

Multi-species Action Plan for Pacific Rim National Park Reserve 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](#)¹.

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¹ 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.

Recommended by:



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Approved by:



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Preface

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

Under the SARA, one or more action plan(s) provide(s) the detailed recovery planning that supports the strategic direction set out in the recovery strategies for a species. An action 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 strategy, including the measures to be taken to address the threats and monitor the recovery of the species, as well as the proposed measures to protect critical habitat that have been identified for the species. The action plan also includes an evaluation of the socio-economic costs of implementing 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 each species.

The Minister responsible for the Parks Canada Agency (the Minister of the Environment and Climate Change) is the competent minister under the SARA for the species found in Pacific Rim National Park Reserve of Canada and has prepared this action plan to implement the recovery strategies as they apply to the park, as per section 47 of the SARA. It has been prepared in cooperation with Tla-o-qui-aht, Yuu'u?i'?'ath, Toquaht, Tseshah, Hupacasath, Uchucklesaht, Huu-ay-aht, Ditidaht, and Pacheedaht First Nations, Environment and Climate Change Canada, Fisheries and Oceans Canada and the province of British Columbia as per section 48(1) of the SARA.

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

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

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Executive summary

The *Multi-species Action Plan for Pacific Rim National Park Reserve of Canada* applies to lands and waters within the boundaries of Pacific Rim National Park Reserve of Canada (Pacific Rim NPR). 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 the site. Measures described in this plan will also benefit other species of conservation concern that regularly occur in Pacific Rim NPR.

Where it has been determined that the site 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 as well as by the 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 the site. Population monitoring measures are also identified for the species for which management activities at the site can contribute to recovery.

Critical habitat is identified for the Sand-verbena Moth and Seaside Centipede Lichen in this action plan. Measures used for protection of critical habitat are described.

Measures proposed in this action plan will have limited socio-economic impact and place no restrictions on land use outside of Pacific Rim NPR. 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 Nuu-chah-nulth First Nations.

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1 Context

Backed by the Insular Mountain Range of Vancouver Island and facing the open Pacific Ocean, Pacific Rim National Park Reserve of Canada (Pacific Rim NPR) protects and presents the rich natural and cultural heritage of Canada's west coast. Pacific Rim NPR consists of three distinct units, the Long Beach Unit, Broken Group Islands Unit, and West Coast Trail Unit, each offering a range of unique visitor experiences. With significant areas (51,216 ha in total) of old growth, temperate rainforest, coastal dune systems, wetlands and foreshore, and marine habitats, the park demonstrates the interconnectedness between land, sea, and people. These natural wonders are interwoven with the Nuu-chah-nulth First Nations culture (past and present), and that of European explorers and settlers.

Pacific Rim NPR was the first national park on Canada's Pacific coast when it was established in 1970. In response to concerns expressed by the seven First Nations whose reserves the park surrounded, a national park reserve was established rather than a national park. A park reserve is a specific designation under the *Canada National Parks Act* (CNPA) acknowledging that in those parks designated as park reserves, First Nations in the area have a claim with respect to Indigenous rights that has not been settled. Pending the settlement of any such rights through treaty or other negotiations, the park "reserve" status allows the area to be managed with the protection afforded all national parks under the CNPA, while also allowing traditional renewable resource harvesting by First Nations people to continue.

Maintenance and restoration of ecological integrity is the first priority of national parks (*Canada National Parks Act* s.8(2)). Species at risk, their residences, and their habitat are therefore protected in Canada's national parks by existing national park regulations and management regimes. In addition, 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.

Recovery measures for species at risk will be integrated within the framework of Parks Canada's ongoing ecological integrity programs. National parks maintain comprehensive and scientifically rigorous ecological integrity monitoring and restoration programs that are organized according to the major ecosystems present in the Park. The recovery measures described in this action plan are therefore organized in the same manner. Parks Canada's ecological integrity programs make contributions to the recovery of species at risk by providing inventory and monitoring data, and through the implementation of habitat restoration projects and other conservation action on the ground. The species-directed measures outlined in this plan will in turn contribute to maintaining and improving the ecological integrity of Pacific Rim NPR by improving the conservation status of native species and their habitat, and maintaining biodiversity. Species at risk information will also be integrated into the Park's comprehensive visitor

experience, education, and outreach programs, to improve awareness, appreciation, and support for recovery efforts in Pacific Rim NPR and beyond.

In addition to status assessments, 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. 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 managed lands and waters administered by Pacific Rim NPR (Figure 1). This multi-species action plan has been written specifically for Pacific Rim NPR because the Parks Canada Agency (Parks Canada) is legally responsible for species at risk on Parks Canada lands and waters, has the ability to take direct conservation action, and deals with different threats, legislation, and management priorities than areas outside the park.

