

# Multi-species Action Plan for Fort Rodd Hill National Historic Site of Canada



2017

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

**Cover illustrations:** © Parks Canada Agency. Clockwise from top left. Western Bluebird nestbox, spring wildflowers at Fort Rodd Hill, Endangered Deltoid Balsamroot and Garry Oak Learning Meadow with Fort Rodd Hill and Fisgard Lighthouse background.

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

## Recommendation and approval statement

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

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## Preface

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

Under SARA, one or more action plan(s) provides the detailed recovery planning that supports the strategic 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 Fort Rodd Hill National Historic Site of Canada and has prepared this action plan to implement the recovery strategies as they apply to the site, as per section 47 of SARA. It has been prepared in cooperation with the Songhees and Esquimalt First Nations, Environment and Climate Change Canada, Fisheries and Oceans 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 contributed to the content of this plan and especially those who participated in the preparation of the site analysis. Thanks to staff from Fisheries and Oceans Canada, the BC Ministry of Environment, the BC Ministry of Forests, Lands and Natural Resource Operations, and BC Parks and Environment and Climate Change Canada for reviewing a draft of this action plan.

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

## Executive summary

The *Multi-species Action Plan for Fort Rodd Hill National Historic Site of Canada* (Fort Rodd Hill) applies to lands occurring within the boundaries of the site. The plan meets the requirements for action plans set out in the *Species At Risk Act* (SARA s.47) for species requiring an action plan and that regularly occur in these sites. Measures described in this plan will also provide benefits for other species of conservation concern that regularly occur at Fort Rodd Hill.

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 site 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 Fort Rodd Hill. Population monitoring measures are also identified for the species for which management activities at the site can contribute to recovery.

Measures proposed in this action plan will have limited socio-economic impact and place no restrictions on land use outside of Fort Rodd Hill. 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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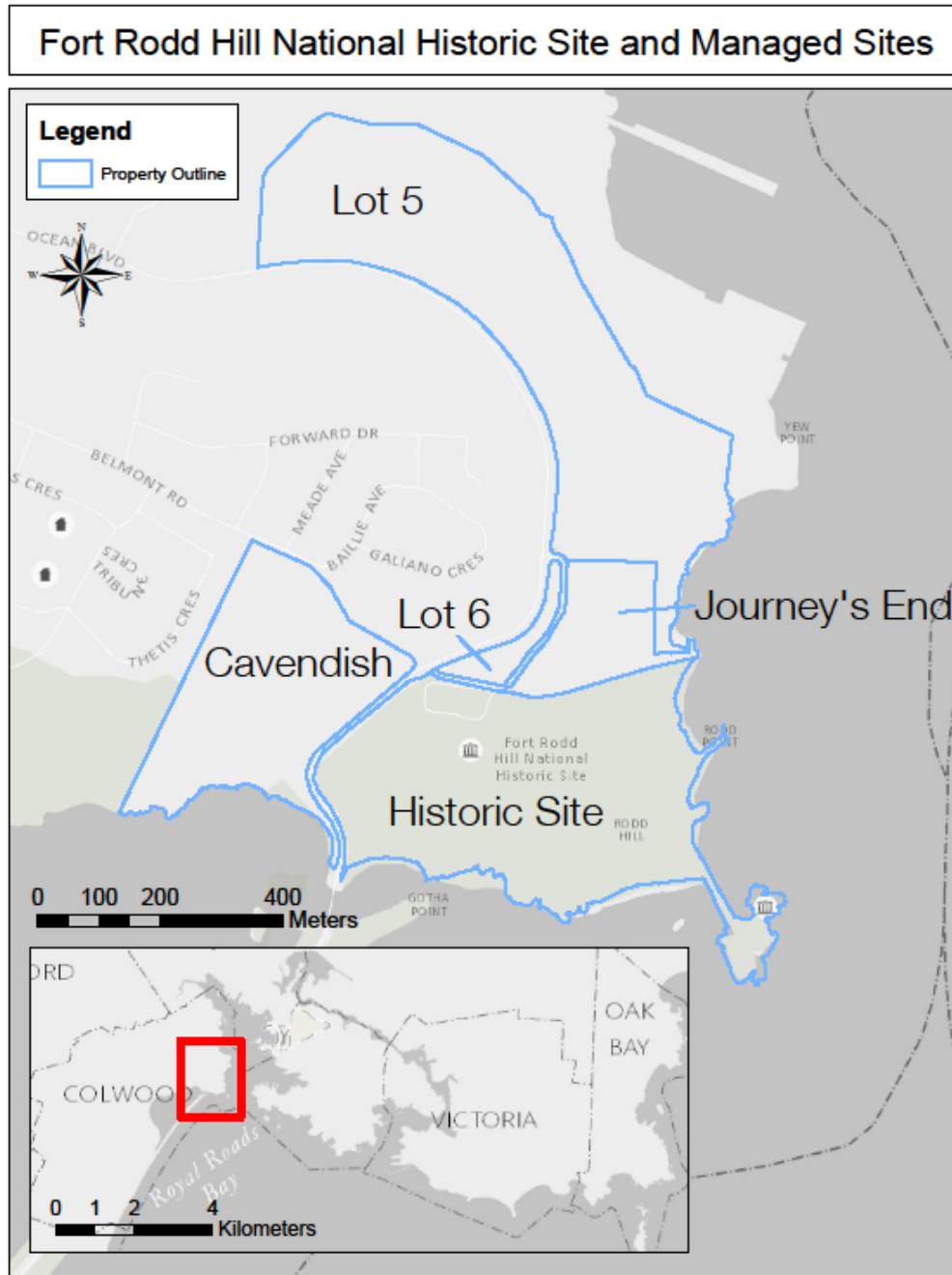
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# 1. Context

