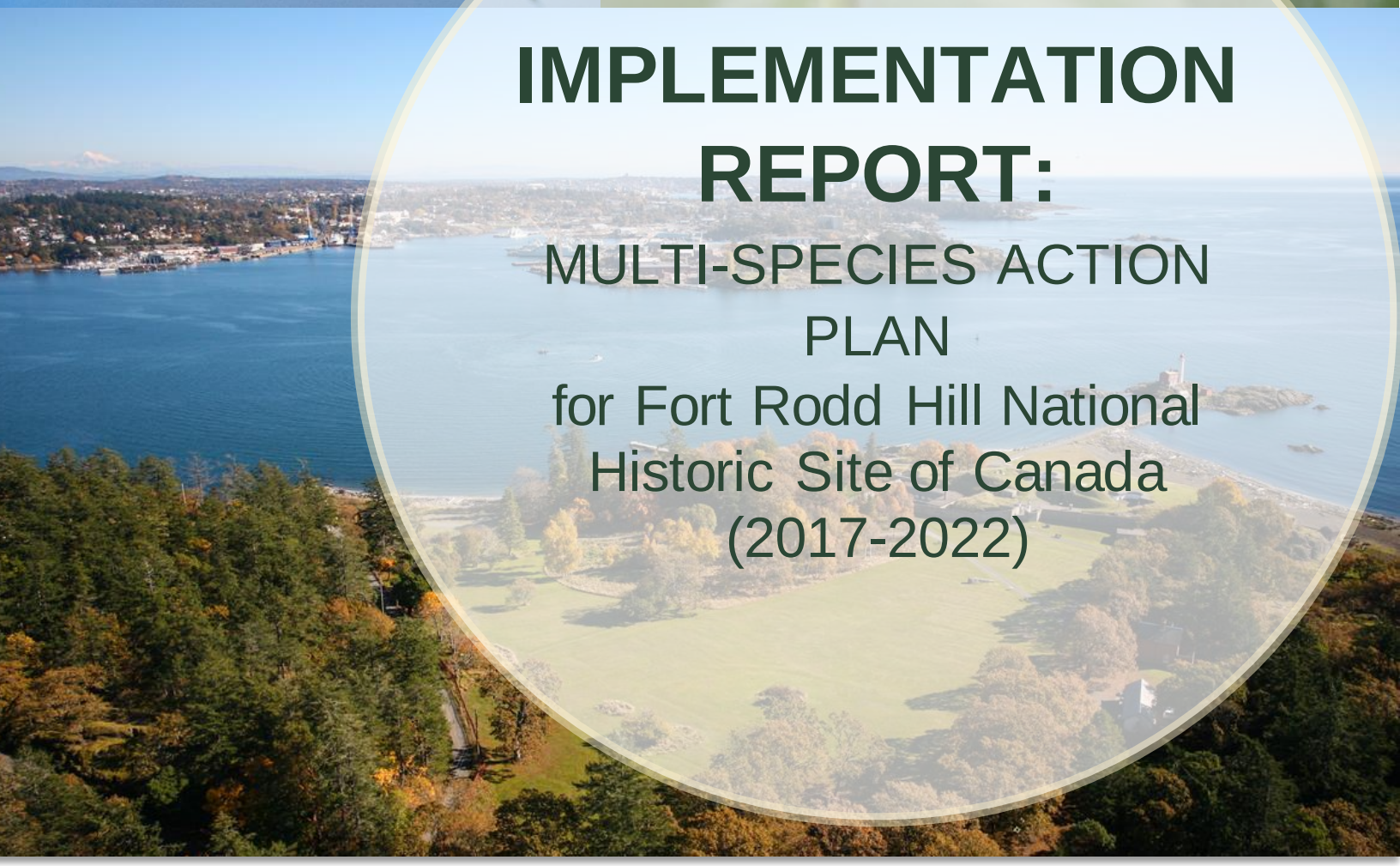
2022

IMPLEMENTATION REPORT:

MULTI-SPECIES ACTION PLAN for Fort Rodd Hill National Historic Site 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 (listed clockwise from top right):

