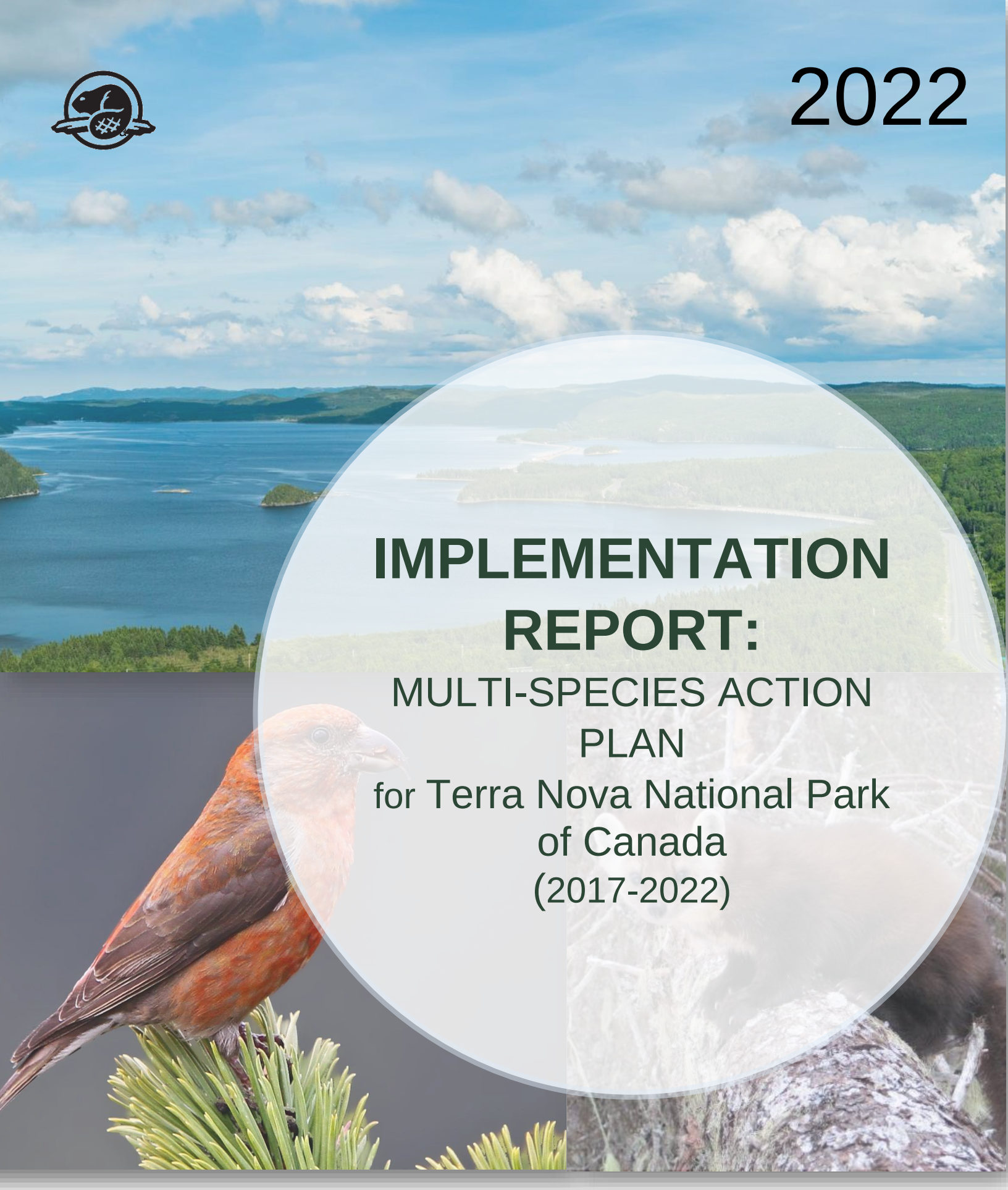
2022

IMPLEMENTATION REPORT:

MULTI-SPECIES ACTION PLAN for Terra Nova National Park of Canada (2017-2022)



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

Photo credits:

