, including the protection of natural and cultural heritage, the desire to build appreciation of the natural and cultural resources and the willingness to share this knowledge. The development of this action plan was strengthened by Indigenous partners who shared their knowledge/perspectives and contributed to Parks Canada's current understanding of these species and their habitats.

Maintenance and restoration of ecological integrity is the first priority of national parks (Canada National Parks Act s.8 (2)). Species at risk, their residences, and their habitat are therefore protected by existing national park regulations and management regimes. In addition, the Species at Risk Act (SARA) prohibitions protecting individuals of a species and their residences apply automatically when a species is listed. All critical habitat in national parks and national historic sites must be legally protected within 180 days of being identified in a recovery strategy.

Recovery measures for species at risk will be integrated within the framework of Parks Canada's ongoing ecological integrity programs. National parks maintain comprehensive, scientifically rigorous ecological integrity monitoring and restoration programs that are organized according to the major ecosystems present in the park. The recovery measures described in this action plan are therefore organized in the same manner. 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 contribute to maintaining and improving ecological integrity in MRG 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 multi-species action

plan. Along with status assessments, those documents provide guidance for the recovery of individual species, including strategic directions, recovery objectives, identification of 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 federally owned lands and waters managed by MRG (Figure 1). This multi-species action plan has been written specifically for MRG because the Parks Canada Agency (PCA) is legally responsible for species at risk on PCA lands and waters, has the ability to take direct conservation action, and deals with different threats, legislation, and management priorities than areas outside the park.

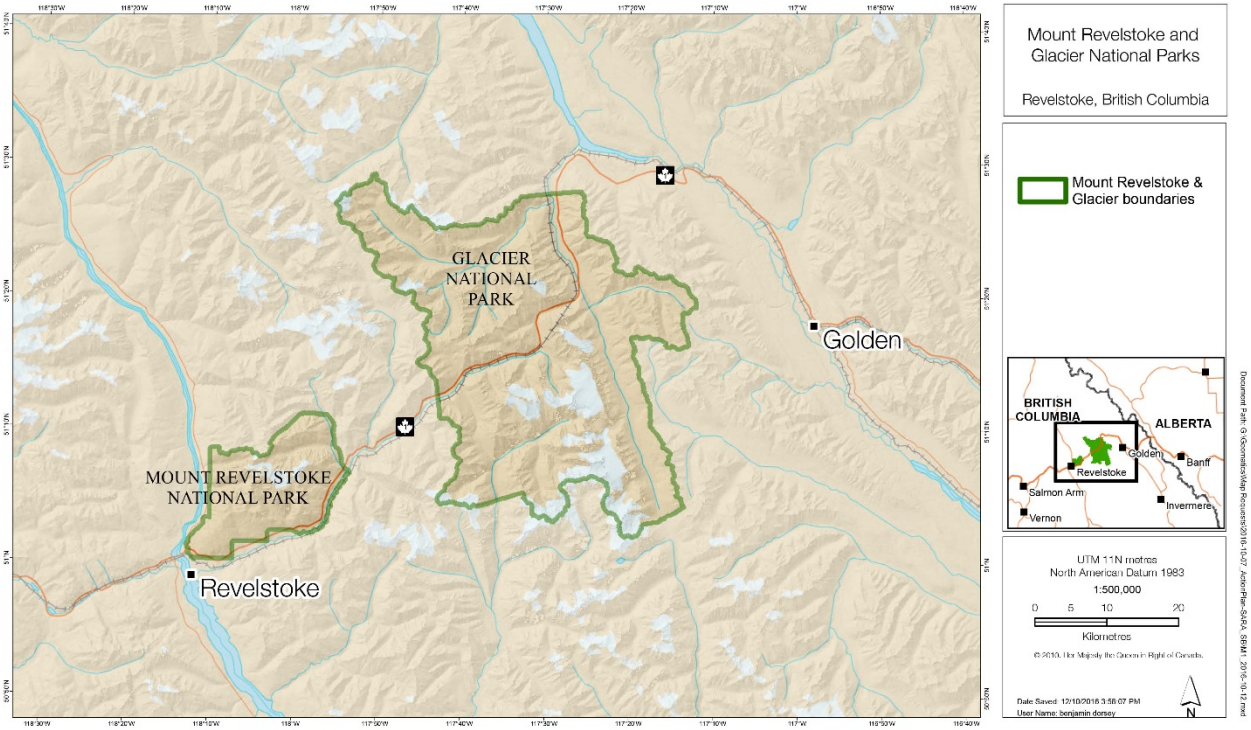

Figure 1. Mount Revelstoke and Glacier national parks.