Fort Rodd Hill is located southwest of Victoria, near the southernmost point on Vancouver Island in British Columbia, Canada (Figure 1). Fort Rodd Hill and associated properties cover 54 hectares of remnant Garry oak ecosystems and moist maritime Coastal Douglas-fir (CDFmm) plant communities. These ecosystems are also located



Created for the Parks Canada Agency by Emily Doan, 2017. Source: Parks Canada, Capital Regional District. Projection: UTM 10N Datum: NAD 83

**Figure 1. Fort Rodd Hill National Historic Site**

within the traditional territories of the Lekwungen First Peoples, including both Songhees and Esquimalt First Nations. The Garry oak ecosystems on site range from shady woodlands to rocky outcrop bluffs, vernal pools, grasslands, and transitional forests. Similar to most Garry oak ecosystems in Canada, those found at Fort Rodd Hill have been impacted by the disruption of traditional management practices, invasive species encroachment, and habitat fragmentation from development. Garry oak ecosystems are home to over 100 rare species and are some of Canada's rarest ecosystems.

Since 2001, Fort Rodd Hill has worked with partners and volunteers to improve the ecological health of the site, and increase opportunities to support the recovery of many of these species. The broad visitor base and ease of access at Fort Rodd Hill provides opportunities to engage the public in species recovery. Academic interest in the site has provided a consistent source of students, research, and studies that support better management and restoration efforts.

Flora and fauna are protected in national historic sites under national park regulations. The *Species at Risk Act* (SARA) prohibitions protecting individuals and residences apply automatically when a species is listed, and all critical habitat in national parks and national historic sites must be legally protected within 180 days of being identified.

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

### **1.1 Scope of the action plan**

The geographic scope of this action plan includes all federally owned lands and waters managed by Fort Rodd Hill and that are administered by the Parks Canada Agency as federal properties under the authority of the Federal Real Property and Federal Immovables Act (Figures 1). This multi-species action plan has been written specifically for Fort Rodd Hill because the Parks Canada Agency (PCA) is legally responsible for species at risk on Parks Canada Agency lands and waters, has the ability to take direct conservation action, and deals with different threats, legislation, and management priorities than areas outside the site.

This action plan addresses SARA-listed species that regularly occur at Fort Rodd Hill and require an action plan under SARA (s.47) (Table 1). Other species of conservation concern will also benefit from many of the actions identified in this plan. This approach both responds to the legislated requirements of the SARA and provides the Parks Canada Agency with a broad plan for species conservation and recovery at Fort Rodd



Hill. 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 Fort Rodd Hill.