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

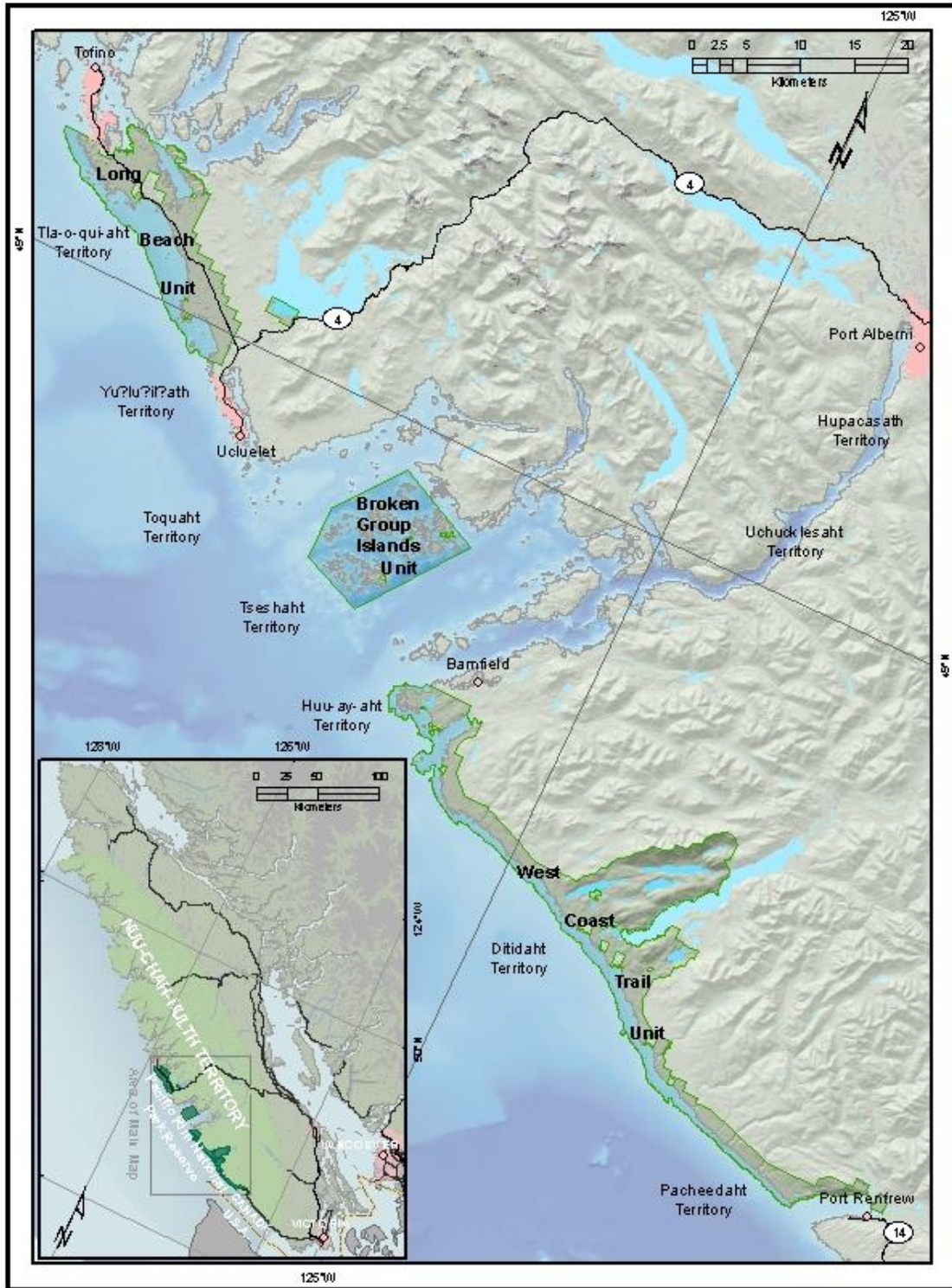


Figure 1: Location of Pacific Rim National Park Reserve of Canada within British Columbia. The park is located on the west coast of Vancouver Island and consists

of three broad units: Long Beach Unit, Broken Group Islands Unit, and West Coast Trail Unit.

Table 1: Species at risk included in the action plan for Pacific Rim National Park Reserve of Canada.

Species	Scientific Name	COSEWIC Status	SARA Status
Basking Shark	<i>Cetorhinus maximus</i>	<i>Endangered</i>	<i>Endangered</i>
Common Nighthawk	<i>Chordeiles minor</i>	<i>Threatened</i>	<i>Threatened</i>
Dromedary Jumping-slug	<i>Hemphillia dromedarius</i>	<i>Threatened</i>	<i>Threatened</i>
Edwards' Beach Moth	<i>Anarta edwardsii</i>	<i>Endangered</i>	<i>Endangered</i>
Killer Whale – Northern Resident	<i>Orcinus orca</i>	<i>Threatened</i>	<i>Threatened</i>
Killer Whale – Southern Resident	<i>Orcinus orca</i>	<i>Endangered</i>	<i>Endangered</i>
Killer Whale – Transient Population	<i>Orcinus orca</i>	<i>Threatened</i>	<i>Threatened</i>
Killer Whale-Offshore	<i>Orcinus orca</i>	<i>Threatened</i>	<i>Threatened</i>
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	<i>Threatened</i>	<i>Threatened</i>
Northern Abalone	<i>Haliotis kamtschatkana</i>	<i>Endangered</i>	<i>Endangered</i>
Northern Goshawk	<i>Accipiter gentilis laingi</i>	<i>Threatened</i>	<i>Threatened</i>
Olive-sided Flycatcher	<i>Contopus cooperi</i>	<i>Threatened</i>	<i>Threatened</i>
Pink Sand-verbena	<i>Abronia umbellata</i>	<i>Endangered</i>	<i>Endangered</i>
Red Knot	<i>Calidris canutus rufa</i>	<i>Endangered</i>	<i>Endangered</i>
Sand-verbena Moth	<i>Copablepharon fuscum</i>	<i>Endangered</i>	<i>Endangered</i>
Seaside Centipede Lichen	<i>Heterodermia sitchensis</i>	<i>Endangered</i>	<i>Endangered</i>
Western Screech Owl	<i>Megascops kennicottii kennicottii</i>	<i>Threatened</i>	<i>Threatened</i>
Ancient Murrelet	<i>Synthliboramphus antiquus</i>	<i>Special Concern</i>	<i>Special Concern</i>
Band-tailed Pigeon	<i>Patagioenas fasciata</i>	<i>Special Concern</i>	<i>Special Concern</i>
Bluntnose Sixgill Shark	<i>Hexanchus griseus</i>	<i>Special Concern</i>	<i>Special Concern</i>
Great Blue Heron fannini subspecies	<i>Ardea herodias fannini</i>	<i>Special Concern</i>	<i>Special Concern</i>
Green Sturgeon	<i>Acipenser medirostris</i>	<i>Special Concern</i>	<i>Special Concern</i>
Grey Whale – Eastern North Pacific	<i>Eschrichtius robustus</i>	<i>Special Concern</i>	<i>Special Concern</i>
Harbour Porpoise - Pacific Ocean	<i>Phocoena phocoena</i>	<i>Special Concern</i>	<i>Special Concern</i>
Humpback Whale	<i>Megaptera novaeangliae</i>	<i>Special Concern</i>	<i>Special Concern</i>
Olympia Oyster	<i>Ostrea lurida</i>	<i>Special Concern</i>	<i>Special Concern</i>
Peregrine Falcon pealei subspecies	<i>Falco peregrinus</i>	<i>Special Concern</i>	<i>Special Concern</i>
Red-legged Frog	<i>Rana aurora</i>	<i>Special Concern</i>	<i>Special Concern</i>
Rusty Blackbird	<i>Euphagus carolinus</i>	<i>Special Concern</i>	<i>Special Concern</i>
Sea Otter	<i>Enhydra lutris</i>	<i>Special Concern</i>	<i>Special Concern</i>

Species	Scientific Name	COSEWIC Status	SARA Status
Short-eared Owl	<i>Asio flammeus</i>	<i>Special Concern</i>	<i>Special Concern</i>
Steller Sea Lion	<i>Eumetopias jubatus</i>	Special Concern	Special Concern
Western Toad	<i>Anaxyrus boreas</i>	Special Concern	Special Concern
Warty Jumping-slug	<i>Hemphillia glandulosa</i>	Special Concern	Special Concern
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Threatened	N/A
Silky Beach pea	<i>Lathyrus littoralis</i>	Threatened	N/A
Yellow Sand Verbena [*]	<i>Abronia latifolia</i>	N/A	N/A
[*] Yellow Sand Verbena is a significant component of the sand dune ecosystems protected within Pacific Rim NPR and is the host plant for the Sand-verbena Moth.			