Cover: Road to Eastport Peninsula, Eric Laflamme, PCA; Red crossbill (*Percna* subspecies), Christoph Moning (Macaulay Library at the Cornell Lab of Ornithology), Newfoundland marten, T. Mulrooney, PCA. **Recommended citation**: Traytown and Culls Harbour, Eric Laflamme, PCA. **Preface**: Sky box seating at Blue Hill, Eric Laflamme, PCA. **Acknowledgements**: Arches in Barrow Harbour, Dale Wilson, PCA**. Executive Summary**: Blue felt lichen, T. Padgett, Parks Canada Agency (PCA). Context: Iceberg in Swale Tickle, Wayne Lynch, PCA; River at sunset, Dale Wilson, PCA; Cloudy Coastline, Wayne Barrett, PCA; Man Sea Kayaking, Dale Wilson, PCA; Ochre Hill Lookout, Wayne Lynch, PCA; New Trail, Eric Laflamme, PCA; Inukshuk, Eric Laflamme, PCA; South Broad Cove, Eric Laflamme, PCA; Kayaking on Long Island Coastline, Dale Wilson, PCA; Alexander Bay, Eric Laflamme, PCA. **Highlight**: Replant Crew, John Gosse, PCA. **Socio-Economic Impacts**: Kayaking on Long Island Coast, Dale Wilson, PCA; Coastline, Wayne Barrett, PCA.

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[1] http://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

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), action plans outline measures that will be taken to implement recovery strategies for SARA-listed Extirpated, Endangered and Threatened species. Parks Canada's multi-species action plans address a suite of species of conservation concern within one or more Parks Canada managed areas, including species that require an action plan under SARA.

The Minister responsible for the Parks Canada Agency (the Minister of the Environment and Climate Change) is the competent minister under SARA for species found in Terra Nova National Park of Canada, and in 2016 published the Multi-species Action Plan for Terra Nova National Park of Canada.

Under section 55 of SARA, the competent minister must monitor the implementation of an action plan and the progress towards meeting its objectives, and assess and report on its implementation and its ecological and socio-economic impacts five years after the action plan comes into effect. A copy of the report must be included in the Species at Risk Public Registry. The Minister responsible for the Parks Canada Agency has prepared this Implementation Report: Multi-species Action Plan for Terra Nova National Park of Canada (2017-2021).

The achievement of population and distribution objectives identified within the recovery strategy or management plan for a species may require a long time frame. In these cases, a five-year reporting window may not be sufficient to show demonstrable progress towards meeting site-based population and distribution objectives identified for that species within a Parks Canada site-based action plan. Parks Canada monitors, evaluates and, as necessary, adapts measures taken to achieve species survival or recovery, and will report on progress towards meeting site-based population and distribution objectives every five years.

[2] http://www.canada.ca/en/environment-climate-change/services/species-risk-act-accord-funding/protection-federal-provincial-territorial-accord.html

Acknowledgments

Parks Canada would like to acknowledge those who have contributed to implementation of the Multi-Species Action Plan for Terra Nova National Park of Canada.

Terra Nova National Park acknowledges that the land on which we work and gather is the traditional homeland of the Beothuk and Mi'kmaq peoples. We would also like to recognize the Indigenous peoples of Labrador, the Inuit and Innu, and their ancestors, as the original peoples of Labrador.

A number of key partners have contributed to implementation of the multi-species action plan and our improved understanding of these Species at Risk. These include Memorial University, the Government of Newfoundland and Labrador (Department of Environment and Climate Change), Miawpukek First Nation, and Natural Resources Canada (Canadian Forest Service).

Finally, we would like to acknowledge the people who share our ecosystem, including residents of the Terra Nova region, visitors to Terra Nova National Park that observe and document occurrences of species at risk, participants in our annual moose harvesting program that indirectly contribute to forest restoration and the maintenance of wildlife habitat, and the thousands of youth that have taken the time and interest to learn about these vulnerable species and how their actions can contribute to their recovery.