| Species                             | Scientific Name        | COSEWIC Status  | SARA Schedule 1 Status                                  |
|-------------------------------------|------------------------|-----------------|---|
| Deltoid Balsamroot                  | Balsamorhiza deltoidea | Endangered      | Endangered (Schedule 1)                                 |
| Macoun's Meadowfoam                 | Limnanthes macounii    | Threatened      | Threatened (Schedule 1)                                 |
| Seaside Birds-foot Lotus            | Lotus formosissimus    | Endangered      | Endangered  |
| White-top Aster                     | Seriocarpus rigidus    | Special Concern | Special Concern   |
| Olive-sided Flycatcher              | Contopus cooperi       | Threatened      | Threatened (Schedule 1)                                 |
| Band-tailed Pigeon                  | Patagioenas fasciata   | Special Concern | Special Concern (Schedule 1)                            |
| Great Blue Heron fannini subspecies | Ardea herodias fannini | Special Concern | Special Concern (Schedule 1)                            |
| Barn Swallow                        | Hirundo rustica        | Threatened      | No schedule. No status. COSEWIC assessed as threatened. |
| Little Brown Bat                    | Myotis lucifugus       | Endangered      | Endangered  |

## 2. Site-based population and distribution objectives

The potential for the Parks Canada Agency to undertake management actions that will contribute to the recovery of species at risk regularly occurring at Fort Rodd Hill 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. Monitoring activities are also reported in Appendix A rather than in the tables of recovery measures (Appendices B & C) as they are directly linked to the site-based population and distribution objectives. For species at risk where there is little opportunity for the site 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 regime at the site. For some species, population and distribution objectives for Fort Rodd Hill are not meaningful at the scale of this action plan for various reasons, including 1) threats cannot be controlled at the site or do not exist at the site (e.g., wide-spread disease, or loss of overwintering habitat elsewhere); 2) the species is only transient; or 3) the population within the site is a very small part of the Canadian distribution or is unknown or unconfirmed.

### **3. Conservation and recovery measures**

This action plan identifies measures to achieve the site-based population and distribution objectives for the species at risk listed in Table 1, along with measures required to protect the species and learn more about them. The process of determining which measures will be conducted by Fort Rodd Hill (Appendix B) and which measures will be encouraged through partnerships or when additional resources become available (Appendix C) involved a prioritization process. A key consideration during the prioritization process was the perceived ecological effectiveness of any proposed measure. Also considered during the prioritization process were opportunities to improve visitor experience, increase public awareness about species at risk, and cost. 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. Five key themes for action emerged during the prioritization process; habitat restoration, active management, filling knowledge gaps, integrated pest management, and working together.

#### **Habitat restoration**

Fort Rodd Hill has focused on restoring imperiled Coastal Douglas-fir ecosystems, including Garry oak woodlands, meadows and vernal pools. Pending funding availability, Fort Rodd Hill will continue habitat improvements for the species at risk which depend on Garry oak ecosystems through removal of invasive species, propagating and planting native species, and protecting vegetation from hyperabundant species such as Black-tailed Deer. Past restoration work has transformed Fort Rodd Hill from an area suffering from massive invasions of non-native shrubs and forbs to a much more traditional viewscape of meadows, woodlands, and forest with a native plant understory. Site visitors can learn about Garry oak ecosystems and their associated species at risk on 2 self-guided interpretive walks; one in a completely restored Garry oak ecosystem with approximately 100 different native species added to the site (Garry Oak Learning Meadow). Fort Rodd Hill has an on-site plant nursery (Conservation Nursery) that provides seed and plants for ongoing restoration work and species at risk recovery efforts.

#### **Active management**

While habitat restoration is important for many species at risk at Fort Rodd Hill, some species at risk require specialized attention. The Conservation Nursery allows staff to experiment with propagation methods for many plant species at risk and conduct outplantings in suitably restored Garry oak ecosystem habitat on the site and at other sites in the region such as Gulf Islands National Park Reserve and City of Victoria Parks. Active management measures for species at risk will include propagating and outplanting Deltoid Balsamroot, White-top Aster, Seaside Birds-foot Lotus, and creating Barn Swallow nesting sites.

#### **Filling knowledge gaps**

The species at risk recovery and ecosystem restoration program at Fort Rodd Hill began in 2001. Since then, significant progress has been made on habitat restoration and a great deal has been learned about the needs of species at risk occurring at the

site. Environmental restoration work at Fort Rodd Hill, conducted by Parks Canada and others, will continue to contribute to our improved understanding of the local environment and site stewardship needs, including species at risk. Future inventory work on various taxa (fungi, invertebrates, amphibians, etc.) will contribute valuable information with a strong potential for discovery of new species at risk occurrences. Site staff will continue to record observation of rare species.