2 Site-based population and distribution objectives

The potential for Parks Canada to undertake management actions at the site that will contribute to the recovery of each species was assessed. Site-specific population and distribution objectives were developed (Appendix A) to identify the contribution that the site can make towards achieving the national objectives presented in federal recovery strategies and management plans. Because they are directly linked to the site-based population and distribution objectives, monitoring activities are reported in Appendix A rather than in the tables of recovery measures (Appendices B and C). If 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 CNPA and SARA, population monitoring, habitat maintenance and restoration through the existing management regime at the site. For many species, population and distribution objectives for Pacific Rim NPR are not meaningful at the scale of this action plan for various reasons, including 1) threats cannot be controlled in the park or do not exist in the park (e.g., wide-spread disease, wide-ranging marine species); 2) the species is only transient or does not regularly occur on land or in water over which the park has jurisdiction (e.g., migrates through park, breeding is not confirmed); and 3) the population within the site is a very small part of the Canadian distribution.

3 Conservation and recovery measures

Pacific Rim NPR is primarily a coastal park and protects a large portion of the near shore land and marine waters between Tofino and Port Renfrew and some interior forest areas alongside Nitinat Lake (Figure 1). The lands and waters of the park are rich and biologically diverse and encompass a great variety of terrestrial and marine ecosystems and habitats. The linear nature of the park means that the ecosystems, habitats, and species found within the park are often closely connected to the land outside the park. This connection to the surrounding landscape means that successful protection of species and ecosystems at risk in Pacific Rim NPR will often require collaborative action by adjacent land managers.

The development of this action plan included an assessment of the knowledge, threats, and population status of each species at risk in Pacific Rim NPR. When a species' recovery could be influenced by management actions in the park then site-specific population and distribution objectives were developed for that species. Pacific Rim NPR will contribute to species recovery through 10 prioritized actions, 6 of which Pacific Rim NPR commits to implement and 4 that will be encouraged through partnerships or when additional funding becomes available (Appendices B and C). The following factors were considered in order to prioritize actions: ecological effectiveness of measures, opportunities to increase the value of visitor experience to the park, opportunities to increase awareness through external relations, and budgetary opportunities and constraints. Wherever possible, Pacific Rim NPR is taking an ecosystem approach and prioritizing actions that effectively and efficiently aid the recovery of multiple species. Actions identified in this plan fall into two broad themes: 1) conservation, and 2) outreach and engagement.

Conservation: Restoration and protection of habitats and populations are key activities for the recovery of species at risk, and Pacific Rim NPR has been implementing a number of such projects long before the SARA became law in 2002. The site will continue to work on projects such as conservation of sand ecosystems and the species that depend on them and monitoring rare species to maintain situational awareness and identify new opportunities for restoration and protection.

Outreach and Engagement: Pacific Rim NPR is a popular park with high visitation. Cooperation with others is key to the survival of many species which use the park. Cooperation with and engagement of visitors, business licence holders and adjacent land managers will be key to the survival of many species at risk which use the park.

4 Critical habitat

Critical habitat is "the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species" (SARA s. 2(1)). At the time of writing this document it was possible to identify additional critical habitat in Pacific Rim NPR for the Sand-verbena Moth and the Seaside Centipede Lichen. Where critical habitat identification is not complete for species covered by this action plan, it will be identified in upcoming or revised action plans or revised recovery strategy (refer to the schedule of studies in relevant recovery strategies and action plans for further details).

4.1 Identification of critical habitat for Sand-verbena Moth

4.1.1 Geographic location

Critical habitat for Sand-verbena Moth is found in the Wickaninnish Dunes within the Long Beach Unit of Pacific Rim NPR. Within the area identified in Appendix D, critical habitat includes all areas that contain the biophysical attributes.

4.1.2 Biophysical attributes

Critical habitat contains the following biophysical attributes (Environment Canada 2012):

- Yellow Sand-verbena plants that produce flowers at least once every two years.
- The soil both under and within 5 m of any Yellow Sand-verbena plant which produces flowers at least once every two years.

4.1.3 Examples of activities likely to result in destruction of Sand-verbena Moth critical habitat

Activities likely to result in the destruction of Sand-verbena Moth habitat are described in the recovery strategy (Environment Canada 2012) and included below.

Destruction of critical habitat will be determined on a case-by-case basis. Destruction would result if part of the critical habitat were degraded, either permanently or temporarily, such that it would not serve its function when needed by the species. Destruction may result from single or multiple activities at one point in time or from the cumulative effects of one or more activities over time.

Sand-verbena Moth is dependent on Yellow Sand-verbena and associated sand ecosystems for all stages of its lifecycle. Yellow Sand-verbena is a perennial coastal dune specialist which typically grows in open sandy soils lacking plant cover. Activities that are likely to result in destruction of critical habitat, the main component of which is Yellow Sand-verbena, include but are not limited to, the activities below.

Table 2: Activities likely to result in destruction of critical habitat for Sand-verbena Moth (Environment Canada 2012).

Description of the Activity	How the activity is likely to destroy critical habitat	Biological function lost
Planting or introduction of plants (both invasive and native) that may cause dune stabilization or interspecies competition.	Results in loss or degradation of Yellow Sand-verbena and surrounding substrate.	Egg laying, larval feeding, larval refuge, larval hibernation, pupation, adult feeding and refuge.
Introduction of herbivores that may feed on Yellow Sand-verbena.	Results in loss or degradation of the Yellow Sand-verbena.	Egg laying, larval feeding, adult feeding and refuge.
Repeated trampling (e.g., foot traffic or vehicle traffic) of Yellow Sand-verbena.	Results in physical damage to, or destruction of Yellow Sand-verbena.	Egg laying, larval feeding, adult feeding and refuge.
Harvesting or removal of Yellow Sand-verbena plants	Results in loss of Yellow Sand-verbena.	Egg laying, larval feeding, adult feeding and refuge.
Anthropogenic activities that cause the compaction or disruption of sand near Yellow Sand-verbena. Examples include repeated tent use or digging.	Results in compaction, removal, or overturning of the soil near Yellow Sand-verbena. This may affect both the surrounding substrate or Yellow Sand-verbena, or both.	Egg laying, larval feeding, larval refuge, larval hibernation, pupation, adult feeding and refuge.
Application of herbicides which may impact Yellow Sand-verbena.	Results in loss or degradation of Yellow Sand-verbena.	Egg laying, larval feeding, adult feeding and refuge.
Deposition of waste materials or fertilizers.	Alteration of soil conditions supporting Yellow Sand-verbena.	Egg laying, larval feeding, larval refuge, larval hibernation, pupation, adult feeding and refuge.
Activities that introduce excess water or reduce water input, to a level that may affect hydrology of the site. Examples include increasing runoff from man-made structures or diverting water via ditching.	Alteration of the moisture regime may reduce the ability of the substrate to support Yellow Sand-verbena.	Egg laying, larval feeding, adult feeding and refuge.
Establishment of major light sources that attract moths and predators.	Light may draw individuals away from important, unlit, patches of habitat.	Egg laying and adult feeding.
Anthropogenic introduction of barriers to sand movement. Examples include fences and dune stabilization structures.	Results in loss or degradation of Yellow Sand-verbena and surrounding substrate.	Egg laying, larval feeding, larval refuge, larval hibernation, pupation, adult feeding and refuge.
Anthropogenic introduction of materials that may bury Yellow Sand-verbena or alter the natural disturbance regime. An example includes augmentation of recreational beaches with imported sand.	Results in burying of Yellow Sand-verbena or alteration of processes such as high tides and wave action required to maintain the surrounding substrate.	Egg laying, larval feeding, larval refuge, larval hibernation, pupation, adult feeding and refuge