Cover: Deltoid Balsamroot, Parks Canada Agency (PCA); Aerial view of Fort Rodd Hill and Fisgard Lighthouse National Historic Sites of Canada (FRHFLNHS), PCA; Barn Swallow, W. Lynch. **This page:** Aerial view of FRHFLNHS, PCA. **Page i**: Barn Swallow nest with nestlings, PCA. **Page ii**: Camas, PCA. **Page iii**: Monitoring Deltoid Balsamroot, F. Mueller. **Page 1:** (left to right) Entrance to the Garry Oak Learning Meadow, Fort Rodd Hill National Historic Site, S. Munn; Golden Paintbrush, F. Mueller; Interpretative sign showcasing Deltoid Balsamroot, FRHNHS, S. Munn; Aerial view of FRHFLNHS, PCA; Great Blue Heron, N. Boisvert; Sea Blush blooming in the Conservation Nursery, FRHNHS, F. Mueller; Garry Oak tree and playful youth, C. Stewart; Conservation Nursery, FRHNHS, F. Mueller; Ocean views at FRHNHS, S. Munn. White-top Aster, PCA. **Page 10**: Cheryl Bryce (Songhees Knowledge Holder) with Camas bulbs, PCA. **Page 13**: (left to right) Volunteer in the Garry Oak Learning Meadow, F. Mueller; Interpretation in the Garry Oak Learning Meadow, F. Mueller; Volunteers in the Garry Oak Learning Meadow, F. Mueller. **Page 14:** Conservation Nursery, FRHNHS, F. Mueller; **Page 15**: Macoun's Meadowfoam, 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 Fort Rodd Hill National Historic Site of Canada, and in 2017 published the Multi-species Action Plan for Fort Rodd Hill National Historic Site 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: Fort Rodd Hill National Historic Site of Canada (2017-2022).

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 the implementation of the Multi-species Action Plan for Fort Rodd Hill National Historic Site of Canada.

Fort Rodd Hill National Historic Site is within the homelands of the Songhees and Esquimalt Nations, and the lands and waters around Fort Rodd Hill are an ecologically, culturally and spiritually important place for these Indigenous communities. Acknowledging the impact of colonialism on Indigenous peoples and their connection to traditionally used lands is a critical part of healing and taking a step toward reconciliation.

There are a number of keys partners who have contributed to the implementation of the Multi-species Action Plan Fort Rodd Hill National Historic Site and our improved understanding of species at risk at the site. Thanks are extended to - Capital Regional District, City of Colwood, City of Victoria Parks, District of Metchosin, District of Saanich, Esquimalt Lagoon Stewardship Initiative, Garry Oak Ecosystems Recovery Team, Habitat Acquisition Trust, Islands Trust, Nature Conservancy of Canada, Oak Bay Parks, Pollinator Partnership Canada, Satinflower Nurseries, Swan Lake Christmas Hill Nature Sanctuary, Victoria Natural History Society, and the many academic institutions and volunteers that supported conservation actions at Fort Rodd Hill National Historic Site of Canada.

In addition, we would like to acknowledge the people who share our ecosystem, from those landowners who are stewards on their land, protecting critical habitat and supporting native species, to beach-goers who give space to the Great Blue Heron to hunt. It is only through our combined efforts and collaboration that the recovery of these species is possible.