One of the ongoing challenges faced by the Parks Canada team at Fort Rodd Hill is trying to understand how to propagate plant species at risk and develop self-sustaining populations of plant species at risk. For many species at risk, there is little known about their biology or some of the reasons for their rarity. Filling these knowledge gaps has been a focus of work in the Conservation Nursery. Parks Canada and its partners will continue to explore these questions and improve our understanding of plant species at risk recovery.

### **Integrated pest management**

Integrated pest management is a key aspect of restoration work at Fort Rodd Hill. The 54 hectare site has been transformed over the past 15 years from one with habitats dominated by invasive shrubs and vines from other parts of the world to a pastoral meadow and woodland site resplendent with native plants and animals. In 2016 alone, a total of 1000 hours (197 staff hours and 803 non-staff hours) were spent removing invasive species by staff, volunteers and special groups. Fort Rodd Hill currently manages, and will endeavor to continue managing, many invasive non-native plant species, including Scotch Broom, Daphne, English Holly, English Hawthorne, English Ivy, Burr Chervil, Himalayan Blackberry, non-native grasses, and others.

Without historic predators such as wolves, cougars and bears, active management of Black-tailed deer will need to continue in order to protect select areas that have been restored with great effort. Current practice for control of Black-tailed deer involves the installation of deer fencing to exclude deer from browsing in priority restoration areas.

### **Working together**

Visitor experience and outreach opportunities are key to the success of this multi-species action plan. Fort Rodd Hill has two self-guided interpretive trails that help visitors learn about species at risk and imperiled ecosystems. An interpretive booth staffed on weekends during the peak summer season facilitates unique and memorable visitor experiences that educate and inspire visitors about Parks Canada's role as a leader in ecosystem restoration and species conservation. The sites' ongoing media and social media program engages the public on topics related to the conservation of our most vulnerable species and ecosystems.

A very successful year-round volunteer program, initiated in 2003, allows the public to be directly involved in active restoration. Volunteers undertake a large proportion of the sites' overall invasive species control program. In fiscal year 2015-16 alone, 662 volunteers helped support the restoration program at Fort Rodd Hill, contributing a total of 1913 hours of restoration work.

Parks Canada also works closely with many restoration partners within the range of Garry oak ecosystems in the United States and Canada. Examples of partnerships with which we have had a productive partnership include, the Garry Oak Ecosystems Recovery Team, Capital Regional District Parks, City of Victoria, Cascadia Prairie Oak Partnership, and the Washington Department of fish and Wildlife.

## **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)).

### **4.1 Proposed measures to protect critical habitat**

There is no new critical habitat identified in this action plan. The recovery strategies for Deltoid Balsamroot and Macoun’s Meadowfoam have identified critical habitat at Fort Rodd Hill and it is protected under section 58(1) of SARA.

## **5. Evaluation of socio-economic costs and of benefits**

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

### **5.1 Costs**

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

Many of the proposed measures will be integrated into the operational management of the site 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 at Fort Rodd Hill and does not place any restrictions on land use outside the site. As such, this action plan will place no socio-economic costs on the public. Minor restrictions may be placed on visitor activities on site lands to protect and recover species at risk.

### **5.2 Benefits**

Measures presented in this action plan for Fort Rodd Hill will contribute to meeting recovery strategy objectives for threatened and endangered species, and will also contribute to meeting management objectives for species of special concern. These measures are expected to have an overall positive impact on our environment and

enhance opportunities for site and species appreciation by visitors and the public. This action plan includes measures that could result in benefits to Canadians, such as positive impacts on biodiversity and the value individuals place on preserving biodiversity.

The proposed measures seek a balanced approach to reducing or eliminating threats to species at risk populations and habitats, and include protection of individuals and their habitat (such as 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., signage, visitor programs, and dissemination of information about species at risk and the conservation program at Fort Rodd Hill through various media).