4.2 Identification of critical habitat for Seaside Centipede Lichen

4.2.1 Geographic location

Seaside Centipede Lichen occurrences and habitat have been investigated in Pacific Rim NPR since 2001 (NRTHS 2007). Data from 2001 to 2014 was used to identify critical habitat as follows: any habitat that supported a Seaside Centipede Lichen colony greater than 10 thalli (individuals) in any survey year (2001-2014) and had a persistent source of nutrient enrichment (e.g., Sea Lion haulout, midden, or seabird colony) was identified as critical habitat in this action plan (Goward 2001 and 2004; Goward and Wright 2003; Reader and Smith 2006 and 2011; Smith 2009 and 2010; Wright 2004; Parks Canada unpublished data 2015). Critical habitat for Seaside Centipede Lichen occurs in Pacific Rim NPR on Benson Island, Florencia Islet, and Wouwer Island. Along the sections of coastline identified in Appendix D, a 20 m strip of habitat (10 m either side of the top of the beach) is identified as critical habitat for Seaside Centipede Lichen: this area includes the vertical space from sea level to height of the tallest tree in the area. Some branches extend seaward more than 10 m and in this case the entire branch is considered critical habitat.

4.2.2 Biophysical attributes

The Seaside Centipede lichen occupies a very specific habitat and less than 5 thalli are present at most sites throughout its range (British Columbia and Washington; Goward 2001 and 2004; Goward and Wright 2003; Reader and Smith 2006 and 2011; Smith 2009 and 2010; Wright 2004; Parks Canada unpublished data 2015). Large persistent sources of nutrient enrichment are found at a few sites throughout its range such as Benson Island, Florencia Islet, and Wouwer Island in Pacific Rim NPR and at these sites the Seaside Centipede Lichen colonies are larger (in some cases several dozen, and more than 100 in one case).

The population of Seaside Centipede Lichen is believed to be maintained by several main colonies where persistent sources of nutrient enrichment are found (e.g., Sea Lion haul-outs or midden sites). Transitory colonies may survive for a short time on nutrient enrichment from bird droppings (or other source of temporary nutrient enrichment), but will die out once the enrichment stops. While many small transitory colonies have been located they are relatively short-lived and support very few thalli. Only areas with persistent nutrient enrichment are believed necessary to achieve the recovery goals and identified as critical habitat.

The biophysical attributes of critical habitat are as follows:

- Sitka Spruce trees within 10 m of the high tide line.
- Very high moisture (e.g., from frequent fog banks or spindrift).
- Protection from full exposure to maritime conditions (e.g., leeward sides of bays, inlets, islands, and islets, and the sheltered portions of capes, headlands, spits, and peninsulas).

- Persistent nutrient enrichment. Key factors associated with the requirement for nutrient enrichment include basic bedrock geology (calcium rich rock: limestone, dolomites, etc.) and/or secondary nutrient enrichment. Observed sources of persistent secondary nutrient enrichment include:
 - aerosols from breath and scat of sea lions on haul-outs and wintering grounds,
 - fecal bombing from seabirds flying to or from a colony, and
 - Indigenous peoples midden sites.

4.2.3 Examples of activities likely to result in destruction of Seaside Centipede Lichen critical habitat

Table 3: Examples of activities likely to result in the destruction of critical habitat.

Activity	Effect of activity on critical habitat	Most likely sites
Removal of Sitka Spruce trees or branches (e.g., foreshore development for camping, branch pruning or collection for firewood or view improvement).	Effect on the habitat: Such activity will likely result in the direct removal of branches required by Seaside Centipede Lichen or by altering the humidity regime required by the lichen. Seaside Centipede Lichen is a pioneer species and requires a constant supply of new habitat to colonize; removal of branches or trees will limit the availability of habitat for colonization and population maintenance. Vegetation surrounding the Seaside Centipede Lichen occurrences (likely out to several dozen metres or more if present) contributes to creating the correct humidity, ventilation, and winter storm protection. If this vegetation is removed the habitat could become unsuitable and the Seaside Centipede Lichen could become stressed and die.	Benson and Wouwer

4.3 Proposed measures to protect critical habitat

Critical habitat identified in this action plan and in other recovery documents within Pacific Rim NPR will be legally protected from destruction as per section 58 of the 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 total cost to implement the action plan will be borne by Parks Canada out of existing salaries and goods and services dollars. This includes incremental salary costs,

materials, equipment, and contracting of professional services for measures outlined in Appendix B. No major socio-economic costs to partners, stakeholders or Nuu-chah-nulth First Nations 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 Pacific Rim NPR and there will be few new costs. These costs to the government will be covered by prioritization of existing funds and salary dollars at the site and thereby will not result in additional costs to society.

The action plan applies only to lands and waters in Pacific Rim NPR, and does not bring any restrictions to land use outside the park or on First Nation reserve lands that reside within the boundaries of the park. As such, this action plan will place no direct socio-economic costs on the public. However, minor restrictions may be placed on visitor activities on park lands and waters to protect and recover species at risk.

5.2 Benefits

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

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

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

Implementing this action plan is expected to have positive benefits for park visitors, local residents, and Indigenous groups. Some activities in the plan may create opportunities

for local residents to become involved in the recovery of species at risk and for cooperation and community partnerships in SAR recovery. Benefits should be relatively evenly distributed across individuals in local communities, and opportunities for involvement will be available to all local residents. These include opportunities to learn about and take part in the recovery of culturally important species at risk, opportunities for visitors and local communities to be involved in conservation issues, opportunities for integration of Indigenous Traditional Knowledge into conservation issues in Pacific Rim NPR, and greater awareness of Indigenous values and culture among local residents and visitors to the parks.