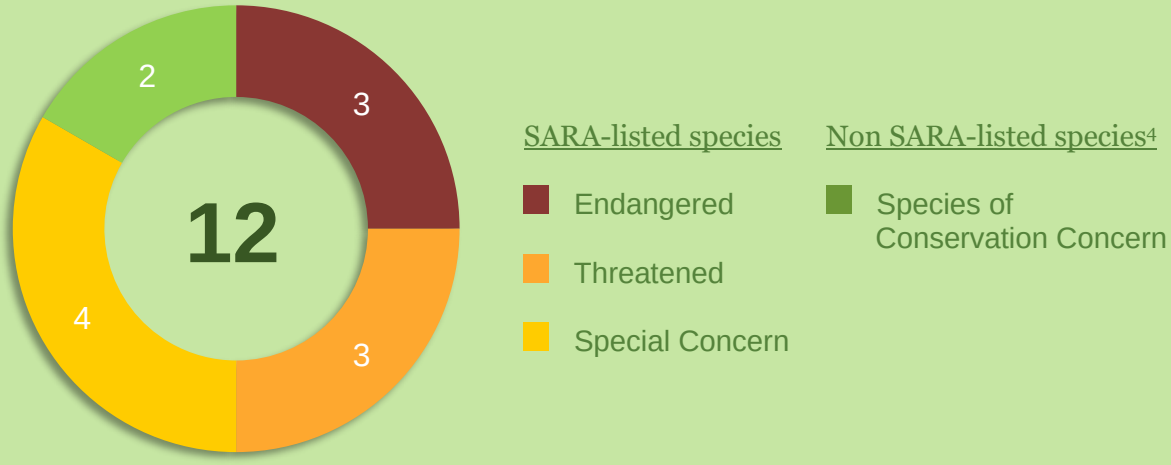
Wela'lioq, Merci, Thank you

EXECUTIVE SUMMARY

This document reports on the implementation of the Multi-species Action Plan for Terra Nova National Park of Canada between 2017 and 2022. It reports on the implementation of measures identified in the plan, assesses progress towards meeting site-based population and distribution objectives, and evaluates socio-economic impacts.

Species Addressed[3]

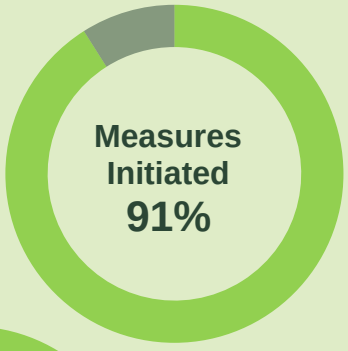
The action plan addressed 10 SARA-listed species and two species of conservation concern. Measures and site-based population and distribution objectives identified within the action plan were focused on 7 species, for which management actions within Terra Nova National Park could have a substantive impact on species survival or recovery: American marten (Newfoundland population), Olive-sided flycatcher, Boreal felt lichen, Blue felt lichen, Little brown *Myotis*, Northern *Myotis*, and Woodland caribou.

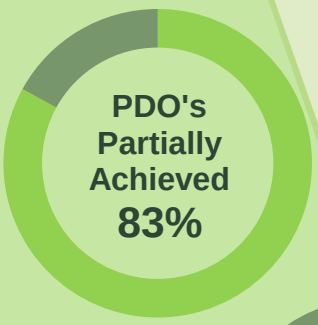


[3] The SARA-listing classifications for the species in this report may differ from the Multi-species Action Plan due to changes made to Schedule 1 of the *Species at Risk Act* since the action plan was published.
[4] Including non SARA-listed species of conservation concern (COSEWIC assessed, provincially listed, culturally significant species) in addition to SARA-listed species provides the Parks Canada Agency with a comprehensive plan for species conservation and recovery at the site.

Implementation of the Action Plan

11 measures (recovery actions) were identified in the multi-species action plan. Implementation of the action plan is assessed by determining progress towards completing each measure, and is outlined in Section 2 of this report. During the five-year period, 10 measures were initiated[5] and 6 were fully completed. An additional 4 measures identified in the action plan were implemented as resources and/or partnerships became available to support the work.