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

Implementing this action plan is expected to have positive benefits for site visitors, local residents, and Indigenous groups. Some activities in the plan may create opportunities for local residents to become actively involved in ecosystem restoration, including species at risk recovery. Opportunities for involvement will be available to all local residents. These include opportunities to learn about and take part in the recovery of culturally important species at risk, opportunities for visitors and local communities to be involved in conservation issues, opportunities for integration of Indigenous Traditional Knowledge into conservation issues at Fort Rodd Hill, and greater awareness of Indigenous values and culture among local residents and visitors to the site. In doing so the plan supports the goals under the *Species at Risk Act* that "*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. 2001. COSEWIC assessment and status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of endangered wildlife in Canada. Ottawa. ix + 37 pp. ([www.sararegistry.gc.ca/status/status\\_e.cfm](http://www.sararegistry.gc.ca/status/status_e.cfm)).

Environment and Climate Change Canada. 2016. Management Plan for the Band-tailed Pigeon (*Patagioenas fasciata*) in Canada [Proposed]. Species at Risk Act Management Plan Series. Environment and Climate Change Canada, Ottawa. iii + 14 pp.

Environment Canada. 2016. Management Plan for the Great Blue Heron *fannini* subspecies (*Ardea herodias fannini*) in Canada [Proposed]. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iii + 26 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 Agency. 2013. Recovery Strategy for Macoun's Meadowfoam (*Limnanthes macounii*) in Canada. Species at Risk Act Recovery Strategy Series. Parks Canada Agency. Ottawa. vi + 42 pp. + Part 2 (25 pp.)

Parks Canada Agency. 2006. Recovery Strategy for Multi-Species at Risk in Garry Oak Woodlands in Canada. In Species at Risk Act Recovery Strategy Series. Ottawa: Parks Canada Agency. 58 pp.

## Appendix A: Species information, objectives and monitoring plans for species at risk at Fort Rodd Hill.

| Species             | National objectives <sup>3</sup>   | Site-based Population & distribution objectives                   | Population Trend in Fort Rodd Hill <sup>4</sup> | Population monitoring <sup>5</sup> | General information and broad park approach   |
|---------------------|--|---|---|------------------------------------|---|
| Macoun's Meadowfoam | <p>Objective 1: Maintain the 31 extant populations at a stable or increasing size.</p> <p>Objective 2: Prevent a decline in the known distribution of Macoun's Meadowfoam in Canada.</p> | Maintain stable or increasing populations at Yew and Gotha point. | Stable  | Annual                             | <p>Invasive species management is required at Yew Point to prevent Burr Chervil (<i>Anthriscus caucalis</i>) from taking over the identified critical habitat. Invasive species management (primarily burr chervil), control of foot traffic and avoidance of infrastructure development is required at the Gotha Point location. Intervention may be required if the resident Canada Goose population begins to negatively impact either population.</p> <p>Some level of disturbance may help keep the habitat open. Soil disturbance (light tilling) at an appropriate time in its lifecycle has been shown to benefit populations of Macoun's Meadowfoam.</p> |

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

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

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

| Species            | National objectives <sup>3</sup>   | Site-based Population & distribution objectives | Population Trend in Fort Rodd Hill <sup>4</sup> | Population monitoring <sup>5</sup> | General information and broad park approach  |
|--------------------|--|---|---|------------------------------------|--|
| Deltoid Balsamroot | <p>Objective 1. To maintain extant populations of Deltoid Balsamroot at current levels of abundance or greater.</p> <p>Objective 2. To restore Deltoid Balsamroot to its estimated approximate historical extent of occurrence and area of occupancy through reintroductions or translocations [establish a minimum of two new self-sustaining populations (in the Victoria and Metchosin area)].</p> <p>Objective 3. Ensure, with a high probability of persistence, a Canadian population of Deltoid Balsamroot.</p> | Maintain a stable or increasing population      | Increasing                                      | Annual                             | <p>There is one long-lived population of mature individuals below Upper Battery. This remnant population is very small (2-3 individuals) and individuals are reproductively limited. Nearby plants have died in the past decade. There is a significant risk of stochastic extinction of this population.</p> <p>Experimental translocations have been undertaken in a fenced Garry oak ecosystem restoration site (Garry Oak Learning Meadow) and various other locations throughout Fort Rodd Hill.</p> <p>The original population has been fenced to prevent trampling and herbivory. Invasive species control is conducted to maintain open habitat. Cutting back of native shrubs and tree branches provides additional light.</p> <p>Experimental cross-pollination of the existing population to produce seed was completed and continues. Genetic banking of some of this seed is planned. Propagation and outplanting of seedlings into suitable habitat is being undertaken to enhance the population of Deltoid Balsamroot at Fort Rodd Hill.</p> |