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

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

Species	National objectives ³	Site-based population & distribution objectives	Population Trend in Pacific Rim NPR ⁴	Population Monitoring ⁵	General information and broad park approach
Pink Sand-verbena	<p>Distribution objectives Long-term (Twenty years): Conserve Pink Sand-verbena throughout its historical range of occurrence in Canada including an extant Clo-oose Bay population and at least two more populations (re)introduced by 2015 near/within the historic range.</p> <p>Short-term (five years): Extant population at Clo-oose Bay.</p> <p>Population objectives Long-term (Twenty years): Protect all existing populations and manage each to ensure it doesn't fall below a minimum viable population size.</p> <p>Short-term (five years): The Clo-oose Bay population is at least a minimum viable population size.</p>	<p>A stable or increasing population is present at Clo-oose Bay.</p> <p>A stable or increasing population is present at one or more additional sites within the park.</p>	Increasing due to recovery efforts of growing and planting individuals.	Key sites are surveyed annually as part of existing ecological integrity monitoring and outlying areas are surveyed biannually and incorporated into the existing monitoring framework at Pacific Rim NPR. The location and size of patches are recorded.	<p>A significant portion of the historic and all of the contemporary national population occurs in Pacific Rim NPR.</p> <p>It is unknown whether current habitat conditions and amounts will support sustainable populations. The current approach is to rebuild and create sustainable populations through habitat restoration and planting/seeding and working with partners.</p>

Species	National objectives ³	Site-based population & distribution objectives	Population Trend in Pacific Rim NPR ⁴	Population Monitoring ⁵	General information and broad park approach
Edwards' Beach Moth	Recovery strategy not yet published.	Edwards' Beach Moth continues to be present.	Unknown (species is known from one survey no repeat data available to determine trends).	Moth surveys in the dunes will be conducted at least once every five years. Dune habitat extent is maintained or increased from March 2015 extent as measured by existing park ecological integrity measures and remote sensing incorporated into the existing monitoring framework at Pacific Rim NPR.	There is no evidence to confirm or deny the continued existence of this population. Lacking any evidence to the contrary this population is assumed to be extant and the broad park approach will be to restore habitat and gather information on population status and habitat needs to determine if the population is extant. As knowledge on specific habitat needs is lacking in the interim it is assumed that general dune habitat restoration will be beneficial in lieu of specific habitat enhancement for Edwards' Beach Moth which will be considered as more information becomes available.

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

⁴ Population trend is over last 5 years (2011-2016).

⁵ Where population and distribution objectives have been established for Pacific Rim NPR, monitoring is designed to directly measure success in achieving those goals; otherwise baseline monitoring efforts necessary for stewardship, management and general reporting are described.

Species	National objectives ³	Site-based population & distribution objectives	Population Trend in Pacific Rim NPR ⁴	Population Monitoring ⁵	General information and broad park approach
Sand-verbena Moth	To increase the size of the four known extant Sand-verbena Moth sub-populations and establish one additional sub-population in Canada.	Sand-verbena moth continues to be present.	Unknown	<p>Moth surveys in the dunes will be conducted at least once every five years.</p> <p>Dune habitat extent is maintained or increased from March 2015 extent as measured by existing park ecological integrity measures and remote sensing incorporated into the existing monitoring framework at Pacific Rim NPR.</p> <p>Area/number of Yellow Sand-verbena (host plant) as measured by existing ecological integrity measures.</p>	There is no evidence to confirm or deny the continued existence of this population. Lacking any evidence to the contrary this population is assumed to be extant and the broad park approach will be to restore habitat and gather information on population status.

Species	National objectives ³	Site-based population & distribution objectives	Population Trend in Pacific Rim NPR ⁴	Population Monitoring ⁵	General information and broad park approach
Northern Abalone	<p>5 yr -- Halt the decline of the existing wild northern abalone population in B.C. in order to reduce the risk of this species becoming endangered.</p> <p>30 yr -- Increase number and densities of wild northern abalone to self-sustainable levels in each biogeographic zone of B.C. (Haida Gwaii, Queen Charlotte and Johnstone Strait, North and Central Coast, Georgia Basin, West Coast of Vancouver Island), in order to remove northern abalone from Endangered status.</p>	Maintain stable or increasing abalone density in Pacific Rim NPR.	Decreasing.	Annual species density and size monitoring by Pacific Rim NPR.	Ensure compliance with regulations within Pacific Rim NPR.
Silky Beach Pea	N/A	<p>Maintain healthy dune ecosystem.</p> <p>Maintain stable or increasing populations of non-transient Silky Beach Pea.</p>	Stable or increasing.	Key sites are surveyed annually as part of existing ecological integrity monitoring and outlying areas are surveyed biannually and incorporated into the existing monitoring framework at Pacific Rim NPR. The location and size of patches are recorded.	Dune habitat restoration will remove invasive species and increase available habitat for dispersal of Silky Beach Pea.

Species	National objectives ³	Site-based population & distribution objectives	Population Trend in Pacific Rim NPR ⁴	Population Monitoring ⁵	General information and broad park approach
All other species at risk not listed above (see Table 1).		No objective established because no threats are known in the park or no Pacific Rim NPR management actions can contribute to conservation within the park and Pacific Rim NPR is of limited importance to the species' national recovery.		Opportunistically record observations and any changes to the status of species at risk in Pacific Rim NPR.	The park will continue to protect individuals and protect suitable habitat on park lands and support partners where feasible on recovery and protection of these species. Additionally, Pacific Rim NPR will work with partners to conduct opportunistic surveys for under-surveyed species in the park and adjust management approaches appropriately when new populations or threats are found.

Appendix B: Conservation and recovery measures that will be conducted by Pacific Rim NPR.

Species	Measure number	Measure	Desired outcome	Threat or conservation/recovery measure addressed ⁶	Timeline
Coastal Ecosystems					
Pink Sand-verbena Edwards' Beach Moth, Sand-verbena Moth, Silky Beach Pea, Yellow Sand-verbena	1	<u>Habitat Conservation</u> : maintain dune habitat by removing European dune grass, tree islands, and beach logs from dunes.	Maintain area containing native dune communities with free sand movement. All previously treated dune habitat is maintained annually. Populations of dune dependant rare plant and animal species remain stable or increase.	Habitat loss and degradation (e.g., dune stabilization and invasive species) (Fairbarns <i>et al.</i> 2007, COSEWIC 2009, Environment Canada 2012, COSEWIC 2013).	Ongoing
Subtidal/Intertidal					

⁶ From existing federal recovery strategies or, when not available, provincial recovery plans or COSEWIC reports.