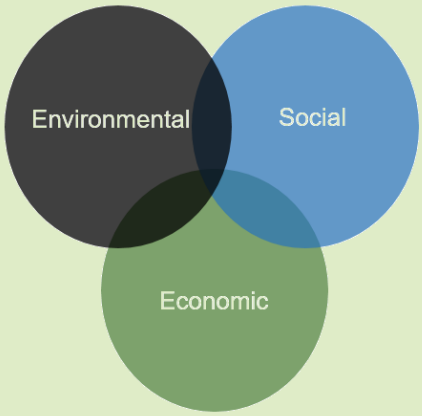


Ecological Impacts

6 site-based, population and distribution objectives (PDOs) were developed in the action plan. Ecological impacts are assessed by measuring progress towards achieving each of the site-based population and distribution objectives and are outlined in section 4. Progress was made on five of these objectives[6] including three that were fully achieved.

Socio-Economic Impacts

Direct costs of implementing this action plan were borne by Parks Canada. Benefits included positive impacts on park ecological integrity, greater awareness of species and enhanced opportunities for engagement.



[5] Includes measures that are 100% completed.
[6] Includes PDOs that are fully achieved.

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1. CONTEXT

This document reports on implementation of the Multi-species Action Plan for Terra Nova National Park of Canada[7] between 2017 and 2022, assesses progress towards meeting population and distribution objectives, and evaluates socio-economic impacts. The action plan includes Terra Nova National Park of Canada (TNNP) as well as the national historic sites (NHS) of Canada within eastern Newfoundland, including Ryan Premises, Hawthorne Cottage, Castle Hill, Signal Hill, and Cape Spear Lighthouse NHS. It addresses 12 species, including 6 SARA-listed Endangered, and Threatened species (for which an action plan is required) as well as 4 SARA-listed Special Concern species[8]. Two other species of conservation concern that were under listing consideration by COSEWIC included Atlantic cod (Newfoundland and Labrador population) and American eel.

Site-based population and distribution objectives were developed for 7 species for which implementation measures within Terra Nova National Park could have a substantive impact on recovery: American marten (Newfoundland population), Olive-sided flycatcher, Boreal felt lichen, Blue felt lichen, Little brown Myotis, Northern Myotis, and Woodland caribou (Newfoundland population).

2. IMPLEMENTATION OF THE ACTION PLAN

Implementation of the action plan for Terra Nova National Park of Canada is assessed by measuring progress towards completing the recovery measures identified in the action plan (Table 1). Refer to the original action plan for a description of each measure, the desired outcomes, and the threats that each measure addresses. A more detailed description of the implementation of the measures is outlined in Appendix A.

In 2020 there were several restrictions put in place at Terra Nova National Park to combat the spread of COVID-19, including temporary restriction of park management activities. This impacted the ability of the park to complete the implementation of some parts of the action plan.

[7] Parks Canada Agency. 2017. Multi-species Action Plan for Terra Nova National Park of Canada and the National Historic Sites of Canada in Eastern Newfoundland. Species at Risk Act Action Plan Series. Parks Canada Agency, Ottawa. iv + 21 pp.
[8] The status of these species may have changed over the reporting period.

Table 1. Progress towards completing recovery measures committed to by Terra Nova National Park (TNNP) (* indicates an ongoing measure that may continue into a future multi-species action plan).

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
1) American marten, Red crossbill, Boreal Felt Lichen, Blue Felt Lichen, Little Brown Myotis, Northern Myotis: Restore boreal forest and species at risk habitat through moose population reduction, prescribed burns, and replanting of target species.	Boreal forest restoration targets are met (i.e., the number of balsam fir (bF) saplings > 30 cm in height is double on all sites by 2018; the number of bF seedlings is increased by 25% in all severely impacted sites by 2018; the proportion of hardwoods browsed is < 20% on all severely impacted sites by 2018; there is 60% survival of planted bF seedlings by 2018).	Our active moose reduction program has had a significant and positive impact on boreal forest regeneration. Balsam fir sapling and seedling density have exceeded the thresholds in column 2 and have continued to increase since 2018. Similarly, the proportion of hardwoods browsed has declined to 12% in 2022 and has met the desired outcome. Finally, the survival of balsam fir seedlings that were planted in a large 8 ha moose exclosure was 95% thus exceeding the 60% survival threshold.	100%*
2) Olive-sided Flycatcher: Increase amount of habitat for Olive-sided Flycatcher through prescribed fire.	Increase the total area of breeding habitat for Olive-sided flycatcher in the park by 500 ha by 2022 (Note the Multi-species Action Plan originally set this timeline to 2018).	Prescribed fires were conducted in 2015 and 2016 and additional burns are scheduled by summer, 2025 (pending review of this program by Resource Conservation staff).	0%
3) American marten, red crossbill, woodland caribou: Explore effectiveness of mitigation	Identified and tested mitigation measures to		