| Species                             | National objectives <sup>3</sup>  | Site-based Population & distribution objectives    | Population Trend in Fort Rodd Hill <sup>4</sup> | Population monitoring <sup>5</sup> | General information and broad park approach                      |
|-------------------------------------|---|--|---|------------------------------------|--|
| Olive-sided Flycatcher              | The short-term population objective for Olive-sided Flycatcher in Canada is to halt the national decline by 2025, while ensuring the population does not decrease more than 10% over this time. • The long-term (after 2025) population objective is to ensure a positive 10-year population trend for Olive-sided Flycatcher in Canada. • The distribution objective for Olive-sided Flycatcher is to maintain the current extent of occurrence in Canada. | Protect individuals and habitat at Fort Rodd Hill. | Unknown   | Record incidental observations     | Olive-sided Flycatchers are detected annually at Fort Rodd Hill. |
| Band-tailed Pigeon                  | The management objective for the Band-tailed Pigeon is to maintain the Canadian population at its current size and distribution.  | Protect individuals and habitat at Fort Rodd Hill. | Unknown   | Record incidental observations     | Band-tailed Pigeons are detected annually at Fort Rodd Hill.     |
| Great Blue Heron fannini subspecies | To ensure that all conservation regions across coastal British Columbia have stable or locally increasing numbers of Pacific Great Blue Herons.   | Protect individuals and habitat at Fort Rodd Hill. | Unknown   | No regularly scheduled monitoring  | Great Blue Herons are detected annually at Fort Rodd Hill.       |

| Species      | National objectives <sup>3</sup>    | Site-based Population & distribution objectives   | Population Trend in Fort Rodd Hill <sup>4</sup> | Population monitoring <sup>5</sup>               | General information and broad park approach  |
|--------------|-------------------------------------|---|---|--|--|
| Barn Swallow | COSEWIC Threatened. No SARA status. | Provide artificial nests for Barn Swallows at Fort Rodd Hill to maintain or increase current level of breeding success. | Unknown   | Annual survey of Barn Swallows and active nests. | Providing alternative nest options away from historic structures and human conflict is intended to support Barn Swallow breeding success and recovery at Fort Rodd Hill. |

## Appendix B: Conservation and recovery measures that will be conducted by Fort Rodd Hill.

| Species                                    | Measure # | Measure  | Desired Outcome   | Threat or recovery measure addressed <sup>6</sup>   | Timeline                 |
|--|-----------|--|---|---|--------------------------|
| Macoun's Meadowfoam                        | 1         | <u>Visitor awareness and compliance</u> : 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.   | Recreational activities   | Completed within 2 years |
| Deltoid Balsamroot and Macoun's Meadowfoam | 2         | <u>Genetic Banking</u> : 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 genetic resources and provide appropriate genetic material, if needed, for reintroduction programs or reinforcement of endangered populations. | Deltoid Balsamroot – Habitat fragmentation and demographic collapse<br>Macoun's Meadowfoam – Invasive and other problematic species and genetic fitness | Completed within 2 years |
| All  | 3         | <u>Habitat conservation</u> : Removal of priority non-native invasive species (e.g., Scotch Broom, Daphne, Himalayan Blackberry, English Ivy, English Holly, Canada Thistle, Burr Chervil) within the <i>immediate vicinity</i> (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.  | N/A   | Annual/Ongoing           |

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

| Species                      | Measure # | Measure   | Desired Outcome   | Threat or recovery measure addressed <sup>6</sup> | Timeline                 |
|------------------------------|-----------|---|---|---|--------------------------|
| Barn Swallow                 | 4         | <u>Fill Knowledge Gaps:</u><br>Installation of artificial breeding sites.   | Survey of preferred breeding habitat and installation of artificial breeding sites at prime locations.  | N/A   | Completed within 2 years |
| Barn Swallow                 | 5         | <u>Population Recovery:</u><br>Regular maintenance of artificial breeding sites and monitoring breeding success.  | Improve nesting opportunities to support the Barn Swallow population at Fort Rodd Hill.   | N/A   | Ongoing                  |
| A variety of species at risk | 6         | <u>Knowledge Gathering:</u><br>(1) Work with partners to fill knowledge gaps for species at risk found within Fort Rodd Hill.<br>(2) Support inventory and research on species at risk.<br>(3) Prioritize knowledge gaps and add to research priorities.<br>(4) Record incidental observations of rare species and species at risk.   | Improved information to support species at risk management at Fort Rodd Hill. 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. | N/A   | Ongoing                  |
| Species at risk in general   | 7         | <u>Species at Risk Interpretive Program:</u><br>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. | Information is available to visitors to encourage stewardship and increase awareness of species at risk..   | N/A   | Ongoing                  |