Species	Measure number	Measure	Desired outcome	Threat or conservation/recovery measure addressed ⁶	Timeline
Northern and Southern Resident Killer Whale	2	<u>Awareness and compliance with regulations</u> : warden patrols and boat checks.	All marine users implement species at risk mitigations.	Disturbance to killer whales (FOC 2011).	Ongoing
Steller Sea Lion			Maintain or decrease current levels of human disturbance around Steller Sea Lion haulout sites.	Disturbance to Sea Lions when on terrestrial habitat (FOC 2010).	
Northern Abalone			Density of Northern Abalone in Pacific Rim NPR is maintained or increased.	Illegal Harvest of Northern Abalone (FOC 2007).	
Olympia Oyster	3	<u>Monitoring</u> : Monitor European Green Crab at Joe's Bay.	Awareness of trends in abundance of European Green Crab at Joe's Bay.	Introduction of non-indigenous predators and parasites (FOC 2009).	Annual
All Ecosystems					
Seaside Centipede Lichen, Red-legged frog, and Western Toad	4	<u>Visitor awareness</u> : provide visitors with information regarding species protection.	Information on site importance to a variety of species and park regulations is available to visitors to Pacific Rim NPR to encourage compliance and minimize human disturbance.	Habitat loss and degradation (NRTHS 2007). Epidemic disease, introduced species, pollutants, habitat loss (COSEWIC 2004, 2002). This activity will also benefit other species such as Edwards' Beach Moth, Sand-verbena Moth, Silky Beach Pea, Yellow Sand-verbena, marine mammals, Marbled Murrelet, and Olympia Oyster.	Annual

Species	Measure number	Measure	Desired outcome	Threat or conservation/recovery measure addressed ⁶	Timeline
All	5	Develop & implement media strategy.	At least one media story highlighting species at risk in Pacific Rim NPR each year.	Public awareness of and support of participation in recovery.	Ongoing
All	6	Incorporate species at risk monitoring and recovery into visitor opportunities.	Foster connection to place by incorporating species at risk content into visitor experience opportunities.	Public awareness of and support of participation in recovery.	Ongoing

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

Species	Measure number	Measure	Desired outcome	Threat or recovery measure addressed
Pink Sand-verbena Edwards' Beach Moth, Sand-verbena Moth, Silky Beach Pea, Yellow Sand-verbena	1	<u>Habitat Conservation</u> : increase dune habitat by removing European dune grass, tree islands, and beach logs from dunes.	Increased area containing native dune communities with free sand movement.	Habitat loss and degradation (e.g., dune stabilization and invasive species) (Fairbarns <i>et al.</i> 2007, COSEWIC 2009, Environment Canada 2012, COSEWIC 2013).
Pink Sand-verbena	2	<u>Population Recovery</u> : Implementing the translocation plan for Pacific Rim NPR.	Clo-oose Bay population and one or more additional populations are present within the park and stable or increasing in size.	Demographic collapse (Fairbarns <i>et al.</i> 2007).

Species	Measure number	Measure	Desired outcome	Threat or recovery measure addressed
All	3	Work with partners to fill knowledge gaps for species at risk found within the park.	Pacific Rim NPR provides opportunities for outside organizations to achieve research goals and a system is in place to identify and fill species at risk knowledge gaps to assess threats.	Lack of data to determine whether action is required.
All	4	Work with partners on species at risk programming and conservation.	<p>Information about Parks Canada and species at risk is available to Canadians at partner locations.</p> <p>Partners contribute to Pacific Rim NPR species at risk goals.</p>	Public awareness of and support of participation in recovery.

Appendix D: Critical habitat maps

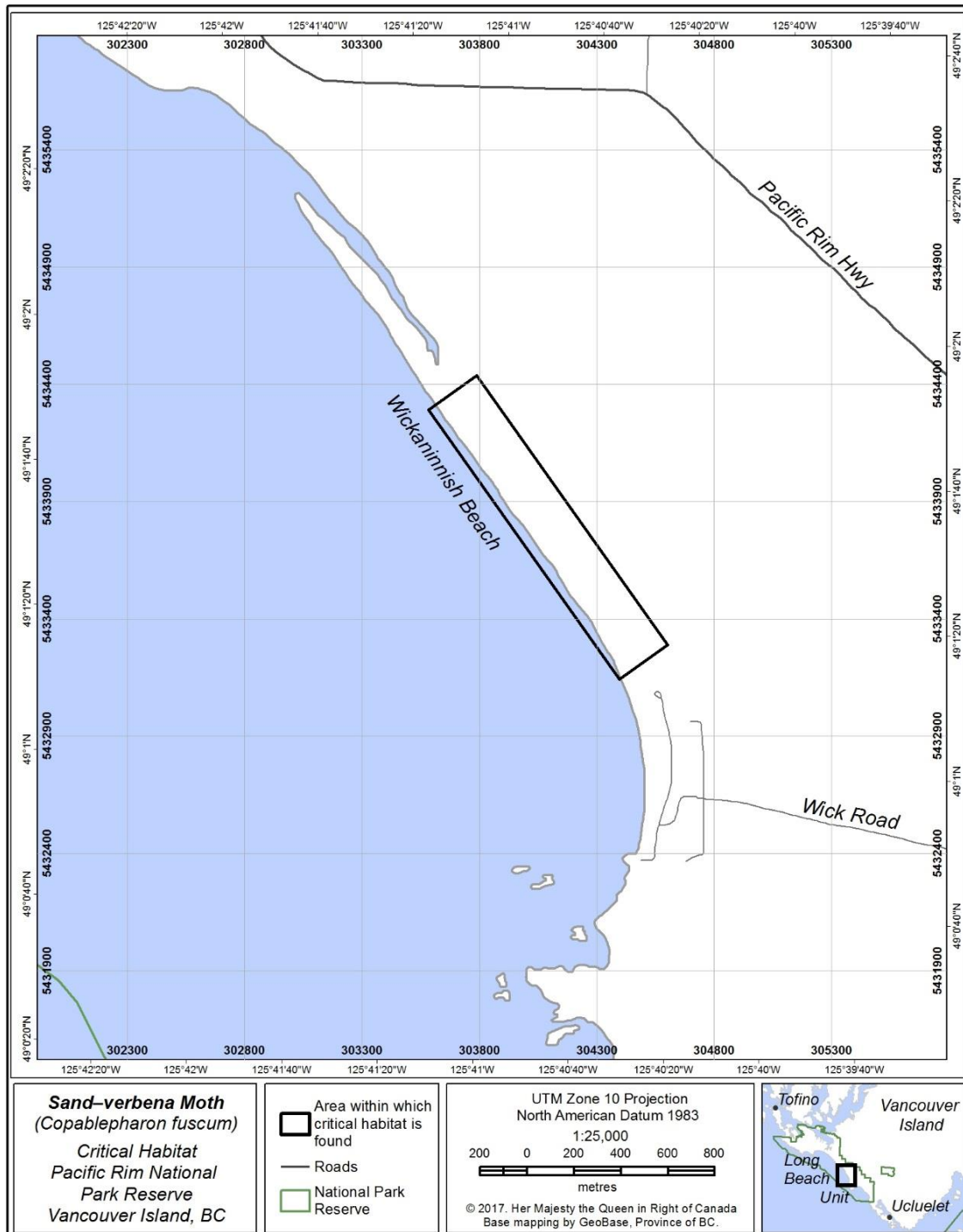


Figure 2: Area (35.6 ha) within which critical habitat for Sand-verbena Moth is found at Pacific Rim National Park Reserve, Long Beach Unit.