This action plan addresses SARA-listed Endangered and Threatened species that regularly occur in MRG which require an action plan under SARA (s.47) (Table 1). This approach both responds to the legislated requirements of the SARA and provides the Parks Canada Agency (PCA) 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 for MRG.

Species	Scientific Name	SARA Schedule 1 Status
Little Brown Myotis	*Myotis lucifugus*	Endangered
Northern Myotis	*Myotis septentrionalis*	Endangered
Olive-sided Flycatcher	*Contopus cooperi*	Threatened
Whitebark Pine	*Pinus albicaulis*	Endangered
Woodland Caribou – Southern Mountain population	*Rangifer tarandus caribou*	Threatened

2. Site-based population and distribution objectives

The potential for PCA to undertake management actions at the sites 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 the site 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 (Appendix B). If there is little opportunity for the sites to contribute to the recovery of a species, site-specific objectives and conservation measures 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 management regimes at the sites. For a few species, population and distribution objectives for MRG 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 park (e.g., wide-spread disease, loss of overwintering habitat elsewhere); 2) species is only transient; 3) population within the site is a very small part of the Canadian distribution or is unknown or unconfirmed.

3. Conservation and recovery measures

Managing wide-ranging species like woodland caribou at a park landscape level, or a keystone species like whitebark pine that is intricately connected to over 20 other species is complex. Industrial, recreational, residential and hunting activities on regional landscapes adjacent to park boundaries directly or indirectly impact shared wildlife populations, aquatic resources and vegetation communities. Changes in climate impact wildlife and vegetation distributions, freshwater flows, and natural disturbances such as fire and insects. Invasive non-native plants and diseases affect species at a continental scale.

While the vast majority of the area inside MRG is wilderness, tourism development and transportation corridors have caused some habitat alteration and fragmentation. Recreational activities can contribute to local and regional stresses on caribou and other sensitive species. Historical management practices have altered the natural range of ecosystem variability (e.g. fire suppression, culverts and other obstructions to aquatic connectivity).

As reflected in the Parks Canada mandate, it is a priority to maintain ecological integrity and to facilitate opportunities for Canadians to experience and learn about these special places. MRG has worked with partners and volunteers to improve the ecological health of the park, and to increase opportunities to support the recovery of species at risk. Innovative species at risk programs and activities engage and connect Canadians, both in the park and where they live, to their national parks and Parks Canada's role in conservation. Canadians are invited to get involved in species recovery through volunteering and partnering opportunities. Academic collaboration is a source of valuable research and data collection that supports better park management and restoration efforts. Visitor facilities and trail networks are redesigned and continuously improved to provide meaningful experiences while protecting park habitats and species.

This multi-species action planning process identified measures that would contribute to site-based population and distribution objectives, as well as measures required to protect the species and learn more about them. These measures were then prioritized to determine which will be conducted by the parks (Appendix B). The primary consideration was the ecological effectiveness of measures, but opportunities to enhance visitor experience in the park, to increase awareness through outreach and education, as well as financial costs and benefits were also considered. 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 priority themes emerge from these measures: active management, disease management, filling knowledge gaps and working together.

Active management

For two of MRG's species at risk, whitebark pine and woodland caribou, declining numbers pose the most significant threat. The highest priority is therefore, to maintain or increase population numbers through active management. Active management measures for whitebark pine include collecting blister rust-resistant seeds and planting seedlings. As MRG protects only a small portion of the Columbia South and Duncan sub-population caribou ranges, actions are aimed at maintaining or improving habitat quality to support regional recovery efforts and to support self-sustaining population targets within local population units by working with partners. Prescribed fire is a key tool for habitat restoration for whitebark pine and olive-sided flycatcher. An annual program that applies ultra-violet decals to windows on federal buildings adjacent to known olive-sided flycatcher habitat is a small and consistent action which helps to prevent bird-window collisions. Increased awareness, engagement and education will encourage stewardship and support for actions that protect species at risk in MRG and that lead to on-the-ground changes to habitat conditions.