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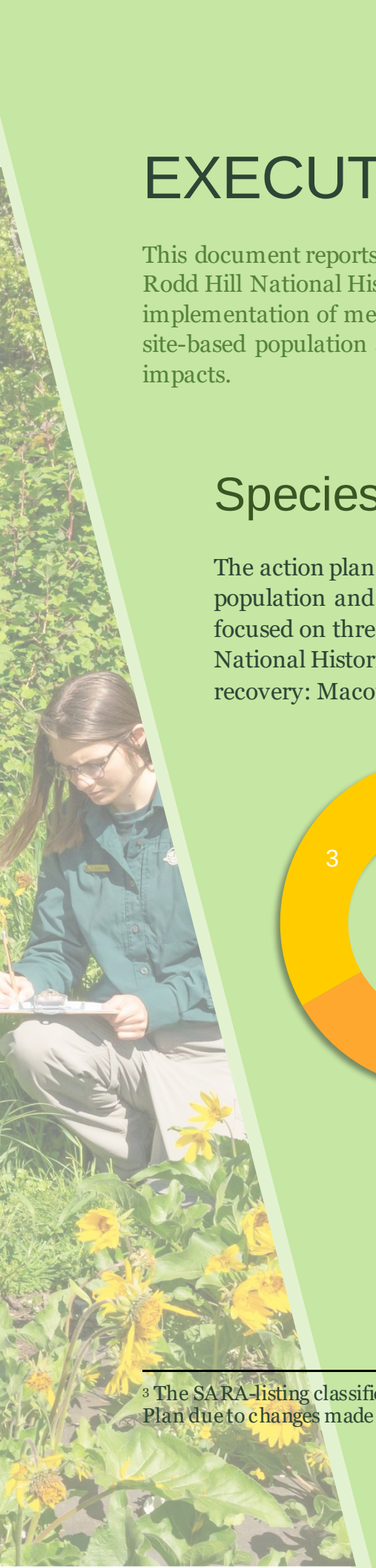
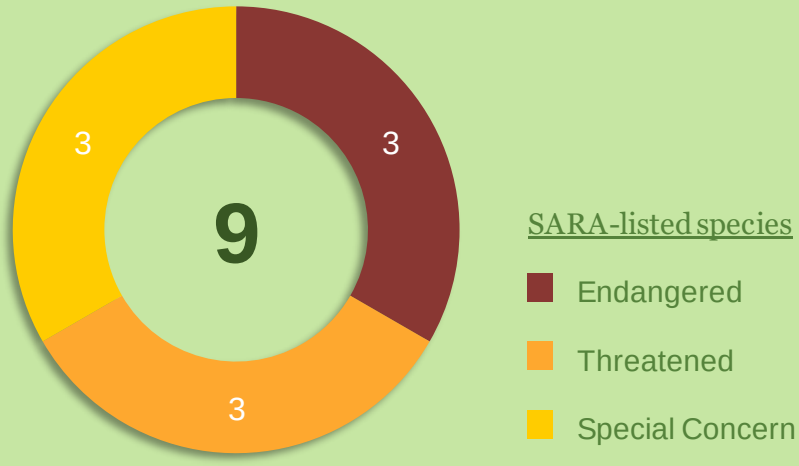


EXECUTIVE SUMMARY

This document reports on implementation of the Multi-species Action Plan for Fort Rodd Hill National Historic Site of Canada between 2017 and 2022. It reports on 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 nine SARA-listed species. Measures and site-based population and distribution objectives identified within the action plan were focused on three species, for which management actions within Fort Rodd Hill National Historic Site could have a substantive impact on species survival or recovery: Macoun's Meadowfoam, Deltoid Balsamroot, and Barn Swallow.



[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.

Implementation of the Action Plan

7 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, all seven measures were initiated[4] and all seven were completed. As resources and/or partnerships became available to support the work, an additional six measures identified in the action plan were completed.

Measures Initiated 100%[4]

Measures Completed 100%

Ecological Impacts

3 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. All three objectives[5] were fully achieved.

PDOs Partially Achieved 100%[5]

PDOs Fully Achieved 100%

Socio-Economic Impacts

Direct costs of implementing this action plan were borne by Parks Canada. Indirect costs were minimal, mainly through visitor restrictions to certain areas of the site to protect Macoun's Meadowfoam. Benefits included positive impacts on the natural environment of the site, greater awareness of species, and enhanced opportunities for engagement.

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

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1. CONTEXT

This document reports on implementation of the Multi-species Action Plan for Fort Rodd Hill National Historic Site of Canada[6] between 2017 and 2022, assesses progress towards meeting its population and distribution objectives, and evaluates its socio-economic impacts. It addresses nine species, including six SARA-listed Extirpated, Endangered, and Threatened species (for which an action plan is required) as well as three SARA-listed Special Concern species[7]. Some management actions were also taken to support a Kwetlal (camas) food system within the historic site as part of this action plan. Camas is a culturally important species for the Lekwungen people, known today as the Songhees and Esquimalt Nations.

Site-based population and distribution objectives were developed for three species for which implementation measures within Fort Rodd Hill National Historic Site could have a substantive impact on recovery: Macoun's Meadowfoam, Deltoid Balsamroot, and Barn Swallow.