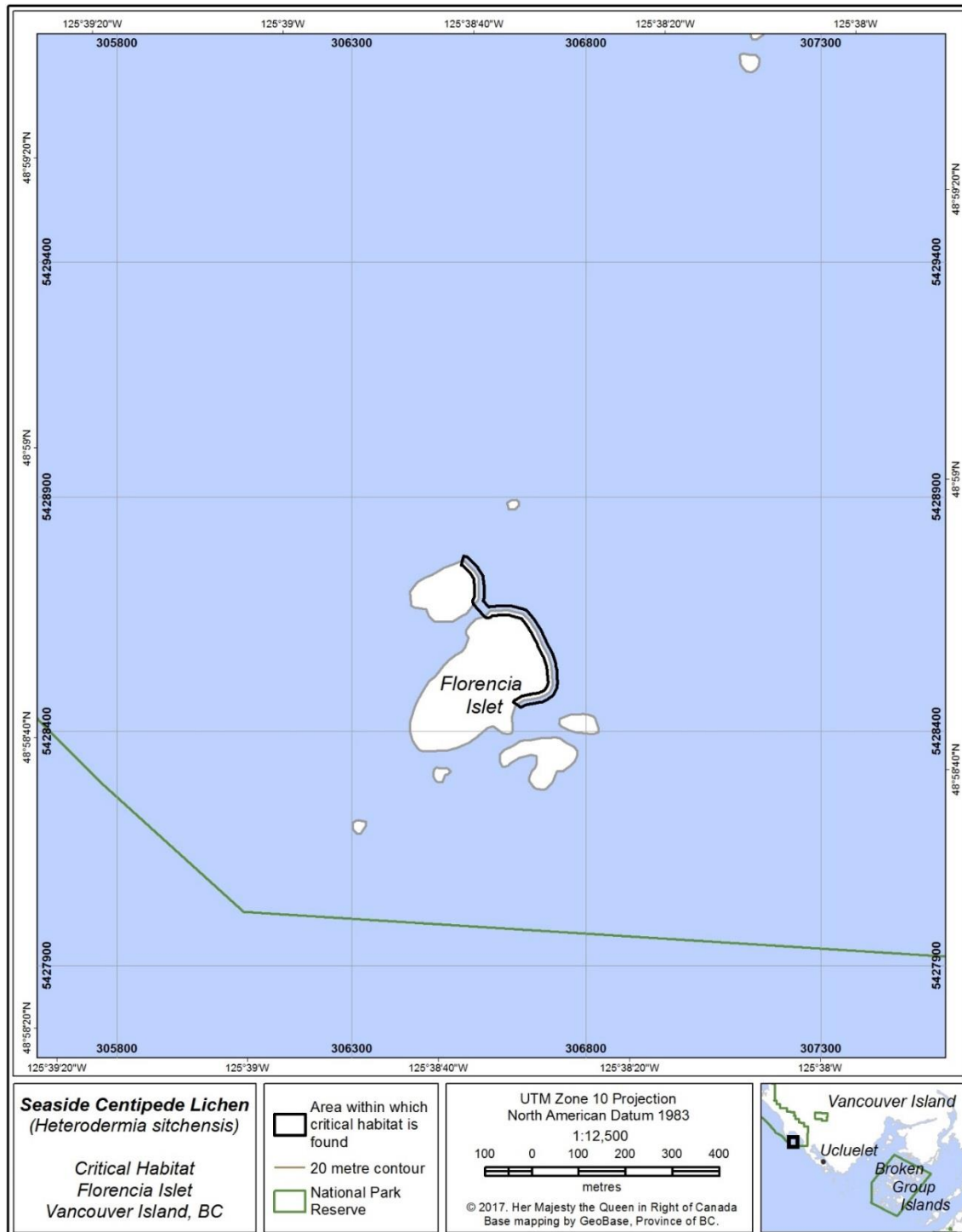


Figure 3: Area (9.5 ha) within which critical habitat is found on Florencia Islet.