Disease management

White-nose syndrome (WNS) is decimating bat populations in eastern North America and has been positively identified in Washington State, while white pine blister rust, an introduced fungus, is the main cause of whitebark pine decline across North America.

For bats, determining and tracking population numbers and distribution before the arrival of WNS is key to the early detection of the disease and successful protection of their maternity roosts and hibernacula. This knowledge allows early and targeted action to prevent disease spread to the most important bat sites (e.g. decontamination procedures for cavers reduces the spread of WNS) and protection of individuals and critical habitat. For whitebark pine, determining infection rates and identifying resistance in stands is essential to support recovery. Protection measures against other threats can then be focused on the rare disease resistant whitebark.

Filling knowledge gaps

For some species at risk, research and monitoring are needed to fill gaps in the knowledge base necessary to support protection or recovery efforts. Identifying and mapping important habitat is essential to inform protection and recovery actions. For the species in this action plan, on-going research and monitoring includes: acoustic monitoring for bat hibernacula and roost sites, health assessments and distribution mapping of whitebark pine stands, and piloting maternal penning as a measure to increase caribou calf survival.

Working together

Species at risk recovery in MRG will be positively influenced by increased public awareness, understanding, support and engagement. It is important that Canadians, have opportunities to learn about and participate in species at risk recovery in the parks. These opportunities help foster a sense of connection to MRG that motivates them to act as stewards for the parks and builds support for conservation actions. Innovative urban outreach tools and activities like the mountain national parks' whitebark pine, caribou and fire travelling exhibit, MRG's species at risk outreach kit, and collaboration with the Vancouver Science World and the Calgary Zoo, bring MRG's stories to Canadians where they live. For visitors to the parks, interactive programs such as the campfire program on whitebark pine at Illecillewaet Campground and the whitebark pine seedling planting program for schools, offer hands-on learning about species at risk and Parks Canada's recovery actions. Working with the Revelstoke Caribou Rearing in the Wild Society, we have enlisted community and student volunteers to help collect lichen for pregnant caribou temporarily held during maternal penning.

Engaging Indigenous communities may create opportunities to incorporate Indigenous knowledge and work together on specific recovery actions for species at risk. Understanding of the land and the interconnectedness between species can enrich learning and awareness opportunities, as well as contribute to protection and recovery measures.

Where recovery measures include access restrictions or specific protection actions, such as the seasonal closure of important caribou winter habitat or the protection of bat hibernacula in caves, integrated communications will increase awareness, support and compliance for the measures, as well as establish guidelines for enforcement.

For wide-ranging species like woodland caribou, little brown and northern myotis, olive-sided flycatcher and whitebark pine, collaboration with external partners and stakeholders supports the broader national recovery goals of the species. In some cases, this work will require partnerships, additional funding and/or work with academics and volunteers.

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)). As of August 2016, no additional information is available to identify more critical habitat within this multi-species action plan. Recovery strategies have identified critical habitat in MRG for woodland caribou, little brown myotis, and northern myotis. Where critical habitat identification is not complete, it will be identified in an upcoming or amended 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

No new critical habitat is identified in this multi-species action plan. Critical habitat that may be identified within MRG in future will be legally protected from destruction as per SARA section 58.

5. Evaluation of socio-economic costs and of benefits

SARA 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 this action plan will be borne by PCA 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 Appendix B. 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 B.

Many of the proposed measures will be integrated into the operational management of the sites 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 only to lands and waters in MRG, and does not bring any restrictions to land use outside the sites. 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 MRG will contribute to meeting recovery strategy objectives for threatened and endangered species. 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 multi-species 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 species at risk 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), potential species re-establishment, and increasing public awareness and stewardship (e.g., interpretive signs, visitor programs and highlights in communication media).