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
methods to reduce amount of road mortality on the Trans Canada Highway (e.g., oversized culverts/underpasses, vegetated zones, road salt alternatives or reductions).	reduce road mortality by 2019. If methods are effective, implement more broadly by 2021.	The use of oversized culverts and walkways by the target species has been evaluated using by remotely triggered trail cameras since 2017 but no occurrences of these species has been detected. However, other low-density, secretive species have been recorded in these structures (e.g. Canada lynx).	100%
4) American marten: Work with partners to reduce accidental trapping in the greater ecosystem by increasing use of modified trapping and snaring techniques that comply with provincial regulations.	Complete compliance of trappers in using modified snaring and trapping by 2021. This will be achieved through education sessions, public messaging to key audiences.	Compliance checks in collaboration with Provincial conservation officers was not performed because of covid-19 related restrictions. Some interaction with trappers and Parks Canada staff occurred during monitoring work in the greater ecosystem. Public messaging on best management practices has been delivered through the annual NL Hunting and Trapping Guide.	30%
5) Boreal felt lichen, blue felt lichen: Conduct a comprehensive inventory to determine the distribution of rare lichens in TNNP through modelling and field surveys in collaboration with partners.	Inventory completed and distribution of rare lichens documented by 2021.	Extensive coverage of the park, the discovery of new target species, and the development of protocols and a field-guide for identifying rare lichens in TNNP was completed by 2019. The field-guide as been translated from English to Mi'kmaq. In addition, we completed two training and field surveys with Miawpukek First Nation and Natural Resources Canada in 2019 and 2020. However, covid-19 related restrictions, a lack of experienced staff and competing priorities has limited this effort over the past 3 years.	30%*
6) Boreal Felt Lichen, Blue Felt Lichen: Develop and implement best management practices (BMP's) in collaboration with regional partners to	Park-specific BMP's are developed and implemented by 2018. Known and potential boreal and blue felt lichen sites are protected through the	A BMP document for lichen species at risk was developed by resource conservation staff in 2019. This document is frequently applied to ongoing operations in TNNP to minimize disturbance to these species and their habitat.	100%

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
avoid disturbance to lichens and their habitat.	application of best management practices.		
7) Woodland Caribou: Develop and implement best management practices to limit disturbance to caribou and their habitat.	Park-specific BMP's are developed by 2018. Potential disturbance and impact to caribou and their habitat is mitigated through the application of BMP's.	A BMP document for woodland caribou was developed in 2019.	100%
8) Little brown myotis, northern myotis: Implement the North American Bat Monitoring Program to determine the occurrence and distribution of bat SAR in TNNP.	Increased understanding of the distribution, relative abundance, and general habitat use of bat SAR in TNNP.	This continent-wide bat monitoring program was implemented in 4 of the 5 survey years and data was subsequently processed. Surveys did not occur in 2020 because of covid-related restrictions. A follow up report on survey results is required.	80%*
9) Little brown myotis, northern myotis: Develop and implement BMP's to protect roosts, individuals and potential critical habitat in TNNP and the National Historic Sites. Implement decontamination protocols as required to prevent the spread of white-nosed syndrome.	Potential impacts to bats are mitigated through the application of BMP's.	Site-specific BMP's have not been developed for TNNP or the National Historic Sites; however, we have adopted the Canadian Wildlife Health Cooperative's Best Management Practices for the management of maternity roosts in buildings (McBurney 2018). A secondary intent was to develop protocols for decontaminating built assets as a measure to prevent the spread of white-nose syndrome. A formalized BMP has not yet been developed for this component, however, Safe Work Practices have been approved and will allow for safe and effective inspections of buildings.	50%
10) Little Brown Myotis, Northern Myotis: Deliver outreach and education to	Increased awareness and understanding of bat conservation issues and	Sixty-three presentations were delivered by ~~Visitor Experience and External Relations~~ staff to school children and community groups from 2017-2022.	100%*