2. IMPLEMENTATION OF THE ACTION PLAN

Implementation of the Multi-species Action Plan for Fort Rodd Hill National Historic Site 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.

In 2020, COVID-19 restrictions put in place at Fort Rodd Hill National Historic Site impacted the implementation of some measures of the action plan, including some outreach and education activities (i.e., volunteer events, in-person interpretation) that could not be undertaken.

[6] Parks Canada Agency. 2017. Multi-species Action Plan for Fort Rodd Hill National Historic Site of Canada. Species at Risk Act Action Plan Series. Parks Canada Agency, Ottawa. iv + 18 pp.
[7] The status of these species may have changed over the reporting period.

Table 1. Progress towards completing recovery measures committed to by Fort Rodd Hill National Historic Site (* 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) Macoun's Meadowfoam (Visitor awareness and compliance) One or more of interpretive signage, fencing, social engineering (letting grass grow tall as barrier) or strategic native plantings, and adding trail routing (e.g., beach access) to educate visitors and direct them away from sensitive habitats for Macoun's Meadowfoam.	Fewer visitors inadvertently walking through and trampling the Macoun's Meadowfoam site at Gotha Point.	Trail diversions and alternative pathways around the Macoun's Meadowfoam site at Gotha Point have been installed. This has resulted in fewer visitors inadvertently walking through and trampling the Macoun's Meadowfoam site at Gotha Point.	100%
2) Deltoid Balsamroot and Macoun's Meadowfoam (Genetic banking) Banking of genetic material (e.g., seed, tissue) in an appropriate facility.	Genetic banking is one element in an integrated approach to recovery of plant species at risk. The stored material will provide a safeguard against local population and genetic diversity loss and offers the opportunity to conserve	Seed for both species has been sent to the Gosling Research Institute for Plant Preservation at the University of Guelph. Seed is also stored in the short term at Fort Rodd Hill National Historic Site.	100%

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
	genetic resources and provide appropriate genetic material, if needed, for reintroduction programs or reinforcement of endangered populations.		
3) All (Habitat conservation) Removal of priority non-native invasive species (e.g., Scotch Broom, Daphne-laurel, Himalayan Blackberry, English Ivy, English Holly, Canada Thistle, Burr Chervil) within the immediate vicinity (20m radius) of rare plant populations.	Reduce the amount of priority invasive alien plants in areas targeted for management to benefit plant species at risk.	Removals of priority non-native invasive species within 20m of rare plant populations was completed annually.	100%*
4) Barn Swallow (Fill knowledge gaps) Installation of artificial breeding sites.	Survey of preferred breeding habitat and installation of artificial breeding sites at prime locations.	Artificial ledge installation was completed in 2018. Three stand-alone nesting structures were completed in 2020. These new artificial breeding structures and existing nesting habitat have been surveyed annually.	100%
5) Barn Swallow (Population recovery)	Improve nesting opportunities to support the Barn Swallow population at Fort Rodd Hill National Historic Site.	Artificial breeding sites have been utilized, maintained and monitored annually.	100%*

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
Regular maintenance of artificial breeding sites and monitoring breeding success.			
6) A variety of species at risk (Knowledge gathering) (1) Work with partners to fill knowledge gaps for species at risk found within Fort Rodd Hill National Historic Site. (2) Support inventory and research on species at risk. (3) Prioritize knowledge gaps and add to research priorities. (4) Record incidental observations of rare species and species at risk.	Improved information to support species at risk management at Fort Rodd Hill National Historic Site. For example, Bioblitz events will continue to be encouraged. New species at risk information gained will help Parks Canada continue to deliver on its role as a national conservation leader and foster sound stewardship of species at risk dependent on Fort Rodd Hill National Historic Site.	(1) Collaborated with many organizations to fill knowledge gaps for species at risk (e.g., Victoria Natural History Society - annual Christmas Bird Count at Fort Rodd Hill National Historic Site). (2) Hosted Bioblitz events in 2017 and 2018. Promoted annually to citizen scientists an iNaturalist.ca project for Fort Rodd Hill National Historic Site. (3) Examined knowledge gaps regarding pollinator ecology, germination requirements and seed longevity for a variety of coastal sand and Garry Oak associated plant species at risk in the Garry Oak Learning Meadow. (4) Recorded incidental observations of rare species and species at risk including Great Blue Heron, Band-tailed Pigeon, Olive-sided Flycatcher, Little Brown Bat and new observations for Wandering Salamander (Special Concern) and Western Bumble Bee (COSEWIC status threatened).	100%*
7) Species at risk in general	Information is available to visitors to encourage stewardship and increase awareness of species at risk.	A diverse suite of non-personal media (e.g., interpretive signs, brochures, Xplorers booklets) with information about species at risk and rare ecosystems was available to	100%*