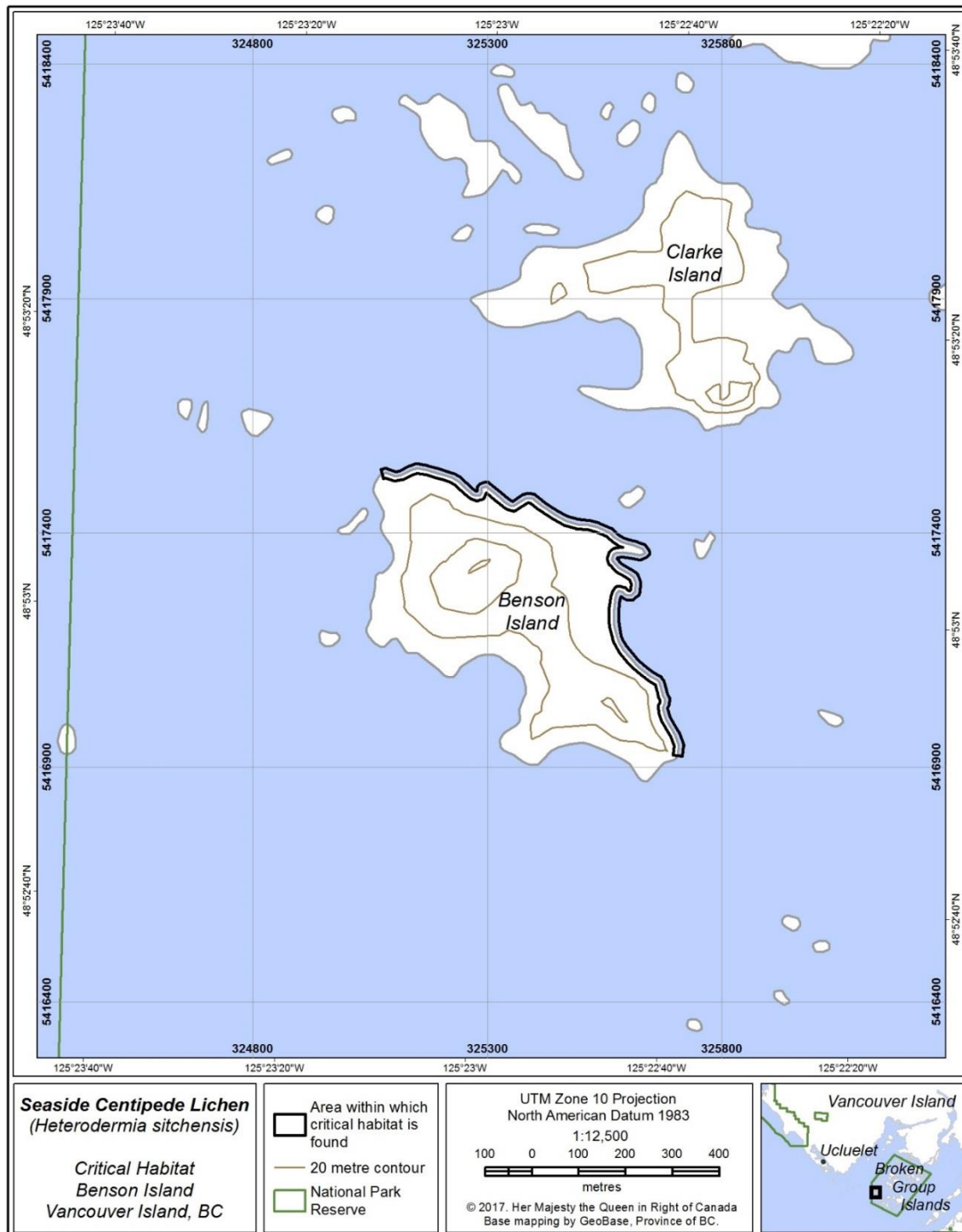


Figure 4: Area (2.5 ha) within which critical habitat is found on Benson Island.

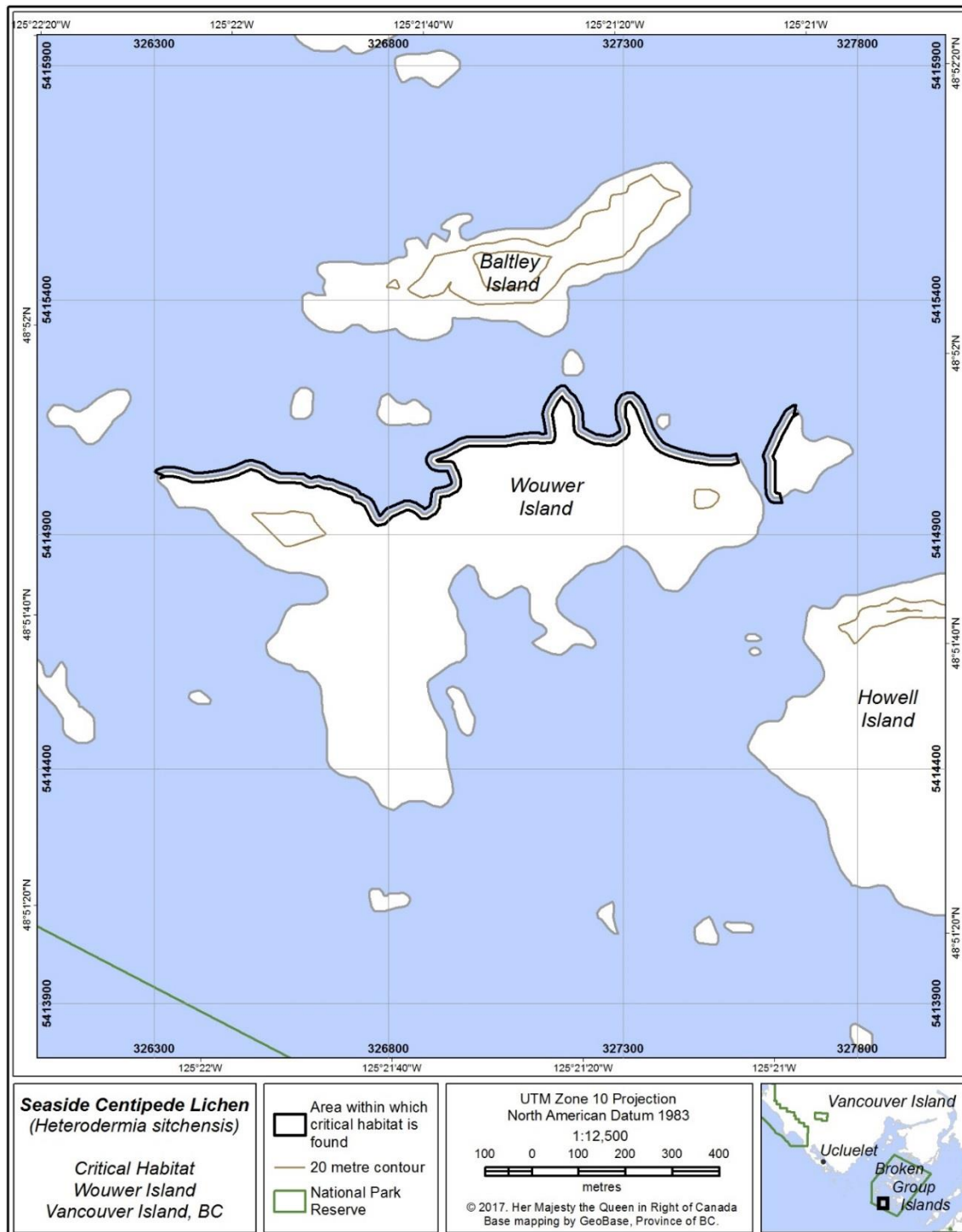


Figure 5: Area (4.0 ha) within which critical habitat is found on Wouwer Island and the small islet east of Wouwer (separated at high tide).

Appendix E: 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](#)⁷ (FSDS) goals and targets.

Recovery planning is intended to benefit species at risk and biodiversity in general. However, it is recognized that implementation of action plans may inadvertently lead to environmental effects beyond the intended benefits. The planning process 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 action plan itself, but are also summarized below in this statement.

Overall, it is anticipated that implementation of this action plan will have a beneficial impact on non-target species, ecological processes, and the environment in Pacific Rim NPR. This plan puts into practice recovery goals presented in recovery strategies already developed for some of the species at risk in this plan, which were subject to SEAs during the development of those documents. Further, this action plan was developed to benefit all species at risk that regularly occur in Pacific Rim NPR; all of these species were considered in the planning process, any potential secondary effects were considered and mitigated, and where appropriate, measures were designed to benefit multiple species. The planning process was also guided by priorities identified in the park's ecological integrity monitoring program and the park's management plan (Parks Canada Agency 2010). Consequently measures outlined in this plan address key management priorities aimed at improving the broader ecological health of the park reserve. Finally, this plan outlines stewardship measures, educational programs, and awareness initiatives that will involve park visitors, local residents, Nuu-chah-nulth First Nations, and the general public. This will lead to greater appreciation, understanding, and action towards the conservation and recovery of species at risk in general.

⁷ www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1