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
the public on the importance of maintaining maternity roosts and hibernacula and the consequences of WNS. Encourage broader implementation of BMPs and decontamination and monitoring protocols.	enhanced contribution to their protection and recovery.	Total attendance at these presentations was 2,727 individuals.	
11) Little brown myotis, northern myotis: Obtain dark sky preserve status for TNNP.	Dark Sky Preserve certification is achieved through the Royal Astronomical Society of Canada by 2018.	TNNP was designated as a Dark Sky Preserve in February 2018 by the Royal Astronomical Society of Canada. As part of this program, Terra Nova is committed to protecting the nocturnal environment for endangered bat species and other wildlife.	100%

Additional measures were identified in the action plan that would be beneficial to complete should resources become available. Table 2 describes the actions that Terra Nova National Park was able to initiate between 2017 and 2022. Measures from the action plan that were not initiated will be carried forward for consideration in a revised action plan.

Table 2. Progress towards completing additional recovery measures implemented because partnerships and/or resources became available (progress is influenced by the amount of funding / support received); * indicates an ongoing measure that may continue into a future action plan.

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
13) Red crossbill: Continue to monitor the occurrence of red crossbill during winter using vocalization playback surveys.	Increased understanding of the distribution and relative abundance of red crossbills in TNNP.	Winter surveys using vocalization playbacks for red crossbills at 40 point count stations were conducted annually (excluding 2020; covid-19 restrictions).	100%*
Measure 1 (Appendix D of the multi-species action plan) All species. Develop & implement a media strategy.	At least one media story is produced to highlight species at risk in TNNP each year.	One story dedicated to American marten (Newfoundland population) recovery efforts in TNNP. A comprehensive media strategy has not been developed.	20%
Measure 2 (Appendix D of the multi-species action plan) All species. Provide species at risk information throughout TNNP.	Park visitors learn about species at risk through personal programming (e.g., guided hikes, animated programs, interpretive stations) and non-personal media (e.g., interpretive panels, website content, social media platforms).	The delivery of personal, non-personal and outreach programming focused on all species at risk (all years excluding 2020; covid-19 restrictions). Examples includes a guided night watch focused on bat SAR, step-on bus tours highlighting the ecology of woodland caribou, and the development of a new video	100%

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
		for the Visitor Centre focusing on local species at risk.	
Measure 3 (Appendix D of the multi-species action plan) All species. Engage local communities, NGOs and stakeholders in species at risk recovery.	Relationships with local communities, NGOs and stakeholders are maintained and developed.	In 2019, TNNP co-hosted a best management practices workshop with local resource users in an effort to reduce incidental mortality of marten. TNNP has also provided advice to local communities on how to deal with bats in buildings and other structures. Additional opportunities to meet with local groups in a live forum were limited by the Covid-19 pandemic.	50%*

3. ACTION PLAN HIGHLIGHT: Restoration of Balsam Fir

Balsam fir is one of the dominant conifer species in Terra Nova National Park but has experienced a long-term decline in its' abundance due to chronic browsing by non-native moose and seed depredation by red squirrels (also non-native). Balsam fir is the primary host species for boreal felt lichen so its gradual decline has limited the capacity for this unique arboreal lichen to persist on the landscape.

Moose management has been ongoing in TNNP since 2011 and involves a carefully controlled harvest that closely models the hunting approach used across the province of NL. Moose numbers have been successfully reduced to ecologically sustainable levels and the rebound of balsam fir and other forage species has been significant. Vegetation monitoring has revealed an ongoing trend of higher sapling density and the spatial extent of impacted species. In the most severely impacted areas, active planting of over 10,000 seedlings by the not-for-profit organization Replant Environmental Inc. (shown here) has helped expedite the recovery process.