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
(Species at Risk Interpretive Program) Provide species at risk and rare ecosystem interpretive information to visitors at Fort Rodd Hill. Site visitors learn about species at risk and rare ecosystems through a diverse suite of non-personal media. Personal interpretation of species at risk and rare ecosystems offered if project or other resources are available.		visitors annually at Fort Rodd Hill National Historic Site. New interpretive signs featuring information about Little Brown Bats and Barn Swallows were installed at Fort Rodd Hill National Historic Site in 2019. In addition, smaller signs indicating active Barn Swallow nesting sites were installed at Fort Rodd Hill National Historic Site in 2019. Personal interpretive programming about species at risk and rare ecosystems was offered at Fort Rodd Hill National Historic Site annually with the exception of 2020 due to COVID-19 restrictions.	

Additional measures were identified in the action plan that would be beneficial to complete should resources become available. Table 2 describes the actions that Fort Rodd Hill National Historic Site was able to initiate between 2017 and 2022.

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)
8) Deltoid Balsamroot (Population recovery) (1) Assisted pollination of existing population to increase seed set. (2) Collection of seed and propagation of seedlings. (3) Outplanting of seedlings into suitable habitat at Fort Rodd Hill National Historic Site. (4) Monitoring and protection of outplants. (5) Supplemental watering as necessary through dry season.	Improved vigour and increased population size at Fort Rodd Hill National Historic Site.	Through assisted pollination, seed collection and propagation, outplanting, monitoring and supplemental watering (as necessary), the number of flowering (mature) plants has increased from 2 to 16 (with an additional 149 juvenile plants across Fort Rodd Hill National Historic Site lands). Deltoid Balsamroot takes approximately seven years to reach maturity and flower.	100%*
9) All (Habitat conservation) (1) Management of priority non-native invasive species (e.g., Scotch Broom, Daphne-laurel, Himalayan Blackberry, English Ivy, English Holly) in priority sites across all lands managed by Parks Canada at Fort Rodd Hill National Historic Site beyond the immediate vicinity of rare plant locations.	Improved ecosystem processes and services in Garry Oak and associated ecosystems at Fort Rodd Hill National Historic Site and maintenance of suitable habitat for rare species expansion/augmentation.	(1) Removals of priority non-native species in priority sites (e.g., Garry Oak ecosystems) was completed annually with the exception of 2020 due to COVID-19 restrictions. (2) Herbivore exclusion fencing was maintained in priority sites.	91%[8]*

[8] Removals of priority non-native species in priority sites were not completed in 2020 due to COVID-19 restrictions.

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
(2) Deer fence maintenance in priority sites.			
10) All (Habitat conservation) Management of resident (non-native) Canada Goose population in priority sites across all lands managed by Parks Canada at Fort Rodd Hill National Historic Site.	Habitat conservation for all native species in coastal areas. Macoun's Meadowfoam protection, and improved visitor experience.	Active intervention of breeding resident (non-native) Canada Geese was only required in 2020 and 2021 due to their proximity to Macoun's Meadowfoam.	100%
11) Species of translocation interest (Population recovery) (1) Lead by example on conservation initiatives of national importance by serving as a recipient site for experimental translocations of suitable species at risk, in accordance with national recovery goals (such as Seaside Birds-foot Lotus and White-top Aster). (2) The Conservation Nursery in the Garry Oak Learning Meadow will allow testing of propagation methods and produce stock for experimental translocations at Parks Canada locations in coastal British Columbia, including Pacific Rim National Park Reserve, Gulf Islands National Park Reserve, and	(1) Suitable habitat provided for experimental translocations of plant species at risk, and (2) Stock of species at risk produced in the Garry Oak Learning Meadow will be translocated to at least one other PCA site in the region. This action contributes to national SARA conservation objectives for federally listed species at risk, meets Parks Canada's mandate for environmental leadership, and will educate and inspire visitors with our work on Canada's most vulnerable species.	(1) Experimental translocations were conducted in four locations at Fort Rodd Hill National Historic Site for Seaside Birds-foot Lotus and White-top Aster. White-top Aster transplants continue to persist while Seaside Birds-foot Lotus transplants have perished likely due to drought. (2) Seed produced in the Conservation Nursery has supported conservation projects in Gulf Islands National Park Reserve (e.g., coastal sand ecosystem conservation including population augmentation of Contorted-pod Evening-primrose (endangered) and Silky Beach Pea (threatened)).	100%*