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

| Species            | Measure # | Measure  | Desired Outcome   | Threat or recovery measure addressed <sup>7</sup>   |
|--------------------|-----------|--|---|---|
| Deltoid Balsamroot | 8         | <u>Population Recovery:</u><br>(1) Assisted pollination of existing population to increase seed set.<br>(2) Collection of seed and propagation of seedlings.<br>(3) Outplanting of seedlings into suitable habitat at Fort Rodd Hill.<br>(4) Monitoring and protection of outplants.<br>(5) Supplemental watering as necessary through dry season.         | Improved vigour and increased population size at Fort Rodd Hill.  | To maintain extant populations of Deltoid Balsamroot at current levels of abundance or greater. |
| All                | 9         | <u>Habitat conservation:</u><br>(1) Management of priority non-native invasive species (e.g., Scotch Broom, Daphne, Himalayan Blackberry, English Ivy, English Holly) in priority sites across all lands managed by Parks Canada at Fort Rodd Hill beyond the immediate vicinity of rare plant locations.<br>(2) Deer fence maintenance in priority sites. | Improved ecosystem processes and services in Garry oak and associated ecosystems at Fort Rodd Hill and maintenance of suitable habitat for rare species expansion/augmentation. | Habitat restoration.  |
| All                | 10        | <u>Habitat Conservation:</u> Management of resident (non-native) Canada Goose population in priority sites across all lands managed by Parks Canada at Fort Rodd Hill.   | Habitat conservation for all native species in coastal areas. Macoun's Meadowfoam protection, and improved visitor experience.  | Grazing, herbivory and invasive species.  |

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

| Species                           | Measure # | Measure  | Desired Outcome  | Threat or recovery measure addressed <sup>7</sup>   |
|-----------------------------------|-----------|--|--|---|
| Species of translocation interest | 11        | <p><u>Population Recovery:</u></p> <p>(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).</p> <p>(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 Fort Rodd Hill.</p> | <p>(1) Suitable habitat provided for experimental translocations of plant SAR, and</p> <p>(2) stock of SAR produced in the Garry Oak Learning meadow will be translocated to at least one other PCA site in the region.</p> <p>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.</p> | <p>Most recovery strategies for Garry oak ecosystem plant species at risk identify the need to establish one or more new populations to meet recovery objectives.</p> |
| Species at risk in general        | 12        | <p><u>Species at Risk Media Program:</u></p> <p>(1) Engage Canadians through social media (primarily urban and young Canadians) and traditional media.</p> <p>(2) Pitch at least one regional media story per year highlighting species at risk in Fort Rodd Hill and Fisgard Lighthouse National Historic Site.</p>   | <p>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.</p>   | <p>Support protection for existing populations through stewardship and other mechanisms.</p>  |

| Species                    | Measure # | Measure  | Desired Outcome   | Threat or recovery measure addressed <sup>7</sup>   |
|----------------------------|-----------|--|---|---|
| Species at risk in general | 13        | <p><u>Volunteer and partner support of the Species at Risk program</u><br/>                     Activities include removal of invasive species, tending restoration sites, assisting with plant nursery production, and assisting with plant species at risk propagation and monitoring.</p> | <p>Over 100 hours of volunteer support provided for Garry oak ecosystem and associated species at risk recovery at Fort Rodd Hill.</p> <p>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.</p> | <p>Establish protection for existing populations through stewardship and other mechanisms</p> |

## Appendix D: Effects on the environment and other species

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

Recovery planning is intended to benefit species at risk and biodiversity in general. However, it is recognized that recovery 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 at Fort Rodd Hill. 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. Furthermore, this action plan was developed to benefit many species at risk that regularly occur at Fort Rodd Hill; 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. This plan outlines stewardship actions, educational programs, and awareness initiatives that will involve visitors and the general public. This will lead to greater appreciation, understanding, and action towards the conservation and recovery of species at risk in general.

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