Potential economic benefits of the recovery of the species at risk found in these sites cannot be easily quantified. 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 Indigenous groups. 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 species at risk 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 Knowledge into conservation issues in MRG, and greater awareness of Indigenous values and culture among local residents and visitors to the parks. In doing so, the plan supports the goals under the Species at Risk Act "the traditional knowledge of the aboriginal 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 listed in Appendix B. Reporting on the ecological and socio-economic impacts of the action plan will be done by assessing progress towards meeting the site-based population and distribution objectives.

7. References

COSEWIC. 2010. COSEWIC assessment and status report on the Whitebark Pine *Pinus albicaulis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 44 pp.

Environment Canada. 2014. Recovery Strategy for the Woodland Caribou, Southern Mountain population (*Rangifer tarandus caribou*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. viii + 103 pp.

Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp.

Environment Canada. 2016. Recovery Strategy for the Olive-sided Flycatcher (*Contopus cooperi*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vii + 52 pp.

Parks Canada. 2010. Mount Revelstoke National Park of Canada, Glacier National Park of Canada, Rogers Pass National Historic Site of Canada management plan. x + 96 pp

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

Species	National objectives	Site-based population & distribution objectives	Population trend in MRG	Population monitoring[3]	General information and broad park approach
Little brown myotis	The distribution objective is to maintain the pre-WNS extent of occurrence. Within areas not yet affected by WNS, the population objective is to maintain (and where feasible increase) the current level of the population.	Maintain occupancy and extent of distribution. Where population sizes are currently known at confirmed hibernacula and maternity roosts, maintain populations at current levels.	Unknown. There is one confirmed hibernaculum in Glacier National Park identified as critical habitat and that population has occupied the site since 2013 when first discovered.	1. Use the North American Bat Monitoring Protocol (NABat/BCBat) and opportunistic observations to identify significant bat locations in natural areas and human structures. Monitor these sites to detect changes. 2. Monitor for bat use and hibernation activity in priority caves and mines using roost loggers.	1. Protect individuals and residences. 2. Continue targeted surveys to locate important habitat, in particular, at hibernacula and maternity roosts. 3. Continue to actively manage cave access (permit required) and implement decontamination protocol to deter the spread of WNS through human vectors.

[3] Where population and distribution objectives have been established for MRG, monitoring is designed to directly measure success in achieving those goals.

Species	National objectives	Site-based population & distribution objectives	Population trend in MRG	Population monitoring[3]	General information and broad park approach
Northern myotis	The distribution objective is to maintain the pre-WNS extent of occurrence. Within areas not yet affected by WNS, the population objective is to maintain (and where feasible increase) the current level of the population.	Maintain Northern Myotis populations at current levels, including at hibernacula and other confirmed sites within MRG.	Unknown. Presence is confirmed in Glacier National Park and individuals have occupied the site since 2013 when first discovered.	1. Use the North American Bat Monitoring Protocol (NABat/BCBat) and opportunistic observations to identify significant bat locations in natural areas and human structures. Monitor these sites to detect changes. 2. Monitor for bat use and hibernation activity in priority caves and mines using roost loggers.	1. Protect individuals and residences. 2. Continue targeted surveys to locate important habitat, in particular, at hibernacula and maternity roosts. 3. Continue to actively manage cave access (permit required) and implement decontamination protocol to deter the spread of WNS through human vectors.
Olive-sided flycatcher	In the short-term, halt the national decline by 2025, while ensuring the population does not decrease more than 10% over this time. In the long-term (after 2025) ensure a positive 10-year population trend. Maintain the current extent of occurrence in Canada.	No objectives established: Nests and birds are protected by the CNPA and Migratory Birds Act. Fire management practices may provide more nesting habitat. MRG is of limited importance to the species national recovery.	Unknown. Incidental observations through breeding bird monitoring program indicate breeding activity in the parks.	Report presence through acoustic recordings and incidental observations.	Little is known about this species in the parks. Observations obtained through monitoring and incidental reports indicates it continues to nest in the parks. May benefit from habitat restoration using fire.