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
Fort Rodd Hill National Historic Site.			
12) Species at risk in general (Species at Risk Media Program) (1) Engage Canadians through social media (primarily urban and young Canadians) and traditional media. (2) Pitch at least one regional media story per year highlighting species at risk at Fort Rodd Hill National Historic Site.	Increased awareness of Parks Canada places and our lead national conservation role in species at risk and rare ecosystem recovery. The public is inspired to support natural resource conservation, including the recovery of species at risk.	Educational content about species at risk and rare ecosystems was shared with Canadians through social media and website content annually.[9] In 2020, Parks Canada partnered with Pollinator Partnership Canada and other local conservation groups to produce a series of webinars focused on pollinator stewardship that features the conservation work undertaken at Fort Rodd Hill National Historic Site to protect and restore rare species and ecosystems. Worked with TVO Kids to develop two episodes of Leo's Pollinators and three webisodes for their What's the Buzz series engaging youth nationally. Produced an educational video about the Garry Oak Learning Meadow that highlights its	83%

[9] A regional media story highlighting species at risk at Fort Rodd Hill National Historic Site was not pitched annually however as highlighted in "progress towards outcome" other media forums were used to increase awareness.

Species and measure	Desired outcome	Progress towards outcome	Progress (% complete)
		importance as a traditional food system for local First Nations. The video is hosted on Parks Canada's YouTube channel[10] and the Fort Rodd Hill and Fisgard Lighthouse National Historic Sites website. In 2018, a regional media story covered a traditional Coast Salish pit cook hosted at Fort Rodd Hill National Historic Site. Camas bulbs for the pit cook were harvested from the Garry Oak Learning Meadow.	
13) Species at risk in general (Volunteer and partner support of the Species at Risk Program) Activities include removal of invasive species, tending restoration sites, assisting with native plant nursery operation, and assisting with plant species at risk propagation and monitoring.	Over 100 hours of volunteer support provided for Garry oak ecosystem and associated species at risk recovery at Fort Rodd Hill National Historic Site. Increased awareness of Parks Canada places and our lead national conservation role in species at risk and rare ecosystem recovery. The public are inspired to support natural resource conservation, including the recovery of species at risk.	Between 2017 and 2022, over 2000 volunteers contributed 6,300 hours towards support of habitat restoration and species at risk recovery at Fort Rodd Hill National Historic Site. Volunteer activities included removal of non-native invasive species, tending restoration sites, assisting with Conservation Nursery operation including plant propagation and monitoring.	100%*

[10] https://www.youtube.com/watch?v=JeWX9d_4PEg

3. ACTION PLAN HIGHLIGHT: Sharing Seeds, Plants, and Knowledge

Fort Rodd Hill National Historic Site is home to the Garry Oak Learning Meadow, a fenced area within the site where Parks Canada staff and hundreds of volunteers have restored one of the rarest ecosystems in Canada (Garry Oak ecosystem). Within the meadow is a nursery where Parks Canada staff propagate native plants, species at risk, and culturally important plants—such as Camas lilies. The Lekwungen people have cultivated the Garry Oak ecosystem for thousands of years to grow Camas lilies for their edible bulbs.