Though the full recovery of this slow-growing conifer will take decades to occur, the stage has been set for this process to unfold. This will likely have long-term and positive implications for not only boreal felt lichen, but for other species that require structurally diverse forests such as Newfoundland marten, Olive-sided flycatcher, Little brown myotis and Northern myotis.

4. ECOLOGICAL IMPACTS

Ecological impacts of the action plan are assessed by measuring progress towards meeting the site-based population and distribution objectives described in the action plan (Table 3). See the original action plan for national Population and Distribution Objectives (where available) and General Information and Broad Park Approach for each species. A more detailed description of progress made towards the site-based population and distribution objectives for these species is outlined in Appendix B.

Table 3. Progress towards achieving site-based population and distribution objectives for species at risk in Terra Nova National Park of Canada

Species	Site-based population & distribution objectives	Population monitoring	Progress towards site-based population and distribution objectives	Progress (% achieved)
American marten (Newfoundland population)	Maintain existing marten population in TNNP (i.e., catch per unit effort of at least 2.59 captures/100 trap nights), with stable or increasing trend over time.	Marten abundance is assessed annually using a systematic mark recapture survey along a consistent route. Trapped individuals are instrumented with PIT tags for future re-sighting.	Marten have been monitored on an annual basis (excluding 2020) and have exceeded the catch per unit threshold of 2.59 captures/100 trap nights. Marten are well established and stable within the park and have expanded their distribution and abundance across the adjacent landscape. COSEWIC has recommended changing the status of this species from Threatened to Special Concern as a result of this improving trend across insular Newfoundland.	100%

Species	Site-based population & distribution objectives	Population monitoring	Progress towards site-based population and distribution objectives	Progress (% achieved)
Olive-sided flycatcher	Increase the total area of breeding habitat for Olive-sided flycatcher in the park by 100 ha/year using prescribed fire.	Prescribed burn areas and vegetation land cover are mapped every five years to track the increase in suitable habitat for Olive-sided Flycatcher. Breeding bird point count surveys are conducted in post-burn areas to detect Olive-sided Flycatcher occurrence. Monitoring could be implemented in other suitable habitat.	Prescribed fires are scheduled to occur by 2025. Our ability to conduct prescribed fires over the past three seasons was ~~also~~ limited by the Covid-19 pandemic.	0%
Boreal felt lichen (Boreal population)	Maintain occupancy and enhance current geographic distribution of Boreal felt lichen in TNNP.	Known sites are surveyed annually to confirm occupancy. Suitable habitat will be identified using predictive models and surveyed for additional occurrences in the future.	Known sites were re-surveyed in three of the 5 years (2018, 2019 and 2022) but were not visited during two years in which Covid-19 restrictions were in place. Planning is underway to conduct additional surveys in autumn, 2022.	60%

Species	Site-based population & distribution objectives	Population monitoring	Progress towards site-based population and distribution objectives	Progress (% achieved)
Blue felt lichen	Maintain occupancy and enhance current geographic distribution of Blue felt lichen in TNNP.	Known sites are surveyed annually to confirm occupancy. Suitable habitat will be identified using predictive models and surveyed for additional occurrences in the future.	Extensive field surveys in 2019 yielded an additional 429 occurrences of this species in addition to the several that were previously recorded. Additional surveys will occur in autumn 2022.	100%
Little brown myotis, Northern myotis	Maintain occupancy in TNNP and national historic sites in Eastern Newfoundland	Ultrasonic acoustic surveys are conducted annually along a fixed transect according to North American bat monitoring protocols to detect species presence and distribution. NHS are opportunistically monitored for species presence.	Occupancy surveys following NABat protocols have confirmed the occurrence of bat species in TNNP from 2017-2022 (excluding 2020/2021: Covid-19 restrictions). The specific ratio of Little brown myotis and Northern myotis is pending the analysis of acoustic data. The occurrence of these species at the National Historic Sites is less known and is based on incidental observations only.	75%