Species	National objectives	Site-based population & distribution objectives	Population trend in MRG	Population monitoring[3]	General information and broad park approach
Whitebark pine	To establish a self-sustaining, rust-resistant population of whitebark pine throughout the species' range that demonstrates natural seed dispersal, connectivity, genetic diversity and adaptability to changing climate.	To establish a self-sustaining, rust-resistant population of whitebark pine throughout the species' range in MRG that demonstrates natural seed dispersal, connectivity, genetic diversity and adaptability to changing climate.	Infection and mortality rates have increased from 2003 to 2014. White Pine Blister Rust is distributed throughout the parks.	1. Disease infection, stand density and mortality rate via stand health transects. 2. Hectares of habitat created or restored. 3. Number of potentially resistant trees identified and protected and number of these with stored seeds. 4. If fire is applied, the amount of regeneration 5-years post-fire.	1. Assess stands to identify trees that are potentially resistant to white pine blister rust. 2. Collect and conserve seeds from potential blister rust resistant trees; test for resistance; plant resistant trees. 3. Forest management practices such as prescribed burning, thinning and wildfire impact mitigation can be used to protect and restore habitat.

Species	National objectives	Site-based population & distribution objectives	Population trend in MRG	Population monitoring[3]	General information and broad park approach
Woodland caribou	Achieve self-sustaining populations in all local population units (LPU) within their current distribution: 1. Stop the decline in both size and distribution of all LPUs; 2. Maintain the current distribution within each LPU; and 3. Increase the size of all LPUs to self-sustaining levels and, where appropriate and attainable, to levels which can sustain a harvest with dedicated or priority access to Indigenous peoples.	Maintain caribou occupancy within parks and regional local population units (LPUs). Maintain critical habitat in MRGNP. Where caribou have been extirpated, examine opportunities for restoration	Decreasing	Caribou population monitoring (census) in conjunction with the province.	1. Manage and reduce threats to caribou habitat in the parks. 2. Undertake coordinated planning among provincial and federal jurisdictions that jointly manage the Columbia South herd and Duncan sub-population to reach agreement on overall strategic direction for their recovery. 3. Reduce threat of disturbance in high quality caribou habitat in the parks by managing extent and timing of human activities. 4. With partners, investigate potential for caribou augmentation in the LPU (as defined in the Recovery Strategy). 5. Continue communications activities delivered as part ongoing efforts to communicate and raise general awareness about woodland caribou.

Appendix B: Conservation and recovery measures that will be conducted by MRG.

Species	Measure #	Measure	Desired outcome	Threat or recovery measure addressed	Timeline
Active management					
Whitebark pine	1	Identify suspected rust resistant individuals (Plus Trees) at high priority sites, conduct Plus Tree seed resistance testing for high probability trees, collect seed for genetic conservation and protect high value Plus Trees from mountain pine beetles.	1. Where conditions permit, identify rust resistant trees or high value individuals and conserve genetic resources. 2. Where mountain pine beetle protection is required, protect high-value individual whitebark pine trees.	1. Invasive non-native / alien species (white pine blister rust) 2. Problematic native species (mountain pine beetle)	Ongoing
Whitebark pine	2	Plant suspected rust resistant seedlings, and when available confirmed rust resistant seedlings, in priority restoration sites. Inoculate seedlings with mycorrhizal fungi to improve establishment.	1. Plant a minimum of 3500 rust-resistant whitebark pine seedlings by 2019. Continue annual planting beyond 2019 as resources are available and based on priority areas for restoration need. 2. Where available, inoculate at least 50% of seedlings with mycorrhizal fungi prior to planting.	1. Invasive non-native / alien species (white pine blister rust) 2. Fire and fire suppression	Ongoing
Whitebark pine	3	Protect and, where feasible, increase the number and extent of existing stands and of blister rust resistant individuals through habitat management and restoration.	1. Restore WBP habitat (e.g. guard burning, prescribed fire and mechanical thinning) to a degree that will allow the persistence or expansion of existing stands and the potential for generation of new stands. Target 20 hectares by 2019, and continue beyond as resources are available and based on priority areas for restoration need. 2. Mitigate threats in priority high value stands.	1. Fire and fire suppression 2. Problematic native species (mountain pine beetle)	Ongoing
Woodland caribou	4	Manage forests in caribou range to maintain and/or increase caribou habitat quality and availability. Reduce the impact of wildfire on caribou habitat through fire management planning.	1. No large catastrophic fires in caribou range. 2. Maintain dynamic forest mosaic, protect old growth habitat, and prevent large scale disturbance that would alter predator-prey dynamics.	1.Habitat loss 2. Altered predator-prey dynamics.	Ongoing