Thanks to the dedication of Parks Canada staff and volunteers, the Conservation Nursery is now very productive with native and culturally important plants. This enables staff to share seeds and plants with partners and collaborators. Annually, the nursery has the capacity to share propagative material for roughly 100 native species. Additionally, culturally important plants have been gifted during events to give thanks to First Nations individuals and communities for sharing their knowledge and time.

In 2018 and 2021, Fort Rodd Hill National Historic Site was honoured to work closely with Songhees Knowledge Holder, Cheryl Bryce, to host traditional Coast Salish pit cooks using Camas bulbs cultivated in the Garry Oak Learning Meadow.

Seed and plant sharing is about more than the plant itself—it is an important part of how Fort Rodd Hill National Historic Site has humbly and respectfully approached reconciliation and relationship-building over the past several years.

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.

Table 3. Progress towards achieving site-based population and distribution objectives for species at risk in Fort Rodd Hill National Historic Site of Canada[11].

Species	Site-based population & distribution objectives	Population monitoring	Progress towards site-based population and distribution objectives	Progress (% achieved)
Macoun's Meadowfoam	Maintain stable or increasing populations at Yew and Gotha point.	Annual	Prior to active management this population typically had <200 plants. Yearly counts now fluctuate between 1000 and 3000 plants.	100%
Deltoid Balsamroot	Maintain a stable or increasing population.	Annual	The number of flowering (mature) plants has increased from the remnant population of 2 to 16. There are an additional 149 juvenile plants across Fort Rodd Hill National Historic Site.	100%

[11] This table differs slightly from the posted action plan, as some species did not require Site-based Population and Distribution objectives. Instead, monitoring for these species was included in the Recovery Measures tables.

Species	Site-based population & distribution objectives	Population monitoring	Progress towards site-based population and distribution objectives	Progress (% achieved)
			Deltoid Balsamroot takes approximately seven years to reach maturity and flower.	
Barn Swallow	Provide artificial nests for Barn Swallows at Fort Rodd Hill National Historic Site to maintain or increase current level of breeding success.	Annual survey of Barn Swallows and active nests.	Artificial ledge installation was completed in 2018. Three stand-alone nesting structures were completed in 2020. These new artificial breeding structures and existing nesting habitat have been surveyed annually. Barn Swallows now successfully breed in more areas at Fort Rodd Hill National Historic Site and use the artificial nest ledges. Overall breeding success has been maintained.	100%



5. SOCIO-ECONOMIC IMPACTS

Species at Risk Act requires the responsible federal minister to report on the socio-economic impacts of an action plan and the benefits derived from its implementation five years after the plan comes into effect.

The Multi-species Action Plan for Fort Rodd Hill National Historic Site only applies to protected lands and waters under the authority of the Parks Canada Agency. 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 multi-species action plan, and primarily focuses on Indigenous partners, leaseholders, licensees, residents and visitors. The overall socio-economic impacts of the multi-species action plan for Fort Rodd Hill National Historic Site, described as costs and benefits, are outlined below.

Costs

Most costs to implement this action plan were 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 (Conservation and recovery measures that will be conducted by Fort Rodd Hill) and 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 reported as a result of this action plan. Additional (non-monetary) resources and partnership were provided by several groups and organizations that increased the level of positive impact.

Parks Canada signed a Memorandum of Understanding with Pollinator Partnership Canada. This allowed Parks Canada to collaborate on a Pollinator Stewardship Webinar Series in 2020. Pollinator Partnership Canada also contributed expertise to the episodes of Leo's Pollinators filmed in the Garry Oak Learning Meadow for TVOkids in

2021. In 2018, Fort Rodd Hill National Historic Site worked closely with Songhees Nation to host a traditional Coast Salish Pit Cook which provided socio-economic benefits to members of Songhees and Esquimalt Nations, as well as to an Indigenous-owned business (Songhees Seafood and Steam Food Truck).

Other partners contributed knowledge, volunteers, information and resource sharing that was invaluable to the implementation of this action plan:

- Indigenous peoples contributed Indigenous knowledge, and collaboratively developed and implemented conservation actions, including habitat restoration, public outreach, and interpretation.

- Volunteer program partners contributed significantly to rare ecosystem restoration, including (but not limited to) Garth Homer Society, Greater Victoria Green Team, Parks Canada Campus Clubs, Volunteer Victoria, Royal Roads University, and University of British Columbia.