Species	Site-based population & distribution objectives	Population monitoring	Progress towards site-based population and distribution objectives	Progress (% achieved)
Woodland caribou (Newfoundland population)	Maintain occupancy in TNNP	Aerial surveys are conducted to determine distribution and abundance of caribou within TNNP.	Woodland caribou occurrences were recorded during annual moose population surveys and confirmed occupancy. Additionally, 10 female caribou were outfitted with satellite collars in 2020 from which ~30,000 individual locations were obtained.	100%

5. SOCIO-ECONOMIC IMPACTS

The *Species at Risk Act* requires the responsible federal minister to report on the socio-economic costs of the multi-species action plan and the benefits derived from its implementation. The MSAP only applies to protected lands and waters under the authority of the Parks Canada Agency, which are often subject to fewer threats (e.g., industrial activities) compared to other areas as the lands are managed to preserve ecological and commemorative integrity. This section does not include socio-economic impacts of existing permitted activities that may be occurring in Parks Canada places as those have been addressed through other processes (e.g.: impact assessments). This socio-economic assessment is narrow in scope, as it is focused on the measures implemented within the action plan, and primarily focuses on Indigenous partners, licensees, residents and visitors. The overall socio-economic impacts of the multi-species action plan for Terra Nova National Park, described as costs and benefits, are outlined below.

Costs

The majority of costs to implement this action plan was 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 Appendix B (Recovery measures that will be conducted by Terra Nova National Park)

and Appendix C (Other recovery measures that will be encouraged through partnerships or when additional resources become available) of the action plan. No major socio-economic costs to partners, stakeholders or Indigenous groups were incurred as a result of this action plan. Additional resources and partnership was provided by Miawpukek First Nation, Natural Resources Canada (Canadian Forest Service), Intervale Associates, and the Government of Newfoundland and Labrador (Department of Environment and Climate Change).

Action plan measures were integrated into the operational management of Terra Nova National Park. These costs to the Parks Canada Agency were covered by prioritization of existing funds and salary dollars and did not result in additional costs to society.

The action plan applies only to lands and waters in Terra Nova National Park, and did not bring any restrictions to land use outside the national park. As such, this action plan placed no extraneous socio-economic costs on the public.

Benefits

Measures presented in this action plan for Terra Nova National Park contributed to meeting recovery / population and distribution objectives for Threatened and Endangered species, and also contributed to meeting management objectives for species of Special Concern. The measures sought a balanced approach including the indirect restoration of species at risk habitat through Conservation and Restoration projects (e.g., moose management, prescribed fire and supplemental planting), the reduction of incidental mortality of marten in areas adjacent to TNNP, and increasing public awareness and stewardship through visitor programs and social media outreach.

Implementing this action plan had positive benefits for park visitors, local residents, and Indigenous groups. A public workshop co-hosted by Parks Canada and Intervale Associates provided an opportunity for local resource users to receive updates on the status and distribution of Newfoundland marten in the TNNP area and to receive hands-on training of how to use modified snaring and trapping devices that had been developed and required for use by the Province of NL. This gathering also facilitated the exchange of information between local citizens and Parks Canada and provided new information on the occurrence of marten in the region that had previously been unknown.

Benefits to Canadians were also realized through the delivery of interpretive programs to school-aged children that focused on the ecological value of bat species and ways of co-existing with this often misunderstood species group. Sixty-three presentations were delivered with attendance of well over 2,000 participants. This bat outreach program also enabled children and adults to construct their own bat boxes which can be used throughout the province to enhance bat populations and deter them from using other infrastructure where they may become problematic. Finally, partnerships were strengthened between Parks Canada and Miawpukek First Nation as multiple field excursions to search for lichen species at risk were conducted in both TNNP and Conne River.

Potential economic benefits of the recovery of the species at risk found in Terra Nova National Park 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.

Summary

The measures proposed in the action plan had limited socio-economic impact and placed no restrictions on land outside the boundary of the national park. Direct costs of implementing this action plan were borne by Parks Canada. Indirect costs were minimal while benefits included positive impacts on park ecological integrity, greater awareness of species and enhanced opportunities for engagement of visitors, local communities and Indigenous groups.