Species	Measure #	Measure	Desired outcome	Threat or recovery measure addressed	Timeline
Active management (continued)					
Woodland caribou	5	Reduce threat of disturbance in high quality caribou habitat through completion of fine scale mapping and by managing extent and timing of human activities.	Maintain safe and secure high quality habitat.	Direct disturbance	Ongoing Mapping - 2017
Whitebark pine, woodland caribou, olive-sided flycatcher	6	Implement prescribed fire for species at risk.	Increase the number of burns targeted to benefit species at risk with the goal of implementing at least two every 5 years, and maintaining fire disturbance at 20% of the historical fire cycle.	1. Habitat loss 2. Invasive non-native / alien species (white pine blister rust) 3. Fire and fire suppression	2016-2021
Disease management					
Little brown bat & northern myotis	7	Limit spread of white-nose syndrome by sharing protocols (such as the Canadian National White-Nose Syndrome Decontamination Protocol) for cave researchers, and maintaining access restrictions, to protect bats and their residences.	1. Action plan developed for access to significant bat hibernacula and roosts before WNS arrives. 2. Limit human caused spread of WNS through increased awareness, enforcement of restricted access, and implementation of decontamination protocols and BMPs for researchers and cavers. 3. Establish best practices for Parks Canada staff and park stakeholders to address maintenance of infrastructure that contains roosts.	1. Disturbance or harm 2. Exotic, invasive species (WNS). 3. Destruction of maternity roosts and hibernacula.	Ongoing - 2021
Fill knowledge gaps					
Little brown bat & northern myotis	8	Compile existing data and knowledge using NABat/BCBat and GIS to identify and prioritize sites that have a high potential to be hibernacula or maternity colonies. As resources are available and based on priority, sample sites to determine their significance.	Status has been determined for known hibernacula and maternity colony caves and roosts during first 5 year reporting period.	1. Disturbance or harm; 2. Exotic Invasive species (WNS).	2016-2021

Species	Measure #	Measure	Desired outcome	Threat or recovery measure addressed	Timeline
Fill knowledge gaps (continued)					
Whitebark pine	9	Complete predictive habitat model and map of whitebark pine distribution for the park. Where stand assessments are completed, they include aspects of stand health (i.e., rust presence/not detected and stand density).	1. Predictive map of whitebark pine distribution for the park. 2. Assessed high-value stands in high risk areas. 3. Data inform targeted and efficient management and recovery.	1. Invasive non-native / alien species (white pine blister rust) 2. Problematic native species (mountain pine beetle) 3. Fire and fire suppression	2016-2021
Working Together [4]					
Little brown bat & northern myotis	10	Adopt best practices for the maintenance or decommissioning of MRG infrastructure that may contain little brown and/or northern myotis roosts.	Important roosts identified for infrastructure requiring maintenance and impacts are mitigated.	1. Disturbance or harm 2. Destruction of hibernacula and roosts	Ongoing
Little brown bat & northern myotis	11	Engage with the public to obtain bat sightings to increase understanding and support for important hibernacula or roosts.	Increase basic understanding of the bat distribution. Minimum counts for reported hibernacula and important roosts.	1.Disturbance or harm 2.Destruction of hibernacula and roosts; 3.Exotic Invasive species (WNS)	2016-2021
Woodland caribou	12	Work with partners to determine next steps for local population unit (LPU) augmentation in the mountain national parks. Prioritize actions based on assessment of conditions including predator-prey dynamics, predation risk, and translocation recovery priority of other caribou populations (e.g. Alberta). Undertake coordinated planning among provincial and federal jurisdictions that jointly manage the Columbia South herd and Duncan sub-populations to reach agreement on overall strategic direction for their recovery.	Increasing population trend for one subpopulation in the short-term and other subpopulations to follow. Over the long term, the LPU is self-sustaining. Continue partnership with RCRW to double pen-born calf survival to 10 months of age over wild-born calves in the North Columbia caribou herd over a five-year period. Recovery and range plans completed for Columbia South herd and Duncan sub-populations.	1. Small population effects 2.Direct loss of caribou habitat 3. Direct disturbance, 4.Altered predator-prey dynamics 5.Facilitated predator access	Maternal Penning is on-going to 2019. Augmentation is to be determined based on initiation of captive breeding program(s).