- Restoration network partners and regional restoration leaders contributed information and resource sharing for restoration of rare Garry Oak and coastal sand ecosystems, including (but not limited to) Cascadia Prairie Oak Partnership, Capital Regional District, City of Colwood, City of Victoria Parks, District of Metchosin, District of Saanich, Esquimalt Lagoon Stewardship Initiative, Garry Oak Ecosystems Recovery Team, Habitat Acquisition Trust, Islands Trust, Nature Conservancy of Canada, Oak Bay Parks, Pollinator Partnership Canada, Satinflower Nurseries, Swan Lake Christmas Hill Nature Sanctuary, University of Victoria, and Victoria Natural History Society.

Action plan measures were integrated into the operational management of Fort Rodd Hill National Historic Site through Parks Canada's Conservation and Restoration Program. Any additional costs to the Parks Canada Agency were covered by prioritization of existing funds and salary dollars at the site and did not result in additional costs to society.

The action plan applies only to lands and waters in Fort Rodd Hill National Historic Site, and did not bring any restrictions to land use outside the historic site. As such, this action plan placed no extraneous socio-economic costs on the public. To protect and recover Macoun's Meadowfoam, fencing, social engineering (letting shrubs and grass in adjacent habitat grow tall as barrier), and adding trail routing (e.g., beach access) was implemented to educate visitors and direct them away from sensitive habitats.

Benefits

Measures presented in this action plan for Fort Rodd Hill National Historic Site 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 to reduce or eliminate threats to at-risk populations and habitats, and included protection of individuals and their habitat (e.g., restrictions to human activities within areas occupied by the species, combined with ongoing research and monitoring), species enhancement, and increasing public awareness and stewardship (e.g., signage, visitor programs, dissemination of information about species at risk and ecosystem restoration at Fort Rodd Hill National Historic Site through various media).

These measures had an overall positive impact on the natural environment and enhanced opportunities for appreciation of the site and the species by visitors and the general public. Through nursery propagation and habitat management, staff and volunteers contributed to the regeneration of the Deltoid Balsamroot population—up to 16 total flowering plants from two individuals in 2017. This is especially significant considering the relatively long maturation period for Deltoid Balsamroot to flower (approximately seven years). Habitat protection measures have prevented the trampling of Macoun's Meadowfoam during the flowering season. Additionally, the installation of trail counters will allow Parks Canada staff to gain a better understanding of traffic and disturbance to Macoun's Meadowfoam, thus enabling the refinement of closure periods to better balance species at risk recovery and the enjoyment of Parks Canada places by visitors.

These and other measures taken have likely resulted in benefits to Canadians, such as positive impacts on biodiversity and the value individuals place on preserving biodiversity.

Potential economic benefits of the recovery of the species at risk found in Fort Rodd Hill National Historic Site 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 had positive benefits for visitors, local residents, and Indigenous groups. Through personal and non-personal interpretive information, visitors gained a deeper understanding of and appreciation for the recovery of species at risk and culturally important species. Over 5,000 visitors participated in personal interpretive programs (i.e., special events, school programs, guided walks, and evening campfire programs) that highlighted the importance of species at risk and their habitat at Fort Rodd Hill National Historic Site. Members of the public were reached through outreach activities, including conference presentations, public talks and outreach booths at community events and markets. Additionally, the action plan created ample volunteer opportunities for local residents to become actively involved in species conservation and ecosystem restoration activities at Fort Rodd Hill National Historic Site.

Through its successful species conservation initiatives, the Garry Oak Learning Meadow is now in a state of abundance with native and culturally important plants. This has enabled the site to humbly contribute to the ongoing revitalization of First Nations traditional practices by providing Indigenous groups with traditional foods and medicines. With ongoing maintenance, the learning meadow is set to thrive for generations to come.

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 historic site. Direct costs of implementing this action plan were borne by Parks Canada. Indirect costs were minimal, mainly through visitor restrictions to certain areas of the site to protect Macoun's Meadowfoam. Benefits included positive impacts on the natural environment of the site, greater awareness of species, and enhanced opportunities for engagement.