[4] In some cases, this work will require partnerships, additional funding and/or work with academics and volunteers.

Species	Measure #	Measure	Desired outcome	Threat or recovery measure addressed	Timeline
Working together (continued)					
Woodland caribou	13	Continue communications activities delivered as part ongoing local and regional efforts to communicate and raise general awareness about woodland caribou.	Increased awareness about this species among Canadians and maintain public support for the implementation of caribou conservation actions.	1. Small population effects 2.Direct loss of caribou habitat 3. Direct disturbance, 4.Facilitated predator access	2016-2021
Whitebark pine	14	Continue communication activities aimed at increasing awareness of, and reducing human-caused impacts on, whitebark pine as outlined in the CoRe Whitebark Pine Conservation Project.	Increased awareness about this species among priority audiences; Reduction of accidental harm/removal of whitebark pine trees,	Harm individuals	2016-2021
Multi-species (including caribou)	15	Identify potential highway crossing mitigations to reduce the threat of wildlife-vehicle collisions.	Highway crossing mitigations appropriate for caribou and other ungulates as well as carnivores are designed and installed by 2030 potentially including: • crossing structures at priority locations in collaboration with partners. • highway infrastructure design that Integrates the needs of wide - ranging high-altitude wildlife species.	1. Direct disturbance 2. Small Population effects	
Multi-species	16	Increase general awareness about species at risk that are found in the park, through interpretive programming, targeted communications, stakeholder engagement and outreach. Communications will support actions to prevent disturbance, disease transmission and potential human-caused mortality.	Increased support and action for SAR conservation and associated management activities. Priority audiences, including park visitors, youth, urban and new Canadians, learn about species at risk found in the parks. Create a Species at Risk Communication Strategy. Support an integrated approach towards increased compliance to prevent habitat degradation and human-caused mortality.	This will be specific to the species knowledge gap or outreach, education and visitor experience action. Addresses habitat loss or degradation; Prevents disturbance or harm (recreational or scientific); Prevents spread of Invasive species (WNS).	2016-2021

Species	Measure #	Measure	Desired outcome	Threat or recovery measure addressed	Timeline
Working together (continued)					
Multi-species	17	Provide timely and effective species-specific communications to target audiences to disseminate knowledge, enhance understanding, promote prevention and ensure compliance with SARA requirements.	Visitor activities are successfully managed to prevent habitat destruction or harm to individuals of a species.	This will be specific to the species knowledge gap or outreach, education and visitor experience action.	2016-2021
Multi-species	18	Indigenous knowledge is incorporated to fill species knowledge gaps. Explore the interests of various Indigenous communities in SAR education and recovery. Collaborate with interested communities on outreach, education and visitor experience actions in mutually agreed upon ways.	Indigenous Knowledge incorporated to fill species knowledge gaps. Increased Indigenous community involvement in the delivery of SAR outreach, education and visitor experience actions	This will be specific to the species knowledge gap or outreach, education and visitor experience action.	2016-2021
Multi-species	19	Parks Canada Staff and Law enforcement continue to collaborate together to promote awareness, compliance, prevent disturbance and enforce infractions to SAR and their habitats.	Parks Canada Staff will continue to actively work to prevent disturbance, destruction or removal of species at risk and their habitats.	Improve species at risk protection and awareness.	2016-2021

Appendix C: 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[5] goals and targets.

Recovery planning is intended to benefit species at risk and biodiversity in general. However, it is recognized that recovery actions 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 MRG. This plan puts into practice recovery goals presented in recovery strategies 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 MRG and 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 park's management plan (Parks Canada, 2010). Consequently activities outlined in this plan address key management priorities aimed at improving the broader ecological health of both sites. Finally, this plan outlines stewardship actions, educational programs, and awareness initiatives that will involve 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.

[5] www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1